Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	295	11	160	368	20	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	321	12	174	400	22	178

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	333	0	1075	327
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	748	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1226	-	243	714
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1226	-	199	714
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	383	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	557	-	-	1226	-
HCM Lane V/C Ratio	0.359	-	-	0.142	-
HCM Control Delay (s)	15	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	-	-	0.5	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	264	7	0	539	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	287	8	0	586	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	295	0	877	291
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	586	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1266	-	319	748
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	556	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1266	-	319	748
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	556	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	748	-	-	1266	-
HCM Lane V/C Ratio	0.073	-	-	-	-
HCM Control Delay (s)	10.2	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	507	7	0	586	0	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	551	8	0	637	0	97

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	559	0	1192	555
Stage 1	-	-	-	-	555	-
Stage 2	-	-	-	-	637	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1012	-	207	531
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	527	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1012	-	207	531
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	527	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	531	-	-	1012	-
HCM Lane V/C Ratio	0.182	-	-	-	-
HCM Control Delay (s)	13.3	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	18	37	0	44	87
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	40	0	48	95

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	230	40	0	0	40	0
Stage 1	40	-	-	-	-	-
Stage 2	190	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	758	1031	-	-	1570	-
Stage 1	982	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	734	1031	-	-	1570	-
Mov Cap-2 Maneuver	734	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	815	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	2.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1031	1570	-
HCM Lane V/C Ratio	-	-	0.019	0.03	-
HCM Control Delay (s)	-	-	8.6	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	32	82	0	47	94
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	89	0	51	102

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	293	89	0	0	89	0
Stage 1	89	-	-	-	-	-
Stage 2	204	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	698	969	-	-	1506	-
Stage 1	934	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	673	969	-	-	1506	-
Mov Cap-2 Maneuver	673	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	800	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	969	1506	-
HCM Lane V/C Ratio	-	-	0.036	0.034	-
HCM Control Delay (s)	-	-	8.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	18	19	0	44	43
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	21	0	48	47

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	163	21	0	0	21	0
Stage 1	21	-	-	-	-	-
Stage 2	142	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	828	1056	-	-	1595	-
Stage 1	1002	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	802	1056	-	-	1595	-
Mov Cap-2 Maneuver	802	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	858	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1056	1595	-
HCM Lane V/C Ratio	-	-	0.019	0.03	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	32	50	0	47	47
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	54	0	51	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	207	54	0	0	54	0
Stage 1	54	-	-	-	-	-
Stage 2	153	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	781	1013	-	-	1551	-
Stage 1	969	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	754	1013	-	-	1551	-
Mov Cap-2 Maneuver	754	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	845	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1013	1551	-
HCM Lane V/C Ratio	-	-	0.034	0.033	-
HCM Control Delay (s)	-	-	8.7	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

APPENDIX I

2036 NO PROJECT CONDITIONS LOS CALCULATIONS

Intersection

Int Delay, s/veh 36

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	26	194	30	118	494	66	13	10	21	137	40	51
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	175	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	211	33	128	537	72	14	11	23	149	43	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	609	0	0	243	0	0	831	1149	122	996	1129	304
Stage 1	-	-	-	-	-	-	284	284	-	829	829	-
Stage 2	-	-	-	-	-	-	547	865	-	167	300	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	966	-	-	1320	-	-	262	197	906	199	203	692
Stage 1	-	-	-	-	-	-	699	675	-	331	383	-
Stage 2	-	-	-	-	-	-	489	369	-	818	664	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	966	-	-	1320	-	-	178	173	906	167	178	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	173	-	167	178	-
Stage 1	-	-	-	-	-	-	679	655	-	321	346	-
Stage 2	-	-	-	-	-	-	355	333	-	761	645	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	1.4	20.1	180.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	286	966	-	-	1320	-	-	204
HCM Lane V/C Ratio	0.167	0.029	-	-	0.097	-	-	1.215
HCM Control Delay (s)	20.1	8.8	-	-	8	-	-	180.5
HCM Lane LOS	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.3	-	-	12.8

2036 No Project PM Peak Hour
1: American Street & Goshen Avenue

Intersection	
Int Delay, s/veh	38.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	50	428	25	40	374	207	44	62	37	115	37	15
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	175	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	465	27	43	407	225	48	67	40	125	40	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	632	0	0	492	0	0	898	1306	246	981	1207	316
Stage 1	-	-	-	-	-	-	588	588	-	606	606	-
Stage 2	-	-	-	-	-	-	310	718	-	375	601	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	947	-	-	1068	-	-	234	159	754	204	182	680
Stage 1	-	-	-	-	-	-	462	494	-	451	485	-
Stage 2	-	-	-	-	-	-	675	431	-	618	488	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	1068	-	-	173	144	754	~ 114	165	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	144	-	~ 114	165	-
Stage 1	-	-	-	-	-	-	436	466	-	425	465	-
Stage 2	-	-	-	-	-	-	578	414	-	472	460	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.5	71.1	267
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	195	947	-	-	1068	-	-	133
HCM Lane V/C Ratio	0.797	0.057	-	-	0.041	-	-	1.365
HCM Control Delay (s)	71.1	9	-	-	8.5	-	-	267
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	5.6	0.2	-	-	0.1	-	-	11.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	157	153	169	313	53	377	466	184	182	717	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	41	171	166	184	340	58	410	507	200	198	779	107
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	504	226	204	807	361	428	1136	508	255	824	369
Arrive On Green	0.03	0.14	0.14	0.11	0.23	0.23	0.24	0.32	0.32	0.14	0.23	0.23
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	41	171	166	184	340	58	410	507	200	198	779	107
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.0	3.8	8.7	8.8	7.1	2.5	19.7	9.8	8.5	9.3	18.7	4.8
Cycle Q Clear(g_c), s	2.0	3.8	8.7	8.8	7.1	2.5	19.7	9.8	8.5	9.3	18.7	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	504	226	204	807	361	428	1136	508	255	824	369
V/C Ratio(X)	0.80	0.34	0.74	0.90	0.42	0.16	0.96	0.45	0.39	0.78	0.94	0.29
Avail Cap(c_a), veh/h	130	656	294	204	807	361	428	1136	508	358	824	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	33.3	35.4	37.7	28.4	26.7	32.3	23.2	22.8	35.6	32.6	27.2
Incr Delay (d2), s/veh	23.6	0.4	6.7	36.6	0.3	0.2	33.0	1.3	2.3	6.9	20.5	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.9	4.2	6.4	3.5	1.1	13.5	5.0	4.0	5.1	11.4	2.3
LnGrp Delay(d),s/veh	65.2	33.7	42.2	74.3	28.8	26.9	65.3	24.5	25.0	42.5	53.1	29.2
LnGrp LOS	E	C	D	E	C	C	E	C	C	D	D	C
Approach Vol, veh/h		378			582			1117			1084	
Approach Delay, s/veh		40.8			43.0			39.6			48.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	37.8	15.5	17.9	26.4	30.2	8.1	25.3
Change Period (Y+Rc), s	6.4	* 6.4	5.6	5.6	5.6	6.4	5.6	5.6
Max Green Setting (Gmax), s	17.4	* 23	9.9	16.0	20.8	20.1	6.3	19.6
Max Q Clear Time (g_c+I1), s	12.3	11.8	10.8	10.7	21.7	21.7	4.0	9.1
Green Ext Time (p_c), s	0.2	6.4	0.0	1.6	0.0	0.0	0.0	2.7

Intersection Summary

HCM 2010 Ctrl Delay	43.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	118	359	226	166	326	151	264	699	111	176	710	68
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	390	246	180	354	164	287	760	121	191	772	74
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	622	278	206	716	320	320	1071	479	244	949	425
Arrive On Green	0.09	0.18	0.18	0.12	0.20	0.20	0.18	0.30	0.30	0.14	0.27	0.27
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	128	390	246	180	354	164	287	760	121	191	772	74
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.3	9.1	13.6	8.9	7.9	8.2	14.1	17.1	5.2	9.3	18.3	3.2
Cycle Q Clear(g_c), s	6.3	9.1	13.6	8.9	7.9	8.2	14.1	17.1	5.2	9.3	18.3	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	622	278	206	716	320	320	1071	479	244	949	425
V/C Ratio(X)	0.80	0.63	0.88	0.87	0.49	0.51	0.90	0.71	0.25	0.78	0.81	0.17
Avail Cap(c_a), veh/h	190	633	283	206	716	320	325	1071	479	280	949	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	34.2	36.0	38.9	31.6	31.8	35.8	27.7	23.6	37.3	30.6	25.1
Incr Delay (d2), s/veh	18.7	1.9	26.2	28.7	0.5	1.2	25.5	4.0	1.3	12.0	7.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.6	8.0	6.0	3.9	3.7	9.2	8.9	2.4	5.4	9.9	1.5
LnGrp Delay(d),s/veh	58.7	36.1	62.2	67.6	32.1	33.0	61.3	31.7	24.8	49.3	38.2	26.0
LnGrp LOS	E	D	E	E	C	C	E	C	C	D	D	C
Approach Vol, veh/h		764			698			1168			1037	
Approach Delay, s/veh		48.3			41.5			38.3			39.4	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.7	34.0	16.0	21.3	21.8	30.9	13.6	23.7
Change Period (Y+Rc), s	6.4	* 6.4	5.6	5.6	5.6	6.4	5.6	5.6
Max Green Setting (Gmax), s	14.1	* 26	10.4	16.0	16.4	24.0	9.6	16.8
Max Q Clear Time (g_c+I1), s	12.3	19.1	10.9	15.6	16.1	21.3	8.3	10.2
Green Ext Time (p_c), s	0.1	4.6	0.0	0.1	0.0	2.2	0.0	3.0

