

## **APPENDIX 2.9-2**

*Village 14 and Planning Areas 16 & 19 Project –  
Sweetwater Community Planning Area  
(CPA) Analysis*





**TO:** Mark Slovick, Planning Manager, San Diego County Department of Planning Services  
**FROM:** Stephen Cook, PE, Chen Ryan Associates  
Phuong Nguyen, PE, Chen Ryan Associates  
**DATE:** January 28, 2019  
**RE:** **Village 14 and Planning Areas 16 & 19 Project – Sweetwater Community Planning Area (CPA) Analysis**

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The purpose of this memorandum is to confirm the Draft EIR's conclusion that the Village 14 and Planning Areas 16 & 19 Project (the "Project") will not result in significant traffic impacts within the Bonita neighborhood (Sweetwater community) of the County of San Diego. The data presented in this memorandum provide that confirmation. Specifically, the data demonstrate that the Project will not have a significant impact on intersections located within Bonita during either the morning or evening peak hour, which is the critical criterion for determining impact significance on local roads – including non-Circulation Element roads – such as those in Bonita. Thus, this memorandum confirms the conclusions drawn in the Draft EIR.

The Otay Ranch Village 14 and Planning Areas 16 & 19 Transportation Impact Study (TIS) was completed in July 12, 2018 by Chen Ryan Associates. The study area for the TIS was determined based on the *County of San Diego Report Format and Content Requirements for Transportation and Traffic*, August 2011 and the *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements*, August 2011. Consistent with these two County documents, and as further explained below, the TIS study area did not include intersections within the Bonita neighborhood, as these intersections do not meet the criteria stated in the two guidance documents.

The *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements* require that Circulation Element roadways be analyzed because they provide a high-level assessment of the traffic conditions within the area, generally. As stated in Section 2.2 of the Proposed Project TIS:

These standards are generally used as long-range planning guidelines to determine the functional classification of roadways. The actual capacity of a roadway facility varies according to its physical attributes. Typically, the performance and Level of Service of a roadway segment are heavily influenced by the ability of the arterial intersections to accommodate peak hour volumes. (Emphasis added.)

As noted above, delay at intersections, as opposed to segment traffic volumes, is generally considered by traffic engineers as a reliable indicator of area traffic conditions. The County's guidelines incorporate both of these analytic concepts. For example:

- Section 2.1.3 and Section 3.5 of the *County of San Diego Report Format and Content Requirements for Transportation and Traffic* state that a TIS should include “the intersections of Circulation Element roads and intersections where project-related traffic adds traffic to the right and/or left turn movement and exceeds the peak hour thresholds.” Figure 1 of the *County of San Diego Report Format and Content Requirements for Transportation and Traffic* states that “Traffic impacts for non-Circulation Element roads, pedestrians, bicyclists, and hazards shall be made on a case-by-case basis considering the factors identified in the guidelines for Determining Significance and project screening report.”
- Page 6 of the *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements* states that “Levels of service are not applied with the non-Circulation Element residential road.” Furthermore, Page 13 of the *County of San Diego Guidelines for Determining Significant and Report Format and Content Requirements* considers a project to have a significant impact if “[t]he additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road or State Highway currently operating at LOS E or LOS F, or will cause a Circulation Element Road or State Highway to operate at LOS E or LOS F as a result of the proposed project as identified in Table 1.”

Based on the County of San Diego Sweetwater Mobility Element Network, Proctor Valley Road, between San Miguel Road and San Miguel Ranch Road is classified as a Local Public Road. Since both of the referenced County guideline documents state that the project study area should only include Circulation Element roadways and intersections, and since Proctor Valley Road is not a Circulation Element roadway, the intersections of Proctor Valley Road & San Miguel Road and Proctor Valley Road & San Miguel Ranch Road were not included in the TIS study area. This study area determination was made in consultation with and approved by both County of San Diego and City of Chula Vista traffic engineering staff.

However, in response to an inquiry from County staff regarding Project-related traffic in Bonita, Chen Ryan reviewed the available data to ensure that standard roadway operations would be maintained within the area. In order to provide the most reliable indicator of area traffic conditions, this analysis focused on peak hour intersection operations. Utilizing peak hour intersection operations to determine the overall roadway flow and congestion is standard industry practice. Since intersections are the main conflict point with opposing vehicles, as well as bicycles and pedestrians, they are the point where delay and queuing predominantly occur along a roadway. For this reason, the intersection controls (signal, stop-sign, roundabout, etc.) ultimately meter the flow of traffic entering and exiting the roadway segment. Additionally, peak hour intersection operations, as opposed to 24 hour segment traffic volumes for example, provide a more detailed and accurate analysis of the overall roadway operations, since they provide a worst-case scenario of traffic conditions by focusing on the peak travel times, instead of averaging the segment demand over a 24-hour period. The methods to evaluate intersection operation (based on the 2010 Highway Capacity Manual) are nationally accepted and vetted, and recent iterations of the 2010 Highway Capacity Manual no longer supports or provide guidance for daily roadway segment analysis; instead the Highway Capacity Manual focuses on intersection analysis for non-Highway facilities.

This approach is consistent with my professional experience, and in my judgment is the appropriate method for determining the Project’s effect on the transportation network, including roads within the neighborhood of Bonita.

To respond to County staff’s inquiry, Chen Ryan assessed peak hour traffic at the following five intersections under Existing, Existing Plus Project, Year 2025, and Year 2025 Plus Project scenarios:

- Briarwood Road & Sweetwater Road (Signal)
- Bonita Road & Sweetwater Road (Signal)
- Bonita Road & San Miguel Road (Signal)
- Proctor Valley Road & San Miguel Road (One-Way Stop Control)
- Proctor Valley Road & San Miguel Ranch Road (All-Way Stop Control)

Project trip distribution and assignment were developed using the same methodology as those documented in the TIS. **Figure 1** displays the project trip assignment for the 5 intersections listed above.

**Existing and Existing Plus Project**

Traffic counts for the intersections listed above were conducted in November 2018 by Bearcat Enterprises, LLC. Intersection count worksheets are provided in **Attachment A**. The analysis of signalized and unsignalized intersections utilized the operational analysis procedures as outlined in the 2010 Highway Capacity Manual (HCM). The computerized analysis of intersection operations was performed utilizing SYNCHRO 10.3.55.0. Intersection analysis results for the Existing and Existing Plus Project conditions are presented in **Table 1**, Synchro analysis worksheets are provided in **Attachment B**. Intersection turning movements for both the Existing and Existing Plus Project conditions are provided in Attachment B. As shown, under the Existing plus Project scenario, the addition of Project traffic at each of the supplemental study area intersections would not result in a significant impact.

**Table 1 Peak Hour Intersection Results – Existing Plus Project Buildout Conditions**

#	Intersection	Control	Existing + Project				Existing			Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Δ Avg. Delay (sec.)	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	
1	Briarwood Road & Sweetwater Road	Signal	38.5	D	44.8	D	35.5/36.4	D/D	3.0/8.4	No
2	Bonita Road & Sweetwater Road	Signal	17.6	B	34.7	C	16.1/25.5	B/C	1.5/9.2	No
3	Bonita Road & San Miguel Road	Signal	23.6	C	18.8	B	20.1/17.4	C/B	3.5/1.4	No
4	Proctor Valley Road & San Miguel Road	One-Way Stop Control	13.2	B	15.7	C	12.0/13.8	B/B	1.2/1.9	No

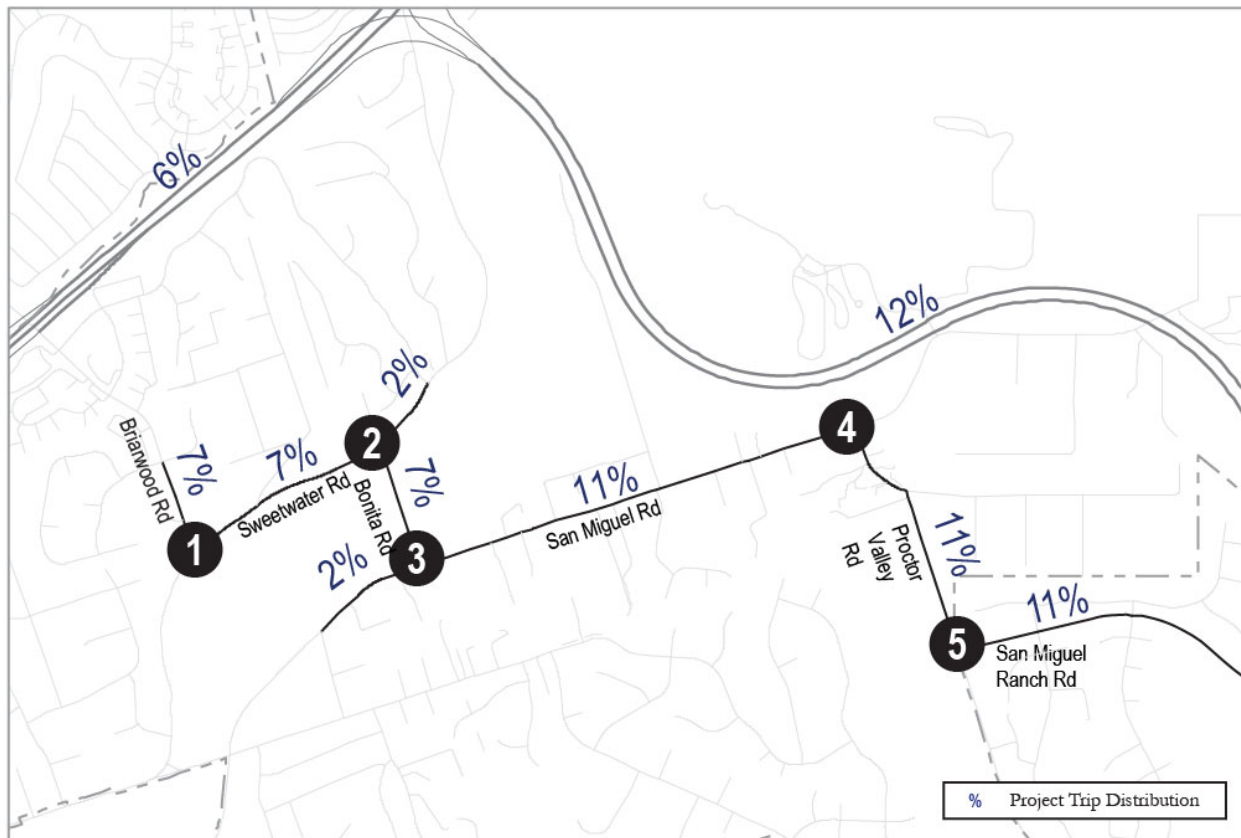
**Table 1 Peak Hour Intersection Results – Existing Plus Project Buildout Conditions**

#	Intersection	Control	Existing + Project				Existing			Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Δ Avg. Delay (sec.)	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	
5	Proctor Valley Road & San Miguel Ranch Road	All-Way Stop Control	10.2	B	15.4	C	9.3/12.3	A/B	0.9/3.1	No

Source: Bearcat Enterprises, LLC; Chen Ryan Associates; January 2019

As shown in Table 1, all 5 intersections continue to operate at an acceptable LOS D or better under the Existing Plus Project conditions. Therefore, based on the *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements*, the Village 14 and Planning Areas 16 & 19 would not have a significant impact on any of the intersections studied in the memorandum under the Existing Plus Project scenario.

**Figure 1 – Proposed Project Trip Distribution**



Source: SANDAG, Chen Ryan Associates; January 2019

**Year 2025 and Year 2025 Plus Project**

Similar to the TIS, the Year 2025 traffic volumes were developed by applying the yearly growth rate obtained from the same Series 11 Year 2025 model documented in the TIS. Table 2 displays the intersection analysis results for the Year 2025 and Year 2025 Plus Project conditions, Synchro analysis worksheets are provide in Attachment C. Year 2025 and Year 2025 Plus Project intersection turning movements are provided in Attachment C.

**Table 2 Peak Hour Intersection Results – Year 2025 Plus Project Buildout Conditions**

#	Intersection	Control	2025 + Project				2025			Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Δ Avg. Delay (sec.)	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	
1	Briarwood Road & Sweetwater Road	Signal	48.2	D	53.3	D	40.3/47.7	D/D	7.9/5.6	No
2	Bonita Road & Sweetwater Road	Signal	42.7	D	53.4	D	34.5/48.3	C/D	8.2/5.1	No
3	Bonita Road & San Miguel Road	Signal	51.9	D	43.7	D	43.2/34.1	D/C	8.7/9.6	No
4	Proctor Valley Road & San Miguel Road	One-Way Stop Control	32.3	D	33.3	D	23.0/24.1	C/C	9.3/9.2	No
5	Proctor Valley Road & San Miguel Ranch Road	All-Way Stop Control	17.6	C	33.8	D	14.2/19.8	B/C	3.4/14.0	No

Source: Bearcat Enterprises, LLC; Chen Ryan Associates; January 2019

As shown in Table 2, all 5 intersections continue to operate at acceptable LOS D or better under the Year 2025 Plus Project conditions. Therefore, based on the *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements*, Village 14 and Planning Areas 16 & 19 would not have a significant impact to any of the intersections within the Sweetwater CPA.

**Conclusion**

The data and analysis presented in this memorandum demonstrate that the Project will not result in significant impacts on intersections within Bonita and thus will not cause significant congestion on any road within Bonita. This finding is consistent with the conclusion drawn in the Draft EIR. Moreover, this finding conforms to expectation, in that the Project is consistent with the County General Plan and does not increase development density or intensity beyond what the General Plan or the County’s Transportation Impact Fee (TIF) program contemplate.

