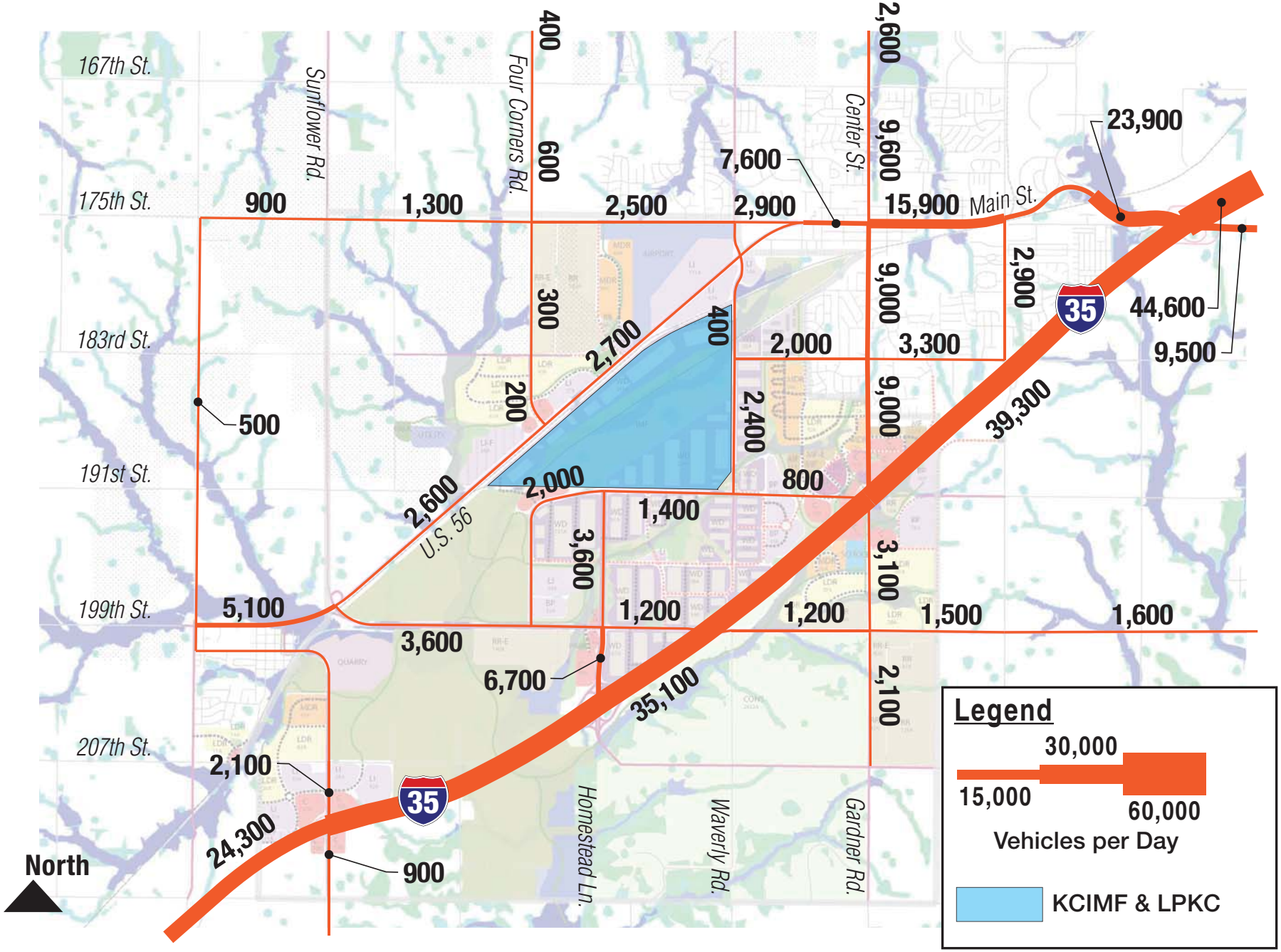
APPENDIX E
TRANSPORTATION

Total Traffic - Opening Day



KDOT SW Johnson Area Plan - Opening Day July, 12-114-01, 8/12/13

Intersection	
Intersection Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	250	260	35	100	5	145	10	40	5	25	25
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	-	-	-	-	-	-	-	-	-	-	-	-
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	5	272	283	38	109	5	158	11	43	5	27	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	114	0	0	554	0	0	639	614	413	639	753	111
Stage 1	-	-	-	-	-	-	424	424	-	188	188	-
Stage 2	-	-	-	-	-	-	215	190	-	451	565	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1475	-	-	1016	-	-	389	407	639	389	339	942
Stage 1	-	-	-	-	-	-	608	587	-	814	745	-
Stage 2	-	-	-	-	-	-	787	743	-	588	508	-
Time blocked-Platoon, %		-	-		-	-						
Mov Capacity-1 Maneuver	1475	-	-	1016	-	-	342	389	639	343	324	942
Mov Capacity-2 Maneuver	-	-	-	-	-	-	342	389	-	343	324	-
Stage 1	-	-	-	-	-	-	605	584	-	810	715	-
Stage 2	-	-	-	-	-	-	706	713	-	535	505	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2	26	14

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	381	1475	-	-	1016	-	-	465
HCM Lane V/C Ratio	0.556	0.004	-	-	0.037	-	-	0.129
HCM Control Delay (s)	25.7	7.45	0	-	8.681	0	-	13.9
HCM Lane LOS	D	A	A		A	A		B
HCM 95th %tile Q(veh)	3.259	0.011	-	-	0.117	-	-	0.439

Notes

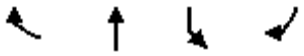
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	125	200	70	75	30	100	205	65	70	175	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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Cap, veh/h	470	273	357	443	339	0	552	783	431	528	721	306
Arrive On Green	0.03	0.15	0.00	0.06	0.18	0.00	0.08	0.21	0.00	0.06	0.19	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	0	1774	3725	1583	1774	3725	1583
Grp Volume(v), veh/h	27	136	0	76	82	0	109	223	0	76	190	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.4	2.1	0.0	1.0	1.2	0.0	1.4	1.6	0.0	1.0	1.3	0.0
Cycle Q Clear(g_c), s	0.4	2.1	0.0	1.0	1.2	0.0	1.4	1.6	0.0	1.0	1.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	470	273	357	443	339	0	552	783	431	528	721	306
V/C Ratio(X)	0.06	0.50	0.00	0.17	0.24	0.00	0.20	0.28	0.00	0.14	0.26	0.00
Avail Cap(c_a), veh/h	768	1390	1306	851	1571	0	1390	3988	1793	936	3021	1284
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.7	12.1	0.0	9.4	10.8	0.0	8.4	10.2	0.0	8.9	10.6	0.0
Incr Delay (d2), s/veh	0.1	1.4	0.0	0.2	0.4	0.0	0.2	0.2	0.0	0.1	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	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	0.9	0.0	0.4	0.5	0.0	0.5	0.6	0.0	0.3	0.5	0.0
Lane Grp Delay (d), s/veh	10.7	13.5	0.0	9.6	11.2	0.0	8.5	10.4	0.0	9.1	10.8	0.0
Lane Grp LOS	B	B		A	B		A	B		A	B	
Approach Vol, veh/h		163			158			332			266	
Approach Delay, s/veh		13.1			10.4			9.8			10.3	
Approach LOS		B			B			A			B	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	4.8	8.5		5.9	9.6		6.4	10.5		5.9	10.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	6.0	23.0		9.0	26.0		17.0	33.0		9.0	25.0	
Max Q Clear Time (g_c+I1), s	2.4	4.1		3.0	3.2		3.4	3.6		3.0	3.3	
Green Ext Time (p_c), s	0.0	1.1		0.1	1.2		0.2	2.8		0.1	2.6	

Intersection Summary			
HCM 2010 Ctrl Delay		10.6	
HCM 2010 LOS		B	

Notes



Movement	WBR	NBT	SBL	SBR
Lane Configurations				
Volume (vph)	220	180	345	105
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.97	1.00
Frt	0.86	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1611	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1611	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	196	375	114
RTOR Reduction (vph)	0	0	0	32
Lane Group Flow (vph)	239	196	375	82
Turn Type	Free	NA	Prot	custom
Protected Phases		3	6	
Permitted Phases	Free			6
Actuated Green, G (s)	60.0	8.7	43.3	43.3
Effective Green, g (s)	60.0	8.7	43.3	43.3
Actuated g/C Ratio	1.00	0.14	0.72	0.72
Clearance Time (s)		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)	1611	513	2477	1142
v/s Ratio Prot		c0.06	0.11	
v/s Ratio Perm	c0.15			0.05
v/c Ratio	0.15	0.38	0.15	0.07
Uniform Delay, d1	0.0	23.2	2.6	2.5
Progression Factor	1.00	0.98	1.00	1.00
Incremental Delay, d2	0.2	0.5	0.1	0.1
Delay (s)	0.2	23.2	2.7	2.6
Level of Service	A	C	A	A
Approach Delay (s)		23.2		
Approach LOS		C		

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBR	NBL	NBR	SBT
Lane Configurations				
Volume (vph)	25	25	25	25
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.97	1.00	1.00
Frt	0.86	1.00	0.85	1.00
Flt Protected	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1611	3433	1583	1863
Flt Permitted	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1611	3433	1583	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	27	27	27
RTOR Reduction (vph)	26	0	9	0
Lane Group Flow (vph)	1	27	18	27
Turn Type	custom	Prot	custom	NA
Protected Phases		2		3
Permitted Phases	6		2	
Actuated Green, G (s)	2.2	39.4	39.4	6.4
Effective Green, g (s)	2.2	39.4	39.4	6.4
Actuated g/C Ratio	0.04	0.66	0.66	0.11
Clearance Time (s)	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	2254	1039	198
v/s Ratio Prot		0.01		c0.01
v/s Ratio Perm	c0.00		c0.01	
v/c Ratio	0.02	0.01	0.02	0.14
Uniform Delay, d1	27.9	3.6	3.6	24.3
Progression Factor	1.00	1.00	1.00	0.89
Incremental Delay, d2	0.1	0.0	0.0	0.3
Delay (s)	28.0	3.6	3.6	21.9
Level of Service	C	A	A	C
Approach Delay (s)				21.9
Approach LOS				C

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.03		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	9.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	55	0	5	0	0	0	0	90	150	425	195	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	60	0	5	0	0	0	0	98	163	462	212	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1315	1397	212			212	0	0	261	0	0
Stage 1	1136	1136	-			-	-	-	-	-	-
Stage 2	179	261	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	174	141	828			1358	-	-	1303	-	-
Stage 1	306	277	-			-	-	-	-	-	-
Stage 2	852	692	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	104	0	828			1358	-	-	1303	-	-
Mov Capacity-2 Maneuver	104	0	-			-	-	-	-	-	-
Stage 1	183	0	-			-	-	-	-	-	-
Stage 2	852	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	74	0	6

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1358	-	-	112	1303	-	-
HCM Lane V/C Ratio	-	-	-	0.582	0.355	-	-
HCM Control Delay (s)	0	-	-	74.5	9.273	0	-
HCM Lane LOS	A			F	A	A	
HCM 95th %tile Q(veh)	0	-	-	2.821	1.623	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	40	0	50	10	135	0	0	580	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
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	0	0	0	43	0	54	11	147	0	0	630	11

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	798	798	147	630	0	0	147	0	0
Stage 1	168	168	-	-	-	-	-	-	-
Stage 2	630	630	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	355	319	900	952	-	-	1435	-	-
Stage 1	862	759	-	-	-	-	-	-	-
Stage 2	531	475	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	350	0	900	952	-	-	1435	-	-
Mov Capacity-2 Maneuver	350	0	-	-	-	-	-	-	-
Stage 1	851	0	-	-	-	-	-	-	-
Stage 2	531	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	952	-	-	530	1435	-	-
HCM Lane V/C Ratio	0.011	-	-	0.185	-	-	-
HCM Control Delay (s)	8.825	0	-	13.3	0	-	-
HCM Lane LOS	A	A		B	A		
HCM 95th %tile Q(veh)	0.035	-	-	0.671	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	25	50	30	155	540	75
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	27	54	33	168	587	82

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	777	334	668	0	-	0
Stage 1	628	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	334	662	918	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	321	662	918	-	-	-
Mov Capacity-2 Maneuver	321	-	-	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	828	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	2	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	918	-	489	-	-
HCM Lane V/C Ratio	0.036	-	0.167	-	-
HCM Control Delay (s)	9.066	0.1	13.8	-	-
HCM Lane LOS	A	A	B		
HCM 95th %tile Q(veh)	0.11	-	0.593	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	120	280	15	5	65	10	5	5	5	10	5	30
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	0	-	-	125	-	-	-	-	-	-	-	-
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	130	304	16	5	71	11	5	5	5	11	5	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	82	0	0	321	0	0	679	665	313	666	669	76
Stage 1	-	-	-	-	-	-	573	573	-	87	87	-
Stage 2	-	-	-	-	-	-	106	92	-	579	582	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1515	-	-	1239	-	-	366	381	727	373	379	985
Stage 1	-	-	-	-	-	-	505	504	-	921	823	-
Stage 2	-	-	-	-	-	-	900	819	-	501	499	-
Time blocked-Platoon, %		-	-		-	-						
Mov Capacity-1 Maneuver	1515	-	-	1239	-	-	326	347	727	341	345	985
Mov Capacity-2 Maneuver	-	-	-	-	-	-	326	347	-	341	345	-
Stage 1	-	-	-	-	-	-	462	461	-	842	820	-
Stage 2	-	-	-	-	-	-	861	816	-	449	456	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0	14	12

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1515	-	-	1239	-	-	606
HCM Lane V/C Ratio	0.04	0.086	-	-	0.004	-	-	0.081
HCM Control Delay (s)	14.1	7.6	-	-	7.918	-	-	11.5
HCM Lane LOS	B	A			A			B
HCM 95th %tile Q(veh)	0.124	0.282	-	-	0.013	-	-	0.262

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	15	5	20	10	5	20
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	16	5	22	11	5	22

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	60	27	0	0	33	0
Stage 1	27	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	947	1048	-	-	1579	-
Stage 1	996	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	944	1048	-	-	1579	-
Mov Capacity-2 Maneuver	944	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	968	1579	-
HCM Lane V/C Ratio	-	-	0.022	0.003	-
HCM Control Delay (s)	-	-	8.8	7.288	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.069	0.01	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.9

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	5	20	10	10	10	10	70	290	5	20	90	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	5	22	11	11	11	11	76	315	5	22	98	11

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	628	622	318	633	620	103	109	0	0	321	0	0
Stage 1	470	470	-	147	147	-	-	-	-	-	-	-
Stage 2	158	152	-	486	473	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	395	403	723	392	404	952	1481	-	-	1239	-	-
Stage 1	574	560	-	856	775	-	-	-	-	-	-	-
Stage 2	844	772	-	563	558	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	359	371	723	347	372	952	1481	-	-	1239	-	-
Mov Capacity-2 Maneuver	359	371	-	347	372	-	-	-	-	-	-	-
Stage 1	538	525	-	803	760	-	-	-	-	-	-	-
Stage 2	807	757	-	499	523	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	14	14	2	1

Minor Lane / Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1481	-	-	429	453	1239	-	-
HCM Lane V/C Ratio	0.051	-	-	0.089	0.072	0.018	-	-
HCM Control Delay (s)	7.562	0	-	14.2	13.6	7.957	0	-
HCM Lane LOS	A	A		B	B	A	A	
HCM 95th %tile Q(veh)	0.162	-	-	0.29	0.232	0.054	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR	NEL	NER
Vol, veh/h	0	0	130	90	0	5	0	630
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	-	Free	-	None	-	-
Storage Length	-	-	0	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-	0	-
Grade, %	0	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	141	98	0	5	0	685

Major/Minor	Major2		Minor1		Major1	
Conflicting Flow All	690	0	840	345	141	0
Stage 1	-	-	688	-	-	-
Stage 2	-	-	152	-	-	-
Follow-up Headway	2.22	-	3.519	3.319	2.218	-
Pot Capacity-1 Maneuver	900	-	319	652	1442	-
Stage 1	-	-	461	-	-	-
Stage 2	-	-	875	-	-	-
Time blocked-Platoon, %		-				-
Mov Capacity-1 Maneuver	900	-	317	652	1442	-
Mov Capacity-2 Maneuver	-	-	317	-	-	-
Stage 1	-	-	461	-	-	-
Stage 2	-	-	870	-	-	-

Approach	WB	NB	NE
HCM Control Delay, s	0	14	0

Minor Lane / Major Mvmt	NEL	NER	NER2	NBLn1	WBL2	WBL	WBT
Capacity (veh/h)	1442	-	-	427	900	-	-
HCM Lane V/C Ratio	-	-	-	0.025	0.006	-	-
HCM Control Delay (s)	0	-	-	13.7	9.024	0	-
HCM Lane LOS	A			B	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.078	0.018	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	9.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	260	130	5	375	10
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	11	283	141	5	408	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	147	0	-	0	307	73
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	163	-
Follow-up Headway	2.22	-	-	-	3.52	3.32
Pot Capacity-1 Maneuver	1432	-	-	-	661	974
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	849	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1432	-	-	-	655	974
Mov Capacity-2 Maneuver	-	-	-	-	655	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	841	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1432	-	-	-	661
HCM Lane V/C Ratio	0.008	-	-	-	0.633
HCM Control Delay (s)	7.533	0	-	-	19.4
HCM Lane LOS	A	A			C
HCM 95th %tile Q(veh)	0.023	-	-	-	4.507

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	385	0	90	15	0
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	-	-	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	418	0	98	16	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	0	0	98	0
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	98	-
Follow-up Headway	-	-	-	-	3.518	-
Pot Capacity-1 Maneuver	-	-	-	-	901	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	926	-
Time blocked-Platoon, %	-	-		-		
Mov Capacity-1 Maneuver	-	-	-	-	901	-
Mov Capacity-2 Maneuver	-	-	-	-	901	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	926	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	+

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

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	440	35	90	175	120	40	295	170	170	180	25
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	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	1	1	1	1	1	1	1
Cap, veh/h	428	1078	85	313	1178	501	688	998	848	524	998	848
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1055	3408	270	881	3725	1583	1153	1863	1583	889	1863	1583
Grp Volume(v), veh/h	38	261	255	98	190	130	43	321	185	185	196	27
Grp Sat Flow(s),veh/h/ln	1055	1863	1815	881	1863	1583	1153	1863	1583	889	1863	1583
Q Serve(g_s), s	1.5	6.0	6.1	5.4	2.0	3.3	1.1	5.2	3.3	8.0	3.0	0.4
Cycle Q Clear(g_c), s	3.4	6.0	6.1	11.4	2.0	3.3	4.0	5.2	3.3	13.2	3.0	0.4
Prop In Lane	1.00		0.15	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	428	589	574	313	1178	501	688	998	848	524	998	848
V/C Ratio(X)	0.09	0.44	0.44	0.31	0.16	0.26	0.06	0.32	0.22	0.35	0.20	0.03
Avail Cap(c_a), veh/h	543	792	771	409	1583	673	688	998	848	524	998	848
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	14.6	14.7	14.7	19.3	13.3	13.8	7.6	7.0	6.6	10.7	6.5	5.9
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.6	0.1	0.3	0.2	0.9	0.6	1.9	0.4	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 Back of Q (50%), veh/ln	0.4	2.5	2.5	1.2	0.8	1.2	0.3	2.2	1.2	1.8	1.3	0.2
Lane Grp Delay (d), s/veh	14.7	15.2	15.3	19.8	13.4	14.1	7.7	7.9	7.2	12.6	7.0	6.0
Lane Grp LOS	B	B	B	B	B	B	A	A	A	B	A	A
Approach Vol, veh/h		554			418			549			408	
Approach Delay, s/veh		15.2			15.1			7.6			9.5	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		21.1			21.1			33.0			33.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		23.0			23.0			29.0			29.0	
Max Q Clear Time (g_c+I1), s		8.1			13.4			7.2			15.2	
Green Ext Time (p_c), s		4.7			3.7			4.6			4.0	

Intersection Summary												
HCM 2010 Ctrl Delay			11.8									
HCM 2010 LOS			B									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	35	40	50	5	20	5	40	70	50	65	5
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	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	1	1	1	2	0
Cap, veh/h	418	173	147	89	567	561	503	301	335	559	1284	89
Arrive On Green	0.09	0.09	0.09	0.05	0.30	0.30	0.16	0.16	0.16	0.05	0.37	0.37
Sat Flow, veh/h	1378	1863	1583	1774	1863	1583	1318	1863	1583	1774	3443	240
Grp Volume(v), veh/h	16	38	43	54	5	22	5	43	76	54	38	38
Grp Sat Flow(s),veh/h/ln	1378	1863	1583	1774	1863	1583	1318	1863	1583	1774	1863	1820
Q Serve(g_s), s	0.3	0.5	0.6	0.7	0.0	0.2	0.1	0.5	1.0	0.6	0.3	0.3
Cycle Q Clear(g_c), s	0.3	0.5	0.6	0.7	0.0	0.2	0.1	0.5	1.0	0.6	0.3	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	418	173	147	89	567	561	503	301	335	559	695	679
V/C Ratio(X)	0.04	0.22	0.29	0.61	0.01	0.04	0.01	0.14	0.23	0.10	0.05	0.06
Avail Cap(c_a), veh/h	1569	1729	1470	1503	3608	3146	1620	1879	1677	1544	3308	3232
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	10.3	10.4	10.5	11.5	6.0	5.2	8.7	8.9	8.1	6.5	5.0	5.0
Incr Delay (d2), s/veh	0.0	0.6	1.1	6.5	0.0	0.0	0.0	0.2	0.3	0.1	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 Back of Q (50%), veh/ln	0.1	0.2	0.2	0.4	0.0	0.1	0.0	0.2	0.3	0.1	0.1	0.1
Lane Grp Delay (d), s/veh	10.4	11.0	11.6	18.1	6.0	5.3	8.8	9.1	8.4	6.6	5.0	5.0
Lane Grp LOS	B	B	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		97			81			124			130	
Approach Delay, s/veh		11.2			13.8			8.7			5.7	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4		3	8			2		1	6	
Phs Duration (G+Y+Rc), s		6.3		5.2	11.5			8.0		5.2	13.2	
Change Period (Y+Rc), s		4.0		4.0	4.0			4.0		4.0	4.0	
Max Green Setting (Gmax), s		23.0		21.0	48.0			25.0		15.0	44.0	
Max Q Clear Time (g_c+I1), s		2.6		2.7	2.2			3.0		2.6	2.3	
Green Ext Time (p_c), s		0.4		0.1	0.5			0.8		0.1	1.0	

Intersection Summary		
HCM 2010 Ctrl Delay	9.3	
HCM 2010 LOS	A	

Notes

Intersection	
Intersection Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	10	0	40	5	20	0	0	240	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	-	-	-	-	-	-
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	0	0	0	11	0	43	5	22	0	0	261	11

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	299	305	22	272	0	0	22	0	0
Stage 1	33	33	-	-	-	-	-	-	-
Stage 2	266	272	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	692	608	1055	1291	-	-	1593	-	-
Stage 1	989	868	-	-	-	-	-	-	-
Stage 2	779	685	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	689	0	1055	1291	-	-	1593	-	-
Mov Capacity-2 Maneuver	689	0	-	-	-	-	-	-	-
Stage 1	985	0	-	-	-	-	-	-	-
Stage 2	779	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	2	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1291	-	-	689	1055	1593	-	-
HCM Lane V/C Ratio	0.004	-	-	0.016	0.041	-	-	-
HCM Control Delay (s)	7.8	0	-	10.3	8.6	0	-	-
HCM Lane LOS	A	A		B	A	A		
HCM 95th %tile Q(veh)	0.013	-	-	0.048	0.129	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	0	5	0	0	0	0	15	40	240	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	11	0	5	0	0	0	0	16	43	261	11	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	571	593	11			11	0	0	60	0	0
Stage 1	533	533	-			-	-	-	-	-	-
Stage 2	38	60	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	482	418	1070			1608	-	-	1544	-	-
Stage 1	588	525	-			-	-	-	-	-	-
Stage 2	984	845	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	400	0	1070			1608	-	-	1544	-	-
Mov Capacity-2 Maneuver	400	0	-			-	-	-	-	-	-
Stage 1	488	0	-			-	-	-	-	-	-
Stage 2	984	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0	8

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1608	-	-	506	1544	-	-
HCM Lane V/C Ratio	-	-	-	0.032	0.169	-	-
HCM Control Delay (s)	0	-	-	12.4	7.805	0	-
HCM Lane LOS	A			B	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.1	0.608	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	50	210	35	250	5	215	20	35	5	20	5
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	-	-	-	-	-	-	-	-	-	-	-	-
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	5	54	228	38	272	5	234	22	38	5	22	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	277	0	0	283	0	0	543	532	168	560	644	274
Stage 1	-	-	-	-	-	-	179	179	-	351	351	-
Stage 2	-	-	-	-	-	-	364	353	-	209	293	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1286	-	-	1279	-	-	451	453	876	439	391	765
Stage 1	-	-	-	-	-	-	823	751	-	666	632	-
Stage 2	-	-	-	-	-	-	655	631	-	793	670	-
Time blocked-Platoon, %		-	-		-	-						
Mov Capacity-1 Maneuver	1286	-	-	1279	-	-	415	435	876	392	375	765
Mov Capacity-2 Maneuver	-	-	-	-	-	-	415	435	-	392	375	-
Stage 1	-	-	-	-	-	-	819	747	-	663	610	-
Stage 2	-	-	-	-	-	-	605	609	-	733	667	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	27	14

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	447	1286	-	-	1279	-	-	413
HCM Lane V/C Ratio	0.657	0.004	-	-	0.03	-	-	0.079
HCM Control Delay (s)	27.2	7.811	0	-	7.901	0	-	14.5
HCM Lane LOS	D	A	A		A	A		B
HCM 95th %tile Q(veh)	4.622	0.013	-	-	0.092	-	-	0.256

Notes

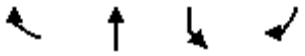
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	125	325	115	105	35	240	175	75	45	150	45
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Cap, veh/h	443	276	479	452	378	0	624	995	551	470	583	248
Arrive On Green	0.03	0.15	0.00	0.08	0.20	0.00	0.15	0.27	0.00	0.04	0.16	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	0	1774	3725	1583	1774	3725	1583
Grp Volume(v), veh/h	27	136	0	125	114	0	261	190	0	49	163	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.4	2.3	0.0	1.9	1.8	0.0	3.2	1.4	0.0	0.8	1.3	0.0
Cycle Q Clear(g_c), s	0.4	2.3	0.0	1.9	1.8	0.0	3.2	1.4	0.0	0.8	1.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	276	479	452	378	0	624	995	551	470	583	248
V/C Ratio(X)	0.06	0.49	0.00	0.28	0.30	0.00	0.42	0.19	0.00	0.10	0.28	0.00
Avail Cap(c_a), veh/h	651	1125	1200	819	1393	0	1422	3964	1813	699	2357	1002
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.0	13.6	0.0	9.9	11.8	0.0	6.5	9.8	0.0	11.5	12.9	0.0
Incr Delay (d2), s/veh	0.1	1.4	0.0	0.3	0.4	0.0	0.4	0.1	0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.2	1.0	0.0	0.7	0.7	0.0	0.9	0.5	0.0	0.3	0.6	0.0
Lane Grp Delay (d), s/veh	12.1	15.0	0.0	10.2	12.2	0.0	7.0	9.9	0.0	11.5	13.2	0.0
Lane Grp LOS	B	B		B	B		A	A		B	B	
Approach Vol, veh/h		163			239			451			212	
Approach Delay, s/veh		14.5			11.2			8.2			12.8	
Approach LOS		B			B			A			B	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	4.9	9.2		6.8	11.1		9.4	13.3		5.5	9.4	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	5.0	21.0		10.0	26.0		21.0	37.0		6.0	22.0	
Max Q Clear Time (g_c+I1), s	2.4	4.3		3.9	3.8		5.2	3.4		2.8	3.3	
Green Ext Time (p_c), s	0.0	1.2		0.1	1.3		0.7	2.4		0.0	2.1	

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

Notes



Movement	WBR	NBT	SBL	SBR
Lane Configurations				
Volume (vph)	255	210	375	105
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.97	1.00
Frt	0.86	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1611	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1611	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	228	408	114
RTOR Reduction (vph)	0	0	0	33
Lane Group Flow (vph)	277	228	408	81
Turn Type	Free	NA	Prot	custom
Protected Phases		3	6	
Permitted Phases	Free			6
Actuated Green, G (s)	60.0	9.2	42.8	42.8
Effective Green, g (s)	60.0	9.2	42.8	42.8
Actuated g/C Ratio	1.00	0.15	0.71	0.71
Clearance Time (s)		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)	1611	542	2448	1129
v/s Ratio Prot		c0.06	0.12	
v/s Ratio Perm	c0.17			0.05
v/c Ratio	0.17	0.42	0.17	0.07
Uniform Delay, d1	0.0	23.0	2.8	2.6
Progression Factor	1.00	0.98	1.00	1.00
Incremental Delay, d2	0.2	0.5	0.1	0.1
Delay (s)	0.2	23.1	2.9	2.7
Level of Service	A	C	A	A
Approach Delay (s)		23.1		
Approach LOS		C		

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBR	NBL	NBR	SBT
Lane Configurations				
Volume (vph)	25	25	25	25
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.97	1.00	1.00
Frt	0.86	1.00	0.85	1.00
Flt Protected	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1611	3433	1583	1863
Flt Permitted	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1611	3433	1583	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	27	27	27
RTOR Reduction (vph)	26	0	9	0
Lane Group Flow (vph)	1	27	18	27
Turn Type	custom	Prot	custom	NA
Protected Phases		2		3
Permitted Phases	6		2	
Actuated Green, G (s)	2.2	39.4	39.4	6.4
Effective Green, g (s)	2.2	39.4	39.4	6.4
Actuated g/C Ratio	0.04	0.66	0.66	0.11
Clearance Time (s)	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	2254	1039	198
v/s Ratio Prot		0.01		c0.01
v/s Ratio Perm	c0.00		c0.01	
v/c Ratio	0.02	0.01	0.02	0.14
Uniform Delay, d1	27.9	3.6	3.6	24.3
Progression Factor	1.00	1.00	1.00	0.88
Incremental Delay, d2	0.1	0.0	0.0	0.3
Delay (s)	28.0	3.6	3.6	21.7
Level of Service	C	A	A	C
Approach Delay (s)				21.7
Approach LOS				C

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.03		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	0	20	0	0	0	0	90	40	300	255	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	27	0	22	0	0	0	0	98	43	326	277	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1049	1070	277			277	0	0	141	0	0
Stage 1	929	929	-			-	-	-	-	-	-
Stage 2	120	141	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	252	221	762			1286	-	-	1442	-	-
Stage 1	385	346	-			-	-	-	-	-	-
Stage 2	905	780	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	185	0	762			1286	-	-	1442	-	-
Mov Capacity-2 Maneuver	185	0	-			-	-	-	-	-	-
Stage 1	282	0	-			-	-	-	-	-	-
Stage 2	905	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21	0	4

