

HCM 7th Signalized Intersection Summary 10: Clearwater Pkwy & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekend_PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↗
Traffic Volume (veh/h)	95	137	26	118	94	19
Future Volume (veh/h)	95	137	26	118	94	19
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	104	151	29	130	103	21
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1569	700	58	1955	1082	496
Arrive On Green	0.43	0.43	0.03	0.54	0.31	0.31
Sat Flow, veh/h	3705	1610	1810	3705	3510	1610
Grp Volume(v), veh/h	104	151	29	130	103	21
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805	1755	1610
Q Serve(g_s), s	1.0	3.5	0.9	1.0	1.3	0.5
Cycle Q Clear(g_c), s	1.0	3.5	0.9	1.0	1.3	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1569	700	58	1955	1082	496
V/C Ratio(X)	0.07	0.22	0.50	0.07	0.10	0.04
Avail Cap(c_a), veh/h	1569	700	196	1955	1082	496
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	9.9	10.6	28.6	6.5	14.8	14.5
Incr Delay (d2), s/veh	0.1	0.7	6.6	0.1	0.2	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.5	0.3	0.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.0	11.3	35.2	6.6	15.0	14.7
LnGrp LOS	A	B	D	A	B	B
Approach Vol, veh/h	255			159	124	
Approach Delay, s/veh	10.7			11.8	14.9	
Approach LOS	B			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.4	30.6			37.0	23.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	6.5	21.5			32.5	18.5
Max Q Clear Time (g_c+I1), s	2.9	5.5			3.0	3.3
Green Ext Time (p_c), s	0.0	1.0			0.8	0.3
Intersection Summary						
HCM 7th Control Delay, s/veh			12.0			
HCM 7th LOS			B			

HCM 7th Signalized Intersection Summary 11: I-15 NB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekend_PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↷			↷		↰	↷	↰			
Traffic Volume (veh/h)	42	85	0	0	151	61	5	1	147	0	0	0
Future Volume (veh/h)	42	85	0	0	151	61	5	1	147	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	46	92	0	0	164	66	6	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	80	3057	0	0	1857	719	29	0				
Arrive On Green	0.04	0.85	0.00	0.00	0.73	0.73	0.01	0.00	0.00			
Sat Flow, veh/h	1810	3705	0	0	2639	984	3619	0	1610			
Grp Volume(v), veh/h	46	92	0	0	114	116	6	0	0			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1805	1723	1810	0	1610			
Q Serve(g_s), s	1.5	0.2	0.0	0.0	1.1	1.2	0.1	0.0	0.0			
Cycle Q Clear(g_c), s	1.5	0.2	0.0	0.0	1.1	1.2	0.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.57	1.00		1.00			
Lane Grp Cap(c), veh/h	80	3057	0	0	1318	1258	29	0				
V/C Ratio(X)	0.58	0.03	0.00	0.00	0.09	0.09	0.21	0.00				
Avail Cap(c_a), veh/h	394	3057	0	0	1318	1258	1080	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	29.1	0.7	0.0	0.0	2.4	2.4	30.6	0.0	0.0			
Incr Delay (d2), s/veh	6.4	0.0	0.0	0.0	0.1	0.1	3.6	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			
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.3	0.3	0.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.5	0.8	0.0	0.0	2.5	2.6	34.1	0.0	0.0			
LnGrp LOS	D	A			A	A	C					
Approach Vol, veh/h	138			230			6					
Approach Delay, s/veh	12.3			2.6			34.1					
Approach LOS	B			A			C					
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	57.0			7.2			49.8			5.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	52.5			13.5			34.5			18.5		
Max Q Clear Time (g_c+I1), s	2.2			3.5			3.2			2.1		
Green Ext Time (p_c), s	0.6			0.0			1.4			0.0		

Intersection Summary

HCM 7th Control Delay, s/veh 6.7
HCM 7th LOS A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th TWSC
12: I-15 SB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekend_PM

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Vol, veh/h	0	41	0	130	26	0	0	0	0	86	5	13
Future Vol, veh/h	0	41	0	130	26	0	0	0	0	86	5	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	220	-	-	-	-	-	825	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	42	0	134	27	0	0	0	0	89	5	13

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	42	0	0	316	337	13
Stage 1	-	-	-	-	-	-	295	295	-
Stage 2	-	-	-	-	-	-	21	42	-
Critical Hdwy	-	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	1580	-	0	658	587	1070
Stage 1	0	-	-	-	-	0	736	673	-
Stage 2	0	-	-	-	-	0	1004	864	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1580	-	-	602	0	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	602	0	-
Stage 1	-	-	-	-	-	-	736	0	-
Stage 2	-	-	-	-	-	-	919	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	6.24	11.39
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1580	-	602	1070
HCM Lane V/C Ratio	-	-	0.085	-	0.147	0.017
HCM Control Delay (s/veh)	-	-	7.5	-	12	8.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	-	0.5	0.1

HCM 7th AWSC
1: Glen Helen Pkwy & I-215 NB Ramps

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection

Intersection Delay, s/veh 13
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑	↑			↑	↑
Traffic Vol, veh/h	0	0	0	274	20	91	149	120	0	0	115	74
Future Vol, veh/h	0	0	0	274	20	91	149	120	0	0	115	74
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	301	22	100	164	132	0	0	126	81
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay, s/veh	15.4	11.5	10.1
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	149	120	294	91	115	74
LT Vol	149	0	274	0	0	0
Through Vol	0	120	20	0	115	0
RT Vol	0	0	0	91	0	74
Lane Flow Rate	164	132	323	100	126	81
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.301	0.224	0.573	0.145	0.22	0.125
Departure Headway (Hd)	6.613	6.105	6.389	5.214	6.261	5.549
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	544	588	565	688	574	645
Service Time	4.349	3.841	4.12	2.944	4.002	3.29
HCM Lane V/C Ratio	0.301	0.224	0.572	0.145	0.22	0.126
HCM Control Delay, s/veh	12.2	10.6	17.4	8.8	10.8	9.1
HCM Lane LOS	B	B	C	A	B	A
HCM 95th-tile Q	1.3	0.9	3.6	0.5	0.8	0.4

HCM 7th AWSC

2: Glen Helen Pkwy & I-215 SB Ramps

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection

Intersection Delay, s/veh 18.6

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕		↕	↕	
Traffic Vol, veh/h	78	6	241	0	0	0	0	191	210	46	343	0
Future Vol, veh/h	78	6	241	0	0	0	0	191	210	46	343	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
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	85	7	262	0	0	0	0	208	228	50	373	0
Number of Lanes	0	1	1	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	2
HCM Control Delay, s/veh	13.3	22.8	18.6
HCM LOS	B	C	C

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	93%	0%	100%	0%
Vol Thru, %	48%	7%	0%	0%	100%
Vol Right, %	52%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	401	84	241	46	343
LT Vol	0	78	0	46	0
Through Vol	191	6	0	0	343
RT Vol	210	0	241	0	0
Lane Flow Rate	436	91	262	50	373
Geometry Grp	4b	5	5	5	5
Degree of Util (X)	0.719	0.186	0.447	0.094	0.645
Departure Headway (Hd)	5.938	7.325	6.138	6.737	6.228
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	606	488	584	530	578
Service Time	3.998	5.094	3.906	4.502	3.993
HCM Lane V/C Ratio	0.719	0.186	0.449	0.094	0.645
HCM Control Delay, s/veh	22.8	11.8	13.8	10.2	19.7
HCM Lane LOS	C	B	B	B	C
HCM 95th-ile Q	6	0.7	2.3	0.3	4.6

HCM 7th AWSC
3: Glen Helen Pkwy & Cajon Blvd

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection

Intersection Delay, s/veh 32.6

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	168	43	120	129	36	120	26	114	53	145	410	29
Future Vol, veh/h	168	43	120	129	36	120	26	114	53	145	410	29
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	173	44	124	133	37	124	27	118	55	149	423	30
Number of Lanes	1	2	0	1	2	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay, s/veh	17	15.8	19.7	53.8
HCM LOS	C	C	C	F