Attachment A – Intersection Turning Movements



## Intersection Turning Movement - Peak Hour Vehicle Count

**Chen**  
**Ryan**  
**Associates**

Location: #01	File Name: ITM-18-148-01
Intersection: Briarwood Road & Sweetwater Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita

AM	Briarwood Road Southbound			Sweetwater Road Westbound			-			Sweetwater Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	51	0	107	0	9	74	0	0	0	195	10	0	446
7:15	57	0	131	0	14	68	0	0	0	132	22	0	424
7:30	50	0	158	0	19	71	0	0	0	135	10	0	443
7:45	41	0	172	0	17	72	0	0	0	133	4	0	439
8:00	48	0	143	0	22	68	0	0	0	137	9	0	427
8:15	49	0	164	0	16	60	0	0	0	122	17	0	428
8:30	31	0	124	0	18	46	0	0	0	165	18	0	402
8:45	40	0	107	0	21	52	0	0	0	140	12	0	372
<b>Total</b>	<b>367</b>	<b>0</b>	<b>1106</b>	<b>0</b>	<b>136</b>	<b>511</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1159</b>	<b>102</b>	<b>0</b>	<b>3381</b>
Approach%	24.9	-	75.1	-	21.0	79.0	-	-	-	91.9	8.1	-	
Total%	10.9	-	32.7	-	4.0	15.1	-	-	-	34.3	3.0	-	

**AM Intersection Peak Hour: 07:00 to 08:00**

Volume	199	-	568	-	59	285	-	-	-	595	46	-	1,752
Approach%	25.9	-	74.1	-	17.2	82.8	-	-	-	92.8	7.2	-	
Total%	11.4	-	32.4	-	3.4	16.3	-	-	-	34.0	2.6	-	
PHF			0.90			0.96			#DIV/0!			0.78	0.98

PM	Briarwood Road Southbound			Sweetwater Road Westbound			-			Sweetwater Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	75	0	149	0	16	57	0	0	0	123	16	0	436
16:15	70	0	154	0	11	70	0	0	0	109	15	0	429
16:30	56	0	143	0	13	39	0	0	0	99	18	0	368
16:45	91	0	179	0	17	75	0	0	0	106	10	0	478
17:00	95	0	202	0	14	74	0	0	0	134	14	0	533
17:15	121	0	175	0	9	85	0	0	0	144	21	0	555
17:30	105	0	166	0	14	73	0	0	0	143	21	0	522
17:45	89	0	182	0	17	50	0	0	0	93	9	0	440
<b>Total</b>	<b>702</b>	<b>0</b>	<b>1350</b>	<b>0</b>	<b>111</b>	<b>523</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>951</b>	<b>124</b>	<b>0</b>	<b>3761</b>
Approach%	34.2	-	65.8	-	17.5	82.5	-	-	-	88.5	11.5	-	
Total%	18.7	-	35.9	-	3.0	13.9	-	-	-	25.3	3.3	-	

**PM Intersection Peak Hour: 16:45 to 17:45**

Volume	412	-	722	-	54	307	-	-	-	527	66	-	2,088
Approach%	36.3	-	63.7	-	15.0	85.0	-	-	-	88.9	11.1	-	
Total%	19.7	-	34.6	-	2.6	14.7	-	-	-	25.2	3.2	-	
PHF			0.95			0.96			#DIV/0!			0.90	0.94

## Intersection Turning Movement - Bicycle & Pedestrian Count

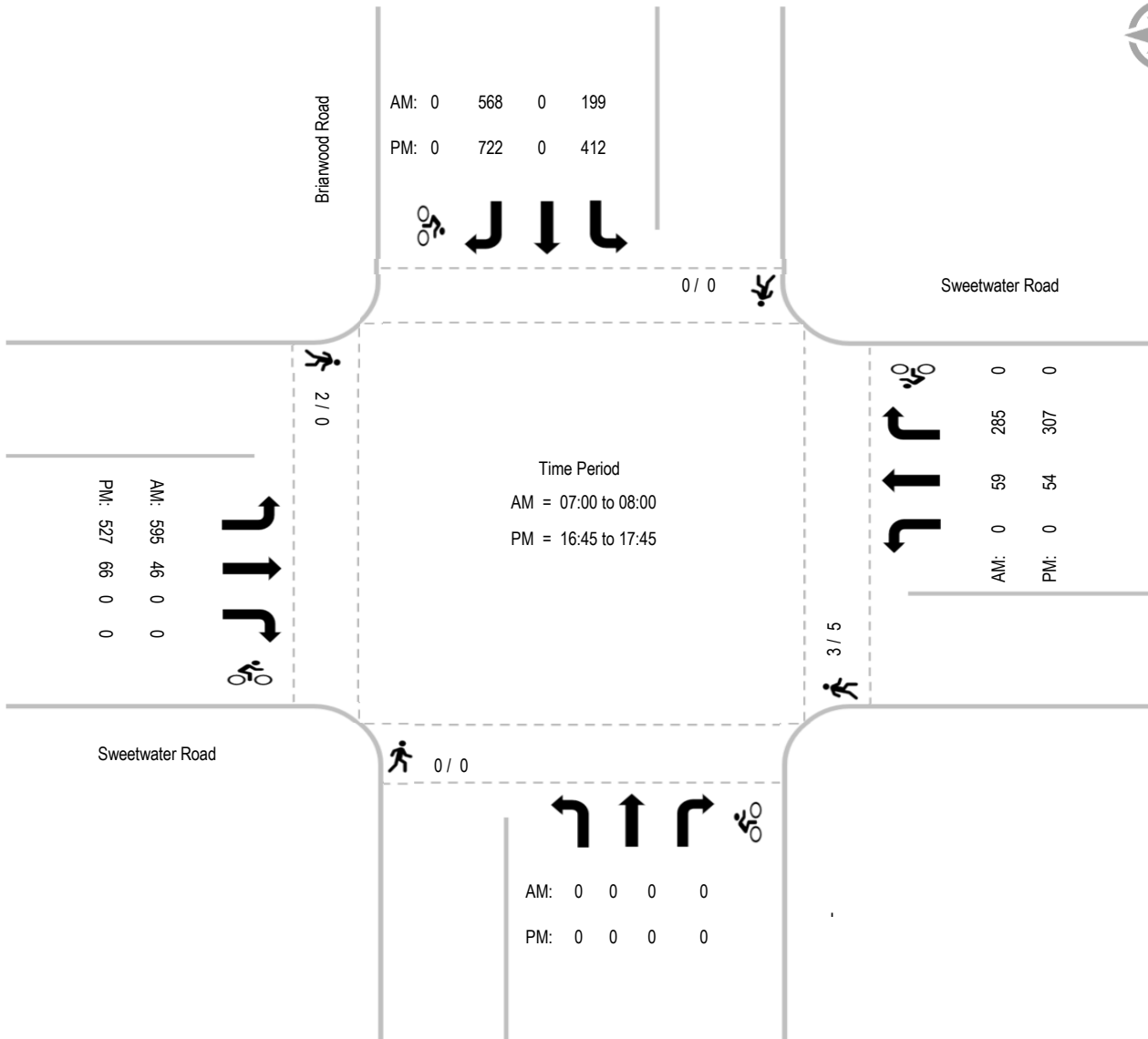
<b>Chen</b>	Location: #01	File Name: ITM-18-148-01
<b>Ryan</b>	Intersection: Briarwood Road & Sweetwater Road	Project: C-R Ref. 11-08-2018
<b>Associates</b>	Date of Count: Thursday, November 08, 2018	Bonita

AM	Briarwood Road Southbound				Sweetwater Road Westbound				- Northbound				Sweetwater Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3	0
7:15	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				3				0				2				5	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Briarwood Road Southbound				Sweetwater Road Westbound				- Northbound				Sweetwater Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
16:30	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	0				5				0				0				5	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Chen  
 Ryan  
 Associates

Location: #01	File Name: ITM-18-148-01
Intersection: Briarwood Road & Sweetwater Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita



## Intersection Turning Movement - Peak Hour Vehicle Count

**Chen**  
**Ryan**  
**Associates**

Location: #02	File Name: ITM-18-148-02
Intersection: Bonita Road & Sweetwater Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita

AM	Bonita Road Southbound			Sweetwater Road Westbound			Bonita Road Northbound			Sweetwater Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	1	0	0	78	17	1	49	0	129	0	11	51	337
7:15	0	0	0	69	20	0	56	0	114	0	19	45	323
7:30	0	0	0	86	13	0	61	0	110	0	15	48	333
7:45	0	1	0	83	20	1	70	0	93	0	8	29	305
8:00	0	0	0	56	21	0	54	0	85	1	8	43	268
8:15	0	0	0	82	21	0	47	1	64	0	16	37	268
8:30	1	0	0	47	17	0	43	0	79	0	22	32	241
8:45	0	0	0	72	26	0	44	0	76	0	17	23	258
<b>Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>573</b>	<b>155</b>	<b>2</b>	<b>424</b>	<b>1</b>	<b>750</b>	<b>1</b>	<b>116</b>	<b>308</b>	<b>2333</b>
Approach%	66.7	33.3	-	78.5	21.2	0.3	36.1	0.1	63.8	0.2	27.3	72.5	
Total%	0.1	0.0	-	24.6	6.6	0.1	18.2	0.0	32.1	0.0	5.0	13.2	

**AM Intersection Peak Hour: 07:00 to 08:00**

Volume	1	1	-	316	70	2	236	-	446	-	53	173	1,298
Approach%	50.0	50.0	-	81.4	18.0	0.5	34.6	-	65.4	-	23.5	76.5	
Total%	0.1	0.1	-	24.3	5.4	0.2	18.2	-	34.4	-	4.1	13.3	
PHF			0.50			0.93			0.96			0.88	0.96

PM	Bonita Road Southbound			Sweetwater Road Westbound			Bonita Road Northbound			Sweetwater Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	1	77	25	0	46	0	104	1	22	57	333
16:15	0	0	0	100	25	0	69	0	89	1	21	62	367
16:30	0	1	0	75	27	0	42	0	94	0	18	72	329
16:45	0	0	0	100	25	0	56	1	121	0	19	82	404
17:00	0	2	0	120	30	1	64	0	90	0	21	72	400
17:15	0	0	0	84	25	0	45	0	109	0	25	81	369
17:30	0	0	0	68	21	2	51	0	66	0	25	76	309
17:45	0	0	0	86	16	0	41	0	87	0	16	74	320
<b>Total</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>710</b>	<b>194</b>	<b>3</b>	<b>414</b>	<b>1</b>	<b>760</b>	<b>2</b>	<b>167</b>	<b>576</b>	<b>2831</b>
Approach%	-	75.0	25.0	78.3	21.4	0.3	35.2	0.1	64.7	0.3	22.4	77.3	
Total%	-	0.1	0.0	25.1	6.9	0.1	14.6	0.0	26.8	0.1	5.9	20.3	

**PM Intersection Peak Hour: 16:30 to 17:30**

Volume	-	3	-	379	107	1	207	1	414	-	83	307	1,502
Approach%	-	100.0	-	77.8	22.0	0.2	33.3	0.2	66.6	-	21.3	78.7	
Total%	-	0.2	-	25.2	7.1	0.1	13.8	0.1	27.6	-	5.5	20.4	
PHF			0.38			0.81			0.87			0.92	0.93

## Intersection Turning Movement - Bicycle & Pedestrian Count

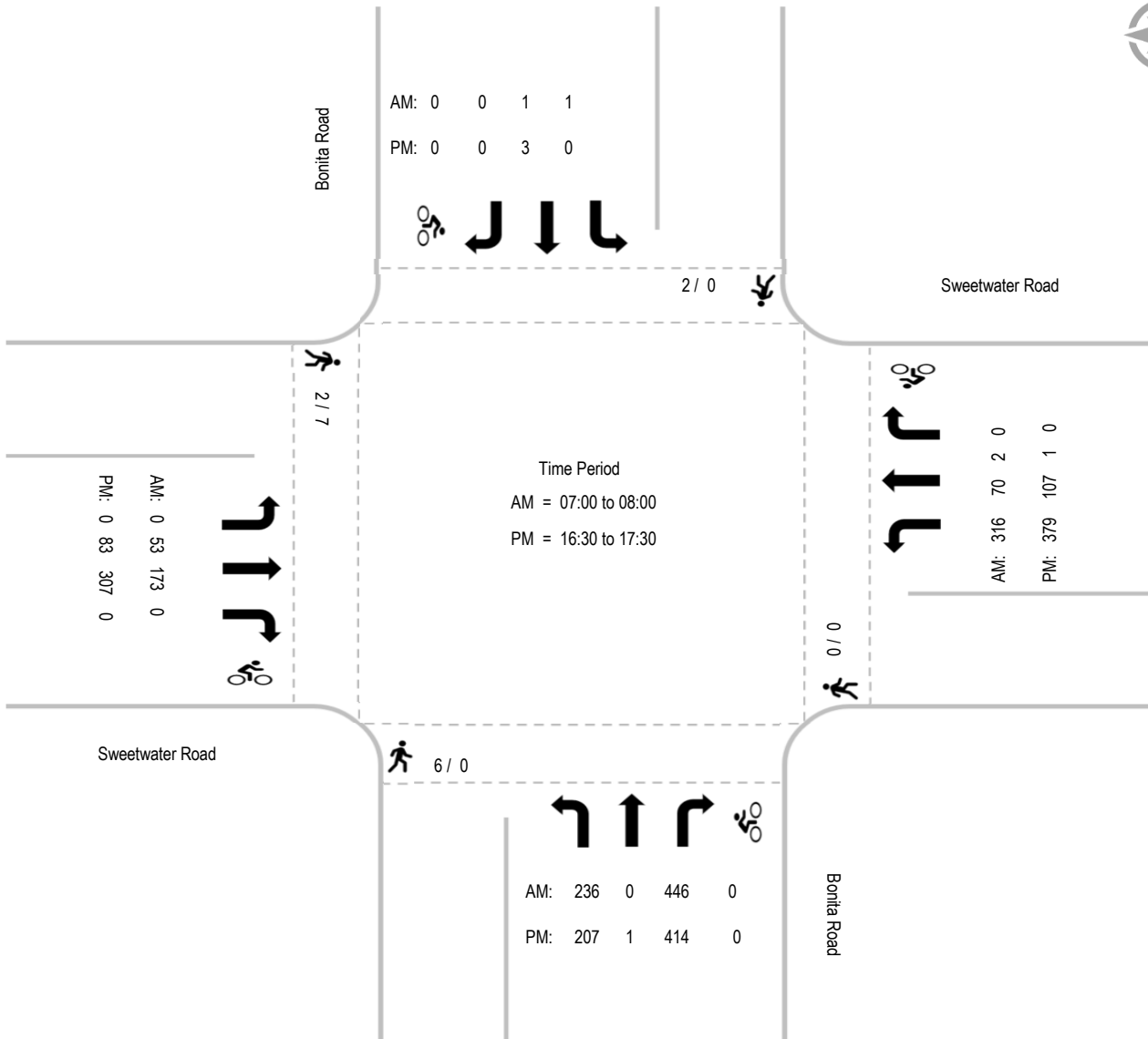
<b>Chen</b>	Location: #02	File Name: ITM-18-148-02
<b>Ryan</b>	Intersection: Bonita Road & Sweetwater Road	Project: C-R Ref. 11-08-2018
<b>Associates</b>	Date of Count: Thursday, November 08, 2018	Bonita