Intersection Summary

HCM 2010 Ctrl Delay	41.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	358	69	197	391	31	57	51	99	43	125	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	49	389	75	214	425	34	62	55	108	47	136	61
Adj No. of Lanes	1	2	0	1	2	1	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	563	108	290	1111	497	184	169	243	145	345	135
Arrive On Green	0.04	0.19	0.19	0.16	0.31	0.31	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	2966	567	1774	3539	1583	294	526	757	191	1075	422
Grp Volume(v), veh/h	49	231	233	214	425	34	225	0	0	244	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1763	1774	1770	1583	1577	0	0	1687	0	0
Q Serve(g_s), s	1.4	6.3	6.4	5.9	4.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	6.3	6.4	5.9	4.8	0.8	5.2	0.0	0.0	5.5	0.0	0.0
Prop In Lane	1.00		0.32	1.00		1.00	0.28		0.48	0.19		0.25
Lane Grp Cap(c), veh/h	69	336	334	290	1111	497	595	0	0	624	0	0
V/C Ratio(X)	0.71	0.69	0.70	0.74	0.38	0.07	0.38	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	203	550	548	369	1430	640	595	0	0	624	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.4	19.4	19.5	20.5	13.8	12.4	13.7	0.0	0.0	13.8	0.0	0.0
Incr Delay (d2), s/veh	11.0	2.2	2.3	5.7	0.2	0.1	1.8	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.2	3.3	3.3	2.4	0.3	2.8	0.0	0.0	3.0	0.0	0.0
LnGrp Delay(d),s/veh	35.4	21.6	21.8	26.2	14.0	12.4	15.5	0.0	0.0	15.6	0.0	0.0
LnGrp LOS	D	C	C	C	B	B	B			B		
Approach Vol, veh/h		513			673			225			244	
Approach Delay, s/veh		23.0			17.8			15.5			15.6	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		30.6	14.0	15.4		30.6	7.6	21.8
Change Period (Y+Rc), s		5.6	5.6	5.6		5.6	5.6	5.6
Max Green Setting (Gmax), s		16.5	10.7	16.0		16.5	5.9	20.8
Max Q Clear Time (g_c+I1), s		7.2	7.9	8.4		7.5	3.4	6.8
Green Ext Time (p_c), s		1.9	0.9	1.4		1.9	0.0	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	18.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	126	353	37	178	397	29	64	236	147	71	152	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	137	384	40	193	432	32	70	257	160	77	165	76
Adj No. of Lanes	1	2	0	1	2	1	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	547	57	251	749	335	136	383	219	174	348	140
Arrive On Green	0.10	0.17	0.17	0.14	0.21	0.21	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1774	3238	335	1774	3539	1583	163	964	551	243	877	352
Grp Volume(v), veh/h	137	209	215	193	432	32	487	0	0	318	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1804	1774	1770	1583	1677	0	0	1471	0	0
Q Serve(g_s), s	4.3	6.4	6.5	6.0	6.3	0.9	5.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	6.4	6.5	6.0	6.3	0.9	13.7	0.0	0.0	8.4	0.0	0.0
Prop In Lane	1.00		0.19	1.00		1.00	0.14		0.33	0.24		0.24
Lane Grp Cap(c), veh/h	175	299	305	251	749	335	738	0	0	662	0	0
V/C Ratio(X)	0.78	0.70	0.71	0.77	0.58	0.10	0.66	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	247	493	503	290	1073	480	738	0	0	662	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.3	22.5	22.5	23.8	20.3	18.2	14.5	0.0	0.0	12.7	0.0	0.0
Incr Delay (d2), s/veh	7.8	2.2	2.3	10.4	0.7	0.1	4.6	0.0	0.0	2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.3	3.4	3.7	3.1	0.4	7.4	0.0	0.0	4.2	0.0	0.0
LnGrp Delay(d),s/veh	33.0	24.7	24.8	34.1	21.0	18.3	19.1	0.0	0.0	15.2	0.0	0.0
LnGrp LOS	C	C	C	C	C	B	B			B		
Approach Vol, veh/h		561			657			487			318	
Approach Delay, s/veh		26.8			24.7			19.1			15.2	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		36.0	13.7	15.3		36.0	11.3	17.7
Change Period (Y+Rc), s		5.6	5.6	5.6		5.6	5.6	5.6
Max Green Setting (Gmax), s		22.8	9.4	16.0		22.8	8.0	17.4
Max Q Clear Time (g_c+I1), s		15.7	8.0	8.5		10.4	6.3	8.3
Green Ext Time (p_c), s		3.0	0.5	1.2		4.3	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	2	67	99	5	8	118	1278	146	7	1144	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1810	1765	1765	1810	1765
Adj Flow Rate, veh/h	18	2	73	108	5	9	128	1389	159	8	1243	28
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	26	175	136	105	262	206	157	1246	536	442	2630	791
Arrive On Green	0.02	0.09	0.09	0.06	0.14	0.14	0.09	0.36	0.36	0.26	0.53	0.53
Sat Flow, veh/h	1681	1863	1452	1681	1863	1468	1681	3438	1479	1681	4940	1486
Grp Volume(v), veh/h	18	2	73	108	5	9	128	1389	159	8	1243	28
Grp Sat Flow(s),veh/h/ln	1681	1863	1452	1681	1863	1468	1681	1719	1479	1681	1647	1486
Q Serve(g_s), s	1.1	0.1	4.9	6.4	0.2	0.3	7.7	37.2	5.8	0.4	16.1	0.9
Cycle Q Clear(g_c), s	1.1	0.1	4.9	6.4	0.2	0.3	7.7	37.2	5.8	0.4	16.1	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	26	175	136	105	262	206	157	1246	536	442	2630	791
V/C Ratio(X)	0.68	0.01	0.54	1.03	0.02	0.04	0.82	1.11	0.30	0.02	0.47	0.04
Avail Cap(c_a), veh/h	93	490	382	105	503	396	278	1246	536	442	2630	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	42.2	44.4	48.1	38.0	12.3	45.7	32.7	12.5	28.0	15.0	11.4
Incr Delay (d2), s/veh	27.0	0.0	3.3	96.3	0.0	0.1	9.9	63.0	1.4	0.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	2.1	5.7	0.1	0.2	4.0	28.4	3.0	0.2	7.4	0.4
LnGrp Delay(d),s/veh	77.2	42.2	47.6	144.9	38.0	12.3	55.5	95.7	13.9	28.1	15.6	11.5
LnGrp LOS	E	D	D	F	D	B	E	F	B	C	B	B
Approach Vol, veh/h		93			122			1676			1279	
Approach Delay, s/veh		53.2			130.8			84.9			15.6	
Approach LOS		D			F			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.6	42.8	12.0	15.2	15.2	60.2	7.2	20.0
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	27.0	37.2	6.4	27.0	17.0	47.2	5.7	27.7
Max Q Clear Time (g_c+I1), s	2.4	39.2	8.4	6.9	9.7	18.1	3.1	2.3
Green Ext Time (p_c), s	9.2	0.0	0.0	0.2	0.2	9.8	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	57.8
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	35	78	178	2	3	114	1222	92	5	1292	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1810	1765	1765	1810	1765
Adj Flow Rate, veh/h	82	38	85	193	2	3	124	1328	100	5	1404	20
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	263	183	143	214	129	99	250	1434	618	267	2113	634
Arrive On Green	0.16	0.10	0.10	0.13	0.07	0.07	0.30	0.83	0.83	0.16	0.43	0.43
Sat Flow, veh/h	1681	1863	1454	1681	1863	1435	1681	3438	1482	1681	4940	1482
Grp Volume(v), veh/h	82	38	85	193	2	3	124	1328	100	5	1404	20
Grp Sat Flow(s),veh/h/ln	1681	1863	1454	1681	1863	1435	1681	1719	1482	1681	1647	1482
Q Serve(g_s), s	4.9	2.1	6.3	12.8	0.1	0.2	6.9	31.8	0.9	0.3	25.7	0.9
Cycle Q Clear(g_c), s	4.9	2.1	6.3	12.8	0.1	0.2	6.9	31.8	0.9	0.3	25.7	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	183	143	214	129	99	250	1434	618	267	2113	634
V/C Ratio(X)	0.31	0.21	0.59	0.90	0.02	0.03	0.50	0.93	0.16	0.02	0.66	0.03
Avail Cap(c_a), veh/h	263	296	231	214	324	250	250	1434	618	267	2113	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.55	0.55	0.55	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	46.9	48.8	48.7	49.1	25.6	36.3	8.1	2.1	40.1	25.9	18.8
Incr Delay (d2), s/veh	0.7	0.6	3.9	36.1	0.0	0.1	0.8	7.1	0.3	0.1	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.1	2.7	8.1	0.1	0.1	3.3	15.2	0.6	0.1	12.0	0.4
LnGrp Delay(d),s/veh	43.0	47.5	52.7	84.8	49.1	25.8	37.1	15.2	2.4	40.3	27.5	18.9
LnGrp LOS	D	D	D	F	D	C	D	B	A	D	C	B
Approach Vol, veh/h		205			198			1552			1429	
Approach Delay, s/veh		47.9			83.5			16.1			27.5	
Approach LOS		D			F			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.6	59.7	20.0	16.7	29.3	54.0	23.3	13.4
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	18.0	47.2	14.4	18.0	16.8	48.4	12.7	19.7
Max Q Clear Time (g_c+I1), s	2.3	33.8	14.8	8.3	8.9	27.7	6.9	2.2
Green Ext Time (p_c), s	0.0	7.8	0.0	0.2	5.3	9.7	0.4	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	49	51	71	158	90	60	222	1486	525	261	1058	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1823	1800	1765	1810	1765
Adj Flow Rate, veh/h	53	55	77	172	98	65	241	1615	571	284	1150	59
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	2	5	2
Cap, veh/h	67	105	457	200	253	199	422	1649	566	274	1796	538
Arrive On Green	0.04	0.06	0.06	0.12	0.14	0.14	0.25	0.45	0.45	0.16	0.36	0.36
Sat Flow, veh/h	1681	1863	1420	1681	1863	1467	1681	3651	1253	1681	4940	1479
Grp Volume(v), veh/h	53	55	77	172	98	65	241	1463	723	284	1150	59
Grp Sat Flow(s),veh/h/ln	1681	1863	1420	1681	1863	1467	1681	1659	1586	1681	1647	1479
Q Serve(g_s), s	3.3	3.1	1.0	10.7	5.1	4.3	13.4	46.2	48.2	17.4	20.6	2.2
Cycle Q Clear(g_c), s	3.3	3.1	1.0	10.7	5.1	4.3	13.4	46.2	48.2	17.4	20.6	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	67	105	457	200	253	199	422	1499	716	274	1796	538
V/C Ratio(X)	0.80	0.52	0.17	0.86	0.39	0.33	0.57	0.98	1.01	1.04	0.64	0.11
Avail Cap(c_a), veh/h	79	321	622	214	471	371	422	1499	716	274	1796	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	48.9	11.4	46.2	42.1	41.7	34.9	28.7	29.3	44.7	28.2	13.4
Incr Delay (d2), s/veh	36.7	4.0	0.2	27.0	1.0	0.9	1.8	18.3	35.9	64.1	1.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.7	1.0	6.5	2.7	1.8	6.4	24.9	28.0	12.9	9.7	1.2
LnGrp Delay(d),s/veh	87.5	52.9	11.6	73.1	43.0	42.6	36.8	47.0	65.1	108.8	29.9	13.9
LnGrp LOS	F	D	B	E	D	D	D	D	F	F	C	B
Approach Vol, veh/h		185			335			2427			1493	
Approach Delay, s/veh		45.6			58.4			51.4			44.3	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	53.8	18.3	11.6	32.4	44.4	9.8	20.1
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	17.4	48.2	13.6	18.4	26.8	38.8	5.0	27.0
Max Q Clear Time (g_c+I1), s	19.4	50.2	12.7	5.1	15.4	22.6	5.3	7.1
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	9.6	7.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	49.3
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	79	87	168	425	116	81	226	1275	340	122	1457	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1820	1800	1765	1810	1765
Adj Flow Rate, veh/h	86	95	183	462	126	88	246	1386	370	133	1584	12
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	2	5	2
Cap, veh/h	456	279	220	360	172	134	206	1418	377	114	1527	456
Arrive On Green	0.27	0.15	0.15	0.21	0.09	0.09	0.12	0.36	0.36	0.14	0.62	0.62
Sat Flow, veh/h	1681	1863	1470	1681	1863	1451	1681	3897	1036	1681	4940	1476
Grp Volume(v), veh/h	86	95	183	462	126	88	246	1177	579	133	1584	12
Grp Sat Flow(s),veh/h/ln	1681	1863	1470	1681	1863	1451	1681	1657	1621	1681	1647	1476
Q Serve(g_s), s	4.3	5.0	9.7	23.4	7.2	6.4	13.4	38.3	38.6	7.4	33.8	0.3
Cycle Q Clear(g_c), s	4.3	5.0	9.7	23.4	7.2	6.4	13.4	38.3	38.6	7.4	33.8	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		1.00
Lane Grp Cap(c), veh/h	456	279	220	360	172	134	206	1206	590	114	1527	456
V/C Ratio(X)	0.19	0.34	0.83	1.28	0.73	0.66	1.19	0.98	0.98	1.17	1.04	0.03
Avail Cap(c_a), veh/h	456	460	363	360	637	496	206	1206	590	114	1527	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	0.75	0.75	0.75
Uniform Delay (d), s/veh	30.6	41.7	24.4	43.0	48.3	48.0	48.0	34.3	34.4	47.3	20.9	14.5
Incr Delay (d2), s/veh	0.2	0.7	8.2	147.7	5.9	5.4	116.4	17.0	27.0	125.7	30.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.6	5.1	25.5	4.0	2.8	12.8	20.3	21.6	7.3	19.1	0.1
LnGrp Delay(d),s/veh	30.8	42.4	32.6	190.7	54.2	53.3	164.4	51.3	61.4	172.9	51.2	14.6
LnGrp LOS	C	D	C	F	D	D	F	D	E	F	F	B
Approach Vol, veh/h		364			676			2002			1729	
Approach Delay, s/veh		34.7			147.4			68.1			60.4	
Approach LOS		C			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.6	45.4	29.0	22.0	29.6	39.4	35.3	15.7
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	7.4	39.8	23.4	27.0	13.4	33.8	13.0	37.4
Max Q Clear Time (g_c+I1), s	9.4	40.6	25.4	11.7	15.4	35.8	6.3	9.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.9	0.0	0.0	0.7	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	74.0
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	74	1	821	45	1412	0	0	814	473
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1800	1714	1714	1714	1714	0	0	1714	1714
Adj Flow Rate, veh/h				80	1	892	49	1535	0	0	885	514
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				5	5	5	5	5	0	0	5	5
Cap, veh/h				617	8	973	59	2210	0	0	1700	525
Arrive On Green				0.38	0.38	0.38	0.01	0.16	0.00	0.00	0.36	0.36
Sat Flow, veh/h				1613	20	2544	1633	4834	0	0	4834	1445
Grp Volume(v), veh/h				81	0	892	49	1535	0	0	885	514
Grp Sat Flow(s),veh/h/ln				1634	0	1272	1633	1560	0	0	1560	1445
Q Serve(g_s), s				2.5	0.0	25.7	2.3	23.9	0.0	0.0	11.4	27.1
Cycle Q Clear(g_c), s				2.5	0.0	25.7	2.3	23.9	0.0	0.0	11.4	27.1
Prop In Lane				0.99		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				625	0	973	59	2210	0	0	1700	525
V/C Ratio(X)				0.13	0.00	0.92	0.83	0.69	0.00	0.00	0.52	0.98
Avail Cap(c_a), veh/h				687	0	1069	114	2210	0	0	1700	525
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.38	0.38	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh				15.5	0.0	22.6	37.8	27.3	0.0	0.0	19.3	24.3
Incr Delay (d2), s/veh				0.1	0.0	11.5	10.3	0.7	0.0	0.0	0.8	28.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.1	0.0	10.5	1.2	10.5	0.0	0.0	5.0	14.9
LnGrp Delay(d),s/veh				15.6	0.0	34.1	48.1	28.0	0.0	0.0	20.1	52.9
LnGrp LOS				B		C	D	C			C	D
Approach Vol, veh/h					973			1584			1399	
Approach Delay, s/veh					32.6			28.6			32.2	
Approach LOS					C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		44.9			8.4	36.5		35.1
Change Period (Y+Rc), s		5.6			5.6	5.6		5.6
Max Green Setting (Gmax), s		36.4			5.4	25.4		32.4
Max Q Clear Time (g_c+I1), s		25.9			4.3	29.1		27.7
Green Ext Time (p_c), s		9.3			0.0	0.0		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	98	1	770	74	1071	0	0	1339	711
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1800	1810	1714	1714	1810	0	0	1810	1714
Adj Flow Rate, veh/h				107	1	837	80	1164	0	0	1455	773
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				5	5	5	5	5	0	0	5	5
Cap, veh/h				564	5	839	99	2618	0	0	1972	577
Arrive On Green				0.33	0.33	0.33	0.08	0.70	0.00	0.00	0.40	0.40
Sat Flow, veh/h				1708	16	2541	1633	5103	0	0	5103	1446
Grp Volume(v), veh/h				108	0	837	80	1164	0	0	1455	773
Grp Sat Flow(s),veh/h/ln				1724	0	1271	1633	1647	0	0	1647	1446
Q Serve(g_s), s				3.6	0.0	26.3	3.9	8.1	0.0	0.0	20.1	31.9
Cycle Q Clear(g_c), s				3.6	0.0	26.3	3.9	8.1	0.0	0.0	20.1	31.9
Prop In Lane				0.99		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				569	0	839	99	2618	0	0	1972	577
V/C Ratio(X)				0.19	0.00	1.00	0.81	0.44	0.00	0.00	0.74	1.34
Avail Cap(c_a), veh/h				569	0	839	110	2618	0	0	1972	577
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.45	0.45	0.00	0.00	0.27	0.27
Uniform Delay (d), s/veh				19.2	0.0	26.8	36.3	6.7	0.0	0.0	20.5	24.0
Incr Delay (d2), s/veh				0.2	0.0	30.6	16.4	0.2	0.0	0.0	0.7	155.8
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				1.7	0.0	12.7	2.2	3.7	0.0	0.0	9.2	37.7
LnGrp Delay(d),s/veh				19.3	0.0	57.3	52.7	7.0	0.0	0.0	21.2	179.8
LnGrp LOS				B		E	D	A			C	F
Approach Vol, veh/h					945			1244			2228	
Approach Delay, s/veh					53.0			9.9			76.2	
Approach LOS					D			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		48.0			10.5	37.5		32.0
Change Period (Y+Rc), s		5.6			5.6	5.6		5.6
Max Green Setting (Gmax), s		42.4			5.4	31.4		26.4
Max Q Clear Time (g_c+I1), s		10.1			5.9	33.9		28.3
Green Ext Time (p_c), s		27.1			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	855	1	28	0	0	0	0	602	59	565	323	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	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
Adj Sat Flow, veh/h/ln	1714	1714	1800				0	1714	1714	1714	1714	0
Adj Flow Rate, veh/h	929	1	30				0	654	64	614	351	0
Adj No. of Lanes	2	1	0				0	2	1	2	2	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, %	5	5	5				0	5	5	5	5	0
Cap, veh/h	1012	15	449				0	810	358	692	1753	0
Arrive On Green	0.32	0.32	0.32				0.00	0.25	0.25	0.07	0.18	0.00
Sat Flow, veh/h	3167	47	1404				0	3343	1440	3167	3343	0
Grp Volume(v), veh/h	929	0	31				0	654	64	614	351	0
Grp Sat Flow(s),veh/h/ln	1584	0	1451				0	1629	1440	1584	1629	0
Q Serve(g_s), s	22.2	0.0	1.2				0.0	14.9	2.8	15.1	7.2	0.0
Cycle Q Clear(g_c), s	22.2	0.0	1.2				0.0	14.9	2.8	15.1	7.2	0.0
Prop In Lane	1.00		0.97				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1012	0	463				0	810	358	692	1753	0
V/C Ratio(X)	0.92	0.00	0.07				0.00	0.81	0.18	0.89	0.20	0.00
Avail Cap(c_a), veh/h	1062	0	486				0	810	358	700	1753	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	25.8	0.0	18.6				0.0	27.8	23.3	35.6	17.9	0.0
Incr Delay (d2), s/veh	12.1	0.0	0.1				0.0	8.5	1.1	11.7	0.2	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	11.4	0.0	0.5				0.0	7.6	1.2	7.8	3.3	0.0
LnGrp Delay(d),s/veh	37.9	0.0	18.7				0.0	36.3	24.4	47.3	18.2	0.0
LnGrp LOS	D		B					D	C	D	B	
Approach Vol, veh/h		960						718			965	
Approach Delay, s/veh		37.3						35.2			36.7	
Approach LOS		D						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.8	26.4		30.8		49.2		
Change Period (Y+Rc), s	5.6	5.6		5.6		5.6		
Max Green Setting (Gmax), s	17.4	19.4		26.4		42.4		
Max Q Clear Time (g_c+I1), s	17.1	16.9		24.2		9.2		
Green Ext Time (p_c), s	0.1	1.5		0.9		7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	36.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	686	1	107	0	0	0	0	459	111	869	568	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	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
Adj Sat Flow, veh/h/ln	1714	1810	1800				0	1810	1714	1714	1810	0
Adj Flow Rate, veh/h	746	1	116				0	499	121	945	617	0
Adj No. of Lanes	2	1	0				0	2	1	2	2	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, %	5	5	5				0	5	5	5	5	0
Cap, veh/h	807	3	385				0	748	313	1006	2081	0
Arrive On Green	0.25	0.25	0.25				0.00	0.22	0.22	0.10	0.20	0.00
Sat Flow, veh/h	3167	13	1509				0	3529	1437	3167	3529	0
Grp Volume(v), veh/h	746	0	117				0	499	121	945	617	0
Grp Sat Flow(s),veh/h/ln	1584	0	1522				0	1719	1437	1584	1719	0
Q Serve(g_s), s	18.4	0.0	5.0				0.0	10.6	5.8	23.7	12.2	0.0
Cycle Q Clear(g_c), s	18.4	0.0	5.0				0.0	10.6	5.8	23.7	12.2	0.0
Prop In Lane	1.00		0.99				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	807	0	388				0	748	313	1006	2081	0
V/C Ratio(X)	0.92	0.00	0.30				0.00	0.67	0.39	0.94	0.30	0.00
Avail Cap(c_a), veh/h	808	0	388				0	748	313	1006	2081	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.66	0.66	0.00
Uniform Delay (d), s/veh	29.0	0.0	24.1				0.0	28.6	26.7	35.0	17.5	0.0
Incr Delay (d2), s/veh	16.2	0.0	0.4				0.0	4.7	3.6	11.6	0.2	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	9.8	0.0	2.1				0.0	5.5	2.6	12.0	5.9	0.0
LnGrp Delay(d),s/veh	45.3	0.0	24.5				0.0	33.3	30.3	46.7	17.8	0.0
LnGrp LOS	D		C					C	C	D	B	
Approach Vol, veh/h		863						620			1562	
Approach Delay, s/veh		42.5						32.7			35.2	
Approach LOS		D						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	31.0	23.0		26.0		54.0		
Change Period (Y+Rc), s	5.6	5.6		5.6		5.6		
Max Green Setting (Gmax), s	25.4	17.4		20.4		48.4		
Max Q Clear Time (g_c+I1), s	25.7	12.6		20.4		14.2		
Green Ext Time (p_c), s	0.0	2.9		0.0		8.8		

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	128	5	3	0	0	27	528	0	1	5	4
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	139	5	3	0	0	29	574	0	1	5	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	1
HCM Control Delay	11.2	22.4	9.7
HCM LOS	B	C	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	10%	94%	0%	100%	0%
Vol Thru, %	50%	4%	5%	0%	5%
Vol Right, %	40%	2%	95%	0%	95%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	136	555	203	148
LT Vol	5	5	27	0	8
Through Vol	4	3	528	0	140
RT Vol	1	128	0	203	0
Lane Flow Rate	11	148	603	221	161
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.02	0.25	0.778	0.426	0.258
Departure Headway (Hd)	6.511	6.086	4.778	6.949	5.767
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	550	590	760	521	626
Service Time	4.548	4.124	2.778	4.661	3.478
HCM Lane V/C Ratio	0.02	0.251	0.793	0.424	0.257
HCM Control Delay	9.7	11.2	22.4	14.7	10.5
HCM Lane LOS	A	B	C	B	B
HCM 95th-tile Q	0.1	1	7.7	2.1	1