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	13%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	59%	0%	100%	11%	0%	100%	9%	0%	93%
Vol Right, %	27%	0%	0%	89%	0%	0%	91%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	193	168	29	134	129	24	132	145	439
LT Vol	26	168	0	0	129	0	0	145	0
Through Vol	114	0	29	14	0	24	12	0	410
RT Vol	53	0	0	120	0	0	120	0	29
Lane Flow Rate	199	173	30	138	133	25	136	149	453
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.487	0.45	0.073	0.315	0.351	0.062	0.315	0.348	0.985
Departure Headway (Hd)	8.81	9.355	8.833	8.18	9.514	8.991	8.325	8.392	7.837
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	410	384	405	439	378	398	431	429	462
Service Time	6.567	7.108	6.586	5.932	7.271	6.747	6.081	6.138	5.583
HCM Lane V/C Ratio	0.485	0.451	0.074	0.314	0.352	0.063	0.316	0.347	0.981
HCM Control Delay, s/veh	19.7	19.6	12.3	14.7	17.4	12.3	14.9	15.6	66.4
HCM Lane LOS	C	C	B	B	C	B	B	C	F
HCM 95th-ile Q	2.6	2.3	0.2	1.3	1.5	0.2	1.3	1.5	12.6

HCM 7th TWSC
4: Glen Helen Pkwy & Gate 4

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑		↑	↑↑
Traffic Vol, veh/h	13	45	141	0	1	649
Future Vol, veh/h	13	45	141	0	1	649
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	49	155	0	1	713

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	514	77	0	0	155
Stage 1	155	-	-	-	-
Stage 2	359	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	495	974	-	-	1438
Stage 1	863	-	-	-	-
Stage 2	683	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	495	974	-	-	1438
Mov Cap-2 Maneuver	622	-	-	-	-
Stage 1	863	-	-	-	-
Stage 2	683	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.5	0	0.01
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	864	1438
HCM Lane V/C Ratio	-	-	0.074	0.001
HCM Control Delay (s/veh)	-	-	9.5	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 7th TWSC
5: Glen Helen Pkwy & Gate 3

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑		↑	↑↑
Traffic Vol, veh/h	0	0	142	291	186	476
Future Vol, veh/h	0	0	142	291	186	476
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	158	323	207	529

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	997	241	0	0	481
Stage 1	319	-	-	-	-
Stage 2	678	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	244	767	-	-	1092
Stage 1	715	-	-	-	-
Stage 2	471	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	198	767	-	-	1092
Mov Cap-2 Maneuver	348	-	-	-	-
Stage 1	715	-	-	-	-
Stage 2	382	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	2.55
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1092
HCM Lane V/C Ratio	-	-	-	0.189
HCM Control Delay (s/veh)	-	-	0	9.1
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0.7

HCM 7th TWSC
6: Glen Helen Pkwy & Glen Helen Rd/Gate 2

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↵	↑↑	↵	↵	↑↑	
Traffic Vol, veh/h	39	0	24	0	0	1	98	412	0	14	266	195
Future Vol, veh/h	39	0	24	0	0	1	98	412	0	14	266	195
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	100	175	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	45	0	28	0	0	1	113	474	0	16	306	224

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	912	1149	265	884	1261	237	530	0	0	474	0	0
Stage 1	450	450	-	699	699	-	-	-	-	-	-	-
Stage 2	462	699	-	185	562	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	232	200	739	243	172	771	1048	-	-	1099	-	-
Stage 1	564	575	-	401	445	-	-	-	-	-	-	-
Stage 2	554	445	-	805	513	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	204	176	739	206	151	771	1048	-	-	1099	-	-
Mov Cap-2 Maneuver	387	332	-	328	298	-	-	-	-	-	-	-
Stage 1	555	567	-	358	397	-	-	-	-	-	-	-
Stage 2	494	397	-	763	505	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v13.98		9.68	1.7	0.25
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1048	-	-	473	771	1099	-	-
HCM Lane V/C Ratio	0.108	-	-	0.153	0.001	0.015	-	-
HCM Control Delay (s/veh)	8.8	-	-	14	9.7	8.3	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0	0	-	-

HCM 7th TWSC
7: Glen Helen Pkwy & Sherrif's Rodeo Pk Lot

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations	W		T	↑↑	↑↑	
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Traffic Vol, veh/h	0	0	4	558	0	0
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Future Vol, veh/h	0	0	4	558	0	0
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	100	-	-	-
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Veh in Median Storage, #	2	-	-	0	0	-
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Grade, %	0	-	-	0	0	-
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Peak Hour Factor	84	84	84	84	84	84
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Heavy Vehicles, %	0	0	0	0	0	0
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Mvmt Flow	0	0	5	664	0	0
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Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	343	1	1	0	-	0
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Stage 1	1	-	-	-	-	-
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Stage 2	342	-	-	-	-	-
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Critical Hdwy	6.8	6.9	4.1	-	-	-
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Critical Hdwy Stg 1	5.8	-	-	-	-	-
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Critical Hdwy Stg 2	5.8	-	-	-	-	-
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Follow-up Hdwy	3.5	3.3	2.2	-	-	-
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Pot Cap-1 Maneuver	633	1090	1635	-	-	-
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Stage 1	1027	-	-	-	-	-
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Stage 2	697	-	-	-	-	-
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Platoon blocked, %				-	-	-
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Mov Cap-1 Maneuver	631	1090	1635	-	-	-
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Mov Cap-2 Maneuver	660	-	-	-	-	-
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Stage 1	1024	-	-	-	-	-
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Stage 2	697	-	-	-	-	-
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Approach	EB	NB	SB
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HCM Control Delay, s/v	0	0.05	0
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HCM LOS	A		
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Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
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Capacity (veh/h)	1635	-	-	-
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HCM Lane V/C Ratio	0.003	-	-	-
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HCM Control Delay (s/veh)	7.2	-	0	-
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HCM Lane LOS	A	-	A	-
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HCM 95th %tile Q(veh)	0	-	-	-
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HCM 7th TWSC
8: Glen Helen Pkwy & Pvt Dwy/Gate 1

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕	↕	↕	
Traffic Vol, veh/h	0	1	0	76	2	105	0	466	284	178	99	0
Future Vol, veh/h	0	1	0	76	2	105	0	466	284	178	99	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	215	115	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1	0	84	2	117	0	518	316	198	110	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	766	1339	55	969	1023	259	110	0	0	833	0	0
Stage 1	506	506	-	518	518	-	-	-	-	-	-	-
Stage 2	260	833	-	451	506	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	296	154	1007	211	237	746	1493	-	-	808	-	-
Stage 1	523	543	-	514	537	-	-	-	-	-	-	-
Stage 2	728	386	-	563	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	188	116	1007	159	179	746	1493	-	-	808	-	-
Mov Cap-2 Maneuver	315	176	-	341	345	-	-	-	-	-	-	-
Stage 1	395	410	-	514	537	-	-	-	-	-	-	-
Stage 2	612	386	-	424	410	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v25.61			14.25		0		7					
HCM LOS	D		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1493	-	-	176	341	730	808	-	-			
HCM Lane V/C Ratio	-	-	-	0.006	0.247	0.163	0.245	-	-			
HCM Control Delay (s/veh)	0	-	-	25.6	19	10.9	10.9	-	-			
HCM Lane LOS	A	-	-	D	C	B	B	-	-			
HCM 95th %tile Q(veh)	0	-	-	0	1	0.6	1	-	-			

HCM 7th TWSC
9: Glen Helen Pkwy & Sherri's Rodeo 2

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	0	3	306	708	156	46
Future Vol, veh/h	0	3	306	708	156	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	3	336	778	171	51

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1258	111	222
Stage 1	197	-	-
Stage 2	1062	-	-
Critical Hdwy	6.8	6.9	4.1
Critical Hdwy Stg 1	5.8	-	-
Critical Hdwy Stg 2	5.8	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	166	927	1359
Stage 1	823	-	-
Stage 2	298	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	113	927	1359
Mov Cap-2 Maneuver	264	-	-
Stage 1	563	-	-
Stage 2	298	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.9	3.58	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1065	-	927	-	-
HCM Lane V/C Ratio	0.247	-	0.004	-	-
HCM Control Delay (s/veh)	8.5	1.4	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	1	-	0	-	-

