



# Appendix D.

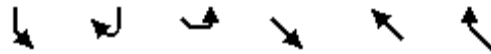
## Traffic Analysis Report

# 2020/2040 Existing Conditions Traffic Analysis

# Lanes, Volumes, Timings

## 3: Winchester Ave & Greenup Ave

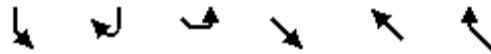
10/29/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	↩↩			↑↑	↑↑	↩↩
Traffic Volume (vph)	287	0	0	217	259	283
Future Volume (vph)	287	0	0	217	259	283
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			145
Storage Lanes	2	0	0			2
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	0.88
Frt						0.850
Flt Protected	0.950					
Satd. Flow (prot)	3242	0	0	3471	3505	2682
Flt Permitted	0.950					
Satd. Flow (perm)	3242	0	0	3471	3505	2682
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						354
Link Speed (mph)	30			30	30	
Link Distance (ft)	1088			775	945	
Travel Time (s)	24.7			17.6	21.5	
Peak Hour Factor	0.68	0.92	0.92	0.80	0.82	0.80
Heavy Vehicles (%)	8%	2%	2%	4%	3%	6%
Adj. Flow (vph)	422	0	0	271	316	354
Shared Lane Traffic (%)						
Lane Group Flow (vph)	422	0	0	271	316	354
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot			NA	NA	Free
Protected Phases	4			2	2	
Permitted Phases	4					Free
Minimum Split (s)	33.0			63.0	63.0	
Total Split (s)	33.0			63.0	63.0	
Total Split (%)	34.4%			65.6%	65.6%	
Maximum Green (s)	27.6			54.4	54.4	
Yellow Time (s)	3.4			3.6	3.6	
All-Red Time (s)	2.0			5.0	5.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.4			8.6	8.6	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effect Green (s)	27.6			54.4	54.4	96.0
Actuated g/C Ratio	0.29			0.57	0.57	1.00

Lanes, Volumes, Timings  
 3: Winchester Ave & Greenup Ave

10/29/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
v/c Ratio	0.45			0.14	0.16	0.13
Control Delay	29.9			10.0	10.2	0.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	29.9			10.0	10.2	0.1
LOS	C			B	B	A
Approach Delay	29.9			10.0	4.9	
Approach LOS	C			B	A	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	50 (52%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	100
Control Type:	Pretimed
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	13.6
Intersection LOS:	B
Intersection Capacity Utilization	36.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

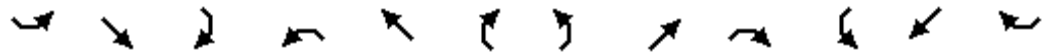
10/29/2020



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕↕			↕↕			↕	↕		↕↕	
Traffic Volume (vph)	9	306	72	4	375	2	58	2	8	4	2	6
Future Volume (vph)	9	306	72	4	375	2	58	2	8	4	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.969			0.997				0.850		0.955	
Fl <sub>t</sub> Protected		0.999			0.999			0.955			0.976	
Satd. Flow (prot)	0	3309	0	0	3396	0	0	1797	1615	0	1345	0
Fl <sub>t</sub> Permitted		0.942			0.941			0.720			0.815	
Satd. Flow (perm)	0	3120	0	0	3199	0	0	1355	1615	0	1123	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			2				32		8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			476			361			347	
Travel Time (s)		8.8			10.8			8.2			7.9	
Peak Hour Factor	0.75	0.81	0.72	0.33	0.85	0.25	0.81	0.50	0.67	0.33	0.50	0.75
Heavy Vehicles (%)	0%	7%	1%	23%	5%	29%	1%	0%	0%	60%	0%	5%
Adj. Flow (vph)	12	378	100	12	441	8	72	4	12	12	4	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	490	0	0	461	0	0	76	12	0	24	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4		4	4		
Detector Phase	6	6		2	2		4	4	4	4	4	
Switch Phase												

Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

10/29/2020

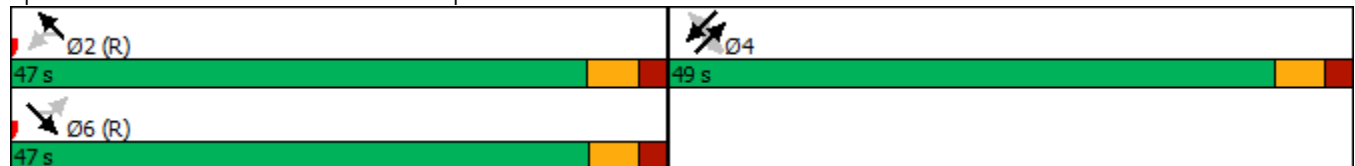


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)	41.3	41.3		41.2	41.2		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%	51.0%	51.0%	51.0%	
Maximum Green (s)	41.3	41.3		41.2	41.2		43.3	43.3	43.3	43.3	43.3	
Yellow Time (s)	3.5	3.5		3.6	3.6		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2	2.2	2.2	2.2	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.7			5.8			5.7	5.7		5.7	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)		77.3			77.2			11.6	11.6			11.6
Actuated g/C Ratio		0.81			0.80			0.12	0.12			0.12
v/c Ratio		0.19			0.18			0.47	0.05			0.17
Control Delay		3.0			3.3			48.4	3.6			30.5
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		3.0			3.3			48.4	3.6			30.5
LOS		A			A			D	A			C
Approach Delay		3.0			3.3			42.3				30.5
Approach LOS		A			A			D				C

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 63 (66%), Referenced to phase 2:NWTL and 6:SETL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 7.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 65.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 7: 29th Street & Greenup Ave



Lanes, Volumes, Timings  
14: 18th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	4	203	2	5	241	4	3	6	3	2	4	1
Future Volume (vph)	4	203	2	5	241	4	3	6	3	2	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998			0.997			0.942			0.977	
Fl <sub>t</sub> Protected		0.998			0.998			0.993			0.984	
Satd. Flow (prot)	0	3562	0	0	3405	0	0	1777	0	0	1827	0
Fl <sub>t</sub> Permitted		0.938			0.937			0.984			0.954	
Satd. Flow (perm)	0	3348	0	0	3196	0	0	1761	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			3			12			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			394			405			196	
Travel Time (s)		8.6			9.0			9.2			4.5	
Peak Hour Factor	0.33	0.69	0.50	0.31	0.65	0.50	0.75	0.50	0.25	0.25	0.33	0.25
Heavy Vehicles (%)	0%	1%	0%	20%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	294	4	16	371	8	4	12	12	8	12	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	310	0	0	395	0	0	28	0	0	24	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
 14: 18th Street & Winchester Ave

10/29/2020

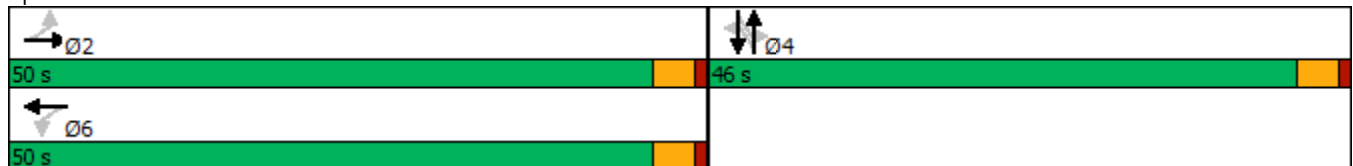


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.19			0.26			0.04			0.03	
Control Delay		14.7			15.3			10.9			13.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.7			15.3			10.9			13.7	
LOS		B			B			B			B	
Approach Delay		14.7			15.3			10.9			13.7	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.26
Intersection Signal Delay:	14.8
Intersection LOS:	B
Intersection Capacity Utilization:	29.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: 18th Street & Winchester Ave





Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕			↕↕	
Traffic Volume (vph)	2	193	27	5	235	5	8	15	11	4	12	11
Future Volume (vph)	2	193	27	5	235	5	8	15	11	4	12	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.996			0.932				0.940
Flt Protected		0.999			0.998		0.950					0.989
Satd. Flow (prot)	0	3427	0	0	3555	0	1805	1742	0	0	1751	0
Flt Permitted		0.952			0.941		0.734					0.967
Satd. Flow (perm)	0	3266	0	0	3352	0	1395	1742	0	0	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			4			20				16
Link Speed (mph)		30			30			30				30
Link Distance (ft)		398			378			396				394
Travel Time (s)		9.0			8.6			9.0				9.0
Peak Hour Factor	0.50	0.87	0.56	0.42	0.83	0.63	0.50	0.63	0.55	0.50	0.99	0.69
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	0%	3%	0%	0%	0%	2%
Adj. Flow (vph)	4	222	48	12	283	8	16	24	20	8	12	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	274	0	0	303	0	16	44	0	0	36	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			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4				4
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

10/29/2020

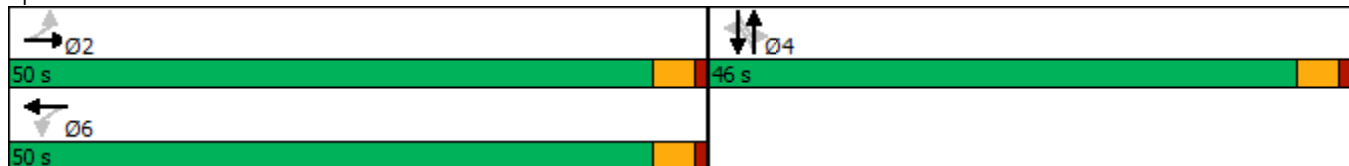


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.0			4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.17			0.19			0.03			0.06	
Control Delay		12.6			14.5			15.6			10.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.6			14.5			15.6			10.3	
LOS		B			B			B			B	
Approach Delay		12.6			14.5			11.7			10.5	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.19
Intersection Signal Delay:	13.3
Intersection LOS:	B
Intersection Capacity Utilization:	29.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 18: 17th Street & Winchester Ave



Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	514	9	19	375	2	11	1	7	6	2	5
Future Volume (vph)	5	514	9	19	375	2	11	1	7	6	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.997			0.999			0.949			0.942	
Flt Protected	0.950			0.950				0.976			0.979	
Satd. Flow (prot)	1805	3431	0	1770	3436	0	0	1725	0	0	1687	0
Flt Permitted	0.489			0.401				0.900			0.919	
Satd. Flow (perm)	929	3431	0	747	3436	0	0	1591	0	0	1584	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			12			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		394			188			394			336	
Travel Time (s)		9.0			4.3			9.0			7.6	
Peak Hour Factor	0.42	0.90	0.75	0.79	0.87	0.50	0.69	0.25	0.58	0.50	0.50	0.42
Heavy Vehicles (%)	0%	5%	0%	2%	5%	0%	4%	0%	0%	9%	0%	0%
Adj. Flow (vph)	12	571	12	24	431	4	16	4	12	12	4	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	583	0	24	435	0	0	32	0	0	28	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.4	23.4		23.4	23.4		24.1	24.1		24.1	24.1	
Total Split (s)	57.0	57.0		57.0	57.0		39.0	39.0		39.0	39.0	
Total Split (%)	59.4%	59.4%		59.4%	59.4%		40.6%	40.6%		40.6%	40.6%	
Maximum Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.4	5.4		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.34	0.34		0.34	0.34	
v/c Ratio	0.02	0.32		0.06	0.24		0.06	0.06		0.06	0.05	
Control Delay	6.6	9.8		11.2	12.1		15.6	15.6		15.6	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.6	9.8		11.2	12.1		15.6	15.6		15.6	15.0	
LOS	A	A		B	B		B	B		B	B	
Approach Delay		9.7			12.1			15.6			15.0	
Approach LOS		A			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	4 (4%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	11.0
Intersection LOS:	B
Intersection Capacity Utilization:	32.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 19: 17th Street & Greenup Ave



Lanes, Volumes, Timings  
22: Winchester Ave & 16th Street

10/29/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↕	↕
Traffic Volume (vph)	9	220	247	7	2	7
Future Volume (vph)	9	220	247	7	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Fr <sub>t</sub>			0.992			0.850
Fl <sub>t</sub> Protected		0.996			0.950	
Satd. Flow (prot)	0	3563	3514	0	1367	1599
Fl <sub>t</sub> Permitted		0.919			0.950	
Satd. Flow (perm)	0	3288	3514	0	1367	1599
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			12
Link Speed (mph)		30	30		30	
Link Distance (ft)		386	398		394	
Travel Time (s)		8.8	9.0		9.0	
Peak Hour Factor	0.38	0.88	0.83	0.44	0.25	0.58
Heavy Vehicles (%)	0%	1%	2%	0%	32%	1%
Adj. Flow (vph)	24	250	298	16	8	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	274	314	0	8	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

Lanes, Volumes, Timings  
 22: Winchester Ave & 16th Street

10/29/2020

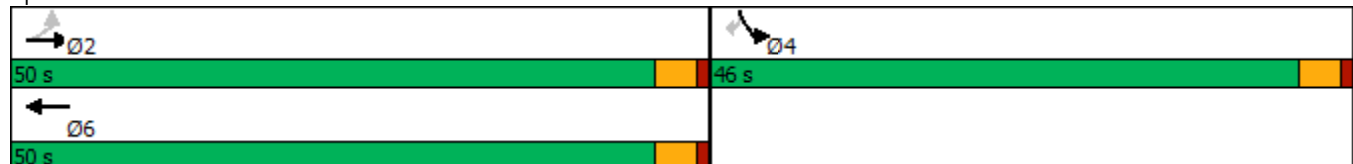


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	8.0	8.0	8.0		15.0	15.0
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	50.0	50.0	50.0		46.0	46.0
Total Split (%)	52.1%	52.1%	52.1%		47.9%	47.9%
Maximum Green (s)	46.0	46.0	46.0		42.0	42.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
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)		65.0	65.0		15.2	15.2
Actuated g/C Ratio		0.94	0.94		0.22	0.22
v/c Ratio		0.09	0.09		0.03	0.03
Control Delay		1.2	1.1		25.0	14.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		1.2	1.1		25.0	14.1
LOS		A	A		C	B
Approach Delay		1.2	1.1		18.5	
Approach LOS		A	A		B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	68.8
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.09
Intersection Signal Delay:	1.7
Intersection Capacity Utilization:	31.8%
Analysis Period (min):	15
Intersection LOS:	A
ICU Level of Service:	A

Splits and Phases: 22: Winchester Ave & 16th Street



Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	524	15	5	382	4	1	3	3	1	0	1
Future Volume (vph)	11	524	15	5	382	4	1	3	3	1	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.994			0.996				0.850		0.932	
Fl <sub>t</sub> Protected	0.950			0.950				0.988			0.976	
Satd. Flow (prot)	1805	3412	0	1752	3429	0	0	1877	1615	0	1728	0
Fl <sub>t</sub> Permitted	0.494			0.417				0.912			0.834	
Satd. Flow (perm)	939	3412	0	769	3429	0	0	1733	1615	0	1477	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4							33
Link Speed (mph)		30			30			30				30
Link Distance (ft)		396			394			394				359
Travel Time (s)		9.0			9.0			9.0				8.2
Peak Hour Factor	0.55	0.88	0.63	0.42	0.88	0.33	0.25	0.25	0.38	0.25	0.25	0.25
Heavy Vehicles (%)	0%	5%	9%	3%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	595	24	12	434	12	4	12	8	4	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	619	0	12	446	0	0	16	8	0	8	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	custom	Perm		NA
Protected Phases		2			2			4	4			4
Permitted Phases	2			2			4		2	4		
Detector Phase	2	2		2	2		4	4	4	4		4
Switch Phase												

Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		24.1	24.1	24.1	24.1	24.1	
Total Split (s)	53.0	53.0		53.0	53.0		43.0	43.0	43.0	43.0	43.0	
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%	44.8%	44.8%	44.8%	
Maximum Green (s)	47.1	47.1		47.1	47.1		36.9	36.9	36.9	36.9	36.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Lost Time (s)	5.9	5.9		5.9	5.9			6.1	6.1			6.1
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)	84.0	84.0		84.0	84.0			8.0	96.0			8.0
Actuated g/C Ratio	0.88	0.88		0.88	0.88			0.08	1.00			0.08
v/c Ratio	0.02	0.21		0.02	0.15			0.11	0.00			0.05
Control Delay	1.7	1.5		2.2	1.6			42.8	0.0			0.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	1.7	1.5		2.2	1.6			42.8	0.0			0.5
LOS	A	A		A	A			D	A			A
Approach Delay		1.5			1.6			28.5				0.5
Approach LOS		A			A			C				A

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	0 (0%), Referenced to phase 2:WBEB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.21
Intersection Signal Delay:	2.1
Intersection LOS:	A
Intersection Capacity Utilization:	43.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 23: 16th Street & Greenup Ave





Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				↕
Traffic Volume (vph)	34	210	25	3	245	6	7	18	15	4	22	16
Future Volume (vph)	34	210	25	3	245	6	7	18	15	4	22	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr't		0.980			0.994			0.960				0.947
Fl't Protected		0.992			0.999			0.988				0.994
Satd. Flow (prot)	0	3365	0	0	3455	0	0	1661	0	0	1706	0
Fl't Permitted		0.856			0.947			0.950				0.981
Satd. Flow (perm)	0	2904	0	0	3276	0	0	1597	0	0	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			6			20				28
Link Speed (mph)		30			30			30				30
Link Distance (ft)		371			386			399				396
Travel Time (s)		8.4			8.8			9.1				9.0
Peak Hour Factor	0.65	0.90	0.57	0.38	0.84	0.50	0.44	0.56	0.75	0.50	0.61	0.57
Heavy Vehicles (%)	8%	2%	12%	0%	4%	0%	14%	11%	0%	0%	5%	6%
Adj. Flow (vph)	52	233	44	8	292	12	16	32	20	8	36	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	0	312	0	0	68	0	0	72	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4				4
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

10/29/2020

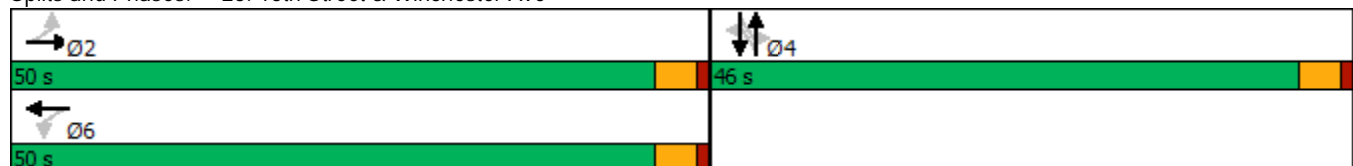


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.23			0.20			0.10			0.10	
Control Delay		14.0			14.5			12.4			11.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.0			14.5			12.4			11.0	
LOS		B			B			B			B	
Approach Delay		14.0			14.5			12.4			11.0	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.23
Intersection Signal Delay:	13.8
Intersection LOS:	B
Intersection Capacity Utilization:	37.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 25: 15th Street & Winchester Ave



Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	530	18	8	360	16	4	9	14	6	6	7
Future Volume (vph)	17	530	18	8	360	16	4	9	14	6	6	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.992			0.990			0.938			0.959	
Flt Protected	0.950			0.950				0.989			0.980	
Satd. Flow (prot)	1703	3359	0	1597	3175	0	0	1592	0	0	1465	0
Flt Permitted	0.483			0.398				0.914			0.853	
Satd. Flow (perm)	866	3359	0	669	3175	0	0	1471	0	0	1275	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			10			17			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2266			396			396			410	
Travel Time (s)		51.5			9.0			9.0			9.3	
Peak Hour Factor	0.85	0.84	0.50	0.50	0.82	0.53	0.50	0.75	0.83	0.38	0.50	0.58
Heavy Vehicles (%)	6%	7%	0%	13%	13%	6%	0%	33%	0%	33%	0%	29%
Adj. Flow (vph)	20	631	36	16	439	30	8	12	17	16	12	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	667	0	16	469	0	0	37	0	0	40	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.5	23.5		23.5	23.5		24.1	24.1		24.1	24.1	
Total Split (s)	54.0	54.0		54.0	54.0		42.0	42.0		42.0	42.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	48.5	48.5		48.5	48.5		35.9	35.9		35.9	35.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	79.6	79.6		79.6	79.6			8.7			8.7	
Actuated g/C Ratio	0.83	0.83		0.83	0.83			0.09			0.09	
v/c Ratio	0.03	0.24		0.03	0.18			0.25			0.31	
Control Delay	2.5	2.6		1.5	1.5			30.1			37.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.5	2.6		1.5	1.5			30.1			37.8	
LOS	A	A		A	A			C			D	
Approach Delay		2.6			1.5			30.1			37.8	
Approach LOS		A			A			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	1 (1%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	4.1
Intersection LOS:	A
Intersection Capacity Utilization:	31.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 26: 15th Street & Greenup Ave



Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↑	↑	
Traffic Volume (vph)	0	265	20	2	266	0	0	0	0	4	11	83
Future Volume (vph)	0	265	20	2	266	0	0	0	0	4	11	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr t		0.987										0.874
Flt Protected					0.999					0.950		
Satd. Flow (prot)	0	3499	0	0	3606	0	0	0	0	1687	1628	0
Flt Permitted					0.948					0.950		
Satd. Flow (perm)	0	3499	0	0	3422	0	0	0	0	1687	1628	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14										104
Link Speed (mph)		30			30			30				30
Link Distance (ft)		385			371			411				199
Travel Time (s)		8.8			8.4			9.3				4.5
Peak Hour Factor	0.92	0.89	0.71	0.25	0.76	0.92	0.92	0.92	0.92	0.50	0.55	0.80
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	2%	2%	2%	7%	2%	2%
Adj. Flow (vph)	0	298	28	8	350	0	0	0	0	8	20	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	326	0	0	358	0	0	0	0	8	124	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			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1		2
Detector Template		Thru		Left	Thru					Left		Thru
Leading Detector (ft)		100		20	100					20		100
Trailing Detector (ft)		0		0	0					0		0
Detector 1 Position(ft)		0		0	0					0		0
Detector 1 Size(ft)		6		20	6					20		6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							94
Detector 2 Size(ft)		6			6							6
Detector 2 Type		Cl+Ex			Cl+Ex							Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							0.0
Turn Type		NA		Perm	NA					Perm		NA
Protected Phases		2			6							4
Permitted Phases				6						4		
Detector Phase		2		6	6					4		4
Switch Phase												

Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

10/29/2020

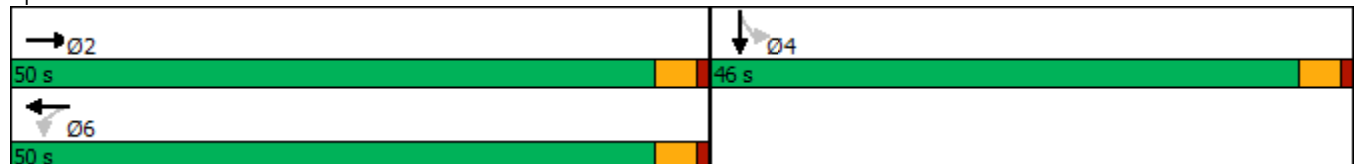


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0					15.0	15.0	
Minimum Split (s)		22.5		22.5	22.5					22.5	22.5	
Total Split (s)		50.0		50.0	50.0					46.0	46.0	
Total Split (%)		52.1%		52.1%	52.1%					47.9%	47.9%	
Maximum Green (s)		46.0		46.0	46.0					42.0	42.0	
Yellow Time (s)		3.0		3.0	3.0					3.0	3.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0			0.0					0.0	0.0	
Total Lost Time (s)		4.0			4.0					4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Recall Mode		None		Max	Max					Max	Max	
Walk Time (s)		7.0		7.0	7.0					7.0	7.0	
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)		46.0			46.0					42.0	42.0	
Actuated g/C Ratio		0.48			0.48					0.44	0.44	
v/c Ratio		0.19			0.22					0.01	0.16	
Control Delay		14.1			15.0					15.5	5.2	
Queue Delay		0.0			0.0					0.0	0.0	
Total Delay		14.1			15.0					15.5	5.2	
LOS		B			B					B	A	
Approach Delay		14.1			15.0						5.8	
Approach LOS		B			B						A	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.22
Intersection Signal Delay:	13.1
Intersection LOS:	B
Intersection Capacity Utilization:	27.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 29: 14th Street & Winchester Ave



Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	209	0	0	209	140	117	381	76	0	0	22
Future Volume (vph)	201	209	0	0	209	140	117	381	76	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00
Fr't					0.944			0.967				0.865
Flt Protected	0.950	0.985					0.950					
Satd. Flow (prot)	1507	3249	0	0	3333	0	1787	4902	0	0	0	1393
Flt Permitted	0.950	0.985					0.950					
Satd. Flow (perm)	1507	3249	0	0	3333	0	1787	4902	0	0	0	1393
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					126			67				421
Link Speed (mph)		30			30			30				30
Link Distance (ft)		373			385			393				292
Travel Time (s)		8.5			8.8			8.9				6.6
Peak Hour Factor	0.81	0.95	0.92	0.25	0.72	0.81	0.70	0.95	0.66	0.25	0.31	0.69
Heavy Vehicles (%)	9%	3%	0%	0%	0%	6%	1%	3%	0%	0%	0%	18%
Adj. Flow (vph)	248	220	0	0	290	173	167	401	115	0	0	32
Shared Lane Traffic (%)	39%											
Lane Group Flow (vph)	151	317	0	0	463	0	167	516	0	0	0	32
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)		12			12			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2				1
Detector Template	Left	Thru			Thru		Left	Thru				Right
Leading Detector (ft)	20	100			100		20	100				20
Trailing Detector (ft)	0	0			0		0	0				0
Detector 1 Position(ft)	0	0			0		0	0				0
Detector 1 Size(ft)	20	6			6		20	6				20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				0.0
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				0.0
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Split	NA			NA		Perm	NA				Perm
Protected Phases	3	3			2			4				
Permitted Phases							4					3
Detector Phase	3	3			2		4	4				3
Switch Phase												

Lanes, Volumes, Timings  
 32: 13th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				8.0
Minimum Split (s)	23.5	23.5			23.5		23.5	23.5				23.5
Total Split (s)	30.0	30.0			42.0		34.0	34.0				30.0
Total Split (%)	28.3%	28.3%			39.6%		32.1%	32.1%				28.3%
Maximum Green (s)	24.5	24.5			36.5		28.5	28.5				24.5
Yellow Time (s)	3.6	3.6			3.6		3.5	3.5				3.6
All-Red Time (s)	1.9	1.9			1.9		2.0	2.0				1.9
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				0.0
Total Lost Time (s)	5.5	5.5			5.5		5.5	5.5				5.5
Lead/Lag	Lead	Lead					Lag	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
Recall Mode	None	None			C-Max		None	None				None
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				7.0
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0			0		0	0				0
Act Effct Green (s)	17.0	17.0			55.0		17.5	17.5				17.0
Actuated g/C Ratio	0.16	0.16			0.52		0.17	0.17				0.16
v/c Ratio	0.62	0.61			0.26		0.57	0.60				0.06
Control Delay	54.3	49.0			12.0		47.5	37.8				0.2
Queue Delay	0.0	0.0			0.0		0.0	0.0				0.0
Total Delay	54.3	49.0			12.0		47.5	37.8				0.2
LOS	D	D			B		D	D				A
Approach Delay		50.7			12.0			40.2				0.2
Approach LOS		D			B			D				A

Intersection Summary

Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 58 (55%), Referenced to phase 2:WBT and 6:, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.62  
 Intersection Signal Delay: 34.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 40.8%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 32: 13th Street & Winchester Ave





Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑						↙↑	↗
Traffic Volume (vph)	0	218	228	124	224	0	0	0	0	192	494	304
Future Volume (vph)	0	218	228	124	224	0	0	0	0	192	494	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.921										0.850
Flt Protected				0.950							0.978	
Satd. Flow (prot)	0	4552	0	1752	3438	0	0	0	0	0	3477	1455
Flt Permitted				0.950							0.978	
Satd. Flow (perm)	0	4552	0	1752	3438	0	0	0	0	0	3477	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		144										197
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			373			198			355	
Travel Time (s)		8.6			8.5			4.5			8.1	
Peak Hour Factor	0.25	0.98	0.92	0.72	0.89	0.25	0.92	0.92	0.92	0.43	0.92	0.77
Heavy Vehicles (%)	0%	6%	4%	3%	5%	100%	2%	2%	2%	1%	2%	11%
Adj. Flow (vph)	0	222	248	172	252	0	0	0	0	447	537	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	470	0	172	252	0	0	0	0	0	984	395
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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	

Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

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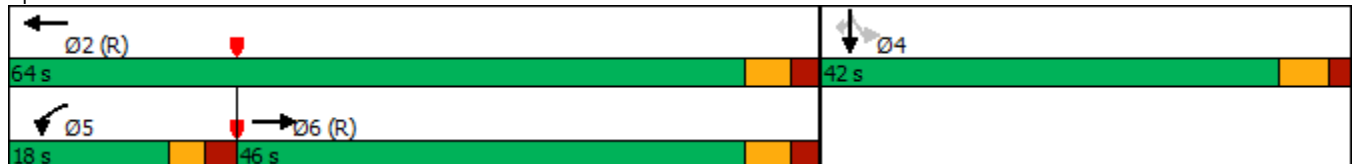


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases										4		4
Detector Phase		6		5	2					4	4	4
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		24.0		13.4	24.0					23.8	23.8	23.8
Total Split (s)		46.0		18.0	64.0					42.0	42.0	42.0
Total Split (%)		43.4%		17.0%	60.4%					39.6%	39.6%	39.6%
Maximum Green (s)		40.0		12.6	58.0					36.2	36.2	36.2
Yellow Time (s)		3.6		2.9	3.6					3.9	3.9	3.9
All-Red Time (s)		2.4		2.5	2.4					1.9	1.9	1.9
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0						5.8	5.8
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)		7.0			7.0					7.0	7.0	7.0
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)		41.2		12.3	58.9						35.3	35.3
Actuated g/C Ratio		0.39		0.12	0.56						0.33	0.33
v/c Ratio		0.25		0.85	0.13						0.85	0.64
Control Delay		12.0		72.7	20.3						41.1	19.7
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		12.0		72.7	20.3						41.1	19.7
LOS		B		E	C						D	B
Approach Delay		12.0			41.6						35.0	
Approach LOS		B			D						C	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	31.5
Intersection LOS:	C
Intersection Capacity Utilization:	49.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 35: 12th Street & Winchester Ave



Lanes, Volumes, Timings  
38: 11th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				
Traffic Volume (vph)	8	437	3	13	307	208	2	4	9	0	0	0
Future Volume (vph)	8	437	3	13	307	208	2	4	9	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.947			0.923				
Flt Protected		0.999			0.998			0.993				
Satd. Flow (prot)	0	3516	0	0	3345	0	0	1741	0	0	0	0
Flt Permitted		0.999			0.998			0.993				
Satd. Flow (perm)	0	3516	0	0	3345	0	0	1741	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		383			377			400				200
Travel Time (s)		8.7			8.6			9.1				4.5
Peak Hour Factor	0.67	0.89	0.25	0.46	0.72	0.85	0.50	0.50	0.56	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	9%	0%	1%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	491	12	28	426	245	4	8	16	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	515	0	0	699	0	0	28	0	0	0	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC  
38: 11th Street & Winchester Ave

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Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	8	437	3	13	307	208	2	4	9	0	0	0
Future Vol, veh/h	8	437	3	13	307	208	2	4	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	89	25	46	72	85	50	50	56	92	92	92
Heavy Vehicles, %	6	2	9	0	1	4	0	0	0	0	0	0
Mvmt Flow	12	491	12	28	426	245	4	8	16	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	671	0	0	503	0	0	790	1248	252
Stage 1	-	-	-	-	-	-	521	521	-
Stage 2	-	-	-	-	-	-	269	727	-
Critical Hdwy	4.22	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	2.26	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	889	-	-	1072	-	-	331	175	754
Stage 1	-	-	-	-	-	-	566	535	-
Stage 2	-	-	-	-	-	-	758	432	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	889	-	-	1072	-	-	310	0	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	310	0	-
Stage 1	-	-	-	-	-	-	555	0	-
Stage 2	-	-	-	-	-	-	725	0	-

Approach	EB			WB			NB		
HCM Control Delay, s	0.3			0.5			11.4		
HCM LOS							B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	587	889	-	-	1072	-	-
HCM Lane V/C Ratio	0.048	0.013	-	-	0.026	-	-
HCM Control Delay (s)	11.4	9.1	0.1	-	8.4	0.2	-
HCM Lane LOS	B	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	416	4	3	306	0	6	0	5	27	15	1
Future Volume (vph)	0	416	4	3	306	0	6	0	5	27	15	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.997						0.910			0.990	
Flt Protected					0.999			0.984			0.972	
Satd. Flow (prot)	0	3564	0	0	3571	0	0	1701	0	0	1568	0
Flt Permitted					0.952			0.900			0.810	
Satd. Flow (perm)	0	3564	0	0	3403	0	0	1556	0	0	1307	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						21			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			383			411			247	
Travel Time (s)		8.6			8.7			9.3			5.6	
Peak Hour Factor	0.25	0.94	0.50	0.75	0.92	0.25	0.75	0.25	0.31	0.84	0.75	0.25
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	29%	0%	0%
Adj. Flow (vph)	0	443	8	4	333	0	8	0	16	32	20	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	337	0	0	24	0	0	56	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2		1	2	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		100		20	100		20	100		20	100	
Trailing Detector (ft)		0		0	0		0	0		0	0	
Detector 1 Position(ft)		0		0	0		0	0		0	0	
Detector 1 Size(ft)		6		20	6		20	6		20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94		94	94		94	94		94	94	
Detector 2 Size(ft)		6		6	6		6	6		6	6	
Detector 2 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6		2	2		4	4		4	4	
Permitted Phases				2	2		4	4		4	4	
Detector Phase		6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)		23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)		74.0		74.0	74.0		32.0	32.0		32.0	32.0	
Total Split (%)		69.8%		69.8%	69.8%		30.2%	30.2%		30.2%	30.2%	
Maximum Green (s)		69.0		69.0	69.0		26.5	26.5		26.5	26.5	
Yellow Time (s)		3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)		1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode		None		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		85.6		85.6	85.6		15.0	15.0		15.0	15.0	
Actuated g/C Ratio		0.81		0.81	0.81		0.14	0.14		0.14	0.14	
v/c Ratio		0.16		0.12	0.12		0.10	0.10		0.10	0.30	
Control Delay		2.8		4.4	4.4		19.1	19.1		19.1	43.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		2.8		4.4	4.4		19.1	19.1		19.1	43.9	
LOS		A		A	A		B	B		B	D	
Approach Delay		2.8		4.4	4.4		19.1	19.1		19.1	43.9	
Approach LOS		A		A	A		B	B		B	D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	6.5
Intersection LOS:	A
Intersection Capacity Utilization:	32.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 42: 10th Street & Winchester Ave



Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	29	399	15	10	290	13	31	28	16	5	22	6
Future Volume (vph)	29	399	15	10	290	13	31	28	16	5	22	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.993			0.992			0.960			0.979	
Flt Protected		0.995			0.997			0.984			0.989	
Satd. Flow (prot)	0	3400	0	0	3441	0	0	1763	0	0	1840	0
Flt Permitted		0.854			0.893			0.875			0.927	
Satd. Flow (perm)	0	2918	0	0	3082	0	0	1568	0	0	1724	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			10			19			8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			378			425			203	
Travel Time (s)		8.6			8.6			9.7			4.6	
Peak Hour Factor	0.52	0.87	0.63	0.31	0.70	0.54	0.86	0.70	0.50	0.42	0.69	0.75
Heavy Vehicles (%)	0%	3%	53%	0%	2%	39%	0%	0%	6%	0%	0%	0%
Adj. Flow (vph)	56	459	24	32	414	24	36	40	32	12	32	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	539	0	0	470	0	0	108	0	0	52	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	6	6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)	73.0	73.0		73.0	73.0		33.0	33.0		33.0	33.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	68.0	68.0		68.0	68.0		27.5	27.5		27.5	27.5	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		80.2			80.2			15.3			15.3	
Actuated g/C Ratio		0.76			0.76			0.14			0.14	
v/c Ratio		0.24			0.20			0.45			0.20	
Control Delay		4.1			3.2			40.4			37.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.1			3.2			40.4			37.1	
LOS		A			A			D			D	
Approach Delay		4.1			3.2			40.4			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	8.6
Intersection LOS:	A
Intersection Capacity Utilization	46.5%
ICU Level of Service	A
Analysis Period (min)	15

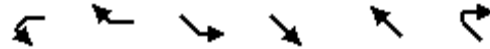
Splits and Phases: 45: 9th Street & Winchester Ave





Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

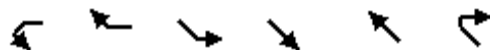
10/29/2020



Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations		↑↑	↑↑	↑↑	↑↑	
Traffic Volume (vph)	0	344	357	443	324	0
Future Volume (vph)	0	344	357	443	324	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	1.00
Fr't		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	0	2608	3433	3471	3438	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	2608	3433	3471	3438	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		772				
Link Speed (mph)	30			30	30	
Link Distance (ft)	768			487	269	
Travel Time (s)	17.5			11.1	6.1	
Peak Hour Factor	0.92	0.84	0.91	0.86	0.83	0.92
Heavy Vehicles (%)	2%	9%	2%	4%	5%	2%
Adj. Flow (vph)	0	410	392	515	390	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	410	392	515	390	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors		2	2	1	1	
Detector Template		Thru	Thru	Right	Left	
Leading Detector (ft)		100	100	20	20	
Trailing Detector (ft)		0	0	0	0	
Detector 1 Position(ft)		0	0	0	0	
Detector 1 Size(ft)		6	6	20	20	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		Over	Prot	NA	NA	
Protected Phases		1	1	2	2	
Permitted Phases				1		
Detector Phase		1	1	2	2	
Switch Phase						

Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

10/29/2020

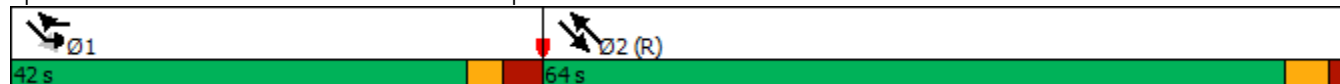


Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Minimum Initial (s)		15.0	15.0	20.0	20.0	
Minimum Split (s)		24.1	24.1	25.5	25.5	
Total Split (s)		42.0	42.0	64.0	64.0	
Total Split (%)		39.6%	39.6%	60.4%	60.4%	
Maximum Green (s)		35.9	35.9	58.5	58.5	
Yellow Time (s)		2.9	2.9	3.5	3.5	
All-Red Time (s)		3.2	3.2	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.1	6.1	5.5	5.5	
Lead/Lag		Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Recall Mode		None	None	C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effect Green (s)		20.5	20.5	106.0	73.9	
Actuated g/C Ratio		0.19	0.19	1.00	0.70	
v/c Ratio		0.36	0.59	0.15	0.16	
Control Delay		0.9	42.2	0.1	9.6	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		0.9	42.2	0.1	9.6	
LOS		A	D	A	A	
Approach Delay	0.9			18.3	9.6	
Approach LOS	A			B	A	

Intersection Summary

















Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	35 (33%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	12.1
Intersection LOS:	B
Intersection Capacity Utilization	38.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 48: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
49: 8th Street & Winchester Ave

10/29/2020

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	1	0	4	0	0	0	0	439	4	3	323	1
Future Volume (vph)	1	0	4	0	0	0	0	439	4	3	323	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Flt		0.892						0.997			0.999	
Flt Protected		0.990										
Satd. Flow (prot)	0	1639	0	0	1900	0	0	3525	0	0	3537	0
Flt Permitted		0.990										
Satd. Flow (perm)	0	1639	0	0	1900	0	0	3525	0	0	3537	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		376			140			269			377	
Travel Time (s)		8.5			3.2			6.1			8.6	
Peak Hour Factor	0.25	0.92	0.25	0.92	0.92	0.92	0.92	0.94	0.50	0.75	0.79	0.25
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	2%	8%	0%	2%	0%
Adj. Flow (vph)	4	0	16	0	0	0	0	467	8	4	409	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	0	0	0	475	0	0	417	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.3%						ICU Level of Service A					
Analysis Period (min)	15											

HCM 6th TWSC  
49: 8th Street & Winchester Ave

10/29/2020

Intersection												
Int Delay, s/veh	0.3											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	4	0	0	0	0	439	4	3	323	1
Future Vol, veh/h	1	0	4	0	0	0	0	439	4	3	323	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	25	92	92	92	92	94	50	75	79	25
Heavy Vehicles, %	0	0	3	0	0	0	0	2	8	0	2	0
Mvmt Flow	4	0	16	0	0	0	0	467	8	4	409	4

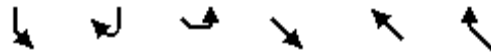
Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	684	892	238	653	894	207	413	0	0	475	0	0
Stage 1	471	471	-	419	419	-	-	-	-	-	-	-
Stage 2	213	421	-	234	475	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.96	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	339	283	760	356	283	805	1157	-	-	1098	-	-
Stage 1	548	563	-	588	593	-	-	-	-	-	-	-
Stage 2	775	592	-	754	561	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	338	282	760	347	282	805	1157	-	-	1098	-	-
Mov Cap-2 Maneuver	338	282	-	347	282	-	-	-	-	-	-	-
Stage 1	548	563	-	588	590	-	-	-	-	-	-	-
Stage 2	771	589	-	738	561	-	-	-	-	-	-	-

Approach	NB	SB	SE	NW
HCM Control Delay, s	11.1	0	0	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	608	1098	-	-	1157	-	-	-
HCM Lane V/C Ratio	0.033	0.004	-	-	-	-	-	-
HCM Control Delay (s)	11.1	8.3	0	-	0	-	-	0
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Lanes, Volumes, Timings  
3: Winchester Ave & Greenup Ave

10/29/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	↩↩			↗↗	↖↖	↗↗
Traffic Volume (vph)	382	0	0	384	269	521
Future Volume (vph)	382	0	0	384	269	521
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			145
Storage Lanes	2	0	0			2
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	0.88
Frt						0.850
Flt Protected	0.950					
Satd. Flow (prot)	3335	0	0	3539	3574	2760
Flt Permitted	0.950					
Satd. Flow (perm)	3335	0	0	3539	3574	2760
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						579
Link Speed (mph)	30			30	30	
Link Distance (ft)	1088			775	945	
Travel Time (s)	24.7			17.6	21.5	
Peak Hour Factor	0.81	0.92	0.92	0.93	0.96	0.90
Heavy Vehicles (%)	5%	2%	2%	2%	1%	3%
Adj. Flow (vph)	472	0	0	413	280	579
Shared Lane Traffic (%)						
Lane Group Flow (vph)	472	0	0	413	280	579
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot			NA	NA	Free
Protected Phases	4			2	2	
Permitted Phases	4					Free
Minimum Split (s)	33.0			63.0	63.0	
Total Split (s)	33.0			63.0	63.0	
Total Split (%)	34.4%			65.6%	65.6%	
Maximum Green (s)	27.6			54.4	54.4	
Yellow Time (s)	3.4			3.6	3.6	
All-Red Time (s)	2.0			5.0	5.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.4			8.6	8.6	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effect Green (s)	27.6			54.4	54.4	96.0
Actuated g/C Ratio	0.29			0.57	0.57	1.00

Lanes, Volumes, Timings  
 3: Winchester Ave & Greenup Ave

10/29/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
v/c Ratio	0.49			0.21	0.14	0.21
Control Delay	30.5			10.5	10.0	0.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	30.5			10.5	10.0	0.2
LOS	C			B	B	A
Approach Delay	30.5			10.5	3.4	
Approach LOS	C			B	A	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	50 (52%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	100
Control Type:	Pretimed
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	12.4
Intersection LOS:	B
Intersection Capacity Utilization	36.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

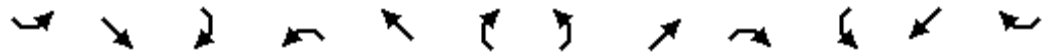
10/29/2020



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔↔			↔↔			↕	↕		↕↔	
Traffic Volume (vph)	3	404	99	8	630	1	73	1	8	1	3	5
Future Volume (vph)	3	404	99	8	630	1	73	1	8	1	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr't		0.970			0.999				0.850		0.904	
Flt Protected		0.999			0.999			0.954			0.993	
Satd. Flow (prot)	0	3310	0	0	3419	0	0	1795	1615	0	1521	0
Flt Permitted		0.944			0.946			0.715			0.949	
Satd. Flow (perm)	0	3128	0	0	3238	0	0	1346	1615	0	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			1				32		20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			476			361			347	
Travel Time (s)		8.8			10.8			8.2			7.9	
Peak Hour Factor	0.38	0.90	0.85	0.67	0.75	0.25	0.87	0.25	0.67	0.25	0.75	0.25
Heavy Vehicles (%)	0%	7%	1%	23%	5%	29%	1%	0%	0%	60%	0%	5%
Adj. Flow (vph)	8	449	116	12	840	4	84	4	12	4	4	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	573	0	0	856	0	0	88	12	0	28	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4		4	4		
Detector Phase	6	6		2	2		4	4	4	4	4	
Switch Phase												

Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

10/29/2020

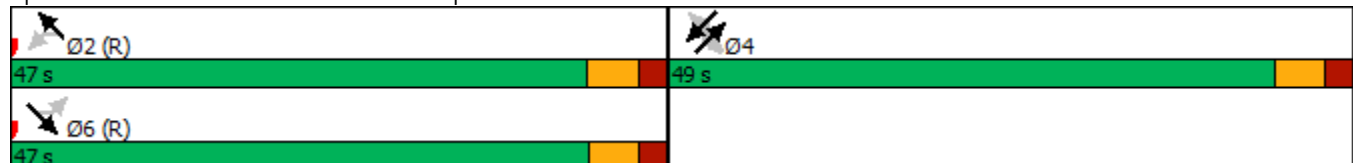


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)	41.3	41.3		41.2	41.2		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%	51.0%	51.0%	51.0%	
Maximum Green (s)	41.3	41.3		41.2	41.2		43.3	43.3	43.3	43.3	43.3	
Yellow Time (s)	3.5	3.5		3.6	3.6		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2	2.2	2.2	2.2	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.7			5.8			5.7	5.7		5.7	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)		76.6			76.5			12.3	12.3			12.3
Actuated g/C Ratio		0.80			0.80			0.13	0.13			0.13
v/c Ratio		0.23			0.33			0.51	0.05			0.14
Control Delay		3.5			4.2			49.1	3.5			20.2
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		3.5			4.2			49.1	3.5			20.2
LOS		A			A			D	A			C
Approach Delay		3.5			4.2			43.7				20.2
Approach LOS		A			A			D				C

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 63 (66%), Referenced to phase 2:NWTL and 6:SETL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 6.8  
 Intersection Capacity Utilization 65.3%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 7: 29th Street & Greenup Ave





Lanes, Volumes, Timings  
14: 18th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	4	238	6	7	431	22	6	4	3	5	10	8
Future Volume (vph)	4	238	6	7	431	22	6	4	3	5	10	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.994			0.988			0.970			0.963	
Fl <sub>t</sub> Protected		0.999			0.999			0.973			0.987	
Satd. Flow (prot)	0	3552	0	0	3536	0	0	1793	0	0	1806	0
Fl <sub>t</sub> Permitted		0.940			0.944			0.895			0.954	
Satd. Flow (perm)	0	3342	0	0	3341	0	0	1649	0	0	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			13			8			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			394			405			196	
Travel Time (s)		8.6			9.0			9.2			4.5	
Peak Hour Factor	0.50	0.89	0.50	0.44	0.81	0.46	0.30	0.50	0.38	0.42	0.50	0.67
Heavy Vehicles (%)	0%	1%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	8	267	12	16	532	48	20	8	8	12	20	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	287	0	0	596	0	0	36	0	0	44	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
 14: 18th Street & Winchester Ave

10/29/2020

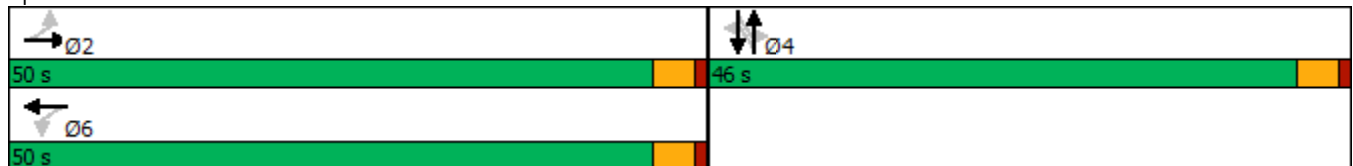


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.18			0.37			0.05			0.06	
Control Delay		14.3			16.3			13.2			12.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.3			16.3			13.2			12.6	
LOS		B			B			B			B	
Approach Delay		14.3			16.3			13.2			12.6	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.37
Intersection Signal Delay:	15.4
Intersection LOS:	B
Intersection Capacity Utilization:	36.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: 18th Street & Winchester Ave



Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↗	↘			↕↕	
Traffic Volume (vph)	3	224	41	2	425	18	21	21	19	5	19	26
Future Volume (vph)	3	224	41	2	425	18	21	21	19	5	19	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.990			0.936				0.942
Flt Protected		0.999			0.999		0.950					0.995
Satd. Flow (prot)	0	3428	0	0	3538	0	1805	1748	0	0	1766	0
Flt Permitted		0.944			0.950		0.733					0.984
Satd. Flow (perm)	0	3239	0	0	3364	0	1393	1748	0	0	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			10			24				36
Link Speed (mph)		30			30			30				30
Link Distance (ft)		398			378			396				394
Travel Time (s)		9.0			8.6			9.0				9.0
Peak Hour Factor	0.38	0.85	0.73	0.25	0.95	0.56	0.88	0.66	0.79	0.63	0.48	0.72
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	0%	3%	0%	0%	0%	2%
Adj. Flow (vph)	8	264	56	8	447	32	24	32	24	8	40	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	0	487	0	24	56	0	0	84	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			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4				4
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

10/29/2020

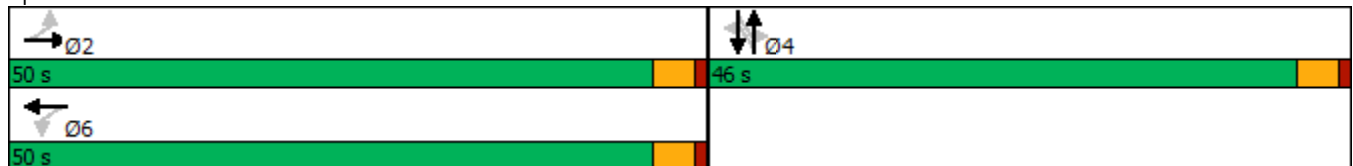


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.0			4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.21			0.30			0.04			0.07	
Control Delay		13.3			15.5			15.8			10.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.3			15.5			15.8			10.6	
LOS		B			B			B			B	
Approach Delay		13.3			15.5			12.2			10.3	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	14.0
Intersection LOS:	B
Intersection Capacity Utilization:	32.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 18: 17th Street & Winchester Ave



Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	588	15	12	827	5	31	1	14	9	10	7
Future Volume (vph)	4	588	15	12	827	5	31	1	14	9	10	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.995			0.999			0.955				0.959
Fl <sub>t</sub> Protected	0.950			0.950				0.971				0.985
Satd. Flow (prot)	1805	3426	0	1770	3436	0	0	1721	0	0	1748	0
Fl <sub>t</sub> Permitted	0.187			0.337				0.844				0.935
Satd. Flow (perm)	355	3426	0	628	3436	0	0	1496	0	0	1659	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			1			20				12
Link Speed (mph)		30			30			30				30
Link Distance (ft)		394			188			394				336
Travel Time (s)		9.0			4.3			9.0				7.6
Peak Hour Factor	0.50	0.86	0.63	0.60	0.77	0.63	0.86	0.25	0.70	0.75	0.63	0.58
Heavy Vehicles (%)	0%	5%	0%	2%	5%	0%	4%	0%	0%	9%	0%	0%
Adj. Flow (vph)	8	684	24	20	1074	8	36	4	20	12	16	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	708	0	20	1082	0	0	60	0	0	40	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)		12			12			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.4	23.4		23.4	23.4		24.1	24.1		24.1	24.1	
Total Split (s)	57.0	57.0		57.0	57.0		39.0	39.0		39.0	39.0	
Total Split (%)	59.4%	59.4%		59.4%	59.4%		40.6%	40.6%		40.6%	40.6%	
Maximum Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.4	5.4		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.34	0.34		0.34	0.34	
v/c Ratio	0.04	0.38		0.06	0.59		0.11	0.11		0.07	0.07	
Control Delay	7.0	10.4		11.3	16.6		16.5	16.5		16.8	16.8	
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.0	10.6		11.3	16.6		16.5	16.5		16.8	16.8	
LOS	A	B		B	B		B	B		B	B	
Approach Delay		10.5			16.5		16.5	16.5			16.8	
Approach LOS		B			B		B	B			B	

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 4 (4%), Referenced to phase 2:EBWB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 14.3      Intersection LOS: B  
 Intersection Capacity Utilization 39.3%      ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 19: 17th Street & Greenup Ave



Lanes, Volumes, Timings  
22: Winchester Ave & 16th Street

10/29/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Volume (vph)	17	251	455	17	17	58
Future Volume (vph)	17	251	455	17	17	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.993			0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	3563	3518	0	1367	1599
Flt Permitted		0.906			0.950	
Satd. Flow (perm)	0	3241	3518	0	1367	1599
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7			76
Link Speed (mph)		30	30		30	
Link Distance (ft)		386	398		394	
Travel Time (s)		8.8	9.0		9.0	
Peak Hour Factor	0.71	0.88	0.90	0.71	0.85	0.76
Heavy Vehicles (%)	0%	1%	2%	0%	32%	1%
Adj. Flow (vph)	24	285	506	24	20	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	309	530	0	20	76
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

Lanes, Volumes, Timings  
 22: Winchester Ave & 16th Street

10/29/2020

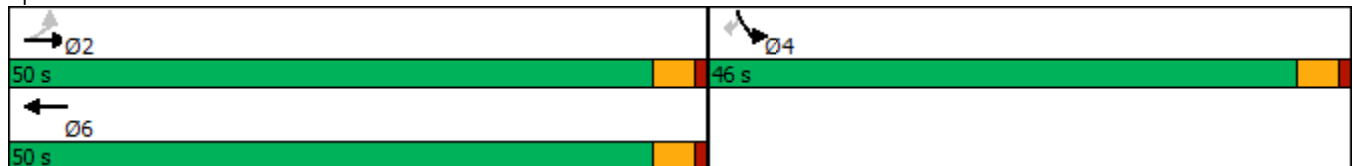


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	8.0	8.0	8.0		15.0	15.0
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	50.0	50.0	50.0		46.0	46.0
Total Split (%)	52.1%	52.1%	52.1%		47.9%	47.9%
Maximum Green (s)	46.0	46.0	46.0		42.0	42.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
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)		57.1	57.1		15.2	15.2
Actuated g/C Ratio		0.76	0.76		0.20	0.20
v/c Ratio		0.13	0.20		0.07	0.20
Control Delay		3.7	3.8		24.5	7.8
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		3.7	3.8		24.5	7.8
LOS		A	A		C	A
Approach Delay		3.7	3.8		11.3	
Approach LOS		A	A		B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	75
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.20
Intersection Signal Delay:	4.6
Intersection LOS:	A
Intersection Capacity Utilization:	38.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 22: Winchester Ave & 16th Street





Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	582	32	12	845	8	20	3	13	12	4	8
Future Volume (vph)	8	582	32	12	845	8	20	3	13	12	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.990			0.998				0.850		0.964	
Flt Protected	0.950			0.950				0.962			0.979	
Satd. Flow (prot)	1805	3395	0	1752	3433	0	0	1828	1615	0	1793	0
Flt Permitted	0.277			0.376				0.741			0.840	
Satd. Flow (perm)	526	3395	0	694	3433	0	0	1408	1615	0	1539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2							11
Link Speed (mph)		30			30			30				30
Link Distance (ft)		396			394			394				359
Travel Time (s)		9.0			9.0			9.0				8.2
Peak Hour Factor	0.40	0.86	0.67	0.50	0.85	0.67	0.63	0.38	0.81	0.67	0.33	0.75
Heavy Vehicles (%)	0%	5%	9%	3%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	677	48	24	994	12	32	8	16	18	12	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	725	0	24	1006	0	0	40	16	0	41	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	custom	Perm		NA
Protected Phases		2			2			4	4			4
Permitted Phases	2			2			4		2	4		
Detector Phase	2	2		2	2		4	4	4	4		4
Switch Phase												

Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		24.1	24.1	24.1	24.1	24.1	
Total Split (s)	53.0	53.0		53.0	53.0		43.0	43.0	43.0	43.0	43.0	
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%	44.8%	44.8%	44.8%	
Maximum Green (s)	47.1	47.1		47.1	47.1		36.9	36.9	36.9	36.9	36.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1			6.1	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)	79.2	79.2		79.2	79.2			8.8	96.0		8.8	
Actuated g/C Ratio	0.82	0.82		0.82	0.82			0.09	1.00		0.09	
v/c Ratio	0.05	0.26		0.04	0.36			0.31	0.01		0.27	
Control Delay	2.2	2.1		2.5	2.6			47.0	0.0		36.5	
Queue Delay	0.0	0.1		0.0	0.1			0.0	0.0		0.0	
Total Delay	2.2	2.2		2.5	2.7			47.0	0.0		36.5	
LOS	A	A		A	A			D	A		D	
Approach Delay		2.2			2.7			33.6			36.5	
Approach LOS		A			A			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	0 (0%), Referenced to phase 2:WBEB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.36
Intersection Signal Delay:	4.2
Intersection LOS:	A
Intersection Capacity Utilization:	45.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 23: 16th Street & Greenup Ave



Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	31	243	17	20	474	19	29	29	21	4	18	25
Future Volume (vph)	31	243	17	20	474	19	29	29	21	4	18	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.991			0.996			0.965			0.940	
Fl <sub>t</sub> Protected		0.995			0.998			0.982			0.994	
Satd. Flow (prot)	0	3460	0	0	3551	0	0	1761	0	0	1729	0
Fl <sub>t</sub> Permitted		0.842			0.917			0.886			0.977	
Satd. Flow (perm)	0	2928	0	0	3262	0	0	1589	0	0	1700	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			4			23			32	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		371			386			399			396	
Travel Time (s)		8.4			8.8			9.1			9.0	
Peak Hour Factor	0.71	0.64	0.61	0.63	0.76	1.00	0.56	0.56	0.58	0.50	0.56	0.78
Heavy Vehicles (%)	0%	3%	6%	0%	1%	5%	3%	3%	0%	0%	6%	0%
Adj. Flow (vph)	44	380	28	32	624	19	52	52	36	8	32	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	452	0	0	675	0	0	140	0	0	72	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

10/29/2020

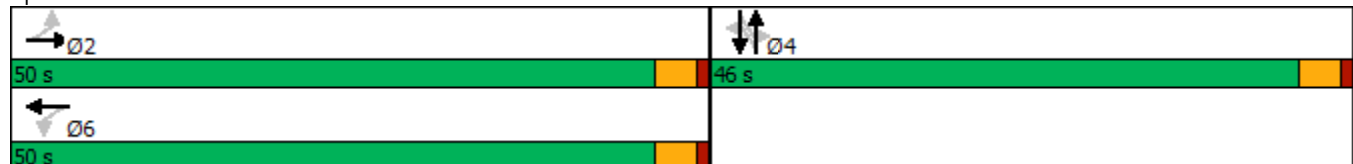


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.32			0.43			0.20			0.09	
Control Delay		15.8			17.4			14.7			10.3	
Queue Delay		0.0			0.6			0.0			0.0	
Total Delay		15.8			18.0			14.7			10.3	
LOS		B			B			B			B	
Approach Delay		15.8			18.0			14.7			10.3	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.43
Intersection Signal Delay:	16.5
Intersection LOS:	B
Intersection Capacity Utilization:	44.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 25: 15th Street & Winchester Ave



Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	574	5	15	849	9	27	9	35	13	12	15
Future Volume (vph)	12	574	5	15	849	9	27	9	35	13	12	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.997			0.998			0.937				0.950
Flt Protected	0.950			0.950				0.980				0.982
Satd. Flow (prot)	1444	3496	0	1805	3533	0	0	1603	0	0	1525	0
Flt Permitted	0.283			0.386				0.871				0.815
Satd. Flow (perm)	430	3496	0	733	3533	0	0	1424	0	0	1266	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2			52				28
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2266			396			396				410
Travel Time (s)		51.5			9.0			9.0				9.3
Peak Hour Factor	0.60	0.84	0.42	0.63	0.89	0.75	0.56	0.56	0.63	0.46	0.60	0.54
Heavy Vehicles (%)	25%	3%	0%	0%	2%	0%	4%	44%	3%	31%	0%	13%
Adj. Flow (vph)	20	683	12	24	954	12	48	16	56	28	20	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	695	0	24	966	0	0	120	0	0	76	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)		12			12			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.5	23.5		23.5	23.5		24.1	24.1		24.1	24.1	
Total Split (s)	54.0	54.0		54.0	54.0		42.0	42.0		42.0	42.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	48.5	48.5		48.5	48.5		35.9	35.9		35.9	35.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	73.4	73.4		73.4	73.4		11.0	11.0		11.0	11.0	
Actuated g/C Ratio	0.76	0.76		0.76	0.76		0.11	0.11		0.11	0.11	
v/c Ratio	0.06	0.26		0.04	0.36		0.57	0.57		0.45	0.45	
Control Delay	4.1	3.9		2.1	2.5		34.1	34.1		34.4	34.4	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	4.1	3.9		2.1	2.6		34.1	34.1		34.4	34.4	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		3.9			2.6		34.1	34.1		34.4	34.4	
Approach LOS		A			A		C	C		C	C	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	1 (1%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	6.3
Intersection LOS:	A
Intersection Capacity Utilization:	40.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 26: 15th Street & Greenup Ave



Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↑	↑	
Traffic Volume (vph)	0	286	15	8	520	0	0	0	0	5	20	185
Future Volume (vph)	0	286	15	8	520	0	0	0	0	5	20	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't		0.988										0.866
Flt Protected					0.999					0.950		
Satd. Flow (prot)	0	3502	0	0	3606	0	0	0	0	1687	1613	0
Flt Permitted					0.947					0.950		
Satd. Flow (perm)	0	3502	0	0	3419	0	0	0	0	1687	1613	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13										226
Link Speed (mph)		30			30			30				30
Link Distance (ft)		385			371			411				199
Travel Time (s)		8.8			8.4			9.3				4.5
Peak Hour Factor	0.91	0.91	0.54	0.67	0.90	0.92	0.92	0.92	0.92	0.63	0.71	0.77
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	2%	2%	2%	7%	2%	2%
Adj. Flow (vph)	0	314	28	12	578	0	0	0	0	8	28	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	342	0	0	590	0	0	0	0	8	268	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			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1		2
Detector Template		Thru		Left	Thru					Left		Thru
Leading Detector (ft)		100		20	100					20		100
Trailing Detector (ft)		0		0	0					0		0
Detector 1 Position(ft)		0		0	0					0		0
Detector 1 Size(ft)		6		20	6					20		6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							94
Detector 2 Size(ft)		6			6							6
Detector 2 Type		Cl+Ex			Cl+Ex							Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							0.0
Turn Type		NA		Perm	NA					Perm		NA
Protected Phases		2			6							4
Permitted Phases				6						4		
Detector Phase		2		6	6					4		4
Switch Phase												

Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

10/29/2020

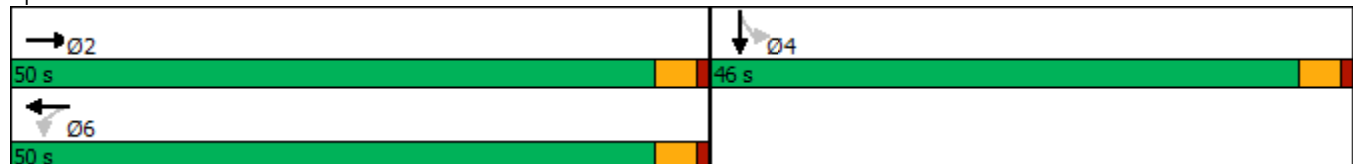


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0					15.0	15.0	
Minimum Split (s)		22.5		22.5	22.5					22.5	22.5	
Total Split (s)		50.0		50.0	50.0					46.0	46.0	
Total Split (%)		52.1%		52.1%	52.1%					47.9%	47.9%	
Maximum Green (s)		46.0		46.0	46.0					42.0	42.0	
Yellow Time (s)		3.0		3.0	3.0					3.0	3.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0			0.0					0.0	0.0	
Total Lost Time (s)		4.0			4.0					4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Recall Mode		None		Max	Max					Max	Max	
Walk Time (s)		7.0		7.0	7.0					7.0	7.0	
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)		46.0			46.0					42.0	42.0	
Actuated g/C Ratio		0.48			0.48					0.44	0.44	
v/c Ratio		0.20			0.36					0.01	0.32	
Control Delay		14.2			16.5					15.4	4.9	
Queue Delay		0.0			0.6					0.0	0.0	
Total Delay		14.2			17.2					15.4	4.9	
LOS		B			B					B	A	
Approach Delay		14.2			17.2						5.2	
Approach LOS		B			B						A	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.36
Intersection Signal Delay:	13.6
Intersection LOS:	B
Intersection Capacity Utilization:	39.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 29: 14th Street & Winchester Ave





Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	232	0	0	359	346	311	592	69	0	0	25
Future Volume (vph)	432	232	0	0	359	346	311	592	69	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00
Fr't					0.926			0.981				0.865
Flt Protected	0.950	0.977					0.950					
Satd. Flow (prot)	1579	3299	0	0	3293	0	1805	4995	0	0	0	1644
Flt Permitted	0.950	0.977					0.950					
Satd. Flow (perm)	1579	3299	0	0	3293	0	1805	4995	0	0	0	1644
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					49			25				213
Link Speed (mph)		30			30			30				30
Link Distance (ft)		373			385			393				292
Travel Time (s)		8.5			8.8			8.9				6.6
Peak Hour Factor	0.92	0.89	0.92	0.25	0.89	0.88	0.85	0.82	0.66	0.57	0.31	0.69
Heavy Vehicles (%)	4%	1%	0%	0%	2%	1%	0%	2%	1%	0%	0%	0%
Adj. Flow (vph)	470	261	0	0	403	393	366	722	105	0	0	36
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	240	491	0	0	796	0	366	827	0	0	0	36
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)		12			12			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2				1
Detector Template	Left	Thru			Thru		Left	Thru				Right
Leading Detector (ft)	20	100			100		20	100				20
Trailing Detector (ft)	0	0			0		0	0				0
Detector 1 Position(ft)	0	0			0		0	0				0
Detector 1 Size(ft)	20	6			6		20	6				20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				0.0
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				0.0
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Split	NA			NA		Perm	NA				Perm
Protected Phases	3	3			2			4				
Permitted Phases							4					3
Detector Phase	3	3			2		4	4				3
Switch Phase												

Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				8.0
Minimum Split (s)	23.5	23.5			23.5		23.5	23.5				23.5
Total Split (s)	30.0	30.0			42.0		34.0	34.0				30.0
Total Split (%)	28.3%	28.3%			39.6%		32.1%	32.1%				28.3%
Maximum Green (s)	24.5	24.5			36.5		28.5	28.5				24.5
Yellow Time (s)	3.6	3.6			3.6		3.5	3.5				3.6
All-Red Time (s)	1.9	1.9			1.9		2.0	2.0				1.9
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				0.0
Total Lost Time (s)	5.5	5.5			5.5		5.5	5.5				5.5
Lead/Lag	Lead	Lead					Lag	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
Recall Mode	None	None			C-Max		None	None				None
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				7.0
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0			0		0	0				0
Act Effect Green (s)	21.6	21.6			40.7		27.2	27.2				21.6
Actuated g/C Ratio	0.20	0.20			0.38		0.26	0.26				0.20
v/c Ratio	0.75	0.73			0.62		0.79	0.64				0.07
Control Delay	31.0	24.2			28.2		50.0	36.2				0.3
Queue Delay	0.0	0.0			0.9		0.0	0.0				0.0
Total Delay	31.0	24.2			29.1		50.0	36.2				0.3
LOS	C	C			C		D	D				A
Approach Delay		26.5			29.1			40.4				0.3
Approach LOS		C			C			D				A

Intersection Summary

Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 58 (55%), Referenced to phase 2:WBT and 6:, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 32.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 64.7%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 32: 13th Street & Winchester Ave



Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑						↙↑	↗
Traffic Volume (vph)	0	582	232	173	522	0	0	0	0	82	525	467
Future Volume (vph)	0	582	232	173	522	0	0	0	0	82	525	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.960										0.850
Flt Protected				0.950							0.993	
Satd. Flow (prot)	0	4930	0	1787	3610	0	0	0	0	0	3585	1599
Flt Permitted				0.950							0.993	
Satd. Flow (perm)	0	4930	0	1787	3610	0	0	0	0	0	3585	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100										266
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			373			198			355	
Travel Time (s)		8.6			8.5			4.5			8.1	
Peak Hour Factor	0.25	0.86	0.94	0.85	0.88	0.25	0.92	0.92	0.92	0.82	0.89	0.90
Heavy Vehicles (%)	0%	1%	1%	1%	0%	100%	2%	2%	2%	0%	0%	1%
Adj. Flow (vph)	0	677	247	204	593	0	0	0	0	100	590	519
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	924	0	204	593	0	0	0	0	0	690	519
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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	

Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

10/29/2020

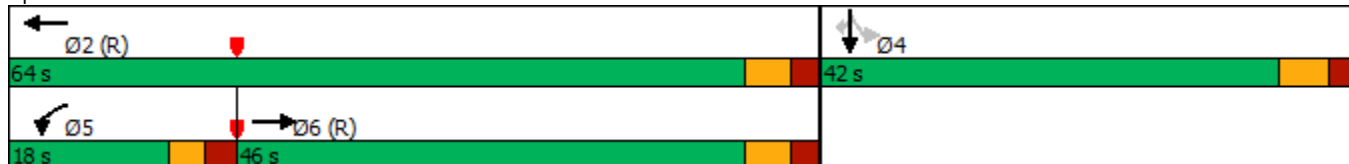


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases										4		4
Detector Phase		6		5	2					4	4	4
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		24.0		13.4	24.0					23.8	23.8	23.8
Total Split (s)		46.0		18.0	64.0					42.0	42.0	42.0
Total Split (%)		43.4%		17.0%	60.4%					39.6%	39.6%	39.6%
Maximum Green (s)		40.0		12.6	58.0					36.2	36.2	36.2
Yellow Time (s)		3.6		2.9	3.6					3.9	3.9	3.9
All-Red Time (s)		2.4		2.5	2.4					1.9	1.9	1.9
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0						5.8	5.8
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)		7.0			7.0					7.0	7.0	7.0
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)		42.7		15.3	63.5						30.7	30.7
Actuated g/C Ratio		0.40		0.14	0.60						0.29	0.29
v/c Ratio		0.45		0.79	0.27						0.66	0.80
Control Delay		28.5		51.6	17.3						35.9	25.7
Queue Delay		0.0		0.0	0.7						0.0	0.0
Total Delay		28.5		51.6	18.0						35.9	25.7
LOS		C		D	B						D	C
Approach Delay		28.5			26.6						31.5	
Approach LOS		C			C						C	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	29.2
Intersection LOS:	C
Intersection Capacity Utilization:	57.2%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 35: 12th Street & Winchester Ave



Lanes, Volumes, Timings  
38: 11th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				
Traffic Volume (vph)	17	807	4	8	809	172	23	5	7	0	0	0
Future Volume (vph)	17	807	4	8	809	172	23	5	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.973			0.975				
Flt Protected		0.999			0.999			0.967				
Satd. Flow (prot)	0	3522	0	0	3456	0	0	1791	0	0	0	0
Flt Permitted		0.999			0.999			0.967				
Satd. Flow (perm)	0	3522	0	0	3456	0	0	1791	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		383			377			400				200
Travel Time (s)		8.7			8.6			9.1				4.5
Peak Hour Factor	0.85	0.91	0.33	0.67	0.88	0.86	0.58	0.63	0.64	0.92	0.25	0.92
Heavy Vehicles (%)	6%	2%	9%	0%	1%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	887	12	12	919	200	40	8	11	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	919	0	0	1131	0	0	59	0	0	0	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC  
38: 11th Street & Winchester Ave

10/29/2020

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	17	807	4	8	809	172	23	5	7	0	0	0
Future Vol, veh/h	17	807	4	8	809	172	23	5	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	91	33	67	88	86	58	63	64	92	25	92
Heavy Vehicles, %	6	2	9	0	1	4	0	0	0	0	0	0
Mvmt Flow	20	887	12	12	919	200	40	8	11	0	0	0

Major/Minor	Major1		Major2		Minor1				
Conflicting Flow All	1119	0	0	899	0	0	1417	2076	450
Stage 1	-	-	-	-	-	-	933	933	-
Stage 2	-	-	-	-	-	-	484	1143	-
Critical Hdwy	4.22	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	2.26	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	597	-	-	764	-	-	130	54	562
Stage 1	-	-	-	-	-	-	348	348	-
Stage 2	-	-	-	-	-	-	591	277	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	597	-	-	764	-	-	116	0	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	0	-
Stage 1	-	-	-	-	-	-	325	0	-
Stage 2	-	-	-	-	-	-	565	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.6	0.3	48
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	140	597	-	-	764	-	-
HCM Lane V/C Ratio	0.418	0.034	-	-	0.016	-	-
HCM Control Delay (s)	48	11.2	0.4	-	9.8	0.2	-
HCM Lane LOS	E	B	A	-	A	A	-
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0	-	-

