

ATTACHMENT A

TRAFFIC MEMO



LOS Engineering, Inc.
Traffic and Transportation

11622 El Camino Real, Suite 100, San Diego, CA 92130
 Phone 619-890-1253, Fax 619-374-7247, e-mail: justin@losengineering.com

October 24, 2014

Mr. Jacob Armstrong
 CALTRANS
 4050 Taylor Street, M.S. 120
 San Diego, CA 92110

Re: Wistaria Ranch Solar Energy Center in Imperial Valley, California

Dear Mr. Armstrong:

Thank you for your comment letter dated October 6, 2014 on the Wistaria Ranch Solar Energy Center located in Imperial Valley, California. The purpose of this letter is to specifically address the concern of potentially significant impacts to Caltrans' highways and intersections; and the request of a focused intersection capacity analysis for SR-98 at Rockwood Road.

DEIR NOP Clarification

There was reference to page 30 and the specific language of "Therefore, impacts to area highways and intersections during construction are considered potentially significant unless mitigation is incorporated". The aforementioned language was from the Notice of Preparation dated September 26, 2013 (Attachment A). Since then, a traffic study has been prepared and documented no direct and no cumulative impacts for the study area roadways and intersections.

SR-98 at Rockwood Road Intersection Analysis

As requested, the analysis of SR-98 at Rockwood Road is being provided using forecasted turn moves to meet the planned submission schedule and will be augmented with actual intersection volume when available. The traffic study analyzed two intersections along SR-98, which included Brockman Rd/SR-98 and Ferrell Road/SR-98. Upon review of the area, the intersection of SR-98 at Rockwood was determined to be more similar to SR-98 at Ferrell Rd than at Brockman Rd. There is a café on the southwest corner of SR-98 at Brockman Road while the intersections of Ferrell Rd/SR-98 and Rockwood Rd/SR-98 do not have commercial establishments. Additionally,

there was an existing solar farm being constructed off of Ferrell Rd south of SR-98 when these counts were collected. Therefore, the turn moves from SR-98/Ferrell Road were selected to represent the conditions at SR-98/Rockwood Road as shown in **Figure 1**.

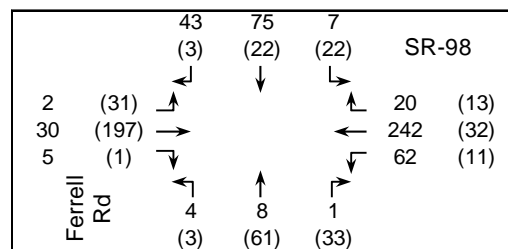


Figure 1: Volumes from Ferrell/SR-98 used for Rockwood/SR-98

The project area that is adjacent to SR-98 was calculated in the 5/14/14 traffic study to have approximately 24 AM inbound trips and 34 PM outbound trips or about 1/10 of the overall project peak period trip generation. These trips will access the site from two driveways on SR-98 and from two driveways on Rockwood Road (one north and one south of SR-98). It is unknown exactly which gate these trips will use at this time; therefore, a conservative analysis was applied with 24 AM inbound and 34 PM outbound trips all using one gate instead of dividing by four. Three scenarios can represent the concentration of the aforementioned peak hour trips. The first scenario represents the 24 AM and 34 PM trips for either driveway on SR-98 with existing background traffic along SR-98 from the adjacent Ferrell Rd/SR-98 existing volumes as shown in **Figure 2**.