AM	Bonita Road Southbound				Sweetwater Road Westbound				Bonita Road Northbound				Sweetwater Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0
7:15	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0
7:30	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	3	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Ped Total	2				0				6				2				10	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Bonita Road Southbound				Sweetwater Road Westbound				Bonita Road Northbound				Sweetwater Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0
Ped Total	0				0				0				7				7	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Chen  
 Ryan  
 Associates

Location: #02	File Name: ITM-18-148-02
Intersection: Bonita Road & Sweetwater Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita



## Intersection Turning Movement - Peak Hour Vehicle Count

**Chen**  
**Ryan**  
**Associates**

Location: #03	File Name: ITM-18-148-03
Intersection: Bonita Road & San Miguel Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita

AM	Bonita Road Southbound			San Miguel Road Westbound			- Northbound			San Miguel Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	73	0	38	0	29	77	0	0	0	93	41	0	351
7:15	74	0	42	0	40	83	0	0	0	80	70	0	389
7:30	70	0	64	0	81	94	0	0	0	78	51	0	438
7:45	40	0	61	0	63	79	0	0	0	60	23	0	326
8:00	45	0	58	0	41	62	0	0	0	61	17	0	284
8:15	46	0	53	0	22	49	0	0	0	71	20	0	261
8:30	36	0	49	0	23	56	0	0	0	62	15	0	241
8:45	37	0	43	0	20	51	0	0	0	60	20	0	231
<b>Total</b>	<b>421</b>	<b>0</b>	<b>408</b>	<b>0</b>	<b>319</b>	<b>551</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>565</b>	<b>257</b>	<b>0</b>	<b>2521</b>
Approach%	50.8	-	49.2	-	36.7	63.3	-	-	-	68.7	31.3	-	
Total%	16.7	-	16.2	-	12.7	21.9	-	-	-	22.4	10.2	-	

**AM Intersection Peak Hour: 07:00 to 08:00**

Volume	257	-	205	-	213	333	-	-	-	311	185	-	1,504
Approach%	55.6	-	44.4	-	39.0	61.0	-	-	-	62.7	37.3	-	
Total%	17.1	-	13.6	-	14.2	22.1	-	-	-	20.7	12.3	-	
PHF			0.86			0.78			#DIV/0!			0.83	0.86

PM	Bonita Road Southbound			San Miguel Road Westbound			- Northbound			San Miguel Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	79	0	63	0	30	48	0	0	0	96	46	0	362
16:15	68	0	69	0	29	73	0	0	0	76	37	0	352
16:30	87	0	62	0	36	43	0	0	0	89	44	0	361
16:45	82	0	56	0	32	50	0	0	0	105	36	0	361
17:00	82	0	77	0	35	67	0	0	0	83	42	0	386
17:15	83	0	63	0	27	45	0	0	0	106	47	0	371
17:30	71	0	46	0	27	47	0	0	0	64	42	0	297
17:45	80	0	65	0	21	49	0	0	0	77	44	0	336
<b>Total</b>	<b>632</b>	<b>0</b>	<b>501</b>	<b>0</b>	<b>237</b>	<b>422</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>696</b>	<b>338</b>	<b>0</b>	<b>2826</b>
Approach%	55.8	-	44.2	-	36.0	64.0	-	-	-	67.3	32.7	-	
Total%	22.4	-	17.7	-	8.4	14.9	-	-	-	24.6	12.0	-	

**PM Intersection Peak Hour: 16:30 to 17:30**

Volume	334	-	258	-	130	205	-	-	-	383	169	-	1,479
Approach%	56.4	-	43.6	-	38.8	61.2	-	-	-	69.4	30.6	-	
Total%	22.6	-	17.4	-	8.8	13.9	-	-	-	25.9	11.4	-	
PHF			0.93			0.82			#DIV/0!			0.90	0.96

## Intersection Turning Movement - Bicycle & Pedestrian Count

**Chen**  
**Ryan**  
**Associates**

	Location: #03	File Name: ITM-18-148-03
	Intersection: Bonita Road & San Miguel Road	Project: C-R Ref. 11-08-2018
	Date of Count: Thursday, November 08, 2018	Bonita

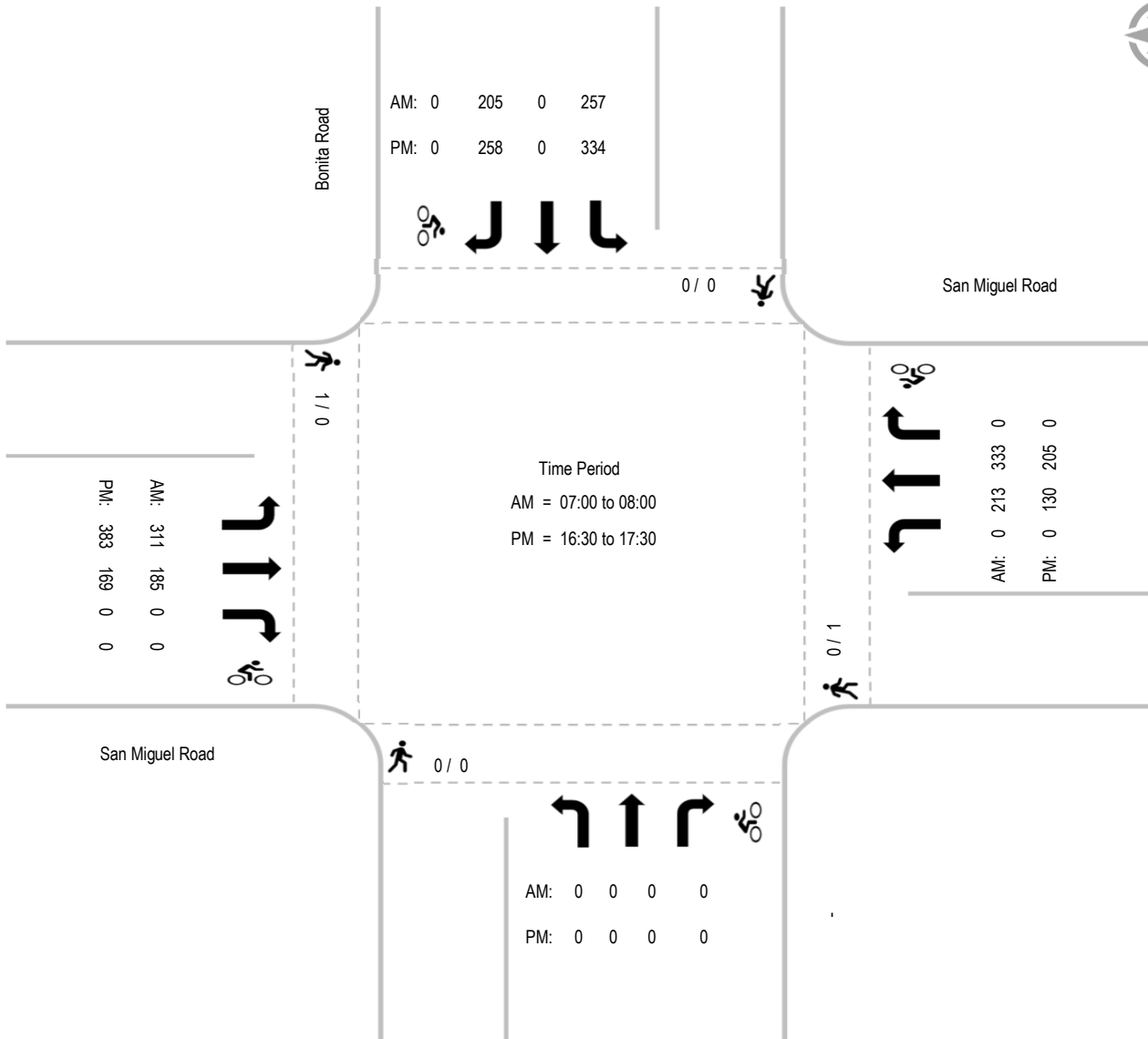
AM	Bonita Road Southbound				San Miguel Road Westbound				- Northbound				San Miguel Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				1				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Bonita Road Southbound				San Miguel Road Westbound				- Northbound				San Miguel Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				1				0				0				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0



Chen  
 Ryan  
 Associates

Location: #03	File Name: ITM-18-148-03
Intersection: Bonita Road & San Miguel Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita



## Intersection Turning Movement - Peak Hour Vehicle Count

<b>Chen</b>	Location: #04	File Name: ITM-18-148-04
<b>Ryan</b>	Intersection: Proctor Valley Road & San Miguel Road	Project: C-R Ref. 11-08-2018
<b>Associates</b>	Date of Count: Thursday, November 08, 2018	Bonita

AM	-			San Miguel Road			Proctor Valley Road			San Miguel Road			Total
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	0	6	0	72	0	1	0	5	51	135
7:15	0	0	0	0	17	0	72	0	1	0	12	40	142
7:30	0	0	0	0	12	0	58	0	2	0	2	43	117
7:45	0	0	0	2	8	0	74	0	0	0	4	48	136
8:00	0	0	0	2	6	0	59	0	1	0	11	50	129
8:15	0	0	0	2	10	0	59	0	0	0	9	44	124
8:30	0	0	0	2	7	0	60	0	1	0	9	28	107
8:45	0	0	0	1	8	0	41	0	1	0	4	47	102
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>74</b>	<b>0</b>	<b>495</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>56</b>	<b>351</b>	<b>992</b>
Approach%	-	-	-	10.8	89.2	-	98.6	-	1.4	-	13.8	86.2	
Total%	-	-	-	0.9	7.5	-	49.9	-	0.7	-	5.6	35.4	

**AM Intersection Peak Hour: 07:00 to 08:00**

Volume	-	-	-	2	43	-	276	-	4	-	23	182	530
Approach%	-	-	-	4.4	95.6	-	98.6	-	1.4	-	11.2	88.8	
Total%	-	-	-	0.4	8.1	-	52.1	-	0.8	-	4.3	34.3	
PHF			#DIV/0!			0.66			0.95			0.92	0.93

PM	-			San Miguel Road			Proctor Valley Road			San Miguel Road			Total
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	1	3	0	38	0	4	0	10	94	150
16:15	0	0	0	1	7	0	66	0	4	0	9	92	179
16:30	0	0	0	1	10	0	50	0	2	0	15	90	168
16:45	0	0	0	1	10	0	60	0	1	0	13	96	181
17:00	0	0	0	0	5	0	72	0	0	0	12	109	198
17:15	0	0	0	5	7	0	57	0	1	0	7	107	184
17:30	0	0	0	0	7	0	66	0	6	0	10	102	191
17:45	0	0	0	2	7	0	39	0	3	0	13	83	147
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>56</b>	<b>0</b>	<b>448</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>89</b>	<b>773</b>	<b>1398</b>
Approach%	-	-	-	16.4	83.6	-	95.5	-	4.5	-	10.3	89.7	
Total%	-	-	-	0.8	4.0	-	32.0	-	1.5	-	6.4	55.3	

**PM Intersection Peak Hour: 16:45 to 17:45**

Volume	-	-	-	6	29	-	255	-	8	-	42	414	754
Approach%	-	-	-	17.1	82.9	-	97.0	-	3.0	-	9.2	90.8	
Total%	-	-	-	0.8	3.8	-	33.8	-	1.1	-	5.6	54.9	
PHF			#DIV/0!			0.73			0.91			0.94	0.95