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	759	6	18	814	0	22	0	12	57	37	7
Future Volume (vph)	0	759	6	18	814	0	22	0	12	57	37	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998						0.938			0.989	
Fl <sub>t</sub> Protected					0.999			0.974			0.969	
Satd. Flow (prot)	0	3568	0	0	3572	0	0	1736	0	0	1536	0
Fl <sub>t</sub> Permitted					0.919			0.817			0.782	
Satd. Flow (perm)	0	3568	0	0	3286	0	0	1456	0	0	1240	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						24			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			383			411			247	
Travel Time (s)		8.6			8.7			9.3			5.6	
Peak Hour Factor	0.25	0.95	0.50	0.75	0.91	0.25	0.79	0.25	0.50	0.62	0.93	0.58
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	29%	0%	0%
Adj. Flow (vph)	0	799	12	24	895	0	28	0	24	92	40	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	811	0	0	919	0	0	52	0	0	144	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2		1	2	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		100		20	100		20	100		20	100	
Trailing Detector (ft)		0		0	0		0	0		0	0	
Detector 1 Position(ft)		0		0	0		0	0		0	0	
Detector 1 Size(ft)		6		20	6		20	6		20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94		94	94		94	94		94	94	
Detector 2 Size(ft)		6		6	6		6	6		6	6	
Detector 2 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6		2	2		4	4		4	4	
Permitted Phases				2	2		4	4		4	4	
Detector Phase		6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)		23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)		74.0		74.0	74.0		32.0	32.0		32.0	32.0	
Total Split (%)		69.8%		69.8%	69.8%		30.2%	30.2%		30.2%	30.2%	
Maximum Green (s)		69.0		69.0	69.0		26.5	26.5		26.5	26.5	
Yellow Time (s)		3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)		1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode		None		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effect Green (s)		76.9			76.9			18.6			18.6	
Actuated g/C Ratio		0.73			0.73			0.18			0.18	
v/c Ratio		0.31			0.39			0.19			0.65	
Control Delay		4.6			8.0			23.6			53.3	
Queue Delay		0.2			0.1			0.0			0.0	
Total Delay		4.7			8.1			23.6			53.3	
LOS		A			A			C			D	
Approach Delay		4.7			8.1			23.6			53.3	
Approach LOS		A			A			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	10.5
Intersection LOS:	B
Intersection Capacity Utilization	56.6%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 42: 10th Street & Winchester Ave





Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

10/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				↕
Traffic Volume (vph)	18	705	31	13	807	23	129	48	48	12	38	8
Future Volume (vph)	18	705	31	13	807	23	129	48	48	12	38	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.993			0.996			0.967				0.982
Flt Protected		0.999			0.999			0.976				0.991
Satd. Flow (prot)	0	3526	0	0	3549	0	0	1749	0	0	1812	0
Flt Permitted		0.893			0.926			0.812				0.919
Satd. Flow (perm)	0	3152	0	0	3290	0	0	1455	0	0	1680	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			5			15				7
Link Speed (mph)		30			30			30				30
Link Distance (ft)		377			378			425				203
Travel Time (s)		8.6			8.6			9.7				4.6
Peak Hour Factor	0.75	0.95	0.78	0.54	0.73	0.72	0.95	0.67	0.71	0.75	0.63	0.67
Heavy Vehicles (%)	0%	1%	13%	0%	1%	9%	2%	6%	0%	0%	3%	0%
Adj. Flow (vph)	24	742	40	24	1105	32	136	72	68	16	60	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	806	0	0	1161	0	0	276	0	0	88	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	6	6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

10/29/2020

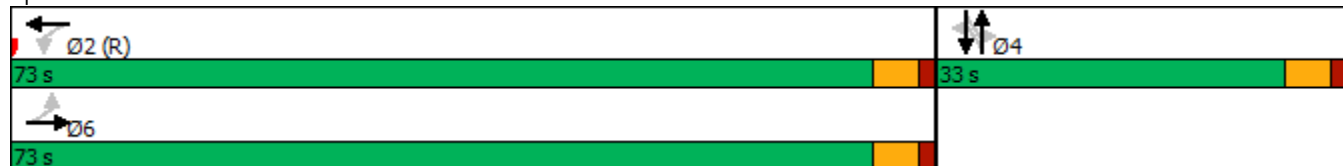


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)	73.0	73.0		73.0	73.0		33.0	33.0		33.0	33.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	68.0	68.0		68.0	68.0		27.5	27.5		27.5	27.5	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		72.4			72.4			23.1			23.1	
Actuated g/C Ratio		0.68			0.68			0.22			0.22	
v/c Ratio		0.37			0.52			0.84			0.24	
Control Delay		8.2			11.8			59.0			31.4	
Queue Delay		0.0			0.2			0.0			0.0	
Total Delay		8.2			12.0			59.0			31.4	
LOS		A			B			E			C	
Approach Delay		8.2			12.0			59.0			31.4	
Approach LOS		A			B			E			C	

Intersection Summary

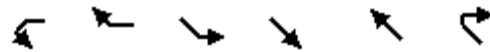
Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	17.0
Intersection LOS:	B
Intersection Capacity Utilization:	61.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 45: 9th Street & Winchester Ave



Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

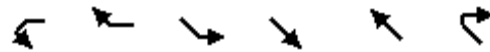
10/29/2020



Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations		↑↑	↑↑	↑↑	↑↑	
Traffic Volume (vph)	0	834	419	743	934	0
Future Volume (vph)	0	834	419	743	934	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	1.00
Fr't		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	0	2814	3433	3574	3505	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	2814	3433	3574	3505	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		93				
Link Speed (mph)	30			30	30	
Link Distance (ft)	768			486	269	
Travel Time (s)	17.5			11.0	6.1	
Peak Hour Factor	0.92	0.88	0.91	0.85	0.75	0.92
Heavy Vehicles (%)	2%	1%	2%	1%	3%	2%
Adj. Flow (vph)	0	948	460	874	1245	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	948	460	874	1245	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors		2	2	1	1	
Detector Template		Thru	Thru	Right	Left	
Leading Detector (ft)		100	100	20	20	
Trailing Detector (ft)		0	0	0	0	
Detector 1 Position(ft)		0	0	0	0	
Detector 1 Size(ft)		6	6	20	20	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		Over	Prot	NA	NA	
Protected Phases		1	1	2	2	
Permitted Phases				1		
Detector Phase		1	1	2	2	
Switch Phase						

Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

10/29/2020

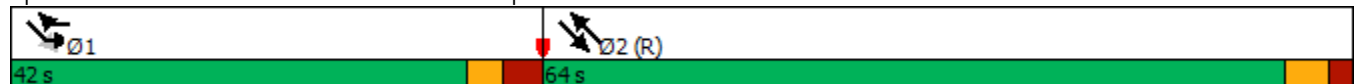


Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Minimum Initial (s)		15.0	15.0	20.0	20.0	
Minimum Split (s)		24.1	24.1	25.5	25.5	
Total Split (s)		42.0	42.0	64.0	64.0	
Total Split (%)		39.6%	39.6%	60.4%	60.4%	
Maximum Green (s)		35.9	35.9	58.5	58.5	
Yellow Time (s)		2.9	2.9	3.5	3.5	
All-Red Time (s)		3.2	3.2	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.1	6.1	5.5	5.5	
Lead/Lag		Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Recall Mode		None	None	C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effect Green (s)		35.8	35.8	106.0	58.6	
Actuated g/C Ratio		0.34	0.34	1.00	0.55	
v/c Ratio		0.94	0.40	0.24	0.64	
Control Delay		47.9	28.1	0.2	22.1	
Queue Delay		0.0	0.0	0.0	0.6	
Total Delay		47.9	28.1	0.2	22.6	
LOS		D	C	A	C	
Approach Delay	47.9			9.8	22.6	
Approach LOS	D			A	C	

Intersection Summary

















Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 35 (33%), Referenced to phase 2:NWSE, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 24.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 64.7%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 48: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
49: 8th Street & Winchester Ave

10/29/2020

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	5	0	24	1	0	1	1	729	13	16	928	0
Future Volume (vph)	5	0	24	1	0	1	1	729	13	16	928	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.902			0.932			0.994				
Fl <sub>t</sub> Protected		0.987			0.976						0.998	
Satd. Flow (prot)	0	1655	0	0	1728	0	0	3510	0	0	3535	0
Fl <sub>t</sub> Permitted		0.987			0.976						0.998	
Satd. Flow (perm)	0	1655	0	0	1728	0	0	3510	0	0	3535	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		376			140			269			377	
Travel Time (s)		8.5			3.2			6.1			8.6	
Peak Hour Factor	0.42	0.92	0.75	0.25	0.92	0.25	0.25	0.96	0.41	0.44	0.93	0.25
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	2%	8%	0%	2%	0%
Adj. Flow (vph)	12	0	32	4	0	4	4	759	32	36	998	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	8	0	0	795	0	0	1034	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.0%						ICU Level of Service A					
Analysis Period (min)	15											

HCM 6th TWSC  
49: 8th Street & Winchester Ave

10/29/2020

Intersection												
Int Delay, s/veh	1.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	24	1	0	1	1	729	13	16	928	0
Future Vol, veh/h	5	0	24	1	0	1	1	729	13	16	928	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	42	92	75	25	92	25	25	96	41	44	93	25
Heavy Vehicles, %	0	0	3	0	0	0	0	2	8	0	2	0
Mvmt Flow	12	0	32	4	0	4	4	759	32	36	998	0

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1354	1853	396	1458	1869	499	998	0	0	791	0	0
Stage 1	783	783	-	1070	1070	-	-	-	-	-	-	-
Stage 2	571	1070	-	388	799	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.96	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	110	75	600	92	73	522	701	-	-	838	-	-
Stage 1	357	407	-	240	300	-	-	-	-	-	-	-
Stage 2	478	300	-	613	401	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	100	67	600	80	65	522	701	-	-	838	-	-
Mov Cap-2 Maneuver	100	67	-	80	65	-	-	-	-	-	-	-
Stage 1	353	403	-	238	271	-	-	-	-	-	-	-
Stage 2	429	271	-	575	397	-	-	-	-	-	-	-

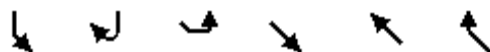
Approach	NB		SB		SE		NW	
HCM Control Delay, s	22		32.5		0.1		0.7	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	255	838	-	-	701	-	-	139
HCM Lane V/C Ratio	0.172	0.043	-	-	0.006	-	-	0.058
HCM Control Delay (s)	22	9.5	0.4	-	10.2	0.1	-	32.5
HCM Lane LOS	C	A	A	-	B	A	-	D
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.2

# 2020/2040 Proposed Conditions Traffic Analysis

### Lanes, Volumes, Timings 3: Winchester Ave & Greenup Ave

12/07/2020

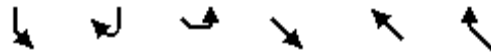


Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	287	0	0	217	259	283
Future Volume (vph)	287	0	0	217	259	283
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			145
Storage Lanes	2	0	0			2
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	0.88
Fr <sub>t</sub>						0.850
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	3242	0	0	3471	3505	2682
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	3242	0	0	3471	3505	2682
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						354
Link Speed (mph)	30			30	30	
Link Distance (ft)	1088			775	945	
Travel Time (s)	24.7			17.6	21.5	
Peak Hour Factor	0.68	0.92	0.92	0.80	0.82	0.80
Heavy Vehicles (%)	8%	2%	2%	4%	3%	6%
Adj. Flow (vph)	422	0	0	271	316	354
Shared Lane Traffic (%)						
Lane Group Flow (vph)	422	0	0	271	316	354
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot			NA	NA	Free
Protected Phases	4			2	2	
Permitted Phases	4					Free
Minimum Split (s)	33.0			63.0	63.0	
Total Split (s)	33.0			63.0	63.0	
Total Split (%)	34.4%			65.6%	65.6%	
Maximum Green (s)	27.6			54.4	54.4	
Yellow Time (s)	3.4			3.6	3.6	
All-Red Time (s)	2.0			5.0	5.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.4			8.6	8.6	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effect Green (s)	27.6			54.4	54.4	96.0
Actuated g/C Ratio	0.29			0.57	0.57	1.00



Lanes, Volumes, Timings  
 3: Winchester Ave & Greenup Ave

12/07/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
v/c Ratio	0.45			0.14	0.16	0.13
Control Delay	29.9			10.0	10.2	0.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	29.9			10.0	10.2	0.1
LOS	C			B	B	A
Approach Delay	29.9			10.0	4.9	
Approach LOS	C			B	A	

Intersection Summary


















Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	50 (52%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	100
Control Type:	Pretimed
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	13.6
Intersection LOS:	B
Intersection Capacity Utilization	36.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Winchester Ave & Greenup Ave



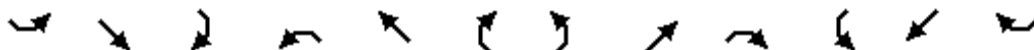
Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	9	306	72	4	375	2	58	2	8	4	2	6
Future Volume (vph)	9	306	72	4	375	2	58	2	8	4	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.969			0.997				0.850		0.955	
Flt Protected		0.999			0.999			0.955			0.976	
Satd. Flow (prot)	0	3309	0	0	3396	0	0	1797	1615	0	1345	0
Flt Permitted		0.942			0.941			0.720			0.815	
Satd. Flow (perm)	0	3120	0	0	3199	0	0	1355	1615	0	1123	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			2				32		8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			476			361			347	
Travel Time (s)		8.8			10.8			8.2			7.9	
Peak Hour Factor	0.75	0.81	0.72	0.33	0.85	0.25	0.81	0.50	0.67	0.33	0.50	0.75
Heavy Vehicles (%)	0%	7%	1%	23%	5%	29%	1%	0%	0%	60%	0%	5%
Adj. Flow (vph)	12	378	100	12	441	8	72	4	12	12	4	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	490	0	0	461	0	0	76	12	0	24	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4		4	4		
Detector Phase	6	6		2	2		4	4	4	4	4	
Switch Phase												

Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

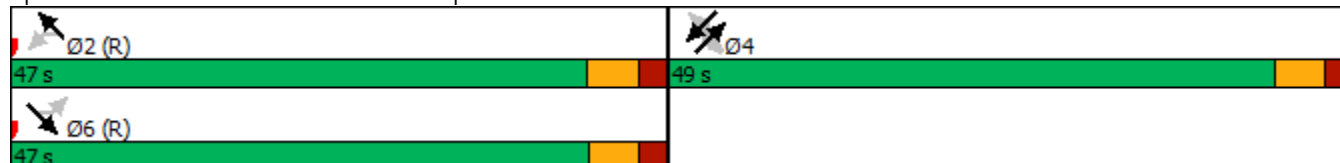


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)	41.3	41.3		41.2	41.2		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%	51.0%	51.0%	51.0%	
Maximum Green (s)	41.3	41.3		41.2	41.2		43.3	43.3	43.3	43.3	43.3	
Yellow Time (s)	3.5	3.5		3.6	3.6		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2	2.2	2.2	2.2	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.7			5.8			5.7	5.7		5.7	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)		77.3			77.2			11.6	11.6			11.6
Actuated g/C Ratio		0.81			0.80			0.12	0.12			0.12
v/c Ratio		0.19			0.18			0.47	0.05			0.17
Control Delay		3.0			3.3			48.4	3.6			30.5
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		3.0			3.3			48.4	3.6			30.5
LOS		A			A			D	A			C
Approach Delay		3.0			3.3			42.3				30.5
Approach LOS		A			A			D				C

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	63 (66%), Referenced to phase 2:NWTL and 6:SETL, Start of Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.47
Intersection Signal Delay:	7.0
Intersection LOS:	A
Intersection Capacity Utilization:	65.3%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 7: 29th Street & Greenup Ave



Lanes, Volumes, Timings  
14: 18th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑	↗		↕			↕	
Traffic Volume (vph)	4	203	2	5	241	4	3	6	3	2	4	1
Future Volume (vph)	4	203	2	5	241	4	3	6	3	2	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.942			0.977	
Flt Protected		0.998			0.998			0.993			0.984	
Satd. Flow (prot)	0	1875	0	0	1795	1615	0	1777	0	0	1827	0
Flt Permitted		0.983			0.983			0.984			0.954	
Satd. Flow (perm)	0	1846	0	0	1768	1615	0	1761	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				11		12			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			394			405			196	
Travel Time (s)		8.6			9.0			9.2			4.5	
Peak Hour Factor	0.33	0.69	0.50	0.31	0.65	0.50	0.75	0.50	0.25	0.25	0.33	0.25
Heavy Vehicles (%)	0%	1%	0%	20%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	294	4	16	371	8	4	12	12	8	12	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	310	0	0	387	8	0	28	0	0	24	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4			4		
Detector Phase	2	2		6	6	6	4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
 14: 18th Street & Winchester Ave

12/07/2020

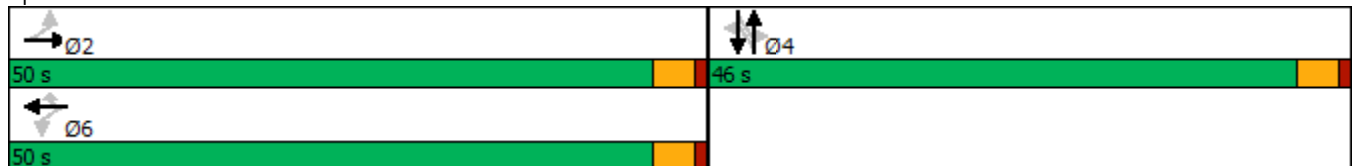


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0	50.0	46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%	52.1%	47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0	46.0	42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0			4.0	
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	Max	Max		Max	Max	Max	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0	46.0		42.0			42.0	
Actuated g/C Ratio		0.48			0.48	0.48		0.44			0.44	
v/c Ratio		0.35			0.46	0.01		0.04			0.03	
Control Delay		17.0			18.9	6.0		10.9			13.7	
Queue Delay		1.4			0.0	0.0		0.0			0.0	
Total Delay		18.4			18.9	6.0		10.9			13.7	
LOS		B			B	A		B			B	
Approach Delay		18.4			18.6			10.9			13.7	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.46
Intersection Signal Delay:	18.1
Intersection LOS:	B
Intersection Capacity Utilization:	40.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: 18th Street & Winchester Ave



Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘			↕	
Traffic Volume (vph)	2	193	27	5	235	5	8	15	11	4	12	11
Future Volume (vph)	2	193	27	5	235	5	8	15	11	4	12	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.996			0.932			0.940	
Flt Protected		0.999			0.998		0.950				0.989	
Satd. Flow (prot)	0	1807	0	0	1871	0	1805	1742	0	0	1751	0
Flt Permitted		0.996			0.986		0.734				0.967	
Satd. Flow (perm)	0	1802	0	0	1849	0	1395	1742	0	0	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			2			20			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		398			378			396			394	
Travel Time (s)		9.0			8.6			9.0			9.0	
Peak Hour Factor	0.50	0.87	0.56	0.42	0.83	0.63	0.50	0.63	0.55	0.50	0.99	0.69
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	0%	3%	0%	0%	0%	2%
Adj. Flow (vph)	4	222	48	12	283	8	16	24	20	8	12	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	274	0	0	303	0	16	44	0	0	36	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			12			12	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

