APPENDIX D

Existing Capacity/Level-of-Service Analysis Worksheets

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	60	5	18	164	15	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	13	13
Grade (%)	2%			-3%	4%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989				0.922	
Flt Protected				0.995	0.979	
Satd. Flow (prot)	1601	0	0	1672	1513	0
Flt Permitted				0.995	0.979	
Satd. Flow (perm)	1601	0	0	1672	1513	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1452			314	498	
Travel Time (s)	39.6			8.6	13.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	6%	1%	7%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	68	6	20	186	17	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	0	206	40	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	60	5	18	164	15	20
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, %	2	-	-	-3	4	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	0	6	1	7	10
Mvmt Flow	68	6	20	186	17	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	74	0	298	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	227	-
Critical Hdwy	-	-	4.4	-	7.27	6.7
Critical Hdwy Stg 1	-	-	-	-	6.27	-
Critical Hdwy Stg 2	-	-	-	-	6.27	-
Follow-up Hdwy	-	-	3.1	-	3.1	3.2
Pot Cap-1 Maneuver	-	-	1095	-	721	1017
Stage 1	-	-	-	-	1058	-
Stage 2	-	-	-	-	861	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1095	-	707	1017
Mov Cap-2 Maneuver	-	-	-	-	707	-
Stage 1	-	-	-	-	1058	-
Stage 2	-	-	-	-	844	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	856	-	-	1095	-
HCM Lane V/C Ratio	0.046	-	-	0.019	-
HCM Control Delay (s)	9.4	-	-	8.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	47	144	1197	35	29	612
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	15	12	12
Grade (%)	1%		2%			-2%
Storage Length (ft)	0	0		105	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.898			0.850		
Flt Protected	0.988					0.998
Satd. Flow (prot)	1433	0	1672	1572	0	1726
Flt Permitted	0.988					0.998
Satd. Flow (perm)	1433	0	1672	1572	0	1726
Link Speed (mph)	25		45			45
Link Distance (ft)	1452		1875			410
Travel Time (s)	39.6		28.4			6.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	4%	3%	6%	7%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	49	150	1247	36	30	638
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	0	1247	36	0	668
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc.
2: Newtown Street Rd (SR 252) & Cedar Grove Rd
Marple Age-Restricted
2015 Existing - Weekday AM

Intersection

Int Delay, s/veh 31.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	47	144	1197	35	29	612
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	-	-	105	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	2	-	-	-2
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	4	3	6	7	5
Mvmt Flow	49	150	1247	36	30	638

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1945	1247	0	0	1247	0
Stage 1	1247	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Critical Hdwy	6.62	6.34	-	-	4.4	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3.1	-
Pot Cap-1 Maneuver	68	211	-	-	413	-
Stage 1	275	-	-	-	-	-
Stage 2	532	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	60	211	-	-	413	-
Mov Cap-2 Maneuver	60	-	-	-	-	-
Stage 1	275	-	-	-	-	-
Stage 2	472	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 334.6	0	0.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	130	413	-
HCM Lane V/C Ratio	-	-	1.53	0.073	-
HCM Control Delay (s)	-	-	$ 334.6	14.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	14	0.2	-

Notes

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	23	98	1219	40	65	674
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	12	12	12
Grade (%)	3%		0%			-1%
Storage Length (ft)	0	0		0	186	
Storage Lanes	1	0		0	1	
Taper Length (ft)	75				65	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.891		0.996			
Flt Protected	0.991				0.950	
Satd. Flow (prot)	1461	0	1741	0	1548	1739
Flt Permitted	0.991				0.950	
Satd. Flow (perm)	1461	0	1741	0	1548	1739
Link Speed (mph)	25		35			45
Link Distance (ft)	660		484			1875
Travel Time (s)	18.0		9.4			28.4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	3%	11%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	24	102	1270	42	68	702
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	0	1312	0	68	702
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

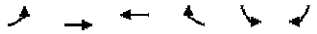
Intersection	
Int Delay, s/veh	14.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	23	98	1219	40	65	674
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	-	-	-	186	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	0	-	-	-1
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	3	3	11	4
Mvmt Flow	24	102	1270	42	68	702