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	203	8	140
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	221	9	152
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.9
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	33.3
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	187	7	4	0	5	12	362	0	2	21	5
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	203	8	4	0	5	13	393	0	2	23	5
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	1
HCM Control Delay	15	20	11
HCM LOS	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	7%	94%	1%	100%	0%
Vol Thru, %	75%	4%	3%	0%	6%
Vol Right, %	18%	2%	96%	0%	94%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	198	379	467	208
LT Vol	21	7	12	0	12
Through Vol	5	4	362	0	196
RT Vol	2	187	5	467	0
Lane Flow Rate	30	215	412	508	226
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.063	0.42	0.667	0.986	0.365
Departure Headway (Hd)	7.441	7.031	5.83	6.991	5.81
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	483	514	614	518	615
Service Time	5.457	5.033	3.929	4.779	3.597
HCM Lane V/C Ratio	0.062	0.418	0.671	0.981	0.367
HCM Control Delay	11	15	20	62.8	11.9
HCM Lane LOS	B	B	C	F	B
HCM 95th-tile Q	0.2	2.1	5	13.3	1.7

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	467	12	196
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	508	13	213
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	47.1
HCM LOS	E

Lane

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	2	14	0	58	35	87	0	1	28
Conflicting Peds, #/hr	0	0	0	10	0	10	0	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	15	0	63	38	95	0	1	30

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	192	141	18	133	129	36	12	0	0
Stage 1	99	99	-	26	26	-	-	-	-
Stage 2	93	42	-	107	103	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-
Pot Cap-1 Maneuver	768	750	1061	839	762	1037	1607	-	-
Stage 1	907	813	-	992	874	-	-	-	-
Stage 2	914	860	-	898	810	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	649	721	1052	793	733	1020	1594	-	-
Mov Cap-2 Maneuver	649	721	-	793	733	-	-	-	-
Stage 1	907	789	-	984	867	-	-	-	-
Stage 2	786	853	-	847	786	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.2	9.7	0
HCM LOS	B	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1594	-	-	711	793	917	1554	-	-
HCM Lane V/C Ratio	-	-	-	0.024	0.079	0.145	0.029	-	-
HCM Control Delay (s)	0	-	-	10.2	9.9	9.6	7.4	0	-
HCM Lane LOS	A	-	-	B	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.5	0.1	-	-

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	42	3	8
Conflicting Peds, #/hr	10	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	46	3	9

Major/Minor	Major2		
Conflicting Flow All	42	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1567	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1554	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	5.9
HCM LOS	

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	6	33	2	63	15	95	3	6	52
Conflicting Peds, #/hr	0	0	0	10	0	10	0	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	36	2	68	16	103	3	7	57

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	289	258	18	248	231	55	11	0	0
Stage 1	178	178	-	51	51	-	-	-	-
Stage 2	111	80	-	197	180	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-
Pot Cap-1 Maneuver	663	646	1061	706	669	1012	1608	-	-
Stage 1	824	752	-	962	852	-	-	-	-
Stage 2	894	828	-	805	750	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	552	603	1052	632	624	995	1595	-	-
Mov Cap-2 Maneuver	552	603	-	632	624	-	-	-	-
Stage 1	822	709	-	952	843	-	-	-	-
Stage 2	778	819	-	713	707	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	11.4	10.2	0.4
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1595	-	-	607	632	920	1514	-	-
HCM Lane V/C Ratio	0.002	-	-	0.073	0.108	0.13	0.056	-	-
HCM Control Delay (s)	7.3	0	-	11.4	11.4	9.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.4	0.2	-	-

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	78	5	5
Conflicting Peds, #/hr	10	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	85	5	5

Major/Minor	Major2		
Conflicting Flow All	73	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1527	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1514	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	6.7
HCM LOS	

Minor Lane/Major Mvmt

APPENDIX J

2036 PLUS PROJECT CONDITIONS LOS CALCULATIONS

Intersection	
Int Delay, s/veh	39.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	26	211	30	118	505	66	13	10	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	200	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	229	33	128	549	72	14	11	23

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	621	0	0	262	0	0	855	1179	131
Stage 1	-	-	-	-	-	-	302	302	-
Stage 2	-	-	-	-	-	-	553	877	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	956	-	-	1299	-	-	252	189	894
Stage 1	-	-	-	-	-	-	682	663	-
Stage 2	-	-	-	-	-	-	485	364	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	956	-	-	1299	-	-	169	165	894
Mov Cap-2 Maneuver	-	-	-	-	-	-	169	165	-
Stage 1	-	-	-	-	-	-	662	644	-
Stage 2	-	-	-	-	-	-	351	328	-

Approach	EB	WB	NB
HCM Control Delay, s	0.9	1.4	21
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	273	956	-	-	1299	-	-	196
HCM Lane V/C Ratio	0.175	0.03	-	-	0.099	-	-	1.264
HCM Control Delay (s)	21	8.9	-	-	8.1	-	-	201.1
HCM Lane LOS	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.3	-	-	13.4

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	137	40	51
Conflicting Peds, #/hr	0	0	0
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	149	43	55

Major/Minor	Minor2		
Conflicting Flow All	1018	1159	310
Stage 1	841	841	-
Stage 2	177	318	-
Critical Hdwy	7.54	6.54	6.94
Critical Hdwy Stg 1	6.54	5.54	-
Critical Hdwy Stg 2	6.54	5.54	-
Follow-up Hdwy	3.52	4.02	3.32
Pot Cap-1 Maneuver	191	194	686
Stage 1	326	379	-
Stage 2	808	652	-
Platoon blocked, %			
Mov Cap-1 Maneuver	160	170	686
Mov Cap-2 Maneuver	160	170	-
Stage 1	316	342	-
Stage 2	751	633	-

Approach	SB
HCM Control Delay, s	201.1
HCM LOS	F

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	45.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	50	446	25	40	394	207	44	62	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	200	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	485	27	43	428	225	48	67	40

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	653	0	0	512	0	0	928	1347	256
Stage 1	-	-	-	-	-	-	607	607	-
Stage 2	-	-	-	-	-	-	321	740	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	930	-	-	1050	-	-	223	150	743
Stage 1	-	-	-	-	-	-	450	485	-
Stage 2	-	-	-	-	-	-	665	421	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	930	-	-	1050	-	-	162	136	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	136	-
Stage 1	-	-	-	-	-	-	424	457	-
Stage 2	-	-	-	-	-	-	567	404	-

Approach	EB	WB	NB
HCM Control Delay, s	0.9	0.5	82.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	184	930	-	-	1050	-	-	122
HCM Lane V/C Ratio	0.845	0.058	-	-	0.041	-	-	1.488
HCM Control Delay (s)	82.7	9.1	-	-	8.6	-	-	$ 322.6
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	6.1	0.2	-	-	0.1	-	-	12.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	115	37	15
Conflicting Peds, #/hr	0	0	0
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	125	40	16

Major/Minor	Minor2		
Conflicting Flow All	1013	1249	327
Stage 1	628	628	-
Stage 2	385	621	-
Critical Hdwy	7.54	6.54	6.94
Critical Hdwy Stg 1	6.54	5.54	-
Critical Hdwy Stg 2	6.54	5.54	-
Follow-up Hdwy	3.52	4.02	3.32
Pot Cap-1 Maneuver	193	172	669
Stage 1	437	474	-
Stage 2	610	477	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 104	155	669
Mov Cap-2 Maneuver	~ 104	155	-
Stage 1	412	455	-
Stage 2	463	449	-

Approach	SB
HCM Control Delay, s	$ 322.6
HCM LOS	F

Minor Lane/Major Mvmt

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	157	170	203	313	53	388	488	206	182	751	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	41	171	185	221	340	58	422	530	224	198	816	107
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	494	221	234	858	384	429	1209	541	250	881	394
Arrive On Green	0.03	0.14	0.14	0.13	0.24	0.24	0.24	0.34	0.34	0.14	0.25	0.25
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	41	171	185	221	340	58	422	530	224	198	816	107
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.2	4.3	11.1	12.1	7.9	2.8	23.1	11.3	10.6	10.5	22.0	5.3
Cycle Q Clear(g_c), s	2.2	4.3	11.1	12.1	7.9	2.8	23.1	11.3	10.6	10.5	22.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	494	221	234	858	384	429	1209	541	250	881	394
V/C Ratio(X)	0.79	0.35	0.84	0.94	0.40	0.15	0.98	0.44	0.41	0.79	0.93	0.27
Avail Cap(c_a), veh/h	120	580	259	234	858	384	429	1209	541	376	881	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	38.0	40.9	42.0	31.0	29.1	36.8	24.9	24.7	40.5	35.8	29.5
Incr Delay (d2), s/veh	22.8	0.4	18.4	41.7	0.3	0.2	39.1	1.2	2.3	6.6	17.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.1	6.0	8.6	3.9	1.2	15.9	5.7	5.0	5.6	12.8	2.5
LnGrp Delay(d),s/veh	69.9	38.4	59.3	83.7	31.3	29.2	75.9	26.0	27.0	47.1	52.8	31.2
LnGrp LOS	E	D	E	F	C	C	E	C	C	D	D	C
Approach Vol, veh/h		397			619			1176			1121	
Approach Delay, s/veh		51.4			49.8			44.1			49.7	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.2	42.1	18.5	19.2	29.2	33.1	8.5	29.3
Change Period (Y+Rc), s	6.4	* 6.4	5.6	5.6	5.6	6.4	5.6	5.6
Max Green Setting (Gmax), s	20.7	* 26	12.9	16.0	23.6	24.3	6.6	22.3
Max Q Clear Time (g_c+I1), s	13.5	13.3	14.1	13.1	25.1	25.0	4.2	9.9
Green Ext Time (p_c), s	0.3	7.6	0.0	0.5	0.0	0.0	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	47.9
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	118	359	244	202	326	151	284	739	151	176	746	68
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	390	265	220	354	164	309	803	164	191	811	74
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	629	281	229	768	344	323	1062	475	225	897	401
Arrive On Green	0.09	0.18	0.18	0.13	0.22	0.22	0.18	0.30	0.30	0.13	0.25	0.25
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	128	390	265	220	354	164	309	803	164	191	811	74
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.4	9.2	14.9	11.1	7.8	8.1	15.5	18.5	7.3	9.5	20.0	3.3
Cycle Q Clear(g_c), s	6.4	9.2	14.9	11.1	7.8	8.1	15.5	18.5	7.3	9.5	20.0	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	629	281	229	768	344	323	1062	475	225	897	401
V/C Ratio(X)	0.81	0.62	0.94	0.96	0.46	0.48	0.96	0.76	0.35	0.85	0.90	0.18
Avail Cap(c_a), veh/h	189	629	281	229	768	344	323	1062	475	225	897	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	34.2	36.5	39.0	30.6	30.8	36.4	28.5	24.6	38.5	32.5	26.3
Incr Delay (d2), s/veh	19.0	1.9	38.1	45.3	0.4	0.9	38.3	5.0	2.0	25.3	14.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	4.7	9.5	8.3	3.9	3.7	11.0	9.8	3.5	6.2	11.5	1.6
LnGrp Delay(d),s/veh	59.2	36.1	74.7	84.3	31.0	31.7	74.8	33.6	26.6	63.7	46.8	27.3
LnGrp LOS	E	D	E	F	C	C	E	C	C	E	D	C
Approach Vol, veh/h		783			738			1276			1076	
Approach Delay, s/veh		52.9			47.0			42.6			48.5	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	33.4	17.2	21.6	22.0	29.2	13.7	25.1
Change Period (Y+Rc), s	6.4	* 6.4	5.6	5.6	5.6	6.4	5.6	5.6
Max Green Setting (Gmax), s	11.4	* 27	11.6	16.0	16.4	22.8	9.6	18.0
Max Q Clear Time (g_c+I1), s	12.5	20.5	13.1	16.9	17.5	23.0	8.4	10.1
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0	0.0	0.0	0.0	3.5