12/07/2020

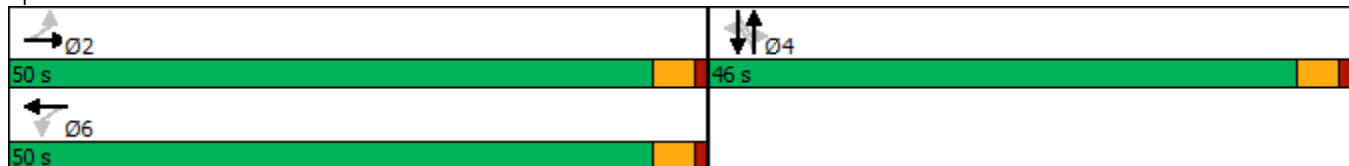


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.0			4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.31			0.34			0.03			0.06	
Control Delay		15.7			16.8			15.6			10.3	
Queue Delay		0.0			1.3			0.0			0.0	
Total Delay		15.7			18.1			15.6			10.3	
LOS		B			B			B			B	
Approach Delay		15.7			18.1			11.7			10.5	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.34
Intersection Signal Delay:	16.2
Intersection LOS:	B
Intersection Capacity Utilization:	35.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 18: 17th Street & Winchester Ave



Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	514	9	19	375	2	11	1	7	6	2	5
Future Volume (vph)	5	514	9	19	375	2	11	1	7	6	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.997			0.999			0.949			0.942	
Fl <sub>t</sub> Protected	0.950			0.950				0.976			0.979	
Satd. Flow (prot)	1805	3431	0	1770	3436	0	0	1725	0	0	1687	0
Fl <sub>t</sub> Permitted	0.489			0.401				0.900			0.919	
Satd. Flow (perm)	929	3431	0	747	3436	0	0	1591	0	0	1584	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			12			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		394			188			394			336	
Travel Time (s)		9.0			4.3			9.0			7.6	
Peak Hour Factor	0.42	0.90	0.75	0.79	0.87	0.50	0.69	0.25	0.58	0.50	0.50	0.42
Heavy Vehicles (%)	0%	5%	0%	2%	5%	0%	4%	0%	0%	9%	0%	0%
Adj. Flow (vph)	12	571	12	24	431	4	16	4	12	12	4	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	583	0	24	435	0	0	32	0	0	28	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												



Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.4	23.4		23.4	23.4		24.1	24.1		24.1	24.1	
Total Split (s)	57.0	57.0		57.0	57.0		39.0	39.0		39.0	39.0	
Total Split (%)	59.4%	59.4%		59.4%	59.4%		40.6%	40.6%		40.6%	40.6%	
Maximum Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.4	5.4		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.34	0.34		0.34	0.34	
v/c Ratio	0.02	0.32		0.06	0.24		0.06	0.06		0.05	0.05	
Control Delay	6.6	9.8		11.2	12.1		15.6	15.6		15.0	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.6	9.8		11.2	12.1		15.6	15.6		15.0	15.0	
LOS	A	A		B	B		B	B		B	B	
Approach Delay		9.7			12.1			15.6			15.0	
Approach LOS		A			B			B			B	

Intersection Summary

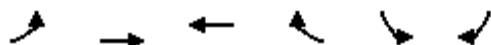
Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	4 (4%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	11.0
Intersection LOS:	B
Intersection Capacity Utilization:	32.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 19: 17th Street & Greenup Ave



Lanes, Volumes, Timings  
22: Winchester Ave & 16th Street

12/07/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Volume (vph)	9	220	247	7	2	7
Future Volume (vph)	9	220	247	7	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993			0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	1875	1852	0	1367	1599
Flt Permitted		0.964			0.950	
Satd. Flow (perm)	0	1815	1852	0	1367	1599
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			4			12
Link Speed (mph)		30	30		30	
Link Distance (ft)		386	398		394	
Travel Time (s)		8.8	9.0		9.0	
Peak Hour Factor	0.38	0.88	0.83	0.44	0.25	0.58
Heavy Vehicles (%)	0%	1%	2%	0%	32%	1%
Adj. Flow (vph)	24	250	298	16	8	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	274	314	0	8	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

Lanes, Volumes, Timings  
22: Winchester Ave & 16th Street

12/07/2020

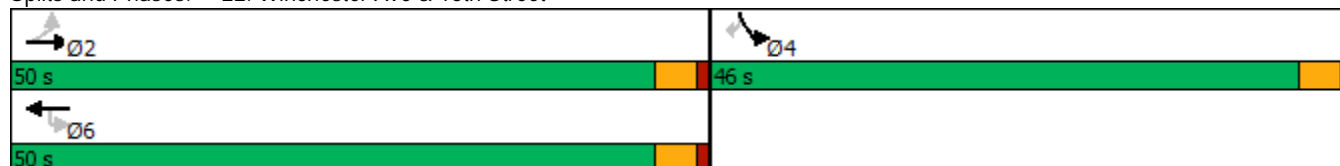


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	8.0	8.0	8.0		15.0	15.0
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	50.0	50.0	50.0		46.0	46.0
Total Split (%)	52.1%	52.1%	52.1%		47.9%	47.9%
Maximum Green (s)	46.0	46.0	46.0		42.0	42.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
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)		65.0	65.0		15.2	15.2
Actuated g/C Ratio		0.94	0.94		0.22	0.22
v/c Ratio		0.16	0.18		0.03	0.03
Control Delay		1.4	1.5		25.0	14.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		1.4	1.5		25.0	14.1
LOS		A	A		C	B
Approach Delay		1.4	1.5		18.5	
Approach LOS		A	A		B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	68.8
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.18
Intersection Signal Delay:	2.0
Intersection LOS:	A
Intersection Capacity Utilization:	38.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 22: Winchester Ave & 16th Street



Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	524	15	5	382	4	1	3	3	1	0	1
Future Volume (vph)	11	524	15	5	382	4	1	3	3	1	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.994			0.996				0.850		0.932	
Flt Protected	0.950			0.950				0.988			0.976	
Satd. Flow (prot)	1805	3412	0	1752	3429	0	0	1877	1615	0	1728	0
Flt Permitted	0.494			0.417				0.912			0.834	
Satd. Flow (perm)	939	3412	0	769	3429	0	0	1733	1615	0	1477	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4							33
Link Speed (mph)		30			30			30				30
Link Distance (ft)		396			394			394				359
Travel Time (s)		9.0			9.0			9.0				8.2
Peak Hour Factor	0.55	0.88	0.63	0.42	0.88	0.33	0.25	0.25	0.38	0.25	0.25	0.25
Heavy Vehicles (%)	0%	5%	9%	3%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	595	24	12	434	12	4	12	8	4	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	619	0	12	446	0	0	16	8	0	8	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	custom	Perm		NA
Protected Phases		2			2			4	4			4
Permitted Phases	2			2			4		2	4		
Detector Phase	2	2		2	2		4	4	4	4		4
Switch Phase												

Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		24.1	24.1	24.1	24.1	24.1	
Total Split (s)	53.0	53.0		53.0	53.0		43.0	43.0	43.0	43.0	43.0	
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%	44.8%	44.8%	44.8%	
Maximum Green (s)	47.1	47.1		47.1	47.1		36.9	36.9	36.9	36.9	36.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Lost Time (s)	5.9	5.9		5.9	5.9			6.1	6.1			6.1
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)	84.0	84.0		84.0	84.0			8.0	96.0			8.0
Actuated g/C Ratio	0.88	0.88		0.88	0.88			0.08	1.00			0.08
v/c Ratio	0.02	0.21		0.02	0.15			0.11	0.00			0.05
Control Delay	1.7	1.5		2.2	1.6			42.8	0.0			0.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	1.7	1.5		2.2	1.6			42.8	0.0			0.5
LOS	A	A		A	A			D	A			A
Approach Delay		1.5			1.6			28.5				0.5
Approach LOS		A			A			C				A

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	0 (0%), Referenced to phase 2:WBEB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.21
Intersection Signal Delay:	2.1
Intersection LOS:	A
Intersection Capacity Utilization:	43.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 23: 16th Street & Greenup Ave



Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	210	25	3	245	6	7	18	15	4	22	16
Future Volume (vph)	34	210	25	3	245	6	7	18	15	4	22	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.982			0.995			0.960			0.947	
Fl <sub>t</sub> Protected		0.992			0.999			0.988			0.994	
Satd. Flow (prot)	0	1775	0	0	1820	0	0	1661	0	0	1706	0
Fl <sub>t</sub> Permitted		0.908			0.991			0.950			0.981	
Satd. Flow (perm)	0	1625	0	0	1806	0	0	1597	0	0	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			3			20			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		371			386			399			396	
Travel Time (s)		8.4			8.8			9.1			9.0	
Peak Hour Factor	0.65	0.90	0.57	0.38	0.84	0.50	0.44	0.56	0.75	0.50	0.61	0.57
Heavy Vehicles (%)	8%	2%	12%	0%	4%	0%	14%	11%	0%	0%	5%	6%
Adj. Flow (vph)	52	233	44	8	292	12	16	32	20	8	36	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	0	312	0	0	68	0	0	72	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

12/07/2020

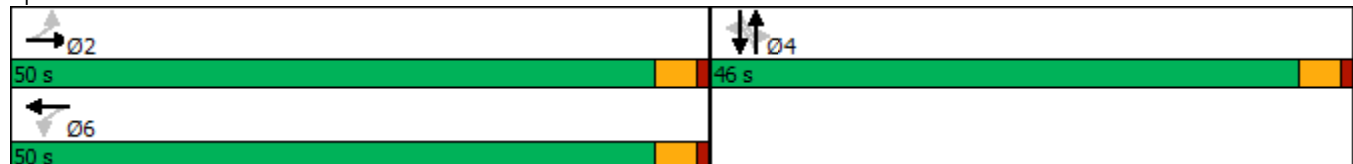


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.42			0.36			0.10			0.10	
Control Delay		17.8			17.1			12.4			11.0	
Queue Delay		1.5			1.1			0.0			0.0	
Total Delay		19.3			18.2			12.4			11.0	
LOS		B			B			B			B	
Approach Delay		19.3			18.2			12.4			11.0	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.42
Intersection Signal Delay:	17.5
Intersection LOS:	B
Intersection Capacity Utilization:	50.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 25: 15th Street & Winchester Ave



Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	530	18	8	360	16	4	9	14	6	6	7
Future Volume (vph)	17	530	18	8	360	16	4	9	14	6	6	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.992			0.990			0.938			0.959	
Flt Protected	0.950			0.950				0.989			0.980	
Satd. Flow (prot)	1703	3359	0	1597	3175	0	0	1592	0	0	1465	0
Flt Permitted	0.483			0.398				0.914			0.853	
Satd. Flow (perm)	866	3359	0	669	3175	0	0	1471	0	0	1275	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			10			17			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2266			396			396			410	
Travel Time (s)		51.5			9.0			9.0			9.3	
Peak Hour Factor	0.85	0.84	0.50	0.50	0.82	0.53	0.50	0.75	0.83	0.38	0.50	0.58
Heavy Vehicles (%)	6%	7%	0%	13%	13%	6%	0%	33%	0%	33%	0%	29%
Adj. Flow (vph)	20	631	36	16	439	30	8	12	17	16	12	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	667	0	16	469	0	0	37	0	0	40	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												



Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.5	23.5		23.5	23.5		24.1	24.1		24.1	24.1	
Total Split (s)	54.0	54.0		54.0	54.0		42.0	42.0		42.0	42.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	48.5	48.5		48.5	48.5		35.9	35.9		35.9	35.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	79.6	79.6		79.6	79.6			8.7			8.7	
Actuated g/C Ratio	0.83	0.83		0.83	0.83			0.09			0.09	
v/c Ratio	0.03	0.24		0.03	0.18			0.25			0.31	
Control Delay	2.5	2.6		1.5	1.5			30.1			37.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.5	2.6		1.5	1.5			30.1			37.8	
LOS	A	A		A	A			C			D	
Approach Delay		2.6			1.5			30.1			37.8	
Approach LOS		A			A			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	1 (1%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	4.1
Intersection LOS:	A
Intersection Capacity Utilization:	31.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 26: 15th Street & Greenup Ave



Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	265	20	2	266	0	0	0	0	4	11	83
Future Volume (vph)	0	265	20	2	266	0	0	0	0	4	11	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't		0.988									0.874	
Flt Protected					0.999					0.950		
Satd. Flow (prot)	0	1843	0	0	1898	0	0	0	0	1687	1628	0
Flt Permitted					0.993					0.950		
Satd. Flow (perm)	0	1843	0	0	1887	0	0	0	0	1687	1628	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7										104
Link Speed (mph)		30			30			30				30
Link Distance (ft)		385			371			411				199
Travel Time (s)		8.8			8.4			9.3				4.5
Peak Hour Factor	0.92	0.89	0.71	0.25	0.76	0.92	0.92	0.92	0.92	0.50	0.55	0.80
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	2%	2%	2%	7%	2%	2%
Adj. Flow (vph)	0	298	28	8	350	0	0	0	0	8	20	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	326	0	0	358	0	0	0	0	8	124	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			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2					1	2	
Detector Template	Left	Thru		Left	Thru					Left	Thru	
Leading Detector (ft)	20	100		20	100					20	100	
Trailing Detector (ft)	0	0		0	0					0	0	
Detector 1 Position(ft)	0	0		0	0					0	0	
Detector 1 Size(ft)	20	6		20	6					20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(ft)		94			94							94
Detector 2 Size(ft)		6			6							6
Detector 2 Type		Cl+Ex			Cl+Ex							Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							0.0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6							4
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6					4	4	
Switch Phase												

Lanes, Volumes, Timings  
 29: 14th Street & Winchester Ave

12/07/2020

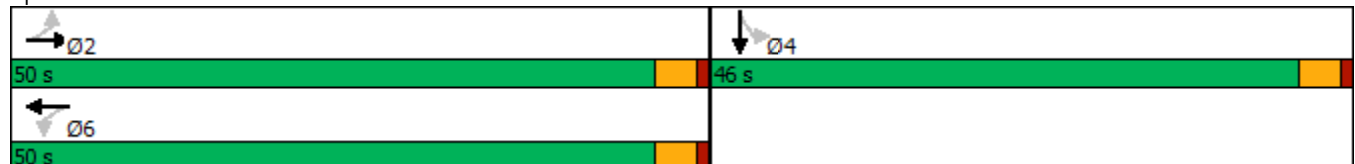


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0					15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5					22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0					46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%					47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0					42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0					3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0			0.0					0.0	0.0	
Total Lost Time (s)		4.0			4.0					4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0	3.0	
Recall Mode	None	None		Max	Max					Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0					7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0					11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0					0	0	
Act Effect Green (s)		46.0			46.0					42.0	42.0	
Actuated g/C Ratio		0.48			0.48					0.44	0.44	
v/c Ratio		0.37			0.40					0.01	0.16	
Control Delay		17.0			17.7					15.5	5.2	
Queue Delay		1.2			1.9					0.0	0.0	
Total Delay		18.1			19.6					15.5	5.2	
LOS		B			B					B	A	
Approach Delay		18.1			19.6						5.8	
Approach LOS		B			B						A	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.40
Intersection Signal Delay:	16.8
Intersection LOS:	B
Intersection Capacity Utilization:	34.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 29: 14th Street & Winchester Ave



Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	209	0	0	209	140	117	381	76	0	0	22
Future Volume (vph)	201	209	0	0	209	140	117	381	76	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	1		0	0		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt						0.850		0.967				0.865
Flt Protected	0.950	0.985					0.950					
Satd. Flow (prot)	1507	3249	0	0	1900	1524	1787	4902	0	0	0	1393
Flt Permitted	0.950	0.985					0.950					
Satd. Flow (perm)	1507	3249	0	0	1900	1524	1787	4902	0	0	0	1393
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						173		67				421
Link Speed (mph)		30			30			30				30
Link Distance (ft)		373			385			393				292
Travel Time (s)		8.5			8.8			8.9				6.6
Peak Hour Factor	0.81	0.95	0.92	0.25	0.72	0.81	0.70	0.95	0.66	0.25	0.31	0.69
Heavy Vehicles (%)	9%	3%	0%	0%	0%	6%	1%	3%	0%	0%	0%	18%
Adj. Flow (vph)	248	220	0	0	290	173	167	401	115	0	0	32
Shared Lane Traffic (%)	39%											
Lane Group Flow (vph)	151	317	0	0	290	173	167	516	0	0	0	32
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)		12			12			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1	2				1
Detector Template	Left	Thru			Thru	Right	Left	Thru				Right
Leading Detector (ft)	20	100			100	20	20	100				20
Trailing Detector (ft)	0	0			0	0	0	0				0
Detector 1 Position(ft)	0	0			0	0	0	0				0
Detector 1 Size(ft)	20	6			6	20	20	6				20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Split	NA			NA	Perm	Perm	NA				Perm
Protected Phases	3	3			2			4				

Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						2	4					3
Detector Phase	3	3			2	2	4	4				3
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0				8.0
Minimum Split (s)	23.5	23.5			23.5	23.5	23.5	23.5				23.5
Total Split (s)	30.0	30.0			42.0	42.0	34.0	34.0				30.0
Total Split (%)	28.3%	28.3%			39.6%	39.6%	32.1%	32.1%				28.3%
Maximum Green (s)	24.5	24.5			36.5	36.5	28.5	28.5				24.5
Yellow Time (s)	3.6	3.6			3.6	3.6	3.5	3.5				3.6
All-Red Time (s)	1.9	1.9			1.9	1.9	2.0	2.0				1.9
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)	5.5	5.5			5.5	5.5	5.5	5.5				5.5
Lead/Lag	Lead	Lead					Lag	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
Recall Mode	None	None			C-Max	C-Max	None	None				None
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				7.0
Flash Dont Walk (s)	11.0	11.0			11.0	11.0	11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0				0
Act Effct Green (s)	17.0	17.0			55.0	55.0	17.5	17.5				17.0
Actuated g/C Ratio	0.16	0.16			0.52	0.52	0.17	0.17				0.16
v/c Ratio	0.62	0.61			0.29	0.20	0.57	0.60				0.06
Control Delay	54.3	49.0			17.8	3.6	47.5	37.8				0.2
Queue Delay	0.0	0.0			0.8	0.0	0.0	0.0				0.0
Total Delay	54.3	49.0			18.5	3.6	47.5	37.8				0.2
LOS	D	D			B	A	D	D				A
Approach Delay		50.7			13.0			40.2				0.2
Approach LOS		D			B			D				A