HCM 7th Signalized Intersection Summary 10: Clearwater Pkwy & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	1067	122	26	134	103	39
Future Volume (veh/h)	1067	122	26	134	103	39
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1160	133	28	146	112	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1603	715	56	1986	1053	483
Arrive On Green	0.44	0.44	0.03	0.55	0.30	0.30
Sat Flow, veh/h	3705	1610	1810	3705	3510	1610
Grp Volume(v), veh/h	1160	133	28	146	112	42
Grp Sat Flow(s), veh/h/ln	1805	1610	1810	1805	1755	1610
Q Serve(g_s), s	15.8	3.0	0.9	1.1	1.4	1.1
Cycle Q Clear(g_c), s	15.8	3.0	0.9	1.1	1.4	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1603	715	56	1986	1053	483
V/C Ratio(X)	0.72	0.19	0.50	0.07	0.11	0.09
Avail Cap(c_a), veh/h	1603	715	151	1986	1053	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	10.1	28.6	6.3	15.2	15.1
Incr Delay (d2), s/veh	2.7	0.5	6.7	0.1	0.2	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	1.0	0.5	0.4	0.5	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	16.3	10.6	35.3	6.4	15.4	15.4
LnGrp LOS	B	B	D	A	B	B
Approach Vol, veh/h	1293			174	154	
Approach Delay, s/veh	15.7			11.0	15.4	
Approach LOS	B			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.4	31.1			37.5	22.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	23.5			33.0	18.0
Max Q Clear Time (g_c+l1), s	2.9	17.8			3.1	3.4
Green Ext Time (p_c), s	0.0	3.8			0.9	0.4
Intersection Summary						
HCM 7th Control Delay, s/veh			15.2			
HCM 7th LOS			B			

HCM 7th Signalized Intersection Summary 11: I-15 NB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Event_PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑↑			↑↑		←	↑	↑			
Traffic Volume (veh/h)	69	401	0	0	149	88	17	2	788	0	0	0
Future Volume (veh/h)	69	401	0	0	149	88	17	2	788	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach	No				No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	78	451	0	0	167	99	20	0	0			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	107	3009	0	0	1565	881	85	0				
Arrive On Green	0.06	0.83	0.00	0.00	0.70	0.70	0.02	0.00	0.00			
Sat Flow, veh/h	1810	3705	0	0	2322	1253	3619	0	1610			
Grp Volume(v), veh/h	78	451	0	0	134	132	20	0	0			
Grp Sat Flow(s), veh/h/ln	1810	1805	0	0	1805	1674	1810	0	1610			
Q Serve(g_s), s	2.7	1.5	0.0	0.0	1.5	1.6	0.3	0.0	0.0			
Cycle Q Clear(g_c), s	2.7	1.5	0.0	0.0	1.5	1.6	0.3	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.75	1.00		1.00			
Lane Grp Cap(c), veh/h	107	3009	0	0	1269	1177	85	0				
V/C Ratio(X)	0.73	0.15	0.00	0.00	0.11	0.11	0.24	0.00				
Avail Cap(c_a), veh/h	388	3009	0	0	1269	1177	1063	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	29.1	1.0	0.0	0.0	3.0	3.0	30.2	0.0	0.0			
Incr Delay (d2), s/veh	9.1	0.1	0.0	0.0	0.2	0.2	1.4	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			
%ile BackOfQ(50%),veh/ln	1.4	0.1	0.0	0.0	0.4	0.4	0.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	38.2	1.1	0.0	0.0	3.2	3.2	31.6	0.0	0.0			
LnGrp LOS	D	A			A	A	C					
Approach Vol, veh/h	529				266			20				
Approach Delay, s/veh	6.6				3.2			31.6				
Approach LOS	A				A			C				
Timer - Assigned Phs	2				5		6	8				
Phs Duration (G+Y+Rc), s	57.0				8.2		48.8	6.0				
Change Period (Y+Rc), s	4.5				4.5		4.5	4.5				
Max Green Setting (Gmax), s	52.5				13.5		34.5	18.5				
Max Q Clear Time (g_c+I1), s	3.5				4.7		3.6	2.3				
Green Ext Time (p_c), s	3.4				0.1		1.6	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh	6.1
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th TWSC
12: I-15 SB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Event_PM

Intersection												
Int Delay, s/veh	39.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Vol, veh/h	0	90	3	144	22	0	0	0	0	380	11	27
Future Vol, veh/h	0	90	3	144	22	0	0	0	0	380	11	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	220	-	-	-	-	-	825	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	113	4	180	28	0	0	0	0	475	14	34
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	116	0	0				444	504	14
Stage 1	-	-	-	-	-	-				388	388	-
Stage 2	-	-	-	-	-	-				56	116	-
Critical Hdwy	-	-	-	4.1	-	-				6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-				5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.8	5.5	-
Follow-up Hdwy	-	-	-	2.2	-	-				3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	1485	-	0				548	473	1069
Stage 1	0	-	-	-	-	0				661	613	-
Stage 2	0	-	-	-	-	0				965	803	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1485	-	-				481	0	1069
Mov Cap-2 Maneuver	-	-	-	-	-	-				481	0	-
Stage 1	-	-	-	-	-	-				661	0	-
Stage 2	-	-	-	-	-	-				848	0	-
Approach	EB			WB			SB					
HCM Control Delay, s/v	0			6.73			61.91					
HCM LOS	F											
Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2						
Capacity (veh/h)	-	-	1485	-	481	1069						
HCM Lane V/C Ratio	-	-	0.121	-	0.987	0.044						
HCM Control Delay (s/veh)	-	-	7.8	-	67.2	8.5						
HCM Lane LOS	-	-	A	-	F	A						
HCM 95th %tile Q(veh)	-	-	0.4	-	13	0.1						

HCM 7th AWSC
1: Glen Helen Pkwy & I-215 NB Ramps

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection

Intersection Delay, s/veh 9.5
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕			↕	↕
Traffic Vol, veh/h	0	0	0	60	0	147	137	105	0	0	177	72
Future Vol, veh/h	0	0	0	60	0	147	137	105	0	0	177	72
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	61	0	150	140	107	0	0	181	73
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay, s/veh	9.3	9.8	9.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	105	60	147	177	72
LT Vol	137	0	60	0	0	0
Through Vol	0	105	0	0	177	0
RT Vol	0	0	0	147	0	72
Lane Flow Rate	140	107	61	150	181	73
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.225	0.158	0.106	0.208	0.267	0.094
Departure Headway (Hd)	5.802	5.299	6.21	5.003	5.318	4.612
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	615	673	575	713	672	771
Service Time	3.567	3.063	3.975	2.767	3.081	2.375
HCM Lane V/C Ratio	0.228	0.159	0.106	0.21	0.269	0.095
HCM Control Delay, s/veh	10.3	9.1	9.7	9.1	10	7.9
HCM Lane LOS	B	A	A	A	A	A
HCM 95th-tile Q	0.9	0.6	0.4	0.8	1.1	0.3

HCM 7th AWSC
2: Glen Helen Pkwy & I-215 SB Ramps

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection

Intersection Delay, s/veh 14.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱					↰		↰	↱	
Traffic Vol, veh/h	34	1	166	0	0	0	0	208	202	104	133	0
Future Vol, veh/h	34	1	166	0	0	0	0	208	202	104	133	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	38	1	184	0	0	0	0	231	224	116	148	0
Number of Lanes	0	1	1	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	2
HCM Control Delay, s/veh	10.6	18	10.3
HCM LOS	B	C	B

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	97%	0%	100%	0%
Vol Thru, %	51%	3%	0%	0%	100%
Vol Right, %	49%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	410	35	166	104	133
LT Vol	0	34	0	104	0
Through Vol	208	1	0	0	133
RT Vol	202	0	166	0	0
Lane Flow Rate	456	39	184	116	148
Geometry Grp	4b	5	5	5	5
Degree of Util (X)	0.665	0.074	0.289	0.199	0.233
Departure Headway (Hd)	5.254	6.848	5.646	6.187	5.68
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	692	523	636	581	632
Service Time	3.254	4.583	3.38	3.914	3.407
HCM Lane V/C Ratio	0.659	0.075	0.289	0.2	0.234
HCM Control Delay, s/veh	18	10.1	10.7	10.5	10.1
HCM Lane LOS	C	B	B	B	B
HCM 95th-tile Q	5.1	0.2	1.2	0.7	0.9