Intersection Summary

HCM 2010 Ctrl Delay	47.2
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	380	69	204	425	31	57	51	103	43	125	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	49	413	75	222	462	34	62	55	112	47	136	61
Adj No. of Lanes	1	2	0	1	2	1	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	587	106	300	1154	516	177	163	241	142	334	131
Arrive On Green	0.04	0.20	0.20	0.17	0.33	0.33	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	2997	540	1774	3539	1583	286	522	773	192	1072	421
Grp Volume(v), veh/h	49	243	245	222	462	34	229	0	0	244	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1767	1774	1770	1583	1581	0	0	1686	0	0
Q Serve(g_s), s	1.4	6.6	6.7	6.2	5.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	6.6	6.7	6.2	5.3	0.8	5.5	0.0	0.0	5.7	0.0	0.0
Prop In Lane	1.00		0.31	1.00		1.00	0.27		0.49	0.19		0.25
Lane Grp Cap(c), veh/h	69	347	346	300	1154	516	581	0	0	608	0	0
V/C Ratio(X)	0.71	0.70	0.71	0.74	0.40	0.07	0.39	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	201	545	544	375	1437	643	581	0	0	608	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.7	19.5	19.5	20.5	13.6	12.1	14.2	0.0	0.0	14.3	0.0	0.0
Incr Delay (d2), s/veh	10.9	2.2	2.3	5.8	0.2	0.1	2.0	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.5	3.5	3.5	2.6	0.3	2.9	0.0	0.0	3.1	0.0	0.0
LnGrp Delay(d),s/veh	35.6	21.7	21.9	26.3	13.8	12.1	16.2	0.0	0.0	16.2	0.0	0.0
LnGrp LOS	D	C	C	C	B	B	B			B		
Approach Vol, veh/h		537			718			229			244	
Approach Delay, s/veh		23.1			17.6			16.2			16.2	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.8	14.4	15.8		29.8	7.6	22.5
Change Period (Y+Rc), s		5.6	5.6	5.6		5.6	5.6	5.6
Max Green Setting (Gmax), s		16.2	11.0	16.0		16.2	5.9	21.1
Max Q Clear Time (g_c+I1), s		7.5	8.2	8.7		7.7	3.4	7.3
Green Ext Time (p_c), s		1.9	1.0	1.4		1.9	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	126	393	37	185	433	29	64	236	155	71	152	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	137	427	40	201	471	32	70	257	168	77	165	76
Adj No. of Lanes	1	2	0	1	2	1	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	589	55	256	799	357	133	369	222	168	336	134
Arrive On Green	0.10	0.18	0.18	0.14	0.23	0.23	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	3273	305	1774	3539	1583	162	949	571	236	864	346
Grp Volume(v), veh/h	137	230	237	201	471	32	495	0	0	318	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1809	1774	1770	1583	1683	0	0	1446	0	0
Q Serve(g_s), s	4.4	7.2	7.2	6.4	7.0	0.9	5.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.4	7.2	7.2	6.4	7.0	0.9	14.5	0.0	0.0	9.0	0.0	0.0
Prop In Lane	1.00		0.17	1.00		1.00	0.14		0.34	0.24		0.24
Lane Grp Cap(c), veh/h	175	318	325	256	799	357	725	0	0	639	0	0
V/C Ratio(X)	0.78	0.72	0.73	0.79	0.59	0.09	0.68	0.00	0.00	0.50	0.00	0.00
Avail Cap(c_a), veh/h	242	483	494	285	1051	470	725	0	0	639	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.74	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.8	22.7	22.7	24.2	20.3	17.9	15.2	0.0	0.0	13.4	0.0	0.0
Incr Delay (d2), s/veh	8.2	2.3	2.3	12.3	0.7	0.1	5.2	0.0	0.0	2.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.7	3.8	4.0	3.5	0.4	7.8	0.0	0.0	4.4	0.0	0.0
LnGrp Delay(d),s/veh	34.0	25.0	25.0	36.5	21.0	18.0	20.4	0.0	0.0	16.1	0.0	0.0
LnGrp LOS	C	C	C	D	C	B	C			B		
Approach Vol, veh/h		604			704			495			318	
Approach Delay, s/veh		27.0			25.3			20.4			16.1	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		34.8	14.1	16.1		34.8	11.4	18.8
Change Period (Y+Rc), s		5.6	5.6	5.6		5.6	5.6	5.6
Max Green Setting (Gmax), s		22.8	9.4	16.0		22.8	8.0	17.4
Max Q Clear Time (g_c+I1), s		16.5	8.4	9.2		11.0	6.4	9.0
Green Ext Time (p_c), s		2.8	0.4	1.3		4.2	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	23.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	4	67	102	8	8	118	1311	148	7	1195	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1810	1765	1765	1810	1765
Adj Flow Rate, veh/h	54	4	73	111	9	9	128	1425	161	8	1299	84
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	68	178	139	105	219	172	157	1244	535	441	2624	789
Arrive On Green	0.04	0.10	0.10	0.06	0.12	0.12	0.09	0.36	0.36	0.26	0.53	0.53
Sat Flow, veh/h	1681	1863	1453	1681	1863	1462	1681	3438	1479	1681	4940	1486
Grp Volume(v), veh/h	54	4	73	111	9	9	128	1425	161	8	1299	84
Grp Sat Flow(s),veh/h/ln	1681	1863	1453	1681	1863	1462	1681	1719	1479	1681	1647	1486
Q Serve(g_s), s	3.3	0.2	4.9	6.4	0.4	0.3	7.7	37.2	5.9	0.4	17.2	2.9
Cycle Q Clear(g_c), s	3.3	0.2	4.9	6.4	0.4	0.3	7.7	37.2	5.9	0.4	17.2	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	68	178	139	105	219	172	157	1244	535	441	2624	789
V/C Ratio(X)	0.80	0.02	0.53	1.06	0.04	0.05	0.82	1.15	0.30	0.02	0.50	0.11
Avail Cap(c_a), veh/h	82	489	382	105	515	404	278	1244	535	441	2624	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	42.1	44.3	48.2	40.2	13.5	45.8	32.8	12.6	28.1	15.3	12.0
Incr Delay (d2), s/veh	35.2	0.1	3.1	105.4	0.1	0.1	9.9	75.4	1.4	0.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.1	2.1	6.0	0.2	0.2	4.0	30.5	3.1	0.2	8.0	1.2
LnGrp Delay(d),s/veh	84.1	42.2	47.4	154.1	40.3	13.6	55.6	108.2	14.0	28.2	16.0	12.3
LnGrp LOS	F	D	D	F	D	B	E	F	B	C	B	B
Approach Vol, veh/h		131			129			1714			1391	
Approach Delay, s/veh		62.3			136.4			95.4			15.8	
Approach LOS		E			F			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.6	42.8	12.0	15.4	15.2	60.2	9.7	17.7
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	27.0	37.2	6.4	27.0	17.0	47.2	5.0	28.4
Max Q Clear Time (g_c+I1), s	2.4	39.2	8.4	6.9	9.7	19.2	5.3	2.4
Green Ext Time (p_c), s	9.9	0.0	0.0	0.2	0.2	10.5	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	62.8
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	135	39	78	182	6	3	114	1282	96	5	1346	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1810	1765	1765	1810	1765
Adj Flow Rate, veh/h	147	42	85	198	7	3	124	1393	104	5	1463	78
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	263	184	143	214	129	99	250	1434	618	267	2113	634
Arrive On Green	0.16	0.10	0.10	0.13	0.07	0.07	0.05	0.14	0.14	0.16	0.43	0.43
Sat Flow, veh/h	1681	1863	1454	1681	1863	1435	1681	3438	1482	1681	4940	1482
Grp Volume(v), veh/h	147	42	85	198	7	3	124	1393	104	5	1463	78
Grp Sat Flow(s),veh/h/ln	1681	1863	1454	1681	1863	1435	1681	1719	1482	1681	1647	1482
Q Serve(g_s), s	9.1	2.4	6.3	13.2	0.4	0.2	8.1	45.6	4.3	0.3	27.2	3.6
Cycle Q Clear(g_c), s	9.1	2.4	6.3	13.2	0.4	0.2	8.1	45.6	4.3	0.3	27.2	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	184	143	214	129	99	250	1434	618	267	2113	634
V/C Ratio(X)	0.56	0.23	0.59	0.93	0.05	0.03	0.50	0.97	0.17	0.02	0.69	0.12
Avail Cap(c_a), veh/h	263	296	231	214	296	228	250	1434	618	267	2113	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.47	0.47	0.47	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	47.0	48.8	48.9	49.2	25.7	49.7	48.1	11.8	40.1	26.3	19.6
Incr Delay (d2), s/veh	2.6	0.6	3.9	41.4	0.2	0.1	0.7	10.9	0.3	0.1	1.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	1.2	2.7	8.6	0.2	0.1	3.8	23.9	2.8	0.1	12.7	1.5
LnGrp Delay(d),s/veh	46.7	47.7	52.7	90.3	49.4	25.8	50.4	59.0	12.1	40.3	28.2	20.0
LnGrp LOS	D	D	D	F	D	C	D	E	B	D	C	B
Approach Vol, veh/h		274			208			1621			1546	
Approach Delay, s/veh		48.7			88.0			55.3			27.8	
Approach LOS		D			F			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.6	59.6	20.0	16.8	29.2	54.0	23.3	13.4
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	18.0	47.2	14.4	18.0	16.8	48.4	14.4	18.0
Max Q Clear Time (g_c+I1), s	2.3	47.6	15.2	8.3	10.1	29.2	11.1	2.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	4.7	10.0	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	58	225	158	100	60	464	1465	525	261	1047	119
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1823	1800	1765	1810	1765
Adj Flow Rate, veh/h	114	63	245	172	109	65	504	1592	571	284	1138	129
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	2	5	2
Cap, veh/h	116	152	543	201	246	194	477	1587	553	257	1512	452
Arrive On Green	0.07	0.08	0.08	0.12	0.13	0.13	0.28	0.44	0.44	0.15	0.31	0.31
Sat Flow, veh/h	1681	1863	1445	1681	1863	1466	1681	3634	1267	1681	4940	1475
Grp Volume(v), veh/h	114	63	245	172	109	65	504	1450	713	284	1138	129
Grp Sat Flow(s),veh/h/ln	1681	1863	1445	1681	1863	1466	1681	1659	1582	1681	1647	1475
Q Serve(g_s), s	7.3	3.4	3.8	10.8	5.8	4.3	30.4	46.8	46.8	16.4	22.3	5.3
Cycle Q Clear(g_c), s	7.3	3.4	3.8	10.8	5.8	4.3	30.4	46.8	46.8	16.4	22.3	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	116	152	543	201	246	194	477	1449	691	257	1512	452
V/C Ratio(X)	0.98	0.41	0.45	0.86	0.44	0.34	1.06	1.00	1.03	1.10	0.75	0.29
Avail Cap(c_a), veh/h	116	313	668	257	469	369	477	1449	691	257	1512	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	46.8	10.1	46.3	42.9	42.2	38.4	30.2	30.2	45.4	33.5	15.9
Incr Delay (d2), s/veh	77.7	1.8	0.6	19.6	1.3	1.0	57.1	23.7	42.7	86.9	3.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	1.8	3.2	6.1	3.1	1.8	21.6	26.1	28.6	13.8	10.6	2.8
LnGrp Delay(d),s/veh	127.5	48.6	10.7	65.8	44.1	43.2	95.5	53.9	72.9	132.2	37.0	17.5
LnGrp LOS	F	D	B	E	D	D	F	F	F	F	D	B
Approach Vol, veh/h		422			346			2667			1551	
Approach Delay, s/veh		47.9			54.8			66.8			52.8	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	52.4	18.4	14.3	36.0	38.4	13.0	19.8
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	16.4	46.8	16.4	18.0	30.4	32.8	7.4	27.0
Max Q Clear Time (g_c+I1), s	18.4	48.8	12.8	5.8	32.4	24.3	9.3	7.8
Green Ext Time (p_c), s	0.0	0.0	0.1	1.6	0.0	4.8	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	60.0
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	99	450	425	127	81	483	1251	340	122	1433	93
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1821	1800	1765	1810	1765
Adj Flow Rate, veh/h	182	108	489	462	138	88	525	1360	370	133	1558	101
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	2	5	2
Cap, veh/h	476	419	333	258	177	138	286	1351	366	146	1309	390
Arrive On Green	0.28	0.22	0.22	0.15	0.09	0.09	0.17	0.35	0.35	0.17	0.53	0.53
Sat Flow, veh/h	1681	1863	1480	1681	1863	1453	1681	3879	1052	1681	4940	1472
Grp Volume(v), veh/h	182	108	489	462	138	88	525	1161	569	133	1558	101
Grp Sat Flow(s),veh/h/ln	1681	1863	1480	1681	1863	1453	1681	1657	1617	1681	1647	1472
Q Serve(g_s), s	10.4	5.7	27.0	18.4	8.7	7.0	20.4	41.8	41.8	9.3	31.8	2.2
Cycle Q Clear(g_c), s	10.4	5.7	27.0	18.4	8.7	7.0	20.4	41.8	41.8	9.3	31.8	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.65	1.00		1.00
Lane Grp Cap(c), veh/h	476	419	333	258	177	138	286	1154	563	146	1309	390
V/C Ratio(X)	0.38	0.26	1.47	1.79	0.78	0.64	1.84	1.01	1.01	0.91	1.19	0.26
Avail Cap(c_a), veh/h	476	419	333	258	359	280	286	1154	563	146	1309	390
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.61	0.61	0.61	0.71	0.71	0.71
Uniform Delay (d), s/veh	34.6	38.3	46.5	50.8	53.1	52.3	49.8	39.1	39.1	49.2	28.2	5.2
Incr Delay (d2), s/veh	0.5	0.3	226.6	371.9	7.3	4.8	385.1	22.2	32.1	39.6	91.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.0	32.0	35.1	4.8	3.0	40.0	22.6	23.6	5.9	25.4	1.7
LnGrp Delay(d),s/veh	35.1	38.6	273.1	422.7	60.3	57.1	434.9	61.3	71.2	88.8	119.5	6.3
LnGrp LOS	D	D	F	F	E	E	F	F	F	F	F	A
Approach Vol, veh/h		779			688			2255			1792	
Approach Delay, s/veh		185.0			303.3			150.8			110.8	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	47.4	24.0	32.6	26.0	37.4	39.6	17.0
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	10.4	41.8	18.4	27.0	20.4	31.8	22.3	23.1
Max Q Clear Time (g_c+I1), s	11.3	43.8	20.4	29.0	22.4	33.8	12.4	10.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	161.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	74	1	957	45	1497	0	0	913	517
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1800	1714	1714	1714	1714	0	0	1714	1714
Adj Flow Rate, veh/h				80	1	1040	49	1627	0	0	992	562
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				5	5	5	5	5	0	0	5	5
Cap, veh/h				697	9	1100	59	1993	0	0	1491	460
Arrive On Green				0.43	0.43	0.43	0.01	0.14	0.00	0.00	0.32	0.32
Sat Flow, veh/h				1613	20	2547	1633	4834	0	0	4834	1443
Grp Volume(v), veh/h				81	0	1040	49	1627	0	0	992	562
Grp Sat Flow(s),veh/h/ln				1634	0	1273	1633	1560	0	0	1560	1443
Q Serve(g_s), s				2.3	0.0	30.9	2.4	26.6	0.0	0.0	14.5	25.1
Cycle Q Clear(g_c), s				2.3	0.0	30.9	2.4	26.6	0.0	0.0	14.5	25.1
Prop In Lane				0.99		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				706	0	1100	59	1993	0	0	1491	460
V/C Ratio(X)				0.11	0.00	0.95	0.82	0.82	0.00	0.00	0.67	1.22
Avail Cap(c_a), veh/h				729	0	1136	108	1993	0	0	1491	460
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.20	0.20	0.00	0.00	0.65	0.65
Uniform Delay (d), s/veh				13.4	0.0	21.5	38.7	30.9	0.0	0.0	23.2	26.9
Incr Delay (d2), s/veh				0.1	0.0	15.1	5.6	0.8	0.0	0.0	1.5	112.5
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	13.1	1.2	11.6	0.0	0.0	6.5	24.2
LnGrp Delay(d),s/veh				13.5	0.0	36.6	44.3	31.7	0.0	0.0	24.8	139.4
LnGrp LOS				B		D	D	C			C	F
Approach Vol, veh/h					1121			1676			1554	
Approach Delay, s/veh					35.0			32.1			66.2	
Approach LOS					C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		40.3			8.5	31.8		39.7
Change Period (Y+Rc), s		5.6			5.6	5.6		5.6
Max Green Setting (Gmax), s		33.6			5.2	22.8		35.2
Max Q Clear Time (g_c+I1), s		28.6			4.4	27.1		32.9
Green Ext Time (p_c), s		4.7			0.0	0.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	45.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	98	1	913	74	1161	0	0	1518	790
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1800	1810	1714	1714	1810	0	0	1810	1714
Adj Flow Rate, veh/h				107	1	992	80	1262	0	0	1650	859
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				5	5	5	5	5	0	0	5	5
Cap, veh/h				632	6	941	99	2421	0	0	1774	519
Arrive On Green				0.37	0.37	0.37	0.08	0.65	0.00	0.00	0.36	0.36
Sat Flow, veh/h				1708	16	2544	1633	5103	0	0	5103	1445
Grp Volume(v), veh/h				108	0	992	80	1262	0	0	1650	859
Grp Sat Flow(s),veh/h/ln				1724	0	1272	1633	1647	0	0	1647	1445
Q Serve(g_s), s				3.4	0.0	29.6	3.9	10.8	0.0	0.0	25.7	28.7
Cycle Q Clear(g_c), s				3.4	0.0	29.6	3.9	10.8	0.0	0.0	25.7	28.7
Prop In Lane				0.99		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				638	0	941	99	2421	0	0	1774	519
V/C Ratio(X)				0.17	0.00	1.05	0.81	0.52	0.00	0.00	0.93	1.66
Avail Cap(c_a), veh/h				638	0	941	106	2421	0	0	1774	519
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.26	0.26	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				16.9	0.0	25.2	36.3	9.0	0.0	0.0	24.7	25.6
Incr Delay (d2), s/veh				0.1	0.0	44.6	10.6	0.2	0.0	0.0	1.2	295.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	16.2	2.0	4.9	0.0	0.0	11.8	54.0
LnGrp Delay(d),s/veh				17.1	0.0	69.8	46.9	9.2	0.0	0.0	25.8	321.2
LnGrp LOS				B		F	D	A			C	F
Approach Vol, veh/h					1100			1342			2509	
Approach Delay, s/veh					64.6			11.4			127.0	
Approach LOS					E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		44.8			10.5	34.3		35.2
Change Period (Y+Rc), s		5.6			5.6	5.6		5.6
Max Green Setting (Gmax), s		39.2			5.2	28.4		29.6
Max Q Clear Time (g_c+I1), s		12.8			5.9	30.7		31.6
Green Ext Time (p_c), s		24.1			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	81.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	923	1	28	0	0	0	0	619	59	653	334	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	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
Adj Sat Flow, veh/h/ln	1714	1714	1800				0	1714	1714	1714	1714	0
Adj Flow Rate, veh/h	1003	1	30				0	673	64	710	363	0
Adj No. of Lanes	2	1	0				0	2	1	2	2	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, %	5	5	5				0	5	5	5	5	0
Cap, veh/h	1053	16	467				0	717	316	752	1718	0
Arrive On Green	0.33	0.33	0.33				0.00	0.22	0.22	0.08	0.17	0.00
Sat Flow, veh/h	3167	47	1405				0	3343	1437	3167	3343	0
Grp Volume(v), veh/h	1003	0	31				0	673	64	710	363	0
Grp Sat Flow(s),veh/h/ln	1584	0	1451				0	1629	1437	1584	1629	0
Q Serve(g_s), s	24.7	0.0	1.2				0.0	16.3	2.9	17.8	7.6	0.0
Cycle Q Clear(g_c), s	24.7	0.0	1.2				0.0	16.3	2.9	17.8	7.6	0.0
Prop In Lane	1.00		0.97				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1053	0	483				0	717	316	752	1718	0
V/C Ratio(X)	0.95	0.00	0.06				0.00	0.94	0.20	0.94	0.21	0.00
Avail Cap(c_a), veh/h	1053	0	483				0	717	316	752	1718	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	26.1	0.0	18.2				0.0	30.7	25.5	36.3	18.8	0.0
Incr Delay (d2), s/veh	17.4	0.0	0.1				0.0	21.7	1.4	16.9	0.2	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	13.3	0.0	0.5				0.0	9.4	1.3	9.6	3.5	0.0
LnGrp Delay(d),s/veh	43.5	0.0	18.3				0.0	52.3	26.9	53.2	19.0	0.0
LnGrp LOS	D		B					D	C	D	B	
Approach Vol, veh/h		1034						737			1073	
Approach Delay, s/veh		42.8						50.1			41.6	
Approach LOS		D						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	24.6	23.2		32.2		47.8		
Change Period (Y+Rc), s	5.6	5.6		5.6		5.6		
Max Green Setting (Gmax), s	19.0	17.6		26.6		42.2		
Max Q Clear Time (g_c+I1), s	19.8	18.3		26.7		9.6		
Green Ext Time (p_c), s	0.0	0.0		0.0		7.7		