## Intersection Turning Movement - Bicycle & Pedestrian Count

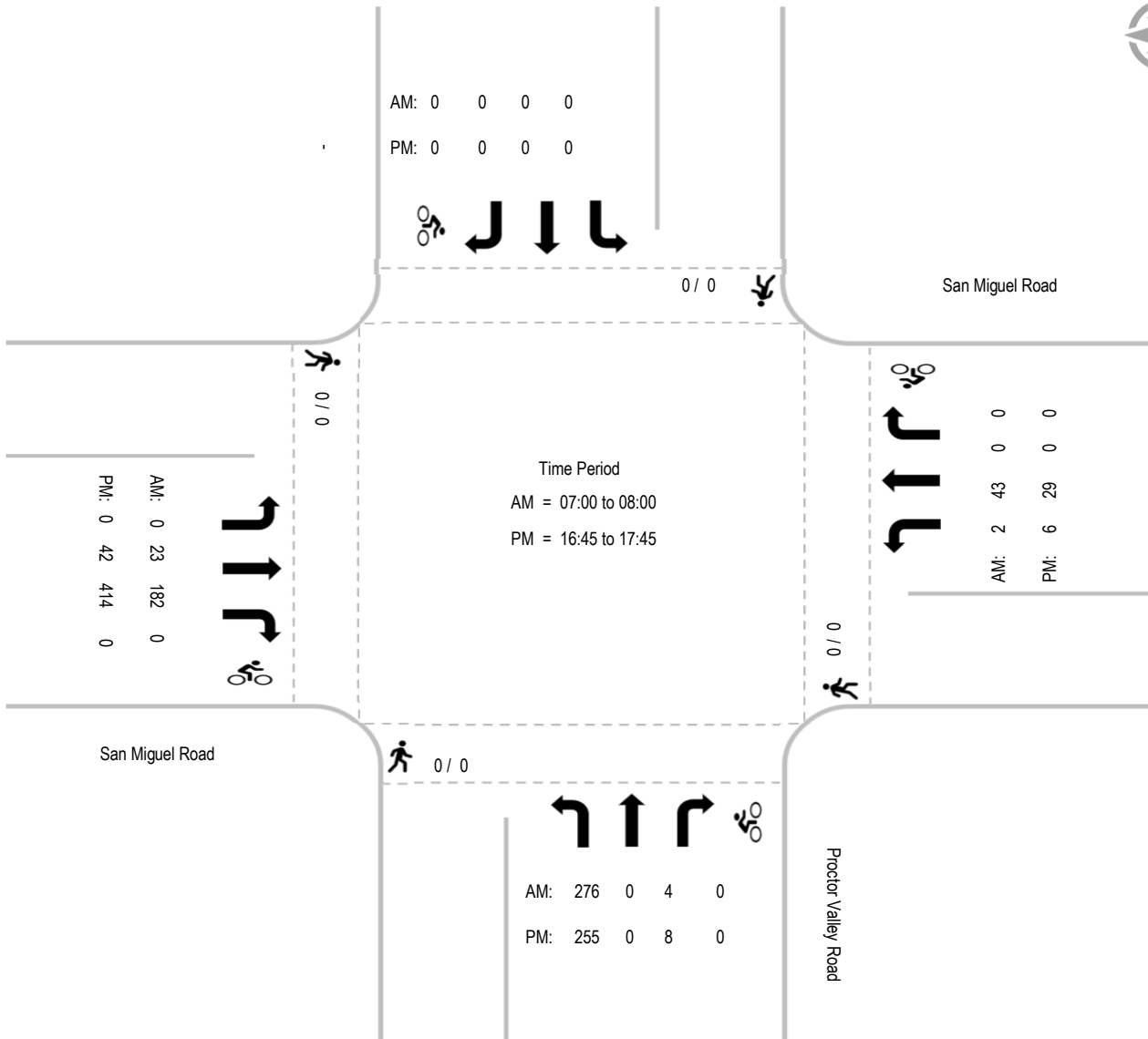
<b>Chen</b>	Location: #04	File Name: ITM-18-148-04
<b>Ryan</b>	Intersection: Proctor Valley Road & San Miguel Road	Project: C-R Ref. 11-08-2018
<b>Associates</b>	Date of Count: Thursday, November 08, 2018	Bonita

AM	- Southbound				San Miguel Road Westbound				Proctor Valley Road Northbound				San Miguel Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	- Southbound				San Miguel Road Westbound				Proctor Valley Road Northbound				San Miguel Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Chen  
 Ryan  
 Associates

Location: #04	File Name: ITM-18-148-04
Intersection: Proctor Valley Road & San Miguel Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita



## Intersection Turning Movement - Peak Hour Vehicle Count

**Chen**  
**Ryan**  
**Associates**

Location: #05	File Name: ITM-18-148-05
Intersection: Proctor Valley Road & San Miguel Ranch Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita

AM	Proctor Valley Road Southbound			San Miguel Ranch Road Westbound			Proctor Valley Road Northbound			- Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	54	0	0	0	0	57	0	1	0	0	0	0	112
7:15	42	2	0	0	0	73	0	2	3	0	0	0	122
7:30	38	1	0	0	0	64	0	4	1	0	0	0	108
7:45	48	1	0	2	0	64	0	2	1	0	0	0	118
8:00	34	0	0	1	0	57	0	3	0	0	0	0	95
8:15	42	1	0	0	0	59	0	0	0	0	0	0	102
8:30	31	0	0	1	0	51	0	1	0	0	0	0	84
8:45	45	1	0	0	0	43	0	1	0	0	0	0	90
<b>Total</b>	<b>334</b>	<b>6</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>468</b>	<b>0</b>	<b>14</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>831</b>
Approach%	98.2	1.8	-	0.8	-	99.2	-	73.7	26.3	-	-	-	
Total%	40.2	0.7	-	0.5	-	56.3	-	1.7	0.6	-	-	-	

**AM Intersection Peak Hour: 07:00 to 08:00**

Volume	182	4	-	2	-	258	-	9	5	-	-	-	460
Approach%	97.8	2.2	-	0.8	-	99.2	-	64.3	35.7	-	-	-	
Total%	39.6	0.9	-	0.4	-	56.1	-	2.0	1.1	-	-	-	
PHF			0.86			0.89			0.70			#DIV/0!	0.94

PM	Proctor Valley Road Southbound			San Miguel Ranch Road Westbound			Proctor Valley Road Northbound			- Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	90	2	0	0	0	50	0	1	0	0	0	0	143
16:15	80	2	0	0	0	65	0	2	0	0	0	0	149
16:30	94	1	0	0	0	59	0	4	0	0	0	0	158
16:45	95	4	0	0	0	50	0	3	0	0	0	0	152
17:00	106	0	0	0	0	57	0	3	0	0	0	0	166
17:15	102	1	0	0	0	51	0	0	0	0	0	0	154
17:30	106	0	0	0	0	55	0	2	1	0	0	0	164
17:45	86	0	0	1	0	42	0	0	0	0	0	0	129
<b>Total</b>	<b>759</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>429</b>	<b>0</b>	<b>15</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1215</b>
Approach%	98.7	1.3	-	0.2	-	99.8	-	93.8	6.3	-	-	-	
Total%	62.5	0.8	-	0.1	-	35.3	-	1.2	0.1	-	-	-	

**PM Intersection Peak Hour: 16:45 to 17:45**

Volume	409	5	-	-	-	213	-	8	1	-	-	-	636
Approach%	98.8	1.2	-	-	-	100.0	-	88.9	11.1	-	-	-	
Total%	64.3	0.8	-	-	-	33.5	-	1.3	0.2	-	-	-	
PHF			0.98			0.93			0.75			#DIV/0!	0.96

## Intersection Turning Movement - Bicycle & Pedestrian Count

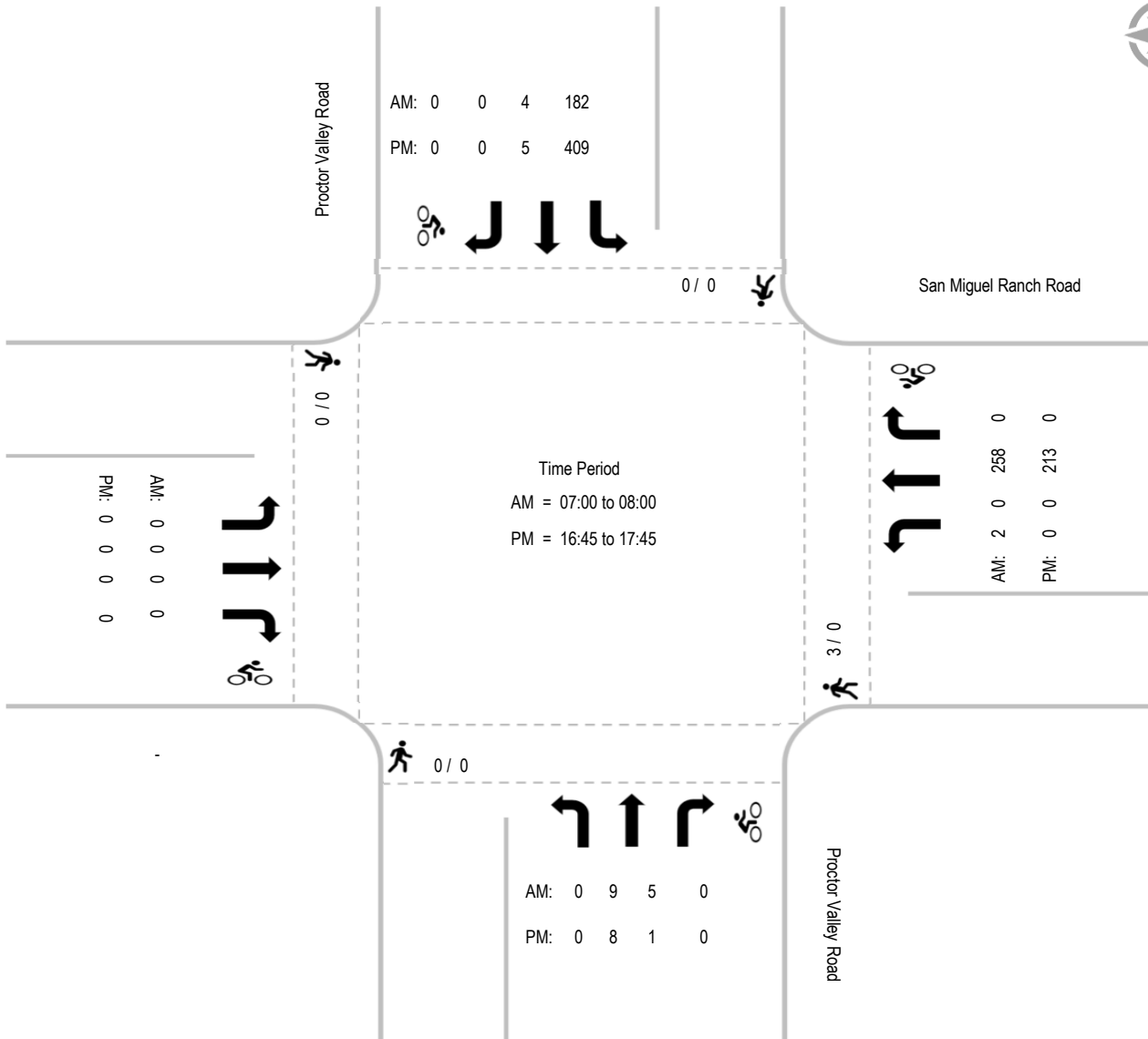
<b>Chen</b>	Location: #05	File Name: ITM-18-148-05
<b>Ryan</b>	Intersection: Proctor Valley Road & San Miguel Ranch Road	Project: C-R Ref. 11-08-2018
<b>Associates</b>	Date of Count: Thursday, November 08, 2018	Bonita

AM	Proctor Valley Road Southbound				San Miguel Ranch Road Westbound				Proctor Valley Road Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
8:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				3				0				0				3	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Proctor Valley Road Southbound				San Miguel Ranch Road Westbound				Proctor Valley Road Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Chen  
 Ryan  
 Associates

Location: #05	File Name: ITM-18-148-05
Intersection: Proctor Valley Road & San Miguel Ranch Road	Project: C-R Ref. 11-08-2018
Date of Count: Thursday, November 08, 2018	Bonita



Attachment B – Existing and Existing Plus Project Synchro Analysis  
Worksheets



CHEN  RYAN

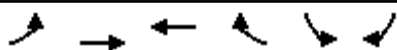
Existing Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↶	↷		↶	↷		
Traffic Volume (veh/h)	595	46	59	285	199	568		
Future Volume (veh/h)	595	46	59	285	199	568		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	607	47	60	291	203	580		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	623	48	68	331	382	938		
Arrive On Green	0.38	0.38	0.25	0.25	0.22	0.22		
Sat Flow, veh/h	1652	128	278	1347	1774	1583		
Grp Volume(v), veh/h	654	0	0	351	203	580		
Grp Sat Flow(s),veh/h/ln	1780	0	0	1625	1774	1583		
Q Serve(g_s), s	30.2	0.0	0.0	17.4	8.5	18.0		
Cycle Q Clear(g_c), s	30.2	0.0	0.0	17.4	8.5	18.0		
Prop In Lane	0.93			0.83	1.00	1.00		
Lane Grp Cap(c), veh/h	671	0	0	400	382	938		
V/C Ratio(X)	0.97	0.00	0.00	0.88	0.53	0.62		
Avail Cap(c_a), veh/h	671	0	0	525	382	938		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.6	0.0	0.0	30.3	29.0	10.6		
Incr Delay (d2), s/veh	28.4	0.0	0.0	12.6	1.4	1.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	20.0	0.0	0.0	9.2	4.3	13.5		
LnGrp Delay(d),s/veh	54.0	0.0	0.0	42.9	30.4	11.8		
LnGrp LOS	D			D	C	B		
Approach Vol, veh/h		654	351		783			
Approach Delay, s/veh		54.0	42.9		16.7			
Approach LOS		D	D		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				36.0		22.5		25.1
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				31.5		18.0		27.0
Max Q Clear Time (g_c+I1), s				32.2		20.0		19.4
Green Ext Time (p_c), s				0.0		0.0		1.2
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			35.5					
HCM 2010 LOS			D					