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1286	-	-	279	1442	-	-
HCM Lane V/C Ratio	-	-	-	0.175	0.226	-	-
HCM Control Delay (s)	0	-	-	20.6	8.225	0	-
HCM Lane LOS	A			C	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.624	0.871	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	9.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	140	0	340	10	105	0	0	415	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
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	0	0	0	152	0	370	11	114	0	0	451	60

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	587	587	114	451	0	0	114	0	0
Stage 1	136	136	-	-	-	-	-	-	-
Stage 2	451	451	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	472	422	939	1109	-	-	1475	-	-
Stage 1	890	784	-	-	-	-	-	-	-
Stage 2	642	571	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	467	0	939	1109	-	-	1475	-	-
Mov Capacity-2 Maneuver	467	0	-	-	-	-	-	-	-
Stage 1	880	0	-	-	-	-	-	-	-
Stage 2	642	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1109	-	-	725	1475	-	-
HCM Lane V/C Ratio	0.01	-	-	0.72	-	-	-
HCM Control Delay (s)	8.278	0	-	21.6	0	-	-
HCM Lane LOS	A	A		C	A		
HCM 95th %tile Q(veh)	0.03	-	-	6.192	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	25	50	50	395	420	75
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	27	54	54	429	457	82

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	820	269	538	0	-	0
Stage 1	497	-	-	-	-	-
Stage 2	323	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	313	729	1026	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	291	729	1026	-	-	-
Mov Capacity-2 Maneuver	291	-	-	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	657	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	1	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1026	-	485	-	-
HCM Lane V/C Ratio	0.053	-	0.168	-	-
HCM Control Delay (s)	8.705	0.2	13.9	-	-
HCM Lane LOS	A	A	B		
HCM 95th %tile Q(veh)	0.168	-	0.599	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	90	160	20	5	70	5	5	5	5	10	5	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	0	-	-	125	-	-	-	-	-	-	-	-
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	98	174	22	5	76	5	5	5	5	11	5	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	82	0	0	196	0	0	481	472	185	476	481	79
Stage 1	-	-	-	-	-	-	380	380	-	90	90	-
Stage 2	-	-	-	-	-	-	101	92	-	386	391	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1515	-	-	1377	-	-	495	490	857	499	485	981
Stage 1	-	-	-	-	-	-	642	614	-	917	820	-
Stage 2	-	-	-	-	-	-	905	819	-	637	607	-
Time blocked-Platoon, %		-	-		-	-						
Mov Capacity-1 Maneuver	1515	-	-	1377	-	-	457	457	857	466	452	981
Mov Capacity-2 Maneuver	-	-	-	-	-	-	457	457	-	466	452	-
Stage 1	-	-	-	-	-	-	600	574	-	858	817	-
Stage 2	-	-	-	-	-	-	881	816	-	586	568	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0	12	11

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	541	1515	-	-	1377	-	-	627
HCM Lane V/C Ratio	0.03	0.065	-	-	0.004	-	-	0.052
HCM Control Delay (s)	11.9	7.54	-	-	7.625	-	-	11.1
HCM Lane LOS	B	A			A			B
HCM 95th %tile Q(veh)	0.093	0.207	-	-	0.012	-	-	0.164

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	25	5	20	10	5	10
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	27	5	22	11	5	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	49	27	0	0	33	0
Stage 1	27	-	-	-	-	-
Stage 2	22	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	960	1048	-	-	1579	-
Stage 1	996	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	957	1048	-	-	1579	-
Mov Capacity-2 Maneuver	957	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	998	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	971	1579	-
HCM Lane V/C Ratio	-	-	0.034	0.003	-
HCM Control Delay (s)	-	-	8.8	7.288	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.104	0.01	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.8

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	5	10	10	10	5	10	20	120	5	10	260	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	5	11	11	11	5	11	22	130	5	11	283	5

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	492	487	133	495	486	285	288	0	0	136	0	0
Stage 1	177	177	-	307	307	-	-	-	-	-	-	-
Stage 2	315	310	-	188	179	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	487	481	916	485	481	754	1274	-	-	1448	-	-
Stage 1	825	753	-	703	661	-	-	-	-	-	-	-
Stage 2	696	659	-	814	751	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	466	468	916	461	468	754	1274	-	-	1448	-	-
Mov Capacity-2 Maneuver	466	468	-	461	468	-	-	-	-	-	-	-
Stage 1	809	739	-	690	655	-	-	-	-	-	-	-
Stage 2	674	653	-	777	737	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	12	12	1	0

Minor Lane / Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1274	-	-	581	548	1448	-	-
HCM Lane V/C Ratio	0.017	-	-	0.047	0.05	0.008	-	-
HCM Control Delay (s)	7.875	0	-	11.5	11.9	7.505	0	-
HCM Lane LOS	A	A		B	B	A	A	
HCM 95th %tile Q(veh)	0.052	-	-	0.147	0.156	0.023	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR	NEL	NER
Vol, veh/h	0	0	285	355	0	5	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	-	Free	-	None	-	-
Storage Length	-	-	0	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-	0	-
Grade, %	0	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	310	386	0	5	0	261

Major/Minor	Major2		Minor1		Major1	
Conflicting Flow All	266	0	585	133	310	0
Stage 1	-	-	264	-	-	-
Stage 2	-	-	321	-	-	-
Follow-up Headway	2.22	-	3.519	3.319	2.218	-
Pot Capacity-1 Maneuver	1295	-	457	892	1250	-
Stage 1	-	-	757	-	-	-
Stage 2	-	-	734	-	-	-
Time blocked-Platoon, %		-				-
Mov Capacity-1 Maneuver	1295	-	454	892	1250	-
Mov Capacity-2 Maneuver	-	-	454	-	-	-
Stage 1	-	-	757	-	-	-
Stage 2	-	-	729	-	-	-

Approach	WB	NB	NE
HCM Control Delay, s	0	11	0

Minor Lane / Major Mvmt	NEL	NER	NER2	NBLn1	WBL2	WBL	WBT
Capacity (veh/h)	1250	-	-	602	1295	-	-
HCM Lane V/C Ratio	-	-	-	0.018	0.004	-	-
HCM Control Delay (s)	0	-	-	11.1	7.792	0	-
HCM Lane LOS	A			B	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.055	0.013	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	130	285	5	115	10
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	11	141	310	5	125	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	315	0	-	0	405	158
Stage 1	-	-	-	-	313	-
Stage 2	-	-	-	-	92	-
Follow-up Headway	2.22	-	-	-	3.52	3.32
Pot Capacity-1 Maneuver	1242	-	-	-	574	859
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	921	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1242	-	-	-	568	859
Mov Capacity-2 Maneuver	-	-	-	-	568	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	912	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	13

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1242	-	-	-	584
HCM Lane V/C Ratio	0.009	-	-	-	0.233
HCM Control Delay (s)	7.924	0	-	-	13
HCM Lane LOS	A	A			B
HCM 95th %tile Q(veh)	0.026	-	-	-	0.895

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	125	0	355	15	0
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	-	-	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	136	0	386	16	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	0	0	386	0
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	386	-
Follow-up Headway	-	-	-	-	3.518	-
Pot Capacity-1 Maneuver	-	-	-	-	617	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	687	-
Time blocked-Platoon, %	-	-		-		
Mov Capacity-1 Maneuver	-	-	-	-	617	-
Mov Capacity-2 Maneuver	-	-	-	-	617	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	687	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	+

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

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	215	30	200	510	255	40	135	135	165	135	30
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	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	1	1	1	1	1	1	1
Cap, veh/h	316	1205	168	502	1402	596	646	871	741	596	871	741
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	658	3201	446	1108	3725	1583	1199	1863	1583	1081	1863	1583
Grp Volume(v), veh/h	16	135	132	217	554	277	43	147	147	179	147	33
Grp Sat Flow(s),veh/h/ln	658	1863	1784	1108	1863	1583	1199	1863	1583	1081	1863	1583
Q Serve(g_s), s	0.9	2.5	2.6	8.4	5.6	6.8	1.1	2.3	2.8	5.9	2.3	0.6
Cycle Q Clear(g_c), s	6.5	2.5	2.6	11.0	5.6	6.8	3.4	2.3	2.8	8.2	2.3	0.6
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	316	701	672	502	1402	596	646	871	741	596	871	741
V/C Ratio(X)	0.05	0.19	0.20	0.43	0.40	0.46	0.07	0.17	0.20	0.30	0.17	0.04
Avail Cap(c_a), veh/h	427	1016	973	690	2033	864	646	871	741	596	871	741
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	14.1	10.8	10.8	14.5	11.7	12.1	8.9	7.9	8.0	10.3	7.9	7.4
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.6	0.2	0.6	0.2	0.4	0.6	1.3	0.4	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 Back of Q (50%), veh/ln	0.1	1.0	1.0	2.1	2.3	2.4	0.3	1.0	1.1	1.6	1.0	0.2
Lane Grp Delay (d), s/veh	14.2	10.9	10.9	15.1	11.9	12.7	9.1	8.3	8.6	11.6	8.3	7.5
Lane Grp LOS	B	B	B	B	B	B	A	A	A	B	A	A
Approach Vol, veh/h		283			1048			337			359	
Approach Delay, s/veh		11.1			12.8			8.5			9.9	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		23.3			23.3			28.0			28.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		28.0			28.0			24.0			24.0	
Max Q Clear Time (g_c+I1), s		8.5			13.0			5.4			10.2	
Green Ext Time (p_c), s		7.2			6.3			2.8			2.6	

Intersection Summary												
HCM 2010 Ctrl Delay			11.3									
HCM 2010 LOS			B									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	35	40	60	15	30	5	20	45	45	100	5
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	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	1	1	1	2	0
Cap, veh/h	423	189	161	103	593	577	488	296	343	565	1286	59
Arrive On Green	0.10	0.10	0.10	0.06	0.32	0.32	0.16	0.16	0.16	0.05	0.36	0.36
Sat Flow, veh/h	1351	1863	1583	1774	1863	1583	1273	1863	1583	1774	3536	161
Grp Volume(v), veh/h	16	38	43	65	16	33	5	22	49	49	57	57
Grp Sat Flow(s),veh/h/ln	1351	1863	1583	1774	1863	1583	1273	1863	1583	1774	1863	1834
Q Serve(g_s), s	0.3	0.5	0.6	0.9	0.1	0.3	0.1	0.3	0.6	0.5	0.5	0.5
Cycle Q Clear(g_c), s	0.3	0.5	0.6	0.9	0.1	0.3	0.1	0.3	0.6	0.5	0.5	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	423	189	161	103	593	577	488	296	343	565	678	667
V/C Ratio(X)	0.04	0.20	0.27	0.63	0.03	0.06	0.01	0.07	0.14	0.09	0.08	0.09
Avail Cap(c_a), veh/h	1573	1775	1509	775	2885	2525	2106	2663	2355	1399	3921	3861
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	10.3	10.4	10.4	11.6	5.9	5.2	8.9	9.0	8.0	6.7	5.3	5.3
Incr Delay (d2), s/veh	0.0	0.5	0.9	6.2	0.0	0.0	0.0	0.1	0.2	0.1	0.1	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 Back of Q (50%), veh/ln	0.1	0.2	0.2	0.5	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.2
Lane Grp Delay (d), s/veh	10.3	10.9	11.3	17.8	5.9	5.2	9.0	9.1	8.2	6.8	5.3	5.3
Lane Grp LOS	B	B	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		97			114			76			163	
Approach Delay, s/veh		11.0			12.5			8.5			5.8	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4		3	8			2		1	6	
Phs Duration (G+Y+Rc), s		6.6		5.5	12.0			8.0		5.2	13.2	
Change Period (Y+Rc), s		4.0		4.0	4.0			4.0		4.0	4.0	
Max Green Setting (Gmax), s		24.0		11.0	39.0			36.0		13.0	53.0	
Max Q Clear Time (g_c+I1), s		2.6		2.9	2.3			2.6		2.5	2.5	
Green Ext Time (p_c), s		0.5		0.1	0.6			0.9		0.1	1.0	

Intersection Summary		
HCM 2010 Ctrl Delay	9.1	
HCM 2010 LOS	A	

Notes

Intersection	
Intersection Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	60	0	220	10	10	0	0	90	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	-	-	-	-	-	-
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	0	0	0	65	0	239	11	11	0	0	98	22

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	142	153	11	120	0	0	11	0	0
Stage 1	33	33	-	-	-	-	-	-	-
Stage 2	109	120	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	851	739	1070	1468	-	-	1608	-	-
Stage 1	989	868	-	-	-	-	-	-	-
Stage 2	916	796	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	844	0	1070	1468	-	-	1608	-	-
Mov Capacity-2 Maneuver	844	0	-	-	-	-	-	-	-
Stage 1	981	0	-	-	-	-	-	-	-
Stage 2	916	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	4	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	844	1070	1608	-	-
HCM Lane V/C Ratio	0.007	-	-	0.077	0.223	-	-	-
HCM Control Delay (s)	7.471	0	-	9.6	9.3	0	-	-
HCM Lane LOS	A	A		A	A	A		
HCM 95th %tile Q(veh)	0.022	-	-	0.251	0.856	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	0	5	0	0	0	0	10	20	80	70	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	11	0	5	0	0	0	0	11	22	87	76	0

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	272	283	76				76	0	0	33	0	0
Stage 1	250	250	-				-	-	-	-	-	-
Stage 2	22	33	-				-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318				2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	717	626	985				1523	-	-	1579	-	-
Stage 1	792	700	-				-	-	-	-	-	-
Stage 2	1001	868	-				-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	675	0	985				1523	-	-	1579	-	-
Mov Capacity-2 Maneuver	675	0	-				-	-	-	-	-	-
Stage 1	746	0	-				-	-	-	-	-	-
Stage 2	1001	0	-				-	-	-	-	-	-

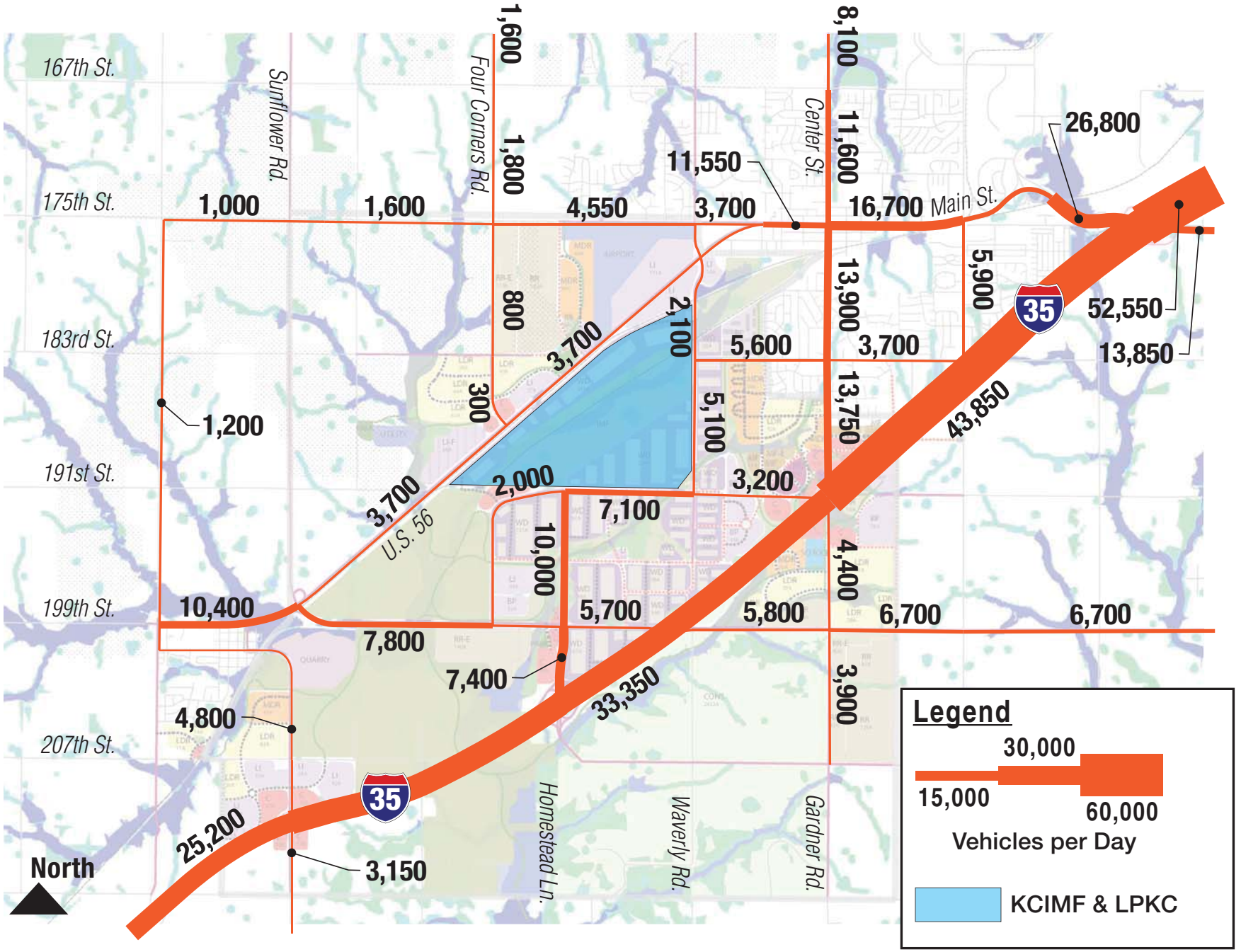
Approach	EB	NB	SB
HCM Control Delay, s	10	0	4

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1523	-	-	754	1579	-	-
HCM Lane V/C Ratio	-	-	-	0.022	0.055	-	-
HCM Control Delay (s)	0	-	-	9.9	7.413	0	-
HCM Lane LOS	A			A	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.066	0.175	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

2025 Model Traffic - Preferred Alternative



MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
US 56 and Sunflower/199th Street

Major Street: US 56 Critical Approach Speed: 40 MPH
Minor Street: Sunflower/199th Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	~~350~~ (280)	~~600~~ (480)	420 (336)	825	774	724	673	623	572	522	471	US 56
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	335	314	294	273	253	232	212	191	Sunflower/199th Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	~~525~~ (420)	~~900~~ (720)	630 (504)	825	774	724	673	623	572	522	471	US 56
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	335	314	294	273	253	232	212	191	Sunflower/199th Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	825	774	724	673	US 56
Highest Apprch. Minor Street	335	314	294	273	Sunflower/199th Street

MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
Gardner Road and I-35 NB Ramps

Major Street: Gardner Road Critical Approach Speed: 40 MPH
Minor Street: I-35 NB Ramps Critical Approach Speed: 35 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	350 (280)	~~600~~ (480)	~~420~~ (336)	865	812	759	706	653	600	547	494	Gardner Road
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	85	80	75	69	64	59	54	49	I-35 NB Ramps

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	525 (420)	~~900~~ (720)	~~630~~ (504)	865	812	759	706	653	600	547	494	Gardner Road
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	85	80	75	69	64	59	54	49	I-35 NB Ramps

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	865	812	759	706	Gardner Road
Highest Apprch. Minor Street	85	80	75	69	I-35 NB Ramps

MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
Gardner Road and I-35 SB Ramps

Major Street: Gardner Road Critical Approach Speed: 40 MPH
Minor Street: I-35 SB Ramps Critical Approach Speed: 35 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~M~~	R	~~M~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	350 (280)	~~600~~ (480)	~~420~~ (336)	840	789	737	686	634	583	531	480	Gardner Road
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	175	164	154	143	132	121	111	100	I-35 SB Ramps

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~M~~	R	~~M~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	525 (420)	~~900~~ (720)	~~630~~ (504)	840	789	737	686	634	583	531	480	Gardner Road
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	175	164	154	143	132	121	111	100	I-35 SB Ramps

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	840	789	737	686	Gardner Road
Highest Apprch. Minor Street	175	164	154	143	I-35 SB Ramps

MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
Gardner Road and 191st Street

Major Street: Gardner Road Critical Approach Speed: 40 MPH
Minor Street: 191st Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500 (400)~~	350 (280)	~~600 (480)~~	~~420 (336)~~	1335	1253	1171	1090	1008	926	844	762	Gardner Road
Highest Apprch. Minor Street	~~150 (120)~~	105 (84)	~~200 (160)~~	~~140 (112)~~	150	141	132	122	113	104	95	86	191st Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750 (600)~~	525 (420)	~~900 (720)~~	~~630 (504)~~	1335	1253	1171	1090	1008	926	844	762	Gardner Road
Highest Apprch. Minor Street	~~75 (60)~~	53 (42)	~~100 (80)~~	~~70 (56)~~	150	141	132	122	113	104	95	86	191st Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	1335	1253	1171	1090	Gardner Road
Highest Apprch. Minor Street	150	141	132	122	191st Street

MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
191st Street and Waverly Road

Major Street: 191st Street Critical Approach Speed: 40 MPH
Minor Street: Waverly Road Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~M~~	R	~~M~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	~~350~~ (280)	~~600~~ (480)	420 (336)	855	803	750	698	645	593	541	488	191st Street
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	170	160	149	139	128	118	107	97	Waverly Road

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~M~~	R	~~M~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	~~525~~ (420)	~~900~~ (720)	630 (504)	855	803	750	698	645	593	541	488	191st Street
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	170	160	149	139	128	118	107	97	Waverly Road

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	855	803	750	698	191st Street
Highest Apprch. Minor Street	170	160	149	139	Waverly Road

MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
Waverly Road and 183rd Street

Major Street: Waverly Road Critical Approach Speed: 40 MPH
Minor Street: 183rd Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500 (400)~~	350 (280)	~~600 (480)~~	~~420 (336)~~	310	291	272	253	234	215	196	177	Waverly Road
Highest Apprch. Minor Street	~~150 (120)~~	105 (84)	~~200 (160)~~	~~140 (112)~~	145	136	127	118	109	101	92	83	183rd Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750 (600)~~	525 (420)	~~900 (720)~~	~~630 (504)~~	310	291	272	253	234	215	196	177	Waverly Road
Highest Apprch. Minor Street	~~75 (60)~~	53 (42)	~~100 (80)~~	~~70 (56)~~	145	136	127	118	109	101	92	83	183rd Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	310	291	272	253	Waverly Road
Highest Apprch. Minor Street	145	136	127	118	183rd Street

MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
US 56 and Waverly Road

Major Street: US 56 Critical Approach Speed: 40 MPH
Minor Street: Waverly Road Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500 (400)~~	350 (280)	~~600 (480)~~	~~420 (336)~~	595	559	522	486	449	413	376	340	US 56
Highest Apprch. Minor Street	~~150 (120)~~	105 (84)	~~200 (160)~~	~~140 (112)~~	135	127	118	110	102	94	85	77	Waverly Road

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~U~~	R	~~U~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750 (600)~~	525 (420)	~~900 (720)~~	~~630 (504)~~	595	559	522	486	449	413	376	340	US 56
Highest Apprch. Minor Street	~~75 (60)~~	53 (42)	~~100 (80)~~	~~70 (56)~~	135	127	118	110	102	94	85	77	Waverly Road

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	595	559	522	486	US 56
Highest Apprch. Minor Street	135	127	118	110	Waverly Road

MUTCD Volume-based Warrant Evaluation - 2025 Preferred Traffic
US-56 and Santa Fe Street

Major Street: US-56 Critical Approach Speed: 40 MPH
Minor Street: Santa Fe Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	~~350~~ (280)	~~600~~ (480)	420 (336)	910	854	798	743	687	631	575	520	US-56
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	435	408	382	355	328	302	275	248	Santa Fe Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	~~525~~ (420)	~~900~~ (720)	630 (504)	910	854	798	743	687	631	575	520	US-56
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	435	408	382	355	328	302	275	248	Santa Fe Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	910	854	798	743	US-56
Highest Apprch. Minor Street	435	408	382	355	Santa Fe Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	265	305	60	100	10	205	55	25	10	60	10
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	0	1	1	0	1	1	0
Cap, veh/h	607	667	838	403	596	60	304	497	224	367	186	32
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.17	0.41	0.41	0.12	0.12	0.12
Sat Flow, veh/h	1266	1863	1583	800	1665	168	1774	1218	548	1305	1553	263
Grp Volume(v), veh/h	11	288	332	65	0	120	223	0	87	11	0	76
Grp Sat Flow(s),veh/h/ln	1266	1863	1583	800	1863	1833	1774	1863	1766	1305	1863	1816
Q Serve(g_s), s	0.2	4.0	4.3	2.3	0.0	1.5	4.1	0.0	1.0	0.3	0.0	1.3
Cycle Q Clear(g_c), s	1.7	4.0	4.3	6.3	0.0	1.5	4.1	0.0	1.0	0.3	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.31	1.00		0.14
Lane Grp Cap(c), veh/h	607	667	838	403	0	656	304	0	721	367	0	218
V/C Ratio(X)	0.02	0.43	0.40	0.16	0.00	0.18	0.73	0.00	0.12	0.03	0.00	0.35
Avail Cap(c_a), veh/h	1301	1687	1706	841	0	1660	1348	0	2632	1011	0	1115
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.1	8.3	4.8	10.7	0.0	7.6	13.4	0.0	6.3	13.4	0.0	13.8
Incr Delay (d2), s/veh	0.0	0.4	0.3	0.2	0.0	0.1	3.4	0.0	0.1	0.0	0.0	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 Back of Q (50%), veh/ln	0.1	1.4	1.0	0.4	0.0	0.6	1.8	0.0	0.4	0.1	0.0	0.6
Lane Grp Delay (d), s/veh	8.2	8.8	5.1	10.9	0.0	7.7	16.8	0.0	6.4	13.4	0.0	14.8
Lane Grp LOS	A	A	A	B		A	B		A	B		B
Approach Vol, veh/h		631			185			310			87	
Approach Delay, s/veh		6.8			8.8			13.9			14.6	
Approach LOS		A			A			B			B	

Timer												
Assigned Phs		4			8		5	2			6	
Phs Duration (G+Y+Rc), s		16.2			16.2		9.9	18.0			8.1	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0			4.0	
Max Green Setting (Gmax), s		31.0			31.0		26.0	51.0			21.0	
Max Q Clear Time (g_c+I1), s		6.3			8.3		6.1	3.0			3.3	
Green Ext Time (p_c), s		4.0			3.9		0.6	1.0			0.8	

Intersection Summary		
HCM 2010 Ctrl Delay	9.5	
HCM 2010 LOS	A	

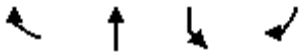
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	370	155	75	160	65	30	575	120	105	1075	160
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Cap, veh/h	404	491	460	244	518	0	236	1547	734	433	1656	704
Arrive On Green	0.03	0.26	0.00	0.05	0.28	0.00	0.03	0.42	0.00	0.06	0.44	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	0	1774	3725	1583	1774	3725	1583
Grp Volume(v), veh/h	49	402	0	82	174	0	33	625	0	114	1168	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.5	15.0	0.0	2.4	5.5	0.0	0.8	8.7	0.0	2.5	18.7	0.0
Cycle Q Clear(g_c), s	1.5	15.0	0.0	2.4	5.5	0.0	0.8	8.7	0.0	2.5	18.7	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	404	491	460	244	518	0	236	1547	734	433	1656	704
V/C Ratio(X)	0.12	0.82	0.00	0.34	0.34	0.00	0.14	0.40	0.00	0.26	0.71	0.00
Avail Cap(c_a), veh/h	439	681	621	253	681	0	285	1866	870	478	1966	836
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.9	25.5	0.0	19.5	21.2	0.0	13.7	15.2	0.0	10.7	16.6	0.0
Incr Delay (d2), s/veh	0.1	5.5	0.0	0.8	0.4	0.0	0.3	0.2	0.0	0.3	0.9	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 Back of Q (50%), veh/ln	0.6	7.6	0.0	1.1	2.5	0.0	0.3	3.9	0.0	1.0	8.3	0.0
Lane Grp Delay (d), s/veh	19.0	31.1	0.0	20.3	21.6	0.0	14.0	15.3	0.0	11.1	17.6	0.0
Lane Grp LOS	B	C		C	C		B	B		B	B	
Approach Vol, veh/h		451			256			658			1282	
Approach Delay, s/veh		29.7			21.2			15.3			17.0	
Approach LOS		C			C			B			B	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	6.5	23.5		7.6	24.5		6.0	34.7		8.1	36.8	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	4.0	27.0		4.0	27.0		4.0	37.0		6.0	39.0	
Max Q Clear Time (g_c+I1), s	3.5	17.0		4.4	7.5		2.8	10.7		4.5	20.7	
Green Ext Time (p_c), s	0.0	2.5		0.0	3.4		0.0	15.4		0.0	12.1	

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Notes



Movement	WBR	NBT	SBL	SBR
Lane Configurations				
Volume (vph)	530	270	830	250
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.97	1.00
Frt	0.86	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1611	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1611	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	576	293	902	272
RTOR Reduction (vph)	0	0	0	83
Lane Group Flow (vph)	576	293	902	189
Turn Type	Free	NA	Prot	custom
Protected Phases		3	6	
Permitted Phases	Free			6
Actuated Green, G (s)	60.0	10.2	41.8	41.8
Effective Green, g (s)	60.0	10.2	41.8	41.8
Actuated g/C Ratio	1.00	0.17	0.70	0.70
Clearance Time (s)		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)	1611	601	2391	1102
v/s Ratio Prot		0.08	0.26	
v/s Ratio Perm	c0.36			0.12
v/c Ratio	0.36	0.49	0.38	0.17
Uniform Delay, d1	0.0	22.5	3.7	3.1
Progression Factor	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6	0.5	0.3
Delay (s)	0.6	23.1	4.2	3.5
Level of Service	A	C	A	A
Approach Delay (s)		23.1		
Approach LOS		C		

Intersection Summary			
HCM 2000 Control Delay	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBR	NBL	NBR	SBT
Lane Configurations				
Volume (vph)	35	35	35	35
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.97	1.00	1.00
Frt	0.86	1.00	0.85	1.00
Flt Protected	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1611	3433	1583	1863
Flt Permitted	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1611	3433	1583	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	38	38	38
RTOR Reduction (vph)	37	0	13	0
Lane Group Flow (vph)	1	38	25	38
Turn Type	custom	Prot	custom	NA
Protected Phases		2		3
Permitted Phases	4		2	
Actuated Green, G (s)	2.2	39.0	39.0	6.8
Effective Green, g (s)	2.2	39.0	39.0	6.8
Actuated g/C Ratio	0.04	0.65	0.65	0.11
Clearance Time (s)	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	2231	1028	211
v/s Ratio Prot		0.01		c0.02
v/s Ratio Perm	c0.00		c0.02	
v/c Ratio	0.02	0.02	0.02	0.18
Uniform Delay, d1	27.9	3.7	3.7	24.1
Progression Factor	1.00	1.00	1.00	0.83
Incremental Delay, d2	0.2	0.0	0.0	0.4
Delay (s)	28.0	3.7	3.8	20.3
Level of Service	C	A	A	C
Approach Delay (s)				20.3
Approach LOS				C

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.05		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	21.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	85	0	10	0	0	0	0	130	215	445	215	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	-	-	-	-	600	-	-
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	92	0	11	0	0	0	0	141	234	484	234	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1459	1576	234			234	0	0	375	0	0
Stage 1	1201	1201	-			-	-	-	-	-	-
Stage 2	258	375	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	142	110	805			1333	-	-	1183	-	-
Stage 1	285	258	-			-	-	-	-	-	-
Stage 2	785	617	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	# 84	0	805			1333	-	-	1183	-	-
Mov Capacity-2 Maneuver	# 84	0	-			-	-	-	-	-	-
Stage 1	168	0	-			-	-	-	-	-	-
Stage 2	785	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	200	0	7

