

# Lanes, Volumes, Timings

## 1: Freedom Business Center Dr./Moore Road & 1st Avenue

3/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	305	814	13	43	236	89	2	8	11	110	23	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	12	13	10	11	12	12	12	12	10	10	10
Storage Length (ft)	280		0	73		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.962			0.906				0.903
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1624	3557	0	1685	3275	0	1805	1630	0	1652	1495	0
Flt Permitted	0.408			0.318			0.713			0.736		
Satd. Flow (perm)	698	3557	0	564	3275	0	1355	1630	0	1280	1495	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			83			20				44
Link Speed (mph)		35			35			25				35
Link Distance (ft)		1766			1204			482				486
Travel Time (s)		34.4			23.5			13.1				9.5
Peak Hour Factor	0.85	0.94	0.46	0.60	0.83	0.93	0.50	0.67	0.55	0.89	0.96	0.61
Heavy Vehicles (%)	0%	1%	0%	0%	3%	1%	0%	0%	9%	2%	0%	11%
Adj. Flow (vph)	359	866	28	72	284	96	4	12	20	124	24	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	359	894	0	72	380	0	4	32	0	124	68	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.14	1.00	0.96	1.09	1.04	1.00	1.00	1.00	1.00	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2				6
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6		6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		5.0	5.0		5.0		5.0
Minimum Split (s)	11.0	35.0		11.0	35.0		21.5	21.5		21.5		21.5
Total Split (s)	13.0	37.0		11.0	35.0		22.0	22.0		22.0		22.0
Total Split (%)	18.6%	52.9%		15.7%	50.0%		31.4%	31.4%		31.4%		31.4%
Maximum Green (s)	8.0	32.0		6.0	30.0		17.0	17.0		17.0		17.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
Recall Mode	None	Min		None	Min		None	None		None		None

Lanes, Volumes, Timings

1: Freedom Business Center Dr./Moore Road & 1st Avenue

3/13/2015

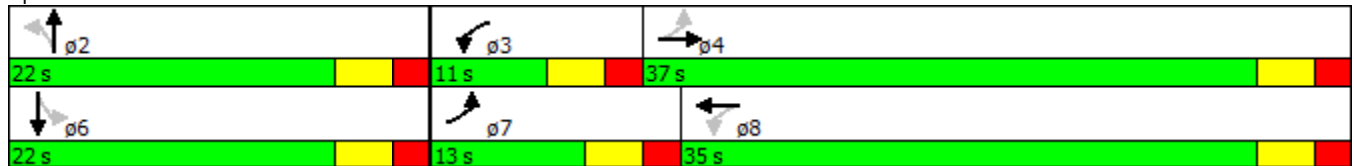


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effct Green (s)	27.1	25.1		20.9	14.2		10.4	10.4		10.5	10.5	
Actuated g/C Ratio	0.59	0.54		0.45	0.31		0.23	0.23		0.23	0.23	
v/c Ratio	0.61	0.46		0.17	0.36		0.01	0.08		0.43	0.18	
Control Delay	12.8	12.0		6.6	11.0		17.5	11.8		23.5	10.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.8	12.0		6.6	11.0		17.5	11.8		23.5	10.8	
LOS	B	B		A	B		B	B		C	B	
Approach Delay		12.2			10.3			12.4				19.0
Approach LOS		B			B			B				B
Queue Length 50th (ft)	45	108		7	32		1	3		32	6	
Queue Length 95th (ft)	#106	189		16	60		4	14		83	34	
Internal Link Dist (ft)		1686			1124			402				406
Turn Bay Length (ft)	280			73								
Base Capacity (vph)	590	2525		419	2245		561	686		530	644	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.61	0.35		0.17	0.17		0.01	0.05		0.23	0.11	

Intersection Summary



























Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 46.2  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 12.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 53.2%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Freedom Business Center Dr./Moore Road & 1st Avenue



Lanes, Volumes, Timings  
4: N. Gulph Road & 1st Avenue

3/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	4	228	277	106	117	24	4	266	904	111	605	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12	10	12	12	10	12	12
Storage Length (ft)	236		236	204		167	301		667	173		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1863	1615	3255	1749	1495	1685	3539	1599	1685	3526	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1863	1615	3255	1749	1495	1685	3539	1599	1685	3526	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									353		11	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		477			1766			924			509	
Travel Time (s)		9.3			34.4			15.8			8.7	
Peak Hour Factor	0.87	0.89	0.89	0.91	0.91	0.75	0.50	0.81	0.90	0.87	0.95	0.68
Heavy Vehicles (%)	0%	2%	0%	4%	5%	8%	0%	2%	1%	0%	1%	3%
Adj. Flow (vph)	5	256	311	116	129	32	8	328	1004	128	637	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	256	311	116	129	32	8	328	1004	128	693	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.00	1.09	1.00	1.00	1.09	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	5	3	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	8.0	12.0	4.0	8.0	12.0	4.0	4.0	26.0	26.0	4.0	26.0	
Minimum Split (s)	13.0	21.0	18.0	13.0	21.0	18.0	18.0	32.0	32.0	18.0	32.0	
Total Split (s)	13.0	21.0	18.0	13.0	21.0	18.0	18.0	65.0	65.0	18.0	65.0	
Total Split (%)	11.1%	17.9%	15.4%	11.1%	17.9%	15.4%	15.4%	55.6%	55.6%	15.4%	55.6%	
Maximum Green (s)	8.0	16.0	12.0	8.0	16.0	12.0	12.0	59.0	59.0	12.0	59.0	
Yellow Time (s)	3.0	3.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	6.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	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	3.0	3.0	
Recall Mode	None	Min	None	None	Min	None	None	Min	Min	None	Min	