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2129	1291	0	0	1311	0
Stage 1	1291	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Critical Hdwy	7	6.5	-	-	4.4	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3.1	-
Pot Cap-1 Maneuver	41	187	-	-	390	-
Stage 1	228	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	34	187	-	-	390	-
Mov Cap-2 Maneuver	34	-	-	-	-	-
Stage 1	228	-	-	-	-	-
Stage 2	341	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	248.5	0	1.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	101	390	-
HCM Lane V/C Ratio	-	-	1.248	0.174	-
HCM Control Delay (s)	-	-	248.5	16.2	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q(veh)	-	-	8.6	0.6	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Volume (vph)	13	89	110	28	33	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	13	13
Grade (%)		-1%	2%		-1%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.972		0.979	
Flt Protected		0.994			0.959	
Satd. Flow (prot)	0	1541	1581	0	1711	0
Flt Permitted		0.994			0.959	
Satd. Flow (perm)	0	1541	1581	0	1711	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		488	231		615	
Travel Time (s)		13.3	6.3		16.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	9%	0%	11%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	15	105	129	33	39	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	120	162	0	46	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	13	89	110	28	33	6
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, %	-	-1	2	-	-1	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	8	9	0	11	3	0
Mvmt Flow	15	105	129	33	39	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	162	0	-	0	281	146
Stage 1	-	-	-	-	146	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.4	-	-	-	6.23	6.1
Critical Hdwy Stg 1	-	-	-	-	5.23	-
Critical Hdwy Stg 2	-	-	-	-	5.23	-
Follow-up Hdwy	3.1	-	-	-	3	3.1
Pot Cap-1 Maneuver	1021	-	-	-	828	965
Stage 1	-	-	-	-	1031	-
Stage 2	-	-	-	-	1043	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1021	-	-	-	815	965
Mov Cap-2 Maneuver	-	-	-	-	815	-
Stage 1	-	-	-	-	1031	-
Stage 2	-	-	-	-	1026	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1021	-	-	-	835
HCM Lane V/C Ratio	0.015	-	-	-	0.055
HCM Control Delay (s)	8.6	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	107	12	42	113	23	86
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	12	12
Grade (%)	-1%			1%	-1%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.893	
Flt Protected				0.987	0.990	
Satd. Flow (prot)	1529	0	0	1605	1546	0
Flt Permitted				0.987	0.990	
Satd. Flow (perm)	1529	0	0	1605	1546	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	350			444	512	
Travel Time (s)	9.5			12.1	14.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	8%	21%	1%	9%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	122	14	48	128	26	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	136	0	0	176	124	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	107	12	42	113	23	86
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, %	-1	-	-	1	-1	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	9	8	21	1	9	2
Mvmt Flow	122	14	48	128	26	98

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	0	0	135	0	352	128	
Stage 1	-	-	-	-	128	-	
Stage 2	-	-	-	-	224	-	
Critical Hdwy	-	-	4.5	-	6.29	6.12	
Critical Hdwy Stg 1	-	-	-	-	5.29	-	
Critical Hdwy Stg 2	-	-	-	-	5.29	-	
Follow-up Hdwy	-	-	3.2	-	3.1	3.1	
Pot Cap-1 Maneuver	-	-	1008	-	728	987	
Stage 1	-	-	-	-	1016	-	
Stage 2	-	-	-	-	919	-	
Platoon blocked, %	-	-		-			
Mov Cap-1 Maneuver	-	-	1008	-	691	987	
Mov Cap-2 Maneuver	-	-	-	-	691	-	
Stage 1	-	-	-	-	1016	-	
Stage 2	-	-	-	-	872	-	