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	53	173	316	70	2	236	0	446	1	1	0
Future Volume (veh/h)	0	53	173	316	70	2	236	0	446	1	1	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	55	180	329	73	2	246	0	0	1	1	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	77	252	413	983	27	507	0	369	294	250	0
Arrive On Green	0.00	0.20	0.20	0.23	0.54	0.54	0.23	0.00	0.00	0.23	0.23	0.00
Sat Flow, veh/h	0	384	1257	1774	1805	49	1412	0	1583	690	1070	0
Grp Volume(v), veh/h	0	0	235	329	0	75	246	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1641	1774	0	1854	1412	0	1583	1761	0	0
Q Serve(g_s), s	0.0	0.0	5.4	7.1	0.0	0.8	6.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	5.4	7.1	0.0	0.8	6.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		0.77	1.00		0.03	1.00		1.00	0.50		0.00
Lane Grp Cap(c), veh/h	0	0	329	413	0	1010	507	0	369	544	0	0
V/C Ratio(X)	0.00	0.00	0.71	0.80	0.00	0.07	0.49	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	0	811	723	0	1878	875	0	782	962	0	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	15.1	14.6	0.0	4.4	14.4	0.0	0.0	11.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.9	3.6	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	2.7	3.8	0.0	0.4	2.6	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	18.0	18.2	0.0	4.4	15.1	0.0	0.0	11.9	0.0	0.0
LnGrp LOS			B	B		A	B			B		
Approach Vol, veh/h		235			404			246			2	
Approach Delay, s/veh		18.0			15.6			15.1			11.9	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		13.9	13.9	12.6		13.9		26.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.0	16.5	20.0		20.0		41.0				
Max Q Clear Time (g_c+I1), s		8.5	9.1	7.4		2.0		2.8				
Green Ext Time (p_c), s		0.9	0.6	1.0		0.0		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				16.1								
HCM 2010 LOS				B								



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	311	185	213	333	257	205		
Future Volume (veh/h)	311	185	213	333	257	205		
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	1863	1863	1863		
Adj Flow Rate, veh/h	362	215	248	387	299	238		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	418	1153	566	481	395	1276		
Arrive On Green	0.24	0.62	0.30	0.30	0.22	0.22		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	362	215	248	387	299	238		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	11.1	2.8	6.1	12.8	8.9	2.9		
Cycle Q Clear(g_c), s	11.1	2.8	6.1	12.8	8.9	2.9		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	418	1153	566	481	395	1276		
V/C Ratio(X)	0.87	0.19	0.44	0.80	0.76	0.19		
Avail Cap(c_a), veh/h	485	1709	1052	894	908	2082		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.8	4.7	15.8	18.2	20.6	9.1		
Incr Delay (d2), s/veh	13.7	0.1	0.5	3.2	3.0	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	7.0	1.5	3.2	5.9	4.6	2.9		
LnGrp Delay(d),s/veh	34.5	4.7	16.4	21.4	23.6	9.2		
LnGrp LOS	C	A	B	C	C	A		
Approach Vol, veh/h		577	635		537			
Approach Delay, s/veh		23.4	19.4		17.2			
Approach LOS		C	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				39.6		17.1	17.8	21.7
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				52.0		29.0	15.5	32.0
Max Q Clear Time (g_c+I1), s				4.8		10.9	13.1	14.8
Green Ext Time (p_c), s				1.2		1.7	0.3	2.5
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			20.1					
HCM 2010 LOS			C					

**Intersection**

Int Delay, s/veh 6.4

**Movement** EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	23	182	2	43	276	4
Future Vol, veh/h	23	182	2	43	276	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	196	2	46	297	4

**Major/Minor** Major1 Major2 Minor1

Conflicting Flow All	0	0	221	0	173	123
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1348	-	817	928
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	972	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1348	-	815	928
Mov Cap-2 Maneuver	-	-	-	-	815	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	970	-

**Approach** EB WB NB

HCM Control Delay, s 0 0.3 12  
HCM LOS B

**Minor Lane/Major Mvmt** NBLn1 EBT EBR WBL WBT

Capacity (veh/h)	816	-	-	1348	-
HCM Lane V/C Ratio	0.369	-	-	0.002	-
HCM Control Delay (s)	12	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0	-

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

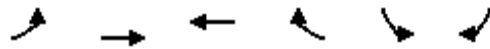
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	258	9	5	182	4
Future Vol, veh/h	2	258	9	5	182	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	274	10	5	194	4
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.3	7.7	9.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	98%
Vol Thru, %	64%	0%	0%	2%
Vol Right, %	36%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	2	258	186
LT Vol	0	2	0	182
Through Vol	9	0	0	4
RT Vol	5	0	258	0
Lane Flow Rate	15	2	274	198
Geometry Grp	2	7	7	2
Degree of Util (X)	0.019	0.003	0.333	0.263
Departure Headway (Hd)	4.594	5.567	4.362	4.776
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	778	645	826	752
Service Time	2.63	3.286	2.081	2.802
HCM Lane V/C Ratio	0.019	0.003	0.332	0.263
HCM Control Delay	7.7	8.3	9.3	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	1.5	1.1

HCM 2010 Signalized Intersection Summary  
43: Sweetwater Road & Briar Wood

Existing PM  
01/28/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↶	↷		↶	↷		
Traffic Volume (veh/h)	527	66	54	307	412	722		
Future Volume (veh/h)	527	66	54	307	412	722		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	561	70	57	231	438	768		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	590	74	66	267	487	1024		
Arrive On Green	0.37	0.37	0.20	0.20	0.27	0.27		
Sat Flow, veh/h	1586	198	323	1309	1774	1583		
Grp Volume(v), veh/h	631	0	0	288	438	768		
Grp Sat Flow(s),veh/h/ln	1783	0	0	1632	1774	1583		
Q Serve(g_s), s	31.2	0.0	0.0	15.5	21.6	24.9		
Cycle Q Clear(g_c), s	31.2	0.0	0.0	15.5	21.6	24.9		
Prop In Lane	0.89			0.80	1.00	1.00		
Lane Grp Cap(c), veh/h	664	0	0	333	487	1024		
V/C Ratio(X)	0.95	0.00	0.00	0.86	0.90	0.75		
Avail Cap(c_a), veh/h	680	0	0	486	487	1024		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	27.7	0.0	0.0	34.9	31.7	10.1		
Incr Delay (d2), s/veh	22.8	0.0	0.0	10.6	19.4	3.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	19.5	0.0	0.0	7.9	13.2	19.9		
LnGrp Delay(d),s/veh	50.5	0.0	0.0	45.4	51.1	13.2		
LnGrp LOS	D			D	D	B		
Approach Vol, veh/h		631	288		1206			
Approach Delay, s/veh		50.5	45.4		26.9			
Approach LOS		D	D		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.3		29.4		23.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				34.6		24.9		27.0
Max Q Clear Time (g_c+I1), s				33.2		26.9		17.5
Green Ext Time (p_c), s				0.6		0.0		1.1
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			36.4					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary  
 44: Bonita Road/Simbar Road & Sweetwater Road

Existing PM  
 01/28/2019

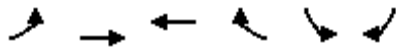


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	83	307	379	107	1	207	1	414	0	3	0
Future Volume (veh/h)	0	83	307	379	107	1	207	1	414	0	3	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	89	330	408	115	1	223	1	0	0	3	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	102	380	474	1182	10	406	1	317	0	373	0
Arrive On Green	0.00	0.29	0.29	0.27	0.64	0.64	0.20	0.20	0.00	0.00	0.20	0.00
Sat Flow, veh/h	0	347	1288	1774	1844	16	1394	6	1583	0	1863	0
Grp Volume(v), veh/h	0	0	419	408	0	116	224	0	0	0	3	0
Grp Sat Flow(s),veh/h/ln	0	0	1635	1774	0	1860	1400	0	1583	0	1863	0
Q Serve(g_s), s	0.0	0.0	13.8	12.4	0.0	1.4	8.6	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	13.8	12.4	0.0	1.4	8.7	0.0	0.0	0.0	0.1	0.0
Prop In Lane	0.00		0.79	1.00		0.01	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	482	474	0	1193	407	0	317	0	373	0
V/C Ratio(X)	0.00	0.00	0.87	0.86	0.00	0.10	0.55	0.00	0.00	0.00	0.01	0.00
Avail Cap(c_a), veh/h	0	0	576	672	0	1507	621	0	558	0	656	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	19.0	19.8	0.0	3.9	21.7	0.0	0.0	0.0	18.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	11.8	8.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	7.7	7.1	0.0	0.7	3.4	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	30.7	27.8	0.0	3.9	22.8	0.0	0.0	0.0	18.2	0.0
LnGrp LOS			C	C		A	C				B	
Approach Vol, veh/h		419			524			224			3	
Approach Delay, s/veh		30.7			22.5			22.8			18.2	
Approach LOS		C			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		15.9	19.7	21.2		15.9		40.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.0	21.5	20.0		20.0		46.0				
Max Q Clear Time (g_c+I1), s		10.7	14.4	15.8		2.1		3.4				
Green Ext Time (p_c), s		0.7	0.8	1.0		0.0		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				25.5								
HCM 2010 LOS				C								



HCM 2010 Signalized Intersection Summary  
45: San Miguel Road & Bonita Road

Existing PM  
01/28/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	383	169	130	205	334	258		
Future Volume (veh/h)	383	169	130	205	334	258		
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	1863	1863	1863		
Adj Flow Rate, veh/h	399	176	135	214	348	269		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	466	1026	363	308	465	1463		
Arrive On Green	0.26	0.55	0.19	0.19	0.26	0.26		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	399	176	135	214	348	269		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	10.3	2.3	3.0	6.1	8.7	2.4		
Cycle Q Clear(g_c), s	10.3	2.3	3.0	6.1	8.7	2.4		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	466	1026	363	308	465	1463		
V/C Ratio(X)	0.86	0.17	0.37	0.69	0.75	0.18		
Avail Cap(c_a), veh/h	571	2011	1237	1052	1068	2410		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	16.9	5.4	16.8	18.1	16.3	6.0		
Incr Delay (d2), s/veh	10.4	0.1	0.6	2.8	2.4	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.3	1.1	1.6	2.9	4.6	2.7		
LnGrp Delay(d),s/veh	27.3	5.4	17.5	20.9	18.7	6.1		
LnGrp LOS	C	A	B	C	B	A		
Approach Vol, veh/h		575	349		617			
Approach Delay, s/veh		20.6	19.6		13.2			
Approach LOS		C	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				31.0		17.1	17.2	13.9
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				52.0		29.0	15.5	32.0
Max Q Clear Time (g_c+I1), s				4.3		10.7	12.3	8.1
Green Ext Time (p_c), s				0.9		2.0	0.4	1.3
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			17.4					
HCM 2010 LOS			B					

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	414	6	29	255	8
Future Vol, veh/h	42	414	6	29	255	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	436	6	31	268	8

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	480	0	305	262
Stage 1	-	-	-	-	262	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1082	-	687	777
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	979	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1082	-	683	777
Mov Cap-2 Maneuver	-	-	-	-	683	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	686	-	-	1082	-
HCM Lane V/C Ratio	0.404	-	-	0.006	-
HCM Control Delay (s)	13.8	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	2	-	-	0	-

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	213	8	1	409	5
Future Vol, veh/h	0	213	8	1	409	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	222	8	1	426	5
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.8	8.1	13.7
HCM LOS	A	A	B

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	99%
Vol Thru, %	89%	100%	0%	1%
Vol Right, %	11%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	0	213	414
LT Vol	0	0	0	409
Through Vol	8	0	0	5
RT Vol	1	0	213	0
Lane Flow Rate	9	0	222	431
Geometry Grp	2	7	7	2
Degree of Util (X)	0.013	0	0.303	0.563
Departure Headway (Hd)	4.942	5.617	4.911	4.702
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	719	0	730	768
Service Time	3.006	3.36	2.653	2.743
HCM Lane V/C Ratio	0.013	0	0.304	0.561
HCM Control Delay	8.1	8.4	9.8	13.7
HCM Lane LOS	A	N	A	B
HCM 95th-tile Q	0	0	1.3	3.6

CHEN + RYAN

Existing + Project Conditions

HCM 2010 Signalized Intersection Summary  
43: Sweetwater Road & Briar Wood

Existing AM + Project



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↖	↗		↘	↙		
Traffic Volume (veh/h)	595	46	59	323	215	568		
Future Volume (veh/h)	595	46	59	323	215	568		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	607	47	60	330	219	580		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	663	51	64	350	387	981		
Arrive On Green	0.40	0.40	0.25	0.25	0.22	0.22		
Sat Flow, veh/h	1652	128	249	1371	1774	1583		
Grp Volume(v), veh/h	654	0	0	390	219	580		
Grp Sat Flow(s),veh/h/ln	1780	0	0	1621	1774	1583		
Q Serve(g_s), s	37.4	0.0	0.0	25.4	11.8	23.5		
Cycle Q Clear(g_c), s	37.4	0.0	0.0	25.4	11.8	23.5		
Prop In Lane	0.93			0.85	1.00	1.00		
Lane Grp Cap(c), veh/h	714	0	0	413	387	981		
V/C Ratio(X)	0.92	0.00	0.00	0.94	0.57	0.59		
Avail Cap(c_a), veh/h	918	0	0	414	387	981		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	30.5	0.0	0.0	39.3	37.5	12.3		
Incr Delay (d2), s/veh	11.5	0.0	0.0	30.3	1.9	0.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	20.6	0.0	0.0	14.9	6.0	17.3		
LnGrp Delay(d),s/veh	42.0	0.0	0.0	69.6	39.4	13.2		
LnGrp LOS	D			E	D	B		
Approach Vol, veh/h		654	390		799			
Approach Delay, s/veh		42.0	69.6		20.4			
Approach LOS		D	E		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				47.7		28.0		31.9
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				55.5		23.5		27.5
Max Q Clear Time (g_c+I1), s				39.4		25.5		27.4
Green Ext Time (p_c), s				3.8		0.0		0.0
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			38.5					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary  
 44: Bonita Road/Simbar Road & Sweetwater Road