Intersection Summary	
HCM 2010 Ctrl Delay	44.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	758	1	107	0	0	0	0	477	111	1028	588	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	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
Adj Sat Flow, veh/h/ln	1714	1810	1800				0	1810	1714	1714	1810	0
Adj Flow Rate, veh/h	824	1	116				0	518	121	1117	639	0
Adj No. of Lanes	2	1	0				0	2	1	2	2	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, %	5	5	5				0	5	5	5	5	0
Cap, veh/h	792	3	377				0	718	300	1049	2097	0
Arrive On Green	0.25	0.25	0.25				0.00	0.21	0.21	0.33	0.61	0.00
Sat Flow, veh/h	3167	13	1509				0	3529	1436	3167	3529	0
Grp Volume(v), veh/h	824	0	117				0	518	121	1117	639	0
Grp Sat Flow(s),veh/h/ln	1584	0	1522				0	1719	1436	1584	1719	0
Q Serve(g_s), s	20.0	0.0	5.0				0.0	11.2	5.8	26.5	7.1	0.0
Cycle Q Clear(g_c), s	20.0	0.0	5.0				0.0	11.2	5.8	26.5	7.1	0.0
Prop In Lane	1.00		0.99				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	792	0	380				0	718	300	1049	2097	0
V/C Ratio(X)	1.04	0.00	0.31				0.00	0.72	0.40	1.06	0.30	0.00
Avail Cap(c_a), veh/h	792	0	380				0	718	300	1049	2097	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	0.00	1.00				0.00	1.00	1.00	0.36	0.36	0.00
Uniform Delay (d), s/veh	30.0	0.0	24.4				0.0	29.5	27.3	26.8	7.5	0.0
Incr Delay (d2), s/veh	43.0	0.0	0.5				0.0	6.2	4.0	37.1	0.1	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	13.4	0.0	2.1				0.0	5.9	2.7	16.9	3.4	0.0
LnGrp Delay(d),s/veh	73.0	0.0	24.8				0.0	35.7	31.4	63.9	7.6	0.0
LnGrp LOS	F		C					D	C	F	A	
Approach Vol, veh/h		941						639			1756	
Approach Delay, s/veh		67.0						34.9			43.4	
Approach LOS		E						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	32.1	22.3		25.6		54.4		
Change Period (Y+Rc), s	5.6	5.6		5.6		5.6		
Max Green Setting (Gmax), s	26.5	16.7		20.0		48.8		
Max Q Clear Time (g_c+I1), s	28.5	13.2		22.0		9.1		
Green Ext Time (p_c), s	0.0	2.2		0.0		9.4		

Intersection Summary	
HCM 2010 Ctrl Delay	48.4
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	135	5	3	0	0	27	538	0	1	5	4
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	147	5	3	0	0	29	585	0	1	5	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	1
HCM Control Delay	11.4	25.6	9.8
HCM LOS	B	D	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	10%	94%	0%	100%	0%
Vol Thru, %	50%	3%	5%	0%	5%
Vol Right, %	40%	2%	95%	0%	95%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	143	565	208	154
LT Vol	5	5	27	0	8
Through Vol	4	3	538	0	146
RT Vol	1	135	0	208	0
Lane Flow Rate	11	155	614	226	167
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.02	0.266	0.817	0.44	0.271
Departure Headway (Hd)	6.614	6.15	4.788	7.009	5.824
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	538	583	755	513	616
Service Time	4.694	4.209	2.831	4.755	3.569
HCM Lane V/C Ratio	0.02	0.266	0.813	0.441	0.271
HCM Control Delay	9.8	11.4	25.6	15.2	10.7
HCM Lane LOS	A	B	D	C	B
HCM 95th-tile Q	0.1	1.1	8.8	2.2	1.1

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	208	8	146
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	226	9	159
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	13.3
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	34.9
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	194	7	4	0	5	12	373	0	2	21	5
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	211	8	4	0	5	13	405	0	2	23	5
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	1
HCM Control Delay	15.2	21.1	10.9
HCM LOS	C	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	7%	95%	1%	100%	0%
Vol Thru, %	75%	3%	3%	0%	5%
Vol Right, %	18%	2%	96%	0%	95%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	205	390	475	220
LT Vol	21	7	12	0	12
Through Vol	5	4	373	0	208
RT Vol	2	194	5	475	0
Lane Flow Rate	30	223	424	516	239
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.063	0.433	0.693	1	0.391
Departure Headway (Hd)	7.427	6.999	5.889	7.064	5.881
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	485	519	619	511	607
Service Time	5.438	4.971	3.883	4.845	3.66
HCM Lane V/C Ratio	0.062	0.43	0.685	1.01	0.394
HCM Control Delay	10.9	15.2	21.1	66.5	12.4
HCM Lane LOS	B	C	C	F	B
HCM 95th-tile Q	0.2	2.2	5.5	13.7	1.9

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	475	12	208
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	516	13	226
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	49.4
HCM LOS	E

Lane

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	2	14	0	126	35	109	0	14	50
Conflicting Peds, #/hr	0	0	0	10	0	10	0	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	15	0	137	38	118	0	15	54

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	326	275	39	254	251	62	34	0	0
Stage 1	195	195	-	52	52	-	-	-	-
Stage 2	131	80	-	202	199	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-
Pot Cap-1 Maneuver	627	632	1033	699	652	1003	1578	-	-
Stage 1	807	739	-	961	852	-	-	-	-
Stage 2	873	828	-	800	736	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	499	592	1024	645	610	986	1565	-	-
Mov Cap-2 Maneuver	499	592	-	645	610	-	-	-	-
Stage 1	807	698	-	953	845	-	-	-	-
Stage 2	727	821	-	733	695	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	11.4	11	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1565	-	-	579	645	858	1505	-	-
HCM Lane V/C Ratio	-	-	-	0.03	0.212	0.182	0.055	-	-
HCM Control Delay (s)	0	-	-	11.4	12.1	10.1	7.5	0	-
HCM Lane LOS	A	-	-	B	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.8	0.7	0.2	-	-

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	76	23	8
Conflicting Peds, #/hr	10	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	83	25	9

Major/Minor	Major2		
Conflicting Flow All	80	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1518	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1505	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	5.3
HCM LOS	

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	6	33	2	135	15	135	3	30	92
Conflicting Peds, #/hr	0	0	0	10	0	10	0	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	36	2	147	16	147	3	33	100

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	460	428	41	397	381	103	34	0	0
Stage 1	279	279	-	99	99	-	-	-	-
Stage 2	181	149	-	298	282	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-
Pot Cap-1 Maneuver	512	519	1030	563	552	952	1578	-	-
Stage 1	728	680	-	907	813	-	-	-	-
Stage 2	821	774	-	711	678	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	389	468	1021	484	498	936	1565	-	-
Mov Cap-2 Maneuver	389	468	-	484	498	-	-	-	-
Stage 1	727	619	-	898	805	-	-	-	-
Stage 2	671	766	-	604	618	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	13.5	12.8	0.2
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1565	-	-	466	484	860	1428	-	-
HCM Lane V/C Ratio	0.002	-	-	0.096	0.303	0.19	0.087	-	-
HCM Control Delay (s)	7.3	0	-	13.5	15.6	10.2	7.8	0	-
HCM Lane LOS	A	A	-	B	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	1.3	0.7	0.3	-	-

Intersection

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	114	26	5
Conflicting Peds, #/hr	10	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	124	28	5

Major/Minor	Major2		
Conflicting Flow All	143	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1440	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1428	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	6.1
HCM LOS	

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	123	17	108	258	11	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	134	18	117	280	12	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	152	0	658	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	515	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1429	-	429	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	600	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1429	-	387	905
Mov Cap-2 Maneuver	-	-	-	-	387	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	542	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	729	-	-	1429	-
HCM Lane V/C Ratio	0.091	-	-	0.082	-
HCM Control Delay (s)	10.4	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	222	18	117	265	20	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	241	20	127	288	22	97

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	261	0	793	251
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	542	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1303	-	358	788
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1303	-	316	788
Mov Cap-2 Maneuver	-	-	-	-	316	-
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	515	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	618	-	-	1303	-
HCM Lane V/C Ratio	0.192	-	-	0.098	-
HCM Control Delay (s)	12.2	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	199	10	142	432	11	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	216	11	154	470	12	102

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	227	0	1000	222
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	778	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1341	-	270	818
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	453	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1341	-	228	818
Mov Cap-2 Maneuver	-	-	-	-	228	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	383	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	644	-	-	1341	-
HCM Lane V/C Ratio	0.177	-	-	0.115	-
HCM Control Delay (s)	11.8	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.4	-

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	370	11	160	436	20	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	402	12	174	474	22	178

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	414	0	1230	408
Stage 1	-	-	-	-	408	-
Stage 2	-	-	-	-	822	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1145	-	196	643
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1145	-	156	643
Mov Cap-2 Maneuver	-	-	-	-	156	-
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	343	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	480	-	-	1145	-
HCM Lane V/C Ratio	0.417	-	-	0.152	-
HCM Control Delay (s)	17.8	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2	-	-	0.5	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	337	7	0	684	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	366	8	0	743	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	374	0	1113	370
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	743	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1184	-	231	676
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	470	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1184	-	231	676
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	470	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	676	-	-	1184	-
HCM Lane V/C Ratio	0.08	-	-	-	-
HCM Control Delay (s)	10.8	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	627	7	0	702	0	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	682	8	0	763	0	97

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	689	0	1448	685
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	763	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	905	-	145	448
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	460	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	905	-	145	448
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	460	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	448	-	-	905	-
HCM Lane V/C Ratio	0.216	-	-	-	-
HCM Control Delay (s)	15.2	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	18	59	0	44	122
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	64	0	48	133

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	292	64	0	0	64	0
Stage 1	64	-	-	-	-	-
Stage 2	228	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	699	1000	-	-	1538	-
Stage 1	959	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	675	1000	-	-	1538	-
Mov Cap-2 Maneuver	675	-	-	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	782	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1000	1538	-
HCM Lane V/C Ratio	-	-	0.02	0.031	-
HCM Control Delay (s)	-	-	8.7	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	32	125	0	47	131
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	136	0	51	142

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	381	136	0	0	136	0
Stage 1	136	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	621	913	-	-	1448	-
Stage 1	890	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	597	913	-	-	1448	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	913	1448	-
HCM Lane V/C Ratio	-	-	0.038	0.035	-
HCM Control Delay (s)	-	-	9.1	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	18	41	0	44	78
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	45	0	48	85

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	225	45	0	0	45	0
Stage 1	45	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	763	1025	-	-	1563	-
Stage 1	977	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	739	1025	-	-	1563	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	824	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1025	1563	-
HCM Lane V/C Ratio	-	-	0.019	0.031	-
HCM Control Delay (s)	-	-	8.6	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	32	93	0	47	84
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	101	0	51	91

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	294	101	0	0	101	0
Stage 1	101	-	-	-	-	-
Stage 2	193	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	697	954	-	-	1491	-
Stage 1	923	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	672	954	-	-	1491	-
Mov Cap-2 Maneuver	672	-	-	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	1491	-
HCM Lane V/C Ratio	-	-	0.036	0.034	-
HCM Control Delay (s)	-	-	8.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