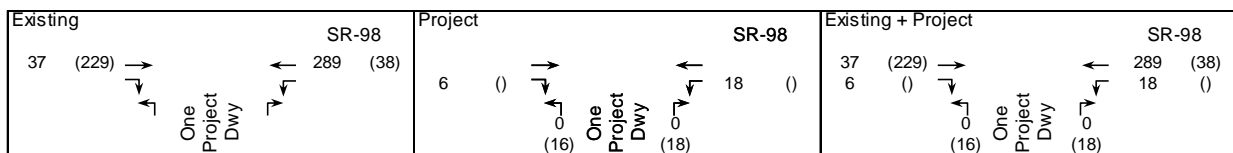


Figure 2: SR-98 and One Project Driveway (represents either possible driveway on SR-98)

The second scenario represents a concentrated use of a driveway on Rockwood Rd south of SR-98. This is shown in **Figure 3** with 24 AM and 34 PM project trips using Rockwood Road heading south.

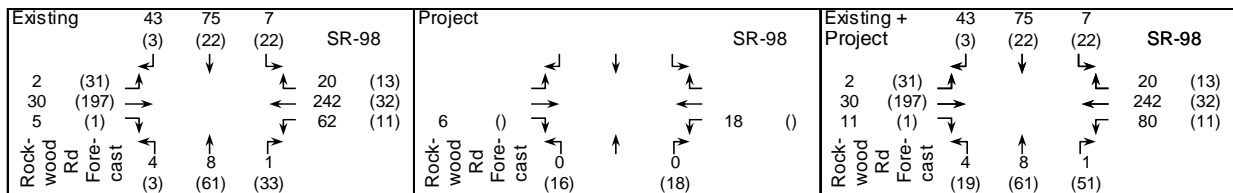


Figure 3: SR-98 and Rockwood Rd forecast for driveway south of SR-98

The third scenario represents a concentrated use of a driveway on Rockwood Rd north of SR-98. This is shown in **Figure 4** with 24 AM and 34 PM project trips using Rockwood Road heading north.

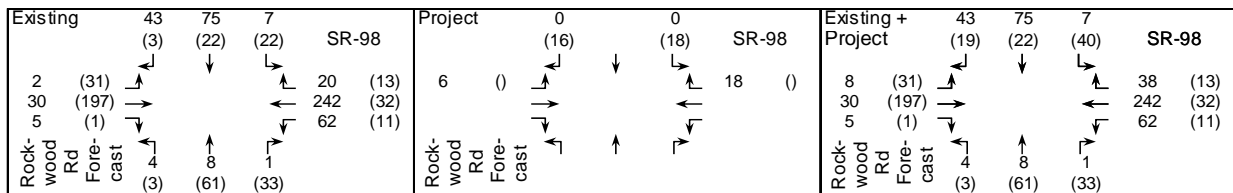


Figure 4: SR-98 and Rockwood Rd forecast for driveway north of SR-98

The next scenarios cover the long-term year 2024 plus cumulative plus project conditions. The first long-term scenario represents the 24 AM and 34 PM trips for either driveway on SR-98 added to year 2024 with cumulative traffic along SR-98 from the adjacent Ferrell Rd/SR-98 volumes as shown in **Figure 5**.

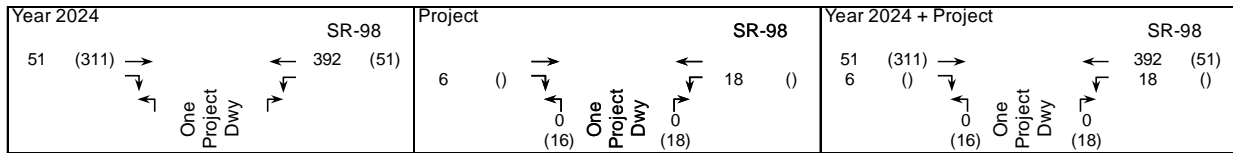


Figure 5: SR-98 and One Project Driveway (represents either possible driveway on SR-98)

The next long-term scenario represents a concentrated use of a driveway on Rockwood Rd south of SR-98. This is shown in **Figure 6** with 24 AM and 34 PM project trips using Rockwood Road heading south.