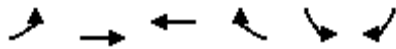
Existing AM + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	53	189	321	70	2	274	0	452	1	1	0
Future Volume (veh/h)	0	53	189	321	70	2	274	0	452	1	1	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	55	197	334	73	2	285	0	0	1	1	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	74	267	411	978	27	523	0	404	306	267	0
Arrive On Green	0.00	0.21	0.21	0.23	0.54	0.54	0.26	0.00	0.00	0.26	0.26	0.00
Sat Flow, veh/h	0	357	1280	1774	1805	49	1412	0	1583	723	1046	0
Grp Volume(v), veh/h	0	0	252	334	0	75	285	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1637	1774	0	1854	1412	0	1583	1769	0	0
Q Serve(g_s), s	0.0	0.0	6.4	7.9	0.0	0.9	8.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	6.4	7.9	0.0	0.9	8.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		0.78	1.00		0.03	1.00		1.00	0.50		0.00
Lane Grp Cap(c), veh/h	0	0	341	411	0	1004	523	0	404	573	0	0
V/C Ratio(X)	0.00	0.00	0.74	0.81	0.00	0.07	0.55	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	0	738	660	0	1714	799	0	714	887	0	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	16.4	16.1	0.0	4.9	15.4	0.0	0.0	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	3.1	4.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	3.2	4.3	0.0	0.4	3.4	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	19.6	20.2	0.0	4.9	16.3	0.0	0.0	12.3	0.0	0.0
LnGrp LOS			B	C		A	B			B		
Approach Vol, veh/h		252			409			285			2	
Approach Delay, s/veh		19.6			17.4			16.3			12.3	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		15.8	14.8	13.7		15.8		28.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.0	16.5	20.0		20.0		41.0				
Max Q Clear Time (g_c+I1), s		10.4	9.9	8.4		2.0		2.9				
Green Ext Time (p_c), s		1.0	0.6	1.0		0.0		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				17.6								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary  
45: San Miguel Road & Bonita Road

Existing AM + Project



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	311	191	225	381	278	205		
Future Volume (veh/h)	311	191	225	381	278	205		
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	1863	1863	1863		
Adj Flow Rate, veh/h	362	222	262	443	323	238		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	408	1175	616	523	407	1279		
Arrive On Green	0.23	0.63	0.33	0.33	0.23	0.23		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	362	222	262	443	323	238		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	12.7	3.2	7.0	16.7	11.0	3.2		
Cycle Q Clear(g_c), s	12.7	3.2	7.0	16.7	11.0	3.2		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	408	1175	616	523	407	1279		
V/C Ratio(X)	0.89	0.19	0.43	0.85	0.79	0.19		
Avail Cap(c_a), veh/h	428	1509	929	789	801	1900		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.9	5.0	16.7	20.0	23.3	10.3		
Incr Delay (d2), s/veh	19.1	0.1	0.5	5.5	3.6	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.3	1.6	3.6	8.1	5.8	3.3		
LnGrp Delay(d),s/veh	43.0	5.0	17.2	25.4	26.9	10.3		
LnGrp LOS	D	A	B	C	C	B		
Approach Vol, veh/h		584	705		561			
Approach Delay, s/veh		28.6	22.4		19.9			
Approach LOS		C	C		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				45.0		19.2	19.3	25.7
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				52.0		29.0	15.5	32.0
Max Q Clear Time (g_c+11), s				5.2		13.0	14.7	18.7
Green Ext Time (p_c), s				1.2		1.7	0.1	2.5
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			23.6					
HCM 2010 LOS			C					

Intersection						
Int Delay, s/veh	7.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	23	209	2	43	336	4
Future Vol, veh/h	23	209	2	43	336	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	225	2	46	361	4
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	250	0	188	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1316	-	801	910
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	972	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1316	-	799	910
Mov Cap-2 Maneuver	-	-	-	-	799	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	970	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.3	13.2			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	800	-	-	1316	-	
HCM Lane V/C Ratio	0.457	-	-	0.002	-	
HCM Control Delay (s)	13.2	-	-	7.7	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	2.4	-	-	0	-	



Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B












Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	318	9	5	209	4
Future Vol, veh/h	2	318	9	5	209	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	338	10	5	222	4
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	10.3	8	10.2
HCM LOS	B	A	B

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	98%
Vol Thru, %	64%	0%	0%	2%
Vol Right, %	36%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	2	318	213
LT Vol	0	2	0	209
Through Vol	9	0	0	4
RT Vol	5	0	318	0
Lane Flow Rate	15	2	338	227
Geometry Grp	2	7	7	2
Degree of Util (X)	0.02	0.003	0.418	0.31
Departure Headway (Hd)	4.801	5.655	4.449	4.931
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	742	634	809	727
Service Time	2.852	3.38	2.174	2.97
HCM Lane V/C Ratio	0.02	0.003	0.418	0.312
HCM Control Delay	8	8.4	10.3	10.2
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.1	0	2.1	1.3

HCM 2010 Signalized Intersection Summary  
 43: Sweetwater Road & Briar Wood

Existing PM + Project

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	527	66	54	331	462	722		
Future Volume (veh/h)	527	66	54	331	462	722		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	561	70	57	256	491	768		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	586	73	65	290	530	1058		
Arrive On Green	0.37	0.37	0.22	0.21	0.30	0.30		
Sat Flow, veh/h	1586	198	296	1331	1774	1583		
Grp Volume(v), veh/h	631	0	0	313	491	768		
Grp Sat Flow(s),veh/h/ln	1783	0	0	1628	1774	1583		
Q Serve(g_s), s	36.4	0.0	0.0	19.6	28.3	31.5		
Cycle Q Clear(g_c), s	36.4	0.0	0.0	19.6	28.3	31.5		
Prop In Lane	0.89			0.82	1.00	1.00		
Lane Grp Cap(c), veh/h	659	0	0	354	530	1058		
V/C Ratio(X)	0.96	0.00	0.00	0.88	0.93	0.73		
Avail Cap(c_a), veh/h	660	0	0	425	530	1058		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	32.4	0.0	0.0	40.1	35.8	11.0		
Incr Delay (d2), s/veh	24.9	0.0	0.0	17.0	22.4	2.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	22.4	0.0	0.0	10.5	17.1	22.9		
LnGrp Delay(d),s/veh	57.3	0.0	0.0	57.2	58.2	13.5		
LnGrp LOS	E			E	E	B		
Approach Vol, veh/h		631	313		1259			
Approach Delay, s/veh		57.3	57.2		30.9			
Approach LOS		E	E		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				42.9		35.5		26.9
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				38.5		31.0		27.0
Max Q Clear Time (g_c+I1), s				38.4		33.5		21.6
Green Ext Time (p_c), s				0.1		0.0		0.8
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			42.2					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary  
 44: Bonita Road/Simbar Road & Sweetwater Road

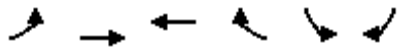
Existing PM + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	83	357	391	107	1	231	1	420	0	3	0
Future Volume (veh/h)	0	83	357	391	107	1	231	1	420	0	3	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	89	384	420	115	1	248	1	0	0	3	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	98	422	486	1209	11	418	1	347	0	408	0
Arrive On Green	0.00	0.32	0.31	0.27	0.66	0.65	0.22	0.22	0.00	0.00	0.22	0.00
Sat Flow, veh/h	0	307	1323	1774	1844	16	1396	6	1583	0	1863	0
Grp Volume(v), veh/h	0	0	473	420	0	116	249	0	0	0	3	0
Grp Sat Flow(s),veh/h/ln	0	0	1629	1774	0	1860	1401	0	1583	0	1863	0
Q Serve(g_s), s	0.0	0.0	17.8	14.4	0.0	1.5	10.7	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	17.8	14.4	0.0	1.5	10.8	0.0	0.0	0.0	0.1	0.0
Prop In Lane	0.00		0.81	1.00		0.01	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	520	486	0	1220	419	0	347	0	408	0
V/C Ratio(X)	0.00	0.00	0.91	0.86	0.00	0.10	0.59	0.00	0.00	0.00	0.01	0.00
Avail Cap(c_a), veh/h	0	0	523	611	0	1355	563	0	508	0	598	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	21.1	22.0	0.0	4.0	23.7	0.0	0.0	0.0	19.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	19.9	10.2	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	10.8	8.4	0.0	0.8	4.3	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	41.0	32.3	0.0	4.1	25.1	0.0	0.0	0.0	19.5	0.0
LnGrp LOS			D	C		A	C				B	
Approach Vol, veh/h		473			536			249			3	
Approach Delay, s/veh		41.0			26.2			25.1			19.5	
Approach LOS		D			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		18.0	21.5	24.4		18.0		45.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.0	21.5	20.0		20.0		46.0				
Max Q Clear Time (g_c+I1), s		12.8	16.4	19.8		2.1		3.5				
Green Ext Time (p_c), s		0.7	0.6	0.1		0.0		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				31.5								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary  
45: San Miguel Road & Bonita Road

Existing PM + Project



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	383	184	136	235	396	258		
Future Volume (veh/h)	383	184	136	235	396	258		
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	1863	1863	1863		
Adj Flow Rate, veh/h	399	192	142	245	412	269		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	469	1033	403	343	528	1565		
Arrive On Green	0.26	0.55	0.22	0.22	0.30	0.30		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	399	192	142	245	412	269		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	11.6	2.8	3.5	7.8	11.5	2.5		
Cycle Q Clear(g_c), s	11.6	2.8	3.5	7.8	11.5	2.5		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	469	1033	403	343	528	1565		
V/C Ratio(X)	0.85	0.19	0.35	0.71	0.78	0.17		
Avail Cap(c_a), veh/h	525	1808	1119	951	967	2256		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	18.9	6.0	18.0	19.6	17.4	5.8		
Incr Delay (d2), s/veh	11.7	0.1	0.5	2.8	2.6	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	7.2	1.4	1.8	3.6	6.0	2.9		
LnGrp Delay(d),s/veh	30.6	6.1	18.5	22.4	19.9	5.8		
LnGrp LOS	C	A	B	C	B	A		
Approach Vol, veh/h		591	387		681			
Approach Delay, s/veh		22.6	21.0		14.4			
Approach LOS		C	C		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				34.0		20.1	18.3	15.7
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				52.0		29.0	15.5	32.0
Max Q Clear Time (g_c+I1), s				4.8		13.5	13.6	9.8
Green Ext Time (p_c), s				1.0		2.1	0.3	1.5
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			18.8					
HCM 2010 LOS			B					

Intersection						
Int Delay, s/veh	5.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	491	6	29	291	8
Future Vol, veh/h	42	491	6	29	291	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	517	6	31	306	8
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	561	0	346	303
Stage 1	-	-	-	-	303	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1010	-	651	737
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	979	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1010	-	647	737
Mov Cap-2 Maneuver	-	-	-	-	647	-
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	973	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.5	15.7			
HCM LOS			C			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	649	-	-	1010	-	
HCM Lane V/C Ratio	0.485	-	-	0.006	-	
HCM Control Delay (s)	15.7	-	-	8.6	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	2.7	-	-	0	-	

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	249	8	1	486	5
Future Vol, veh/h	0	249	8	1	486	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	259	8	1	506	5
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	10.9	8.3	17.8
HCM LOS	B	A	C

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	99%
Vol Thru, %	89%	100%	0%	1%
Vol Right, %	11%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	0	249	491
LT Vol	0	0	0	486
Through Vol	8	0	0	5
RT Vol	1	0	249	0
Lane Flow Rate	9	0	259	511
Geometry Grp	2	7	7	2
Degree of Util (X)	0.013	0	0.369	0.685
Departure Headway (Hd)	5.178	5.834	5.127	4.818
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	683	0	698	747
Service Time	3.273	3.598	2.89	2.874
HCM Lane V/C Ratio	0.013	0	0.371	0.684
HCM Control Delay	8.3	8.6	10.9	17.8
HCM Lane LOS	A	N	B	C
HCM 95th-tile Q	0	0	1.7	5.5

Attachment C – Year 2025 and Year 2025 Plus Project Synchro  
Analysis Worksheets

CHEN  RYAN

2025 Conditions



HCM 2010 Signalized Intersection Summary  
43: Sweetwater Road & Briar Wood

2025 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↖	↗		↘	↙		
Traffic Volume (veh/h)	665	10	65	375	370	880		
Future Volume (veh/h)	665	10	65	375	370	880		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	679	10	66	250	378	898		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	706	10	75	284	412	1006		
Arrive On Green	0.40	0.40	0.22	0.22	0.23	0.23		
Sat Flow, veh/h	1750	26	341	1293	1774	1583		
Grp Volume(v), veh/h	689	0	0	316	378	898		
Grp Sat Flow(s),veh/h/ln	1775	0	0	1635	1774	1583		
Q Serve(g_s), s	35.2	0.0	0.0	17.4	19.4	21.6		
Cycle Q Clear(g_c), s	35.2	0.0	0.0	17.4	19.4	21.6		
Prop In Lane	0.99			0.79	1.00	1.00		
Lane Grp Cap(c), veh/h	716	0	0	359	412	1006		
V/C Ratio(X)	0.96	0.00	0.00	0.88	0.92	0.89		
Avail Cap(c_a), veh/h	723	0	0	474	412	1006		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	27.1	0.0	0.0	35.1	34.9	10.1		
Incr Delay (d2), s/veh	24.4	0.0	0.0	14.0	25.4	10.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	22.1	0.0	0.0	9.2	12.4	25.8		
LnGrp Delay(d),s/veh	51.5	0.0	0.0	49.1	60.3	20.3		
LnGrp LOS	D			D	E	C		
Approach Vol, veh/h		689	316		1276			
Approach Delay, s/veh		51.5	49.1		32.2			
Approach LOS		D	D		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				42.0		26.1		24.9
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				37.9		21.6		27.0
Max Q Clear Time (g_c+I1), s				37.2		23.6		19.4
Green Ext Time (p_c), s				0.3		0.0		1.0
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			40.3					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary  
 44: Bonita Road/Simbar Road & Sweetwater Road