APPENDIX K

MITIGATED 2036 PLUS PROJECT CONDITIONS LOS CALCULATIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	211	30	118	505	66	13	10	21	137	40	51
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	28	229	33	128	549	72	14	11	23	149	43	55
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	602	86	165	821	107	222	185	289	429	127	126
Arrive On Green	0.03	0.19	0.19	0.09	0.26	0.26	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1774	3112	443	1774	3148	412	343	491	767	832	337	335
Grp Volume(v), veh/h	28	129	133	128	308	313	48	0	0	247	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1785	1774	1770	1790	1602	0	0	1504	0	0
Q Serve(g_s), s	0.8	3.2	3.2	3.5	7.8	7.8	0.0	0.0	0.0	4.6	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.2	3.2	3.5	7.8	7.8	0.9	0.0	0.0	5.9	0.0	0.0
Prop In Lane	1.00		0.25	1.00		0.23	0.29		0.48	0.60		0.22
Lane Grp Cap(c), veh/h	46	342	345	165	461	467	697	0	0	682	0	0
V/C Ratio(X)	0.61	0.38	0.39	0.78	0.67	0.67	0.07	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	178	567	572	299	688	696	697	0	0	682	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.1	17.5	17.5	22.1	16.5	16.5	10.0	0.0	0.0	11.4	0.0	0.0
Incr Delay (d2), s/veh	12.5	0.7	0.7	7.6	1.7	1.7	0.2	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	1.7	2.1	4.0	4.0	0.5	0.0	0.0	2.8	0.0	0.0
LnGrp Delay(d),s/veh	36.6	18.2	18.2	29.7	18.2	18.2	10.2	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	D	B	B	C	B	B	B			B		
Approach Vol, veh/h		290			749			48			247	
Approach Delay, s/veh		20.0			20.2			10.2			12.9	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.4	10.2	15.3		24.4	6.9	18.6
Change Period (Y+Rc), s		5.6	5.6	5.6		5.6	5.6	5.6
Max Green Setting (Gmax), s		18.8	8.4	16.0		18.8	5.0	19.4
Max Q Clear Time (g_c+I1), s		2.9	5.5	5.2		7.9	2.8	9.8
Green Ext Time (p_c), s		1.5	0.1	3.4		1.2	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Mitigated 2036 Plus Project PM Peak Hour
1: American Street & Goshen Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	446	25	40	394	207	44	62	37	115	37	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	54	485	27	43	428	225	48	67	40	125	40	16
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	956	53	64	617	321	221	288	143	445	133	44
Arrive On Green	0.04	0.28	0.28	0.04	0.27	0.27	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	3410	189	1774	2252	1173	366	855	425	950	396	130
Grp Volume(v), veh/h	54	251	261	43	335	318	155	0	0	181	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1774	1770	1656	1646	0	0	1476	0	0
Q Serve(g_s), s	1.5	5.8	5.8	1.2	8.2	8.3	0.0	0.0	0.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.5	5.8	5.8	1.2	8.2	8.3	3.1	0.0	0.0	3.8	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.71	0.31		0.26	0.69		0.09
Lane Grp Cap(c), veh/h	76	496	513	64	485	454	651	0	0	622	0	0
V/C Ratio(X)	0.71	0.51	0.51	0.67	0.69	0.70	0.24	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	216	595	616	205	585	547	651	0	0	622	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	14.6	14.6	23.1	15.7	15.8	11.7	0.0	0.0	11.9	0.0	0.0
Incr Delay (d2), s/veh	11.7	0.8	0.8	11.3	2.7	3.1	0.9	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.9	3.0	0.8	4.4	4.2	1.7	0.0	0.0	2.0	0.0	0.0
LnGrp Delay(d),s/veh	34.6	15.4	15.4	34.4	18.5	18.9	12.5	0.0	0.0	13.0	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	B			B		
Approach Vol, veh/h		566			696			155			181	
Approach Delay, s/veh		17.2			19.6			12.5			13.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		21.9	7.4	19.2		21.9	7.7	18.9
Change Period (Y+Rc), s		5.6	5.6	5.6		5.6	5.6	5.6
Max Green Setting (Gmax), s		16.3	5.6	16.3		16.3	5.9	16.0
Max Q Clear Time (g_c+I1), s		5.1	3.2	7.8		5.8	3.5	10.3
Green Ext Time (p_c), s		1.4	0.0	3.9		1.4	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	4	67	102	8	8	118	1311	148	7	1195	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1810	1765	1765	1810	1765
Adj Flow Rate, veh/h	54	4	73	111	9	9	128	1425	161	8	1299	84
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	68	172	134	110	218	171	157	1400	603	400	2727	820
Arrive On Green	0.04	0.09	0.09	0.07	0.12	0.12	0.03	0.13	0.13	0.24	0.55	0.55
Sat Flow, veh/h	1681	1863	1451	1681	1863	1462	1681	3438	1482	1681	4940	1486
Grp Volume(v), veh/h	54	4	73	111	9	9	128	1425	161	8	1299	84
Grp Sat Flow(s),veh/h/ln	1681	1863	1451	1681	1863	1462	1681	1719	1482	1681	1647	1486
Q Serve(g_s), s	3.6	0.2	5.5	7.4	0.5	0.4	8.6	46.2	8.0	0.4	18.1	3.0
Cycle Q Clear(g_c), s	3.6	0.2	5.5	7.4	0.5	0.4	8.6	46.2	8.0	0.4	18.1	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	68	172	134	110	218	171	157	1400	603	400	2727	820
V/C Ratio(X)	0.79	0.02	0.55	1.01	0.04	0.05	0.82	1.02	0.27	0.02	0.48	0.10
Avail Cap(c_a), veh/h	104	443	345	110	450	353	274	1400	603	400	2727	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.41	0.41	0.41	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	46.8	49.2	53.0	44.5	17.0	54.0	49.1	17.7	33.1	15.5	12.1
Incr Delay (d2), s/veh	20.6	0.1	3.4	89.4	0.1	0.1	4.3	20.1	0.4	0.1	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.1	2.3	6.1	0.3	0.3	4.2	25.9	4.4	0.2	8.3	1.3
LnGrp Delay(d),s/veh	74.6	46.9	52.6	142.5	44.5	17.2	58.4	69.2	18.2	33.2	16.1	12.3
LnGrp LOS	E	D	D	F	D	B	E	F	B	C	B	B
Approach Vol, veh/h		131			129			1714			1391	
Approach Delay, s/veh		61.5			127.0			63.6			15.9	
Approach LOS		E			F			E			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	49.1	51.8	13.0	16.1	16.2	84.8	10.2	18.9
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	27.0	46.2	7.4	27.0	18.5	54.7	7.0	27.4
Max Q Clear Time (g_c+I1), s	2.4	48.2	9.4	7.5	10.6	20.1	5.6	2.5
Green Ext Time (p_c), s	9.9	0.0	0.0	0.2	0.2	11.2	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	46.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	135	39	78	182	6	3	114	1282	96	5	1346	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1810	1765	1765	1810	1765
Adj Flow Rate, veh/h	147	42	85	198	7	3	124	1393	104	5	1463	78
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	174	184	143	214	228	179	250	1434	618	267	2113	634
Arrive On Green	0.10	0.10	0.10	0.13	0.12	0.12	0.30	0.83	0.83	0.16	0.43	0.43
Sat Flow, veh/h	1681	1863	1454	1681	1863	1463	1681	3438	1482	1681	4940	1482
Grp Volume(v), veh/h	147	42	85	198	7	3	124	1393	104	5	1463	78
Grp Sat Flow(s),veh/h/ln	1681	1863	1454	1681	1863	1463	1681	1719	1482	1681	1647	1482
Q Serve(g_s), s	9.7	2.4	6.3	13.2	0.4	0.2	6.9	40.1	0.9	0.3	27.2	2.3
Cycle Q Clear(g_c), s	9.7	2.4	6.3	13.2	0.4	0.2	6.9	40.1	0.9	0.3	27.2	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	184	143	214	228	179	250	1434	618	267	2113	634
V/C Ratio(X)	0.85	0.23	0.59	0.93	0.03	0.02	0.50	0.97	0.17	0.02	0.69	0.12
Avail Cap(c_a), veh/h	214	296	231	214	296	233	250	1434	618	267	2113	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.58	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	47.0	48.8	48.9	43.7	43.7	36.3	8.8	2.1	40.1	26.3	8.2
Incr Delay (d2), s/veh	22.1	0.6	3.9	41.4	0.1	0.0	0.9	12.6	0.3	0.1	1.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	1.2	2.7	8.6	0.2	0.1	3.3	19.7	0.6	0.1	12.7	1.4
LnGrp Delay(d),s/veh	71.9	47.7	52.7	90.3	43.8	43.7	37.2	21.4	2.4	40.3	28.2	8.6
LnGrp LOS	E	D	D	F	D	D	D	C	A	D	C	A
Approach Vol, veh/h		274			208			1621			1546	
Approach Delay, s/veh		62.2			88.0			21.4			27.3	
Approach LOS		E			F			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.6	59.6	20.0	16.8	29.2	54.0	17.3	19.5
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	18.0	47.2	14.4	18.0	16.8	48.4	14.4	18.0
Max Q Clear Time (g_c+I1), s	2.3	42.1	15.2	8.3	8.9	29.2	11.7	2.4
Green Ext Time (p_c), s	0.0	3.8	0.0	0.2	5.5	10.0	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	58	225	158	100	60	464	1465	525	261	1047	119
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1823	1800	1765	1810	1765
Adj Flow Rate, veh/h	114	63	245	172	109	65	504	1592	571	284	1138	129
Adj No. of Lanes	1	1	1	2	1	1	2	3	0	2	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	2	5	2
Cap, veh/h	137	259	565	228	237	186	785	1808	631	338	1778	532
Arrive On Green	0.08	0.14	0.14	0.07	0.13	0.13	0.24	0.50	0.50	0.03	0.12	0.12
Sat Flow, veh/h	1681	1863	1468	3261	1863	1465	3261	3639	1270	3261	4940	1479
Grp Volume(v), veh/h	114	63	245	172	109	65	504	1448	715	284	1138	129
Grp Sat Flow(s),veh/h/ln	1681	1863	1468	1630	1863	1465	1630	1659	1590	1630	1647	1479
Q Serve(g_s), s	7.9	3.5	2.8	6.1	6.4	4.8	16.3	45.8	48.3	10.2	25.8	6.7
Cycle Q Clear(g_c), s	7.9	3.5	2.8	6.1	6.4	4.8	16.3	45.8	48.3	10.2	25.8	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	137	259	565	228	237	186	785	1649	790	338	1778	532
V/C Ratio(X)	0.83	0.24	0.43	0.75	0.46	0.35	0.64	0.88	0.91	0.84	0.64	0.24
Avail Cap(c_a), veh/h	140	391	670	336	428	336	790	1649	790	344	1778	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.42	0.42	0.42	0.87	0.87	0.87
Uniform Delay (d), s/veh	53.2	45.1	12.6	53.7	47.6	46.9	40.1	26.4	27.0	55.8	44.5	19.5
Incr Delay (d2), s/veh	31.8	0.5	0.5	5.4	1.4	1.1	0.7	3.1	7.7	14.6	1.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	1.9	3.9	2.9	3.4	2.0	7.4	21.6	22.7	5.3	12.1	3.8
LnGrp Delay(d),s/veh	85.0	45.6	13.2	59.1	49.0	48.0	40.8	29.5	34.8	70.4	46.1	20.4
LnGrp LOS	F	D	B	E	D	D	D	C	C	E	D	C
Approach Vol, veh/h		422			346			2667			1551	
Approach Delay, s/veh		37.4			53.8			33.1			48.4	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	76.4	13.8	21.9	46.3	47.9	15.2	20.5
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	12.4	58.4	12.1	24.7	28.5	42.3	9.8	27.0
Max Q Clear Time (g_c+I1), s	12.2	50.3	8.1	5.5	18.3	27.8	9.9	8.4
Green Ext Time (p_c), s	0.0	7.2	0.2	1.8	8.9	6.7	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	39.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	99	450	425	127	81	483	1251	340	122	1433	93
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1765	1765	1863	1765	1765	1821	1800	1765	1810	1765
Adj Flow Rate, veh/h	182	108	489	462	138	88	525	1360	370	133	1558	101
Adj No. of Lanes	1	1	1	2	1	1	2	3	0	2	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	2	5	2
Cap, veh/h	426	389	543	455	177	138	510	1587	430	172	1505	449
Arrive On Green	0.25	0.21	0.21	0.14	0.09	0.09	0.16	0.41	0.41	0.11	0.61	0.61
Sat Flow, veh/h	1681	1863	1478	3261	1863	1453	3261	3885	1054	3261	4940	1475
Grp Volume(v), veh/h	182	108	489	462	138	88	525	1159	571	133	1558	101
Grp Sat Flow(s),veh/h/ln	1681	1863	1478	1630	1863	1453	1630	1657	1626	1630	1647	1475
Q Serve(g_s), s	10.7	5.7	20.5	16.4	8.5	6.9	18.4	37.4	37.6	4.7	35.8	1.8
Cycle Q Clear(g_c), s	10.7	5.7	20.5	16.4	8.5	6.9	18.4	37.4	37.6	4.7	35.8	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.65	1.00		1.00
Lane Grp Cap(c), veh/h	426	389	543	455	177	138	510	1353	664	172	1505	449
V/C Ratio(X)	0.43	0.28	0.90	1.02	0.78	0.64	1.03	0.86	0.86	0.77	1.04	0.22
Avail Cap(c_a), veh/h	426	428	575	455	334	261	510	1353	664	172	1505	449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.61	0.61	0.61	0.71	0.71	0.71
Uniform Delay (d), s/veh	36.7	39.1	14.0	50.6	52.0	51.2	49.6	31.6	31.7	51.9	23.0	4.1
Incr Delay (d2), s/veh	0.7	0.4	16.7	46.1	7.3	4.8	38.6	4.5	8.9	14.3	29.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	3.0	10.7	10.2	4.7	2.9	11.0	17.9	18.4	2.4	20.0	1.4
LnGrp Delay(d),s/veh	37.4	39.4	30.6	96.7	59.3	56.1	88.2	36.2	40.6	66.2	52.3	5.0
LnGrp LOS	D	D	C	F	E	E	F	D	D	E	F	A
Approach Vol, veh/h		779			688			2255			1792	
Approach Delay, s/veh		33.4			84.0			49.4			50.7	
Approach LOS		C			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	53.6	22.0	30.1	24.0	43.9	35.4	16.8
Change Period (Y+Rc), s	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Green Setting (Gmax), s	6.2	48.0	16.4	27.0	18.4	35.8	22.3	21.1
Max Q Clear Time (g_c+I1), s	6.7	39.6	18.4	22.5	20.4	37.8	12.7	10.5
Green Ext Time (p_c), s	0.0	6.1	0.0	1.1	0.0	0.0	1.6	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	51.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	74	1	957	45	1497	0	0	913	517
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1800	1714	1714	1714	1714	0	0	1714	1714
Adj Flow Rate, veh/h				80	1	1040	49	1627	0	0	992	562
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				5	5	5	5	5	0	0	5	5
Cap, veh/h				697	9	1100	59	1993	0	0	1491	460
Arrive On Green				0.43	0.43	0.43	0.01	0.14	0.00	0.00	0.32	0.32
Sat Flow, veh/h				1613	20	2547	1633	4834	0	0	4834	1443
Grp Volume(v), veh/h				81	0	1040	49	1627	0	0	992	562
Grp Sat Flow(s),veh/h/ln				1634	0	1273	1633	1560	0	0	1560	1443
Q Serve(g_s), s				2.3	0.0	30.9	2.4	26.6	0.0	0.0	14.5	25.1
Cycle Q Clear(g_c), s				2.3	0.0	30.9	2.4	26.6	0.0	0.0	14.5	25.1
Prop In Lane				0.99		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				706	0	1100	59	1993	0	0	1491	460
V/C Ratio(X)				0.11	0.00	0.95	0.82	0.82	0.00	0.00	0.67	1.22
Avail Cap(c_a), veh/h				729	0	1136	108	1993	0	0	1491	460
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.20	0.20	0.00	0.00	0.84	0.84
Uniform Delay (d), s/veh				13.4	0.0	21.5	38.7	30.9	0.0	0.0	23.2	26.9
Incr Delay (d2), s/veh				0.1	0.0	15.1	5.6	0.8	0.0	0.0	2.0	115.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.1	0.0	13.1	1.2	11.6	0.0	0.0	6.5	24.6
LnGrp Delay(d),s/veh				13.5	0.0	36.6	44.3	31.7	0.0	0.0	25.2	142.5
LnGrp LOS				B		D	D	C			C	F
Approach Vol, veh/h					1121			1676			1554	
Approach Delay, s/veh					35.0			32.1			67.6	
Approach LOS					C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		40.3			8.5	31.8		39.7
Change Period (Y+Rc), s		5.6			5.6	5.6		5.6
Max Green Setting (Gmax), s		33.6			5.2	22.8		35.2
Max Q Clear Time (g_c+I1), s		28.6			4.4	27.1		32.9
Green Ext Time (p_c), s		4.7			0.0	0.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	98	1	913	74	1161	0	0	1518	790
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1800	1810	1714	1714	1810	0	0	1810	1714
Adj Flow Rate, veh/h				107	1	992	80	1262	0	0	1650	859
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				5	5	5	5	5	0	0	5	5
Cap, veh/h				632	6	941	99	2421	0	0	1774	519
Arrive On Green				0.37	0.37	0.37	0.08	0.65	0.00	0.00	0.36	0.36
Sat Flow, veh/h				1708	16	2544	1633	5103	0	0	5103	1445
Grp Volume(v), veh/h				108	0	992	80	1262	0	0	1650	859
Grp Sat Flow(s),veh/h/ln				1724	0	1272	1633	1647	0	0	1647	1445
Q Serve(g_s), s				3.4	0.0	29.6	3.9	10.8	0.0	0.0	25.7	28.7
Cycle Q Clear(g_c), s				3.4	0.0	29.6	3.9	10.8	0.0	0.0	25.7	28.7
Prop In Lane				0.99		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				638	0	941	99	2421	0	0	1774	519
V/C Ratio(X)				0.17	0.00	1.05	0.81	0.52	0.00	0.00	0.93	1.66
Avail Cap(c_a), veh/h				638	0	941	106	2421	0	0	1774	519
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.26	0.26	0.00	0.00	0.19	0.19
Uniform Delay (d), s/veh				16.9	0.0	25.2	36.3	9.0	0.0	0.0	24.7	25.6
Incr Delay (d2), s/veh				0.1	0.0	44.6	10.6	0.2	0.0	0.0	2.3	296.4
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				1.6	0.0	16.2	2.0	4.9	0.0	0.0	12.0	54.1
LnGrp Delay(d),s/veh				17.1	0.0	69.8	46.9	9.2	0.0	0.0	27.0	322.0
LnGrp LOS				B		F	D	A			C	F
Approach Vol, veh/h					1100			1342			2509	
Approach Delay, s/veh					64.6			11.4			128.0	
Approach LOS					E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		44.8			10.5	34.3		35.2
Change Period (Y+Rc), s		5.6			5.6	5.6		5.6
Max Green Setting (Gmax), s		39.2			5.2	28.4		29.6
Max Q Clear Time (g_c+I1), s		12.8			5.9	30.7		31.6
Green Ext Time (p_c), s		24.1			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	82.3
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	923	1	28	0	0	0	0	619	59	653	334	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	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
Adj Sat Flow, veh/h/ln	1714	1714	1800				0	1714	1714	1714	1714	0
Adj Flow Rate, veh/h	1003	1	30				0	673	64	710	363	0
Adj No. of Lanes	2	1	0				0	2	1	2	2	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, %	5	5	5				0	5	5	5	5	0
Cap, veh/h	1053	16	467				0	717	316	752	1718	0
Arrive On Green	0.33	0.33	0.33				0.00	0.22	0.22	0.08	0.17	0.00
Sat Flow, veh/h	3167	47	1405				0	3343	1437	3167	3343	0
Grp Volume(v), veh/h	1003	0	31				0	673	64	710	363	0
Grp Sat Flow(s),veh/h/ln	1584	0	1451				0	1629	1437	1584	1629	0
Q Serve(g_s), s	24.7	0.0	1.2				0.0	16.3	2.9	17.8	7.6	0.0
Cycle Q Clear(g_c), s	24.7	0.0	1.2				0.0	16.3	2.9	17.8	7.6	0.0
Prop In Lane	1.00		0.97				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1053	0	483				0	717	316	752	1718	0
V/C Ratio(X)	0.95	0.00	0.06				0.00	0.94	0.20	0.94	0.21	0.00
Avail Cap(c_a), veh/h	1053	0	483				0	717	316	752	1718	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	26.1	0.0	18.2				0.0	30.7	25.5	36.3	18.8	0.0
Incr Delay (d2), s/veh	17.4	0.0	0.1				0.0	21.7	1.4	16.9	0.2	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	13.3	0.0	0.5				0.0	9.4	1.3	9.6	3.5	0.0
LnGrp Delay(d),s/veh	43.5	0.0	18.3				0.0	52.3	26.9	53.2	19.0	0.0
LnGrp LOS	D		B					D	C	D	B	
Approach Vol, veh/h		1034						737			1073	
Approach Delay, s/veh		42.8						50.1			41.6	
Approach LOS		D						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	24.6	23.2		32.2		47.8		
Change Period (Y+Rc), s	5.6	5.6		5.6		5.6		
Max Green Setting (Gmax), s	19.0	17.6		26.6		42.2		
Max Q Clear Time (g_c+I1), s	19.8	18.3		26.7		9.6		
Green Ext Time (p_c), s	0.0	0.0		0.0		7.7		

Intersection Summary	
HCM 2010 Ctrl Delay	44.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	758	1	107	0	0	0	0	477	111	1028	588	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	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
Adj Sat Flow, veh/h/ln	1714	1810	1800				0	1810	1714	1714	1810	0
Adj Flow Rate, veh/h	824	1	116				0	518	121	1117	639	0
Adj No. of Lanes	2	1	0				0	2	1	2	2	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, %	5	5	5				0	5	5	5	5	0
Cap, veh/h	792	3	377				0	718	300	1049	2097	0
Arrive On Green	0.25	0.25	0.25				0.00	0.21	0.21	0.33	0.61	0.00
Sat Flow, veh/h	3167	13	1509				0	3529	1436	3167	3529	0
Grp Volume(v), veh/h	824	0	117				0	518	121	1117	639	0
Grp Sat Flow(s),veh/h/ln	1584	0	1522				0	1719	1436	1584	1719	0
Q Serve(g_s), s	20.0	0.0	5.0				0.0	11.2	5.8	26.5	7.1	0.0
Cycle Q Clear(g_c), s	20.0	0.0	5.0				0.0	11.2	5.8	26.5	7.1	0.0
Prop In Lane	1.00		0.99				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	792	0	380				0	718	300	1049	2097	0
V/C Ratio(X)	1.04	0.00	0.31				0.00	0.72	0.40	1.06	0.30	0.00
Avail Cap(c_a), veh/h	792	0	380				0	718	300	1049	2097	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	0.00	1.00				0.00	1.00	1.00	0.36	0.36	0.00
Uniform Delay (d), s/veh	30.0	0.0	24.4				0.0	29.5	27.3	26.8	7.5	0.0
Incr Delay (d2), s/veh	43.0	0.0	0.5				0.0	6.2	4.0	37.1	0.1	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	13.4	0.0	2.1				0.0	5.9	2.7	16.9	3.4	0.0
LnGrp Delay(d),s/veh	73.0	0.0	24.8				0.0	35.7	31.4	63.9	7.6	0.0
LnGrp LOS	F		C					D	C	F	A	
Approach Vol, veh/h		941						639			1756	
Approach Delay, s/veh		67.0						34.9			43.4	
Approach LOS		E						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	32.1	22.3		25.6		54.4		
Change Period (Y+Rc), s	5.6	5.6		5.6		5.6		
Max Green Setting (Gmax), s	26.5	16.7		20.0		48.8		
Max Q Clear Time (g_c+I1), s	28.5	13.2		22.0		9.1		
Green Ext Time (p_c), s	0.0	2.2		0.0		9.4		