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	905	-	-	1008	-
HCM Lane V/C Ratio	0.137	-	-	0.047	-
HCM Control Delay (s)	9.6	-	-	8.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	2	211	1	1	0	206	1707	2	5	1069	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	10	10	10	8	12	15	9	11	13
Grade (%)		2%			0%			2%			-1%	
Storage Length (ft)	0		150	0		0	149		0	129		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	75			75			75			51		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850								0.988	
Flt Protected		0.953			0.976		0.950			0.950		
Satd. Flow (prot)	0	1467	1584	0	1640	0	1411	3256	0	1547	3142	0
Flt Permitted		0.729			0.899		0.132			0.087		
Satd. Flow (perm)	0	1122	1584	0	1510	0	196	3256	0	142	3142	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218								10	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		1376			470			853			1082	
Travel Time (s)		37.5			12.8			14.5			18.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	16%	0%	2%	0%	0%	0%	4%	4%	0%	0%	4%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	128	2	218	1	1	0	212	1760	2	5	1102	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	130	218	0	2	0	212	1762	0	5	1196	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	30	30	30	30	30		30	30		30	30	
Trailing Detector (ft)	-10	-10	-10	-10	-10		-10	-10		-10	-10	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Detector Phase	4	4	4	8	8		1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0		9.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		22.0	66.0		9.0	53.0	
Total Split (%)	31.8%	31.8%	31.8%	31.8%	31.8%		20.0%	60.0%		8.2%	48.2%	
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0		16.0	60.0		3.0	47.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		6.0	6.0		6.0		5.0	5.0		5.0	5.0	

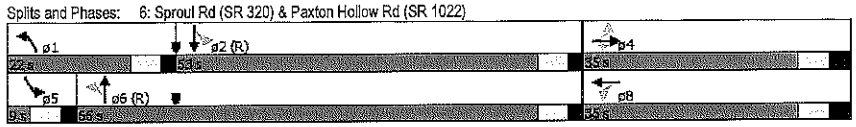
McMahon Associates, Inc.
6: Sproul Rd (SR 320) & Paxton Hollow Rd (SR 1022)
Marple Age-Restricted
2015 Existing - Weekday AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
v/c Ratio		0.66	0.48		0.01		0.65	0.77		0.03	0.72	
Control Delay		57.5	8.3		33.0		22.8	15.7		8.0	24.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		57.5	8.3		33.0		22.8	15.7		8.0	24.7	
Queue Length 50th (ft)		86	0		1		50	341		1	330	
Queue Length 95th (ft)		140	59		8		146	#804		5	492	
Internal Link Dist (ft)		1296			390			773			1002	
Turn Bay Length (ft)			150				149			129		
Base Capacity (vph)		295	578		398		345	2296		167	1668	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.44	0.38		0.01		0.61	0.77		0.03	0.72	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 61 (55%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Sproul Rd (SR 320) & Paxton Hollow Rd (SR 1022)