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	SBL	SBT	SBR
Capacity (veh/h)	1333	-	-	87	805	1183	-	-
HCM Lane V/C Ratio	-	-	-	1.104	0.009	0.409	-	-
HCM Control Delay (s)	0	-	-	214.9	9.5	10.132	-	-
HCM Lane LOS	A			F	A	B		
HCM 95th %tile Q(veh)	0	-	-	6.59	0.027	2.028	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	50	0	100	15	200	0	0	610	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	100	-	-	-	-	0
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	0	0	0	54	0	109	16	217	0	0	663	16

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	913	913	217	663	0	0	217	0	0
Stage 1	250	250	-	-	-	-	-	-	-
Stage 2	663	663	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	304	273	823	926	-	-	1353	-	-
Stage 1	792	700	-	-	-	-	-	-	-
Stage 2	512	459	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	299	0	823	926	-	-	1353	-	-
Mov Capacity-2 Maneuver	299	0	-	-	-	-	-	-	-
Stage 1	778	0	-	-	-	-	-	-	-
Stage 2	512	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	926	-	-	401	823	1353	-	-
HCM Lane V/C Ratio	0.018	-	-	0.226	0.088	-	-	-
HCM Control Delay (s)	8.957	-	-	16.6	9.8	0	-	-
HCM Lane LOS	A			C	A	A		
HCM 95th %tile Q(veh)	0.054	-	-	0.856	0.289	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	50	75	75	225	550	140
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	150	-	-	-	-
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	54	82	82	245	598	152

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	959	375	750	0	-	0
Stage 1	674	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	255	623	855	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	227	623	855	-	-	-
Mov Capacity-2 Maneuver	227	-	-	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	656	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17	3	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	855	-	227	623	-	-
HCM Lane V/C Ratio	0.095	-	0.239	0.131	-	-
HCM Control Delay (s)	9.654	0.3	25.8	11.6	-	-
HCM Lane LOS	A	A	D	B		
HCM 95th %tile Q(veh)	0.315	-	0.906	0.449	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	225	135	10	5	105	50	10	10	10	35	10	125
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	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Cap, veh/h	562	735	55	398	207	98	631	311	311	678	676	817
Arrive On Green	0.15	0.43	0.43	0.17	0.17	0.17	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1774	1712	128	1223	1196	567	1236	856	856	1384	1863	1583
Grp Volume(v), veh/h	245	0	158	5	0	168	11	0	22	38	11	136
Grp Sat Flow(s),veh/h/ln	1774	1863	1840	1223	1863	1763	1236	1863	1712	1384	1863	1583
Q Serve(g_s), s	3.8	0.0	2.1	0.1	0.0	3.4	0.2	0.0	0.3	0.7	0.1	1.8
Cycle Q Clear(g_c), s	3.8	0.0	2.1	0.1	0.0	3.4	0.4	0.0	0.3	1.0	0.1	1.8
Prop In Lane	1.00		0.07	1.00		0.32	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	562	0	790	398	0	305	631	0	622	678	676	817
V/C Ratio(X)	0.44	0.00	0.20	0.01	0.00	0.55	0.02	0.00	0.04	0.06	0.02	0.17
Avail Cap(c_a), veh/h	1027	0	1814	758	0	823	631	0	622	678	676	817
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)	0.94	0.00	0.94	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.1	0.0	6.9	13.2	0.0	14.6	8.0	0.0	7.9	8.2	7.9	4.9
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.0	0.0	1.6	0.1	0.0	0.1	0.2	0.0	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 Back of Q (50%), veh/ln	1.4	0.0	0.7	0.0	0.0	1.4	0.1	0.0	0.1	0.2	0.1	0.6
Lane Grp Delay (d), s/veh	9.6	0.0	7.0	13.3	0.0	16.1	8.0	0.0	8.0	8.4	7.9	5.4
Lane Grp LOS	A		A	B		B	A		A	A	A	A
Approach Vol, veh/h		403			173			33			185	
Approach Delay, s/veh		8.6			16.1			8.0			6.2	
Approach LOS		A			B			A			A	

Timer												
Assigned Phs	7	4			8			2			6	
Phs Duration (G+Y+Rc), s	9.9	20.6			10.7			18.0			18.0	
Change Period (Y+Rc), s	4.0	4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s	16.0	38.0			18.0			14.0			14.0	
Max Q Clear Time (g_c+I1), s	5.8	4.1			5.4			2.4			3.8	
Green Ext Time (p_c), s	0.5	2.1			1.5			0.5			0.5	

Intersection Summary												
HCM 2010 Ctrl Delay			9.6									
HCM 2010 LOS			A									

Notes

Intersection	
Intersection Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	140	5	105	95	5	105
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	152	5	114	103	5	114

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	291	166	0	0	217	0
Stage 1	166	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	700	878	-	-	1353	-
Stage 1	863	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	697	878	-	-	1353	-
Mov Capacity-2 Maneuver	697	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	897	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	702	1353	-
HCM Lane V/C Ratio	-	-	0.225	0.004	-
HCM Control Delay (s)	-	-	11.6	7.671	0
HCM Lane LOS			B	A	A
HCM 95th %tile Q(veh)	-	-	0.858	0.012	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	6

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	35	50	50	5	5	5	75	315	5	75	120	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	150	-	-
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	38	54	54	5	5	5	82	342	5	82	130	11

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	812	812	345	862	810	136	141	0	0	348	0	0
Stage 1	508	508	-	299	299	-	-	-	-	-	-	-
Stage 2	304	304	-	563	511	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	298	313	698	275	314	913	1442	-	-	1211	-	-
Stage 1	547	539	-	710	666	-	-	-	-	-	-	-
Stage 2	705	663	-	511	537	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	265	275	698	196	276	913	1442	-	-	1211	-	-
Mov Capacity-2 Maneuver	265	275	-	196	276	-	-	-	-	-	-	-
Stage 1	516	508	-	670	621	-	-	-	-	-	-	-
Stage 2	648	618	-	397	506	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	22	18	2	3

Minor Lane / Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1442	-	-	350	305	1211	-	-
HCM Lane V/C Ratio	0.057	-	-	0.419	0.053	0.067	-	-
HCM Control Delay (s)	7.646	-	-	22.5	17.5	8.187	-	-
HCM Lane LOS	A			C	C	A		
HCM 95th %tile Q(veh)	0.18	-	-	2.007	0.169	0.216	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR	NEL	NER
Vol, veh/h	0	0	150	160	0	10	0	605
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	-	Free	-	None	-	-
Storage Length	-	-	0	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-	0	-
Grade, %	0	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	163	174	0	11	0	658

Major/Minor	Major2		Minor1		Major1	
Conflicting Flow All	663	0	845	332	163	0
Stage 1	-	-	660	-	-	-
Stage 2	-	-	185	-	-	-
Follow-up Headway	2.22	-	3.519	3.319	2.218	-
Pot Capacity-1 Maneuver	922	-	317	665	1416	-
Stage 1	-	-	477	-	-	-
Stage 2	-	-	846	-	-	-
Time blocked-Platoon, %		-				-
Mov Capacity-1 Maneuver	922	-	312	665	1416	-
Mov Capacity-2 Maneuver	-	-	312	-	-	-
Stage 1	-	-	477	-	-	-
Stage 2	-	-	833	-	-	-

Approach	WB	NB	NE
HCM Control Delay, s	0	14	0

Minor Lane / Major Mvmt	NEL	NER	NER2	NBLn1	WBL2	WBL	WBT
Capacity (veh/h)	1416	-	-	425	922	-	-
HCM Lane V/C Ratio	-	-	-	0.051	0.012	-	-
HCM Control Delay (s)	0	-	-	13.9	8.951	0	-
HCM Lane LOS	A			B	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.161	0.036	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	11.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	185	155	5	425	10
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	75
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	11	201	168	5	462	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	174	0	-	0	293	87
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	122	-
Follow-up Headway	2.22	-	-	-	3.52	3.32
Pot Capacity-1 Maneuver	1400	-	-	-	674	954
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	890	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1400	-	-	-	668	954
Mov Capacity-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	882	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	21

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1400	-	-	-	668	954
HCM Lane V/C Ratio	0.008	-	-	-	0.692	0.011
HCM Control Delay (s)	7.592	0	-	-	21.6	8.8
HCM Lane LOS	A	A			C	A
HCM 95th %tile Q(veh)	0.023	-	-	-	5.536	0.035

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	435	0	160	15	0
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	-	-	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	473	0	174	16	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	0	0	174	0
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	174	-
Follow-up Headway	-	-	-	-	3.518	-
Pot Capacity-1 Maneuver	-	-	-	-	816	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	856	-
Time blocked-Platoon, %	-	-		-		
Mov Capacity-1 Maneuver	-	-	-	-	816	-
Mov Capacity-2 Maneuver	-	-	-	-	816	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	856	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	+

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

Notes

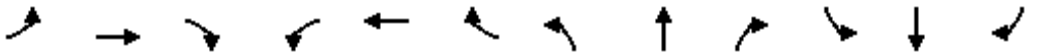
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	55	485	100	110	215	145	70	400	180	135	145	20
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	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	1	1	1	1	1	1	1
Cap, veh/h	459	1128	232	320	1402	596	648	896	762	384	896	762
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	988	2999	618	789	3725	1583	1199	1863	1583	792	1863	1583
Grp Volume(v), veh/h	60	326	310	120	234	158	76	435	196	147	158	22
Grp Sat Flow(s),veh/h/ln	988	1863	1754	789	1863	1583	1199	1863	1583	792	1863	1583
Q Serve(g_s), s	2.4	7.4	7.5	7.6	2.3	3.9	2.2	8.9	4.1	8.7	2.7	0.4
Cycle Q Clear(g_c), s	4.8	7.4	7.5	15.1	2.3	3.9	4.9	8.9	4.1	17.5	2.7	0.4
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	459	701	660	320	1402	596	648	896	762	384	896	762
V/C Ratio(X)	0.13	0.47	0.47	0.38	0.17	0.27	0.12	0.49	0.26	0.38	0.18	0.03
Avail Cap(c_a), veh/h	527	830	781	374	1660	705	648	896	762	384	896	762
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	13.2	13.2	13.3	19.0	11.6	12.1	9.6	9.9	8.6	15.8	8.3	7.7
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.7	0.1	0.2	0.4	1.9	0.8	2.9	0.4	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 Back of Q (50%), veh/ln	0.6	3.1	3.0	1.5	1.0	1.4	0.6	4.1	1.6	1.9	1.2	0.2
Lane Grp Delay (d), s/veh	13.4	13.7	13.8	19.7	11.7	12.4	10.0	11.7	9.4	18.7	8.7	7.7
Lane Grp LOS	B	B	B	B	B	B	A	B	A	B	A	A
Approach Vol, veh/h		696			512			707			327	
Approach Delay, s/veh		13.7			13.8			10.9			13.1	
Approach LOS		B			B			B			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		25.1			25.1			31.0			31.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		25.0			25.0			27.0			27.0	
Max Q Clear Time (g_c+I1), s		9.5			17.1			10.9			19.5	
Green Ext Time (p_c), s		6.0			4.0			4.8			3.1	

Intersection Summary												
HCM 2010 Ctrl Delay			12.8									
HCM 2010 LOS			B									

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	75	90	185	15	95	30	195	385	85	100	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	3491	
Flt Permitted	0.75	1.00	1.00	0.47	1.00	1.00	0.68	1.00	1.00	0.33	1.00	
Satd. Flow (perm)	1392	1863	1583	878	1863	1583	1259	1863	1583	612	3491	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	82	98	201	16	103	33	212	418	92	109	11
RTOR Reduction (vph)	0	0	82	0	0	57	0	0	231	0	7	0
Lane Group Flow (vph)	49	82	16	201	16	46	33	212	187	92	113	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	custom	Perm	NA	pm+ov	Perm	NA	
Protected Phases	7	4		3	8	1		2	3		6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	8.9	8.1	8.1	23.3	18.5	22.5	11.5	11.5	22.7	19.5	19.5	
Effective Green, g (s)	8.9	8.1	8.1	23.3	18.5	22.5	11.5	11.5	22.7	19.5	19.5	
Actuated g/C Ratio	0.18	0.16	0.16	0.46	0.36	0.44	0.23	0.23	0.45	0.38	0.38	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	249	297	252	599	678	825	285	421	832	234	1340	
v/s Ratio Prot	0.00	0.04		c0.07	0.01	0.00		c0.11	c0.05		0.03	
v/s Ratio Perm	0.03		0.01	c0.08		0.02	0.03		0.07	c0.15		
v/c Ratio	0.20	0.28	0.06	0.34	0.02	0.06	0.12	0.50	0.22	0.39	0.08	
Uniform Delay, d1	17.8	18.8	18.1	8.6	10.4	8.1	15.6	17.2	8.6	11.4	10.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	0.1	0.3	0.0	0.0	0.2	1.0	0.1	1.1	0.0	
Delay (s)	18.2	19.3	18.2	8.9	10.4	8.1	15.8	18.1	8.8	12.4	10.0	
Level of Service	B	B	B	A	B	A	B	B	A	B	A	
Approach Delay (s)		18.6			8.7			12.1			11.1	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	35	95	145	15	90	0	0	460	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	250	-	-	-	-	-
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	0	0	0	38	103	158	16	98	0	0	500	27

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	644	657	98	527	0	0	98	0	0
Stage 1	130	130	-	-	-	-	-	-	-
Stage 2	514	527	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	437	385	958	1040	-	-	1495	-	-
Stage 1	896	789	-	-	-	-	-	-	-
Stage 2	600	528	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	430	# 0	958	1040	-	-	1495	-	-
Mov Capacity-2 Maneuver	430	# 0	-	-	-	-	-	-	-
Stage 1	882	# 0	-	-	-	-	-	-	-
Stage 2	600	# 0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1040	-	-	430	958	1495	-	-
HCM Lane V/C Ratio	0.016	-	-	0.088	0.165	-	-	-
HCM Control Delay (s)	8.517	-	-	14.2	9.5	0	-	-
HCM Lane LOS	A			B	A	A		
HCM 95th %tile Q(veh)	0.048	-	-	0.289	0.587	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	0	15	0	0	0	0	80	105	240	255	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
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	27	0	16	0	0	0	0	87	114	261	277	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	943	1000	277			277	0	0	201	0	0
Stage 1	799	799	-			-	-	-	-	-	-
Stage 2	144	201	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	291	243	762			1286	-	-	1371	-	-
Stage 1	443	398	-			-	-	-	-	-	-
Stage 2	883	735	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	236	0	762			1286	-	-	1371	-	-
Mov Capacity-2 Maneuver	236	0	-			-	-	-	-	-	-
Stage 1	359	0	-			-	-	-	-	-	-
Stage 2	883	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0	4

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1286	-	-	318	1371	-	-
HCM Lane V/C Ratio	-	-	-	0.137	0.19	-	-
HCM Control Delay (s)	0	-	-	18.1	8.242	-	-
HCM Lane LOS	A			C	A		
HCM 95th %tile Q(veh)	0	-	-	0.469	0.701	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	150	290	65	300	10	310	25	55	10	40	10
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	0	1	1	0	1	1	0
Cap, veh/h	377	612	913	432	589	20	440	177	392	349	151	39
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.25	0.34	0.34	0.01	0.11	0.11
Sat Flow, veh/h	1039	1863	1583	913	1792	60	1774	515	1145	1774	1432	366
Grp Volume(v), veh/h	11	163	315	71	0	337	337	0	87	11	0	54
Grp Sat Flow(s),veh/h/ln	1039	1863	1583	913	1863	1852	1774	1863	1661	1774	1863	1798
Q Serve(g_s), s	0.3	2.4	4.0	2.3	0.0	5.6	6.7	0.0	1.4	0.2	0.0	1.0
Cycle Q Clear(g_c), s	6.0	2.4	4.0	4.8	0.0	5.6	6.7	0.0	1.4	0.2	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.69	1.00		0.20
Lane Grp Cap(c), veh/h	377	612	913	432	0	609	440	0	569	349	0	190
V/C Ratio(X)	0.03	0.27	0.34	0.16	0.00	0.55	0.77	0.00	0.15	0.03	0.00	0.28
Avail Cap(c_a), veh/h	832	1429	1607	832	0	1420	1454	0	1976	516	0	856
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.9	9.3	4.2	11.1	0.0	10.4	13.2	0.0	8.6	14.8	0.0	15.6
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.2	0.0	0.8	2.8	0.0	0.1	0.0	0.0	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 Back of Q (50%), veh/ln	0.1	0.9	0.1	0.5	0.0	2.3	2.9	0.0	0.5	0.1	0.0	0.4
Lane Grp Delay (d), s/veh	12.9	9.6	4.4	11.3	0.0	11.2	16.0	0.0	8.7	14.9	0.0	16.4
Lane Grp LOS	B	A	A	B		B	B		A	B		B
Approach Vol, veh/h		489			408			424			65	
Approach Delay, s/veh		6.3			11.2			14.5			16.1	
Approach LOS		A			B			B			B	

Timer												
Assigned Phs		4			8		5	2		1	6	
Phs Duration (G+Y+Rc), s		16.4			16.4		13.4	17.0		4.4	8.0	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s		29.0			29.0		31.0	45.0		4.0	18.0	
Max Q Clear Time (g_c+I1), s		8.0			7.6		8.7	3.4		2.2	3.0	
Green Ext Time (p_c), s		4.4			4.5		1.0	0.9		0.0	0.6	

Intersection Summary		
HCM 2010 Ctrl Delay	10.7	
HCM 2010 LOS	B	

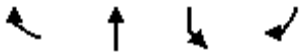
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	160	125	180	235	15	200	395	145	125	670	125
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Cap, veh/h	309	287	418	405	434	0	454	1405	773	542	1274	541
Arrive On Green	0.03	0.15	0.00	0.11	0.23	0.00	0.11	0.38	0.00	0.07	0.34	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	0	1774	3725	1583	1774	3725	1583
Grp Volume(v), veh/h	38	174	0	196	255	0	217	429	0	136	728	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.0	4.9	0.0	4.4	6.9	0.0	4.0	4.6	0.0	2.7	9.0	0.0
Cycle Q Clear(g_c), s	1.0	4.9	0.0	4.4	6.9	0.0	4.0	4.6	0.0	2.7	9.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	287	418	405	434	0	454	1405	773	542	1274	541
V/C Ratio(X)	0.12	0.61	0.00	0.48	0.59	0.00	0.48	0.31	0.00	0.25	0.57	0.00
Avail Cap(c_a), veh/h	378	561	650	554	792	0	699	2639	1297	599	2112	897
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.2	22.3	0.0	13.6	19.2	0.0	10.0	12.4	0.0	10.5	15.2	0.0
Incr Delay (d2), s/veh	0.2	2.1	0.0	0.9	1.3	0.0	0.8	0.1	0.0	0.2	0.4	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 Back of Q (50%), veh/ln	0.4	2.3	0.0	1.8	3.1	0.0	1.6	1.9	0.0	1.1	3.9	0.0
Lane Grp Delay (d), s/veh	19.4	24.3	0.0	14.5	20.5	0.0	10.8	12.5	0.0	10.7	15.6	0.0
Lane Grp LOS	B	C		B	C		B	B		B	B	
Approach Vol, veh/h		212			451			646			864	
Approach Delay, s/veh		23.5			17.9			11.9			14.8	
Approach LOS		C			B			B			B	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	5.8	12.7		10.3	17.2		10.2	25.3		8.2	23.3	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	4.0	17.0		11.0	24.0		14.0	40.0		6.0	32.0	
Max Q Clear Time (g_c+I1), s	3.0	6.9		6.4	8.9		6.0	6.6		4.7	11.0	
Green Ext Time (p_c), s	0.0	1.8		0.2	2.2		0.4	9.8		0.0	8.3	

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

Notes



Movement	WBR	NBT	SBL	SBR
Lane Configurations				
Volume (vph)	615	315	900	250
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.97	1.00
Frt	0.86	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1611	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1611	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	668	342	978	272
RTOR Reduction (vph)	0	0	0	87
Lane Group Flow (vph)	668	342	978	185
Turn Type	Free	NA	Prot	custom
Protected Phases		3	6	
Permitted Phases	Free			6
Actuated Green, G (s)	60.0	11.2	40.8	40.8
Effective Green, g (s)	60.0	11.2	40.8	40.8
Actuated g/C Ratio	1.00	0.19	0.68	0.68
Clearance Time (s)		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)	1611	660	2334	1076
v/s Ratio Prot		0.10	0.28	
v/s Ratio Perm	c0.41			0.12
v/c Ratio	0.41	0.52	0.42	0.17
Uniform Delay, d1	0.0	22.0	4.3	3.5
Progression Factor	1.00	1.01	1.00	1.00
Incremental Delay, d2	0.8	0.7	0.6	0.3
Delay (s)	0.8	22.9	4.9	3.8
Level of Service	A	C	A	A
Approach Delay (s)		22.9		
Approach LOS		C		

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBR	NBL	NBR	SBT
Lane Configurations				
Volume (vph)	35	35	35	35
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.97	1.00	1.00
Frt	0.86	1.00	0.85	1.00
Flt Protected	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1611	3433	1583	1863
Flt Permitted	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1611	3433	1583	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	38	38	38
RTOR Reduction (vph)	37	0	13	0
Lane Group Flow (vph)	1	38	25	38
Turn Type	custom	Prot	custom	NA
Protected Phases		2		3
Permitted Phases	4		2	
Actuated Green, G (s)	2.2	39.0	39.0	6.8
Effective Green, g (s)	2.2	39.0	39.0	6.8
Actuated g/C Ratio	0.04	0.65	0.65	0.11
Clearance Time (s)	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	2231	1028	211
v/s Ratio Prot		0.01		c0.02
v/s Ratio Perm	c0.00		c0.02	
v/c Ratio	0.02	0.02	0.02	0.18
Uniform Delay, d1	27.9	3.7	3.7	24.1
Progression Factor	1.00	1.00	1.00	1.02
Incremental Delay, d2	0.2	0.0	0.0	0.4
Delay (s)	28.0	3.7	3.8	25.0
Level of Service	C	A	A	C
Approach Delay (s)				25.0
Approach LOS				C

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.05		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	40	0	25	0	0	0	0	130	55	300	380	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	-	-	-	-	600	-	-
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	43	0	27	0	0	0	0	141	60	326	413	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1236	1266	413			413	0	0	201	0	0
Stage 1	1065	1065	-			-	-	-	-	-	-
Stage 2	171	201	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	195	169	639			1146	-	-	1371	-	-
Stage 1	331	299	-			-	-	-	-	-	-
Stage 2	859	735	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	149	0	639			1146	-	-	1371	-	-
Mov Capacity-2 Maneuver	149	0	-			-	-	-	-	-	-
Stage 1	252	0	-			-	-	-	-	-	-
Stage 2	859	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29	0	4

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	SBL	SBT	SBR
Capacity (veh/h)	1146	-	-	172	639	1371	-	-
HCM Lane V/C Ratio	-	-	-	0.305	0.028	0.238	-	-
HCM Control Delay (s)	0	-	-	34.9	10.8	8.443	-	-
HCM Lane LOS	A			D	B	A		
HCM 95th %tile Q(veh)	0	-	-	1.22	0.087	0.93	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	9.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	175	0	540	15	155	0	0	505	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	100	-	-	-	-	0
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	0	0	0	190	0	587	16	168	0	0	549	103

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	750	750	168	549	0	0	168	0	0
Stage 1	201	201	-	-	-	-	-	-	-
Stage 2	549	549	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	379	340	876	1021	-	-	1410	-	-
Stage 1	833	735	-	-	-	-	-	-	-
Stage 2	579	516	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	373	0	876	1021	-	-	1410	-	-
Mov Capacity-2 Maneuver	373	0	-	-	-	-	-	-	-
Stage 1	820	0	-	-	-	-	-	-	-
Stage 2	579	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1021	-	-	526	876	1410	-	-
HCM Lane V/C Ratio	0.016	-	-	0.734	0.447	-	-	-
HCM Control Delay (s)	8.583	-	-	28.4	12.4	0	-	-
HCM Lane LOS	A			D	B	A		
HCM 95th %tile Q(veh)	0.049	-	-	6.122	2.332	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	50	100	50	645	500	140
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	150	-	-	-	-
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	54	109	54	701	543	152

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1079	348	696	0	-	0
Stage 1	620	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	213	648	896	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	192	648	896	-	-	-
Mov Capacity-2 Maneuver	192	-	-	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	1	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	896	-	192	648	-	-
HCM Lane V/C Ratio	0.061	-	0.283	0.168	-	-
HCM Control Delay (s)	9.277	0.4	31	11.7	-	-
HCM Lane LOS	A	A	D	B		
HCM 95th %tile Q(veh)	0.193	-	1.113	0.599	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	440	255	10	5	150	50	10	10	10	40	10	100
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	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Cap, veh/h	837	1105	44	485	318	105	381	108	108	386	235	608
Arrive On Green	0.26	0.62	0.62	0.24	0.24	0.24	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1774	1780	71	1087	1340	444	1266	856	856	1384	1863	1583
Grp Volume(v), veh/h	478	0	288	5	0	217	11	0	22	43	11	109
Grp Sat Flow(s),veh/h/ln	1774	1863	1850	1087	1863	1784	1266	1863	1712	1384	1863	1583
Q Serve(g_s), s	5.2	0.0	2.2	0.1	0.0	3.3	0.2	0.0	0.4	0.9	0.2	1.4
Cycle Q Clear(g_c), s	5.2	0.0	2.2	0.1	0.0	3.3	0.4	0.0	0.4	1.3	0.2	1.4
Prop In Lane	1.00		0.04	1.00		0.25	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	837	0	1149	485	0	424	381	0	216	386	235	608
V/C Ratio(X)	0.57	0.00	0.25	0.01	0.00	0.51	0.03	0.00	0.10	0.11	0.05	0.18
Avail Cap(c_a), veh/h	1276	0	2103	776	0	901	860	0	865	911	941	1207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.0	0.0	2.7	9.3	0.0	10.5	12.3	0.0	12.2	12.8	12.2	6.5
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.0	0.0	1.0	0.0	0.0	0.2	0.1	0.1	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 Back of Q (50%), veh/ln	1.3	0.0	0.6	0.0	0.0	1.3	0.1	0.0	0.1	0.3	0.1	0.4
Lane Grp Delay (d), s/veh	5.6	0.0	2.8	9.3	0.0	11.4	12.4	0.0	12.5	12.9	12.2	6.6
Lane Grp LOS	A		A	A		B	B		B	B	B	A
Approach Vol, veh/h		766			222			33			163	
Approach Delay, s/veh		4.6			11.4			12.4			8.7	
Approach LOS		A			B			B			A	

Timer												
Assigned Phs	7	4			8			2			6	
Phs Duration (G+Y+Rc), s	12.2	23.7			11.5			8.0			8.0	
Change Period (Y+Rc), s	4.0	4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s	16.0	36.0			16.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s	7.2	4.2			5.3			2.4			3.4	
Green Ext Time (p_c), s	1.1	3.3			2.3			0.5			0.5	

Intersection Summary			
HCM 2010 Ctrl Delay		6.6	
HCM 2010 LOS		A	

Notes

Intersection	
Intersection Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	155	15	115	70	5	85
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	168	16	125	76	5	92

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	266	163	0	0	201	0
Stage 1	163	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	723	882	-	-	1371	-
Stage 1	866	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	720	882	-	-	1371	-
Mov Capacity-2 Maneuver	720	-	-	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	917	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	732	1371	-
HCM Lane V/C Ratio	-	-	0.252	0.004	-
HCM Control Delay (s)	-	-	11.6	7.636	0
HCM Lane LOS			B	A	A
HCM 95th %tile Q(veh)	-	-	0.998	0.012	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	4.2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	45	25	35	5	5	5	20	125	5	80	300	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	150	-	-
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	49	27	38	5	5	5	22	136	5	87	326	5

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	690	687	139	718	688	329	332	0	0	141	0	0
Stage 1	182	182	-	503	503	-	-	-	-	-	-	-
Stage 2	508	505	-	215	185	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	359	370	909	344	369	712	1227	-	-	1442	-	-
Stage 1	820	749	-	551	541	-	-	-	-	-	-	-
Stage 2	547	540	-	787	747	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	331	341	909	291	341	712	1227	-	-	1442	-	-
Mov Capacity-2 Maneuver	331	341	-	291	341	-	-	-	-	-	-	-
Stage 1	805	736	-	541	508	-	-	-	-	-	-	-
Stage 2	505	507	-	713	734	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	17	15	1	2

Minor Lane / Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1227	-	-	424	386	1442	-	-
HCM Lane V/C Ratio	0.018	-	-	0.269	0.042	0.06	-	-
HCM Control Delay (s)	7.987	-	-	16.6	14.7	7.657	-	-
HCM Lane LOS	A			C	B	A		
HCM 95th %tile Q(veh)	0.054	-	-	1.075	0.132	0.192	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR	NEL	NER
Vol, veh/h	0	0	310	405	0	10	0	375
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	-	Free	-	None	-	-
Storage Length	-	-	0	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-	0	-
Grade, %	0	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	337	440	0	11	0	408

Major/Minor	Major2		Minor1		Major1	
Conflicting Flow All	413	0	769	207	337	0
Stage 1	-	-	410	-	-	-
Stage 2	-	-	359	-	-	-
Follow-up Headway	2.22	-	3.519	3.319	2.218	-
Pot Capacity-1 Maneuver	1142	-	353	800	1222	-
Stage 1	-	-	639	-	-	-
Stage 2	-	-	706	-	-	-
Time blocked-Platoon, %		-				-
Mov Capacity-1 Maneuver	1142	-	346	800	1222	-
Mov Capacity-2 Maneuver	-	-	346	-	-	-
Stage 1	-	-	639	-	-	-
Stage 2	-	-	693	-	-	-

Approach	WB	NB	NE
HCM Control Delay, s	0	13	0

Minor Lane / Major Mvmt	NEL	NER	NER2	NBLn1	WBL2	WBL	WBT
Capacity (veh/h)	1222	-	-	483	1142	-	-
HCM Lane V/C Ratio	-	-	-	0.045	0.01	-	-
HCM Control Delay (s)	0	-	-	12.8	8.183	0	-
HCM Lane LOS	A			B	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.141	0.029	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	185	315	5	195	10
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	75
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	11	201	342	5	212	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	348	0	-	0	467	174
Stage 1	-	-	-	-	345	-
Stage 2	-	-	-	-	122	-
Follow-up Headway	2.22	-	-	-	3.52	3.32
Pot Capacity-1 Maneuver	1208	-	-	-	525	839
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	890	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1208	-	-	-	520	839
Mov Capacity-2 Maneuver	-	-	-	-	520	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	881	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1208	-	-	-	520	839
HCM Lane V/C Ratio	0.009	-	-	-	0.408	0.013
HCM Control Delay (s)	8.007	0	-	-	16.6	9.3
HCM Lane LOS	A	A			C	A
HCM 95th %tile Q(veh)	0.027	-	-	-	1.964	0.039