HCM 7th AWSC
3: Glen Helen Pkwy & Cajon Blvd

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection

Intersection Delay, s/veh 14.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	150	71	24	97	11	193	5	67	111	223	58	18
Future Vol, veh/h	150	71	24	97	11	193	5	67	111	223	58	18
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
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	163	77	26	105	12	210	5	73	121	242	63	20
Number of Lanes	1	2	0	1	2	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay, s/veh	13.7	13.6	14.5	16.7
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	3%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	37%	0%	100%	50%	0%	100%	2%	0%	76%
Vol Right, %	61%	0%	0%	50%	0%	0%	98%	0%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	183	150	47	48	97	7	197	223	76
LT Vol	5	150	0	0	97	0	0	223	0
Through Vol	67	0	47	24	0	7	4	0	58
RT Vol	111	0	0	24	0	0	193	0	18
Lane Flow Rate	199	163	51	52	105	8	214	242	83
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.395	0.364	0.108	0.103	0.233	0.016	0.399	0.52	0.162
Departure Headway (Hd)	7.155	8.046	7.532	7.169	7.943	7.428	6.722	7.726	7.053
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	447	475	499	451	481	534	465	508
Service Time	4.912	5.804	5.289	4.926	5.697	5.182	4.476	5.481	4.808
HCM Lane V/C Ratio	0.397	0.365	0.107	0.104	0.233	0.017	0.401	0.52	0.163
HCM Control Delay, s/veh	14.5	15.4	11.2	10.8	13.1	10.3	13.9	18.6	11.2
HCM Lane LOS	B	C	B	B	B	B	B	C	B
HCM 95th-ile Q	1.9	1.6	0.4	0.3	0.9	0	1.9	2.9	0.6

HCM 7th TWSC
4: Glen Helen Pkwy & Gate 4

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	218	0	0	150
Future Vol, veh/h	0	1	218	0	0	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	248	0	0	170

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	333	124	0
Stage 1	248	-	-
Stage 2	85	-	-
Critical Hdwy	6.8	6.9	4.1
Critical Hdwy Stg 1	5.8	-	-
Critical Hdwy Stg 2	5.8	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	642	910	1330
Stage 1	777	-	-
Stage 2	934	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	642	910	1330
Mov Cap-2 Maneuver	721	-	-
Stage 1	777	-	-
Stage 2	934	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	8.96	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	910	1330	-
HCM Lane V/C Ratio	-	0.001	-	-
HCM Control Delay (s/veh)	-	9	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	0	0	-

HCM 7th TWSC
5: Glen Helen Pkwy & Gate 3

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	218	0	0	150
Future Vol, veh/h	0	0	218	0	0	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	248	0	0	170
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	333	124	0	0	248	0
Stage 1	248	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	642	910	-	-	1330	-
Stage 1	777	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	642	910	-	-	1330	-
Mov Cap-2 Maneuver	721	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s/v	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1330	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s/veh)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	↕
Traffic Vol, veh/h	15	0	10	0	0	0	7	202	0	0	143	17
Future Vol, veh/h	15	0	10	0	0	0	7	202	0	0	143	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	100	175	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	0	11	0	0	0	8	232	0	0	164	20

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	306	422	92	330	432	116	184	0	0	232	0	0
Stage 1	174	174	-	248	248	-	-	-	-	-	-	-
Stage 2	132	248	-	82	184	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	628	526	954	604	519	921	1403	-	-	1347	-	-
Stage 1	816	759	-	739	705	-	-	-	-	-	-	-
Stage 2	863	705	-	923	751	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	625	523	954	593	516	921	1403	-	-	1347	-	-
Mov Cap-2 Maneuver	726	624	-	681	618	-	-	-	-	-	-	-
Stage 1	816	759	-	735	701	-	-	-	-	-	-	-
Stage 2	858	701	-	912	751	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.65	0	0.25	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1403	-	-	802	-	1347	-	-
HCM Lane V/C Ratio	0.006	-	-	0.036	-	-	-	-
HCM Control Delay (s/veh)	7.6	-	-	9.7	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

HCM 7th TWSC
7: Glen Helen Pkwy & Sherri's Rodeo Pk Lot

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	FF		F	FF	FF	
Traffic Vol, veh/h	0	0	0	207	140	0
Future Vol, veh/h	0	0	0	207	140	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	235	159	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	277	80	159	0	-	0
Stage 1	159	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	696	971	1433	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	696	971	1433	-	-	-
Mov Cap-2 Maneuver	775	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1433	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕	↕	↕	
Traffic Vol, veh/h	1	5	0	6	4	14	0	170	21	31	132	1
Future Vol, veh/h	1	5	0	6	4	14	0	170	21	31	132	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	215	115	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	6	0	7	5	17	0	205	25	37	159	1

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	339	464	80	362	440	102	160	0
Stage 1	234	234	-	205	205	-	-	-
Stage 2	105	230	-	157	235	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-
Pot Cap-1 Maneuver	596	498	970	574	514	939	1431	-
Stage 1	753	715	-	784	736	-	-	-
Stage 2	895	718	-	835	714	-	-	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	564	484	970	552	500	939	1431	-
Mov Cap-2 Maneuver	665	588	-	677	609	-	-	-
Stage 1	733	695	-	784	736	-	-	-
Stage 2	873	718	-	805	694	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v11.08		9.65	0	1.46
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1431	-	-	600	677	838	1350	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.011	0.026	0.028	-	-
HCM Control Delay (s/veh)	0	-	-	11.1	10.4	9.4	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.1	0.1	-	-

HCM 7th TWSC
9: Glen Helen Pkwy & Sherri's Rodeo 2

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑↑	↑↑	
Traffic Vol, veh/h	0	0	0	186	142	0
Future Vol, veh/h	0	0	0	186	142	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	221	169	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	280	85	169	0	-	0
Stage 1	169	-	-	-	-	-
Stage 2	111	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	693	964	1421	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	693	964	1421	-	-	-
Mov Cap-2 Maneuver	771	-	-	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	908	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1421	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 7th Signalized Intersection Summary 10: Clearwater Pkwy & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	77	116	43	113	391	70
Future Volume (veh/h)	77	116	43	113	391	70
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	84	126	47	123	425	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1461	652	82	1895	1141	523
Arrive On Green	0.40	0.40	0.05	0.52	0.32	0.32
Sat Flow, veh/h	3705	1610	1810	3705	3510	1610
Grp Volume(v), veh/h	84	126	47	123	425	76
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805	1755	1610
Q Serve(g_s), s	0.9	3.0	1.5	1.0	5.6	2.0
Cycle Q Clear(g_c), s	0.9	3.0	1.5	1.0	5.6	2.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1461	652	82	1895	1141	523
V/C Ratio(X)	0.06	0.19	0.57	0.06	0.37	0.15
Avail Cap(c_a), veh/h	1461	652	196	1895	1141	523
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	10.9	11.5	28.1	7.0	15.6	14.3
Incr Delay (d2), s/veh	0.1	0.7	6.2	0.1	0.9	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.8	0.3	2.2	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.0	12.2	34.3	7.1	16.5	14.9
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	210			170	501	
Approach Delay, s/veh	11.7			14.6	16.2	
Approach LOS	B			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.2	28.8			36.0	24.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	6.5	20.5			31.5	19.5
Max Q Clear Time (g_c+I1), s	3.5	5.0			3.0	7.6
Green Ext Time (p_c), s	0.0	0.7			0.7	1.5
Intersection Summary						
HCM 7th Control Delay, s/veh			14.8			
HCM 7th LOS			B			