# Lanes, Volumes, Timings

## 4: N. Gulph Road & 1st Avenue

3/13/2015



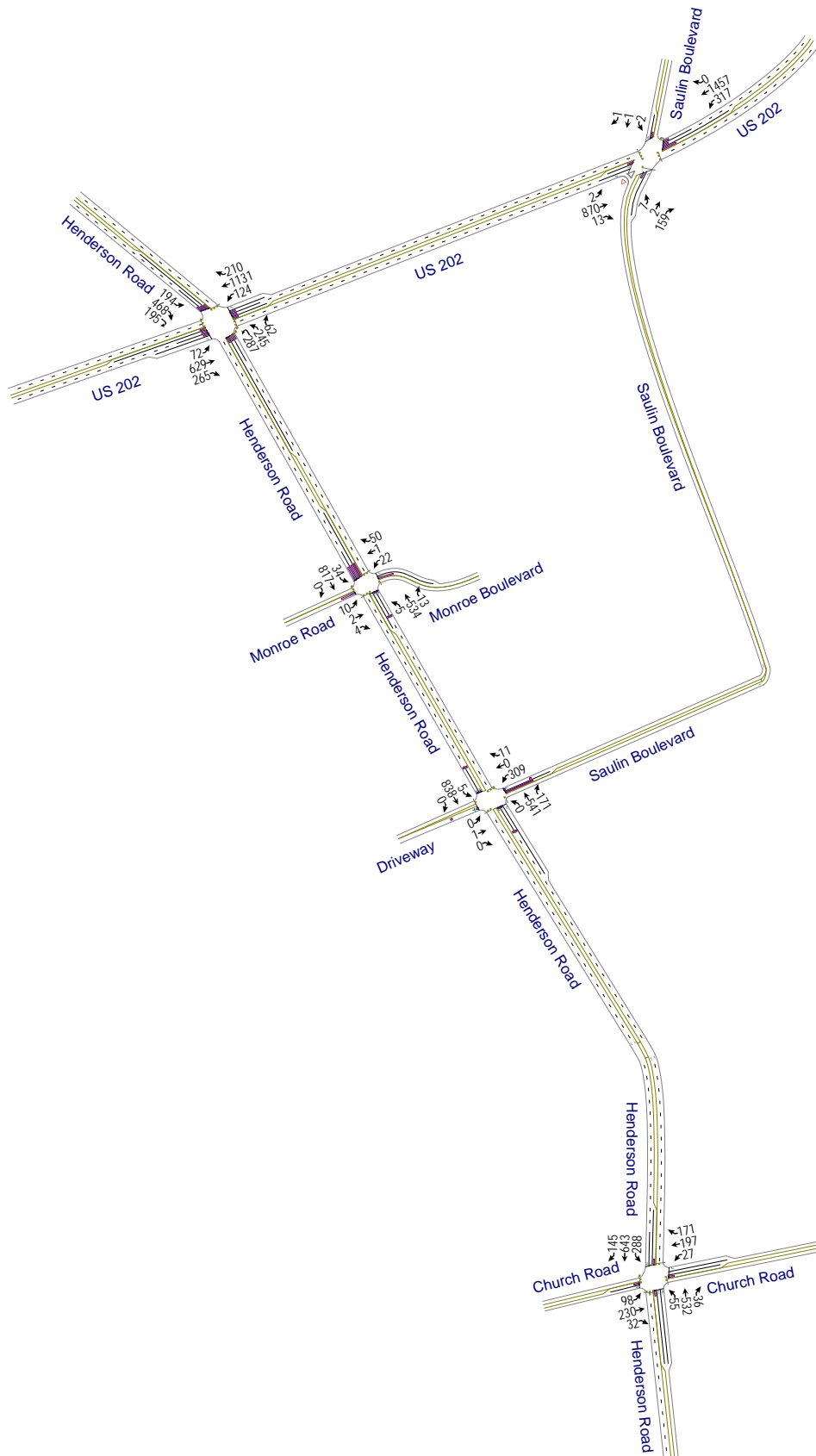
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	8.0	16.0	31.2	8.0	26.4	42.8	10.2	59.0	59.0	11.4	60.2	
Actuated g/C Ratio	0.07	0.14	0.27	0.07	0.23	0.37	0.09	0.51	0.51	0.10	0.52	
v/c Ratio	0.04	1.00	0.72	0.52	0.33	0.06	0.05	0.18	1.02	0.78	0.38	
Control Delay	51.8	107.7	48.9	61.3	42.2	26.4	48.5	16.1	53.6	81.4	17.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	51.8	107.7	48.9	61.3	42.2	26.4	48.5	16.1	53.6	81.4	17.6	
LOS	D	F	D	E	D	C	D	B	D	F	B	
Approach Delay		75.3			48.4			44.4			27.6	
Approach LOS		E			D			D			C	
Queue Length 50th (ft)	4	~197	209	44	79	15	6	68	~664	95	161	
Queue Length 95th (ft)	16	#362	308	75	157	36	12	85	#920	#180	206	
Internal Link Dist (ft)		397			1686			844			429	
Turn Bay Length (ft)	236		236	204		167	301		667	173		
Base Capacity (vph)	124	255	457	223	396	557	173	1793	984	173	1829	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	1.00	0.68	0.52	0.33	0.06	0.05	0.18	1.02	0.74	0.38	

### Intersection Summary

Area Type: Other  
 Cycle Length: 117  
 Actuated Cycle Length: 116.4  
 Natural Cycle: 115  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.02  
 Intersection Signal Delay: 46.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 88.3%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 ~ 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: 4: N. Gulph Road & 1st Avenue





# Lanes, Volumes, Timings

## 2: Henderson Road & Driveway/Saulin Boulevard

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘			↕	↘		↕	
Volume (vph)	0	1	0	309	0	11	0	541	171	5	838	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	9	12	12	11	11	14	11	11	11
Storage Length (ft)	0		0	160		0	0		266	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Frt					0.850				0.850			
Flt Protected				0.950								
Satd. Flow (prot)	0	2153	0	1577	1482	0	0	3323	1706	0	3357	0
Flt Permitted				0.755							0.948	
Satd. Flow (perm)	0	2153	0	1253	1482	0	0	3323	1706	0	3182	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					158				225			
Link Speed (mph)		35		35				35			35	
Link Distance (ft)		328		1014				977			821	
Travel Time (s)		6.4		19.8				19.0			16.0	
Peak Hour Factor	1.00	0.25	1.00	0.92	1.00	0.55	1.00	0.92	0.76	0.63	0.95	1.00
Heavy Vehicles (%)	0%	0%	0%	3%	0%	9%	0%	5%	1%	0%	4%	0%
Adj. Flow (vph)	0	4	0	336	0	20	0	588	225	8	882	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	336	20	0	0	588	225	0	890	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9		9				11			11	
Link Offset(ft)		0		0				0			0	
Crosswalk Width(ft)		16		16				16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	1.14	1.00	1.00	1.04	1.04	0.92	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		8				2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		12.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		22.0	22.0	22.0	22.0	22.0	
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0	24.0	24.0	24.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%	53.3%	53.3%	53.3%	
Maximum Green (s)	16.0	16.0		16.0	16.0		18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.0		5.0	5.0			6.0	6.0		6.0	
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	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	

# Lanes, Volumes, Timings

## 2: Henderson Road & Driveway/Saulin Boulevard

2/27/2015

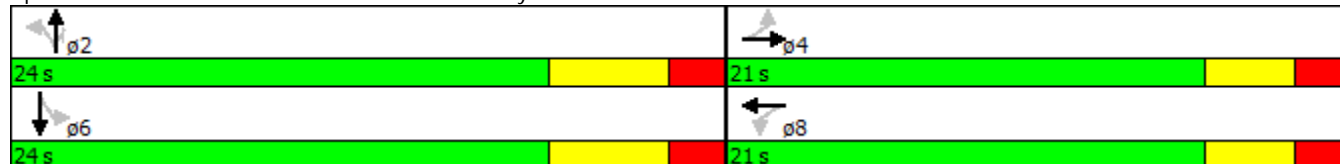


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)		14.3		14.3	14.3			16.5	16.5			16.5
Actuated g/C Ratio		0.34		0.34	0.34			0.39	0.39			0.39
v/c Ratio		0.01		0.79	0.03			0.45	0.28			0.71
Control Delay		9.0		29.6	0.1			11.0	2.8			14.8
Queue Delay		0.0		0.0	0.0			0.0	0.0			0.0
Total Delay		9.0		29.6	0.1			11.0	2.8			14.8
LOS		A		C	A			B	A			B
Approach Delay		9.0			28.0			8.7				14.8
Approach LOS		A			C			A				B
Queue Length 50th (ft)		1		73	0			54	0			94
Queue Length 95th (ft)		1		#184	0			87	18			146
Internal Link Dist (ft)		248			934			897				741
Turn Bay Length (ft)				160					266			
Base Capacity (vph)		830		483	668			1441	867			1380
Starvation Cap Reductn		0		0	0			0	0			0
Spillback Cap Reductn		0		0	0			0	0			0
Storage Cap Reductn		0		0	0			0	0			0
Reduced v/c Ratio		0.00		0.70	0.03			0.41	0.26			0.64

### Intersection Summary

Area Type: Other  
 Cycle Length: 45  
 Actuated Cycle Length: 42  
 Natural Cycle: 45  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 14.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 59.6%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

### Splits and Phases: 2: Henderson Road & Driveway/Saulin Boulevard





# Lanes, Volumes, Timings

## 3: Henderson Road & Monroe Road/Monroe Boulevard

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕	↕	↖	↕	↕
Volume (vph)	10	2	4	22	1	50	5	534	13	34	817	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	11	11	14	10	12	13
Storage Length (ft)	0		0	0		190	135		0	242		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Frt		0.970				0.850		0.994				
Flt Protected		0.973			0.957		0.950			0.950		
Satd. Flow (prot)	0	1853	0	0	1818	1524	1745	3300	0	1589	3471	0
Flt Permitted		0.807			0.724		0.323			0.360		
Satd. Flow (perm)	0	1537	0	0	1376	1524	593	3300	0	602	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				116		7				
Link Speed (mph)		25			25			35				35
Link Distance (ft)		298			390			821				997
Travel Time (s)		8.1			10.6			16.0				19.4
Peak Hour Factor	0.50	0.25	0.50	0.69	0.25	0.74	0.63	0.88	0.50	0.71	0.93	0.25
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	5%	8%	6%	4%	0%
Adj. Flow (vph)	20	8	8	32	4	68	8	607	26	48	878	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	0	0	36	68	8	633	0	48	878	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	0.96	0.96	1.00	1.00	1.00	1.04	1.04	0.92	1.09	1.00	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	40.0	40.0		8.0	40.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	46.0	46.0		15.0	46.0	
Total Split (s)	21.0	21.0		21.0	21.0	21.0	49.0	49.0		15.0	64.0	
Total Split (%)	24.7%	24.7%		24.7%	24.7%	24.7%	57.6%	57.6%		17.6%	75.3%	
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	43.0	43.0		9.0	58.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		6.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		None	Min	