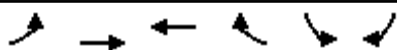
2025 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	60	275	425	125	5	360	0	575	0	0	0
Future Volume (veh/h)	0	60	275	425	125	5	360	0	575	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	62	286	443	130	5	375	0	0	0	0	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	70	322	492	1031	40	519	0	476	0	560	0
Arrive On Green	0.00	0.24	0.24	0.28	0.58	0.58	0.30	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	0	290	1337	1774	1782	69	1406	0	1583	0	1863	0
Grp Volume(v), veh/h	0	0	348	443	0	135	375	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1627	1774	0	1851	1406	0	1583	0	1863	0
Q Serve(g_s), s	0.0	0.0	15.4	17.9	0.0	2.5	18.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	15.4	17.9	0.0	2.5	18.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		0.82	1.00		0.04	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	391	492	0	1070	519	0	476	0	560	0
V/C Ratio(X)	0.00	0.00	0.89	0.90	0.00	0.13	0.72	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	0	438	609	0	1245	683	0	661	0	777	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	27.3	25.9	0.0	7.1	24.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	18.3	14.4	0.0	0.1	2.6	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	8.9	10.7	0.0	1.3	7.7	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	45.6	40.2	0.0	7.2	27.4	0.0	0.0	0.0	0.0	0.0
LnGrp LOS			D	D		A	C					
Approach Vol, veh/h		348			578			375			0	
Approach Delay, s/veh		45.6			32.5			27.4			0.0	
Approach LOS		D			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		26.8	25.1	22.4		26.8		47.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		31.0	25.5	20.0		31.0		50.0				
Max Q Clear Time (g_c+I1), s		20.9	19.9	17.4		0.0		4.5				
Green Ext Time (p_c), s		1.4	0.7	0.5		0.0		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				34.5								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary  
45: San Miguel Road & Bonita Road

2025 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	425	325	385	510	375	325		
Future Volume (veh/h)	425	325	385	510	375	325		
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	1863	1863	1863		
Adj Flow Rate, veh/h	494	378	448	465	436	378		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	475	1180	593	504	483	1505		
Arrive On Green	0.27	0.63	0.32	0.32	0.27	0.27		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	494	378	448	465	436	378		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	25.5	8.9	20.6	27.0	22.6	6.9		
Cycle Q Clear(g_c), s	25.5	8.9	20.6	27.0	22.6	6.9		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	475	1180	593	504	483	1505		
V/C Ratio(X)	1.04	0.32	0.76	0.92	0.90	0.25		
Avail Cap(c_a), veh/h	475	1213	626	532	540	1595		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	34.9	8.0	29.1	31.3	33.4	11.7		
Incr Delay (d2), s/veh	52.1	0.2	5.0	21.2	17.3	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	19.3	4.6	11.4	14.7	13.3	7.3		
LnGrp Delay(d),s/veh	86.9	8.2	34.1	52.6	50.8	11.7		
LnGrp LOS	F	A	C	D	D	B		
Approach Vol, veh/h		872	913		814			
Approach Delay, s/veh		52.8	43.5		32.6			
Approach LOS		D	D		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				64.8		30.4	30.0	34.8
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				62.0		29.0	25.5	32.0
Max Q Clear Time (g_c+I1), s				10.9		24.6	27.5	29.0
Green Ext Time (p_c), s				2.2		1.3	0.0	1.3
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			43.2					
HCM 2010 LOS			D					

Intersection						
Int Delay, s/veh	13					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	255	5	60	425	75
Future Vol, veh/h	65	255	5	60	425	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	274	5	65	457	81

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	344	0	282 207
Stage 1	-	-	-	-	207 -
Stage 2	-	-	-	-	75 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1215	-	708 833
Stage 1	-	-	-	-	828 -
Stage 2	-	-	-	-	948 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1215	-	705 833
Mov Cap-2 Maneuver	-	-	-	-	705 -
Stage 1	-	-	-	-	828 -
Stage 2	-	-	-	-	944 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	23
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	722	-	-	1215	-
HCM Lane V/C Ratio	0.745	-	-	0.004	-
HCM Control Delay (s)	23	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	6.8	-	-	0	-

47: Proctor Valley Road & Mt Miguel Road / San Miguel Ranch Rd

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	390	15	10	305	65
Future Vol, veh/h	30	390	15	10	305	65
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	415	16	11	324	69
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	13.8	8.7	15.1
HCM LOS	B	A	C

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	82%
Vol Thru, %	60%	0%	0%	18%
Vol Right, %	40%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	30	390	370
LT Vol	0	30	0	305
Through Vol	15	0	0	65
RT Vol	10	0	390	0
Lane Flow Rate	27	32	415	394
Geometry Grp	2	7	7	2
Degree of Util (X)	0.04	0.054	0.568	0.569
Departure Headway (Hd)	5.469	6.141	4.93	5.208
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	659	579	726	685
Service Time	3.469	3.919	2.707	3.296
HCM Lane V/C Ratio	0.041	0.055	0.572	0.575
HCM Control Delay	8.7	9.3	14.1	15.1
HCM Lane LOS	A	A	B	C
HCM 95th-tile Q	0.1	0.2	3.6	3.6

HCM 2010 Signalized Intersection Summary  
 43: Sweetwater Road & Briar Wood

2025 PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↶	↷		↶	↷		
Traffic Volume (veh/h)	545	40	60	405	475	820		
Future Volume (veh/h)	545	40	60	405	475	820		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	580	43	64	271	505	872		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	584	43	70	295	573	1070		
Arrive On Green	0.35	0.35	0.22	0.22	0.32	0.32		
Sat Flow, veh/h	1657	123	311	1319	1774	1583		
Grp Volume(v), veh/h	623	0	0	335	505	872		
Grp Sat Flow(s),veh/h/ln	1780	0	0	1630	1774	1583		
Q Serve(g_s), s	41.5	0.0	0.0	23.9	32.1	38.5		
Cycle Q Clear(g_c), s	41.5	0.0	0.0	23.9	32.1	38.5		
Prop In Lane	0.93			0.81	1.00	1.00		
Lane Grp Cap(c), veh/h	627	0	0	365	573	1070		
V/C Ratio(X)	0.99	0.00	0.00	0.92	0.88	0.82		
Avail Cap(c_a), veh/h	627	0	0	376	573	1070		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	38.4	0.0	0.0	45.4	38.2	12.5		
Incr Delay (d2), s/veh	34.1	0.0	0.0	26.7	14.8	5.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	26.4	0.0	0.0	13.5	18.1	30.1		
LnGrp Delay(d),s/veh	72.5	0.0	0.0	72.1	53.0	17.5		
LnGrp LOS	E			E	D	B		
Approach Vol, veh/h		623	335		1377			
Approach Delay, s/veh		72.5	72.1		30.5			
Approach LOS		E	E		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				46.0		42.5		30.6
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				41.5		38.0		27.0
Max Q Clear Time (g_c+I1), s				43.5		40.5		25.9
Green Ext Time (p_c), s				0.0		0.0		0.2
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			47.7					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary  
 44: Bonita Road/Simbar Road & Sweetwater Road

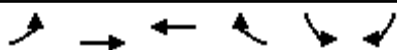
2025 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	95	405	455	180	0	355	0	570	0	5	0
Future Volume (veh/h)	0	95	405	455	180	0	355	0	570	0	5	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	102	338	489	194	0	382	0	0	0	5	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	111	367	503	1150	0	493	0	473	0	557	0
Arrive On Green	0.00	0.29	0.29	0.28	0.62	0.00	0.30	0.00	0.00	0.00	0.30	0.00
Sat Flow, veh/h	0	380	1260	1774	1863	0	1397	0	1583	0	1863	0
Grp Volume(v), veh/h	0	0	440	489	194	0	382	0	0	0	5	0
Grp Sat Flow(s),veh/h/ln	0	0	1640	1774	1863	0	1397	0	1583	0	1863	0
Q Serve(g_s), s	0.0	0.0	24.7	26.0	4.2	0.0	25.0	0.0	0.0	0.0	0.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	24.7	26.0	4.2	0.0	25.2	0.0	0.0	0.0	0.2	0.0
Prop In Lane	0.00		0.77	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	478	503	1150	0	493	0	473	0	557	0
V/C Ratio(X)	0.00	0.00	0.92	0.97	0.17	0.00	0.78	0.00	0.00	0.00	0.01	0.00
Avail Cap(c_a), veh/h	0	0	503	503	1178	0	542	0	529	0	622	0
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)	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	32.8	33.7	7.8	0.0	32.3	0.0	0.0	0.0	23.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	21.7	32.9	0.1	0.0	6.4	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	14.0	17.2	2.2	0.0	10.5	0.0	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	54.5	66.6	7.9	0.0	38.7	0.0	0.0	0.0	23.5	0.0
LnGrp LOS			D	E	A		D				C	
Approach Vol, veh/h		440			683			382			5	
Approach Delay, s/veh		54.5			49.9			38.7			23.5	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		32.4	31.0	31.8		32.4		62.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		31.3	26.5	28.7		31.3		59.7				
Max Q Clear Time (g_c+I1), s		27.2	28.0	26.7		2.2		6.2				
Green Ext Time (p_c), s		0.8	0.0	0.5		0.0		1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				48.3								
HCM 2010 LOS				D								

HCM 2010 Signalized Intersection Summary  
45: San Miguel Road & Bonita Road

2025 PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	485	225	235	340	450	340		
Future Volume (veh/h)	485	225	235	340	450	340		
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	1863	1863	1863		
Adj Flow Rate, veh/h	505	234	245	354	469	354		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	532	1135	491	418	529	1666		
Arrive On Green	0.30	0.61	0.26	0.26	0.30	0.30		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	505	234	245	354	469	354		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	24.2	4.9	9.7	18.4	21.9	5.1		
Cycle Q Clear(g_c), s	24.2	4.9	9.7	18.4	21.9	5.1		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	532	1135	491	418	529	1666		
V/C Ratio(X)	0.95	0.21	0.50	0.85	0.89	0.21		
Avail Cap(c_a), veh/h	532	1342	698	593	603	1782		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	29.8	7.6	27.1	30.3	29.0	8.0		
Incr Delay (d2), s/veh	27.0	0.1	0.8	7.9	13.6	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	15.8	2.5	5.1	9.0	12.7	6.0		
LnGrp Delay(d),s/veh	56.7	7.7	27.9	38.2	42.7	8.1		
LnGrp LOS	E	A	C	D	D	A		
Approach Vol, veh/h		739	599		823			
Approach Delay, s/veh		41.2	34.0		27.8			
Approach LOS		D	C		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				56.9		29.9	30.0	26.9
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				62.0		29.0	25.5	32.0
Max Q Clear Time (g_c+1), s				6.9		23.9	26.2	20.4
Green Ext Time (p_c), s				1.3		1.5	0.0	2.0
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			34.1					
HCM 2010 LOS			C					



**Intersection**

Int Delay, s/veh 8.9

**Movement** EBT EBR WBL WBT NBL NBR

Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	65	580	10	30	320	75
Future Vol, veh/h	65	580	10	30	320	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	611	11	32	337	79

**Major/Minor** Major1 Major2 Minor1

Conflicting Flow All	0	0	679	0	428	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	913	-	584	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	969	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	913	-	577	672
Mov Cap-2 Maneuver	-	-	-	-	577	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	957	-

**Approach** EB WB NB

HCM Control Delay, s	0	2.2	24.1
HCM LOS			C

**Minor Lane/Major Mvmt** NBLn1 EBT EBR WBL WBT

Capacity (veh/h)	593	-	-	913	-
HCM Lane V/C Ratio	0.701	-	-	0.012	-
HCM Control Delay (s)	24.1	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	5.6	-	-	0	-

47: Proctor Valley Road & Mt Miguel Road / San Miguel Ranch Rd

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	320	15	5	520	20
Future Vol, veh/h	5	320	15	5	520	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	333	16	5	542	21
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	13.1	8.8	24.3
HCM LOS	B	A	C

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	96%
Vol Thru, %	75%	0%	0%	4%
Vol Right, %	25%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	5	320	540
LT Vol	0	5	0	520
Through Vol	15	0	0	20
RT Vol	5	0	320	0
Lane Flow Rate	21	5	333	563
Geometry Grp	2	7	7	2
Degree of Util (X)	0.032	0.009	0.492	0.787
Departure Headway (Hd)	5.582	6.532	5.317	5.039
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	645	543	670	709
Service Time	3.582	4.331	3.116	3.129
HCM Lane V/C Ratio	0.033	0.009	0.497	0.794
HCM Control Delay	8.8	9.4	13.2	24.3
HCM Lane LOS	A	A	B	C
HCM 95th-tile Q	0.1	0	2.7	7.8

CHEN + RYAN

2025 + Project Conditions

HCM 2010 Signalized Intersection Summary  
 43: Sweetwater Road & Briar Wood

2025 AM + P



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↕	↔		↕	↕		
Traffic Volume (veh/h)	665	10	65	413	386	880		
Future Volume (veh/h)	665	10	65	413	386	880		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	679	10	66	288	394	898		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	690	10	73	319	399	980		
Arrive On Green	0.39	0.39	0.24	0.24	0.22	0.22		
Sat Flow, veh/h	1750	26	304	1325	1774	1583		
Grp Volume(v), veh/h	689	0	0	354	394	898		
Grp Sat Flow(s),veh/h/ln	1775	0	0	1629	1774	1583		
Q Serve(g_s), s	36.9	0.0	0.0	20.3	21.3	21.6		
Cycle Q Clear(g_c), s	36.9	0.0	0.0	20.3	21.3	21.6		
Prop In Lane	0.99			0.81	1.00	1.00		
Lane Grp Cap(c), veh/h	700	0	0	392	399	980		
V/C Ratio(X)	0.98	0.00	0.00	0.90	0.99	0.92		
Avail Cap(c_a), veh/h	700	0	0	458	399	980		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	28.8	0.0	0.0	35.4	37.1	11.1		
Incr Delay (d2), s/veh	30.0	0.0	0.0	19.2	41.9	13.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	23.8	0.0	0.0	11.1	15.0	27.2		
LnGrp Delay(d),s/veh	58.8	0.0	0.0	54.6	79.0	24.1		
LnGrp LOS	E			D	E	C		
Approach Vol, veh/h		689	354		1292			
Approach Delay, s/veh		58.8	54.6		40.8			
Approach LOS		E	D		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				42.4		26.1		27.6
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				37.9		21.6		27.0
Max Q Clear Time (g_c+I1), s				38.9		23.6		22.3
Green Ext Time (p_c), s				0.0		0.0		0.9
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			48.2					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary  
 44: Bonita Road/Simbar Road & Sweetwater Road