HCM 7th Signalized Intersection Summary 11: I-15 NB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑↑			↑↑		←	↑	↗			
Traffic Volume (veh/h)	55	91	0	0	332	172	3	3	102	0	0	0
Future Volume (veh/h)	55	91	0	0	332	172	3	3	102	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	62	102	0	0	373	193	3	3	0			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	96	3057	0	0	1669	850	14	15				
Arrive On Green	0.05	0.85	0.00	0.00	0.72	0.72	0.01	0.01	0.00			
Sat Flow, veh/h	1810	3705	0	0	2409	1179	1810	1900	1610			
Grp Volume(v), veh/h	62	102	0	0	290	276	3	3	0			
Grp Sat Flow(s), veh/h/ln	1810	1805	0	0	1805	1688	1810	1900	1610			
Q Serve(g_s), s	2.1	0.3	0.0	0.0	3.3	3.4	0.1	0.1	0.0			
Cycle Q Clear(g_c), s	2.1	0.3	0.0	0.0	3.3	3.4	0.1	0.1	0.0			
Prop In Lane	1.00		0.00	0.00		0.70	1.00		1.00			
Lane Grp Cap(c), veh/h	96	3057	0	0	1302	1218	14	15				
V/C Ratio(X)	0.65	0.03	0.00	0.00	0.22	0.23	0.21	0.20				
Avail Cap(c_a), veh/h	394	3057	0	0	1302	1218	540	567				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	28.8	0.7	0.0	0.0	2.9	2.9	30.6	30.6	0.0			
Incr Delay (d2), s/veh	7.1	0.0	0.0	0.0	0.4	0.4	7.1	6.3	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			
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.0	0.8	0.8	0.1	0.1	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.9	0.8	0.0	0.0	3.3	3.3	37.6	36.9	0.0			
LnGrp LOS	D	A			A	A	D	D				
Approach Vol, veh/h	164			566			6					
Approach Delay, s/veh	14.1			3.3			37.2					
Approach LOS	B			A			D					
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	57.0			7.8			49.2			5.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	52.5			13.5			34.5			18.5		
Max Q Clear Time (g_c+I1), s	2.3			4.1			5.4			2.1		
Green Ext Time (p_c), s	0.7			0.1			3.8			0.0		

Intersection Summary

HCM 7th Control Delay, s/veh 6.0
HCM 7th LOS A

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th TWSC
12: I-15 SB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_AM

Intersection												
Int Delay, s/veh	11.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Vol, veh/h	0	38	6	317	18	0	0	0	0	108	25	13
Future Vol, veh/h	0	38	6	317	18	0	0	0	0	108	25	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	220	-	-	-	-	-	825	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	43	7	356	20	0	0	0	0	121	28	15

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	49	0	0	754	782	10
Stage 1	-	-	-	-	-	-	733	733	-
Stage 2	-	-	-	-	-	-	21	49	-
Critical Hdwy	-	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	1570	-	0	349	328	1075
Stage 1	0	-	-	-	-	0	442	430	-
Stage 2	0	-	-	-	-	0	1004	858	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1570	-	-	270	0	1075
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	0	-
Stage 1	-	-	-	-	-	-	442	0	-
Stage 2	-	-	-	-	-	-	776	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	7.54	23.49
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1570	-	270	1075
HCM Lane V/C Ratio	-	-	0.227	-	0.449	0.04
HCM Control Delay (s/veh)	-	-	8	-	28.8	8.5
HCM Lane LOS	-	-	A	-	D	A
HCM 95th %tile Q(veh)	-	-	0.9	-	2.2	0.1

HCM 7th AWSC
1: Glen Helen Pkwy & I-215 NB Ramps

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕			↕	↕
Traffic Vol, veh/h	0	0	0	127	4	139	192	225	0	0	117	85
Future Vol, veh/h	0	0	0	127	4	139	192	225	0	0	117	85
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	140	4	153	211	247	0	0	129	93
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay, s/veh	10.9	12.2	9.8
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	97%	0%	0%	0%
Vol Thru, %	0%	100%	3%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	225	131	139	117	85
LT Vol	192	0	127	0	0	0
Through Vol	0	225	4	0	117	0
RT Vol	0	0	0	139	0	85
Lane Flow Rate	211	247	144	153	129	93
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.363	0.39	0.269	0.235	0.215	0.138
Departure Headway (Hd)	6.191	5.685	6.729	5.533	6.01	5.3
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	582	633	534	649	598	677
Service Time	3.916	3.41	4.459	3.263	3.74	3.03
HCM Lane V/C Ratio	0.363	0.39	0.27	0.236	0.216	0.137
HCM Control Delay, s/veh	12.4	12	11.9	10	10.4	8.9
HCM Lane LOS	B	B	B	A	B	A
HCM 95th-tile Q	1.7	1.8	1.1	0.9	0.8	0.5

HCM 7th AWSC
2: Glen Helen Pkwy & I-215 SB Ramps

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection

Intersection Delay, s/veh 25.3

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶	↷					↶		↷	↶	↷
Traffic Vol, veh/h	132	1	353	0	0	0	0	284	195	77	167	0
Future Vol, veh/h	132	1	353	0	0	0	0	284	195	77	167	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
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	142	1	380	0	0	0	0	305	210	83	180	0
Number of Lanes	0	1	1	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	2
HCM Control Delay, s/veh 17.4		39.6	12.8
HCM LOS	C	E	B

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	99%	0%	100%	0%
Vol Thru, %	59%	1%	0%	0%	100%
Vol Right, %	41%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	479	133	353	77	167
LT Vol	0	132	0	77	0
Through Vol	284	1	0	0	167
RT Vol	195	0	353	0	0
Lane Flow Rate	515	143	380	83	180
Geometry Grp	4b	5	5	5	5
Degree of Util (X)	0.885	0.289	0.64	0.17	0.344
Departure Headway (Hd)	6.188	7.287	6.07	7.406	6.894
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	582	491	592	482	519
Service Time	4.252	5.062	3.843	5.194	4.682
HCM Lane V/C Ratio	0.885	0.291	0.642	0.172	0.347
HCM Control Delay, s/veh	39.6	13	19.1	11.7	13.3
HCM Lane LOS	E	B	C	B	B
HCM 95th-tile Q	10.3	1.2	4.5	0.6	1.5

HCM 7th AWSC
3: Glen Helen Pkwy & Cajon Blvd

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection

Intersection Delay, s/veh 56.4

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	54	39	166	247	244	168	123	94	257	80	183
Future Vol, veh/h	112	54	39	166	247	244	168	123	94	257	80	183
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	119	57	41	177	263	260	179	131	100	273	85	195
Number of Lanes	1	2	0	1	2	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay, s/veh	19.6	36.9	133.3	38.6
HCM LOS	C	E	F	E

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	44%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	32%	0%	100%	32%	0%	100%	25%	0%	30%
Vol Right, %	24%	0%	0%	68%	0%	0%	75%	0%	70%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	385	112	36	57	166	165	326	257	263
LT Vol	168	112	0	0	166	0	0	257	0
Through Vol	123	0	36	18	0	165	82	0	80
RT Vol	94	0	0	39	0	0	244	0	183
Lane Flow Rate	410	119	38	61	177	175	347	273	280
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	1.167	0.381	0.117	0.177	0.49	0.466	0.872	0.78	0.722
Departure Headway (Hd)	10.261	12.324	11.787	11.273	10.749	10.219	9.664	10.844	9.815
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	356	294	306	320	337	356	378	336	372
Service Time	8.032	10.024	9.487	8.973	8.449	7.919	7.364	8.544	7.515
HCM Lane V/C Ratio	1.152	0.405	0.124	0.191	0.525	0.492	0.918	0.813	0.753
HCM Control Delay, s/veh	133.3	22.4	16	16.4	23.3	21.5	51.5	43.1	34.2
HCM Lane LOS	F	C	C	C	C	C	F	E	D
HCM 95th-tile Q	16.5	1.7	0.4	0.6	2.6	2.4	8.5	6.3	5.5

HCM 7th TWSC
4: Glen Helen Pkwy & Gate 4

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑		W	↑↑
Traffic Vol, veh/h	0	1	424	0	1	239
Future Vol, veh/h	0	1	424	0	1	239
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	461	0	1	260