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	205	0	405	15	0
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	-	-	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	223	0	440	16	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	0	0	440	0
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	440	-
Follow-up Headway	-	-	-	-	3.518	-
Pot Capacity-1 Maneuver	-	-	-	-	574	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	649	-
Time blocked-Platoon, %	-	-		-		
Mov Capacity-1 Maneuver	-	-	-	-	574	-
Mov Capacity-2 Maneuver	-	-	-	-	574	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	649	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	+

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

Notes

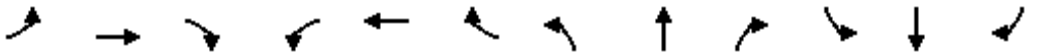
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	205	80	245	630	315	70	200	150	130	110	25
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	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	1	1	1	1	1	1	1
Cap, veh/h	322	1173	444	568	1695	720	569	725	616	449	725	616
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	547	2579	975	1065	3725	1583	1236	1863	1583	999	1863	1583
Grp Volume(v), veh/h	27	159	151	266	685	342	76	217	163	141	120	27
Grp Sat Flow(s),veh/h/ln	547	1863	1691	1065	1863	1583	1236	1863	1583	999	1863	1583
Q Serve(g_s), s	1.8	2.6	2.7	10.2	6.3	7.7	2.2	4.1	3.6	5.8	2.2	0.5
Cycle Q Clear(g_c), s	8.1	2.6	2.7	13.0	6.3	7.7	4.4	4.1	3.6	10.0	2.2	0.5
Prop In Lane	1.00		0.58	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	848	769	568	1695	720	569	725	616	449	725	616
V/C Ratio(X)	0.08	0.19	0.20	0.47	0.40	0.47	0.13	0.30	0.26	0.31	0.17	0.04
Avail Cap(c_a), veh/h	414	1160	1053	747	2320	986	569	725	616	449	725	616
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	12.0	8.3	8.4	12.3	9.3	9.7	11.7	10.8	10.7	14.3	10.2	9.7
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.6	0.2	0.5	0.5	1.1	1.0	1.8	0.5	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 Back of Q (50%), veh/ln	0.2	1.0	1.0	2.4	2.4	2.6	0.7	1.9	1.4	1.5	1.0	0.2
Lane Grp Delay (d), s/veh	12.2	8.4	8.5	12.9	9.5	10.2	12.2	11.9	11.7	16.1	10.7	9.9
Lane Grp LOS	B	A	A	B	A	B	B	B	B	B	B	A
Approach Vol, veh/h		337			1293			456			288	
Approach Delay, s/veh		8.8			10.4			11.9			13.3	
Approach LOS		A			B			B			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		27.4			27.4			24.0			24.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		32.0			32.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s		10.1			15.0			6.4			12.0	
Green Ext Time (p_c), s		9.5			8.4			2.8			2.2	

Intersection Summary												
HCM 2010 Ctrl Delay			10.8									
HCM 2010 LOS			B									

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	70	125	200	15	105	20	125	245	75	165	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	3508	
Flt Permitted	0.75	1.00	1.00	0.47	1.00	1.00	0.63	1.00	1.00	0.36	1.00	
Satd. Flow (perm)	1392	1863	1583	871	1863	1583	1178	1863	1583	673	3508	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	76	136	217	16	114	22	136	266	82	179	11
RTOR Reduction (vph)	0	0	114	0	0	62	0	0	154	0	6	0
Lane Group Flow (vph)	49	76	22	217	16	52	22	136	112	82	184	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	custom	Perm	NA	pm+ov	Perm	NA	
Protected Phases	7	4		3	8	1		2	3		6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	8.7	7.8	7.8	22.7	17.8	22.0	9.6	9.6	20.5	17.8	17.8	
Effective Green, g (s)	8.7	7.8	7.8	22.7	17.8	22.0	9.6	9.6	20.5	17.8	17.8	
Actuated g/C Ratio	0.18	0.16	0.16	0.47	0.37	0.45	0.20	0.20	0.42	0.37	0.37	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	256	299	254	609	683	848	233	368	799	246	1287	
v/s Ratio Prot	0.00	0.04		c0.08	0.01	0.01		0.07	0.03		0.05	
v/s Ratio Perm	0.03		0.01	c0.09		0.03	0.02		0.04	c0.12		
v/c Ratio	0.19	0.25	0.09	0.36	0.02	0.06	0.09	0.37	0.14	0.33	0.14	
Uniform Delay, d1	16.8	17.8	17.3	8.0	9.8	7.4	15.9	16.8	8.6	11.1	10.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	0.1	0.4	0.0	0.0	0.2	0.6	0.1	0.8	0.1	
Delay (s)	17.2	18.3	17.5	8.4	9.8	7.5	16.1	17.5	8.7	11.9	10.3	
Level of Service	B	B	B	A	A	A	B	B	A	B	B	
Approach Delay (s)		17.6			8.1			11.9			10.8	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	48.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	105	0	310	20	105	0	0	255	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	250	-	-	-	-	-
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	0	0	0	114	0	337	22	114	0	0	277	49

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	460	484	114	326	0	0	114	0	0
Stage 1	158	158	-	-	-	-	-	-	-
Stage 2	302	326	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	559	483	939	1234	-	-	1475	-	-
Stage 1	871	767	-	-	-	-	-	-	-
Stage 2	750	648	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	549	0	939	1234	-	-	1475	-	-
Mov Capacity-2 Maneuver	549	0	-	-	-	-	-	-	-
Stage 1	855	0	-	-	-	-	-	-	-
Stage 2	750	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1234	-	-	549	939	1475	-	-
HCM Lane V/C Ratio	0.018	-	-	0.208	0.359	-	-	-
HCM Control Delay (s)	7.97	-	-	13.3	11	0	-	-
HCM Lane LOS	A			B	B	A		
HCM 95th %tile Q(veh)	0.054	-	-	0.776	1.643	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	0	15	0	0	0	0	105	25	100	260	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
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	22	0	16	0	0	0	0	114	27	109	283	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	628	641	283			283	0	0	141	0	0
Stage 1	500	500	-			-	-	-	-	-	-
Stage 2	128	141	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	447	393	756			1279	-	-	1442	-	-
Stage 1	609	543	-			-	-	-	-	-	-
Stage 2	898	780	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	413	0	756			1279	-	-	1442	-	-
Mov Capacity-2 Maneuver	413	0	-			-	-	-	-	-	-
Stage 1	563	0	-			-	-	-	-	-	-
Stage 2	898	0	-			-	-	-	-	-	-

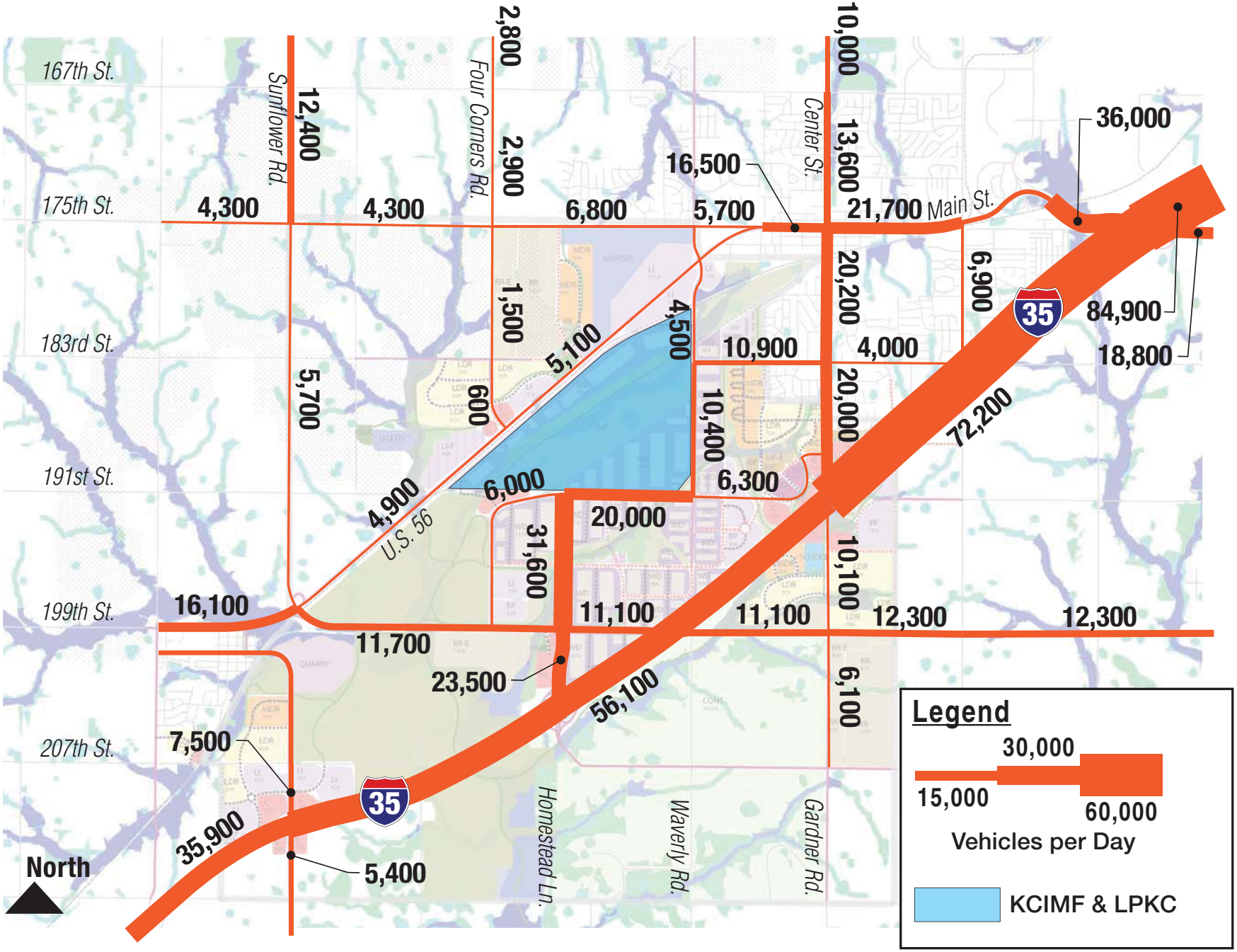
Approach	EB	NB	SB
HCM Control Delay, s	13	0	2

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1279	-	-	513	1442	-	-
HCM Lane V/C Ratio	-	-	-	0.074	0.075	-	-
HCM Control Delay (s)	0	-	-	12.6	7.7	-	-
HCM Lane LOS	A			B	A		
HCM 95th %tile Q(veh)	0	-	-	0.239	0.244	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

2040 Total Traffic - Preferred Alternative



MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
US 56 and Sunflower/199th Street

Major Street: US 56 Critical Approach Speed: 40 MPH
Minor Street: Sunflower/199th Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~V~~	R	~~V~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	~~350~~ (280)	~~600~~ (480)	420 (336)	1135	1065	996	926	857	787	718	648	US 56
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	540	507	474	441	408	375	341	308	Sunflower/199th Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	~~V~~	R	~~V~~	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	~~525~~ (420)	~~900~~ (720)	630 (504)	1135	1065	996	926	857	787	718	648	US 56
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	540	507	474	441	408	375	341	308	Sunflower/199th Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	1135	1065	996	926	US 56
Highest Apprch. Minor Street	540	507	474	441	Sunflower/199th Street

MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
Gardner Road and I-35 NB Ramps

Major Street: Gardner Road — Critical Approach Speed: 40 MPH
Minor Street: I-35 NB Ramps — Critical Approach Speed: 35 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1: U	1: R	2 or more: U	2 or more: R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~500~~ (400)	350 (280)	~~600~~ (480)	~~420~~ (336)	1570	1474	1378	1281	1185	1089	993	896	Gardner Road
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	135	127	118	110	102	94	85	77	I-35 NB Ramps

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1: U	1: R	2 or more: U	2 or more: R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~750~~ (600)	525 (420)	~~900~~ (720)	~~630~~ (504)	1570	1474	1378	1281	1185	1089	993	896	Gardner Road
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	135	127	118	110	102	94	85	77	I-35 NB Ramps

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	1570	1474	1378	1281	Gardner Road
Highest Apprch. Minor Street	135	127	118	110	I-35 NB Ramps

MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
Gardner Road and I-35 SB Ramps

Major Street: Gardner Road — Critical Approach Speed: 40 MPH
Minor Street: I-35 SB Ramps — Critical Approach Speed: 35 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1: U	1: R	2 or more: U	2 or more: R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~500~~ (400)	350 (280)	~~600~~ (480)	~~420~~ (336)	1360	1277	1193	1110	1027	943	860	777	Gardner Road
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	960	901	842	783	725	666	607	548	I-35 SB Ramps

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1: U	1: R	2 or more: U	2 or more: R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~750~~ (600)	525 (420)	~~900~~ (720)	~~630~~ (504)	1360	1277	1193	1110	1027	943	860	777	Gardner Road
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	960	901	842	783	725	666	607	548	I-35 SB Ramps

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	1360	1277	1193	1110	Gardner Road
Highest Apprch. Minor Street	960	901	842	783	I-35 SB Ramps

MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
Gardner Road and 191st Street

Major Street: Gardner Road Critical Approach Speed: 40 MPH
Minor Street: 191st Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	~~350~~ (280)	~~600~~ (480)	420 (336)	1920	1802	1685	1567	1449	1332	1214	1096	Gardner Road
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	620	582	544	506	468	430	392	354	191st Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	~~525~~ (420)	~~900~~ (720)	630 (504)	1920	1802	1685	1567	1449	1332	1214	1096	Gardner Road
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	620	582	544	506	468	430	392	354	191st Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	1920	1802	1685	1567	Gardner Road
Highest Apprch. Minor Street	620	582	544	506	191st Street

MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
191st Street and Waverly Road

Major Street: 191st Street — Critical Approach Speed: 40 MPH
Minor Street: Waverly Road — Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 2 or more	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 2 or more	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~500~~ (400)	~~350~~ (280)	~~600~~ (480)	420 (336)	1320	1239	1158	1077	996	916	835	754	191st Street
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	475	446	417	388	359	329	300	271	Waverly Road

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 2 or more	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 2 or more	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~750~~ (600)	~~525~~ (420)	~~900~~ (720)	630 (504)	1320	1239	1158	1077	996	916	835	754	191st Street
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	475	446	417	388	359	329	300	271	Waverly Road

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	1320	1239	1158	1077	191st Street
Highest Apprch. Minor Street	475	446	417	388	Waverly Road

MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
Waverly Road and 183rd Street

Major Street: Waverly Road Critical Approach Speed: 40 MPH
Minor Street: 183rd Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or more U	2 or more R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~500~~ (400)	350 (280)	~~600~~ (480)	~~420~~ (336)	625	587	548	510	472	433	395	357	Waverly Road
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	200	188	175	163	151	139	126	114	183rd Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or more U	2 or more R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~750~~ (600)	525 (420)	~~900~~ (720)	~~630~~ (504)	625	587	548	510	472	433	395	357	Waverly Road
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	200	188	175	163	151	139	126	114	183rd Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	625	587	548	510	Waverly Road
Highest Apprch. Minor Street	200	188	175	163	183rd Street

MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
US 56 and Waverly Road

Major Street: US 56 Critical Approach Speed: 40 MPH
Minor Street: Waverly Road Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 2 or more	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 2 or more	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~500~~ (400)	350 (280)	~~600~~ (480)	~~420~~ (336)	725	681	636	592	547	503	458	414	US 56
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	255	239	224	208	192	177	161	146	Waverly Road

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 1	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U: 2 or more	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) R: 2 or more	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
Both Apprchs. Major Street	~~750~~ (600)	525 (420)	~~900~~ (720)	~~630~~ (504)	725	681	636	592	547	503	458	414	US 56
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	255	239	224	208	192	177	161	146	Waverly Road

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	725	681	636	592	US 56
Highest Apprch. Minor Street	255	239	224	208	Waverly Road

MUTCD Volume-based Warrant Evaluation - 2040 Preferred Traffic
US-56 and Santa Fe Street

Major Street: US-56 Critical Approach Speed: 40 MPH
Minor Street: Santa Fe Street Critical Approach Speed: 40 MPH

Classified as Rural Intersection (R)

WARRANT 1 - Condition A, Minimum Vehicular Volume

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	U	R	U	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~500~~ (400)	350 (280)	~~600~~ (480)	~~420~~ (336)	1060	995	930	865	800	735	670	605	US-56
Highest Apprch. Minor Street	~~150~~ (120)	105 (84)	~~200~~ (160)	~~140~~ (112)	490	460	430	400	370	340	310	280	Santa Fe Street

WARRANT 1, Condition B - Interruption of Continuous Traffic

100 % Satisfied	YES	NO
80% Satisfied	YES	NO

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest	
	U	R	U	R									
APPROACH LANES	1		2 or more										
Both Apprchs. Major Street	~~750~~ (600)	525 (420)	~~900~~ (720)	~~630~~ (504)	1060	995	930	865	800	735	670	605	US-56
Highest Apprch. Minor Street	~~75~~ (60)	53 (42)	~~100~~ (80)	~~70~~ (56)	490	460	430	400	370	340	310	280	Santa Fe Street

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

	Peak Hour	2nd Highest	3rd Highest	4th Highest	
Both Apprchs. Major Street	1060	995	930	865	US-56
Highest Apprch. Minor Street	490	460	430	400	Santa Fe Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	390	450	70	120	10	300	80	40	10	110	10
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	0	1	1	0	1	1	0
Cap, veh/h	597	779	1022	288	709	60	403	403	199	315	212	19
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.23	0.34	0.34	0.01	0.13	0.13
Sat Flow, veh/h	1243	1863	1583	609	1694	143	1774	1178	582	1774	1681	154
Grp Volume(v), veh/h	11	424	489	76	0	141	326	0	130	11	0	131
Grp Sat Flow(s),veh/h/ln	1243	1863	1583	609	1863	1837	1774	1863	1760	1774	1863	1836
Q Serve(g_s), s	0.3	9.0	8.3	5.6	0.0	2.5	9.1	0.0	2.8	0.3	0.0	3.5
Cycle Q Clear(g_c), s	2.8	9.0	8.3	14.6	0.0	2.5	9.1	0.0	2.8	0.3	0.0	3.5
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.33	1.00		0.08
Lane Grp Cap(c), veh/h	597	779	1022	288	0	769	403	0	601	315	0	231
V/C Ratio(X)	0.02	0.54	0.48	0.26	0.00	0.18	0.81	0.00	0.22	0.03	0.00	0.57
Avail Cap(c_a), veh/h	858	1171	1355	416	0	1155	946	0	1375	430	0	594
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	10.5	11.5	4.8	17.0	0.0	9.6	19.2	0.0	12.3	19.7	0.0	21.6
Incr Delay (d2), s/veh	0.0	0.6	0.3	0.5	0.0	0.1	3.9	0.0	0.2	0.0	0.0	2.2
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 Back of Q (50%), veh/ln	0.1	3.8	2.2	0.8	0.0	1.0	4.1	0.0	1.1	0.1	0.0	1.6
Lane Grp Delay (d), s/veh	10.5	12.1	5.1	17.5	0.0	9.7	23.1	0.0	12.5	19.7	0.0	23.8
Lane Grp LOS	B	B	A	B		A	C		B	B		C
Approach Vol, veh/h		924			217			456			142	
Approach Delay, s/veh		8.4			12.4			20.1			23.5	
Approach LOS		A			B			C			C	

Timer												
Assigned Phs		4			8		5	2		1	6	
Phs Duration (G+Y+Rc), s		26.0			26.0		15.9	21.9		4.6	10.6	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s		33.0			33.0		28.0	41.0		4.0	17.0	
Max Q Clear Time (g_c+I1), s		11.0			16.6		11.1	4.8		2.3	5.5	
Green Ext Time (p_c), s		5.9			5.3		0.9	1.6		0.0	1.1	

Intersection Summary		
HCM 2010 Ctrl Delay		13.2
HCM 2010 LOS		B

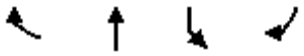
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	65	540	220	145	275	120	40	835	175	175	1760	265
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Cap, veh/h	294	672	332	206	716	0	152	1904	900	420	2048	871
Arrive On Green	0.05	0.18	0.00	0.06	0.19	0.00	0.03	0.51	0.00	0.07	0.55	0.00
Sat Flow, veh/h	1774	3725	1583	1774	3725	0	1774	3725	1583	1774	3725	1583
Grp Volume(v), veh/h	71	587	0	158	299	0	43	908	0	190	1913	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.8	13.4	0.0	5.0	6.2	0.0	1.0	13.8	0.0	3.8	41.5	0.0
Cycle Q Clear(g_c), s	2.8	13.4	0.0	5.0	6.2	0.0	1.0	13.8	0.0	3.8	41.5	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	672	332	206	716	0	152	1904	900	420	2048	871
V/C Ratio(X)	0.24	0.87	0.00	0.77	0.42	0.00	0.28	0.48	0.00	0.45	0.93	0.00
Avail Cap(c_a), veh/h	294	682	337	206	725	0	181	1904	900	502	2088	888
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.5	34.9	0.0	31.1	31.0	0.0	19.5	13.8	0.0	9.4	18.2	0.0
Incr Delay (d2), s/veh	0.4	12.0	0.0	15.8	0.4	0.0	1.0	0.2	0.0	0.8	8.4	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 Back of Q (50%), veh/ln	1.3	7.4	0.0	0.9	2.9	0.0	1.0	6.0	0.0	1.5	20.2	0.0
Lane Grp Delay (d), s/veh	27.9	46.9	0.0	47.0	31.4	0.0	20.5	14.0	0.0	10.2	26.6	0.0
Lane Grp LOS	C	D		D	C		C	B		B	C	
Approach Vol, veh/h		658			457			951			2103	
Approach Delay, s/veh		44.8			36.8			14.3			25.1	
Approach LOS		D			D			B			C	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	8.0	19.8		9.0	20.8		6.6	48.7		10.0	52.1	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	4.0	16.0		5.0	17.0		4.0	43.0		10.0	49.0	
Max Q Clear Time (g_c+I1), s	4.8	15.4		7.0	8.2		3.0	15.8		5.8	43.5	
Green Ext Time (p_c), s	0.0	0.4		0.0	3.8		0.0	23.8		0.2	4.5	

Intersection Summary		
HCM 2010 Ctrl Delay		27.0
HCM 2010 LOS		C

Notes



Movement	WBR	NBT	SBL	SBR
Lane Configurations				
Volume (vph)	740	385	1710	485
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.97	1.00
Frt	0.86	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1611	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1611	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	804	418	1859	527
RTOR Reduction (vph)	0	0	0	117
Lane Group Flow (vph)	804	418	1859	410
Turn Type	Free	NA	Prot	custom
Protected Phases		3	6	
Permitted Phases	Free			6
Actuated Green, G (s)	130.0	20.8	101.2	101.2
Effective Green, g (s)	130.0	20.8	101.2	101.2
Actuated g/C Ratio	1.00	0.16	0.78	0.78
Clearance Time (s)		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)	1611	566	2672	1232
v/s Ratio Prot		c0.12	c0.54	
v/s Ratio Perm	0.50			0.26
v/c Ratio	0.50	0.74	0.70	0.33
Uniform Delay, d1	0.0	52.0	7.0	4.3
Progression Factor	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	5.0	1.5	0.7
Delay (s)	1.1	57.2	8.5	5.0
Level of Service	A	E	A	A
Approach Delay (s)		57.2		
Approach LOS		E		

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBR	NBL	NBR	SBT
Lane Configurations				
Volume (vph)	25	80	115	75
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.97	1.00	1.00
Frt	0.86	1.00	0.85	1.00
Flt Protected	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1611	3433	1583	1863
Flt Permitted	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1611	3433	1583	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	87	125	82
RTOR Reduction (vph)	4	0	18	0
Lane Group Flow (vph)	23	87	107	82
Turn Type	custom	Prot	custom	NA
Protected Phases		2		3
Permitted Phases	6		2	
Actuated Green, G (s)	110.9	110.9	110.9	11.1
Effective Green, g (s)	110.9	110.9	110.9	11.1
Actuated g/C Ratio	0.85	0.85	0.85	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1374	2928	1350	159
v/s Ratio Prot		0.03		c0.04
v/s Ratio Perm	0.01		c0.07	
v/c Ratio	0.02	0.03	0.08	0.52
Uniform Delay, d1	1.4	1.4	1.5	56.9
Progression Factor	1.00	1.00	1.00	0.98
Incremental Delay, d2	0.0	0.0	0.1	2.0
Delay (s)	1.4	1.5	1.6	57.7
Level of Service	A	A	A	E
Approach Delay (s)				57.7
Approach LOS				E

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	13.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	125	0	10	0	0	0	0	200	265	665	215	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		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
Adj Sat Flow veh/h/ln	186.3	186.3	190.0				0.0	186.3	186.3	186.3	186.3	0.0
Lanes	1	1	0				0	1	1	1	1	0
Cap, veh/h	175	0	156				0	615	523	754	1498	0
Arrive On Green	0.10	0.00	0.10				0.00	0.33	0.33	0.71	1.00	0.00
Sat Flow, veh/h	1774	0	1583				0	1863	1583	1774	1863	0
Grp Volume(v), veh/h	136	0	11				0	217	288	723	234	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583				0	1863	1583	1774	1863	0
Q Serve(g_s), s	6.1	0.0	0.5				0.0	7.2	12.2	30.4	0.0	0.0
Cycle Q Clear(g_c), s	6.1	0.0	0.5				0.0	7.2	12.2	30.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	175	0	156				0	615	523	754	1498	0
V/C Ratio(X)	0.78	0.00	0.07				0.00	0.35	0.55	0.96	0.16	0.00
Avail Cap(c_a), veh/h	346	0	309				0	615	523	1059	1498	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.67	1.67	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.76	0.76	0.00
Uniform Delay (d), s/veh	36.1	0.0	33.6				0.0	20.8	22.5	11.3	0.0	0.0
Incr Delay (d2), s/veh	7.3	0.0	0.2				0.0	1.6	4.1	12.6	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 Back of Q (50%), veh/ln	3.1	0.0	0.2				0.0	3.5	5.2	10.2	0.1	0.0
Lane Grp Delay (d), s/veh	43.4	0.0	33.8				0.0	22.4	26.6	23.9	0.2	0.0
Lane Grp LOS	D		C					C	C	C	A	
Approach Vol, veh/h		147						505			957	
Approach Delay, s/veh		42.7						24.8			18.1	
Approach LOS		D						C			B	

Timer												
Assigned Phs		4						2		1	6	
Phs Duration (G+Y+Rc), s		12.1						31.1		38.9	70.0	
Change Period (Y+Rc), s		4.0						4.0		4.0	4.0	
Max Green Setting (Gmax), s		16.0						13.0		49.0	66.0	
Max Q Clear Time (g_c+I1), s		8.1						14.2		32.4	2.0	
Green Ext Time (p_c), s		0.2						0.0		2.5	4.1	

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	60	0	210	25	300	0	0	820	25
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		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
Adj Sat Flow veh/h/ln				190.0	186.3	186.3	186.3	186.3	0.0	0.0	186.3	186.3
Lanes				0	1	1	1	1	0	0	1	1
Cap, veh/h				84	0	75	39	1597	0	0	1466	1246
Arrive On Green				0.05	0.00	0.00	0.01	0.28	0.00	0.00	0.79	0.79
Sat Flow, veh/h				1774	0	1583	1774	1863	0	0	1863	1583
Grp Volume(v), veh/h				65	0	0	27	326	0	0	891	27
Grp Sat Flow(s),veh/h/ln				1774	1863	1583	1774	1863	0	0	1863	1583
Q Serve(g_s), s				3.0	0.0	0.0	1.3	11.2	0.0	0.0	16.4	0.3
Cycle Q Clear(g_c), s				3.0	0.0	0.0	1.3	11.2	0.0	0.0	16.4	0.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				84	0	75	39	1597	0	0	1466	1246
V/C Ratio(X)				0.77	0.00	0.00	0.68	0.20	0.00	0.00	0.61	0.02
Avail Cap(c_a), veh/h				211	0	188	84	1597	0	0	1466	1246
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	0.00	0.85	0.85	0.00	0.00	0.90	0.90
Uniform Delay (d), s/veh				39.5	0.0	0.0	41.4	8.3	0.0	0.0	3.6	1.9
Incr Delay (d2), s/veh				13.6	0.0	0.0	16.3	0.2	0.0	0.0	1.7	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 Back of Q (50%), veh/ln				1.7	0.0	0.0	0.8	6.1	0.0	0.0	5.9	0.1
Lane Grp Delay (d), s/veh				53.1	0.0	0.0	57.7	8.6	0.0	0.0	5.3	2.0
Lane Grp LOS				D			E	A			A	A
Approach Vol, veh/h					65			353			918	
Approach Delay, s/veh					53.1			12.3			5.2	
Approach LOS					D			B			A	

Timer												
Assigned Phs					8		5	2			6	
Phs Duration (G+Y+Rc), s					8.0		5.9	76.0			70.1	
Change Period (Y+Rc), s					4.0		4.0	4.0			4.0	
Max Green Setting (Gmax), s					10.0		4.0	72.0			64.0	
Max Q Clear Time (g_c+I1), s					5.0		3.3	13.2			18.4	
Green Ext Time (p_c), s					0.1		0.0	13.0			12.5	

Intersection Summary		
HCM 2010 Ctrl Delay	9.4	
HCM 2010 LOS	A	

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	130	230	205	305	615	175
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	1	2	2	0
Cap, veh/h	317	283	527	2724	1709	486
Arrive On Green	0.18	0.18	0.15	1.00	0.61	0.61
Sat Flow, veh/h	1774	1583	1774	3725	2792	794
Grp Volume(v), veh/h	141	250	223	332	446	412
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1723
Q Serve(g_s), s	6.3	13.7	4.0	0.0	10.8	10.9
Cycle Q Clear(g_c), s	6.3	13.7	4.0	0.0	10.8	10.9
Prop In Lane	1.00	1.00	1.00			0.46
Lane Grp Cap(c), veh/h	317	283	527	2724	1140	1054
V/C Ratio(X)	0.44	0.88	0.42	0.12	0.39	0.39
Avail Cap(c_a), veh/h	339	303	1014	2724	1140	1054
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	32.6	35.6	5.3	0.0	8.8	8.8
Incr Delay (d2), s/veh	1.0	24.0	0.5	0.1	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.9	1.9	1.3	0.0	4.8	4.4
Lane Grp Delay (d), s/veh	33.5	59.6	5.8	0.1	9.8	9.9
Lane Grp LOS	C	E	A	A	A	A
Approach Vol, veh/h	391			555	858	
Approach Delay, s/veh	50.2			2.4	9.8	
Approach LOS	D			A	A	