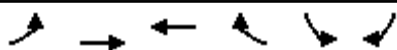
2025 AM + P



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	60	291	430	125	5	398	0	581	0	0	0
Future Volume (veh/h)	0	60	291	430	125	5	398	0	581	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	62	303	448	130	5	415	0	0	0	0	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	67	325	488	1016	39	538	0	509	0	598	0
Arrive On Green	0.00	0.24	0.24	0.27	0.57	0.57	0.32	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	0	276	1349	1774	1782	69	1406	0	1583	0	1863	0
Grp Volume(v), veh/h	0	0	365	448	0	135	415	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1625	1774	0	1851	1406	0	1583	0	1863	0
Q Serve(g_s), s	0.0	0.0	18.2	20.3	0.0	2.8	23.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	18.2	20.3	0.0	2.8	23.6	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		0.83	1.00		0.04	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	392	488	0	1055	538	0	509	0	598	0
V/C Ratio(X)	0.00	0.00	0.93	0.92	0.00	0.13	0.77	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	0	392	545	0	1115	612	0	592	0	696	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	30.8	29.2	0.0	8.3	27.1	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	28.9	19.6	0.0	0.1	5.3	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	11.3	12.6	0.0	1.4	9.9	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	59.7	48.7	0.0	8.3	32.4	0.0	0.0	0.0	0.0	0.0
LnGrp LOS			E	D		A	C					
Approach Vol, veh/h		365			583			415			0	
Approach Delay, s/veh		59.7			39.4			32.4			0.0	
Approach LOS		E			D			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		31.2	27.3	24.5		31.2		51.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		31.0	25.5	20.0		31.0		50.0				
Max Q Clear Time (g_c+I1), s		25.6	22.3	20.2		0.0		4.8				
Green Ext Time (p_c), s		1.1	0.5	0.0		0.0		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				42.7								
HCM 2010 LOS				D								

HCM 2010 Signalized Intersection Summary  
45: San Miguel Road & Bonita Road

2025 AM + P



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	425	331	397	558	396	325		
Future Volume (veh/h)	425	331	397	558	396	325		
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	1863	1863	1863		
Adj Flow Rate, veh/h	494	385	462	521	460	378		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	459	1171	604	514	497	1501		
Arrive On Green	0.26	0.63	0.32	0.32	0.28	0.28		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	494	385	462	521	460	378		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	25.5	9.5	22.0	32.0	24.9	7.1		
Cycle Q Clear(g_c), s	25.5	9.5	22.0	32.0	24.9	7.1		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	459	1171	604	514	497	1501		
V/C Ratio(X)	1.08	0.33	0.76	1.01	0.93	0.25		
Avail Cap(c_a), veh/h	459	1171	604	514	522	1540		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	36.6	8.6	29.9	33.3	34.5	12.1		
Incr Delay (d2), s/veh	64.3	0.2	5.8	43.3	22.1	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	20.5	5.0	12.3	20.0	15.2	7.6		
LnGrp Delay(d),s/veh	100.8	8.7	35.7	76.6	56.6	12.2		
LnGrp LOS	F	A	D	F	E	B		
Approach Vol, veh/h		879	983		838			
Approach Delay, s/veh		60.5	57.4		36.6			
Approach LOS		E	E		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				66.5		32.1	30.0	36.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				62.0		29.0	25.5	32.0
Max Q Clear Time (g_c+1), s				11.5		26.9	27.5	34.0
Green Ext Time (p_c), s				2.3		0.8	0.0	0.0
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			51.9					
HCM 2010 LOS			D					

Intersection						
Int Delay, s/veh	18.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	282	5	60	485	75
Future Vol, veh/h	65	282	5	60	485	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	303	5	65	522	81

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	373	0	297 222
Stage 1	-	-	-	-	222 -
Stage 2	-	-	-	-	75 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1185	-	694 818
Stage 1	-	-	-	-	815 -
Stage 2	-	-	-	-	948 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1185	-	691 818
Mov Cap-2 Maneuver	-	-	-	-	691 -
Stage 1	-	-	-	-	815 -
Stage 2	-	-	-	-	944 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	32.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	706	-	-	1185	-
HCM Lane V/C Ratio	0.853	-	-	0.005	-
HCM Control Delay (s)	32.3	-	-	8.1	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	9.9	-	-	0	-

47: Proctor Valley Road & Mt Miguel Road / San Miguel Ranch Rd

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	450	15	10	332	65
Future Vol, veh/h	30	450	15	10	332	65
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	479	16	11	353	69
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	17.7	9.1	18
HCM LOS	C	A	C

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	84%
Vol Thru, %	60%	0%	0%	16%
Vol Right, %	40%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	30	450	397
LT Vol	0	30	0	332
Through Vol	15	0	0	65
RT Vol	10	0	450	0
Lane Flow Rate	27	32	479	422
Geometry Grp	2	7	7	2
Degree of Util (X)	0.042	0.056	0.686	0.644
Departure Headway (Hd)	5.75	6.368	5.155	5.489
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	621	566	704	659
Service Time	3.802	4.068	2.855	3.522
HCM Lane V/C Ratio	0.043	0.057	0.68	0.64
HCM Control Delay	9.1	9.4	18.3	18
HCM Lane LOS	A	A	C	C
HCM 95th-tile Q	0.1	0.2	5.5	4.7



HCM 2010 Signalized Intersection Summary  
43: Sweetwater Road & Briar Wood

2025 PM + P



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	545	40	60	429	525	820		
Future Volume (veh/h)	545	40	60	429	525	820		
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	1900	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	580	43	64	275	559	872		
Adj No. of Lanes	0	1	1	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	556	41	71	305	570	1040		
Arrive On Green	0.34	0.34	0.23	0.23	0.32	0.32		
Sat Flow, veh/h	1657	123	308	1322	1774	1583		
Grp Volume(v), veh/h	623	0	0	339	559	872		
Grp Sat Flow(s),veh/h/ln	1780	0	0	1629	1774	1583		
Q Serve(g_s), s	36.0	0.0	0.0	21.7	33.5	34.5		
Cycle Q Clear(g_c), s	36.0	0.0	0.0	21.7	33.5	34.5		
Prop In Lane	0.93			0.81	1.00	1.00		
Lane Grp Cap(c), veh/h	597	0	0	376	570	1040		
V/C Ratio(X)	1.04	0.00	0.00	0.90	0.98	0.84		
Avail Cap(c_a), veh/h	597	0	0	418	570	1040		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	35.6	0.0	0.0	40.3	36.0	12.2		
Incr Delay (d2), s/veh	48.5	0.0	0.0	20.8	32.5	6.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	25.6	0.0	0.0	11.9	21.4	27.5		
LnGrp Delay(d),s/veh	84.2	0.0	0.0	61.1	68.5	18.4		
LnGrp LOS	F			E	E	B		
Approach Vol, veh/h		623	339		1431			
Approach Delay, s/veh		84.2	61.1		38.0			
Approach LOS		F	E		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				40.0		38.5		28.8
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				35.5		34.0		27.0
Max Q Clear Time (g_c+I1), s				38.0		36.5		23.7
Green Ext Time (p_c), s				0.0		0.0		0.6
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			53.3					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary  
 44: Bonita Road/Simbar Road & Sweetwater Road

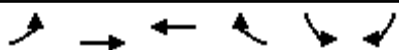
2025 PM + P



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	0	95	455	467	180	0	379	0	576	0	5	0
Future Volume (veh/h)	0	95	455	467	180	0	379	0	576	0	5	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		1.00	1.00		1.00	1.00		1.00
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	1900	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	100	353	492	189	0	399	0	0	0	5	0
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	106	376	526	1164	0	491	0	488	0	574	0
Arrive On Green	0.00	0.29	0.29	0.30	0.62	0.00	0.31	0.00	0.00	0.00	0.31	0.00
Sat Flow, veh/h	0	361	1276	1774	1863	0	1397	0	1583	0	1863	0
Grp Volume(v), veh/h	0	0	453	492	189	0	399	0	0	0	5	0
Grp Sat Flow(s),veh/h/ln	0	0	1638	1774	1863	0	1397	0	1583	0	1863	0
Q Serve(g_s), s	0.0	0.0	32.2	32.2	5.1	0.0	32.8	0.0	0.0	0.0	0.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	32.2	32.2	5.1	0.0	33.0	0.0	0.0	0.0	0.2	0.0
Prop In Lane	0.00		0.78	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	482	526	1164	0	491	0	488	0	574	0
V/C Ratio(X)	0.00	0.00	0.94	0.93	0.16	0.00	0.81	0.00	0.00	0.00	0.01	0.00
Avail Cap(c_a), veh/h	0	0	497	580	1236	0	562	0	568	0	668	0
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)	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	41.2	40.8	9.4	0.0	40.1	0.0	0.0	0.0	28.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	25.7	21.6	0.1	0.0	7.9	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	18.0	18.9	2.6	0.0	13.8	0.0	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	66.9	62.4	9.4	0.0	48.0	0.0	0.0	0.0	28.6	0.0
LnGrp LOS			E	E	A		D				C	
Approach Vol, veh/h		453			681			399			5	
Approach Delay, s/veh		66.9			47.7			48.0			28.6	
Approach LOS		E			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		40.8	39.4	39.1		40.8		78.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		42.3	38.5	35.7		42.3		78.7				
Max Q Clear Time (g_c+I1), s		35.0	34.2	34.2		2.2		7.1				
Green Ext Time (p_c), s		1.3	0.7	0.4		0.0		1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.4									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
45: San Miguel Road & Bonita Road

2025 PM + P



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↶	↷	↶	↷	↶	↷		
Traffic Volume (veh/h)	485	240	241	370	512	340		
Future Volume (veh/h)	485	240	241	370	512	340		
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	1863	1863	1863		
Adj Flow Rate, veh/h	505	250	251	385	533	354		
Adj No. of Lanes	1	1	1	1	1	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	523	1124	505	429	569	1714		
Arrive On Green	0.29	0.60	0.27	0.27	0.32	0.32		
Sat Flow, veh/h	1774	1863	1863	1583	1774	2787		
Grp Volume(v), veh/h	505	250	251	385	533	354		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1393		
Q Serve(g_s), s	29.5	6.5	11.9	24.7	30.7	5.9		
Cycle Q Clear(g_c), s	29.5	6.5	11.9	24.7	30.7	5.9		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	523	1124	505	429	569	1714		
V/C Ratio(X)	0.97	0.22	0.50	0.90	0.94	0.21		
Avail Cap(c_a), veh/h	523	1195	575	489	582	1735		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	36.6	9.6	32.3	37.0	34.7	8.9		
Incr Delay (d2), s/veh	30.8	0.1	0.8	17.7	22.8	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	18.9	3.4	6.2	12.9	18.6	7.2		
LnGrp Delay(d),s/veh	67.4	9.7	33.1	54.7	57.5	9.0		
LnGrp LOS	E	A	C	D	E	A		
Approach Vol, veh/h		755	636		887			
Approach Delay, s/veh		48.3	46.2		38.1			
Approach LOS		D	D		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				67.5		37.7	35.0	32.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				67.0		34.0	30.5	32.0
Max Q Clear Time (g_c+I1), s				8.5		32.7	31.5	26.7
Green Ext Time (p_c), s				1.4		0.5	0.0	1.4
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			43.7					
HCM 2010 LOS			D					

**Intersection**

Int Delay, s/veh 12.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	657	10	30	356	75
Future Vol, veh/h	65	657	10	30	356	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	692	11	32	375	79

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	760	0	468 414
Stage 1	-	-	-	-	414 -
Stage 2	-	-	-	-	54 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	852	-	553 638
Stage 1	-	-	-	-	667 -
Stage 2	-	-	-	-	969 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	852	-	546 638
Mov Cap-2 Maneuver	-	-	-	-	546 -
Stage 1	-	-	-	-	667 -
Stage 2	-	-	-	-	956 -

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	33.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	560	-	-	852	-
HCM Lane V/C Ratio	0.81	-	-	0.012	-
HCM Control Delay (s)	33.3	-	-	9.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	8	-	-	0	-

47: Proctor Valley Road & Mt Miguel Road / San Miguel Ranch Rd

Intersection	
Intersection Delay, s/veh	33.8
Intersection LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	356	15	5	597	20
Future Vol, veh/h	5	356	15	5	597	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	371	16	5	622	21
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	16.1	9.2	44.9
HCM LOS	C	A	E

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	97%
Vol Thru, %	75%	0%	0%	3%
Vol Right, %	25%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	5	356	617
LT Vol	0	5	0	597
Through Vol	15	0	0	20
RT Vol	5	0	356	0
Lane Flow Rate	21	5	371	643
Geometry Grp	2	7	7	2
Degree of Util (X)	0.034	0.01	0.585	0.944
Departure Headway (Hd)	5.911	6.897	5.679	5.286
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	604	519	634	688
Service Time	3.967	4.64	3.421	3.314
HCM Lane V/C Ratio	0.035	0.01	0.585	0.935
HCM Control Delay	9.2	9.7	16.2	44.9
HCM Lane LOS	A	A	C	E
HCM 95th-tile Q	0.1	0	3.8	13.3