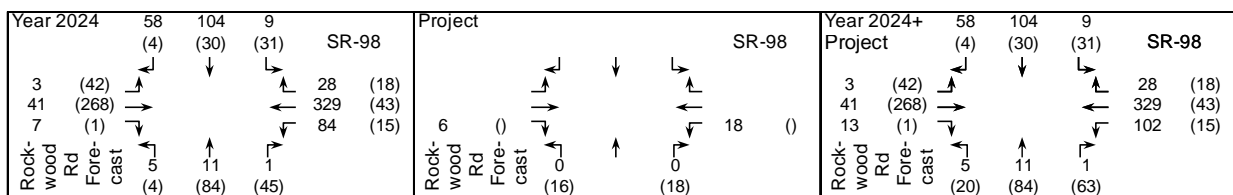


Figure 6: SR-98 and Rockwood Rd forecast for driveway south of SR-98

The final long-term scenario represents a concentrated use of a driveway on Rockwood Rd north of SR-98. This is shown in **Figure 7** with 24 AM and 34 PM project trips using Rockwood Road heading north.

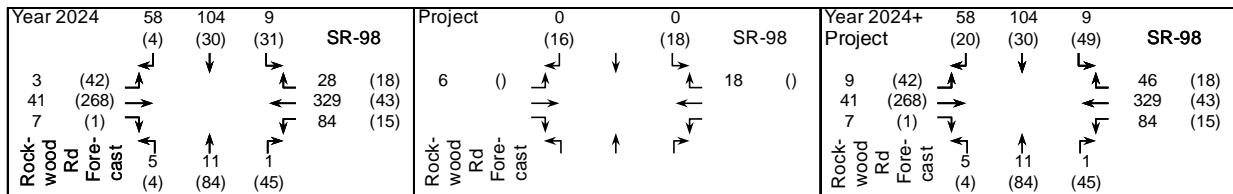


Figure 7: SR-98 and Rockwood Rd forecast for driveway north of SR-98

The Level of Service (LOS) for the above scenarios are summarized in **Table 1**.

Table 1: LOS for Near-Term and Long-Term Scenarios

Intersection & (Control) ¹	Move- ment	Peak Hour	2013		2013 + P			2024 + C		2024 + C + P				
			Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Sig ⁵	Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Sig ⁵
1) SR-98/Proj Dwy (U) Scenario 1	Minor Leg	AM	0.0	A	0.5	A	0.5	None	0.0	A	0.4	A	0.4	None
	Minor Leg	PM	0.0	A	10.1	B	10.1	None	0.0	A	10.8	B	10.8	None
2) Rockwood/SR98 (U) Scenario 2	Minor Leg	AM	13.6	B	14.3	B	0.7	None	18.7	C	20.1	C	1.4	None
	Minor Leg	PM	12.6	B	12.9	B	0.3	None	15.8	C	16.2	C	0.4	None
3) Rockwood/SR98 (U) Scenario 3	Minor Leg	AM	13.6	B	13.8	B	0.2	None	18.7	C	19.4	C	0.7	None
	Minor Leg	PM	12.6	B	12.6	B	0.0	None	15.8	C	16.2	C	0.4	None

Notes: 1) Intersection Control - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds.

3) LOS: Level of Service. Minor Leg: approach LOS of minor/lesser roadway. All: combined LOS for all approaches.

4) Delta is the increase in delay from project. 5) Type of impact: none, direct, or cumulative.

As shown in Table 1, the project traffic is not calculated to create an impact and the LOS is at C or better. The calculations are included in Attachment B. The year 2024 plus cumulative plus project was calculated to operate at LOS C or better; therefore, through deduction the

interim years analyzed in the traffic study that included 2016 and 2019 with slightly less traffic than year 2024 conditions would also have acceptable LOS.

Conclusions

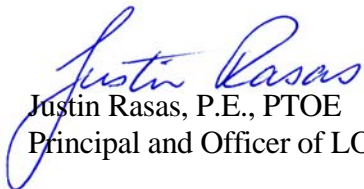
This letter and analyses have been provided to address Caltrans' concern about the initial reference to potential traffic impacts within the Notice of Preparation and provides intersection and driveway operational findings on SR-98.