Timer			
Assigned Phs	5	2	6
Phs Duration (G+Y+Rc), s	10.6	69.0	58.4
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	31.0	65.0	30.0
Max Q Clear Time (g_c+I1), s	6.0	2.0	12.9
Green Ext Time (p_c), s	0.6	10.6	7.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	375	225	5	5	135	65	5	5	5	120	5	350
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	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Cap, veh/h	483	957	20	332	222	107	456	290	290	590	630	967
Arrive On Green	0.27	0.53	0.53	0.19	0.19	0.19	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	1819	37	1125	1188	574	994	856	856	1399	1863	1583
Grp Volume(v), veh/h	408	0	250	5	0	218	5	0	10	130	5	380
Grp Sat Flow(s),veh/h/ln	1774	1863	1856	1125	1863	1762	994	1863	1712	1399	1863	1583
Q Serve(g_s), s	12.9	0.0	4.4	0.2	0.0	6.8	0.2	0.0	0.2	4.0	0.1	7.3
Cycle Q Clear(g_c), s	12.9	0.0	4.4	0.2	0.0	6.8	0.3	0.0	0.2	4.3	0.1	7.3
Prop In Lane	1.00		0.02	1.00		0.33	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	483	0	977	332	0	329	456	0	579	590	630	967
V/C Ratio(X)	0.84	0.00	0.26	0.02	0.00	0.66	0.01	0.00	0.02	0.22	0.01	0.39
Avail Cap(c_a), veh/h	1110	0	1947	521	0	626	456	0	579	590	630	967
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	7.7	19.6	0.0	22.3	13.1	0.0	13.0	14.4	13.0	5.9
Incr Delay (d2), s/veh	4.1	0.0	0.1	0.0	0.0	2.3	0.0	0.0	0.1	0.9	0.0	1.2
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 Back of Q (50%), veh/ln	6.0	0.0	1.7	0.1	0.0	3.1	0.1	0.0	0.1	1.4	0.0	2.5
Lane Grp Delay (d), s/veh	24.5	0.0	7.8	19.7	0.0	24.6	13.1	0.0	13.1	15.3	13.0	7.1
Lane Grp LOS	C		A	B		C	B		B	B	B	A
Approach Vol, veh/h		658			223			15			515	
Approach Delay, s/veh		18.1			24.5			13.1			9.2	
Approach LOS		B			C			B			A	

Timer												
Assigned Phs	7	4			8			2			6	
Phs Duration (G+Y+Rc), s	20.1	35.1			15.0			24.0			24.0	
Change Period (Y+Rc), s	4.0	4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s	37.0	62.0			21.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	14.9	6.4			8.8			2.3			9.3	
Green Ext Time (p_c), s	1.3	3.2			2.2			1.7			1.5	

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	8.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	270	20	210	195	15	205
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	293	22	228	212	16	223

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	589	334	0	0	440	0
Stage 1	334	-	-	-	-	-
Stage 2	255	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	471	708	-	-	1120	-
Stage 1	725	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	463	708	-	-	1120	-
Mov Capacity-2 Maneuver	463	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26	0	1

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	474	1120	-
HCM Lane V/C Ratio	-	-	0.665	0.015	-
HCM Control Delay (s)	-	-	26.4	8.262	0
HCM Lane LOS			D	A	A
HCM 95th %tile Q(veh)	-	-	4.797	0.044	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	65	95	95	10	60	10	80	290	150	85	110	10
Number	5	2	12	1	6	16	7	4	14	3	8	18
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	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	516	204	204	403	371	63	809	566	293	517	822	75
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1318	856	856	1171	1553	263	1254	1158	599	913	1681	154
Grp Volume(v), veh/h	71	0	206	11	0	76	87	0	478	92	0	131
Grp Sat Flow(s),veh/h/ln	1318	1863	1712	1171	1863	1816	1254	1863	1757	913	1863	1836
Q Serve(g_s), s	1.3	0.0	3.1	0.2	0.0	1.0	1.2	0.0	5.6	2.3	0.0	1.2
Cycle Q Clear(g_c), s	2.3	0.0	3.1	3.3	0.0	1.0	2.4	0.0	5.6	7.9	0.0	1.2
Prop In Lane	1.00		0.50	1.00		0.14	1.00		0.34	1.00		0.08
Lane Grp Cap(c), veh/h	516	0	409	403	0	434	809	0	859	517	0	897
V/C Ratio(X)	0.14	0.00	0.50	0.03	0.00	0.18	0.11	0.00	0.56	0.18	0.00	0.15
Avail Cap(c_a), veh/h	1188	0	1282	1000	0	1360	1476	0	1794	1003	0	1874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.8	0.0	9.7	11.1	0.0	8.9	4.8	0.0	5.3	8.1	0.0	4.1
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.0	0.0	0.2	0.1	0.0	0.6	0.2	0.0	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 Back of Q (50%), veh/ln	0.4	0.0	1.1	0.1	0.0	0.4	0.3	0.0	1.7	0.4	0.0	0.3
Lane Grp Delay (d), s/veh	9.9	0.0	10.6	11.1	0.0	9.1	4.8	0.0	5.8	8.2	0.0	4.2
Lane Grp LOS	A		B	B		A	A		A	A		A
Approach Vol, veh/h		277			87			565			223	
Approach Delay, s/veh		10.5			9.3			5.7			5.9	
Approach LOS		B			A			A			A	

Timer												
Assigned Phs		2			6			4			8	
Phs Duration (G+Y+Rc), s		11.0			11.0			18.4			18.4	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		22.0			22.0			30.0			30.0	
Max Q Clear Time (g_c+I1), s		5.1			5.3			7.6			9.9	
Green Ext Time (p_c), s		1.7			1.7			4.6			4.5	

Intersection Summary												
HCM 2010 Ctrl Delay			7.1									
HCM 2010 LOS			A									

Notes

Intersection	
Intersection Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR	NEL	NER
Vol, veh/h	0	0	170	230	0	15	0	885
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	-	Free	-	None	-	-
Storage Length	-	-	0	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-	0	-
Grade, %	0	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	185	250	0	16	0	962

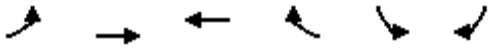
Major/Minor	Major2		Minor1		Major1	
Conflicting Flow All	973	0	1184	486	185	0
Stage 1	-	-	967	-	-	-
Stage 2	-	-	217	-	-	-
Follow-up Headway	2.22	-	3.519	3.319	2.218	-
Pot Capacity-1 Maneuver	704	-	195	528	1390	-
Stage 1	-	-	330	-	-	-
Stage 2	-	-	818	-	-	-
Time blocked-Platoon, %		-				-
Mov Capacity-1 Maneuver	704	-	189	528	1390	-
Mov Capacity-2 Maneuver	-	-	189	-	-	-
Stage 1	-	-	330	-	-	-
Stage 2	-	-	793	-	-	-

Approach	WB	NB	NE
HCM Control Delay, s	0	20	0

Minor Lane / Major Mvmt	NEL	NER	NER2	NBLn1	WBL2	WBL	WBT
Capacity (veh/h)	1390	-	-	278	704	-	-
HCM Lane V/C Ratio	-	-	-	0.117	0.023	-	-
HCM Control Delay (s)	0	-	-	19.7	10.235	0	-
HCM Lane LOS	A			C	B	A	
HCM 95th %tile Q(veh)	0	-	-	0.394	0.071	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	415	180	5	480	10
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	190.0	186.3	186.3
Lanes	1	2	2	0	1	1
Cap, veh/h	323	763	741	19	1142	1019
Arrive On Green	0.20	0.20	0.20	0.20	0.64	0.64
Sat Flow, veh/h	1177	3725	3617	92	1774	1583
Grp Volume(v), veh/h	11	451	101	100	522	11
Grp Sat Flow(s),veh/h/ln	1177	1863	1863	1847	1774	1583
Q Serve(g_s), s	0.4	5.8	2.4	2.4	7.8	0.1
Cycle Q Clear(g_c), s	2.8	5.8	2.4	2.4	7.8	0.1
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	323	763	381	378	1142	1019
V/C Ratio(X)	0.03	0.59	0.26	0.27	0.46	0.01
Avail Cap(c_a), veh/h	484	1270	635	629	1142	1019
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	19.0	17.7	17.7	4.7	3.4
Incr Delay (d2), s/veh	0.0	0.7	0.4	0.4	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	2.5	1.0	1.1	2.9	0.0
Lane Grp Delay (d), s/veh	18.9	19.7	18.0	18.0	6.1	3.4
Lane Grp LOS	B	B	B	B	A	A
Approach Vol, veh/h		462	201		533	
Approach Delay, s/veh		19.7	18.0		6.0	
Approach LOS		B	B		A	

Timer		
Assigned Phs	4	8
Phs Duration (G+Y+Rc), s	14.8	14.8
Change Period (Y+Rc), s	4.0	4.0
Max Green Setting (Gmax), s	18.0	18.0
Max Q Clear Time (g_c+I1), s	7.8	4.4
Green Ext Time (p_c), s	3.0	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	490	0	252	0	0
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	-	-	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	533	0	274	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	0	0	274	0
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	274	-
Follow-up Headway	-	-	-	-	3.518	-
Pot Capacity-1 Maneuver	-	-	-	-	716	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	772	-
Time blocked-Platoon, %	-	-		-		
Mov Capacity-1 Maneuver	-	-	-	-	716	-
Mov Capacity-2 Maneuver	-	-	-	-	716	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	772	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0

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

Notes

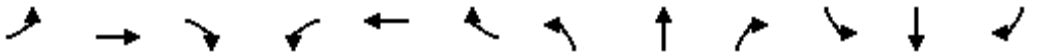
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	535	290	90	220	15	205	530	170	105	230	40
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	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	1	1	1	1	1	1	1
Cap, veh/h	550	960	519	260	1571	668	507	824	700	258	824	700
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1120	2277	1231	618	3725	1583	1082	1863	1583	702	1863	1583
Grp Volume(v), veh/h	76	476	421	98	239	16	223	576	185	114	250	43
Grp Sat Flow(s),veh/h/ln	1120	1863	1645	618	1863	1583	1082	1863	1583	702	1863	1583
Q Serve(g_s), s	2.6	11.7	11.7	8.6	2.3	0.3	9.8	14.7	4.3	9.2	5.1	0.9
Cycle Q Clear(g_c), s	5.0	11.7	11.7	20.3	2.3	0.3	14.9	14.7	4.3	23.9	5.1	0.9
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	550	785	694	260	1571	668	507	824	700	258	824	700
V/C Ratio(X)	0.14	0.61	0.61	0.38	0.15	0.02	0.44	0.70	0.26	0.44	0.30	0.06
Avail Cap(c_a), veh/h	573	824	728	273	1648	700	507	824	700	258	824	700
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	12.0	13.2	13.2	21.1	10.5	9.9	15.4	13.2	10.4	22.9	10.6	9.4
Incr Delay (d2), s/veh	0.1	1.2	1.3	0.9	0.0	0.0	2.8	4.9	0.9	5.4	0.9	0.2
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 Back of Q (50%), veh/ln	0.7	5.0	4.5	1.3	0.9	0.1	2.8	7.0	1.7	1.9	2.3	0.3
Lane Grp Delay (d), s/veh	12.2	14.4	14.6	22.0	10.6	9.9	18.1	18.1	11.3	28.3	11.5	9.6
Lane Grp LOS	B	B	B	C	B	A	B	B	B	C	B	A
Approach Vol, veh/h		973			353			984			407	
Approach Delay, s/veh		14.3			13.7			16.8			16.0	
Approach LOS		B			B			B			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		28.8			28.8			30.0			30.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		26.0			26.0			26.0			26.0	
Max Q Clear Time (g_c+I1), s		13.7			22.3			16.9			25.9	
Green Ext Time (p_c), s		6.4			2.5			4.8			0.1	

Intersection Summary												
HCM 2010 Ctrl Delay			15.4									
HCM 2010 LOS			B									

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	100	450	990	190	320	50	325	645	250	760	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	1863	1583	1770	3507	
Flt Permitted	0.63	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00	0.23	1.00	
Satd. Flow (perm)	1170	1863	1583	3433	1863	1583	305	1863	1583	438	3507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	109	489	1076	207	348	54	353	701	272	826	54
RTOR Reduction (vph)	0	0	42	0	0	60	0	0	142	0	4	0
Lane Group Flow (vph)	65	109	447	1076	207	288	54	353	559	272	876	0
Turn Type	Perm	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases		4	5	3	8	1	5	2	3	1	6	
Permitted Phases	4		4			8	2		2	6		
Actuated Green, G (s)	11.0	11.0	22.0	31.0	46.0	58.7	35.4	24.4	55.4	38.8	26.1	
Effective Green, g (s)	11.0	11.0	22.0	31.0	46.0	58.7	35.4	24.4	55.4	38.8	26.1	
Actuated g/C Ratio	0.12	0.12	0.23	0.33	0.48	0.62	0.37	0.26	0.58	0.41	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	135	215	432	1119	901	1043	282	477	988	356	962	
v/s Ratio Prot		0.06	c0.12	c0.31	0.11	0.04	0.02	0.19	0.18	c0.10	c0.25	
v/s Ratio Perm	0.06		0.16			0.14	0.05		0.17	0.21		
v/c Ratio	0.48	0.51	1.03	0.96	0.23	0.28	0.19	0.74	0.57	0.76	0.91	
Uniform Delay, d1	39.4	39.5	36.5	31.5	14.3	8.4	21.2	32.4	12.4	21.3	33.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.7	1.9	52.4	18.3	0.1	0.1	0.3	6.1	0.7	9.4	12.4	
Delay (s)	42.1	41.4	88.9	49.8	14.4	8.5	21.5	38.5	13.1	30.7	45.8	
Level of Service	D	D	F	D	B	A	C	D	B	C	D	
Approach Delay (s)		76.5			36.5			21.6			42.2	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	95.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	60	0	145	25	165	0	0	680	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	250	-	-	-	-	-
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	0	0	0	65	0	158	27	179	0	0	739	38

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	992	1011	179	777	0	0	179	0	0
Stage 1	234	234	-	-	-	-	-	-	-
Stage 2	758	777	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	272	240	864	839	-	-	1397	-	-
Stage 1	805	711	-	-	-	-	-	-	-
Stage 2	463	407	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	263	0	864	839	-	-	1397	-	-
Mov Capacity-2 Maneuver	263	0	-	-	-	-	-	-	-
Stage 1	779	0	-	-	-	-	-	-	-
Stage 2	463	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	839	-	-	263	864	1397	-	-
HCM Lane V/C Ratio	0.032	-	-	0.248	0.182	-	-	-
HCM Control Delay (s)	9.434	-	-	23.1	10.1	0	-	-
HCM Lane LOS	A			C	B	A		
HCM 95th %tile Q(veh)	0.1	-	-	0.953	0.664	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	40	0	30	0	0	0	0	150	170	240	500	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
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	43	0	33	0	0	0	0	163	185	261	543	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1320	1413	543			543	0	0	348	0	0
Stage 1	1065	1065	-			-	-	-	-	-	-
Stage 2	255	348	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	173	138	540			1026	-	-	1211	-	-
Stage 1	331	299	-			-	-	-	-	-	-
Stage 2	788	634	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	136	0	540			1026	-	-	1211	-	-
Mov Capacity-2 Maneuver	136	0	-			-	-	-	-	-	-
Stage 1	260	0	-			-	-	-	-	-	-
Stage 2	788	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34	0	3

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1026	-	-	200	1211	-	-
HCM Lane V/C Ratio	-	-	-	0.38	0.215	-	-
HCM Control Delay (s)	0	-	-	33.6	8.787	-	-
HCM Lane LOS	A			D	A		
HCM 95th %tile Q(veh)	0	-	-	1.663	0.818	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	230	430	75	370	10	500	40	80	10	70	10
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	0	1	1	0	1	1	0
Cap, veh/h	267	618	1084	298	599	16	626	242	490	273	155	22
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.35	0.44	0.44	0.01	0.10	0.10
Sat Flow, veh/h	969	1863	1583	731	1805	49	1774	551	1115	1774	1592	230
Grp Volume(v), veh/h	11	250	467	82	0	413	543	0	130	11	0	87
Grp Sat Flow(s),veh/h/ln	969	1863	1583	731	1863	1854	1774	1863	1666	1774	1863	1822
Q Serve(g_s), s	0.5	5.7	7.3	5.4	0.0	10.6	15.7	0.0	2.6	0.3	0.0	2.5
Cycle Q Clear(g_c), s	11.1	5.7	7.3	11.1	0.0	10.6	15.7	0.0	2.6	0.3	0.0	2.5
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.67	1.00		0.13
Lane Grp Cap(c), veh/h	267	618	1084	298	0	615	626	0	732	273	0	178
V/C Ratio(X)	0.04	0.40	0.43	0.28	0.00	0.67	0.87	0.00	0.18	0.04	0.00	0.49
Avail Cap(c_a), veh/h	402	879	1306	400	0	874	1159	0	1451	382	0	529
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	14.2	3.9	18.5	0.0	15.8	16.6	0.0	9.4	22.0	0.0	23.6
Incr Delay (d2), s/veh	0.1	0.4	0.3	0.5	0.0	1.3	3.8	0.0	0.1	0.1	0.0	2.1
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 Back of Q (50%), veh/ln	0.1	2.4	1.9	1.0	0.0	4.6	6.8	0.0	1.0	0.1	0.0	1.2
Lane Grp Delay (d), s/veh	20.7	14.6	4.2	19.0	0.0	17.1	20.4	0.0	9.5	22.1	0.0	25.7
Lane Grp LOS	C	B	A	B		B	C		A	C		C
Approach Vol, veh/h		728			495			673			98	
Approach Delay, s/veh		8.0			17.4			18.3			25.3	
Approach LOS		A			B			B			C	

Timer												
Assigned Phs		4			8		5	2		1	6	
Phs Duration (G+Y+Rc), s		22.3			22.3		23.5	28.2		4.6	9.4	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s		26.0			26.0		36.0	48.0		4.0	16.0	
Max Q Clear Time (g_c+I1), s		13.1			13.1		17.7	4.6		2.3	4.5	
Green Ext Time (p_c), s		5.2			5.2		1.7	1.4		0.0	0.9	

Intersection Summary		
HCM 2010 Ctrl Delay	14.7	
HCM 2010 LOS	B	

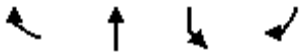
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	230	180	220	445	25	290	570	205	200	1095	205
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	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Cap, veh/h	248	493	408	384	802	0	382	1645	887	530	1535	652
Arrive On Green	0.04	0.13	0.00	0.12	0.22	0.00	0.13	0.44	0.00	0.10	0.41	0.00
Sat Flow, veh/h	1774	3725	1583	1774	3725	0	1774	3725	1583	1774	3725	1583
Grp Volume(v), veh/h	54	250	0	239	484	0	315	620	0	217	1190	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.0	4.7	0.0	7.5	8.9	0.0	7.0	8.4	0.0	5.2	20.9	0.0
Cycle Q Clear(g_c), s	2.0	4.7	0.0	7.5	8.9	0.0	7.0	8.4	0.0	5.2	20.9	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	493	408	384	802	0	382	1645	887	530	1535	652
V/C Ratio(X)	0.22	0.51	0.00	0.62	0.60	0.00	0.83	0.38	0.00	0.41	0.78	0.00
Avail Cap(c_a), veh/h	301	787	533	384	984	0	510	1918	1003	594	1672	711
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.1	30.6	0.0	19.3	26.8	0.0	14.9	14.2	0.0	10.8	19.2	0.0
Incr Delay (d2), s/veh	0.4	0.8	0.0	3.1	0.7	0.0	8.1	0.1	0.0	0.5	2.2	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	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.9	2.2	0.0	3.4	4.1	0.0	6.7	3.7	0.0	2.1	9.6	0.0
Lane Grp Delay (d), s/veh	27.5	31.4	0.0	22.4	27.5	0.0	23.0	14.3	0.0	11.3	21.4	0.0
Lane Grp LOS	C	C		C	C		C	B		B	C	
Approach Vol, veh/h		304			723			935			1407	
Approach Delay, s/veh		30.7			25.8			17.2			19.8	
Approach LOS		C			C			B			B	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	6.7	14.0		13.0	20.3		13.5	37.4		11.3	35.2	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	5.0	16.0		9.0	20.0		15.0	39.0		10.0	34.0	
Max Q Clear Time (g_c+I1), s	4.0	6.7		9.5	10.9		9.0	10.4		7.2	22.9	
Green Ext Time (p_c), s	0.0	3.3		0.0	3.3		0.5	16.4		0.2	8.3	

Intersection Summary			
HCM 2010 Ctrl Delay		21.4	
HCM 2010 LOS		C	

Notes



Movement	WBR	NBT	SBL	SBR
Lane Configurations				
Volume (vph)	885	210	1205	355
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.97	1.00
Frt	0.86	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1611	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1611	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	962	228	1310	386
RTOR Reduction (vph)	0	0	0	64
Lane Group Flow (vph)	962	228	1310	322
Turn Type	Free	NA	Prot	custom
Protected Phases		3	6	
Permitted Phases	Free			6
Actuated Green, G (s)	130.0	13.7	108.3	108.3
Effective Green, g (s)	130.0	13.7	108.3	108.3
Actuated g/C Ratio	1.00	0.11	0.83	0.83
Clearance Time (s)		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)	1611	372	2859	1318
v/s Ratio Prot		0.06	0.38	
v/s Ratio Perm	c0.60			0.20
v/c Ratio	0.60	0.61	0.46	0.24
Uniform Delay, d1	0.0	55.6	2.9	2.3
Progression Factor	1.00	0.99	1.00	1.00
Incremental Delay, d2	1.6	3.0	0.5	0.4
Delay (s)	1.6	57.9	3.5	2.7
Level of Service	A	E	A	A
Approach Delay (s)		57.9		
Approach LOS		E		

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBR	NBL	NBR	SBT
Lane Configurations				
Volume (vph)	25	75	55	190
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.97	1.00	1.00
Frt	0.86	1.00	0.85	1.00
Flt Protected	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1611	3433	1583	1863
Flt Permitted	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1611	3433	1583	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	82	60	207
RTOR Reduction (vph)	6	0	13	0
Lane Group Flow (vph)	21	82	47	207
Turn Type	custom	Prot	custom	NA
Protected Phases		2		3
Permitted Phases	6		2	
Actuated Green, G (s)	101.4	101.4	101.4	20.6
Effective Green, g (s)	101.4	101.4	101.4	20.6
Actuated g/C Ratio	0.78	0.78	0.78	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1256	2677	1234	295
v/s Ratio Prot		0.02		c0.11
v/s Ratio Perm	0.01		c0.03	
v/c Ratio	0.02	0.03	0.04	0.70
Uniform Delay, d1	3.2	3.2	3.2	51.8
Progression Factor	1.00	1.00	1.00	0.94
Incremental Delay, d2	0.0	0.0	0.1	6.7
Delay (s)	3.2	3.2	3.3	55.4
Level of Service	A	A	A	E
Approach Delay (s)				55.4
Approach LOS				E

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	65	0	30	0	0	0	0	185	60	360	475	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		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
Adj Sat Flow veh/h/ln	186.3	186.3	190.0				0.0	186.3	186.3	186.3	186.3	0.0
Lanes	1	1	0				0	1	1	1	1	0
Cap, veh/h	108	0	96				0	1004	853	432	1555	0
Arrive On Green	0.06	0.00	0.06				0.00	0.54	0.54	0.49	1.00	0.00
Sat Flow, veh/h	1774	0	1583				0	1863	1583	1774	1863	0
Grp Volume(v), veh/h	71	0	33				0	201	65	391	516	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583				0	1863	1583	1774	1863	0
Q Serve(g_s), s	3.0	0.0	1.5				0.0	4.3	1.5	15.5	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	1.5				0.0	4.3	1.5	15.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	108	0	96				0	1004	853	432	1555	0
V/C Ratio(X)	0.66	0.00	0.34				0.00	0.20	0.08	0.90	0.33	0.00
Avail Cap(c_a), veh/h	417	0	372				0	1004	853	879	1555	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.80	0.80	0.00
Uniform Delay (d), s/veh	35.2	0.0	34.5				0.0	9.1	8.5	18.8	0.0	0.0
Incr Delay (d2), s/veh	6.6	0.0	2.1				0.0	0.4	0.2	6.0	0.5	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 Back of Q (50%), veh/ln	1.5	0.0	0.7				0.0	1.9	0.6	5.4	0.2	0.0
Lane Grp Delay (d), s/veh	41.8	0.0	36.6				0.0	9.6	8.7	24.9	0.5	0.0
Lane Grp LOS	D		D					A	A	C	A	
Approach Vol, veh/h		104						266			907	
Approach Delay, s/veh		40.2						9.4			11.0	
Approach LOS		D						A			B	

Timer												
Assigned Phs		4						2		1	6	
Phs Duration (G+Y+Rc), s		8.7						45.3		22.7	68.0	
Change Period (Y+Rc), s		4.0						4.0		4.0	4.0	
Max Green Setting (Gmax), s		18.0						22.0		38.0	64.0	
Max Q Clear Time (g_c+I1), s		5.0						6.3		17.5	2.0	
Green Ext Time (p_c), s		0.2						4.3		1.2	5.6	

Intersection Summary												
HCM 2010 Ctrl Delay			13.0									
HCM 2010 LOS			B									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	210	0	750	25	225	0	0	625	120
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		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
Adj Sat Flow veh/h/ln				190.0	186.3	186.3	186.3	186.3	0.0	0.0	186.3	186.3
Lanes				0	1	1	1	1	0	0	1	1
Cap, veh/h				285	0	254	40	1374	0	0	1237	1051
Arrive On Green				0.16	0.00	0.00	0.02	0.74	0.00	0.00	0.66	0.66
Sat Flow, veh/h				1774	0	1583	1774	1863	0	0	1863	1583
Grp Volume(v), veh/h				228	0	0	27	245	0	0	679	130
Grp Sat Flow(s),veh/h/ln				1774	1863	1583	1774	1863	0	0	1863	1583
Q Serve(g_s), s				9.7	0.0	0.0	1.2	3.1	0.0	0.0	15.2	2.4
Cycle Q Clear(g_c), s				9.7	0.0	0.0	1.2	3.1	0.0	0.0	15.2	2.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				285	0	254	40	1374	0	0	1237	1051
V/C Ratio(X)				0.80	0.00	0.00	0.67	0.18	0.00	0.00	0.55	0.12
Avail Cap(c_a), veh/h				541	0	483	90	1374	0	0	1237	1051
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	0.00	0.97	0.97	0.00	0.00	0.85	0.85
Uniform Delay (d), s/veh				31.8	0.0	0.0	38.1	3.1	0.0	0.0	7.0	4.8
Incr Delay (d2), s/veh				5.2	0.0	0.0	17.3	0.3	0.0	0.0	1.5	0.2
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 Back of Q (50%), veh/ln				4.7	0.0	0.0	0.7	1.2	0.0	0.0	6.4	0.8
Lane Grp Delay (d), s/veh				36.9	0.0	0.0	55.4	3.4	0.0	0.0	8.5	5.0
Lane Grp LOS				D			E	A			A	A
Approach Vol, veh/h					228			272			809	
Approach Delay, s/veh					36.9			8.6			7.9	
Approach LOS					D			A			A	

Timer												
Assigned Phs					8		5	2			6	
Phs Duration (G+Y+Rc), s					16.6		5.8	62.0			56.2	
Change Period (Y+Rc), s					4.0		4.0	4.0			4.0	
Max Green Setting (Gmax), s					24.0		4.0	58.0			50.0	
Max Q Clear Time (g_c+I1), s					11.7		3.2	5.1			17.2	
Green Ext Time (p_c), s					1.0		0.0	8.5			7.9	

Intersection Summary		
HCM 2010 Ctrl Delay	13.1	
HCM 2010 LOS	B	

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	140	145	200	775	600	320
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	1	2	2	0
Cap, veh/h	227	203	255	2887	1318	726
Arrive On Green	0.13	0.13	0.29	1.00	0.58	0.58
Sat Flow, veh/h	1774	1583	1774	3725	2261	1245
Grp Volume(v), veh/h	152	158	217	816	521	459
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1643
Q Serve(g_s), s	6.7	8.0	9.5	0.0	13.4	13.4
Cycle Q Clear(g_c), s	6.7	8.0	9.5	0.0	13.4	13.4
Prop In Lane	1.00	1.00	1.00			0.76
Lane Grp Cap(c), veh/h	227	203	255	2887	1086	958
V/C Ratio(X)	0.67	0.78	0.85	0.28	0.48	0.48
Avail Cap(c_a), veh/h	387	345	451	2887	1086	958
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.57	0.57	1.00	1.00
Uniform Delay (d), s/veh	34.3	34.9	28.6	0.0	10.0	10.0
Incr Delay (d2), s/veh	3.4	6.3	4.7	0.1	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.2	0.4	3.9	0.1	6.0	5.3
Lane Grp Delay (d), s/veh	37.7	41.2	33.3	0.1	11.5	11.7
Lane Grp LOS	D	D	C	A	B	B
Approach Vol, veh/h	310			1033	980	
Approach Delay, s/veh	39.5			7.1	11.6	
Approach LOS	D			A	B	

Timer						
Assigned Phs			5	2	6	
Phs Duration (G+Y+Rc), s			15.9	68.0	52.1	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			21.0	64.0	39.0	
Max Q Clear Time (g_c+I1), s			11.5	2.0	15.4	
Green Ext Time (p_c), s			0.4	21.3	13.9	

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	620	425	5	5	185	60	5	5	5	125	5	330
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	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Cap, veh/h	752	1287	14	311	285	92	287	146	146	349	318	941
Arrive On Green	0.42	0.70	0.70	0.21	0.21	0.21	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1774	1839	20	922	1349	436	1014	856	856	1399	1863	1583
Grp Volume(v), veh/h	674	0	467	5	0	266	5	0	10	136	5	359
Grp Sat Flow(s),veh/h/ln	1774	1863	1859	922	1863	1786	1014	1863	1712	1399	1863	1583
Q Serve(g_s), s	21.8	0.0	6.2	0.3	0.0	8.5	0.3	0.0	0.3	5.5	0.1	7.3
Cycle Q Clear(g_c), s	21.8	0.0	6.2	0.3	0.0	8.5	0.4	0.0	0.3	5.8	0.1	7.3
Prop In Lane	1.00		0.01	1.00		0.24	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	752	0	1301	311	0	377	287	0	292	349	318	941
V/C Ratio(X)	0.90	0.00	0.36	0.02	0.00	0.71	0.02	0.00	0.03	0.39	0.02	0.38
Avail Cap(c_a), veh/h	1267	0	1961	371	0	493	394	0	472	496	514	1108
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	0.0	3.7	19.3	0.0	22.5	21.4	0.0	21.3	23.8	21.3	6.6
Incr Delay (d2), s/veh	5.0	0.0	0.2	0.0	0.0	3.1	0.0	0.0	0.0	0.7	0.0	0.3
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 Back of Q (50%), veh/ln	9.7	0.0	2.1	0.1	0.0	3.9	0.1	0.0	0.1	1.9	0.1	2.3
Lane Grp Delay (d), s/veh	21.5	0.0	3.9	19.3	0.0	25.7	21.4	0.0	21.4	24.5	21.3	6.8
Lane Grp LOS	C		A	B		C	C		C	C	C	A
Approach Vol, veh/h		1141			271			15			500	
Approach Delay, s/veh		14.3			25.6			21.4			11.8	
Approach LOS		B			C			C			B	

Timer												
Assigned Phs	7	4			8			2			6	
Phs Duration (G+Y+Rc), s	30.1	47.1			17.0			14.5			14.5	
Change Period (Y+Rc), s	4.0	4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s	44.0	65.0			17.0			17.0			17.0	
Max Q Clear Time (g_c+I1), s	23.8	8.2			10.5			2.4			9.3	
Green Ext Time (p_c), s	2.4	5.5			2.5			1.6			1.2	

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	11

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	300	45	230	140	15	160
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	326	49	250	152	16	174