Lanes, Volumes, Timings
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2015 Existing - Weekday AM
Synchro 8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	2	211	1	1	0	206	1707	2	5	1069	91
Number	7	4	14	3	8	18	1	6	16	5	2	12
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	1782	1539	1817	1800	1800	1800	1645	1714	1853	1737	1732	1881
Adj Flow Rate, veh/h	128	2	125	1	1	0	212	1760	2	5	1102	87
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	0	0	0	4	4	4	0	4	4
Cap, veh/h	226	3	294	67	53	0	349	2173	2	157	1792	141
Arrive On Green	0.18	0.19	0.19	0.18	0.19	0.00	0.08	0.65	0.64	0.01	0.58	0.57
Sat Flow, veh/h	845	13	1544	96	277	0	1567	3337	4	1554	3090	244
Grp Volume(v), veh/h	130	0	125	2	0	0	212	858	904	5	586	603
Grp Sat Flow(s),veh/h/ln	859	0	1544	373	0	0	1567	1628	1713	1554	1645	1689
Q Serve(g_s), s	0.0	0.0	7.8	0.0	0.0	0.0	5.4	42.8	42.8	0.1	25.6	25.7
Cycle Q Clear(g_c), s	17.4	0.0	7.8	17.4	0.0	0.0	5.4	42.8	42.8	0.1	25.6	25.7
Prop In Lane	0.98		1.00	0.50		0.00	1.00		0.00	1.00		0.14
Lane Grp Cap(c), veh/h	221	0	294	117	0	0	349	1060	1115	157	954	979
V/C Ratio(X)	0.59	0.00	0.43	0.02	0.00	0.00	0.61	0.81	0.81	0.03	0.61	0.62
Avail Cap(c_a), veh/h	311	0	407	226	0	0	459	1060	1115	195	954	979
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	39.2	37.4	0.0	0.0	13.2	14.2	14.2	14.8	15.1	15.1
Incr Delay (d2), s/veh	2.5	0.0	1.0	0.1	0.0	0.0	1.7	6.7	6.4	0.1	3.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.3	0.0	6.1	0.1	0.0	0.0	5.9	28.6	29.8	0.1	18.1	18.5
LnGrp Delay(d),s/veh	46.1	0.0	40.2	37.5	0.0	0.0	14.9	20.9	20.6	14.9	18.0	18.0
LnGrp LOS	D		D	D			B	C	C	B	B	B
Approach Vol, veh/h		255			2			1974			1194	
Approach Delay, s/veh		43.2			37.5			20.1			18.0	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	68.8		26.9	6.4	76.6		26.9
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	16.0	47.0		28.0	3.0	60.0		28.0
Max Q Clear Time (g_c+I1), s	7.9	28.1		19.4	2.6	45.3		19.4
Green Ext Time (p_c), s	0.4	12.4		0.6	0.0	10.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	141	12	29	110	5	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	13	13
Grade (%)	2%			-3%	4%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.990				0.919	
Flt Protected				0.990	0.980	
Satd. Flow (prot)	1631	0	0	1638	1642	0
Flt Permitted				0.990	0.980	
Satd. Flow (perm)	1631	0	0	1638	1642	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1452			314	498	
Travel Time (s)	39.6			8.6	13.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	7%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	158	13	33	124	6	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	171	0	0	157	15	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	141	12	29	110	5	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	-3	4	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	0	7	2	0	0
Mvmt Flow	158	13	33	124	6	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	172	0	354	165
Stage 1	-	-	-	-	165	-
Stage 2	-	-	-	-	189	-
Critical Hdwy	-	-	4.4	-	7.2	6.6
Critical Hdwy Stg 1	-	-	-	-	6.2	-
Critical Hdwy Stg 2	-	-	-	-	6.2	-
Follow-up Hdwy	-	-	3.1	-	3	3.1
Pot Cap-1 Maneuver	-	-	1013	-	683	921
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1013	-	659	921
Mov Cap-2 Maneuver	-	-	-	-	659	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	904	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	799	-	-	1013	-
HCM Lane V/C Ratio	0.018	-	-	0.032	-
HCM Control Delay (s)	9.6	-	-	8.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	38	89	861	93	75	996
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	15	12	12
Grade (%)	1%		2%			-2%
Storage Length (ft)	0	0		105	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.905			0.850		
Flt Protected	0.985					0.996
Satd. Flow (prot)	1490	0	1706	1666	0	1794
Flt Permitted	0.985					0.996
Satd. Flow (perm)	1490	0	1706	1666	0	1794
Link Speed (mph)	25		45			45
Link Distance (ft)	1452		1875			410
Travel Time (s)	39.6		28.4			6.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	41	97	936	101	82	1083
Shared Lane Traffic (%)						
Lane Group Flow (vph)	138	0	936	101	0	1165
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	24.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	38	89	861	93	75	996
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	-	-	105	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	2	-	-	-2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	41	97	936	101	82	1083

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2182	936	0	0	936	0
Stage 1	936	-	-	-	-	-
Stage 2	1246	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	48	329	-	-	565	-
Stage 1	403	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 31	329	-	-	565	-
Mov Cap-2 Maneuver	~ 31	-	-	-	-	-
Stage 1	403	-	-	-	-	-
Stage 2	177	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 412.9	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	85	565	-
HCM Lane V/C Ratio	-	-	1.624	0.144	-
HCM Control Delay (s)	-	-	$ 412.9	12.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	11.2	0.5	-

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	26	88	893	32	154	909
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	12	12	12
Grade (%)	3%		0%			-1%
Storage Length (ft)	0	0		0	186	
Storage Lanes	1	0		0	1	
Taper Length (ft)	75				65	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.895		0.995			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1453	0	1770	0	1702	1791
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1453	0	1770	0	1702	1791
Link Speed (mph)	25		35			45
Link Distance (ft)	660		484			1875
Travel Time (s)	18.0		9.4			28.4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	1%	6%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	27	93	940	34	162	957
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	0	974	0	162	957
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	19.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	26	88	893	32	154	909
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	-	-	-	186	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	0	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	6	1	1
Mvmt Flow	27	93	940	34	162	957