Since the September 26, 2013 NOP filing, a traffic study dated May 14, 2014 was prepared and documented no direct and no cumulative impacts for the study area roadways and intersections.

The request to include the analysis of SR-98 at Rockwood Road has been included in this analysis and shown to operate at acceptable LOS with the project through year 2024. Volumes for Rockwood Road at SR-98 were forecasted by using the adjacent volumes from Ferrell Road/SR-98 to meet the planned submission schedule. Additionally, a project driveway analysis was provided to show LOS for project access with SR-98. The project traffic will not create a significant direct or cumulative impact because the intersection of Rockwood Road/SR-98 and the two planned project driveways on SR-98 are calculated to operate at LOS C or better under near-term and long-term conditions. The proposed driveways on SR-98 will have encroachment permit requests submitted to Caltrans under separate cover at the appropriate time in the permitting process.

Please call me at (619) 890-1253 if you have any questions.

Sincerely,
LOS Engineering, Inc.


Justin Rasas, P.E., PTOE
Principal and Officer of LOS Engineering, Inc.

Attachments

ATTACHMENT A

Notice of Preparation



EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT



KEN ALEX
DIRECTOR

Notice of Preparation

September 26, 2013

To: Reviewing Agencies

Re: Wistaria Ranch Solar
SCH# 2013091084

Attached for your review and comment is the Notice of Preparation (NOP) for the Wistaria Ranch Solar draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Dave Black
Imperial County Planning & Dev. Services Dept.
801 Main Street
El Centro, CA 92243

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

ATTACHMENT B

LOS Calculations

AM Existing
1: Project Driveway & SR-98



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Volume (veh/h)	37	0	0	289	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	0	0	314	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			40		354	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			40		354	40
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1569		644	1031

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	40	314	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1569	1700
Volume to Capacity	0.02	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		18.5%	ICU Level of Service A
Analysis Period (min)		15	

AM Existing
2: SR-98 & Rockwood Forecast w/S. Proj Dwy

















HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	30	5	62	242	20	4	8	1	7	75	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	33	5	67	263	22	4	9	1	8	82	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	285			38			536	459	35	454	451	274
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	285			38			536	459	35	454	451	274
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			99	98	100	98	83	94
cM capacity (veh/h)	1277			1572			360	476	1037	491	481	765
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	40	352	14	136								
Volume Left	2	67	4	8								
Volume Right	5	22	1	47								
cSH	1277	1572	450	552								
Volume to Capacity	0.00	0.04	0.03	0.25								
Queue Length 95th (ft)	0	3	2	24								
Control Delay (s)	0.4	1.7	13.3	13.6								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.4	1.7	13.3	13.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			37.9%		ICU Level of Service				A			
Analysis Period (min)			15									

AM Existing

3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	30	5	62	242	20	4	8	1	7	75	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	33	5	67	263	22	4	9	1	8	82	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	285			38			536	459	35	454	451	274
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	285			38			536	459	35	454	451	274
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			99	98	100	98	83	94
cM capacity (veh/h)	1277			1572			360	476	1037	491	481	765
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	40	352	14	136								
Volume Left	2	67	4	8								
Volume Right	5	22	1	47								
cSH	1277	1572	450	552								
Volume to Capacity	0.00	0.04	0.03	0.25								
Queue Length 95th (ft)	0	3	2	24								
Control Delay (s)	0.4	1.7	13.3	13.6								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.4	1.7	13.3	13.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			37.9%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Existing
1: Project Driveway & SR-98



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↙	↘
Volume (veh/h)	229	0	0	38	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	0	0	41	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			249		290	249
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			249		290	249
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1317		700	790

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	249	41	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1317	1700
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		15.4%	ICU Level of Service A
Analysis Period (min)		15	