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	533	326	0	0	402	0
Stage 1	326	-	-	-	-	-
Stage 2	207	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	507	715	-	-	1157	-
Stage 1	731	-	-	-	-	-
Stage 2	828	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	499	715	-	-	1157	-
Mov Capacity-2 Maneuver	499	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	816	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28	0	1

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	519	1157	-
HCM Lane V/C Ratio	-	-	0.723	0.014	-
HCM Control Delay (s)	-	-	27.9	8.156	0
HCM Lane LOS			D	A	A
HCM 95th %tile Q(veh)	-	-	5.887	0.043	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	85	50	70	10	45	10	20	140	90	95	290	10
Number	5	2	12	1	6	16	7	4	14	3	8	18
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	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	586	161	227	522	339	76	626	446	288	679	754	26
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1337	701	987	1255	1474	331	1050	1059	683	1125	1789	62
Grp Volume(v), veh/h	92	0	130	11	0	60	22	0	250	103	0	326
Grp Sat Flow(s),veh/h/ln	1337	1863	1689	1255	1863	1804	1050	1863	1742	1125	1863	1852
Q Serve(g_s), s	1.3	0.0	1.5	0.2	0.0	0.6	0.3	0.0	2.2	1.6	0.0	2.8
Cycle Q Clear(g_c), s	2.0	0.0	1.5	1.6	0.0	0.6	3.2	0.0	2.2	3.8	0.0	2.8
Prop In Lane	1.00		0.58	1.00		0.18	1.00		0.39	1.00		0.03
Lane Grp Cap(c), veh/h	586	0	388	522	0	415	626	0	734	679	0	780
V/C Ratio(X)	0.16	0.00	0.34	0.02	0.00	0.14	0.04	0.00	0.34	0.15	0.00	0.42
Avail Cap(c_a), veh/h	1678	0	1767	1547	0	1889	1466	0	2127	1579	0	2261
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	0.0	7.4	8.1	0.0	7.0	5.8	0.0	4.5	5.8	0.0	4.7
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.2	0.0	0.0	0.3	0.1	0.0	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 Back of Q (50%), veh/ln	0.3	0.0	0.5	0.0	0.0	0.2	0.1	0.0	0.6	0.3	0.0	0.8
Lane Grp Delay (d), s/veh	7.9	0.0	7.9	8.1	0.0	7.2	5.8	0.0	4.8	5.9	0.0	5.0
Lane Grp LOS	A		A	A		A	A		A	A		A
Approach Vol, veh/h		222			71			272			429	
Approach Delay, s/veh		7.9			7.3			4.8			5.2	
Approach LOS		A			A			A			A	

Timer												
Assigned Phs		2			6			4			8	
Phs Duration (G+Y+Rc), s		9.3			9.3			13.7			13.7	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		24.0			24.0			28.0			28.0	
Max Q Clear Time (g_c+I1), s		4.0			3.6			5.2			5.8	
Green Ext Time (p_c), s		1.3			1.3			4.0			4.0	

Intersection Summary												
HCM 2010 Ctrl Delay			5.9									
HCM 2010 LOS			A									

Notes

Intersection	
Intersection Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR	NEL	NER
Vol, veh/h	0	0	335	460	0	15	0	510
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	-	Free	-	None	-	-
Storage Length	-	-	0	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-	0	-
Grade, %	0	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	364	500	0	16	0	554

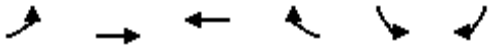
Major/Minor	Major2		Minor1		Major1	
Conflicting Flow All	565	0	957	283	364	0
Stage 1	-	-	560	-	-	-
Stage 2	-	-	397	-	-	-
Follow-up Headway	2.22	-	3.519	3.319	2.218	-
Pot Capacity-1 Maneuver	1003	-	270	715	1195	-
Stage 1	-	-	536	-	-	-
Stage 2	-	-	678	-	-	-
Time blocked-Platoon, %		-				-
Mov Capacity-1 Maneuver	1003	-	261	715	1195	-
Mov Capacity-2 Maneuver	-	-	261	-	-	-
Stage 1	-	-	536	-	-	-
Stage 2	-	-	655	-	-	-

Approach	WB	NB	NE
HCM Control Delay, s	0	15	0

Minor Lane / Major Mvmt	NEL	NER	NER2	NBLn1	WBL2	WBL	WBT
Capacity (veh/h)	1195	-	-	382	1003	-	-
HCM Lane V/C Ratio	-	-	-	0.085	0.016	-	-
HCM Control Delay (s)	0	-	-	15.3	8.649	0	-
HCM Lane LOS	A			C	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.278	0.05	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	240	345	5	280	10
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	190.0	186.3	186.3
Lanes	1	2	2	0	1	1
Cap, veh/h	265	781	769	10	1115	995
Arrive On Green	0.21	0.21	0.21	0.21	0.63	0.63
Sat Flow, veh/h	999	3725	3668	49	1774	1583
Grp Volume(v), veh/h	11	261	190	190	304	11
Grp Sat Flow(s),veh/h/ln	999	1863	1863	1854	1774	1583
Q Serve(g_s), s	0.5	2.9	4.4	4.4	3.8	0.1
Cycle Q Clear(g_c), s	4.9	2.9	4.4	4.4	3.8	0.1
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	265	781	390	389	1115	995
V/C Ratio(X)	0.04	0.33	0.49	0.49	0.27	0.01
Avail Cap(c_a), veh/h	481	1586	793	789	1115	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	16.6	17.2	17.2	4.1	3.4
Incr Delay (d2), s/veh	0.1	0.3	0.9	1.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	1.3	2.0	1.9	1.4	0.0
Lane Grp Delay (d), s/veh	19.4	16.8	18.1	18.1	4.7	3.5
Lane Grp LOS	B	B	B	B	A	A
Approach Vol, veh/h		272	380		315	
Approach Delay, s/veh		16.9	18.1		4.7	
Approach LOS		B	B		A	

Timer		
Assigned Phs	4	8
Phs Duration (G+Y+Rc), s	14.3	14.3
Change Period (Y+Rc), s	4.0	4.0
Max Green Setting (Gmax), s	21.0	21.0
Max Q Clear Time (g_c+I1), s	6.9	6.4
Green Ext Time (p_c), s	3.4	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	290	0	460	5	0
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	-	-	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	315	0	500	5	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	0	0	500	0
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	500	-
Follow-up Headway	-	-	-	-	3.518	-
Pot Capacity-1 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	609	-
Time blocked-Platoon, %	-	-		-		
Mov Capacity-1 Maneuver	-	-	-	-	530	-
Mov Capacity-2 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	609	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	+

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

Notes

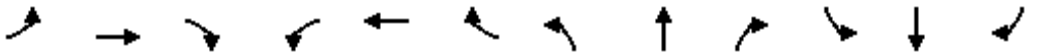
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	190	280	105	605	35	195	230	60	70	165	100
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	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	1	1	1	1	1	1	1
Cap, veh/h	303	695	591	324	1390	591	596	908	772	558	908	772
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	746	1863	1583	885	3725	1583	1087	1863	1583	1060	1863	1583
Grp Volume(v), veh/h	54	207	304	114	658	38	212	250	65	76	179	109
Grp Sat Flow(s),veh/h/ln	746	1863	1583	885	1863	1583	1087	1863	1583	1060	1863	1583
Q Serve(g_s), s	3.4	4.5	8.6	6.6	7.7	0.9	7.9	4.6	1.3	2.6	3.1	2.2
Cycle Q Clear(g_c), s	11.1	4.5	8.6	15.1	7.7	0.9	11.0	4.6	1.3	7.2	3.1	2.2
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	303	695	591	324	1390	591	596	908	772	558	908	772
V/C Ratio(X)	0.18	0.30	0.51	0.35	0.47	0.06	0.36	0.28	0.08	0.14	0.20	0.14
Avail Cap(c_a), veh/h	337	778	662	363	1557	662	596	908	772	558	908	772
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	17.9	12.7	14.0	19.8	13.7	11.6	11.5	8.7	7.9	10.8	8.3	8.1
Incr Delay (d2), s/veh	0.3	0.2	0.7	0.7	0.3	0.0	1.7	0.8	0.2	0.5	0.5	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 Back of Q (50%), veh/ln	0.6	1.9	3.1	1.4	3.2	0.3	2.2	2.0	0.5	0.7	1.4	0.8
Lane Grp Delay (d), s/veh	18.2	12.9	14.7	20.5	14.0	11.6	13.1	9.5	8.1	11.3	8.8	8.5
Lane Grp LOS	B	B	B	C	B	B	B	A	A	B	A	A
Approach Vol, veh/h		565			810			527			364	
Approach Delay, s/veh		14.4			14.8			10.8			9.3	
Approach LOS		B			B			B			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		25.4			25.4			32.0			32.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		24.0			24.0			28.0			28.0	
Max Q Clear Time (g_c+I1), s		13.1			17.1			13.0			9.2	
Green Ext Time (p_c), s		6.1			4.3			3.6			3.9	

Intersection Summary												
HCM 2010 Ctrl Delay			12.8									
HCM 2010 LOS			B									

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	100	255	830	225	525	30	205	410	150	415	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	1863	1583	1770	3482	
Flt Permitted	0.61	1.00	1.00	0.95	1.00	1.00	0.33	1.00	1.00	0.41	1.00	
Satd. Flow (perm)	1130	1863	1583	3433	1863	1583	620	1863	1583	755	3482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	109	277	902	245	571	33	223	446	163	451	54
RTOR Reduction (vph)	0	0	48	0	0	102	0	0	204	0	10	0
Lane Group Flow (vph)	65	109	229	902	245	469	33	223	242	163	495	0
Turn Type	Perm	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases		4	5	3	8	1	5	2	3	1	6	
Permitted Phases	4		4			8	2		2	6		
Actuated Green, G (s)	8.2	8.2	16.0	24.7	36.9	46.2	22.9	15.1	39.8	25.9	16.6	
Effective Green, g (s)	8.2	8.2	16.0	24.7	36.9	46.2	22.9	15.1	39.8	25.9	16.6	
Actuated g/C Ratio	0.11	0.11	0.22	0.34	0.50	0.63	0.31	0.21	0.54	0.35	0.23	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	126	208	431	1156	937	1084	316	383	945	395	788	
v/s Ratio Prot		0.06	c0.06	c0.26	0.13	c0.05	0.01	0.12	0.09	0.05	c0.14	
v/s Ratio Perm	0.06		0.09			0.24	0.02		0.07	0.09		
v/c Ratio	0.52	0.52	0.53	0.78	0.26	0.43	0.10	0.58	0.26	0.41	0.63	
Uniform Delay, d1	30.7	30.7	25.3	21.9	10.4	6.9	17.8	26.3	8.9	17.1	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.5	2.4	1.3	3.5	0.1	0.3	0.1	2.3	0.1	0.7	1.6	
Delay (s)	34.2	33.1	26.6	25.3	10.6	7.2	17.9	28.5	9.0	17.8	27.1	
Level of Service	C	C	C	C	B	A	B	C	A	B	C	
Approach Delay (s)		29.3			17.2			15.6			24.9	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	73.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	150	0	400	25	205	0	0	315	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	250	-	-	-	-	-
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	0	0	0	163	0	435	27	223	0	0	342	76

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	657	695	223	418	0	0	223	0	0
Stage 1	277	277	-	-	-	-	-	-	-
Stage 2	380	418	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	430	366	817	1141	-	-	1346	-	-
Stage 1	770	681	-	-	-	-	-	-	-
Stage 2	691	591	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	420	0	817	1141	-	-	1346	-	-
Mov Capacity-2 Maneuver	420	0	-	-	-	-	-	-	-
Stage 1	752	0	-	-	-	-	-	-	-
Stage 2	691	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	1	0

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1141	-	-	420	817	1346	-	-
HCM Lane V/C Ratio	0.024	-	-	0.388	0.532	-	-	-
HCM Control Delay (s)	8.232	-	-	18.9	14.3	0	-	-
HCM Lane LOS	A			C	B	A		
HCM 95th %tile Q(veh)	0.073	-	-	1.802	3.198	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	0	30	0	0	0	0	200	30	120	345	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
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	33	0	33	0	0	0	0	217	33	130	375	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	870	886	375			375	0	0	250	0	0
Stage 1	636	636	-			-	-	-	-	-	-
Stage 2	234	250	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	322	284	671			1183	-	-	1316	-	-
Stage 1	527	472	-			-	-	-	-	-	-
Stage 2	805	700	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	290	0	671			1183	-	-	1316	-	-
Mov Capacity-2 Maneuver	290	0	-			-	-	-	-	-	-
Stage 1	475	0	-			-	-	-	-	-	-
Stage 2	805	0	-			-	-	-	-	-	-

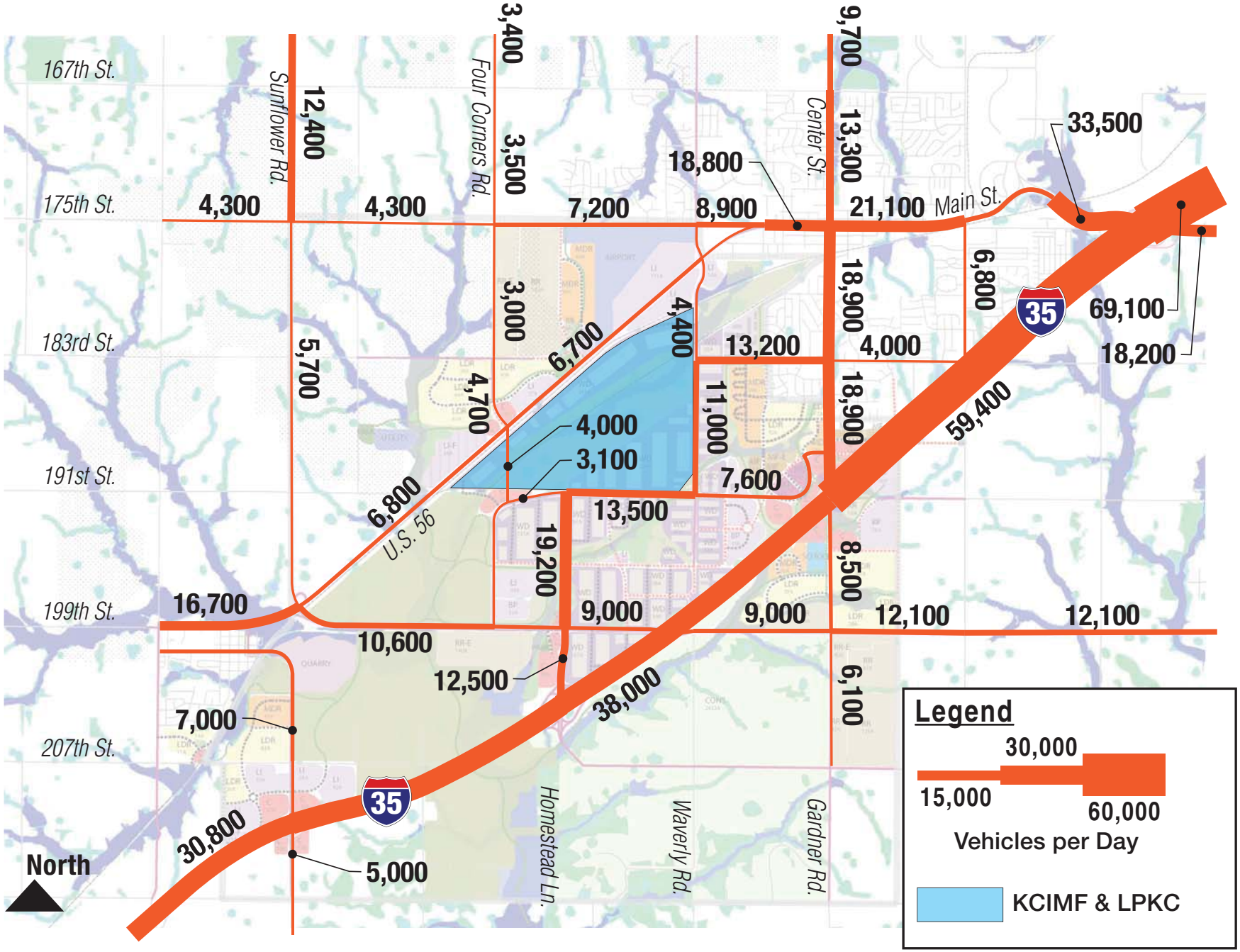
Approach	EB	NB	SB
HCM Control Delay, s	16	0	2

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1183	-	-	405	1316	-	-
HCM Lane V/C Ratio	-	-	-	0.161	0.099	-	-
HCM Control Delay (s)	0	-	-	15.6	8.036	-	-
HCM Lane LOS	A			C	A		
HCM 95th %tile Q(veh)	0	-	-	0.568	0.329	-	-

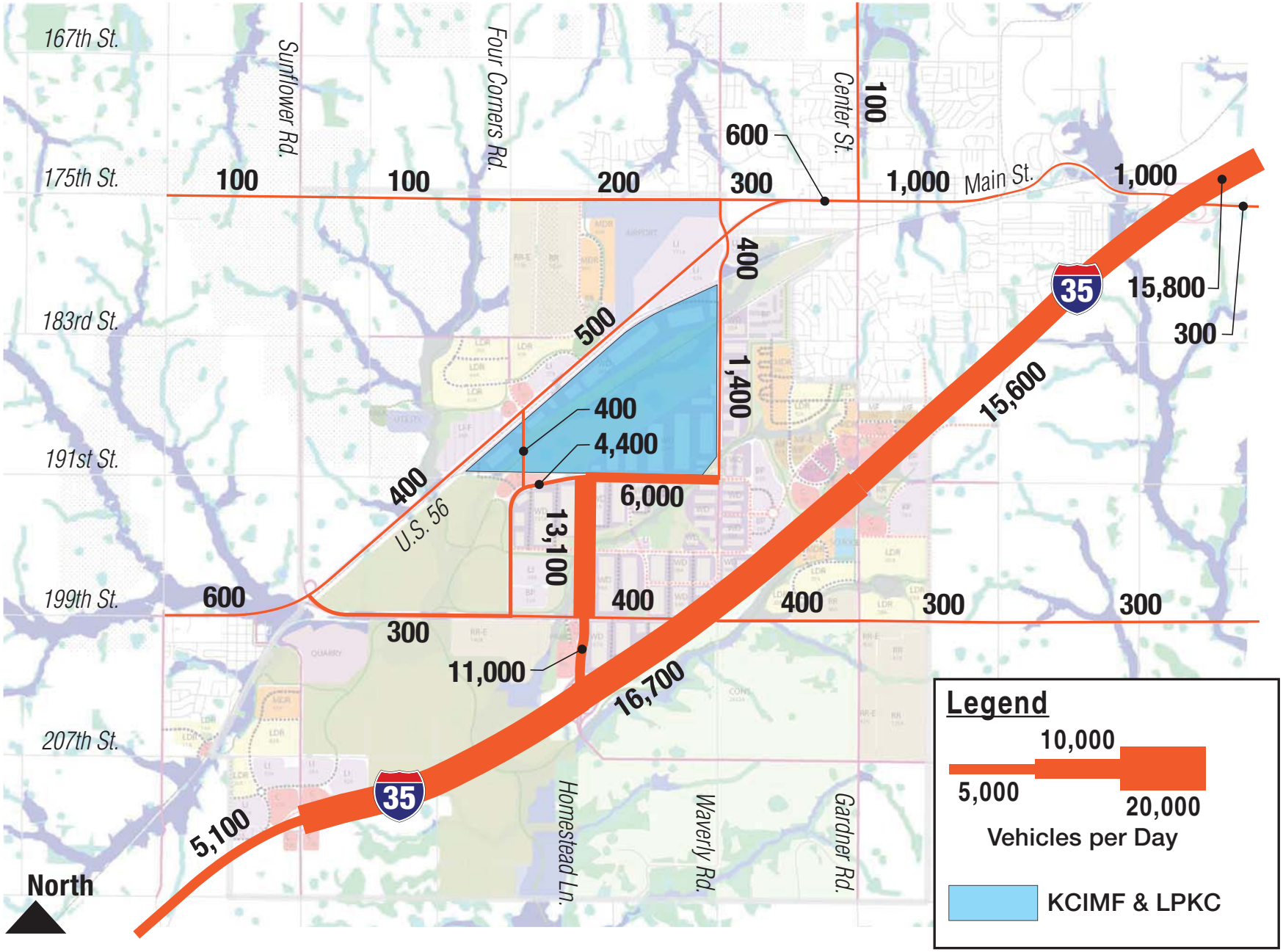
Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

2040 Model Traffic - Alternative 4



2040 Truck Assignments - Alternative 4



FELSBURG HOLT & ULLEVIG

connecting and enhancing communities

August 20, 2013

MEMORANDUM

To: David Gurss
Kansas Department of Transportation

From: Mark Meisinger, PE, PTOE
Rick Haden

Re: I-35 Sunflower Interchange
Traffic Analysis
FHU Reference No. 12-114-01

Felsburg Holt & Ullevig (FHU) has completed future year traffic volume projections and traffic operations analyses associated with the Sunflower Road interchange with I-35 near Edgerton, Kansas. This analysis was requested by KDOT to supplement traffic analysis in the *Southwest Johnson County Area Plan*. The analyses were completed for the following scenarios:

- 2040 Preferred Alternative weekday morning and evening peak hours

Peak Hour Turning Movement Estimation

As part of the *Southwest Johnson County Area Plan*, ADTs were developed for the 2013 opening Day and 2040 Preferred Alternative land use scenarios for the study area roadway network. Figures are attached that show the estimated ADTs for these land use scenarios.

Peak hour turning movements for the Sunflower Road interchange with I-35 were developed for capacity analyses using guidelines documented in NCHRP Report 255. The peak hour turning movements were based upon the ADT estimates for each scenario, and 2010 volume projections from the *Gardner Intermodal Facility Traffic Technical Report* from October 2008. Estimated peak hour turning movements for the 2040 Preferred Alternative can be found within the capacity analyses worksheets, which are attached.

Traffic Operations Analysis

Traffic operations were analyzed for the study intersections using procedures documented in the *Highway Capacity Manual*, Transportation Research Board, 2010. The Synchro traffic analysis software program was utilized to analyze traffic operations at the study intersections.

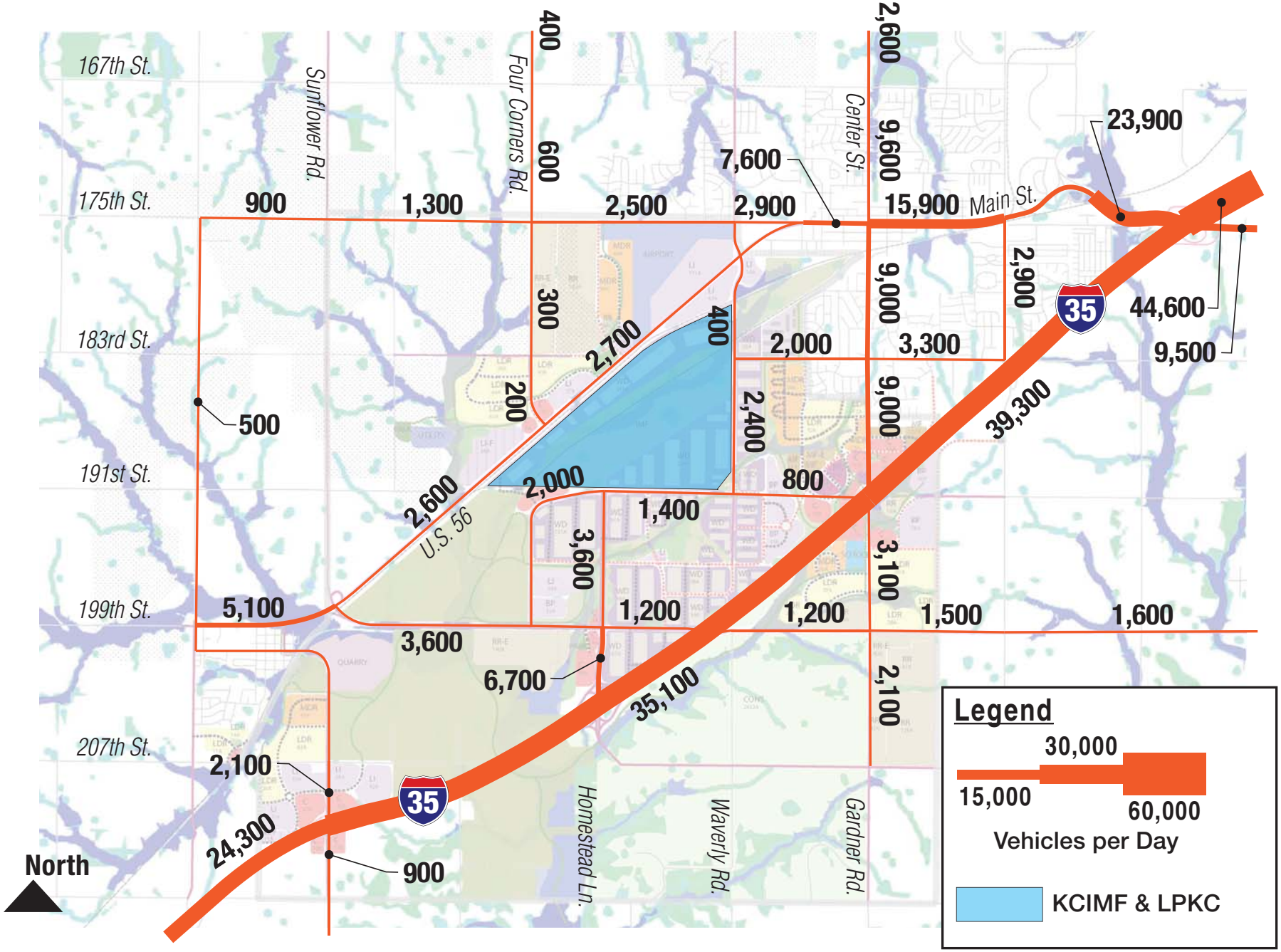
KDOT indicated that Sunflower Road bridge over I-35 is programmed for reconstruction. The purpose of this analysis is to determine the appropriate lane configuration and traffic control required to accommodate future traffic volumes.

For this analysis, it was assumed that Sunflower Road would be widened to provide northbound and southbound exclusive left turn lanes. It was also assumed that the northbound I-35 off-ramp would remain as a single lane for all turning movements. The southbound I-35 off-ramp approach was assumed to have exclusive left-turn lane and an exclusive right-turn lane. Both ramp terminals were assumed to be controlled with stop signs on the off-ramps.

All critical movements are expected to operate at LOS D or better in both peak periods at both of the unsignalized intersections in 2040. Capacity analysis worksheets for the 2040 Preferred Alternative traffic conditions are attached.

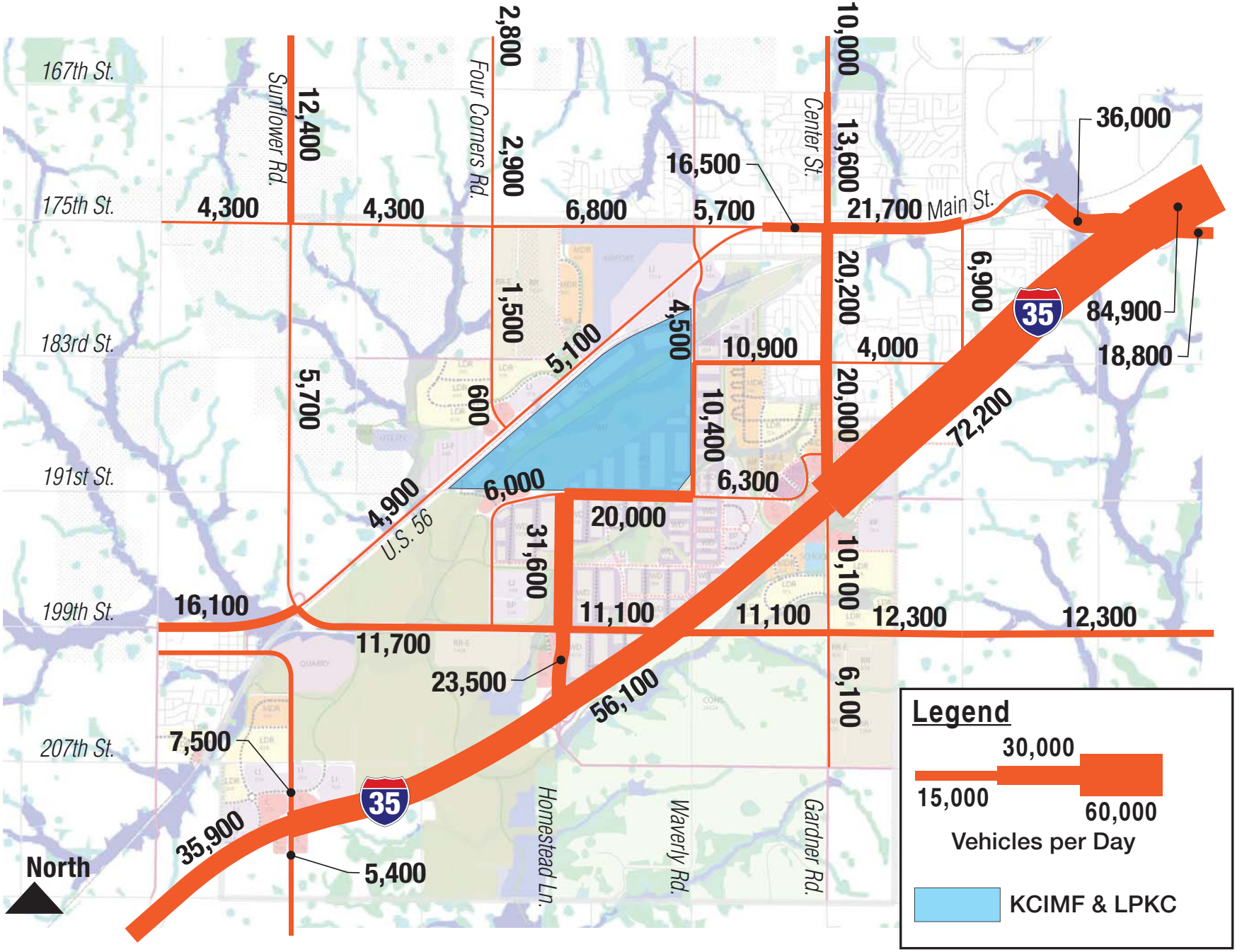
Provisions for pedestrians should also be considered given the proposed future commercial land use in this area (see attached land use plan). The west side of the bridge would be the most appropriate placement for a pedestrian facility given the heavier turning movements to and from the northeast.