Intersection Summary	
HCM 2010 Ctrl Delay	48.4
HCM 2010 LOS	D

Greenhouse Gas Analysis Report

The Square
At Plaza Drive in Visalia, CA

Prepared for:
Roye Family

Greenhouse Gas Analysis Preparation Date:

05/25/2014
Revised: 07/28/2014

Estimated Construction Dates:
Construction Start Date: 08/01/2015 Construction Completion Date: 08/30/2030

Prepared By:

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Table of Contents

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
°C	degrees Celsius
AB	Assembly Bill
ARB	California Air Resources Control Board
BPS	Best Performance Standards
CalEEMod	California Emissions Estimator Model
CCAP	Climate Change Action Plan
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
GWP	global warming potential
IPCC	Intergovernmental Panel on Climate Change
ITE	Institute of Traffic Engineers
KBTU	thousand British thermal unites
$MTCO_2e$	metric tons of carbon dioxide equivalent
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
NOx	nitrogen oxides
N_2O	nitrogen oxide
PM10	fine particulate matter less than 10 micrometers in diameter
PM2.5	fine particulate matter less than 2.5 micrometers in diameter
ppm	parts per million
ppt	parts per trillion
SB	Senate Bill
SCE	Southern California Edison
So_x	oxides of sulfur
SJVAPCD	San Joaquin Valley Air Pollution Control District
sf	square foot, square feet
VOC	Volatile Organic Compound

SECTION 1: EXECUTIVE SUMMARY

1.1 ANALYSIS METHOD

The following Greenhouse Gas (GHG) analysis provides an estimate of the amount of GHGs emitted to and removed from the atmosphere by human activity associated with the construction of a 24.75 acre Business Research Park project, located on the Southeast corner of Plaza Drive and Crowley Avenue, and determine whether the generated emissions would cause a significant impact on the environment. The project is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and follows its recommended procedure.

1.2 PROJECT SUMMARY

1.2.1 PROJECT LOCATION

Residing in Tulare County, on the southwest corner of Plaza Drive and Crowley Avenue in the City of Visalia, The Square at Plaza drive is within the San Joaquin Valley Air Basin displayed in Figure 1: Regional Location.

1.2.2 PROJECT DESCRIPTION

Located along Plaza Drive, directly off of Highway 198 and Plaza Drive the project is approximately located at Latitude 36° 19' 43.63" N and Longitude: 119° 23' 34.03"W and I is identified on Figure 2: Local Vicinity Map.

The Construction of The Square at Plaza Drive in Visalia, CA will comprise of four separate phases of construction. Phase one will include horizontal mixed use development and also vertical mixed-use development containing executive residential suites, offices, service station, and retail space. Access into the development will occur on Crowley Avenue and Neeley Road with restricted access onto Plaza Drive.

Phase two will construct one additional office building, a sit down high turnover restaurant and will begin residential development with townhomes being construction. In this phase five townhome builds will be developed and create a total of 55 two story condos with a garage. Phase two will start to fruition the ultimate idea of The Square providing all the necessary items for an individual to work and live in a common area, therefore eliminating the miles traveled to and from work.

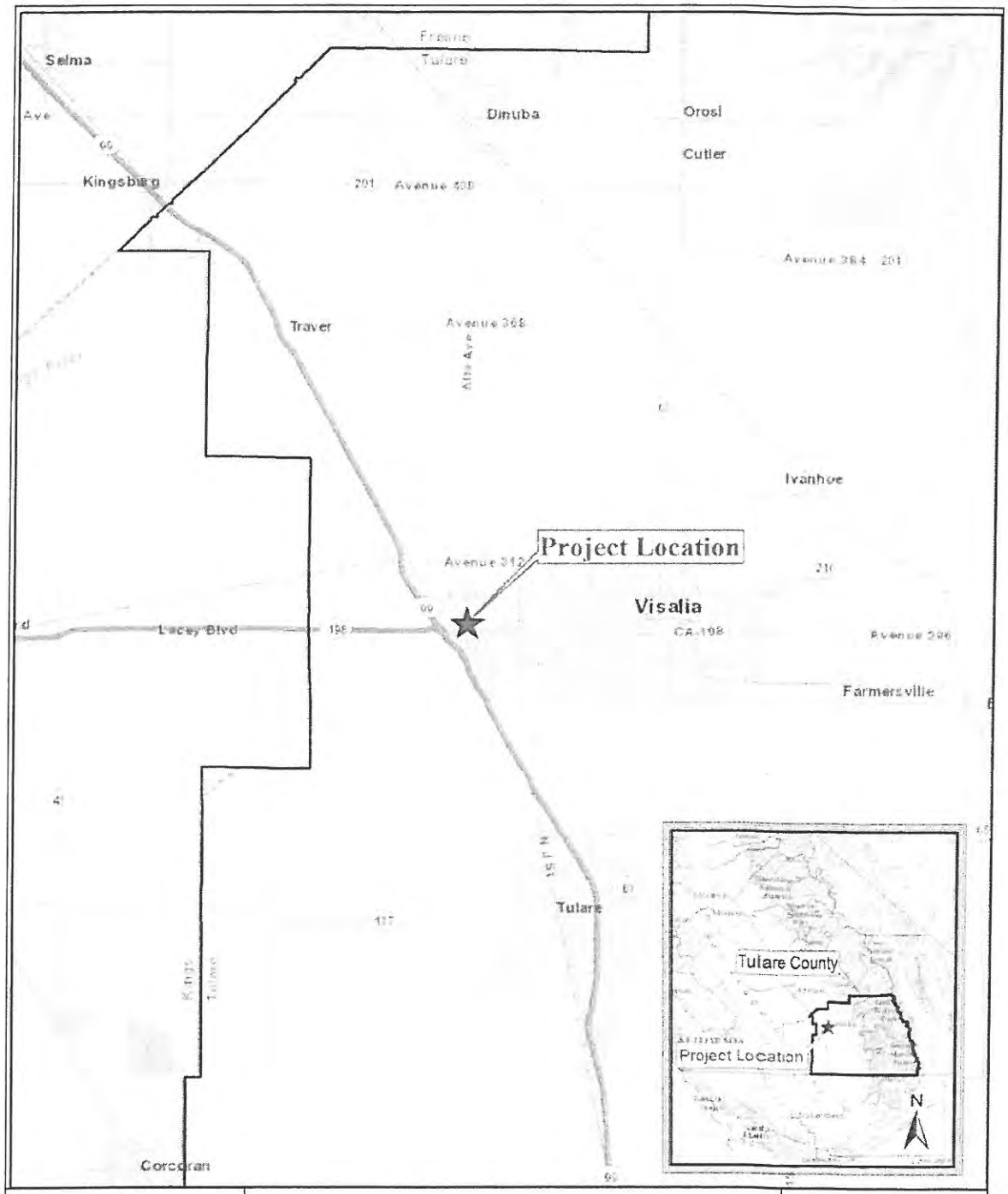
Phase 3 will develop two additional office buildings. These buildings will be two story and together create 108 office spaces. The final phase of the project, Phase 4, will construction a full service Hotel.

1.2.3 LAND USE CLASSIFICATION

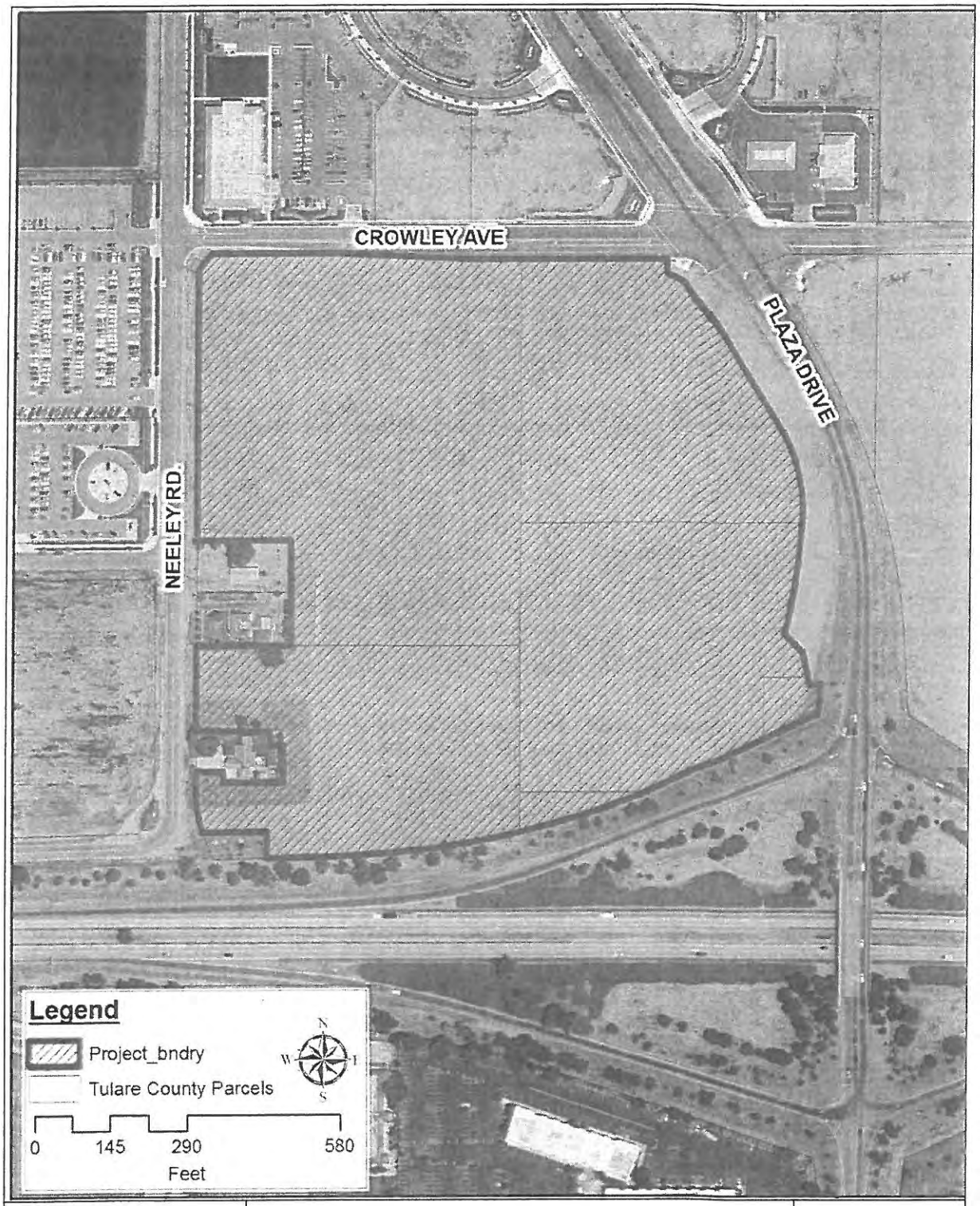
In compliance with the California Emissions Estimator Model (CALEEMod), all projects must properly define the specific land uses that will occur at the project site. The land use and land use subtypes assist in the proper estimate of GHGs emitted due to the construction and operations of the new facility. CALEEMod uses land use classifications consistent with the Institute of Transportation Engineers (ITE) Trip Generation 9th Edition. The discussed project is most accurately classified as the following ITE land use codes:

TABLE 1:
ITE LAND CLASSIFICATION

Land Use	ITE Land Use Code
Apartments	220
Condos	230
Hotels	310
General Office	710
Strip Mall	814
Gas Station	853
Bank	911
Sit Down High Turnover Restaurant	932



4CREEKS	REGIONAL LOCATION THE SQUARE AT PLAZA DRIVE	FIGURE 1



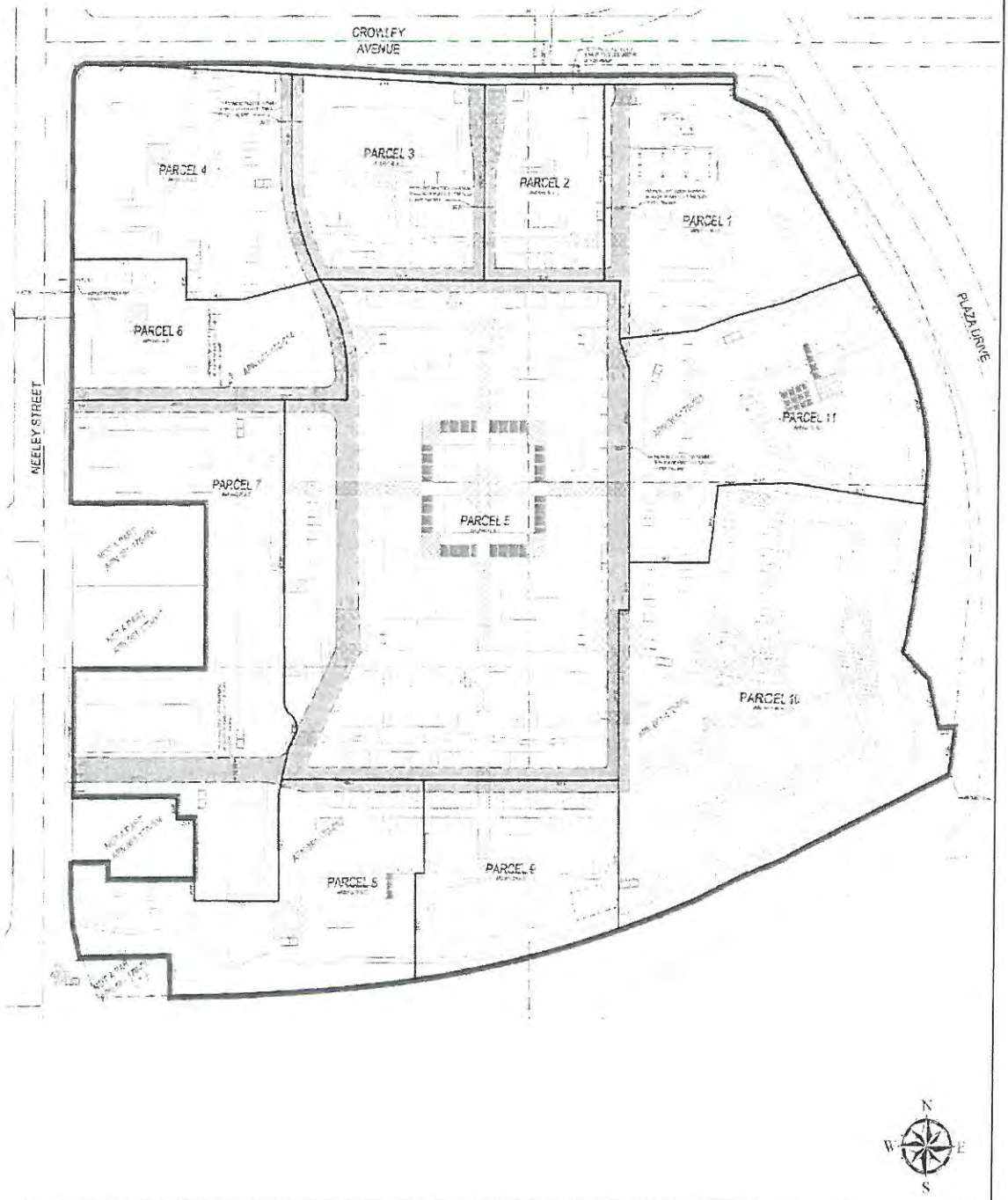
4CREEKS	VICINITY MAP THE SQUARE AT PLAZA DRIVE	FIGURE 2

PROPOSED PROJECT

The total project area consists of 24.75 acres of commercial development. As showing in Figure 3: Site Plan, the project would construct a mixed use project in the Business Research Park zone. The following is a breakdown of the total acreage of the project site:

TABLE 1:
SITE ACREAGE

Description	Acres
Phase 1 – Mixed Use Building, Office Buildings 1 & 2, and A Gas Station w/ Mini Mart	11.72
Phase 2 – Restaurant, Condos & Office Building 5	6.12
Phase 3 – General Office Buildings 3 & 4	3.08
Phase 4 – Hotel	3.83
Total Site Density	24.75



4CREEKS	**SITE PLAN** **THE SQUARE AT PLAZA DRIVE**	**FIGURE 3**

1.3 Analysis Summary

GHG-1 Impact: The project would generate direct and indirect GHG emissions; however, the emissions would result in a **less than significant impact** on the environment.