PM Existing
2: SR-98 & Rockwood Forecast w/S. Proj Dwy

















HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	197	1	11	32	13	3	61	33	22	22	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	214	1	12	35	14	3	66	36	24	24	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	49			215			363	355	215	417	348	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	49			215			363	355	215	417	348	42
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			99	88	96	95	96	100
cM capacity (veh/h)	1558			1355			559	553	825	464	558	1029
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	249	61	105	51								
Volume Left	34	12	3	24								
Volume Right	1	14	36	3								
cSH	1558	1355	623	524								
Volume to Capacity	0.02	0.01	0.17	0.10								
Queue Length 95th (ft)	2	1	15	8								
Control Delay (s)	1.2	1.6	11.9	12.6								
Lane LOS	A	A	B	B								
Approach Delay (s)	1.2	1.6	11.9	12.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			30.6%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Existing

3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	197	1	11	32	13	3	61	33	40	22	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	214	1	12	35	14	3	66	36	43	24	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	49			215			380	355	215	417	348	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	49			215			380	355	215	417	348	42
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			99	88	96	91	96	98
cM capacity (veh/h)	1558			1355			535	553	825	464	558	1029
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	249	61	105	88								
Volume Left	34	12	3	43								
Volume Right	1	14	36	21								
cSH	1558	1355	622	562								
Volume to Capacity	0.02	0.01	0.17	0.16								
Queue Length 95th (ft)	2	1	15	14								
Control Delay (s)	1.2	1.6	12.0	12.6								
Lane LOS	A	A	B	B								
Approach Delay (s)	1.2	1.6	12.0	12.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			32.6%		ICU Level of Service				A			
Analysis Period (min)			15									

AM Existing + Project
1: Project Driveway & SR-98



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	→
Volume (veh/h)	37	6	18	289	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	7	20	314	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			47		397	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			47		397	43
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1561		601	1027

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	47	334	0
Volume Left	0	20	0
Volume Right	7	0	0
cSH	1700	1561	1700
Volume to Capacity	0.03	0.01	0.00
Queue Length 95th (ft)	0	1	0
Control Delay (s)	0.0	0.5	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization	26.2%		ICU Level of Service A
Analysis Period (min)		15	

AM Existing + Project
2: SR-98 & Rockwood Forecast w/S. Proj Dwy

















HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	30	11	80	242	20	4	8	1	7	75	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	33	12	87	263	22	4	9	1	8	82	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	285			45			578	502	39	496	497	274
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	285			45			578	502	39	496	497	274
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			99	98	100	98	82	94
cM capacity (veh/h)	1277			1564			330	445	1033	456	448	765
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	47	372	14	136								
Volume Left	2	87	4	8								
Volume Right	12	22	1	47								
cSH	1277	1564	418	523								
Volume to Capacity	0.00	0.06	0.03	0.26								
Queue Length 95th (ft)	0	4	3	26								
Control Delay (s)	0.4	2.1	13.9	14.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.4	2.1	13.9	14.3								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.2									
Intersection Capacity Utilization			38.9%		ICU Level of Service				A			
Analysis Period (min)			15									

AM Existing + Project

3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	30	5	62	242	20	4	8	1	7	75	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	33	5	67	263	22	4	9	1	8	82	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	285			38			549	472	35	467	464	274
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	285			38			549	472	35	467	464	274
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			99	98	100	98	83	94
cM capacity (veh/h)	1277			1572			350	466	1037	480	471	765
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	47	352	14	136								
Volume Left	9	67	4	8								
Volume Right	5	22	1	47								
cSH	1277	1572	440	543								
Volume to Capacity	0.01	0.04	0.03	0.25								
Queue Length 95th (ft)	1	3	2	25								
Control Delay (s)	1.5	1.7	13.5	13.8								
Lane LOS	A	A	B	B								
Approach Delay (s)	1.5	1.7	13.5	13.8								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.0									
Intersection Capacity Utilization			37.4%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Existing + Project
1: Project Driveway & SR-98