Lanes, Volumes, Timings  
 3: Henderson Road & Monroe Road/Monroe Boulevard

2/27/2015

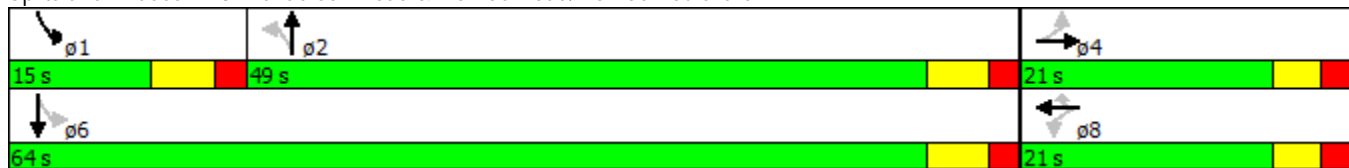


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0				5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0				0
Act Effct Green (s)		7.2			7.2	7.2	45.1	45.1		51.6	52.9	
Actuated g/C Ratio		0.11			0.11	0.11	0.67	0.67		0.76	0.78	
v/c Ratio		0.21			0.24	0.26	0.02	0.29		0.08	0.32	
Control Delay		27.6			33.7	4.4	8.2	7.7		3.0	3.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		27.6			33.7	4.4	8.2	7.7		3.0	3.4	
LOS		C			C	A	A	A		A	A	
Approach Delay		27.6			14.6			7.7			3.4	
Approach LOS		C			B			A			A	
Queue Length 50th (ft)		12			15	0	2	73		4	52	
Queue Length 95th (ft)		7			11	2	5	111		10	86	
Internal Link Dist (ft)		218			310			741			917	
Turn Bay Length (ft)						190	135			242		
Base Capacity (vph)		374			329	453	416	2321		592	3002	
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		0.10			0.11	0.15	0.02	0.27		0.08	0.29	

Intersection Summary






















Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	67.6
Natural Cycle:	85
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	6.2
Intersection LOS:	A
Intersection Capacity Utilization:	53.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 3: Henderson Road & Monroe Road/Monroe Boulevard



Lanes, Volumes, Timings  
4: Saulin Boulevard & US 202

2/27/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	870	13	317	1457	0	7	2	159	2	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	11	10	14	14	10	12	12
Storage Length (ft)	65		0	240		0	0		123	60		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996							0.850		0.950	
Flt Protected	0.950			0.950				0.962		0.950		
Satd. Flow (prot)	1123	3507	0	1711	3455	0	0	1609	1672	1685	1354	0
Flt Permitted	0.156			0.178								
Satd. Flow (perm)	184	3507	0	321	3455	0	0	1672	1672	1773	1354	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3							43		2	
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		1518			675			1804			327	
Travel Time (s)		23.0			10.2			35.1			8.9	
Peak Hour Factor	0.50	0.93	0.54	0.92	0.91	0.25	0.44	0.50	0.88	0.25	0.25	0.50
Heavy Vehicles (%)	50%	2%	23%	2%	1%	0%	14%	50%	3%	0%	0%	100%
Adj. Flow (vph)	4	935	24	345	1601	0	16	4	181	8	4	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	959	0	345	1601	0	0	20	181	8	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.00	1.04	1.04	1.04	1.09	0.92	0.92	1.09	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	7	4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		8.0	8.0	20.0	8.0	8.0	
Minimum Split (s)	26.0	26.0		25.0	26.0		22.0	22.0	25.0	22.0	22.0	
Total Split (s)	26.0	41.0		27.0	42.0		22.0	22.0	27.0	22.0	22.0	
Total Split (%)	28.9%	45.6%		30.0%	46.7%		24.4%	24.4%	30.0%	24.4%	24.4%	
Maximum Green (s)	20.0	35.0		22.0	36.0		17.0	17.0	22.0	17.0	17.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		5.0	6.0			5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Lanes, Volumes, Timings  
 4: Saulin Boulevard & US 202

2/27/2015

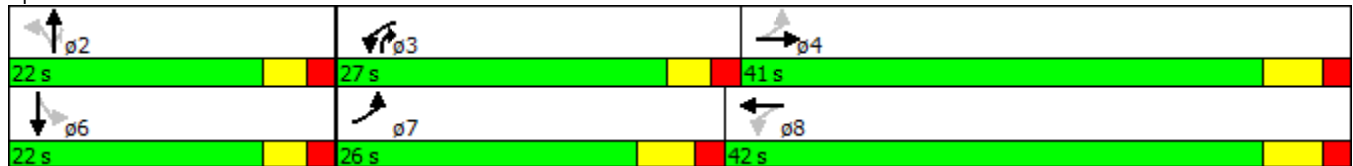


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					5.0					5.0	5.0	
Flash Dont Walk (s)					11.0					11.0	11.0	
Pedestrian Calls (#/hr)					0					0	0	
Act Effct Green (s)	44.8	24.1		50.7	51.9			8.3	22.9	8.3	8.3	
Actuated g/C Ratio	0.77	0.41		0.87	0.89			0.14	0.39	0.14	0.14	
v/c Ratio	0.01	0.66		0.44	0.52			0.08	0.27	0.03	0.03	
Control Delay	2.0	16.7		7.3	8.2			27.9	11.0	27.5	25.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	2.0	16.7		7.3	8.2			27.9	11.0	27.5	25.0	
LOS	A	B		A	A			C	B	C	C	
Approach Delay		16.6			8.0			12.7			26.4	
Approach LOS		B			A			B			C	
Queue Length 50th (ft)	0	120		4	0			5	26	2	1	
Queue Length 95th (ft)	1	258		142	#608			17	81	5	3	
Internal Link Dist (ft)		1438			595			1724			247	
Turn Bay Length (ft)	65			240					123	60		
Base Capacity (vph)	473	2172		819	3069			502	731	533	408	
Starvation Cap Reductn	0	0		0	0			0	0	0	0	
Spillback Cap Reductn	0	0		0	0			0	0	0	0	
Storage Cap Reductn	0	0		0	0			0	0	0	0	
Reduced v/c Ratio	0.01	0.44		0.42	0.52			0.04	0.25	0.02	0.01	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 58.4  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 11.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 77.8%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Saulin Boulevard & US 202



# Lanes, Volumes, Timings

## 5: Henderson Road & Church Road

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	230	32	27	197	171	55	532	36	288	643	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	11	14	12	12	14	11	11	12
Storage Length (ft)	98		0	170		195	243		243	173		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt		0.981				0.850		0.988			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	1683	0	1572	1783	1625	1736	3455	0	1694	3284	0
Flt Permitted	0.459			0.359			0.207			0.217		
Satd. Flow (perm)	835	1683	0	594	1783	1625	378	3455	0	387	3284	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		375			573			598			768	
Travel Time (s)		7.3			11.2			11.6			15.0	
Peak Hour Factor	0.74	0.76	0.73	0.56	0.84	0.84	0.69	0.93	0.75	0.91	0.92	0.86
Heavy Vehicles (%)	1%	2%	13%	11%	3%	6%	4%	3%	6%	3%	3%	4%
Adj. Flow (vph)	132	303	44	48	235	204	80	572	48	316	699	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	347	0	48	235	204	80	620	0	316	868	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.09	1.09	1.04	1.04	0.92	1.00	1.00	0.92	1.04	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	10.0		9.0	10.0	9.0	9.0	10.0		9.0	10.0	
Minimum Split (s)	14.0	22.0		14.0	22.0	14.0	14.0	22.0		14.0	22.0	
Total Split (s)	14.0	23.0		14.0	23.0	17.0	14.0	26.0		17.0	29.0	
Total Split (%)	17.5%	28.8%		17.5%	28.8%	21.3%	17.5%	32.5%		21.3%	36.3%	
Maximum Green (s)	9.0	17.0		9.0	17.0	12.0	9.0	20.0		12.0	23.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min	None	None	Min		None	Min	