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	593	230	0	0	461
Stage 1	461	-	-	-	-
Stage 2	132	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	442	778	-	-	1111
Stage 1	607	-	-	-	-
Stage 2	886	-	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	441	778	-	-	1111
Mov Cap-2 Maneuver	562	-	-	-	-
Stage 1	607	-	-	-	-
Stage 2	885	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.63	0	0.03
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	778	1111
HCM Lane V/C Ratio	-	-	0.001	0.001
HCM Control Delay (s/veh)	-	-	9.6	8.2
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 7th TWSC
5: Glen Helen Pkwy & Gate 3

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	424	0	0	239
Future Vol, veh/h	0	0	424	0	0	239
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	461	0	0	260

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	591	230	0
Stage 1	461	-	-
Stage 2	130	-	-
Critical Hdwy	6.8	6.9	-
Critical Hdwy Stg 1	5.8	-	-
Critical Hdwy Stg 2	5.8	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	443	778	-
Stage 1	607	-	-
Stage 2	888	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	443	778	-
Mov Cap-2 Maneuver	562	-	-
Stage 1	607	-	-
Stage 2	888	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1111	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-

HCM 7th TWSC
6: Glen Helen Pkwy & Glen Helen Rd/Gate 2

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	5	0	12	0	0	0	3	414	0	0	230	22
Future Vol, veh/h	5	0	12	0	0	0	3	414	0	0	230	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	100	175	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	0	13	0	0	0	3	455	0	0	253	24

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	499	726	138	588	738	227	277	0	0	455	0	0
Stage 1	265	265	-	462	462	-	-	-	-	-	-	-
Stage 2	234	462	-	126	277	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	459	353	891	397	348	782	1298	-	-	1116	-	-
Stage 1	723	693	-	555	568	-	-	-	-	-	-	-
Stage 2	754	568	-	870	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	458	352	891	390	347	782	1298	-	-	1116	-	-
Mov Cap-2 Maneuver	611	498	-	512	495	-	-	-	-	-	-	-
Stage 1	723	693	-	553	567	-	-	-	-	-	-	-
Stage 2	752	567	-	857	685	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.7	0	0.06	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1298	-	-	785	-	1116	-	-
HCM Lane V/C Ratio	0.003	-	-	0.024	-	-	-	-
HCM Control Delay (s/veh)	7.8	-	-	9.7	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

HCM 7th TWSC
7: Glen Helen Pkwy & Sherri's Rodeo Pk Lot

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	WT		WT	↑↑	↑↑	
Traffic Vol, veh/h	0	0	0	393	260	0
Future Vol, veh/h	0	0	0	393	260	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	423	280	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	491	140	280	0	-	0
Stage 1	280	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	512	889	1295	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	512	889	1295	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1295	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 7th TWSC
8: Glen Helen Pkwy & Pvt Dwy/Gate 1

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕	↕	↕	
Traffic Vol, veh/h	1	1	2	45	2	92	0	295	14	28	240	0
Future Vol, veh/h	1	1	2	45	2	92	0	295	14	28	240	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	215	115	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	1	2	49	2	100	0	321	15	30	261	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	483	658	130	513	642	160	261	0	0	336	0	0
Stage 1	322	322	-	321	321	-	-	-	-	-	-	-
Stage 2	161	336	-	192	322	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	471	387	901	449	395	863	1315	-	-	1235	-	-
Stage 1	670	655	-	671	655	-	-	-	-	-	-	-
Stage 2	830	646	-	797	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	405	377	901	436	385	863	1315	-	-	1235	-	-
Mov Cap-2 Maneuver	555	516	-	587	531	-	-	-	-	-	-	-
Stage 1	654	639	-	671	655	-	-	-	-	-	-	-
Stage 2	732	646	-	775	639	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.4	10.41	0	0.83
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1315	-	-	671	587	851	1235	-	-
HCM Lane V/C Ratio	-	-	-	0.006	0.083	0.12	0.025	-	-
HCM Control Delay (s/veh)	0	-	-	10.4	11.7	9.8	8	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.4	0.1	-	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations 

Traffic Vol, veh/h	0	0	0	313	273	0
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Future Vol, veh/h	0	0	0	313	273	0
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	2	-	-	0	0	-
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Grade, %	0	-	-	0	0	-
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Peak Hour Factor	94	94	94	94	94	94
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Heavy Vehicles, %	0	0	0	0	0	0
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Mvmt Flow	0	0	0	333	290	0
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Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	457	145	290	0	-	0
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Stage 1	290	-	-	-	-	-
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Stage 2	166	-	-	-	-	-
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Critical Hdwy	6.8	6.9	4.1	-	-	-
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Critical Hdwy Stg 1	5.8	-	-	-	-	-
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Critical Hdwy Stg 2	5.8	-	-	-	-	-
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Follow-up Hdwy	3.5	3.3	2.2	-	-	-
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Pot Cap-1 Maneuver	537	882	1283	-	-	-
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Stage 1	739	-	-	-	-	-
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Stage 2	852	-	-	-	-	-
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Platoon blocked, %	-	-	-	-	-	-
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Mov Cap-1 Maneuver	537	882	1283	-	-	-
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Mov Cap-2 Maneuver	663	-	-	-	-	-
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Stage 1	739	-	-	-	-	-
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Stage 2	852	-	-	-	-	-
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Approach	EB	NB	SB
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HCM Control Delay, s/v	0	0	0
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HCM LOS	A		
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Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
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Capacity (veh/h)	1283	-	-	-	-
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HCM Lane V/C Ratio	-	-	-	-	-
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HCM Control Delay (s/veh)	0	-	0	-	-
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HCM Lane LOS	A	-	A	-	-
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HCM 95th %tile Q(veh)	0	-	-	-	-
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HCM 7th Signalized Intersection Summary
10: Clearwater Pkwy & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	278	233	89	181	123	34
Future Volume (veh/h)	278	233	89	181	123	34
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	284	238	91	185	126	35
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1449	646	118	1955	1082	496
Arrive On Green	0.40	0.40	0.07	0.54	0.31	0.31
Sat Flow, veh/h	3705	1610	1810	3705	3510	1610
Grp Volume(v), veh/h	284	238	91	185	126	35
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805	1755	1610
Q Serve(g_s), s	3.1	6.2	3.0	1.5	1.5	0.9
Cycle Q Clear(g_c), s	3.1	6.2	3.0	1.5	1.5	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1449	646	118	1955	1082	496
V/C Ratio(X)	0.20	0.37	0.77	0.09	0.12	0.07
Avail Cap(c_a), veh/h	1449	646	226	1955	1082	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	12.6	27.6	6.6	14.9	14.7
Incr Delay (d2), s/veh	0.3	1.6	10.1	0.1	0.2	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.3	1.5	0.5	0.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	12.0	14.2	37.7	6.7	15.1	14.9
LnGrp LOS	B	B	D	A	B	B
Approach Vol, veh/h	522			276	161	
Approach Delay, s/veh	13.0			17.0	15.1	
Approach LOS	B			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.4	28.6			37.0	23.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	7.5	20.5			32.5	18.5
Max Q Clear Time (g_c+I1), s	5.0	8.2			3.5	3.5
Green Ext Time (p_c), s	0.0	2.1			1.2	0.4
Intersection Summary						
HCM 7th Control Delay, s/veh			14.5			
HCM 7th LOS			B			