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	→
Volume (veh/h)	229	0	0	38	16	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	0	0	41	17	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			249		290	249
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			249		290	249
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	98
cM capacity (veh/h)			1317		700	790

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	249	41	37
Volume Left	0	0	17
Volume Right	0	0	20
cSH	1700	1317	745
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	10.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.1
Approach LOS			B

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		22.1%	ICU Level of Service A
Analysis Period (min)		15	

















PM Existing + Project
2: SR-98 & Rockwood Forecast w/S. Proj Dwy

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	197	1	11	32	13	19	61	51	22	22	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	214	1	12	35	14	21	66	55	24	24	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	49			215			363	355	215	436	348	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	49			215			363	355	215	436	348	42
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			96	88	93	95	96	100
cM capacity (veh/h)	1558			1355			559	553	825	439	558	1029
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	249	61	142	51								
Volume Left	34	12	21	24								
Volume Right	1	14	55	3								
cSH	1558	1355	636	508								
Volume to Capacity	0.02	0.01	0.22	0.10								
Queue Length 95th (ft)	2	1	21	8								
Control Delay (s)	1.2	1.6	12.3	12.9								
Lane LOS	A	A	B	B								
Approach Delay (s)	1.2	1.6	12.3	12.9								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			29.0%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Existing + Project
 3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	197	1	11	32	13	3	61	33	40	22	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	214	1	12	35	14	3	66	36	43	24	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	49			215			380	355	215	417	348	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	49			215			380	355	215	417	348	42
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			99	88	96	91	96	98
cM capacity (veh/h)	1558			1355			535	553	825	464	558	1029
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	249	61	105	88								
Volume Left	34	12	3	43								
Volume Right	1	14	36	21								
cSH	1558	1355	622	562								
Volume to Capacity	0.02	0.01	0.17	0.16								
Queue Length 95th (ft)	2	1	15	14								
Control Delay (s)	1.2	1.6	12.0	12.6								
Lane LOS	A	A	B	B								
Approach Delay (s)	1.2	1.6	12.0	12.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			32.6%		ICU Level of Service				A			
Analysis Period (min)			15									

AM Year2024 + Cumulative
1: Project Driveway & SR-98

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (veh/h)	51	0	0	392	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	0	0	426	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			55			482
vC1, stage 1 conf vol						55
vC2, stage 2 conf vol						
vCu, unblocked vol			55			482
tC, single (s)			4.1			6.4
tC, 2 stage (s)						6.2
tF (s)			2.2			3.5
p0 queue free %			100			100
cM capacity (veh/h)			1549			544
	1011					
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	55	426	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1549	1700			
Volume to Capacity	0.03	0.00	0.05			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS				A		
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS				A		
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			24.0%	ICU Level of Service	A	
Analysis Period (min)			15			

AM Year2024 + Cumulative
2: SR-98 & Rockwood Forecast w/S. Proj Dwy

















HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	41	7	84	329	28	5	11	1	9	104	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	45	8	91	358	30	5	12	1	10	113	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	388			52			730	626	48	617	614	373
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	388			52			730	626	48	617	614	373
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			98	97	100	97	70	91
cM capacity (veh/h)	1170			1554			226	376	1020	373	382	673
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	55	479	18	186								
Volume Left	3	91	5	10								
Volume Right	8	30	1	63								
cSH	1170	1554	325	447								
Volume to Capacity	0.00	0.06	0.06	0.42								
Queue Length 95th (ft)	0	5	5	50								
Control Delay (s)	0.5	1.9	16.8	18.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.5	1.9	16.8	18.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			46.8%		ICU Level of Service				A			
Analysis Period (min)			15									