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2238	957	0	0	974	0
Stage 1	957	-	-	-	-	-
Stage 2	1281	-	-	-	-	-
Critical Hdwy	7	6.51	-	-	4.3	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	34	302	-	-	547	-
Stage 1	353	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 24	302	-	-	547	-
Mov Cap-2 Maneuver	~ 24	-	-	-	-	-
Stage 1	353	-	-	-	-	-
Stage 2	163	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 344.3	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	83	547	-
HCM Lane V/C Ratio	-	-	1.446	0.296	-
HCM Control Delay (s)	-	-	$ 344.3	14.3	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	9.4	1.2	-

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	6	187	108	23	46	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	13	13
Grade (%)		-1%	2%		-1%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.976		0.973	
Flt Protected		0.998			0.962	
Satd. Flow (prot)	0	1653	1597	0	1750	0
Flt Permitted		0.998			0.962	
Satd. Flow (perm)	0	1653	1597	0	1750	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		488	231		615	
Travel Time (s)		13.3	6.3		16.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	7	210	121	26	52	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	217	147	0	65	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	6	187	108	23	46	12
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, %	-	-1	2	-	-1	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	7	210	121	26	52	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	147	0	-	0	358	134
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	224	-
Critical Hdwy	4.3	-	-	-	6.2	6.1
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1070	-	-	-	749	980
Stage 1	-	-	-	-	1045	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1070	-	-	-	744	980
Mov Cap-2 Maneuver	-	-	-	-	744	-
Stage 1	-	-	-	-	1045	-
Stage 2	-	-	-	-	945	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1070	-	-	-	783
HCM Lane V/C Ratio	0.006	-	-	-	0.083
HCM Control Delay (s)	8.4	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	197	38	103	122	15	64
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	12	12
Grade (%)	-1%			1%	-1%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.978				0.890	
Flt Protected				0.978	0.991	
Satd. Flow (prot)	1611	0	0	1661	1538	0
Flt Permitted				0.978	0.991	
Satd. Flow (perm)	1611	0	0	1661	1538	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	350			444	512	
Travel Time (s)	9.5			12.1	14.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	3%	1%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	214	41	112	133	16	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	255	0	0	245	86	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc.
5: Palmers Mill Rd (SR 1022)/Paxton Hollow Rd
Marple Age-Restricted
2015 Existing - Weekday PM

Intersection

Int Delay, s/veh 3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	197	38	103	122	15	64
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, %	-1	-	-	1	-1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	0	3	1	7	3
Mvmt Flow	214	41	112	133	16	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	255	0	592	235
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	357	-
Critical Hdwy	-	-	4.3	-	6.27	6.13
Critical Hdwy Stg 1	-	-	-	-	5.27	-
Critical Hdwy Stg 2	-	-	-	-	5.27	-
Follow-up Hdwy	-	-	3	-	3.1	3.1
Pot Cap-1 Maneuver	-	-	982	-	529	860
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	800	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	982	-	464	860
Mov Cap-2 Maneuver	-	-	-	-	464	-
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	702	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	740	-	-	982	-
HCM Lane V/C Ratio	0.116	-	-	0.114	-
HCM Control Delay (s)	10.5	-	-	9.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.4	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	1	324	10	0	1	274	1264	2	1	1671	98
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	10	10	10	8	12	15	9	11	13
Grade (%)		2%			0%			2%			-1%	
Storage Length (ft)	0		150	0		0	149		0	129		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	75			75			75			51		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.988						0.992	
Flt Protected		0.953			0.957		0.950			0.950		
Satd. Flow (prot)	0	1698	1600	0	1588	0	1467	3352	0	1547	3265	0
Flt Permitted		0.720			0.773		0.062			0.211		
Satd. Flow (perm)	0	1283	1600	0	1283	0	96	3352	0	344	3265	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			154		136						7	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		1376			470			853			1082	
Travel Time (s)		37.5			12.8			14.5			18.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	119	1	334	10	0	1	282	1303	2	1	1723	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	120	334	0	11	0	282	1305	0	1	1824	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	30	30	30	30	30		30	30		30	30	
Trailing Detector (ft)	-10	-10	-10	-10	-10		-10	-10		-10	-10	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Detector Phase	4	4	4	8	8		1	6		5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0		9.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		21.0	76.0		9.0	64.0	
Total Split (%)	29.2%	29.2%	29.2%	29.2%	29.2%		17.5%	63.3%		7.5%	53.3%	
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0		15.0	70.0		3.0	58.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		6.0	6.0		6.0		5.0	5.0		5.0	5.0	