HCM 7th Signalized Intersection Summary 11: I-15 NB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	150	0	0	244	60	5	18	361	0	0	0
Future Volume (veh/h)	53	150	0	0	244	60	5	18	361	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	55	156	0	0	254	62	5	19	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	89	2998	0	0	2052	491	49	52				
Arrive On Green	0.05	0.83	0.00	0.00	0.71	0.71	0.03	0.03	0.00			
Sat Flow, veh/h	1810	3705	0	0	2984	692	1810	1900	1610			
Grp Volume(v), veh/h	55	156	0	0	157	159	5	19	0			
Grp Sat Flow(s), veh/h/ln	1810	1805	0	0	1805	1775	1810	1900	1610			
Q Serve(g_s), s	1.9	0.5	0.0	0.0	1.7	1.8	0.2	0.6	0.0			
Cycle Q Clear(g_c), s	1.9	0.5	0.0	0.0	1.7	1.8	0.2	0.6	0.0			
Prop In Lane	1.00		0.00	0.00		0.39	1.00		1.00			
Lane Grp Cap(c), veh/h	89	2998	0	0	1282	1261	49	52				
V/C Ratio(X)	0.62	0.05	0.00	0.00	0.12	0.13	0.10	0.37				
Avail Cap(c_a), veh/h	386	2998	0	0	1282	1261	530	556				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	29.5	0.9	0.0	0.0	2.9	2.9	30.0	30.2	0.0			
Incr Delay (d2), s/veh	6.9	0.0	0.0	0.0	0.2	0.2	0.9	4.3	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			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.4	0.5	0.1	0.3	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.4	1.0	0.0	0.0	3.1	3.1	30.9	34.5	0.0			
LnGrp LOS	D	A			A	A	C	C				
Approach Vol, veh/h	211				316				24			
Approach Delay, s/veh	10.2				3.1				33.8			
Approach LOS	B				A				C			
Timer - Assigned Phs	2				5				8			
Phs Duration (G+Y+Rc), s	57.0				7.6				49.4			
Change Period (Y+Rc), s	4.5				4.5				4.5			
Max Green Setting (Gmax), s	52.5				13.5				34.5			
Max Q Clear Time (g_c+I1), s	2.5				3.9				3.8			
Green Ext Time (p_c), s	1.1				0.1				1.9			

Intersection Summary

HCM 7th Control Delay, s/veh 7.2
HCM 7th LOS A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th TWSC
12: I-15 SB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekday_WP_PM

Intersection

Int Delay, s/veh 10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Vol, veh/h	0	48	7	227	22	0	0	0	0	155	38	19
Future Vol, veh/h	0	48	7	227	22	0	0	0	0	155	38	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	220	-	-	-	-	-	825	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	51	7	239	23	0	0	0	0	163	40	20

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	58	0	0	526	559	12
Stage 1	-	-	-	-	-	-	501	501	-
Stage 2	-	-	-	-	-	-	25	58	-
Critical Hdwy	-	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	1559	-	0	486	440	1073
Stage 1	0	-	-	-	-	0	580	546	-
Stage 2	0	-	-	-	-	0	1000	851	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1559	-	-	412	0	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	412	0	-
Stage 1	-	-	-	-	-	-	580	0	-
Stage 2	-	-	-	-	-	-	847	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	7.04	16.46
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1559	-	412	1073
HCM Lane V/C Ratio	-	-	0.153	-	0.396	0.056
HCM Control Delay (s/veh)	-	-	7.7	-	19.4	8.6
HCM Lane LOS	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	-	1.9	0.2

HCM 7th AWSC
1: Glen Helen Pkwy & I-215 NB Ramps

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔	↔	↔			↔	↔
Traffic Vol, veh/h	0	0	0	62	2	40	110	60	0	0	76	69
Future Vol, veh/h	0	0	0	62	2	40	110	60	0	0	76	69
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	69	2	44	122	67	0	0	84	77
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay, s/veh	8.6	9	7.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	97%	0%	0%	0%
Vol Thru, %	0%	100%	3%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	60	64	40	76	69
LT Vol	110	0	62	0	0	0
Through Vol	0	60	2	0	76	0
RT Vol	0	0	0	40	0	69
Lane Flow Rate	122	67	71	44	84	77
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.185	0.092	0.115	0.057	0.117	0.091
Departure Headway (Hd)	5.45	4.948	5.82	4.631	4.995	4.292
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	660	725	617	774	719	836
Service Time	3.172	2.67	3.546	2.357	2.717	2.013
HCM Lane V/C Ratio	0.185	0.092	0.115	0.057	0.117	0.092
HCM Control Delay, s/veh	9.4	8.2	9.3	7.6	8.4	7.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.7	0.3	0.4	0.2	0.4	0.3

HCM 7th AWSC
2: Glen Helen Pkwy & I-215 SB Ramps

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection

Intersection Delay, s/veh 9.7

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶	↷					↶		↷	↶	↷
Traffic Vol, veh/h	40	6	157	0	0	0	0	130	70	53	85	0
Future Vol, veh/h	40	6	157	0	0	0	0	130	70	53	85	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	7	187	0	0	0	0	155	83	63	101	0
Number of Lanes	0	1	1	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	1	0	2
HCM Control Delay, s/veh	9.2	10.7	9.1
HCM LOS	A	B	A

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	87%	0%	100%	0%
Vol Thru, %	65%	13%	0%	0%	100%
Vol Right, %	35%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	46	157	53	85
LT Vol	0	40	0	53	0
Through Vol	130	6	0	0	85
RT Vol	70	0	157	0	0
Lane Flow Rate	238	55	187	63	101
Geometry Grp	4b	5	5	5	5
Degree of Util (X)	0.337	0.091	0.25	0.102	0.15
Departure Headway (Hd)	5.091	5.954	4.811	5.841	5.337
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	702	600	742	611	668
Service Time	3.146	3.707	2.564	3.603	3.099
HCM Lane V/C Ratio	0.339	0.092	0.252	0.103	0.151
HCM Control Delay, s/veh	10.7	9.3	9.2	9.3	9
HCM Lane LOS	B	A	A	A	A
HCM 95th-ile Q	1.5	0.3	1	0.3	0.5

HCM 7th AWSC
3: Glen Helen Pkwy & Cajon Blvd

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection

Intersection Delay, s/veh 9.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	20	14	49	17	107	13	49	54	151	61	29
Future Vol, veh/h	45	20	14	49	17	107	13	49	54	151	61	29
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
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	22	15	53	18	115	14	53	58	162	66	31
Number of Lanes	1	2	0	1	2	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay, s/veh	9.5	9.4	9.8	10.4
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	11%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	42%	0%	100%	32%	0%	100%	5%	0%	68%
Vol Right, %	47%	0%	0%	68%	0%	0%	95%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	45	13	21	49	11	113	151	90
LT Vol	13	45	0	0	49	0	0	151	0
Through Vol	49	0	13	7	0	11	6	0	61
RT Vol	54	0	0	14	0	0	107	0	29
Lane Flow Rate	125	48	14	22	53	12	121	162	97
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.196	0.09	0.025	0.035	0.095	0.02	0.178	0.277	0.145
Departure Headway (Hd)	5.646	6.666	6.158	5.677	6.457	5.95	5.276	6.138	5.412
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	636	538	582	631	556	602	680	589	667
Service Time	3.377	4.399	3.892	3.41	4.187	3.681	3.007	3.838	3.112
HCM Lane V/C Ratio	0.197	0.089	0.024	0.035	0.095	0.02	0.178	0.275	0.145
HCM Control Delay, s/veh	9.8	10.1	9.1	8.6	9.9	8.8	9.2	11.2	9
HCM Lane LOS	A	B	A	A	A	A	A	B	A
HCM 95th-tile Q	0.7	0.3	0.1	0.1	0.3	0.1	0.6	1.1	0.5

HCM 7th TWSC
4: Glen Helen Pkwy & Gate 4

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑		↑	↑↑
Traffic Vol, veh/h	0	0	117	0	0	112
Future Vol, veh/h	0	0	117	0	0	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	154	0	0	147

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	228	77	0
Stage 1	154	-	-
Stage 2	74	-	-
Critical Hdwy	6.8	6.9	4.1
Critical Hdwy Stg 1	5.8	-	-
Critical Hdwy Stg 2	5.8	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	746	975	1439
Stage 1	864	-	-
Stage 2	947	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	746	975	1439
Mov Cap-2 Maneuver	800	-	-
Stage 1	864	-	-
Stage 2	947	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1439	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	-

HCM 7th TWSC
5: Glen Helen Pkwy & Gate 3

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑		↑	↑↑
Traffic Vol, veh/h	0	0	117	0	1	111
Future Vol, veh/h	0	0	117	0	1	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	156	0	1	148