AM Year2024 + Cumulative

3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	41	7	84	329	28	5	11	1	9	104	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	45	8	91	358	30	5	12	1	10	113	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	388			52			730	626	48	617	614	373
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	388			52			730	626	48	617	614	373
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			98	97	100	97	70	91
cM capacity (veh/h)	1170			1554			226	376	1020	373	382	673
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	55	479	18	186								
Volume Left	3	91	5	10								
Volume Right	8	30	1	63								
cSH	1170	1554	325	447								
Volume to Capacity	0.00	0.06	0.06	0.42								
Queue Length 95th (ft)	0	5	5	50								
Control Delay (s)	0.5	1.9	16.8	18.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.5	1.9	16.8	18.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			46.8%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Year2024 + Cumulative
1: Project Driveway & SR-98

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (veh/h)	311	0	0	51	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	338	0	0	55	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			338		393	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			338		393	338
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1221		611	704
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	338	55	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1221	1700			
Volume to Capacity	0.20	0.00	0.05			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			19.7%		ICU Level of Service	A
Analysis Period (min)			15			

















PM Year2024 + Cumulative
2: SR-98 & Rockwood Forecast w/S. Proj Dwy

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	268	1	15	43	18	4	84	45	31	30	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	291	1	16	47	20	4	91	49	34	33	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66			292			493	482	292	567	473	57
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66			292			493	482	292	567	473	57
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			99	80	93	90	93	100
cM capacity (veh/h)	1535			1269			444	463	747	334	469	1010
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	338	83	145	71								
Volume Left	46	16	4	34								
Volume Right	1	20	49	4								
cSH	1535	1269	531	404								
Volume to Capacity	0.03	0.01	0.27	0.17								
Queue Length 95th (ft)	2	1	27	16								
Control Delay (s)	1.2	1.6	14.3	15.8								
Lane LOS	A	A	B	C								
Approach Delay (s)	1.2	1.6	14.3	15.8								
Approach LOS			B	C								
Intersection Summary												
Average Delay			5.9									
Intersection Capacity Utilization			40.9%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Year2024 + Cumulative
 3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	268	1	15	43	18	4	84	45	31	30	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	291	1	16	47	20	4	91	49	34	33	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66			292			493	482	292	567	473	57
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66			292			493	482	292	567	473	57
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			99	80	93	90	93	100
cM capacity (veh/h)	1535			1269			444	463	747	334	469	1010
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	338	83	145	71								
Volume Left	46	16	4	34								
Volume Right	1	20	49	4								
cSH	1535	1269	531	404								
Volume to Capacity	0.03	0.01	0.27	0.17								
Queue Length 95th (ft)	2	1	27	16								
Control Delay (s)	1.2	1.6	14.3	15.8								
Lane LOS	A	A	B	C								
Approach Delay (s)	1.2	1.6	14.3	15.8								
Approach LOS			B	C								
Intersection Summary												
Average Delay			5.9									
Intersection Capacity Utilization			40.9%		ICU Level of Service				A			
Analysis Period (min)			15									

AM Year2024 + Cumulative + Project
1: Project Driveway & SR-98



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	
Volume (veh/h)	51	6	18	392	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	7	20	426	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			62		524	59
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			62		524	59
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1541		507	1007

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	62	446	0
Volume Left	0	20	0
Volume Right	7	0	0
cSH	1700	1541	1700
Volume to Capacity	0.04	0.01	0.00
Queue Length 95th (ft)	0	1	0
Control Delay (s)	0.0	0.4	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		31.6%	ICU Level of Service
Analysis Period (min)		15	A

















AM Year2024 + Cumulative + Project
2: SR-98 & Rockwood Forecast w/S. Proj Dwy

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	41	13	102	329	28	5	11	1	9	104	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	45	14	111	358	30	5	12	1	10	113	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	388			59			772	668	52	660	660	373
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	388			59			772	668	52	660	660	373
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			97	97	100	97	68	91
cM capacity (veh/h)	1170			1545			204	351	1016	346	355	673
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	62	499	18	186								
Volume Left	3	111	5	10								
Volume Right	14	30	1	63								
cSH	1170	1545	299	422								
Volume to Capacity	0.00	0.07	0.06	0.44								
Queue Length 95th (ft)	0	6	5	55								
Control Delay (s)	0.4	2.2	17.8	20.1								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	2.2	17.8	20.1								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			47.8%		ICU Level of Service				A			
Analysis Period (min)			15									