Lanes, Volumes, Timings  
5: Henderson Road & Church Road

2/27/2015

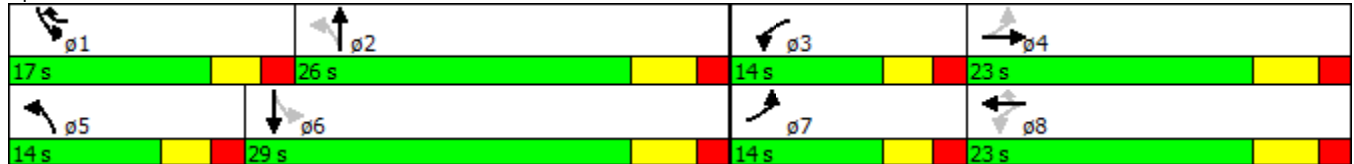


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		5.0						5.0				
Flash Dont Walk (s)		11.0						11.0				
Pedestrian Calls (#/hr)		0						0				
Act Effct Green (s)	25.3	19.3		24.3	16.5	34.4	28.4	18.2		34.6	24.5	
Actuated g/C Ratio	0.34	0.26		0.33	0.22	0.46	0.38	0.24		0.47	0.33	
v/c Ratio	0.34	0.80		0.15	0.59	0.27	0.26	0.73		0.82	0.80	
Control Delay	18.5	45.4		16.4	35.2	15.4	14.2	32.3		34.1	32.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.5	45.4		16.4	35.2	15.4	14.2	32.3		34.1	32.7	
LOS	B	D		B	D	B	B	C		C	C	
Approach Delay		38.0			25.1			30.2			33.1	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	42	173		14	107	63	21	149		97	220	
Queue Length 95th (ft)	63	#255		21	166	101	33	207		#229	#334	
Internal Link Dist (ft)		295			493			518			688	
Turn Bay Length (ft)	98			170		195	243			173		
Base Capacity (vph)	394	435		315	415	761	312	946		395	1082	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.34	0.80		0.15	0.57	0.27	0.26	0.66		0.80	0.80	

Intersection Summary

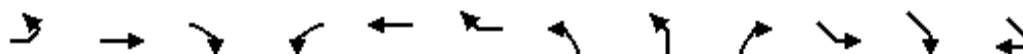
Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 74.4  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 31.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 71.7%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Henderson Road & Church Road



Lanes, Volumes, Timings  
6: Henderson Road & US 202

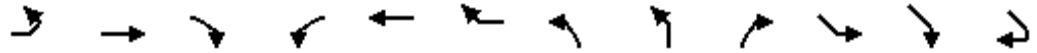
2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER	SER2
Lane Configurations												
Volume (vph)	72	629	265	124	1131	210	287	245	62	194	468	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	14	10	11	14	10	12	12	10	10	12
Storage Length (ft)	318		179	120		120		435	0	275	0	
Storage Lanes	1		1	1		1		1	0	1	1	
Taper Length (ft)	25			25				25		25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	0.95	0.97	0.91	0.95
Frt			0.850					0.976		0.905	0.850	
Flt Protected	0.950			0.950			0.950	0.960		0.982		
Satd. Flow (prot)	1652	3421	1689	1652	3421	1689	1503	3176	0	2997	1345	0
Flt Permitted	0.950			0.950			0.950	0.960		0.982		
Satd. Flow (perm)	1652	3421	1689	1652	3421	1689	1503	3176	0	2997	1345	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								218			218	
Link Speed (mph)		45			45			35		40		
Link Distance (ft)		745			1518			997		640		
Travel Time (s)		11.3			23.0			19.4		10.9		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	684	288	135	1229	228	312	266	67	211	509	212
Shared Lane Traffic (%)							30%				71%	
Lane Group Flow (vph)	78	684	288	135	1229	228	218	427	0	572	360	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		10			10			34		20		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.09	1.04	0.92	1.09	1.04	0.92	1.09	1.00	1.00	1.09	1.09	1.00
Turning Speed (mph)	15		9	15		9	15	15	9	15	9	9
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA		NA	Prot	
Protected Phases	7	4		3	8	6	5	5		6	6	
Permitted Phases			4			8						
Detector Phase	7	4	4	3	8	6	5	5		6	6	
Switch Phase												
Minimum Initial (s)	11.0	40.0	40.0	11.0	40.0	11.0	11.0	11.0		11.0	11.0	
Minimum Split (s)	17.0	47.0	47.0	17.0	47.0	22.0	17.0	17.0		22.0	22.0	
Total Split (s)	17.0	49.0	49.0	17.0	49.0	27.0	22.0	22.0		27.0	27.0	
Total Split (%)	14.8%	42.6%	42.6%	14.8%	42.6%	23.5%	19.1%	19.1%		23.5%	23.5%	
Maximum Green (s)	11.0	42.0	42.0	11.0	42.0	21.0	16.0	16.0		21.0	21.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0	7.0	6.0	7.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	Min	Min	Min	Min		Min	Min	
Walk Time (s)					5.0	5.0				5.0	5.0	

Lanes, Volumes, Timings  
6: Henderson Road & US 202

2/27/2015

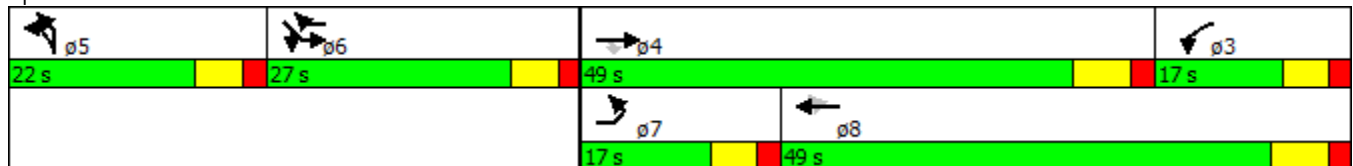


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER	SER2
Flash Dont Walk (s)					11.0	11.0				11.0	11.0	
Pedestrian Calls (#/hr)					0	0				0	0	
Act Effect Green (s)	11.0	40.0	40.0	12.6	45.0	68.3	16.0	16.0		21.0	21.0	
Actuated g/C Ratio	0.10	0.35	0.35	0.11	0.39	0.60	0.14	0.14		0.18	0.18	
v/c Ratio	0.49	0.57	0.49	0.75	0.91	0.23	1.04	0.68		1.34dr	0.85	
Control Delay	60.6	32.7	32.9	74.4	45.6	7.0	121.6	28.6		95.7	37.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	60.6	32.7	32.9	74.4	45.6	7.0	121.6	28.6		95.7	37.2	
LOS	E	C	C	E	D	A	F	C		F	D	
Approach Delay		34.8			42.5			60.0		73.1		
Approach LOS		C			D			E		E		
Queue Length 50th (ft)	56	215	167	98	470	40	-192	80		-237	116	
Queue Length 95th (ft)	107	277	251	#192	#626	63	#363	139		#349	#303	
Internal Link Dist (ft)		665			1438			917		560		
Turn Bay Length (ft)	318		179	120		120	435	435		275		
Base Capacity (vph)	158	1253	618	181	1344	1005	210	630		549	424	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.49	0.55	0.47	0.75	0.91	0.23	1.04	0.68		1.04	0.85	