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	233	78	0	0	156
Stage 1	156	-	-	-	-
Stage 2	77	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	741	973	-	-	1436
Stage 1	862	-	-	-	-
Stage 2	943	-	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	740	973	-	-	1436
Mov Cap-2 Maneuver	797	-	-	-	-
Stage 1	862	-	-	-	-
Stage 2	942	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0.07
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1436	-
HCM Lane V/C Ratio	-	-	0.001	-
HCM Control Delay (s/veh)	-	-	0	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-

HCM 7th TWSC
6: Glen Helen Pkwy & Glen Helen Rd/Gate 2

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↗	↗	↗	↗	
Traffic Vol, veh/h	15	0	13	0	0	1	10	107	1	2	101	15
Future Vol, veh/h	15	0	13	0	0	1	10	107	1	2	101	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	100	175	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	19	0	17	0	0	1	13	137	1	3	129	19

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	238	308	74	233	317	69	149	0	0	138	0	0
Stage 1	144	144	-	163	163	-	-	-	-	-	-	-
Stage 2	94	164	-	70	154	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	701	609	979	708	603	987	1445	-	-	1458	-	-
Stage 1	850	781	-	829	767	-	-	-	-	-	-	-
Stage 2	908	766	-	938	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	693	603	979	688	596	987	1445	-	-	1458	-	-
Mov Cap-2 Maneuver	768	676	-	756	670	-	-	-	-	-	-	-
Stage 1	848	780	-	822	760	-	-	-	-	-	-	-
Stage 2	899	759	-	920	773	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.4	8.65	0.64	0.13
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1445	-	-	853	987	1458	-	-
HCM Lane V/C Ratio	0.009	-	-	0.042	0.001	0.002	-	-
HCM Control Delay (s/veh)	7.5	-	-	9.4	8.7	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

HCM 7th TWSC
7: Glen Helen Pkwy & Sherri's Rodeo Pk Lot

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑↑	↑↑	
Traffic Vol, veh/h	0	0	0	115	114	0
Future Vol, veh/h	0	0	0	115	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	151	150	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	226	75	150	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	748	978	1444	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	944	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	748	978	1444	-	-	-
Mov Cap-2 Maneuver	802	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	944	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1444	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	0	0	-	-
HCM Lane LOS	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-

HCM 7th TWSC
8: Glen Helen Pkwy & Pvt Dwy/Gate 1

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕	↕	↕	
Traffic Vol, veh/h	0	1	0	8	1	14	0	103	34	38	83	0
Future Vol, veh/h	0	1	0	8	1	14	0	103	34	38	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	215	115	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1	0	11	1	19	0	137	45	51	111	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	281	395	55	295	349	69	111	0	0	183	0	0
Stage 1	212	212	-	137	137	-	-	-	-	-	-	-
Stage 2	69	183	-	157	212	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	654	545	1006	640	578	987	1492	-	-	1405	-	-
Stage 1	776	731	-	857	787	-	-	-	-	-	-	-
Stage 2	938	752	-	835	731	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	617	525	1006	616	557	987	1492	-	-	1405	-	-
Mov Cap-2 Maneuver	691	611	-	717	640	-	-	-	-	-	-	-
Stage 1	748	704	-	857	787	-	-	-	-	-	-	-
Stage 2	919	752	-	803	704	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.9	9.29	0	2.41
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1492	-	-	611	717	952	1405	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.015	0.021	0.036	-	-
HCM Control Delay (s/veh)	0	-	-	10.9	10.1	8.9	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.1	0.1	-	-

HCM 7th TWSC
9: Glen Helen Pkwy & Sherri's Rodeo 2

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑↑	↑↑	
Traffic Vol, veh/h	0	0	0	122	78	0
Future Vol, veh/h	0	0	0	122	78	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	158	101	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	181	51	101	0	-	0
Stage 1	101	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	797	1013	1504	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	797	1013	1504	-	-	-
Mov Cap-2 Maneuver	839	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1504	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s/veh)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

HCM 7th Signalized Intersection Summary 10: Clearwater Pkwy & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	93	53	17	61	115	31
Future Volume (veh/h)	93	53	17	61	115	31
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	115	65	21	75	142	38
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh. %	0	0	0	0	0	0
Cap, veh/h	1536	685	45	1895	1141	523
Arrive On Green	0.43	0.43	0.02	0.52	0.32	0.32
Sat Flow, veh/h	3705	1610	1810	3705	3510	1610
Grp Volume(v), veh/h	115	65	21	75	142	38
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805	1755	1610
Q Serve(g_s), s	1.1	1.5	0.7	0.6	1.7	1.0
Cycle Q Clear(g_c), s	1.1	1.5	0.7	0.6	1.7	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1536	685	45	1895	1141	523
V/C Ratio(X)	0.07	0.09	0.47	0.04	0.12	0.07
Avail Cap(c_a), veh/h	1536	685	196	1895	1141	523
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	10.2	10.3	28.9	6.9	14.2	14.0
Incr Delay (d2), s/veh	0.1	0.3	7.6	0.0	0.2	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.5	0.4	0.2	0.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.3	10.6	36.4	7.0	14.5	14.3
LnGrp LOS	B	B	D	A	B	B
Approach Vol, veh/h	180			96	180	
Approach Delay, s/veh	10.4			13.4	14.4	
Approach LOS	B			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.0	30.0			36.0	24.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	6.5	20.5			31.5	19.5
Max Q Clear Time (g_c+I1), s	2.7	3.5			2.6	3.7
Green Ext Time (p_c), s	0.0	0.7			0.4	0.5
Intersection Summary						
HCM 7th Control Delay, s/veh			12.6			
HCM 7th LOS			B			

HCM 7th Signalized Intersection Summary 11: I-15 NB Ramps & Glen Helen Pkwy

Glen Helen RP Feasibility Analysis
Exist_Weekend_WP_AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↰	↱	↰	↱	↰			
Traffic Volume (veh/h)	34	36	0	0	136	40	7	8	110	0	0	0
Future Volume (veh/h)	34	36	0	0	136	40	7	8	110	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach	No				No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	41	44	0	0	166	49	9	10	0			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	74	3013	0	0	2000	573	41	43				
Arrive On Green	0.04	0.83	0.00	0.00	0.72	0.72	0.02	0.02	0.00			
Sat Flow, veh/h	1810	3705	0	0	2864	793	1810	1900	1610			
Grp Volume(v), veh/h	41	44	0	0	106	109	9	10	0			
Grp Sat Flow(s), veh/h/ln	1810	1805	0	0	1805	1757	1810	1900	1610			
Q Serve(g_s), s	1.4	0.1	0.0	0.0	1.1	1.2	0.3	0.3	0.0			
Cycle Q Clear(g_c), s	1.4	0.1	0.0	0.0	1.1	1.2	0.3	0.3	0.0			
Prop In Lane	1.00		0.00	0.00		0.45	1.00		1.00			
Lane Grp Cap(c), veh/h	74	3013	0	0	1304	1269	41	43				
V/C Ratio(X)	0.56	0.01	0.00	0.00	0.08	0.09	0.22	0.23				
Avail Cap(c_a), veh/h	388	3013	0	0	1304	1269	532	559				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	29.6	0.9	0.0	0.0	2.6	2.6	30.2	30.2	0.0			
Incr Delay (d2), s/veh	6.4	0.0	0.0	0.0	0.1	0.1	2.7	2.8	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			
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.0	0.3	0.3	0.2	0.2	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.1	0.9	0.0	0.0	2.7	2.7	32.9	33.0	0.0			
LnGrp LOS	D	A			A	A	C	C				
Approach Vol, veh/h	85				215			19				
Approach Delay, s/veh	17.9				2.7			33.0				
Approach LOS	B				A			C				
Timer - Assigned Phs	2				5		6	8				
Phs Duration (G+Y+Rc), s	57.0				7.1		49.9	5.9				
Change Period (Y+Rc), s	4.5				4.5		4.5	4.5				
Max Green Setting (Gmax), s	52.5				13.5		34.5	18.5				
Max Q Clear Time (g_c+l1), s	2.1				3.4		3.2	2.3				
Green Ext Time (p_c), s	0.3				0.0		1.3	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 8.5
HCM 7th LOS A

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.