Total Traffic - Opening Day

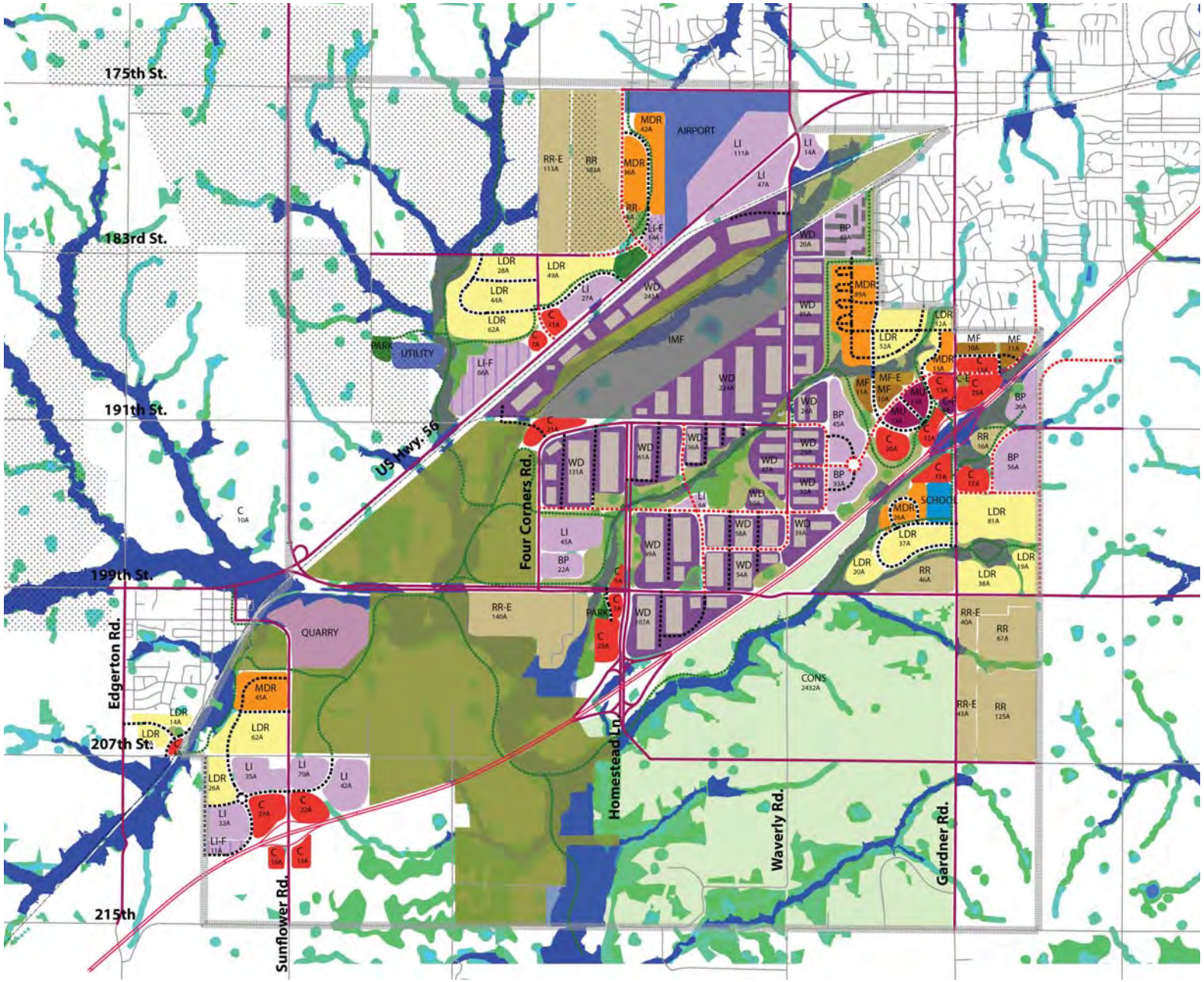


KDOT SW Johnson Area Plan - Opening Day July, 12-114-01, 8/12/13

2040 Total Traffic - Preferred Alternative



KDOT SW Johnson Area Plan - Opening Day July, 12-114-01, 8/12/13



Preferred Land Use Concept

- Rural Residential (RR)
- Conservation Development (CONS)
- Low Density Urban Residential (LDR)
- Medium Density Urban Residential (MDR)
- High Density Urban Residential (HDR)
- Commercial (C)
- Mixed Use (MU)
- Business Park or Limited Industry (BP and LI)
- Warehousing and Distribution (WD)
- Civic
- Parks and Open Space
- Areas with Concentrations of Oil Wells

Intersection	
Intersection Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	60	0	145	25	105	0	0	680	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	250	-	-	-	-	-
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	0	0	0	65	0	158	27	114	0	0	739	38

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	926	945	114	777	0	0	114	0	0
Stage 1	168	168	-	-	-	-	-	-	-
Stage 2	758	777	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	298	262	939	839	-	-	1475	-	-
Stage 1	862	759	-	-	-	-	-	-	-
Stage 2	463	407	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	288	0	939	839	-	-	1475	-	-
Mov Capacity-2 Maneuver	288	0	-	-	-	-	-	-	-
Stage 1	834	0	-	-	-	-	-	-	-
Stage 2	463	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	1.8	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	839	-	-	288	939	1475	-	-
HCM Lane V/C Ratio	0.032	-	-	0.226	0.168	-	-	-
HCM Control Delay (s)	9.434	-	-	21.1	9.6	0	-	-
HCM Lane LOS	A			C	A	A		
HCM 95th %tile Q(veh)	0.1	-	-	0.852	0.601	0	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	40	0	30	0	0	0	0	150	170	240	500	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
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	43	0	33	0	0	0	0	163	185	261	543	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1320	1413	543			543	0	0	348	0	0
Stage 1	1065	1065	-			-	-	-	-	-	-
Stage 2	255	348	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	173	138	540			1026	-	-	1211	-	-
Stage 1	331	299	-			-	-	-	-	-	-
Stage 2	788	634	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	136	0	540			1026	-	-	1211	-	-
Mov Capacity-2 Maneuver	136	0	-			-	-	-	-	-	-
Stage 1	260	0	-			-	-	-	-	-	-
Stage 2	788	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.6	0	2.8
HCM LOS	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1026	-	-	200	1211	-	-
HCM Lane V/C Ratio	-	-	-	0.38	0.215	-	-
HCM Control Delay (s)	0	-	-	33.6	8.787	-	-
HCM Lane LOS	A			D	A		
HCM 95th %tile Q(veh)	0	-	-	1.663	0.818	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	150	0	400	25	205	0	0	315	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	50	250	-	-	-	-	-
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	0	0	0	163	0	435	27	223	0	0	342	76

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	657	695	223	418	0	0	223	0	0
Stage 1	277	277	-	-	-	-	-	-	-
Stage 2	380	418	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	430	366	817	1141	-	-	1346	-	-
Stage 1	770	681	-	-	-	-	-	-	-
Stage 2	691	591	-	-	-	-	-	-	-
Time blocked-Platoon, %					-	-		-	-
Mov Capacity-1 Maneuver	420	0	817	1141	-	-	1346	-	-
Mov Capacity-2 Maneuver	420	0	-	-	-	-	-	-	-
Stage 1	752	0	-	-	-	-	-	-	-
Stage 2	691	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0.9	0
HCM LOS	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1141	-	-	420	817	1346	-	-
HCM Lane V/C Ratio	0.024	-	-	0.388	0.532	-	-	-
HCM Control Delay (s)	8.232	-	-	18.9	14.3	0	-	-
HCM Lane LOS	A			C	B	A		
HCM 95th %tile Q(veh)	0.073	-	-	1.802	3.198	0	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	0	30	0	0	0	0	200	30	120	345	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	250	-	-
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	33	0	33	0	0	0	0	217	33	130	375	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	870	886	375			375	0	0	250	0	0
Stage 1	636	636	-			-	-	-	-	-	-
Stage 2	234	250	-			-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318			2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	322	284	671			1183	-	-	1316	-	-
Stage 1	527	472	-			-	-	-	-	-	-
Stage 2	805	700	-			-	-	-	-	-	-
Time blocked-Platoon, %							-	-		-	-
Mov Capacity-1 Maneuver	290	0	671			1183	-	-	1316	-	-
Mov Capacity-2 Maneuver	290	0	-			-	-	-	-	-	-
Stage 1	475	0	-			-	-	-	-	-	-
Stage 2	805	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	0	2.1
HCM LOS	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1183	-	-	405	1316	-	-
HCM Lane V/C Ratio	-	-	-	0.161	0.099	-	-
HCM Control Delay (s)	0	-	-	15.6	8.036	-	-
HCM Lane LOS	A			C	A		
HCM 95th %tile Q(veh)	0	-	-	0.568	0.329	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

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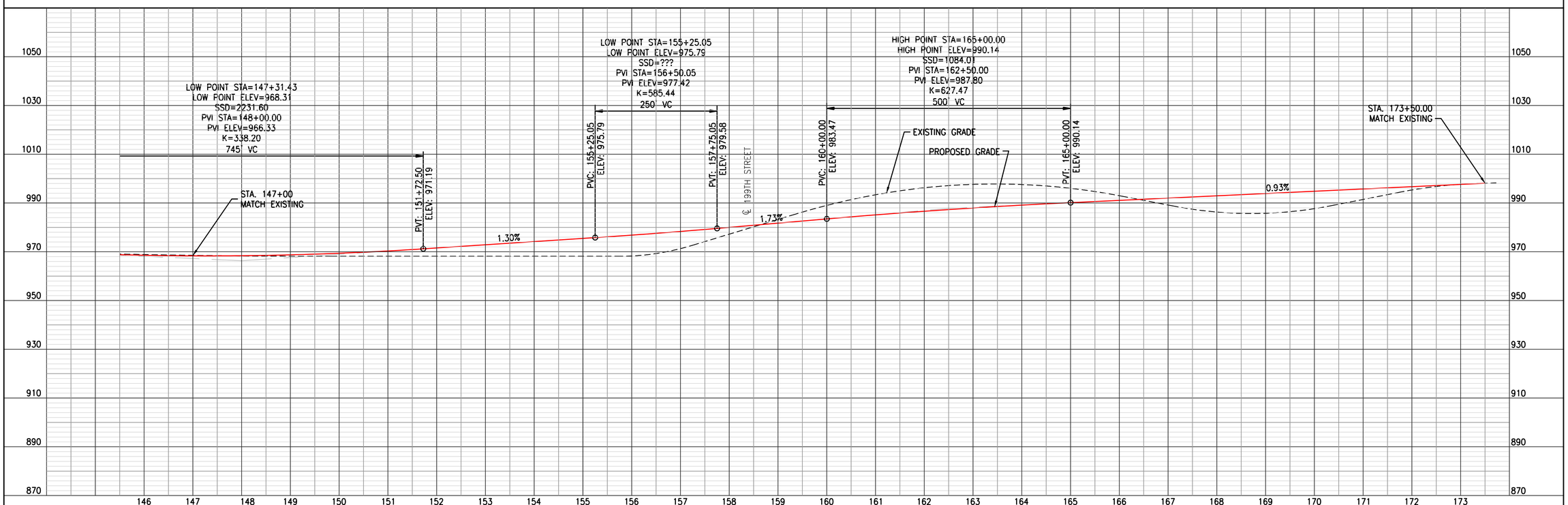
1" = 100H
1" = 20' V



EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8501 E. 13th St. Ste B, Lawrence, KS 66044
o: 785.856.6000

Mark	Description	Date

Designed by: RLW
Drawn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/16/13

U.S. HIGHWAY 56
BETWEEN EDGERTON AND GARDNER KANSAS

Plan and Profile
Sta. 147+00 to Sta. 173+50

U.S. HIGHWAY 56

Sheet reference number:
1
Sheet 1 of 13

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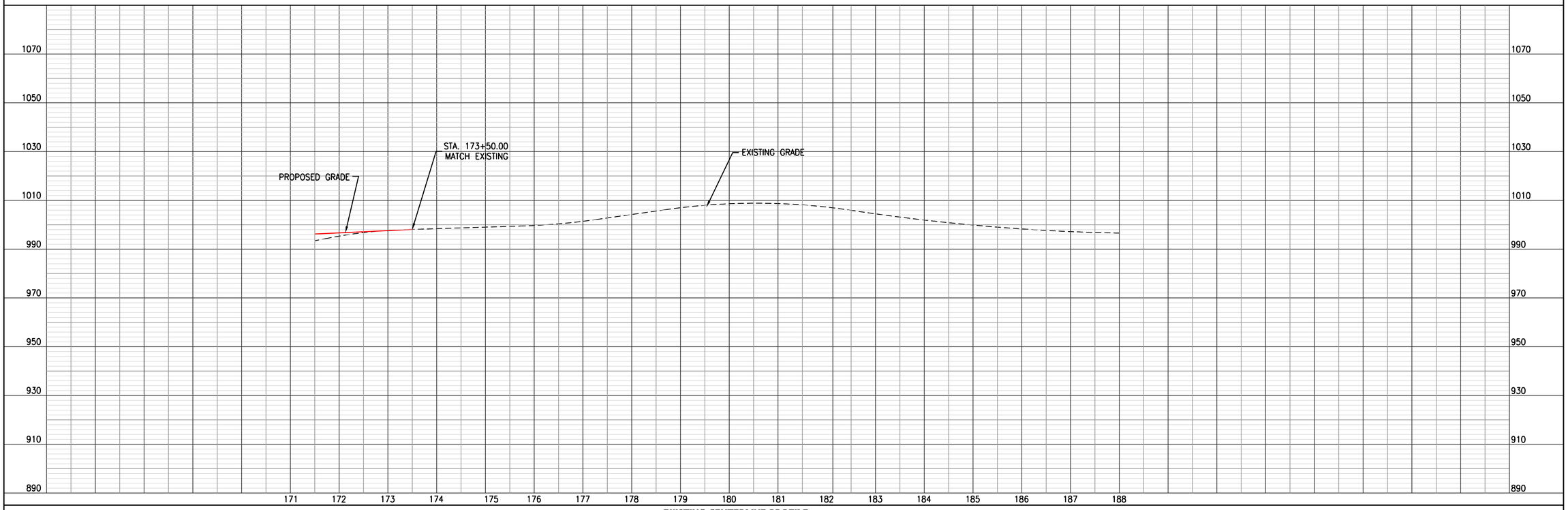
1" = 100H
1" = 20' V



EXISTING CENTERLINE PROFILE

CFS ENGINEERS
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8501 E. 13th St. Ste B, Lawrence, KS 66044
o: 785.856.8500

Mark	Description	Date

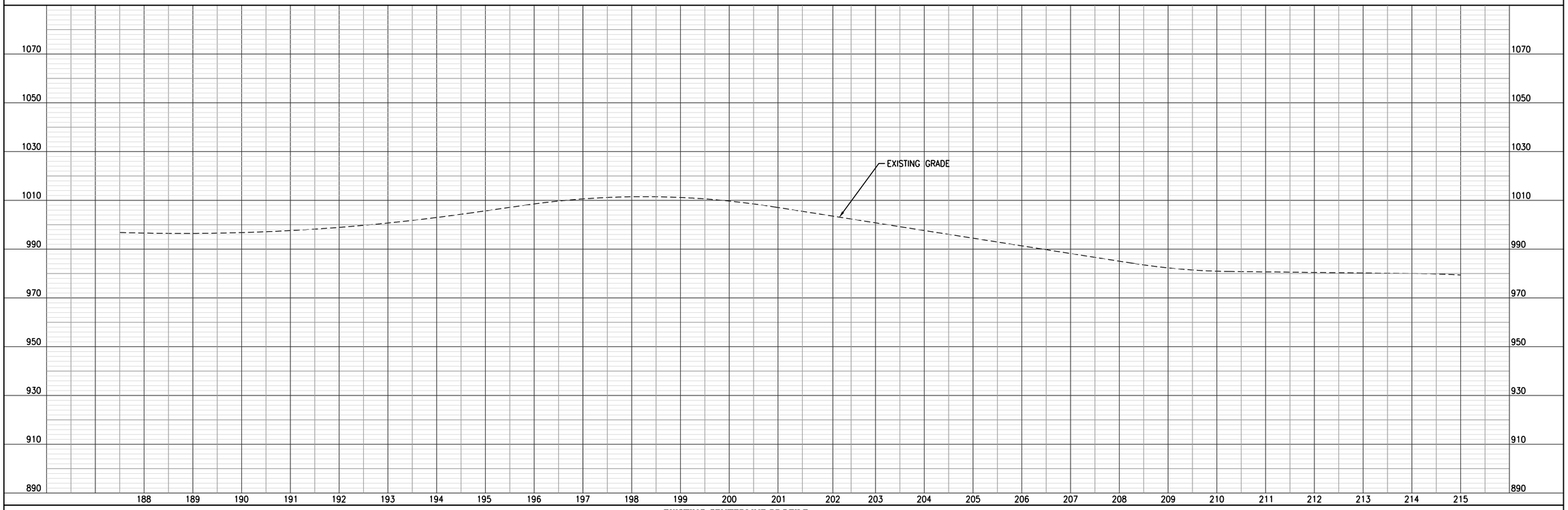
Designed by: RLW
Drawn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

U.S. HIGHWAY 56
BETWEEN EDGERTON
AND
GARDNER KANSAS

Plan and Profile
Sta. 173+50 to Sta. 188+00

U.S. HIGHWAY 56

Sheet reference number:
2



EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8501 E 13th St. Ste B, Lawrence, KS 66044
o: 785.856.8500

Mark	Description	Date

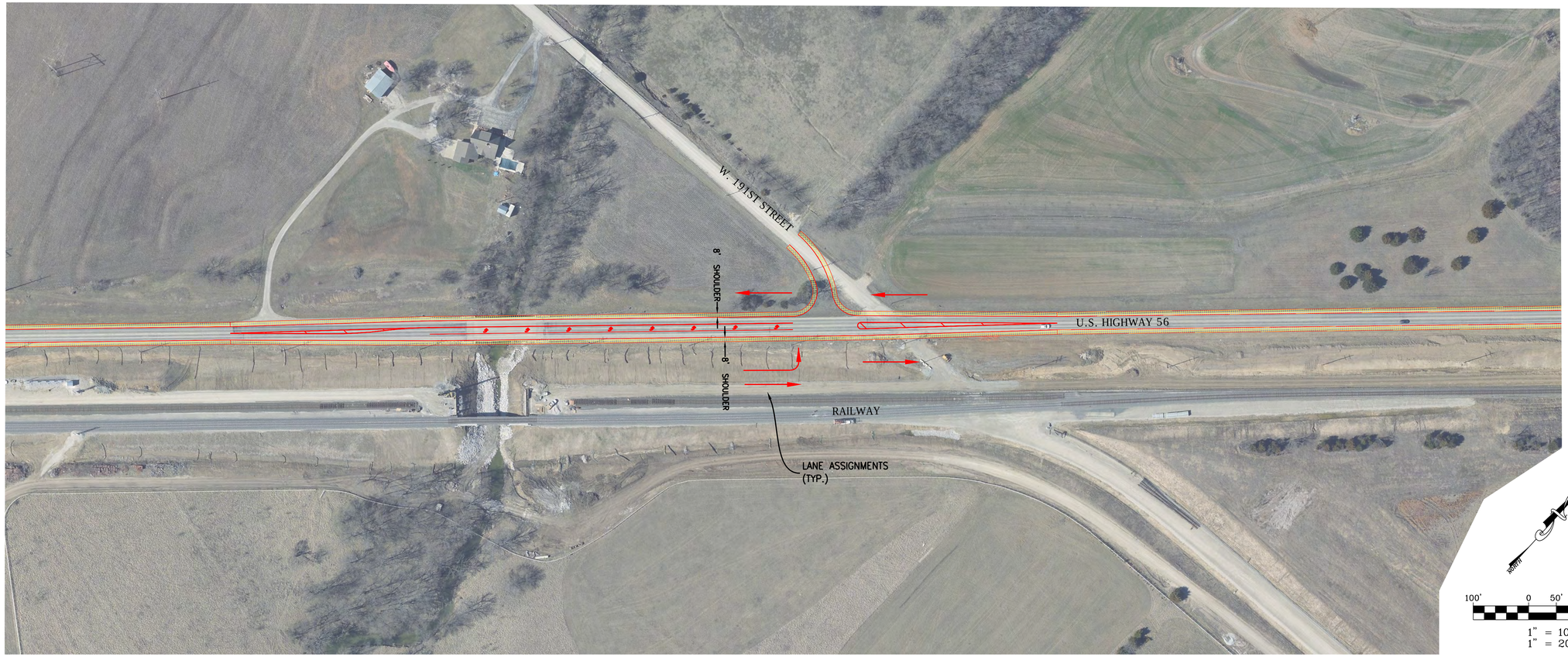
Designed by: RLW
Drwn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

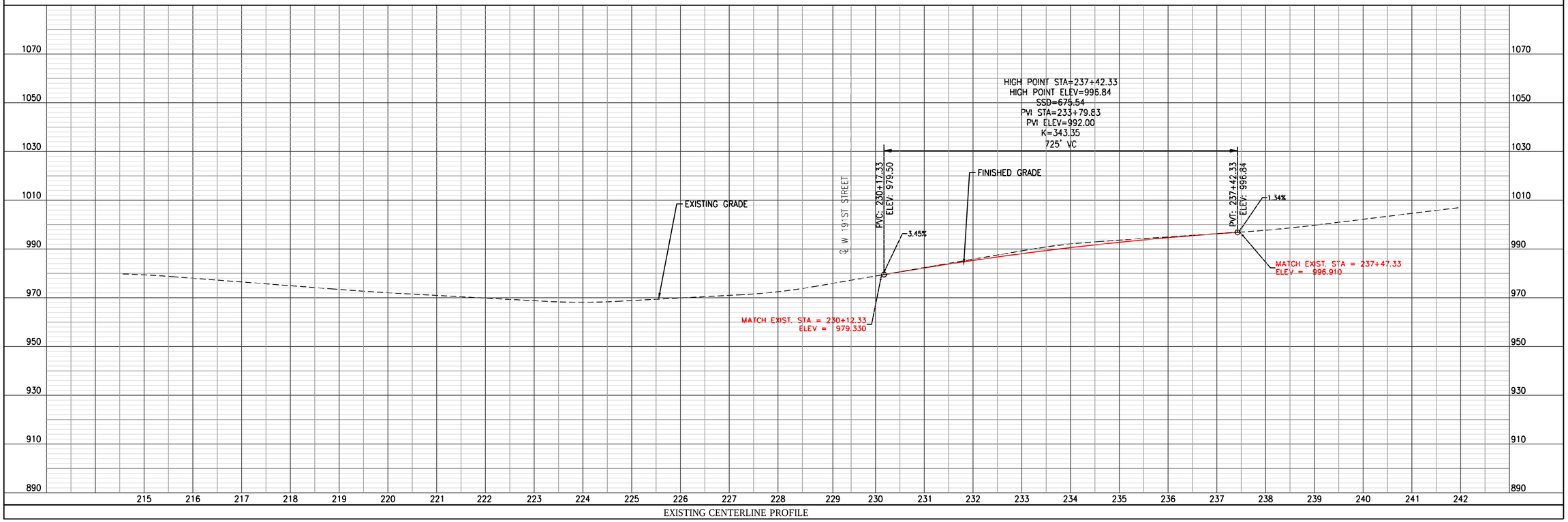
U.S. HIGHWAY 56
BETWEEN EDGERTON AND GARDNER KANSAS

Plan and Profile
Sta. 188+00 to Sta. 215+00

U.S. HIGHWAY 56

Sheet reference number: 3





EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8501 E. 13th St. Ste B, Lawrence, KS 66044
o: 785.856.8500

Mark	Description	Date

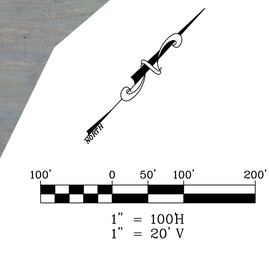
Designed by: RLW
Drawn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

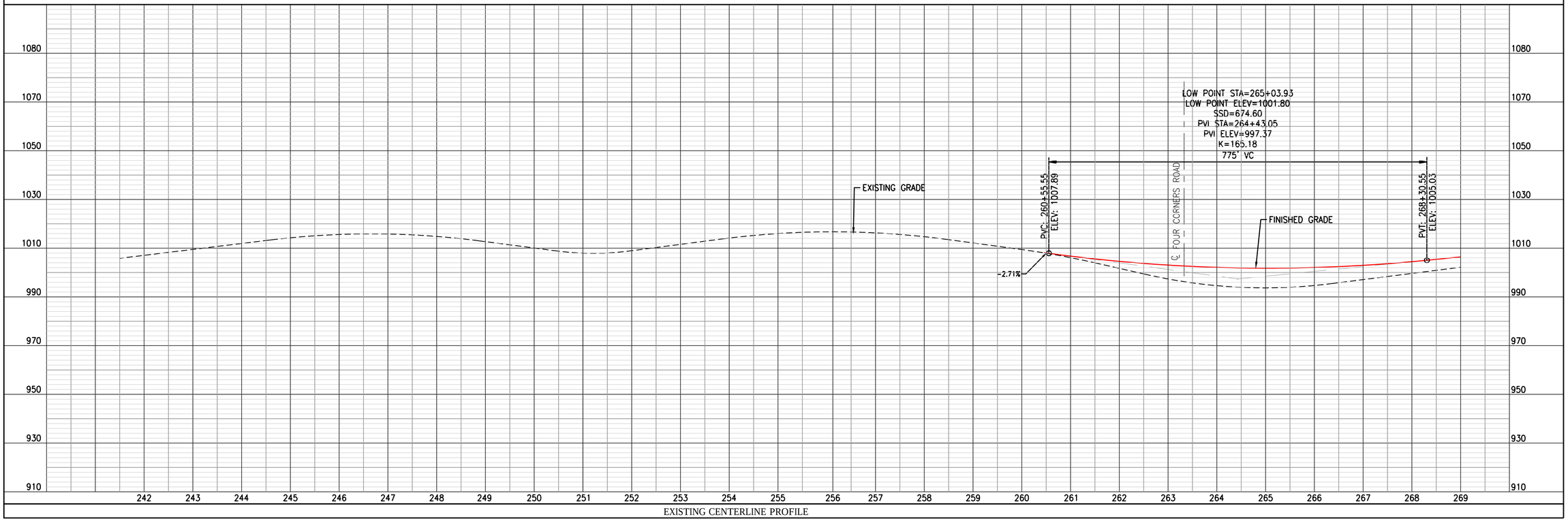
U.S. HIGHWAY 56
BETWEEN EDGERTON AND GARDNER KANSAS

Plan and Profile
Sta. 215+00 to Sta. 242+00

U.S. HIGHWAY 56

Sheet reference number:
4





EXISTING CENTERLINE PROFILE

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8501 E. 13th St. Ste B, Lawrence, KS 66044
o: 785.856.6000

Mark	Description	Date

Designed by: RLW
Drwn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

U.S. HIGHWAY 56
BETWEEN EDGERTON AND GARDNER KANSAS

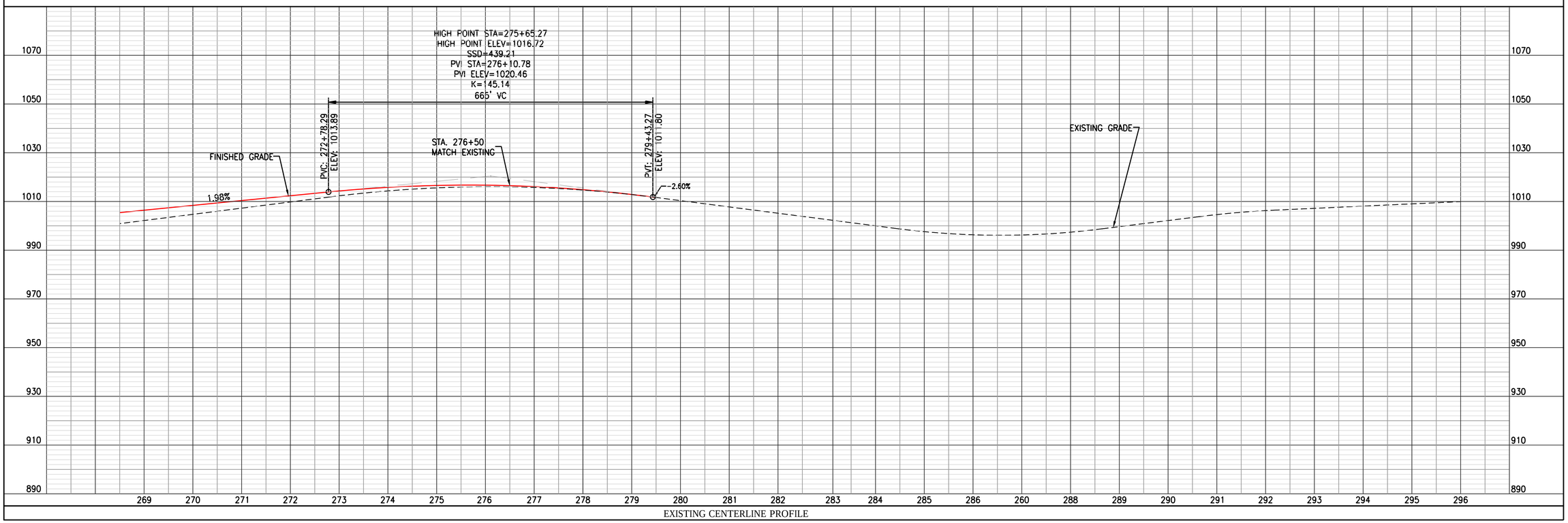
Plan and Profile
Sta. 242+00 to Sta. 269+00

U.S. HIGHWAY 56

Sheet reference number: 5

100' 0 50' 100' 200'

1" = 100H
1" = 20' V



EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8501 E 13th St. Ste B, Lawrence, KS 66044
o: 785.856.8000

Mark	Description	Date

Designed by: RLW
Drwn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

U.S. HIGHWAY 56
BETWEEN EDGERTON
AND
GARDNER KANSAS

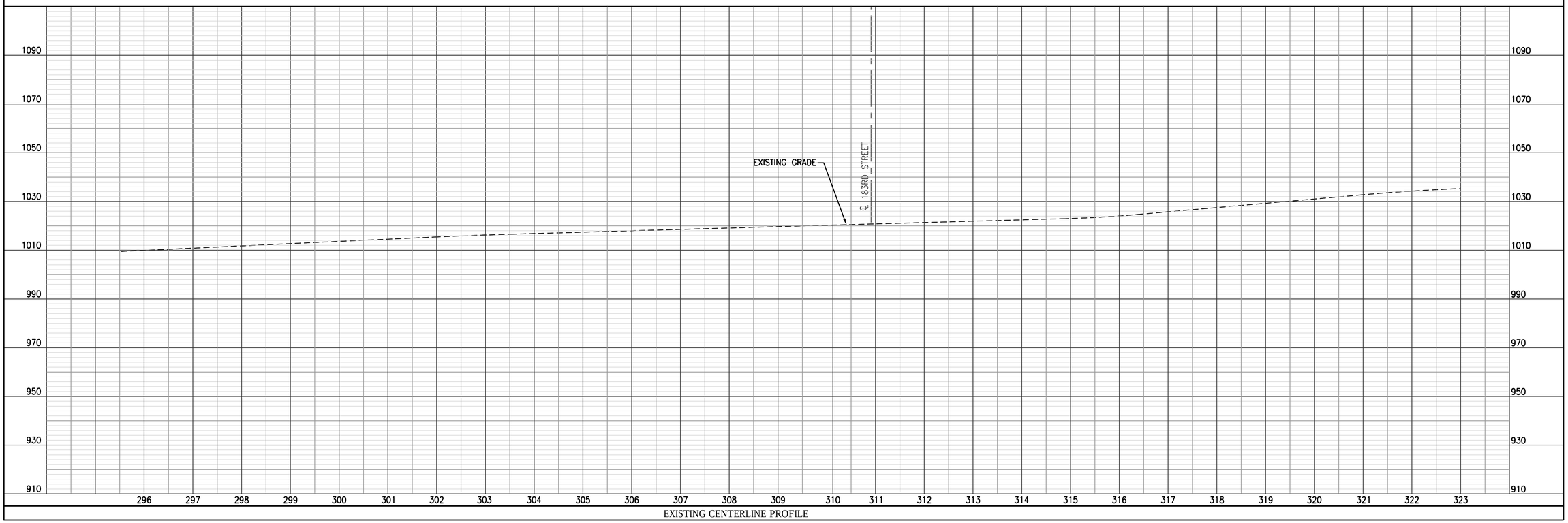
Plan and Profile
Sta. 269+00 to Sta. 296+00