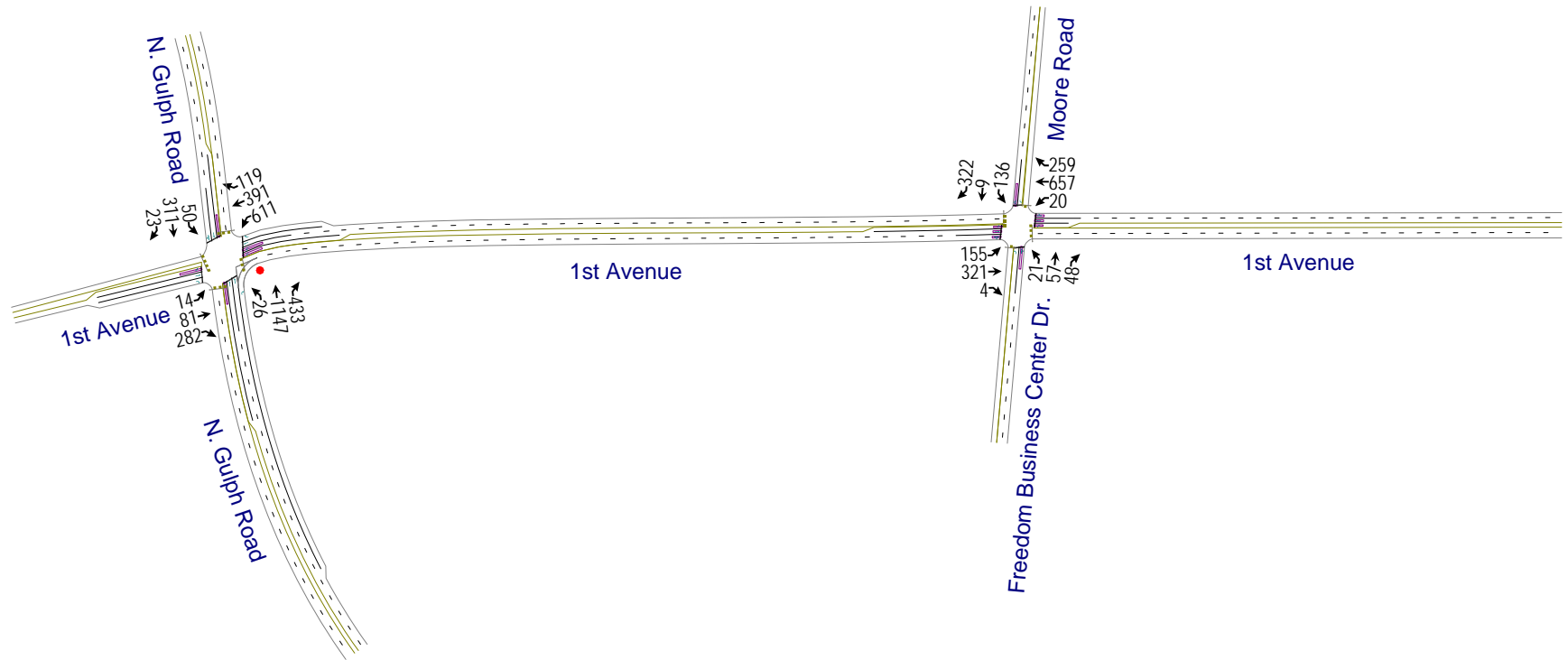
Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 114.6  
 Natural Cycle: 115  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 50.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 87.3%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 ~ 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.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 6: Henderson Road & US 202







# Lanes, Volumes, Timings

## 1: Freedom Business Center Dr./Moore Road & 1st Avenue

2/27/2015

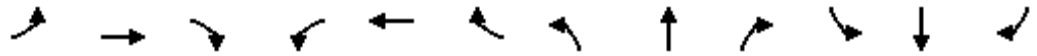


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	321	4	20	657	259	21	57	48	136	9	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	12	13	10	11	12	12	12	12	10	10	10
Storage Length (ft)	280		0	73		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.956			0.931				0.857
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1624	3530	0	1685	3303	0	1805	1769	0	1668	1520	0
Flt Permitted	0.126			0.504			0.280			0.658		
Satd. Flow (perm)	215	3530	0	894	3303	0	532	1769	0	1155	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			112			58				270
Link Speed (mph)		35			35			25				35
Link Distance (ft)		1766			1204			482				486
Travel Time (s)		34.4			23.5			13.1				9.5
Peak Hour Factor	0.76	0.77	0.50	0.83	0.87	0.83	0.88	0.68	0.67	0.69	0.45	0.83
Heavy Vehicles (%)	0%	2%	0%	0%	1%	1%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	204	417	8	24	755	312	24	84	72	197	20	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	425	0	24	1067	0	24	156	0	197	408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.14	1.00	0.96	1.09	1.04	1.00	1.00	1.00	1.00	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2				6
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6		6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		5.0	5.0		5.0		5.0
Minimum Split (s)	11.0	35.0		11.0	35.0		21.5	21.5		21.5		21.5
Total Split (s)	13.0	37.0		11.0	35.0		22.0	22.0		22.0		22.0
Total Split (%)	18.6%	52.9%		15.7%	50.0%		31.4%	31.4%		31.4%		31.4%
Maximum Green (s)	8.0	32.0		6.0	30.0		17.0	17.0		17.0		17.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
Recall Mode	None	Min		None	Min		None	None		None		None

Lanes, Volumes, Timings

1: Freedom Business Center Dr./Moore Road & 1st Avenue

2/27/2015

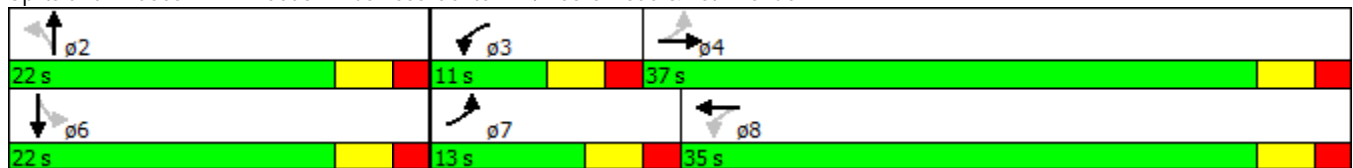


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effect Green (s)	36.0	33.1		29.9	23.8		14.3	14.3		14.3	14.3	
Actuated g/C Ratio	0.58	0.54		0.49	0.39		0.23	0.23		0.23	0.23	
v/c Ratio	0.65	0.22		0.05	0.80		0.20	0.34		0.74	0.73	
Control Delay	23.2	9.3		6.0	20.0		25.2	16.3		41.6	17.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.2	9.3		6.0	20.0		25.2	16.3		41.6	17.2	
LOS	C	A		A	C		C	B		D	B	
Approach Delay		13.8			19.7			17.4			25.1	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	34	36		4	170		7	31		70	45	
Queue Length 95th (ft)	75	70		10	227		27	53		104	7	
Internal Link Dist (ft)		1686			1124			402			406	
Turn Bay Length (ft)	280			73								
Base Capacity (vph)	312	1969		512	1703		150	541		326	623	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.65	0.22		0.05	0.63		0.16	0.29		0.60	0.65	

Intersection Summary



























Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	61.6
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	19.4
Intersection LOS:	B
Intersection Capacity Utilization:	67.9%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Freedom Business Center Dr./Moore Road & 1st Avenue



Lanes, Volumes, Timings  
4: N. Gulph Road & 1st Avenue

2/27/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	14	81	282	611	391	119	26	1147	433	50	311	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	12	10	12	12	10	12	12
Storage Length (ft)	236		236	204		167	301		667	173		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1827	1615	3351	1818	1583	1685	3610	1599	1685	3534	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1827	1615	3351	1818	1583	1685	3610	1599	1685	3534	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									509		10	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		477			1766			924			509	
Travel Time (s)		9.3			34.4			15.8			8.7	
Peak Hour Factor	0.70	0.88	0.82	0.85	0.78	0.65	0.59	0.96	0.85	0.78	0.95	0.82
Heavy Vehicles (%)	0%	4%	0%	1%	1%	2%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	20	92	344	719	501	183	44	1195	509	64	327	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	92	344	719	501	183	44	1195	509	64	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.00	1.09	1.00	1.00	1.09	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	5	3	8	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	8.0	12.0	4.0	8.0	12.0	4.0	4.0	26.0	26.0	4.0	26.0	
Minimum Split (s)	13.0	20.0	18.0	13.0	20.0	18.0	18.0	32.0	32.0	18.0	32.0	
Total Split (s)	13.0	20.0	18.0	22.0	29.0	18.0	18.0	35.0	35.0	18.0	35.0	
Total Split (%)	13.7%	21.1%	18.9%	23.2%	30.5%	18.9%	18.9%	36.8%	36.8%	18.9%	36.8%	
Maximum Green (s)	8.0	15.0	12.0	17.0	24.0	12.0	12.0	29.0	29.0	12.0	29.0	
Yellow Time (s)	3.0	3.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	6.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	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	3.0	3.0	
Recall Mode	None	Min	None	None	Min	None	None	Min	Min	None	Min	