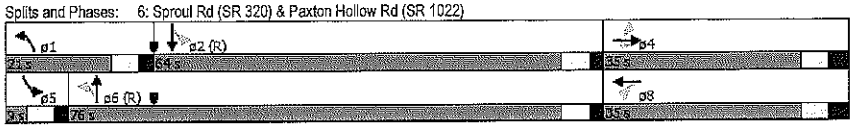
McMahon Associates, Inc.
6: Sproul Rd (SR 320) & Paxton Hollow Rd (SR 1022)
Marple Age-Restricted
2015 Existing - Weekday PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
v/c Ratio		0.54	0.82		0.03		0.82	0.54		0.00	1.13	
Control Delay		52.7	41.8		0.2		53.2	10.3		7.0	98.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		52.7	41.8		0.2		53.2	10.3		7.0	98.6	
Queue Length 50th (ft)		85	138		0		166	206		0	~866	
Queue Length 95th (ft)		137	233		0		#391	410		2	#1007	
Internal Link Dist (ft)		1296			390			773			1002	
Turn Bay Length (ft)			150				149			129		
Base Capacity (vph)		310	503		413		346	2412		248	1608	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.39	0.66		0.03		0.82	0.54		0.00	1.13	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 19 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Sproul Rd (SR 320) & Paxton Hollow Rd (SR 1022)



Lanes, Volumes, Timings
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2015 Existing - Weekday PM
Synchro 8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	115	1	324	10	0	1	274	1264	2	1	1671	98
Number	7	4	14	3	8	18	1	6	16	5	2	12
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	1782	1782	1835	1800	1800	1800	1711	1764	1853	1737	1792	1881
Adj Flow Rate, veh/h	119	1	244	10	0	0	282	1303	2	1	1723	99
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	0	0	0	0	1	1	0	1	1
Cap, veh/h	344	2	292	200	0	0	287	2303	4	269	1789	102
Arrive On Green	0.18	0.19	0.19	0.18	0.00	0.00	0.13	0.67	0.66	0.01	0.55	0.54
Sat Flow, veh/h	1521	13	1560	750	0	0	1629	3434	5	1654	3275	187
Grp Volume(v), veh/h	120	0	244	10	0	0	282	636	669	1	890	932
Grp Sat Flow(s),veh/h/ln	1534	0	1560	750	0	0	1629	1676	1763	1654	1702	1759
Q Serve(g_s), s	0.0	0.0	18.1	0.9	0.0	0.0	15.6	24.2	24.2	0.0	59.6	61.4
Cycle Q Clear(g_c), s	7.5	0.0	18.1	8.4	0.0	0.0	15.6	24.2	24.2	0.0	59.6	61.4
Prop In Lane	0.99		1.00	1.00		0.00	1.00		0.00	1.00		0.11
Lane Grp Cap(c), veh/h	334	0	292	194	0	0	287	1124	1182	269	930	961
V/C Ratio(X)	0.36	0.00	0.84	0.05	0.00	0.00	0.98	0.57	0.57	0.00	0.96	0.97
Avail Cap(c_a), veh/h	412	0	377	257	0	0	287	1124	1182	309	930	961
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	0.0	47.0	46.9	0.0	0.0	40.9	10.5	10.5	12.2	25.9	26.3
Incr Delay (d2), s/veh	0.7	0.0	12.1	0.1	0.0	0.0	48.3	2.1	2.0	0.0	20.7	22.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.5	0.0	13.6	0.6	0.0	0.0	19.1	17.4	18.1	0.0	42.7	45.4
LnGrp Delay(d),s/veh	43.8	0.0	59.1	47.0	0.0	0.0	89.3	12.6	12.5	12.2	46.5	49.0
LnGrp LOS	D		E	D			F	B	B	B	D	D
Approach Vol, veh/h		364			10			1587			1823	
Approach Delay, s/veh		54.1			47.0			26.1			47.8	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.0	70.6		28.4	6.1	85.5		28.4
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	15.0	58.0		28.0	3.0	70.0		28.0
Max Q Clear Time (g_c+I1), s	18.1	63.4		20.6	2.5	26.7		10.4
Green Ext Time (p_c), s	0.0	0.0		0.8	0.0	21.5		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	39.3
HCM 2010 LOS	D