U.S. HIGHWAY 56

Sheet reference number:
6

100' 0 50' 100' 200'

1" = 100H
1" = 20' V



EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8501 E. 13th St. Ste B, Lawrence, KS 66044
o: 785.856.6000

Mark	Description	Date

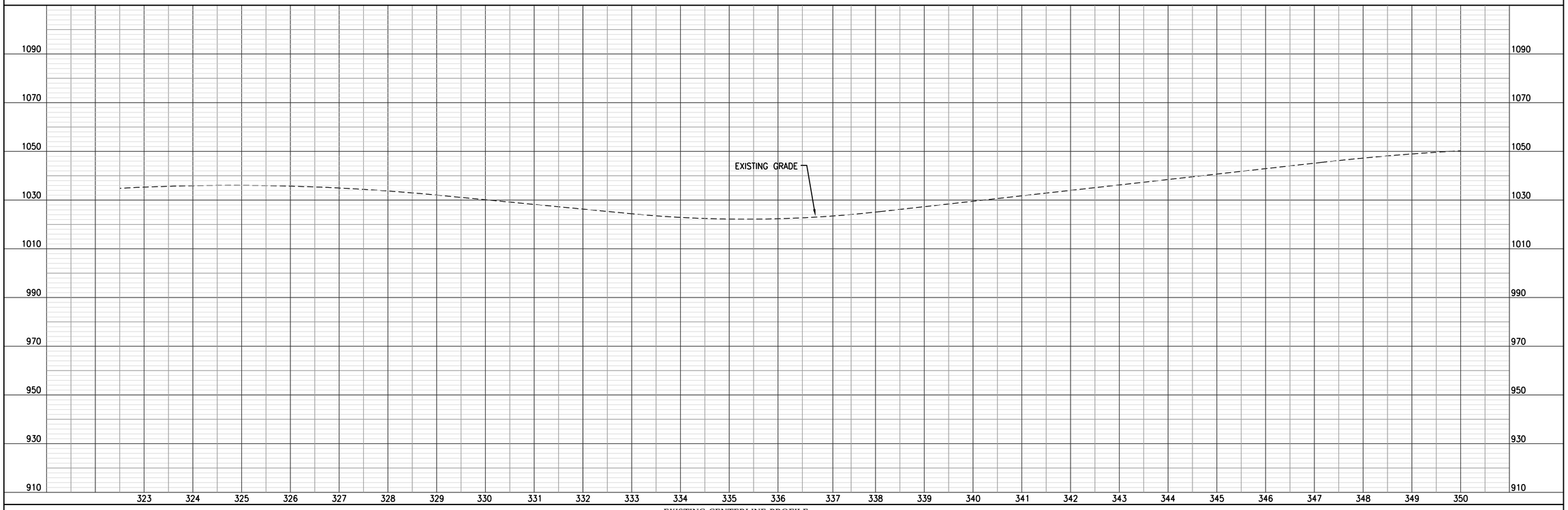
Designed by: RLW
Drawn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

U.S. HIGHWAY 56
BETWEEN EDGERTON
AND
GARDNER KANSAS

Plan and Profile
Sta. 296+00 to Sta. 323+00

U.S. HIGHWAY 56

Sheet reference number:
7



EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8550 E. 13th St. Ste B, Lawrence, KS 66044
o: 785.856.8000

Mark	Description	Date

Designed by: RLW
Drawn by: RLW
Submitted by: DH
Ckd by: AJG
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

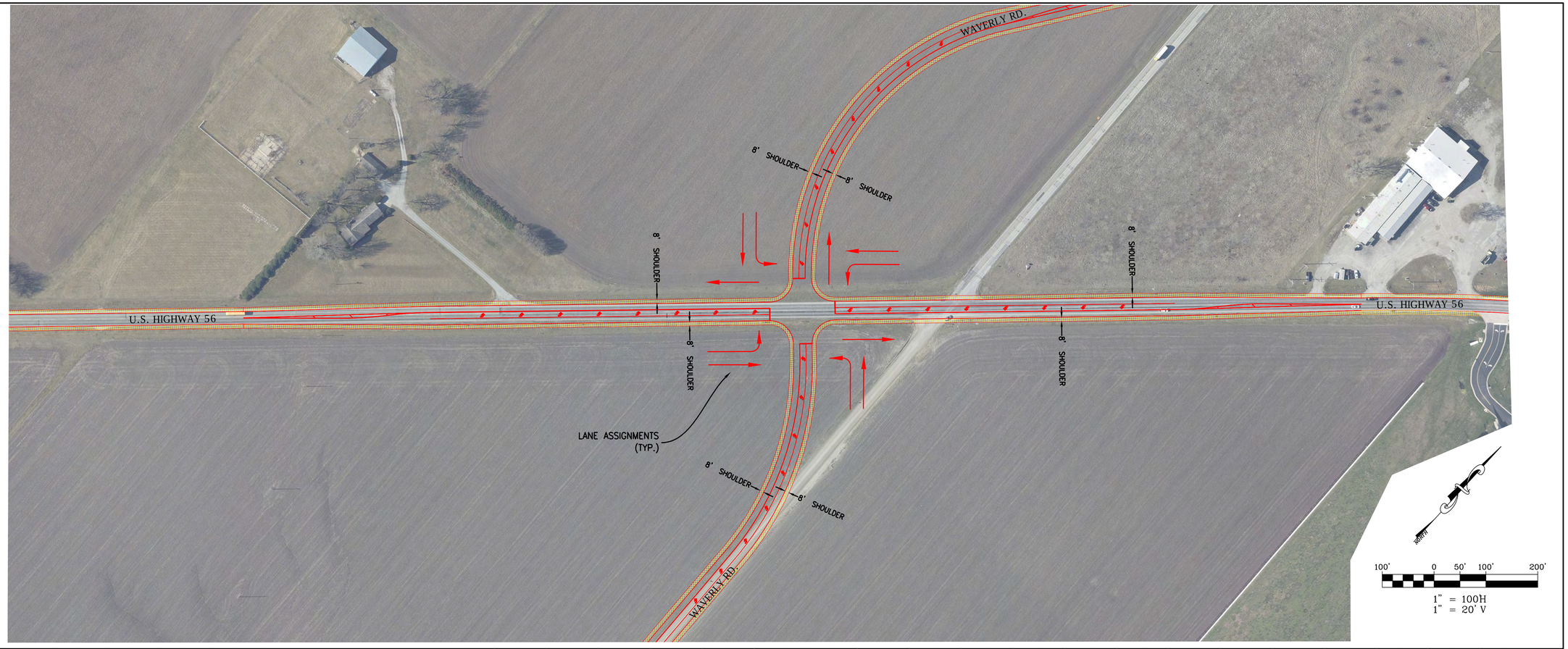
U.S. HIGHWAY 56
BETWEEN EDGERTON AND GARDNER KANSAS

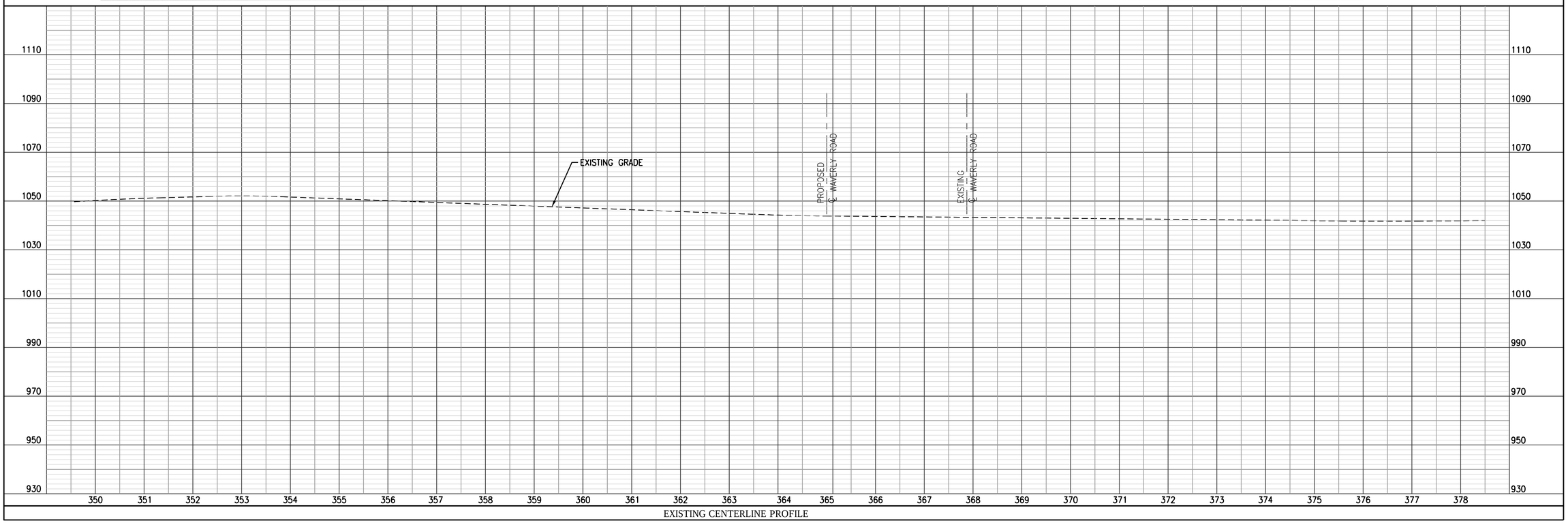
Plan and Profile
Sta. 323+00 to Sta. 350+00

U.S. HIGHWAY 56

Sheet reference number: 8

Sheet 8 of 13





EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8501 E. 13th St. N. Wichita, KS 67206
P: 316.425.6000

Mark	Description	Date

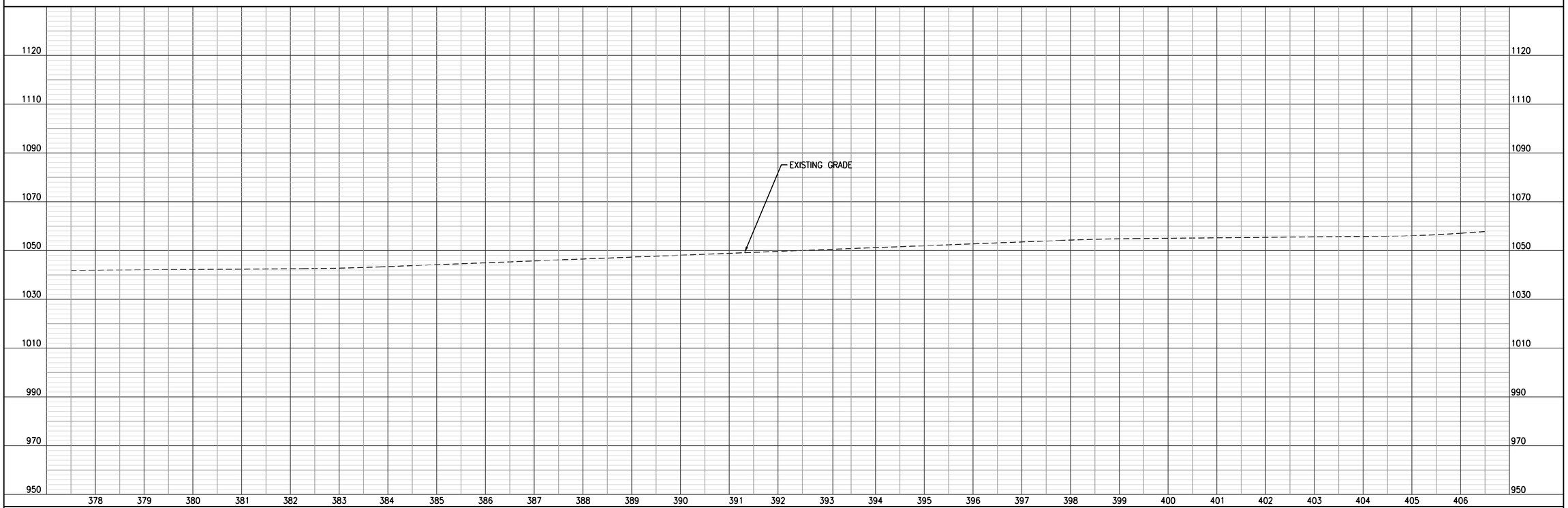
Designed by: DLW
Drwn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

U.S. HIGHWAY 56
BETWEEN EDGERTON
AND
GARDNER KANSAS

Plan and Profile
Sta. 350+00 to Sta. 378+00

U.S. HIGHWAY 56

Sheet reference number:
9



EXISTING CENTERLINE PROFILE

CFS ENGINEERS
cfse.com
8501 E. 13th St. Ste. B, Lawrence, KS 66044
o: 785.856.8500

Mark	Description	Date

Designed by: RLW
Drawn by: RLW
Ckd by: AJG
Submitted by: DH
Date: 08/09/13
Reviewed by: DH
Plot scale: 1"=50'
File name: Hwy 56-PLAN AND PROFILE-100 scale.dwg
Plot date: 8/23/13

U.S. HIGHWAY 56
BETWEEN EDGERTON
AND
GARDNER KANSAS

Plan and Profile
Sta. 378+00 to Sta. 406+17.97

U.S. HIGHWAY 56

Sheet reference number:
10

Sunflower Road Intersection

The US-56 highway and 199th Street/Sunflower Road intersection is a key transportation element in the development of the area. With the addition of the Homestead Lane interchange, traffic normally using US-56 through Gardner may access Interstate 35 using 199th Street and Homestead Lane. Based on future projections, significant traffic will be routed along 199th Street and through this intersection. This intersection currently has deficiencies in geometric, site distance, and capacity, and will need to be reconstructed to accommodate both existing and future traffic.

Existing Conditions:

Capacity: Only one lane of traffic in each direction is provided at the existing intersection on all legs. With the projected increase in future traffic volumes, the level of service will be drastically reduced. Turning lanes will be needed to allow the intersection to operate at an acceptable level of service. Also, storage for vehicles waiting for gaps in traffic will need to be provided. Storage of vehicles is further limited by the railroad tracks crossing 199th Street.

Geometry: Sunflower Road approaches the intersection from the north at an alignment that is not perpendicular to the US-56. The railroad tracks cross 199th Street within 175' of the intersection. The tracks are approximately 2' to 5' higher in grade than the intersection. Additional traffic and queue times at the intersection could result in traffic backing up on 199th Street onto the railroad tracks. Also, the frequency of trains to the intermodal facility and the increased traffic accessing 199th Street at this location could backup traffic on US-56 attempting to turn onto 199th Street.

Sight distance: Sight distance is limited to the east from the intersection by a vertical curve on US-56. Not only does traffic using the intersection have limited site distance for vehicles approaching from the east, traffic approaching the intersection from the east do not have sufficient stopping site distant if a vehicle is waiting to turn left onto 199th Street.

Improvement options:

When evaluating the intersection, optimal improvements must consider cost and time frame for project development and construction. While the optimal improvements will include grade separation at this intersection, this is cost prohibitive. With the railroad and Martin Creek converging at this location, improvements including bridge lengths become extensive. A grade separated intersection would have an estimated cost of $26.3 million (based on the "Five County Regional Study") at this location.

Time frame for project development and construction is another major consideration. The intermodal facility is planned to open in September 2014, and intermediate improvement options will be needed to meet the planned opening date.

Opening day improvements:

For opening day improvements, advanced warning signs with flashers will be installed for eastbound and westbound US-56 to alert drivers to the deficiencies of the intersection. In addition, a beacon will be placed at the intersection to notify drivers to proceed with caution.

Long term improvements:

For long term cost effective improvements, a left turn lane is needed for westbound US-56 along with a right turn lane for eastbound US-56. These turn lanes will allow traffic to queue outside of the through lanes for US-56 waiting in gaps of traffic and possibly a train crossing 199th Street. Additional improvements include left lanes on all legs of the intersection, and a right turn lane for westbound US-56. A permanent traffic signal will need to be interconnected to the train crossing signal to allow coordination between permitted traffic flow and train crossings.

Reconstruction and regrading of US-56 east at this intersection will improve sight distance to the east. This will require approximately 2,800 feet of reconstruction since vertical curves will need to be adjusted 8 to 12 feet.

To limit the amount of vertical adjustments and reconstruction on US-56 for sight distance, an upward grade adjustment at this intersection would be beneficial. This would also improve grades along 199th Street between the intersection and the railroad tracks. However, an intersection with grade separation would likely require the existing intersection to be lowered. The lowering of the intersection would not only lengthen the reconstruction along US-56, but would steepen grades along 199th Street to the railroad tracks to 5% to 8%.

Based on traffic modeling for 2040 traffic, these improvements could provide a level of service B at this intersection. With the uncertainty of funding for an intersection with grade separation, these improvements could provide an acceptable level of service for 2040 traffic and provide benefit through the expected service life of the improvements.

Based on the importance of this intersection to the transportation system in this area including service to the intermodal facility, traffic interruption should be minimized during construction. Staged construction, shoo-fly detour and a signed alternate detour route should be considered.

US-56 Highway Evaluation

1.0 Introduction

The following section discusses US-56 Highway in Johnson County, between Edgerton (Sunflower Road) and the intersection of Interstate 35 on the east side of Gardner, Kansas. With the opening of the BNSF intermodal facility and development of the area, the characteristics and nature of US-56 as a major transportation element in the area must be evaluated. One consideration is the configuration and geometry of US-56 needed to serve local development surrounding the BNSF intermodal facility. The other consideration is the nature of US-56 in the regional roadway network with the addition of the Homestead Lane interchange. Traffic normally using US-56 from Edgerton to Gardner may access Interstate 35 using 199th Street and Homestead Lane.

It is not the intent of this study to recreate the discussion and proposed improvements developed in the US-56 Corridor Study completed in 2010, but to consider the role of US-56 based on the local development from response to the BNSF intermodal facility. Additional improvements and considerations are evaluated in the US-56 Corridor Study taking into account its regional significance.

2.0 Corridor Description

This section of US-56 Highway is a two-lane highway that serves northeast-southwest movement of traffic between Edgerton and Gardner, and a 4-lane highway that serves east-west movement of traffic within the City of Gardner. The existing section provides a direct connection to Interstate 35 along US-56. US-56 doesn't follow the local section line roadway grid between Edgerton & Gardner, and this area is currently undeveloped. Waverly Road and 199th Street will be the only connecting roadways to the south. US-56 will not have direct access to the BNSF intermodal facility as the operational access point will be off of 191 Street on the south side of the facility.

3.0 US-56 Highway Improvements

As the area develops around the BNSF intermodal facility, US-56 will need improvements to accommodate this growth. With the opening of the Homestead lane interchange and the BNSF intermodal facility, US-56 may not remain a major connector to Interstate 35 and the Kansas City metro area. Access to the BNSF intermodal facility from US-56 is anticipated to use 199th Street from the west and Interstate35 to Homestead Lane from the east. This is anticipated to change the character of US-56 to more of a local road connecting Gardner and Edgerton rather than a regional transportation connection to the Kansas City Metro area. As a result, a significant increase in traffic volume may not occur; however, an increase in turning movements along US-56 would be expected.

The areas north of US-56 are anticipated to develop and generate additional turning traffic based on the relative proximity to the BNSF intermodal facility. To accommodate these traffic movements, dedicated left turn lanes added at existing side roads would allow turning traffic to queue without blocking the through traffic movement. Sight

distances at the existing intersections were reviewed at the current 60 MPH posted speed using the "Policy on Geometric Design of Highways and Streets" (2011). A minimum of 570 feet for stopping sight distance and a minimum of 665 feet for intersection sight distance is required. Proposed left turn lanes and vertical profile adjustments along US-56 Highway are shown on the plan and profile sheets. Profile grade adjustments along US-56 would provide adequate site distance at the intersections of 191st Street and Four Corners Road.

The alignment of US-56 between Edgerton and Gardner does not follow the section line roadway network, causing all of the existing side roads to intersect US-56 at an angle. By adjusting side road intersection geometry to a perpendicular alignment, the intersection will operate more effectively.

Although access will be controlled along this section of roadway, additional public road access may occur at acceptable spacing and locations. When this occurs, a traffic study should be done to determine the extent of improvements that will be needed to accommodate turning movements, sight distance, geometric considerations, and characteristics of US-56.

The intersection at Sunflower Road/199th Street will need significant improvements. The discussion of improvements and configuration of this intersection are discussed in another section in this study.

The addition of 8 foot paved shoulders between Edgerton and Gardner will provide an area for vehicles to pull over if necessary along with a recovery zone for errant vehicles. Since this section will have more of a local use, the shoulders could also accommodate active transportation. The BNSF intermodal facility limits active transportation routes between Edgerton and Gardner both physically and by the increase of truck traffic south of the facility.

The US-56 Corridor Study developed in 2010 has additional improvements to this stretch of US-56 highway based on its regional significance.

4.0 Routing of US-56 Highway

With construction of the Homestead Lane interchange, significant traffic will be accessing interstate 35 along 199th Street and Homestead Lane. Designating this route as US-56 highway and removing existing US-56 from Edgerton (Sunflower Road) to interstate 35 on the east side of Gardner from the highway network is a consideration. US-56 route designation will not significantly affect traffic volumes, since traffic generation is based on destination and access. The intent of this dialogue is not to make a recommendation or determination, but to discuss the positive and negative aspects of re-routing US-56 along 199th Street and Homestead Lane to Interstate 35. Some positive aspects for the re-designation of US-56 include the following items:

- Local jurisdiction of the existing section of US-56 would allow more flexibility for adaptation to the local road network and potential application. This could include limiting of truck traffic from the BNSF intermodal facility and other areas. Streetscapes, lane configuration or reduction, traffic calming, active transportation,

and access would all be controlled by local jurisdiction. In some locations this could increase the amount and type of development.
- Region traffic would be directed to the most direct route along the state highway.
- Local jurisdictions will not have the financial burden of upgrading 199th Street.

Some negative aspects for re-designating US-56 along 199th Street and Homestead Lane to Interstate 35 include the following items:

- Changing the cross section of 199th Street to meet highway criteria could alter the characteristic of 199th Street from a rural scenic byway to more of an urban section near Milldale Farm.
- Regional traffic will be routed around the City of Gardner which could limit drive by business.
- Local jurisdictions will need to increase maintenance budgets for this section of roadway. The 4 lane section of US-56 in Gardner east of Center Street is heavily travelled with a railroad crossing, two steel girder bridges, and an interchange that will need to be maintained. Significant resources will be needed to maintain, repair, and replace infrastructure in this area. If the grade separating intersection at 199th Street is not constructed, intersection turning movements would be introduced that are uncharacteristic and unexpected along a highway route.
- Significant cost must be invested before turning the existing US-56 route over to local jurisdiction.

Included in the discussion for redesignation of US-56 along 199th Street and Homestead Lane to Interstate 35 is the improvements that will be needed before ownership is transferred to local jurisdictions.

Moderately high levels of congestion should be expected in the future for the four lane concrete pavement section east of Sycamore Street to Interstate 35. The segment from Interstate 35 west to Moonlight Road includes two steel girder bridges with ramps close to Century Link and the New Century Air Center. One is a four span bridge over the Industrial Bypass (old US-56) and a rail crossing, and the other is a two span with ramps over New Century Parkway. This segment of US-56 from Moonlight Road to Interstate 35 is also identified in the US-56 Corridor Plan as possibly needing widening to 6 lanes. This section of US-56 would need the following improvements:

- Widen street section to 6 lanes east of Moonlight Road. This includes 2 bridges that will need modifications or replacement.
- Concrete pavement repair and patching
- Replacement of damaged curb sections.
- Concrete pavement joint sealing/repair and crack sealing
- Upgrading of pavement markings
- Development of a quiet zone railroad crossing
- Signing upgrades

The 4 lane asphalt pavement section west of Sycamore Street in City of Gardner would need the following improvements:

- Milling and patching of asphalt pavement with asphalt overlay
- Repair or replacement of damaged curb and gutter sections.
- Pavement marking upgrade
- Storm sewer inlet evaluation with repair and replacement of older and damaged inlets.
- Storm sewer pipe evaluation, repair, and possible replacement.
- Signing upgrade

The 2 lane asphalt pavement section between Gardner and Edgerton (Sunflower Road) would need the following improvements:

- Upgrades to Sunflower Road/199th Street intersection as discussed in other sections of this study.
- Upgrades at side road locations as discussed previously including turn lanes, side road geometry, and profile grade adjustments for sight distance at 191st Street and Four Corners Road.
- Milling and patching of asphalt pavement with asphalt overlay
- Pavement marking upgrade
- Grading and construction of 8 foot shoulders
- Evaluation of culverts and bridges including repair and replacement if needed.
- Extension of culverts and bridges for 8 foot shoulders and widening for left turn lanes.
- Replacement of bridge west of 191st Street crossing Bull Creek to accommodate roadway widening for left turn lane development. However, another option may be to redesign the intersection further to the east.
- Signing upgrade

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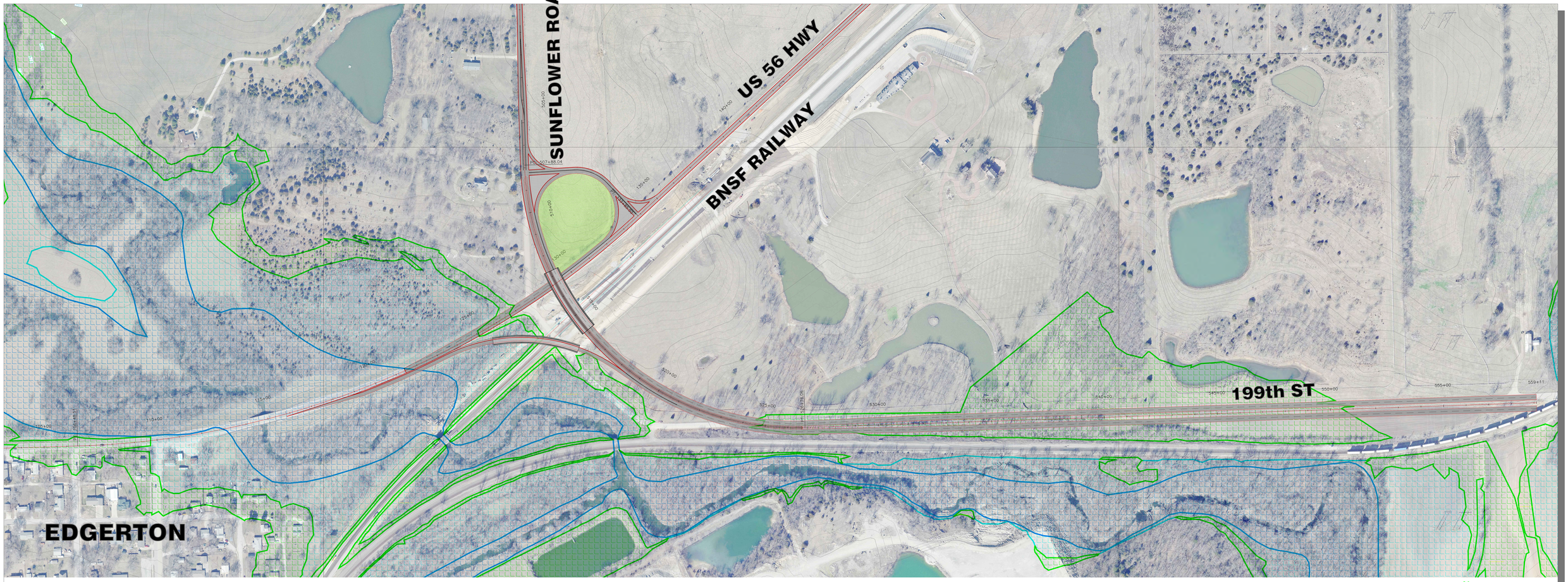
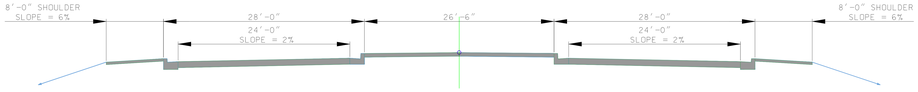
Southwest Johnson County Area Plan

US 56 HIGHWAY / 199TH STREET/ SUNFLOWER ROAD INTERSECTION





199th STREET TYPICAL SECTION

WORK IN PROGRESS

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SCALE: 1"=100'

0 100 200 400

MAY 6, 2013

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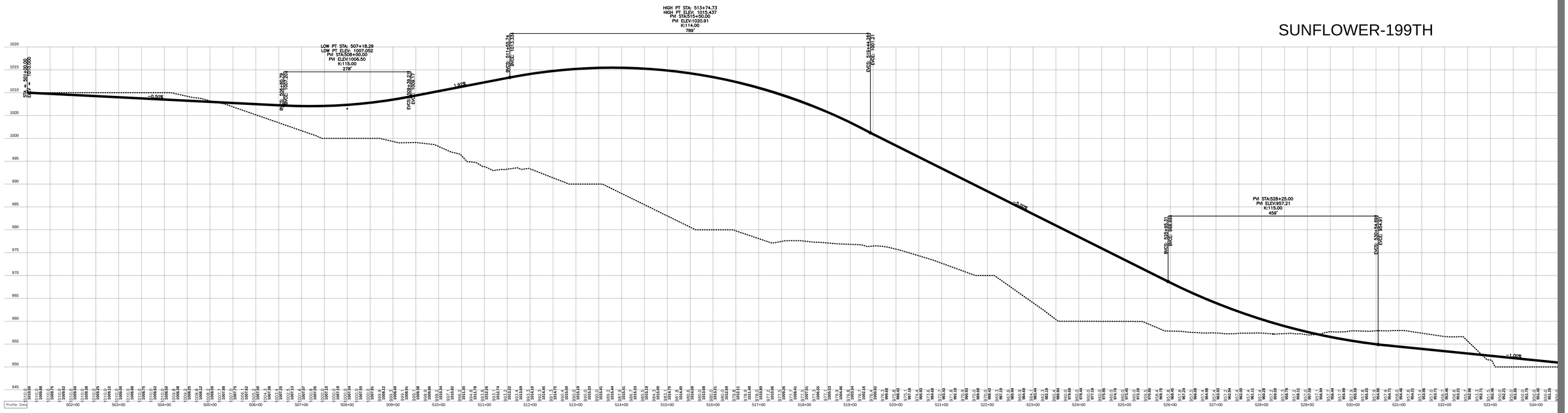
Southwest Johnson County Area Plan

US 56 HIGHWAY / 199TH STREET/ SUNFLOWER ROAD INTERSECTION



WORK IN PROGRESS

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HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'

MAY 6, 2013