GHG-2 Impact: The project would not conflict with any applicable plan; policy or regulation of an agency adopted to reduce the emissions of greenhouse gases and would result in a **less than significant impact.**

1.4 Greenhouse Gas Emissions Reduction

The project has incorporated the following design features that reduce GHG emissions. GHG reduction occurs in many variations, on being carbon storage. Carbon storage is the act of trees and other vegetation, taking on carbon dioxide and storing them.

Landscaping and Site Design

The project will have onsite landscaping and new street trees will be planted in the Business Research Park. Shade provided would reduce the heat island effect thereby potentially reducing the cooling requirements for the buildings. The onsite landscaping will assist in counter-balancing the project's contribution of GHG by providing onsite carbon storage within the trees and shrubs. The incorporation of trees and other vegetation throughout the project will provide a benefit to the project site both visually and environmentally. The project will also incorporate bio-swales on the site to collect storm water runoff and will also reduce the irrigation required for these areas by this design.

The project will provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances. Pedestrian access between bus services and major transportation points and to destination points within the project will be provided along with display cases or kiosks displaying transportation information in a prominent area accessible to employees, residents and visitors. Providing the pedestrian connectivity from existing neighborhoods will reduce vehicle miles traveled (VMT's). Kiosks will also include Bike Route Maps, Bus Schedules and any other transportation information such as carpooling and car sharing to further lower the VMT's compared to business as usual.

Installation of electrical outlets on the exterior walls of both the front and back of residences or all commercial buildings to promote the use of electrical landscape maintenance equipment. Along with the installation of electrical outlets, vehicle recharging stations with both conductive and inductive charging capabilities in the project sites parking lot.

Project Location

Central location and within a close proximity of other commercially classified land, the project will require less vehicle mileage and in return reduce its corresponding GHG emissions. The new commercial center will provide services for residents located in the area and north of Plaza Drive. This will also reduce the trip length for those from the east travelling to the required services that would previously have to continue westward to the nearby commercial center.

Aside from being located near retail sectors, The Square will be located less than a half mile from Highway 198 the project is easily accessible for a multitude of parties.

Bicycle and Pedestrian Features

The project will provide a bicycle friendly environment for residents and pedestrians through the incorporation of sidewalks and internal pedestrian connectivity within the commercial center. Providing building access and paths which are physically separated from street parking lot traffic and that eliminate physical barriers such as walls, berms, landscaping and slopes that impede the use of pedestrians, bicycle facilities, and public transportation vehicles.

Centrally located near existing Class 2 and Class 3 bicycle lanes residents can easily use an alternative means of transportation. The promotion and easy accessibility to bicycle routes and storage will work collectively to provide alternative forms of transportation. The reduction of motor vehicles, due to the alternative forms of transportation, will in return reduce the use of motor vehicles and VMT's, which will reduce GHG emissions.

Reduce Carbon-Intensive Travel Activities

Incorporating multiple modes of travel options mixed with a diverse land use compact design would reduce on-road vehicle miles traveled by reducing the need for travel. The Department of Transportation created an analysis of this method in their *Transportation's Role in Reducing U.S. Greenhouse Gas Emissions Volume 1: Synthesis Report, April 2010.* The study included evidence that showed a reduction of greenhouse gas emissions that would range from 5-to-17 percent in 2030, or 6-to-21 percent in 2050. The Square at Plaza Drive will mainly focus on reducing the need for vehicle travel, or otherwise take actions that reduce energy use and GHG emissions associated with personal travel. The collective impact of these strategies on transportation GHG emissions could range from 5 to as high as a 17 percent reduction in 2013 or a 6 to 21 percent reduction in 2050.

This strategy can be broken into two main Improvement Strategies:

1. **Non-Motorized Improvements** – Construction of pedestrian and bicycle transportation networks through dedicated right-of-way as well as enhancements to existing rights-of-way that safely provide for bicyle and pedestrian traffic, have mild potential for GHG reductions with a reduction of 0.2 to 0.6 percent reduction by 2030.
2. **Land Use Changes** – Such as density, diversity of land uses, street connectivity, destination accessibility, and distance to activity centers and proximity to transit will convert to reduce trip lengths and support travel by transit, walking and bicycling. Congress evaluated this strategy in 2009 and concluded that it would yield a reduction of U.S. transportation GHG emissions by 1 to 4 percent in 2030 and 3 to 8 percent in 2050.

The Square @ Plaza Drive Business Research Park will be in close proximity to public transportation, work centers and will include a diverse classification of land types. The project's proximity and land use design will support the reduction of carbon emissions through its land use diversity and reduce carbon-intensive travel activities. A recent review of literature concluded that vehicle-travel was reduced by approximately 20 to 40 percent for residents in "compact" neighborhoods compared to residents of "sprawl" neighborhoods (Ewing et al, 2007).

Solar Panels

The project will incorporate solar panel canopies on approximately 20 percent of the parking lots within the complex. Solar panel canopies transform parking lots into power plants, generating new revenue opportunities while holistically integrating natural resource management systems. Parking lots take up lots of underutilized space and due to the Central Valleys geographic location and assuming normal amounts of sunshine the project is expected to create energy and reduce CO2 emissions.

In addition electric vehicle charging stations could easily be added to the structures and vehicle charging would use the power directly created from the solar panels.

Recycling

The City of Visalia has incorporated recycle bins into both residential and commercial businesses. By providing alternative bins for separate classifications of waste the City has been able to achieve a 50 percent diversion rate. The reduction is waste leads to fewer GHG emissions generated at landfills.

1.5 Standard Conditions

State

The project is required to comply with Title 24 of the California Code of Regulations established by the Energy Commission regarding energy conservation standards. The project is also required to comply with the California Green Building Standards.

Title 24

California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. All buildings for which an application for a building permit is submitted on or after January 1, 2011 must follow the 2008 standards. The upcoming standards are anticipated in 2013. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions.

California Green Building Standards

On January 12, 2013, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code. The Code is a comprehensive regulatory code to all residents, commercial and school buildings.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum of 50 percent diversion requirement. The code also provides exemptions for areas not served construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Code requirements are stated below and how their requirements are being implemented into the project site.

Table 2:
California Green Building Code Requirements

Code Requirement	Section of Standards Code	Requirements	Project Implementation

Water Efficiency and Conservation (Indoor)	4.303.1	Fixtures and fixture fittings reducing the overall use of water within the building by at least 20 percent shall be provided.	The project will incorporate showerheads (≤2.0 gpm @80 psi); Residential Lavatory Faucets(≤1.5 gpm @60 psi); Kitchen Faucets (.8 gpm @ 60 psi); Toilets (≤1.28 gal/flush)
Water Efficiency and Conservation (Outdoor)	4.304.1	Automatic irrigation system controllers for landscaping.	The project will implement weather based controllers with a separate wired or wireless rain sensor which connects or communications with the controllers
Construction Waste Reduction of at least 50 percent	4.408.1 – 4.408.5	Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition waste	Project will be except to meet the 50 percent requirement through recycling of excavated soil and land-clearing debris.
Environmental Quality	4.503.1	Gas fireplace shall be a direct-vent sealed-combustion type. Woodstove or pellet stove shall comply with U.S. EPA Phase II emission limits.	Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any woodstove or pellet stove shall comply with U.S. EPA Phase II emission limits.
Materials Pollution	4.504.1 – 4.504.6	Low-pollutant emitting interior finish materials such as paint, carpet, vinyl flooring and particleboard.	Project will comply will all regulations using low pollutant materials within the interior of the building.
Installer and Special Inspector Qualifications	702.1 – 702.1	Mandatory special installer inspector qualifications for installation and inspection of energy systems.	The City of Visalia has certified inspectors which will be overseeing the project and installation of the air conditioner, mechanical equipment, etc.

Source: CalGreen Code

Local

The project is required to comply with regulations and standards established by the San Joaquin Valley Air Pollution Control Board regarding air pollution. The project is also required to comply with the City of Visalia emission reduction policies.

San Joaquin Valley Air Pollution Control District (SJVAPCD)

The SJVAPCD implemented Regulation VIII (Fugitive PM10 Prohibitions) to reduce ambient concentrations of fine particulate matter (PM10) by requiring actions to prevent, reduce or mitigate anthropogenic fugitive dust emissions. Several rules were established to assist in the reduction of PM10. The Rules contained in this Regulation have been developed pursuant to United States Environmental Protection Agency guidance for Serious PM10 Nonattainment Areas. The rules are applicable to specified anthropogenic fugitive dust sources. Fugitive dust contains PM10 and particles larger than PM10. Controlling fugitive dust emissions when visible emissions are detected will not prevent all PM10

emissions, but will substantially reduce PM10 emissions. All applicable rules will need to be implemented as necessary in regards to the project.

City of Visalia

The City of Visalia imposed the following measures for all land development projects.

- Pedestrian Connects: The following measures shall be implemented to encourage bicycle and pedestrian access and reduce motor vehicle emissions:
  - Site plan submitted to the City of Visalia shall include sidewalks approximately sized for anticipated future pedestrian use on all adjacent and interior roadways.
  - Physical barriers such as walks, berms, landscaping and slopes between the project and pedestrian or bicycle access shall be avoided at locations that interfere with access to primary pedestrian and bicycle routes serving the project.
- Landscape Plan: Prior to issuance of building permits, a landscape plan shall be prepared and submitted to the City of Visalia for review and approval pursuant to the City's normal planning process that provide shade tree and foliage to reduce building and surface lot heating/cooling needs, and conform to landscape standards established by the City of Visalia. The landscape plan shall be designed to comply with the Water Efficient Landscape Ordinance and California Green Building Measures.
- City of Visalia street tree standards for residential, commercial, and industrial development:
  - In new residential, commercial, and industrial developments the developer shall plant street trees in the size and manner by the guidelines and the civil improvement standards.
  - Developer shall provide a street tree plan for all new developments. This plan shall specify tree species, location and spacing. The plan shall be submitted to the City of Visalia with the improvement plans. Street trees shall be managed through a Landscape and Lighting District is a district is created. Improvement and street tree plans shall show locations of any overhead utility lines.
  - The City shall require all street trees meet city specifications for container grown trees. City specification for nursery stock quality is attached.
  - Street trees are a requirement of street medians (which are in the center of a roadway separating the lanes of traffic).
- The project is located in Design District 'G' and will require implementing design district development standards.
  - Trees: Spacing of trees be variable depending on type and eventual size, but that there be a general minimum standard of fifteen (15) gallon tree for each 20 feet of frontage of a required landscaped setback.
  - Shrubs: At least seventy-five (75) percent of shrubs planted to be of five-gallon minimum size. One-gallon plants may be used if planted with approved low-water varieties. Shrubs within the setback to be spaced in such a way so that at maturity the plants will provide eighty percent coverage.
  - In areas susceptible to foot traffic, the use of long lived low-growing shrubs and ground covers shall be used.
  - Water efficient systems (drip, minispray, bubbler type, etc., shall be used whenever feasible.
  - Landscaping to be required in setback areas along frontage of minor and major roadways. Frontage on a minor road shall be 25'.

SECTION 2: CLIMATE CHANGE

Climate Change is a change is the average weather of the earth that may be measured by alterations in wind patterns, storms, precipitation, and temperatures. These changes are assessed using historical records of temperatures changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level a statistical significance, specifically focusing on temperature records from the last 150 years, the Industrial Age, that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHG needed to stabilize global temperatures and climate change impacts. The IPCC predicted that global mean temperatures change from 1990 to 2100, given six scenarios, could range from 1.1 degree Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2007).

In California, climate change may result in consequences such as the following from (CCCC 2006 and Moser et al. 2009).

1. A reduction in the quality and supply of water to the State from the Sierra snowpack.
2. Increased risk of large wildfires.
3. Reduction in the quality and quantity of certain agriculture products.
4. Exacerbation of air quality problems.
5. A rise in sea levels resulting in the displacement of coastal businesses and residence.
6. Damage to marine ecosystems and that natural environment.
7. An increase in infections, disease, asthma, and other health-related problems.
8. A decrease in the health and productivity of California's forest. (CCCC 2006 and Moser et al. 2009)

2.1 GREENHOUSE GASES

Greenhouse Gases (GHG) are gases that trap heat in the atmosphere are called greenhouse gases. The effect is equivalent to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydro chlorofluorocarbons, and hydro fluorocarbons, per fluorocarbons, sulfur and hexafluoride. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. Some greenhouse gases can remain in the atmosphere for over hundreds of years.

Some gases are more effective than other and for each greenhouse gases, a GWP, has been calculated to reflect how long it remains in the atmosphere, on average, and how strongly it absorbs energy. Gases with a higher GWP absorb more energy, per pound, than gases with a lower GWP, and thus contribute more to global warming. For example one pound of methane is equivalent to twenty-one pounds of carbon dioxide.

Natural processes and human activities emit greenhouse gases. The presence of GHGs in the atmosphere affects the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 34°C cooler (CAT 2006). However, it is believed that emissions from human

activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. Some GHGs can remain in the atmosphere beyond the level of naturally occurring concentrations. Some GHGs can remain in the atmosphere for hundreds of years.

GHGs as defined by AB 32 include the following gases: carbon dioxide, methane, nitrous oxide, hydruocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs as defined by AB 32 and sources are summarized in Table 3.

TABLE 3:
GREENHOUSE GASES

Greenhouse Gas	Description and Physical Properties	Lifetime	Global Warming Potential (GWP)	Sources
Nitrous oxide	Also known as laughing gas and is a colorless gas.	114 years	310	Microbial processes in soil and water, fuel combustion and industrial processes
Methane (CH_4)	Is a flammable gas and is the main component of natural gas	12 years	21	Emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
Carbon dioxide (CO_2)	An odorless, colorless, natural greenhouse gas.	30-95 years	1	Enters the atmosphere through burning fossil fuels (coal, natural gas and oil), solid waste, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
Chloro-fluorocarbons	Gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are non-toxic nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	55-140 years	3,800 to 8,100	Were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone.
Hydro-fluorocarbons	A man-made greenhouse gas. It was developed to replace ozone-depleting gases found in a variety of appliances. Composed of a group of greenhouse gases containing carbon, chlorine an at least one hydrogen atom.	14 years	140 to 11,700	Powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases.
Nitrous oxide	Commonly known as laughing	120 years	310	Emitted during agricultural and industrial

(N_2O)	gas, is a chemical compound with the formula N_2O. It is an oxide of nitrogen. At room temperature, it is a colorless, non-flammable gas, with a slightly sweet odor and taste. It is used in surgery and dentistry for its anesthetic and analgesic effect s.			activities, as well as during combustion of fossil fuels and solid waste.
Pre-fluorocarbons	Has a stable molecular structure and only breaks down by ultraviolet rays about 60 kilometers above Earth's surface.	50,000 years	6,500 to 9,200	Two main sources of pre-fluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	An inorganic, odorless, colorless, and nontoxic nonflammable gas.	3,200 years	23,900	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing and as a tracer gas.

Source: Compiled from a variety of sources, primarily Intergovernmental Panel on Climate Change 2007a and 2007b.

Each gas's effect on climate change depends on three main factors. The first being the quantity of these gases are in the atmosphere, followed by how long they stay in the atmosphere and finally how strongly they impact global temperatures.

In regards to the quantity of these gases are in the atmosphere, we first must establish the amount of particular gas in the air, known as Concentration, or abundance, which are measured in parts per million, parts per billion and even parts per trillion. To put these measurement in more relatable terms, one part per million is equivalent to one drop of water diluted into about 13 gallons of water, roughly a full tank of gas in a compact car. Therefore, it can be assumed larger emission of greenhouse gases lead to a higher concentration in the atmosphere.

Each of the designated gases described above can reside in the atmosphere for different amounts of time, ranging from a few years to thousands of years. All of these gases remain in the atmosphere long enough to become well mixed, meaning that the amount that is measured in the atmosphere is roughly the same all over the world regardless of the source of the emission.

Emissions Inventories

The development of a complete emission inventory is an important step in an air quality management process. Emission inventories are used to help determine significant sources of air pollutants, establish emission trends over time, target regulatory actions, and estimate air quality through computer dispersion modeling. An emission inventory includes estimates of the emissions from various pollution sources in a specific geographical area. A complete inventory typically contains all regulated pollutants.
The City of Visalia conducted a GHG emissions inventory and developed a preliminary Local Climate Action Plan. The GHG emissions inventory for the City of Visalia calculated GHG emissions from both municipal operations and community activities for Visalia for the year 2000. Currently, a recommended emissions reduction target, and a number of reduction measures that the City can potentially implement to help meet the reduction target is being drafting for the City's Preliminary Action Plan (CAP).