AM Year2024 + Cumulative + Project
 3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	41	7	84	329	46	5	11	1	9	104	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	45	8	91	358	50	5	12	1	10	113	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	408			52			753	658	48	640	637	383
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	408			52			753	658	48	640	637	383
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			97	97	100	97	69	91
cM capacity (veh/h)	1151			1554			214	358	1020	359	369	665
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	62	499	18	186								
Volume Left	10	91	5	10								
Volume Right	8	50	1	63								
cSH	1151	1554	309	433								
Volume to Capacity	0.01	0.06	0.06	0.43								
Queue Length 95th (ft)	1	5	5	53								
Control Delay (s)	1.3	1.8	17.4	19.4								
Lane LOS	A	A	C	C								
Approach Delay (s)	1.3	1.8	17.4	19.4								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			47.9%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Year2024 + Cumulative + Project
1: Project Driveway & SR-98

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	↗
Volume (veh/h)	311	0	0	51	16	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	338	0	0	55	17	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			338		393	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			338		393	338
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	97
cM capacity (veh/h)			1221		611	704
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	338	55	37			
Volume Left	0	0	17			
Volume Right	0	0	20			
cSH	1700	1221	657			
Volume to Capacity	0.20	0.00	0.06			
Queue Length 95th (ft)	0	0	4			
Control Delay (s)	0.0	0.0	10.8			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.8			
Approach LOS			B			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			26.4%		ICU Level of Service	A
Analysis Period (min)			15			

















PM Year2024 + Cumulative + Project
 2: SR-98 & Rockwood Forecast w/S. Proj Dwy

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	268	1	15	43	18	20	84	63	31	30	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	291	1	16	47	20	22	91	68	34	33	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66			292			493	482	292	586	473	57
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66			292			493	482	292	586	473	57
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			95	80	91	89	93	100
cM capacity (veh/h)	1535			1269			444	463	747	315	469	1010
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	338	83	182	71								
Volume Left	46	16	22	34								
Volume Right	1	20	68	4								
cSH	1535	1269	538	391								
Volume to Capacity	0.03	0.01	0.34	0.18								
Queue Length 95th (ft)	2	1	37	16								
Control Delay (s)	1.2	1.6	15.1	16.2								
Lane LOS	A	A	C	C								
Approach Delay (s)	1.2	1.6	15.1	16.2								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utilization			36.6%		ICU Level of Service				A			
Analysis Period (min)			15									

PM Year2024 + Cumulative + Project
 3: Rockwood Forecast w/N. Pro Dwy & SR-98

HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	268	1	15	43	18	4	84	45	49	30	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	291	1	16	47	20	4	91	49	53	33	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66			292			510	482	292	567	473	57
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66			292			510	482	292	567	473	57
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			99	80	93	84	93	98
cM capacity (veh/h)	1535			1269			425	463	747	334	469	1010
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	338	83	145	108								
Volume Left	46	16	4	53								
Volume Right	1	20	49	22								
cSH	1535	1269	530	429								
Volume to Capacity	0.03	0.01	0.27	0.25								
Queue Length 95th (ft)	2	1	27	24								
Control Delay (s)	1.2	1.6	14.3	16.2								
Lane LOS	A	A	B	C								
Approach Delay (s)	1.2	1.6	14.3	16.2								
Approach LOS			B	C								
Intersection Summary												
Average Delay			6.5									
Intersection Capacity Utilization			42.9%		ICU Level of Service				A			
Analysis Period (min)			15									