Lanes, Volumes, Timings  
4: N. Gulph Road & 1st Avenue

2/27/2015



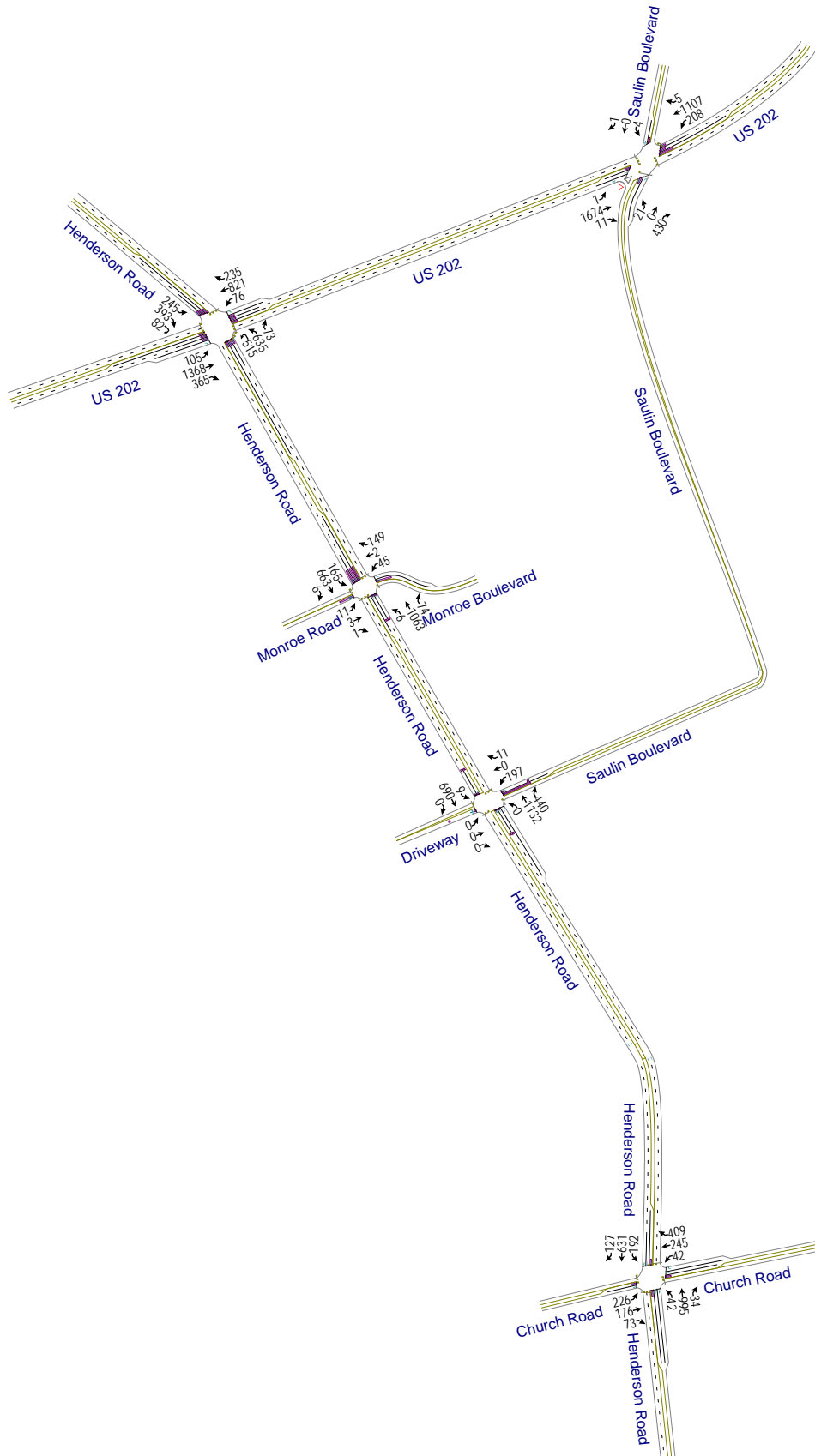
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	8.0	13.2	28.6	17.0	30.2	44.0	10.4	29.1	29.1	8.8	27.5	
Actuated g/C Ratio	0.09	0.15	0.32	0.19	0.34	0.49	0.12	0.32	0.32	0.10	0.31	
v/c Ratio	0.12	0.35	0.67	1.14	0.82	0.24	0.23	1.02	0.59	0.39	0.33	
Control Delay	41.4	39.1	34.0	115.1	43.5	15.8	39.5	64.7	5.6	45.5	25.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.4	39.1	34.0	115.1	43.5	15.8	39.5	64.7	5.6	45.5	25.0	
LOS	D	D	C	F	D	B	D	E	A	D	C	
Approach Delay		35.4			76.6			46.9			28.1	
Approach LOS		D			E			D			C	
Queue Length 50th (ft)	11	48	164	~242	235	51	22	~353	0	34	79	
Queue Length 95th (ft)	27	94	236	#353	#428	80	36	#558	53	65	122	
Internal Link Dist (ft)		397			1686			844			429	
Turn Bay Length (ft)	236		236	204		167	301		667	173		
Base Capacity (vph)	160	304	541	633	609	830	224	1166	860	224	1146	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.30	0.64	1.14	0.82	0.22	0.20	1.02	0.59	0.29	0.31	

Intersection Summary

Area Type: Other  
 Cycle Length: 95  
 Actuated Cycle Length: 90.1  
 Natural Cycle: 95  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 54.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 73.3%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 ~ 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: 4: N. Gulph Road & 1st Avenue





©2011 Microsoft Corporation ©AND ©2010 NAVTEQ

# Lanes, Volumes, Timings

## 2: Henderson Road & Driveway/Saulin Boulevard

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕	↗		↕	
Volume (vph)	0	0	0	197	0	11	0	1132	440	9	690	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	9	12	12	11	11	14	11	11	11
Storage Length (ft)	0		0	160		0	0		266	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Frt					0.850				0.850			
Flt Protected				0.950							0.998	
Satd. Flow (prot)	0	2153	0	1608	1615	0	0	3455	1706	0	3437	0
Flt Permitted				0.757							0.892	
Satd. Flow (perm)	0	2153	0	1282	1615	0	0	3455	1706	0	3072	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					65				494			
Link Speed (mph)		35			35			35				35
Link Distance (ft)		328			1014			977				821
Travel Time (s)		6.4			19.8			19.0				16.0
Peak Hour Factor	1.00	1.00	1.00	0.91	1.00	0.69	1.00	0.93	0.89	0.38	0.94	1.00
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	1%	11%	1%	0%
Adj. Flow (vph)	0	0	0	216	0	16	0	1217	494	24	734	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	216	16	0	0	1217	494	0	758	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9			9			11				11
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	1.14	1.00	1.00	1.04	1.04	0.92	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6		6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	21.0	21.0		21.0	21.0		22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	21.0	21.0		21.0	21.0		29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	42.0%	42.0%		42.0%	42.0%		58.0%	58.0%	58.0%	58.0%	58.0%	58.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		23.0	23.0	23.0	23.0	23.0	23.0
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.0		5.0	5.0			6.0	6.0		6.0	
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	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min

Lanes, Volumes, Timings  
 2: Henderson Road & Driveway/Saulin Boulevard

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)				12.9	12.9			26.5	26.5			26.5
Actuated g/C Ratio				0.29	0.29			0.59	0.59			0.59
v/c Ratio				0.59	0.03			0.60	0.41			0.42
Control Delay				21.9	0.1			10.8	2.3			8.9
Queue Delay				0.0	0.0			0.0	0.0			0.0
Total Delay				21.9	0.1			10.8	2.3			8.9
LOS				C	A			B	A			A
Approach Delay					20.4			8.3				8.9
Approach LOS					C			A				A
Queue Length 50th (ft)				50	0			122	0			65
Queue Length 95th (ft)				105	0			212	37			118
Internal Link Dist (ft)		248			934			897				741
Turn Bay Length (ft)				160					266			
Base Capacity (vph)				463	625			2026	1205			1802
Starvation Cap Reductn				0	0			0	0			0
Spillback Cap Reductn				0	0			0	0			0
Storage Cap Reductn				0	0			0	0			0
Reduced v/c Ratio				0.47	0.03			0.60	0.41			0.42

Intersection Summary

Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	45.1
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	9.5
Intersection LOS:	A
Intersection Capacity Utilization:	56.6%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 2: Henderson Road & Driveway/Saulin Boulevard





Lanes, Volumes, Timings  
 3: Henderson Road & Monroe Road/Monroe Boulevard

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↗	↗	↕	↗	↕	↕
Volume (vph)	11	3	1	45	2	149	6	1063	74	165	663	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	12	12	11	11	14	10	12	13
Storage Length (ft)	0		0	0		190	135		0	242		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Frt		0.981				0.850		0.988			0.999	
Flt Protected		0.972			0.955		0.950			0.950		
Satd. Flow (prot)	0	1872	0	0	1814	1599	1745	3416	0	1652	3536	0
Flt Permitted		0.807			0.719		0.064			0.156		
Satd. Flow (perm)	0	1554	0	0	1366	1599	118	3416	0	271	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				160		13			2	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		298			390			821			997	
Travel Time (s)		8.1			10.6			16.0			19.4	
Peak Hour Factor	0.69	0.38	0.25	0.75	0.50	0.93	0.75	0.93	0.73	0.86	0.25	0.38
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	1%	0%	2%	2%	0%
Adj. Flow (vph)	16	8	4	60	4	160	8	1143	101	192	2652	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	64	160	8	1244	0	192	2668	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.96	0.96	0.96	1.00	1.00	1.00	1.04	1.04	0.92	1.09	1.00	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	40.0	40.0		8.0	40.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	46.0	46.0		15.0	46.0	
Total Split (s)	21.0	21.0		21.0	21.0	21.0	62.0	62.0		22.0	84.0	
Total Split (%)	20.0%	20.0%		20.0%	20.0%	20.0%	59.0%	59.0%		21.0%	80.0%	
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	56.0	56.0		16.0	78.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		6.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		None	Min	

Lanes, Volumes, Timings  
 3: Henderson Road & Monroe Road/Monroe Boulevard

2/27/2015

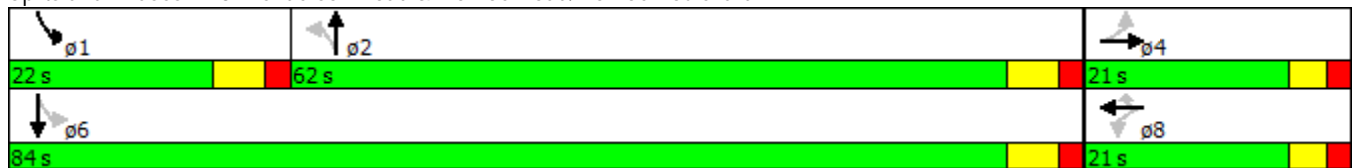


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0				5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0				0
Act Effct Green (s)		9.9			9.9	9.9	62.2	62.2		78.1	78.1	
Actuated g/C Ratio		0.10			0.10	0.10	0.63	0.63		0.79	0.79	
v/c Ratio		0.18			0.47	0.53	0.11	0.58		0.55	0.96	
Control Delay		38.3			53.1	13.4	14.2	12.9		10.0	20.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	1.0	
Total Delay		38.3			53.1	13.4	14.2	12.9		10.0	21.4	
LOS		D			D	B	B	B		A	C	
Approach Delay		38.3			24.7			12.9			20.6	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)		14			39	0	2	205		22	594	
Queue Length 95th (ft)		15			43	58	9	360		51	73	
Internal Link Dist (ft)		218			310			741			917	
Turn Bay Length (ft)						190	135			242		
Base Capacity (vph)		254			220	392	74	2151		437	2788	
Starvation Cap Reductn		0			0	0	0	0		0	34	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.11			0.29	0.41	0.11	0.58		0.44	0.97	

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	99
Natural Cycle:	105
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.96
Intersection Signal Delay:	18.7
Intersection Capacity Utilization	88.3%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	E

Splits and Phases: 3: Henderson Road & Monroe Road/Monroe Boulevard



Lanes, Volumes, Timings  
4: Saulin Boulevard & US 202

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1674	11	208	1107	5	21	0	430	4	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	11	11	11	10	14	14	10	12	12
Storage Length (ft)	65		0	240		0	0		123	60		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999				0.850		0.850	
Flt Protected	0.950			0.950				0.950		0.950		
Satd. Flow (prot)	1685	3604	0	1711	3439	0	0	1750	1706	1123	1615	0
Flt Permitted	0.228			0.076				0.800		0.800		
Satd. Flow (perm)	404	3604	0	137	3439	0	0	1474	1706	946	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1				34		374	
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		1518			675			1804			327	
Travel Time (s)		23.0			10.2			35.1			8.9	
Peak Hour Factor	0.25	0.94	0.69	0.95	0.91	0.42	0.66	1.00	0.95	1.00	1.00	0.25
Heavy Vehicles (%)	0%	0%	9%	2%	1%	40%	10%	0%	1%	50%	0%	0%
Adj. Flow (vph)	4	1781	16	219	1216	12	32	0	453	4	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	1797	0	219	1228	0	0	32	453	4	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.00	1.04	1.04	1.04	1.09	0.92	0.92	1.09	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	7	4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		8.0	8.0	20.0	8.0	8.0	
Minimum Split (s)	26.0	35.0		25.0	35.0		22.0	22.0	25.0	22.0	22.0	
Total Split (s)	26.0	48.0		25.0	47.0		22.0	22.0	25.0	22.0	22.0	
Total Split (%)	27.4%	50.5%		26.3%	49.5%		23.2%	23.2%	26.3%	23.2%	23.2%	
Maximum Green (s)	20.0	42.0		20.0	41.0		17.0	17.0	20.0	17.0	17.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		5.0	6.0			5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Lanes, Volumes, Timings  
 4: Saulin Boulevard & US 202

2/27/2015

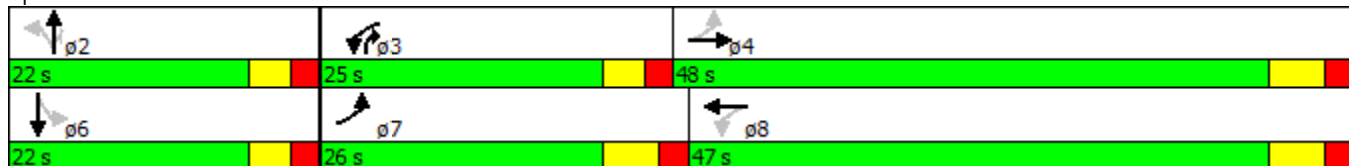


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					5.0					5.0	5.0	
Flash Dont Walk (s)					11.0					11.0	11.0	
Pedestrian Calls (#/hr)					0					0	0	
Act Effct Green (s)	62.4	42.3		67.4	65.3			8.6	27.9	8.6	8.6	
Actuated g/C Ratio	0.77	0.52		0.83	0.80			0.11	0.34	0.11	0.11	
v/c Ratio	0.01	0.96		0.44	0.44			0.21	0.75	0.04	0.01	
Control Delay	3.0	34.5		16.5	7.6			38.9	29.6	36.0	0.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	3.0	34.5		16.5	7.6			38.9	29.6	36.0	0.0	
LOS	A	C		B	A			D	C	D	A	
Approach Delay		34.4			8.9			30.2			18.0	
Approach LOS		C			A			C			B	
Queue Length 50th (ft)	1	-521		52	91			16	185	2	0	
Queue Length 95th (ft)	1	#718		132	371			43	290	12	0	
Internal Link Dist (ft)		1438			595			1724			247	
Turn Bay Length (ft)	65			240					123	60		
Base Capacity (vph)	627	1874		503	2764			310	608	199	635	
Starvation Cap Reductn	0	0		0	0			0	0	0	0	
Spillback Cap Reductn	0	0		0	0			0	0	0	0	
Storage Cap Reductn	0	0		0	0			0	0	0	0	
Reduced v/c Ratio	0.01	0.96		0.44	0.44			0.10	0.75	0.02	0.01	

Intersection Summary

Area Type: Other  
 Cycle Length: 95  
 Actuated Cycle Length: 81.3  
 Natural Cycle: 95  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 24.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 93.2%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 ~ 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: 4: Saulin Boulevard & US 202



# Lanes, Volumes, Timings

## 5: Henderson Road & Church Road

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	226	176	73	42	245	409	42	995	34	192	631	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	11	14	12	12	14	11	11	12
Storage Length (ft)	98		0	170		195	243		243	173		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt		0.951				0.850		0.995			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	1681	0	1711	1837	1706	1805	3554	0	1728	3349	0
Flt Permitted	0.266			0.431			0.214			0.121		
Satd. Flow (perm)	489	1681	0	776	1837	1706	407	3554	0	220	3349	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35				35
Link Distance (ft)		375			573			598				768
Travel Time (s)		7.3			11.2			11.6				15.0
Peak Hour Factor	0.87	0.79	0.68	0.88	0.83	0.97	0.66	0.93	0.85	0.98	0.92	0.79
Heavy Vehicles (%)	0%	0%	1%	2%	0%	1%	0%	1%	3%	1%	1%	2%
Adj. Flow (vph)	260	223	107	48	295	422	64	1070	40	196	686	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	330	0	48	295	422	64	1110	0	196	847	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.09	1.09	1.04	1.04	0.92	1.00	1.00	0.92	1.04	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	10.0		9.0	10.0	9.0	9.0	10.0		9.0	10.0	
Minimum Split (s)	14.0	22.0		14.0	22.0	14.0	14.0	22.0		14.0	22.0	
Total Split (s)	15.0	25.0		14.0	24.0	14.0	14.0	37.0		14.0	37.0	
Total Split (%)	16.7%	27.8%		15.6%	26.7%	15.6%	15.6%	41.1%		15.6%	41.1%	
Maximum Green (s)	10.0	19.0		9.0	18.0	9.0	9.0	31.0		9.0	31.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	3.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min	None	None	Min		None	Min	

Lanes, Volumes, Timings  
5: Henderson Road & Church Road

2/27/2015

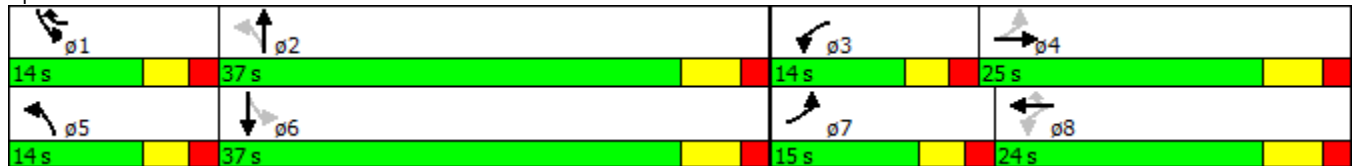


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		5.0						5.0				
Flash Dont Walk (s)		11.0						11.0				
Pedestrian Calls (#/hr)		0						0				
Act Effct Green (s)	30.5	23.7		26.8	16.8	31.8	39.9	29.9		41.0	33.0	
Actuated g/C Ratio	0.35	0.27		0.31	0.19	0.36	0.45	0.34		0.47	0.38	
v/c Ratio	0.83	0.73		0.14	0.84	0.68	0.20	0.92		0.76	0.67	
Control Delay	46.3	43.6		19.4	56.4	30.6	12.8	41.1		38.1	27.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.3	43.6		19.4	56.4	30.6	12.8	41.1		38.1	27.5	
LOS	D	D		B	E	C	B	D		D	C	
Approach Delay		44.8			39.9			39.5			29.5	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	106	185		17	161	199	18	312		60	219	
Queue Length 95th (ft)	#196	#278		39	#250	305	27	#439		#171	290	
Internal Link Dist (ft)		295			493			518			688	
Turn Bay Length (ft)	98			170		195	243			173		
Base Capacity (vph)	313	452		332	377	618	328	1257		257	1258	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.83	0.73		0.14	0.78	0.68	0.20	0.88		0.76	0.67	

Intersection Summary

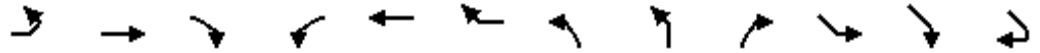
Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 87.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 37.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 83.0%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Henderson Road & Church Road



Lanes, Volumes, Timings  
6: Henderson Road & US 202

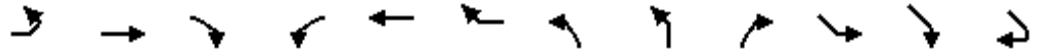
2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER	SER2
Lane Configurations												
Volume (vph)	105	1368	365	76	821	235	515	635	73	245	393	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	14	10	11	14	10	12	12	10	10	12
Storage Length (ft)	318		179	120		120		435	0	275	0	
Storage Lanes	1		1	1		1		1	0	1	1	
Taper Length (ft)	25			25				25		25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	0.95	0.97	0.91	0.95
Frt			0.850				0.850		0.987	0.926	0.850	
Flt Protected	0.950			0.950			0.950	0.956		0.975		
Satd. Flow (prot)	1652	3421	1689	1652	3421	1689	1503	3199	0	3045	1345	0
Flt Permitted	0.950			0.950			0.950	0.956		0.975		
Satd. Flow (perm)	1652	3421	1689	1652	3421	1689	1503	3199	0	3045	1345	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								173			173	
Link Speed (mph)		45			45			35		40		
Link Distance (ft)		745			1518			997		653		
Travel Time (s)		11.3			23.0			19.4		11.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	1487	397	83	892	255	560	690	79	266	427	89
Shared Lane Traffic (%)							20%				60%	
Lane Group Flow (vph)	114	1487	397	83	892	255	448	881	0	522	260	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		10			10			34		20		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.09	1.04	0.92	1.09	1.04	0.92	1.09	1.00	1.00	1.09	1.09	1.00
Turning Speed (mph)	15		9	15		9	15	15	9	15	9	9
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA		NA	Prot	
Protected Phases	7	4		3	8	6	5	5		6	6	
Permitted Phases			4			8						
Detector Phase	7	4	4	3	8	6	5	5		6	6	
Switch Phase												
Minimum Initial (s)	11.0	40.0	40.0	11.0	40.0	11.0	11.0	11.0		11.0	11.0	
Minimum Split (s)	17.0	47.0	47.0	17.0	47.0	22.0	17.0	17.0		22.0	22.0	
Total Split (s)	19.0	62.0	62.0	17.0	60.0	27.0	39.0	39.0		27.0	27.0	
Total Split (%)	13.1%	42.8%	42.8%	11.7%	41.4%	18.6%	26.9%	26.9%		18.6%	18.6%	
Maximum Green (s)	13.0	55.0	55.0	11.0	53.0	21.0	33.0	33.0		21.0	21.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0	7.0	6.0	7.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	Min	Min	Min	Min		Min	Min	
Walk Time (s)					5.0	5.0				5.0	5.0	

Lanes, Volumes, Timings  
6: Henderson Road & US 202

2/27/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER	SER2
Flash Dont Walk (s)					11.0	11.0				11.0	11.0	
Pedestrian Calls (#/hr)					0	0				0	0	
Act Effect Green (s)	12.6	55.0	55.0	11.0	53.4	75.4	33.0	33.0		21.0	21.0	
Actuated g/C Ratio	0.09	0.38	0.38	0.08	0.37	0.52	0.23	0.23		0.14	0.14	
v/c Ratio	0.80	1.15	0.62	0.66	0.71	0.29	1.31	1.02		1.18	0.76	
Control Delay	99.9	116.2	41.7	90.0	43.0	11.7	202.3	80.3		155.5	35.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	99.9	116.2	41.7	90.0	43.0	11.7	202.3	80.3		155.5	35.4	
LOS	F	F	D	F	D	B	F	F		F	D	
Approach Delay		100.5			39.7			121.4		115.6		
Approach LOS		F			D			F		F		
Queue Length 50th (ft)	107	-864	303	78	379	81	-596	-410		-304	87	
Queue Length 95th (ft)	#211	#1004	419	#155	458	118	#835	#553		#421	#227	
Internal Link Dist (ft)		665			1438			917		573		
Turn Bay Length (ft)	318		179	120		120	435	435		275		
Base Capacity (vph)	148	1297	640	125	1259	878	342	861		441	342	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.77	1.15	0.62	0.66	0.71	0.29	1.31	1.02		1.18	0.76	

Intersection Summary

Area Type: Other  
 Cycle Length: 145  
 Actuated Cycle Length: 145  
 Natural Cycle: 145  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.31  
 Intersection Signal Delay: 93.9  
 Intersection LOS: F  
 Intersection Capacity Utilization 103.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ 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: Henderson Road & US 202