Intersection Summary

Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 58 (55%), Referenced to phase 2:WBT and 6:, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.62  
 Intersection Signal Delay: 34.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 41.6%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 32: 13th Street & Winchester Ave



Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑						↙↑	↗
Traffic Volume (vph)	0	218	228	124	224	0	0	0	0	192	494	304
Future Volume (vph)	0	218	228	124	224	0	0	0	0	192	494	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.921										0.850
Flt Protected				0.950							0.978	
Satd. Flow (prot)	0	4552	0	1752	3438	0	0	0	0	0	3477	1455
Flt Permitted				0.950							0.978	
Satd. Flow (perm)	0	4552	0	1752	3438	0	0	0	0	0	3477	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		144										197
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			373			198			355	
Travel Time (s)		8.6			8.5			4.5			8.1	
Peak Hour Factor	0.25	0.98	0.92	0.72	0.89	0.25	0.92	0.92	0.92	0.43	0.92	0.77
Heavy Vehicles (%)	0%	6%	4%	3%	5%	100%	2%	2%	2%	1%	2%	11%
Adj. Flow (vph)	0	222	248	172	252	0	0	0	0	447	537	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	470	0	172	252	0	0	0	0	0	984	395
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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	

Lanes, Volumes, Timings  
 35: 12th Street & Winchester Ave

12/07/2020

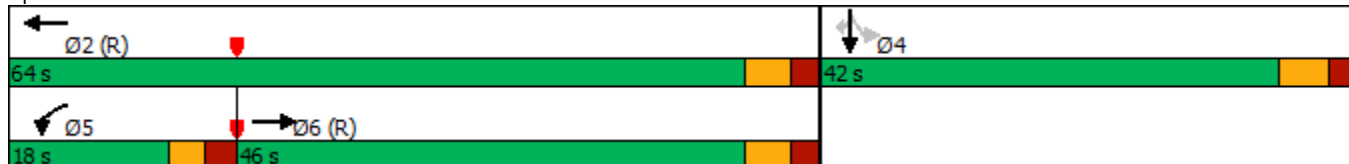


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases										4		4
Detector Phase		6		5	2					4	4	4
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		24.0		13.4	24.0					23.8	23.8	23.8
Total Split (s)		46.0		18.0	64.0					42.0	42.0	42.0
Total Split (%)		43.4%		17.0%	60.4%					39.6%	39.6%	39.6%
Maximum Green (s)		40.0		12.6	58.0					36.2	36.2	36.2
Yellow Time (s)		3.6		2.9	3.6					3.9	3.9	3.9
All-Red Time (s)		2.4		2.5	2.4					1.9	1.9	1.9
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0						5.8	5.8
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)		7.0			7.0					7.0	7.0	7.0
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)		41.2		12.3	58.9						35.3	35.3
Actuated g/C Ratio		0.39		0.12	0.56						0.33	0.33
v/c Ratio		0.25		0.85	0.13						0.85	0.64
Control Delay		12.0		69.9	20.0						41.1	19.7
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		12.0		69.9	20.0						41.1	19.7
LOS		B		E	B						D	B
Approach Delay		12.0			40.2						35.0	
Approach LOS		B			D						C	

Intersection Summary

Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 90 (85%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 31.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 49.8%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 35: 12th Street & Winchester Ave



Lanes, Volumes, Timings  
38: 11th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Volume (vph)	8	437	3	13	307	208	2	4	9	0	0	0
Future Volume (vph)	8	437	3	13	307	208	2	4	9	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.947			0.923				
Flt Protected		0.999			0.998			0.993				
Satd. Flow (prot)	0	3516	0	0	3345	0	0	1741	0	0	0	0
Flt Permitted		0.999			0.998			0.993				
Satd. Flow (perm)	0	3516	0	0	3345	0	0	1741	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		383			377			400				200
Travel Time (s)		8.7			8.6			9.1				4.5
Peak Hour Factor	0.67	0.89	0.25	0.46	0.72	0.85	0.50	0.50	0.56	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	9%	0%	1%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	491	12	28	426	245	4	8	16	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	515	0	0	699	0	0	28	0	0	0	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0%
ICU Level of Service	A
Analysis Period (min)	15



HCM 6th TWSC  
38: 11th Street & Winchester Ave

12/07/2020

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	8	437	3	13	307	208	2	4	9	0	0	0
Future Vol, veh/h	8	437	3	13	307	208	2	4	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	89	25	46	72	85	50	50	56	92	92	92
Heavy Vehicles, %	6	2	9	0	1	4	0	0	0	0	0	0
Mvmt Flow	12	491	12	28	426	245	4	8	16	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	671	0	0	503	0	0	790	1248	252
Stage 1	-	-	-	-	-	-	521	521	-
Stage 2	-	-	-	-	-	-	269	727	-
Critical Hdwy	4.22	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	2.26	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	889	-	-	1072	-	-	331	175	754
Stage 1	-	-	-	-	-	-	566	535	-
Stage 2	-	-	-	-	-	-	758	432	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	889	-	-	1072	-	-	310	0	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	310	0	-
Stage 1	-	-	-	-	-	-	555	0	-
Stage 2	-	-	-	-	-	-	725	0	-

Approach	EB			WB			NB		
HCM Control Delay, s	0.3			0.5			11.4		
HCM LOS							B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	587	889	-	-	1072	-	-
HCM Lane V/C Ratio	0.048	0.013	-	-	0.026	-	-
HCM Control Delay (s)	11.4	9.1	0.1	-	8.4	0.2	-
HCM Lane LOS	B	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	416	4	3	306	0	6	0	5	27	15	1
Future Volume (vph)	0	416	4	3	306	0	6	0	5	27	15	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.997						0.910			0.990	
Fl <sub>t</sub> Protected					0.999			0.984			0.972	
Satd. Flow (prot)	0	3564	0	0	3571	0	0	1701	0	0	1568	0
Fl <sub>t</sub> Permitted					0.952			0.900			0.810	
Satd. Flow (perm)	0	3564	0	0	3403	0	0	1556	0	0	1307	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						21			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			383			411			247	
Travel Time (s)		8.6			8.7			9.3			5.6	
Peak Hour Factor	0.25	0.94	0.50	0.75	0.92	0.25	0.75	0.25	0.31	0.84	0.75	0.25
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	29%	0%	0%
Adj. Flow (vph)	0	443	8	4	333	0	8	0	16	32	20	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	337	0	0	24	0	0	56	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2		1	2	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		100		20	100		20	100		20	100	
Trailing Detector (ft)		0		0	0		0	0		0	0	
Detector 1 Position(ft)		0		0	0		0	0		0	0	
Detector 1 Size(ft)		6		20	6		20	6		20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94		94	94		94	94		94	94	
Detector 2 Size(ft)		6		6	6		6	6		6	6	
Detector 2 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6		2	2		4	4		4	4	
Permitted Phases				2	2		4	4		4	4	
Detector Phase		6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)		23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)		74.0		74.0	74.0		32.0	32.0		32.0	32.0	
Total Split (%)		69.8%		69.8%	69.8%		30.2%	30.2%		30.2%	30.2%	
Maximum Green (s)		69.0		69.0	69.0		26.5	26.5		26.5	26.5	
Yellow Time (s)		3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)		1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode		None		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effect Green (s)		85.6		85.6	85.6		15.0	15.0		15.0	15.0	
Actuated g/C Ratio		0.81		0.81	0.81		0.14	0.14		0.14	0.14	
v/c Ratio		0.16		0.12	0.12		0.10	0.10		0.10	0.30	
Control Delay		2.8		4.4	4.4		19.1	19.1		19.1	43.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		2.8		4.4	4.4		19.1	19.1		19.1	43.9	
LOS		A		A	A		B	B		B	D	
Approach Delay		2.8		4.4	4.4		19.1	19.1		19.1	43.9	
Approach LOS		A		A	A		B	B		B	D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	6.5
Intersection LOS:	A
Intersection Capacity Utilization:	32.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 42: 10th Street & Winchester Ave



Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				↕
Traffic Volume (vph)	29	399	15	10	290	13	31	28	16	5	22	6
Future Volume (vph)	29	399	15	10	290	13	31	28	16	5	22	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.993			0.992			0.960			0.979	
Flt Protected		0.995			0.997			0.984			0.989	
Satd. Flow (prot)	0	3400	0	0	3441	0	0	1763	0	0	1840	0
Flt Permitted		0.854			0.893			0.875			0.927	
Satd. Flow (perm)	0	2918	0	0	3082	0	0	1568	0	0	1724	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			10			19			8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			378			425			203	
Travel Time (s)		8.6			8.6			9.7			4.6	
Peak Hour Factor	0.52	0.87	0.63	0.31	0.70	0.54	0.86	0.70	0.50	0.42	0.69	0.75
Heavy Vehicles (%)	0%	3%	53%	0%	2%	39%	0%	0%	6%	0%	0%	0%
Adj. Flow (vph)	56	459	24	32	414	24	36	40	32	12	32	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	539	0	0	470	0	0	108	0	0	52	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	6	6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020

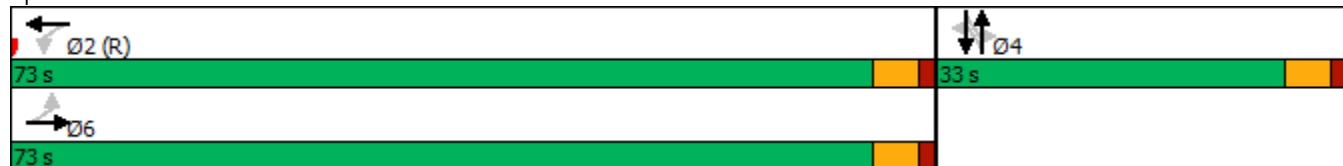


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)	73.0	73.0		73.0	73.0		33.0	33.0		33.0	33.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	68.0	68.0		68.0	68.0		27.5	27.5		27.5	27.5	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		80.2			80.2			15.3			15.3	
Actuated g/C Ratio		0.76			0.76			0.14			0.14	
v/c Ratio		0.24			0.20			0.45			0.20	
Control Delay		4.1			3.2			40.4			37.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.1			3.2			40.4			37.1	
LOS		A			A			D			D	
Approach Delay		4.1			3.2			40.4			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	8.6
Intersection LOS:	A
Intersection Capacity Utilization:	46.5%
ICU Level of Service:	A
Analysis Period (min):	15

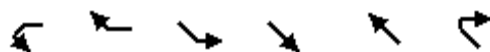
Splits and Phases: 45: 9th Street & Winchester Ave



# Lanes, Volumes, Timings

## 48: Winchester Ave & Greenup Ave

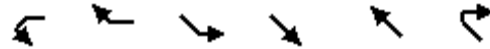
12/07/2020



Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations		↑↑	↑↑	↑↑	↑↑	
Traffic Volume (vph)	0	344	357	443	324	0
Future Volume (vph)	0	344	357	443	324	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	1.00
Fr't		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	0	2608	3433	3471	3438	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	2608	3433	3471	3438	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		772				
Link Speed (mph)	30			30	30	
Link Distance (ft)	768			487	269	
Travel Time (s)	17.5			11.1	6.1	
Peak Hour Factor	0.92	0.84	0.91	0.86	0.83	0.92
Heavy Vehicles (%)	2%	9%	2%	4%	5%	2%
Adj. Flow (vph)	0	410	392	515	390	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	410	392	515	390	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors		2	2	1	1	
Detector Template		Thru	Thru	Right	Left	
Leading Detector (ft)		100	100	20	20	
Trailing Detector (ft)		0	0	0	0	
Detector 1 Position(ft)		0	0	0	0	
Detector 1 Size(ft)		6	6	20	20	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		Over	Prot	NA	NA	
Protected Phases		1	1	2	2	
Permitted Phases				1		
Detector Phase		1	1	2	2	
Switch Phase						

Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

12/07/2020

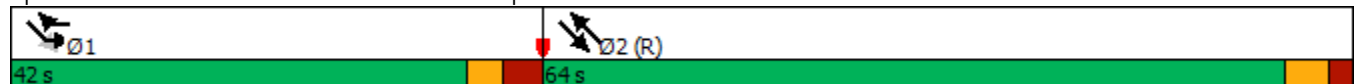


Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Minimum Initial (s)		15.0	15.0	20.0	20.0	
Minimum Split (s)		24.1	24.1	25.5	25.5	
Total Split (s)		42.0	42.0	64.0	64.0	
Total Split (%)		39.6%	39.6%	60.4%	60.4%	
Maximum Green (s)		35.9	35.9	58.5	58.5	
Yellow Time (s)		2.9	2.9	3.5	3.5	
All-Red Time (s)		3.2	3.2	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.1	6.1	5.5	5.5	
Lead/Lag		Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Recall Mode		None	None	C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effect Green (s)		20.5	20.5	106.0	73.9	
Actuated g/C Ratio		0.19	0.19	1.00	0.70	
v/c Ratio		0.36	0.59	0.15	0.16	
Control Delay		0.9	42.2	0.1	9.7	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		0.9	42.2	0.1	9.7	
LOS		A	D	A	A	
Approach Delay	0.9			18.3	9.7	
Approach LOS	A			B	A	

Intersection Summary

















Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 35 (33%), Referenced to phase 2:NWSE, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 12.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 38.8%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 48: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
49: 8th Street & Winchester Ave

12/07/2020

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	1	0	4	0	0	0	0	439	4	3	323	1
Future Volume (vph)	1	0	4	0	0	0	0	439	4	3	323	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Flt		0.892						0.997			0.999	
Flt Protected		0.990										
Satd. Flow (prot)	0	1639	0	0	1900	0	0	3525	0	0	3537	0
Flt Permitted		0.990										
Satd. Flow (perm)	0	1639	0	0	1900	0	0	3525	0	0	3537	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		376			140			269			377	
Travel Time (s)		8.5			3.2			6.1			8.6	
Peak Hour Factor	0.25	0.92	0.25	0.92	0.92	0.92	0.92	0.94	0.50	0.75	0.79	0.25
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	2%	8%	0%	2%	0%
Adj. Flow (vph)	4	0	16	0	0	0	0	467	8	4	409	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	0	0	0	475	0	0	417	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.3%						ICU Level of Service A					
Analysis Period (min)	15											



HCM 6th TWSC  
49: 8th Street & Winchester Ave

12/07/2020

Intersection												
Int Delay, s/veh	0.3											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	4	0	0	0	0	439	4	3	323	1
Future Vol, veh/h	1	0	4	0	0	0	0	439	4	3	323	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	25	92	92	92	92	94	50	75	79	25
Heavy Vehicles, %	0	0	3	0	0	0	0	2	8	0	2	0
Mvmt Flow	4	0	16	0	0	0	0	467	8	4	409	4

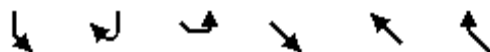
Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	684	892	238	653	894	207	413	0	0	475	0	0
Stage 1	471	471	-	419	419	-	-	-	-	-	-	-
Stage 2	213	421	-	234	475	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.96	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	339	283	760	356	283	805	1157	-	-	1098	-	-
Stage 1	548	563	-	588	593	-	-	-	-	-	-	-
Stage 2	775	592	-	754	561	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	338	282	760	347	282	805	1157	-	-	1098	-	-
Mov Cap-2 Maneuver	338	282	-	347	282	-	-	-	-	-	-	-
Stage 1	548	563	-	588	590	-	-	-	-	-	-	-
Stage 2	771	589	-	738	561	-	-	-	-	-	-	-

Approach	NB	SB	SE	NW
HCM Control Delay, s	11.1	0	0	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	608	1098	-	-	1157	-	-	-
HCM Lane V/C Ratio	0.033	0.004	-	-	-	-	-	-
HCM Control Delay (s)	11.1	8.3	0	-	0	-	-	0
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

### Lanes, Volumes, Timings 3: Winchester Ave & Greenup Ave

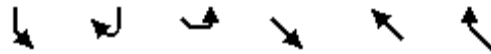
12/07/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	382	0	0	384	269	521
Future Volume (vph)	382	0	0	384	269	521
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			145
Storage Lanes	2	0	0			2
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	0.88
Frt						0.850
Flt Protected	0.950					
Satd. Flow (prot)	3335	0	0	3539	3574	2760
Flt Permitted	0.950					
Satd. Flow (perm)	3335	0	0	3539	3574	2760
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						579
Link Speed (mph)	30			30	30	
Link Distance (ft)	1088			775	945	
Travel Time (s)	24.7			17.6	21.5	
Peak Hour Factor	0.81	0.92	0.92	0.93	0.96	0.90
Heavy Vehicles (%)	5%	2%	2%	2%	1%	3%
Adj. Flow (vph)	472	0	0	413	280	579
Shared Lane Traffic (%)						
Lane Group Flow (vph)	472	0	0	413	280	579
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot			NA	NA	Free
Protected Phases	4			2	2	
Permitted Phases	4					Free
Minimum Split (s)	33.0			63.0	63.0	
Total Split (s)	33.0			63.0	63.0	
Total Split (%)	34.4%			65.6%	65.6%	
Maximum Green (s)	27.6			54.4	54.4	
Yellow Time (s)	3.4			3.6	3.6	
All-Red Time (s)	2.0			5.0	5.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.4			8.6	8.6	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effect Green (s)	27.6			54.4	54.4	96.0
Actuated g/C Ratio	0.29			0.57	0.57	1.00

Lanes, Volumes, Timings  
 3: Winchester Ave & Greenup Ave

12/07/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
v/c Ratio	0.49			0.21	0.14	0.21
Control Delay	30.5			10.5	10.0	0.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	30.5			10.5	10.0	0.2
LOS	C			B	B	A
Approach Delay	30.5			10.5	3.4	
Approach LOS	C			B	A	

Intersection Summary


















Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	50 (52%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	100
Control Type:	Pretimed
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	12.4
Intersection LOS:	B
Intersection Capacity Utilization	36.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Winchester Ave & Greenup Ave



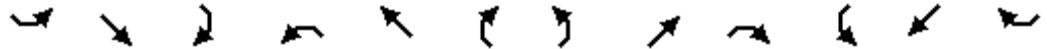
Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	404	99	8	630	1	73	1	8	1	3	5
Future Volume (vph)	3	404	99	8	630	1	73	1	8	1	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.970			0.999				0.850		0.904	
Fl <sub>t</sub> Protected		0.999			0.999			0.954			0.993	
Satd. Flow (prot)	0	3310	0	0	3419	0	0	1795	1615	0	1521	0
Fl <sub>t</sub> Permitted		0.944			0.946			0.715			0.949	
Satd. Flow (perm)	0	3128	0	0	3238	0	0	1346	1615	0	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			1				32		20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			476			361			347	
Travel Time (s)		8.8			10.8			8.2			7.9	
Peak Hour Factor	0.38	0.90	0.85	0.67	0.75	0.25	0.87	0.25	0.67	0.25	0.75	0.25
Heavy Vehicles (%)	0%	7%	1%	23%	5%	29%	1%	0%	0%	60%	0%	5%
Adj. Flow (vph)	8	449	116	12	840	4	84	4	12	4	4	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	573	0	0	856	0	0	88	12	0	28	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4		4	4		
Detector Phase	6	6		2	2		4	4	4	4	4	
Switch Phase												

Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

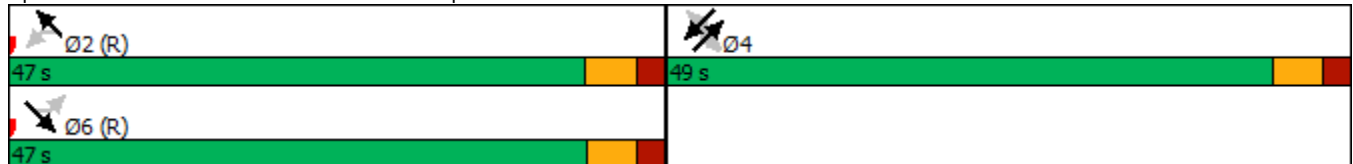


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)	41.3	41.3		41.2	41.2		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%	51.0%	51.0%	51.0%	
Maximum Green (s)	41.3	41.3		41.2	41.2		43.3	43.3	43.3	43.3	43.3	
Yellow Time (s)	3.5	3.5		3.6	3.6		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2	2.2	2.2	2.2	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.7			5.8			5.7	5.7		5.7	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)		76.6			76.5			12.3	12.3			12.3
Actuated g/C Ratio		0.80			0.80			0.13	0.13			0.13
v/c Ratio		0.23			0.33			0.51	0.05			0.14
Control Delay		3.5			4.2			49.1	3.5			20.2
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		3.5			4.2			49.1	3.5			20.2
LOS		A			A			D	A			C
Approach Delay		3.5			4.2			43.7				20.2
Approach LOS		A			A			D				C

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 63 (66%), Referenced to phase 2:NWTL and 6:SETL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 6.8  
 Intersection LOS: A  
 Intersection Capacity Utilization 65.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 7: 29th Street & Greenup Ave



Lanes, Volumes, Timings  
14: 18th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	4	238	6	7	431	22	6	4	3	5	10	8
Future Volume (vph)	4	238	6	7	431	22	6	4	3	5	10	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.994				0.850		0.970			0.963	
Flt Protected		0.999			0.999			0.973			0.987	
Satd. Flow (prot)	0	1869	0	0	1882	1615	0	1793	0	0	1806	0
Flt Permitted		0.986			0.988			0.895			0.954	
Satd. Flow (perm)	0	1845	0	0	1861	1615	0	1649	0	0	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				48		8			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			394			405			196	
Travel Time (s)		8.6			9.0			9.2			4.5	
Peak Hour Factor	0.50	0.89	0.50	0.44	0.81	0.46	0.30	0.50	0.38	0.42	0.50	0.67
Heavy Vehicles (%)	0%	1%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	8	267	12	16	532	48	20	8	8	12	20	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	287	0	0	548	48	0	36	0	0	44	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4			4		
Detector Phase	2	2		6	6	6	4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
 14: 18th Street & Winchester Ave

12/07/2020

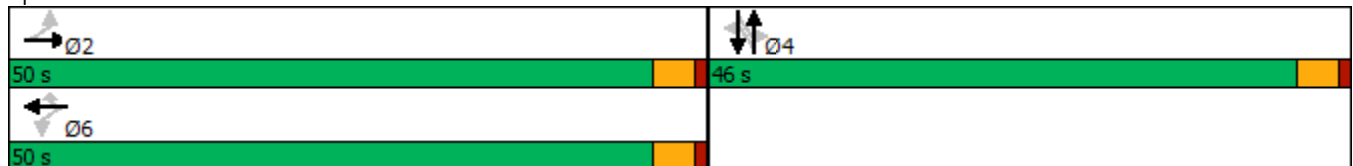


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0	50.0	46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%	52.1%	47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0	46.0	42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0			4.0	
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	Max	Max		Max	Max	Max	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0	46.0		42.0			42.0	
Actuated g/C Ratio		0.48			0.48	0.48		0.44			0.44	
v/c Ratio		0.32			0.62	0.06		0.05			0.06	
Control Delay		16.5			22.2	4.3		13.2			12.6	
Queue Delay		1.2			0.0	0.0		0.0			0.0	
Total Delay		17.7			22.2	4.3		13.2			12.6	
LOS		B			C	A		B			B	
Approach Delay		17.7			20.8			13.2			12.6	
Approach LOS		B			C			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	19.2
Intersection LOS:	B
Intersection Capacity Utilization:	45.7%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: 18th Street & Winchester Ave



Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘			↕	
Traffic Volume (vph)	3	224	41	2	425	18	21	21	19	5	19	26
Future Volume (vph)	3	224	41	2	425	18	21	21	19	5	19	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977			0.991			0.936			0.942	
Flt Protected		0.999			0.999		0.950				0.995	
Satd. Flow (prot)	0	1810	0	0	1864	0	1805	1748	0	0	1766	0
Flt Permitted		0.989			0.994		0.733				0.984	
Satd. Flow (perm)	0	1792	0	0	1855	0	1393	1748	0	0	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			5			24			36	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		398			378			396			394	
Travel Time (s)		9.0			8.6			9.0			9.0	
Peak Hour Factor	0.38	0.85	0.73	0.25	0.95	0.56	0.88	0.66	0.79	0.63	0.48	0.72
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	0%	3%	0%	0%	0%	2%
Adj. Flow (vph)	8	264	56	8	447	32	24	32	24	8	40	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	0	487	0	24	56	0	0	84	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			12			12	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												



Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

12/07/2020

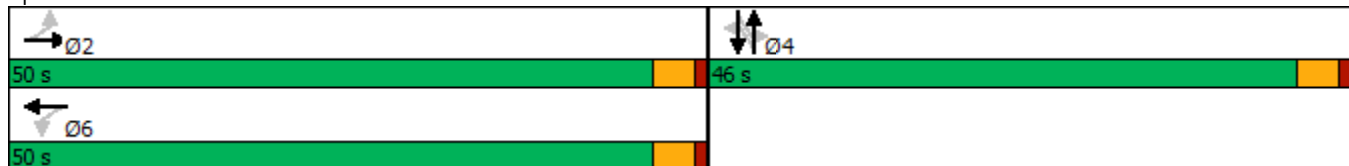


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.0			4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.38			0.55			0.04			0.07	
Control Delay		16.7			20.3			15.8			10.6	
Queue Delay		1.1			5.6			0.0			0.0	
Total Delay		17.8			26.0			15.8			10.6	
LOS		B			C			B			B	
Approach Delay		17.8			26.0			12.2			10.3	
Approach LOS		B			C			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	20.8
Intersection LOS:	C
Intersection Capacity Utilization:	43.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 18: 17th Street & Winchester Ave



Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	588	15	12	827	5	31	1	14	9	10	7
Future Volume (vph)	4	588	15	12	827	5	31	1	14	9	10	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.995			0.999			0.955			0.959	
Fl <sub>t</sub> Protected	0.950			0.950				0.971			0.985	
Satd. Flow (prot)	1805	3426	0	1770	3436	0	0	1721	0	0	1748	0
Fl <sub>t</sub> Permitted	0.187			0.337				0.844			0.935	
Satd. Flow (perm)	355	3426	0	628	3436	0	0	1496	0	0	1659	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			1			20			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		394			188			394			336	
Travel Time (s)		9.0			4.3			9.0			7.6	
Peak Hour Factor	0.50	0.86	0.63	0.60	0.77	0.63	0.86	0.25	0.70	0.75	0.63	0.58
Heavy Vehicles (%)	0%	5%	0%	2%	5%	0%	4%	0%	0%	9%	0%	0%
Adj. Flow (vph)	8	684	24	20	1074	8	36	4	20	12	16	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	708	0	20	1082	0	0	60	0	0	40	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.4	23.4		23.4	23.4		24.1	24.1		24.1	24.1	
Total Split (s)	57.0	57.0		57.0	57.0		39.0	39.0		39.0	39.0	
Total Split (%)	59.4%	59.4%		59.4%	59.4%		40.6%	40.6%		40.6%	40.6%	
Maximum Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.4	5.4		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.34	0.34		0.34	0.34	
v/c Ratio	0.04	0.38		0.06	0.59		0.11	0.11		0.07	0.07	
Control Delay	7.0	10.4		11.3	16.6		16.5	16.5		16.8	16.8	
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.0	10.6		11.3	16.6		16.5	16.5		16.8	16.8	
LOS	A	B		B	B		B	B		B	B	
Approach Delay		10.5			16.5		16.5	16.5			16.8	
Approach LOS		B			B		B	B			B	

Intersection Summary

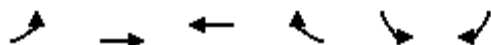
Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 4 (4%), Referenced to phase 2:EBWB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 14.3      Intersection LOS: B  
 Intersection Capacity Utilization 39.3%      ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 19: 17th Street & Greenup Ave



Lanes, Volumes, Timings  
22: Winchester Ave & 16th Street

12/07/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Volume (vph)	17	251	455	17	17	58
Future Volume (vph)	17	251	455	17	17	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994			0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	1875	1853	0	1367	1599
Flt Permitted		0.952			0.950	
Satd. Flow (perm)	0	1792	1853	0	1367	1599
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3			76
Link Speed (mph)		30	30		30	
Link Distance (ft)		386	398		394	
Travel Time (s)		8.8	9.0		9.0	
Peak Hour Factor	0.71	0.88	0.90	0.71	0.85	0.76
Heavy Vehicles (%)	0%	1%	2%	0%	32%	1%
Adj. Flow (vph)	24	285	506	24	20	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	309	530	0	20	76
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

Lanes, Volumes, Timings  
22: Winchester Ave & 16th Street

12/07/2020

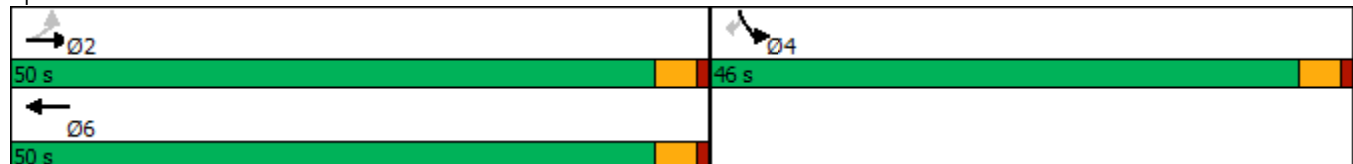


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	8.0	8.0	8.0		15.0	15.0
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	50.0	50.0	50.0		46.0	46.0
Total Split (%)	52.1%	52.1%	52.1%		47.9%	47.9%
Maximum Green (s)	46.0	46.0	46.0		42.0	42.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
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)		57.1	57.1		15.2	15.2
Actuated g/C Ratio		0.76	0.76		0.20	0.20
v/c Ratio		0.23	0.38		0.07	0.20
Control Delay		4.4	5.4		24.5	7.8
Queue Delay		0.3	0.6		0.0	0.0
Total Delay		4.7	6.0		24.5	7.8
LOS		A	A		C	A
Approach Delay		4.7	6.0		11.3	
Approach LOS		A	A		B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	75
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.38
Intersection Signal Delay:	6.1
Intersection LOS:	A
Intersection Capacity Utilization:	46.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 22: Winchester Ave & 16th Street



Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	582	32	12	845	8	20	3	13	12	4	8
Future Volume (vph)	8	582	32	12	845	8	20	3	13	12	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.990			0.998				0.850		0.964	
Flt Protected	0.950			0.950				0.962			0.979	
Satd. Flow (prot)	1805	3395	0	1752	3433	0	0	1828	1615	0	1793	0
Flt Permitted	0.277			0.376				0.741			0.840	
Satd. Flow (perm)	526	3395	0	694	3433	0	0	1408	1615	0	1539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2						11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		396			394			394			359	
Travel Time (s)		9.0			9.0			9.0			8.2	
Peak Hour Factor	0.40	0.86	0.67	0.50	0.85	0.67	0.63	0.38	0.81	0.67	0.33	0.75
Heavy Vehicles (%)	0%	5%	9%	3%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	677	48	24	994	12	32	8	16	18	12	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	725	0	24	1006	0	0	40	16	0	41	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	custom	Perm	NA	
Protected Phases		2			2			4	4		4	
Permitted Phases	2			2			4		2	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												

Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		24.1	24.1	24.1	24.1	24.1	
Total Split (s)	53.0	53.0		53.0	53.0		43.0	43.0	43.0	43.0	43.0	
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%	44.8%	44.8%	44.8%	
Maximum Green (s)	47.1	47.1		47.1	47.1		36.9	36.9	36.9	36.9	36.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Lost Time (s)	5.9	5.9		5.9	5.9			6.1	6.1			6.1
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)	79.2	79.2		79.2	79.2			8.8	96.0			8.8
Actuated g/C Ratio	0.82	0.82		0.82	0.82			0.09	1.00			0.09
v/c Ratio	0.05	0.26		0.04	0.36			0.31	0.01			0.27
Control Delay	2.2	2.1		2.5	2.6			47.0	0.0			36.5
Queue Delay	0.0	0.1		0.0	0.1			0.0	0.0			0.0
Total Delay	2.2	2.2		2.5	2.7			47.0	0.0			36.5
LOS	A	A		A	A			D	A			D
Approach Delay		2.2			2.7			33.6				36.5
Approach LOS		A			A			C				D

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	0 (0%), Referenced to phase 2:WBEB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.36
Intersection Signal Delay:	4.2
Intersection LOS:	A
Intersection Capacity Utilization:	45.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 23: 16th Street & Greenup Ave



Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	31	243	17	20	474	19	29	29	21	4	18	25
Future Volume (vph)	31	243	17	20	474	19	29	29	21	4	18	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.992			0.996			0.965			0.940	
Fl <sub>t</sub> Protected		0.995			0.998			0.982			0.994	
Satd. Flow (prot)	0	1823	0	0	1869	0	0	1761	0	0	1729	0
Fl <sub>t</sub> Permitted		0.903			0.966			0.886			0.977	
Satd. Flow (perm)	0	1654	0	0	1809	0	0	1589	0	0	1700	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			2			23			32	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		371			386			399			396	
Travel Time (s)		8.4			8.8			9.1			9.0	
Peak Hour Factor	0.71	0.64	0.61	0.63	0.76	1.00	0.56	0.56	0.58	0.50	0.56	0.78
Heavy Vehicles (%)	0%	3%	6%	0%	1%	5%	3%	3%	0%	0%	6%	0%
Adj. Flow (vph)	44	380	28	32	624	19	52	52	36	8	32	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	452	0	0	675	0	0	140	0	0	72	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												



Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

12/07/2020

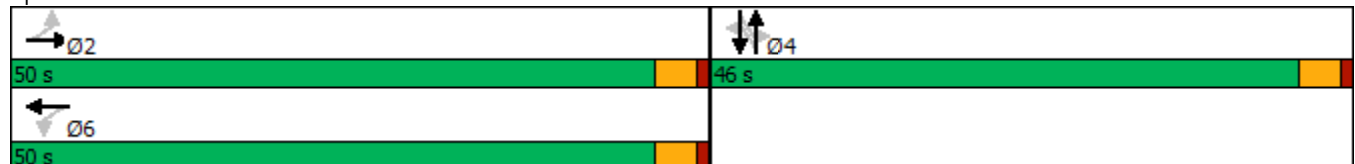


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0		46.0	46.0		46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		46.0			46.0			42.0			42.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
v/c Ratio		0.57			0.78			0.20			0.09	
Control Delay		21.2			28.4			14.7			10.3	
Queue Delay		4.5			45.2			0.0			0.0	
Total Delay		25.7			73.6			14.7			10.3	
LOS		C			E			B			B	
Approach Delay		25.7			73.6			14.7			10.3	
Approach LOS		C			E			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	47.8
Intersection LOS:	D
Intersection Capacity Utilization:	49.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 25: 15th Street & Winchester Ave



Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	574	5	15	849	9	27	9	35	13	12	15
Future Volume (vph)	12	574	5	15	849	9	27	9	35	13	12	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frts		0.997			0.998			0.937				0.950
Flt Protected	0.950			0.950				0.980				0.982
Satd. Flow (prot)	1444	3496	0	1805	3533	0	0	1603	0	0	1525	0
Flt Permitted	0.283			0.386				0.871				0.815
Satd. Flow (perm)	430	3496	0	733	3533	0	0	1424	0	0	1266	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2			52				28
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2266			396			396				410
Travel Time (s)		51.5			9.0			9.0				9.3
Peak Hour Factor	0.60	0.84	0.42	0.63	0.89	0.75	0.56	0.56	0.63	0.46	0.60	0.54
Heavy Vehicles (%)	25%	3%	0%	0%	2%	0%	4%	44%	3%	31%	0%	13%
Adj. Flow (vph)	20	683	12	24	954	12	48	16	56	28	20	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	695	0	24	966	0	0	120	0	0	76	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)		12			12			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.5	23.5		23.5	23.5		24.1	24.1		24.1	24.1	
Total Split (s)	54.0	54.0		54.0	54.0		42.0	42.0		42.0	42.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	48.5	48.5		48.5	48.5		35.9	35.9		35.9	35.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			6.1			6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	73.4	73.4		73.4	73.4			11.0			11.0	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.11			0.11	
v/c Ratio	0.06	0.26		0.04	0.36			0.57			0.45	
Control Delay	4.1	3.9		2.1	2.5			34.1			34.4	
Queue Delay	0.0	0.0		0.0	0.1			0.0			0.0	
Total Delay	4.1	3.9		2.1	2.6			34.1			34.4	
LOS	A	A		A	A			C			C	
Approach Delay		3.9			2.6			34.1			34.4	
Approach LOS		A			A			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	1 (1%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	6.3
Intersection LOS:	A
Intersection Capacity Utilization:	40.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 26: 15th Street & Greenup Ave



Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	286	15	8	520	0	0	0	0	5	20	185
Future Volume (vph)	0	286	15	8	520	0	0	0	0	5	20	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't		0.989									0.866	
Flt Protected					0.999					0.950		
Satd. Flow (prot)	0	1845	0	0	1898	0	0	0	0	1687	1613	0
Flt Permitted					0.992					0.950		
Satd. Flow (perm)	0	1845	0	0	1885	0	0	0	0	1687	1613	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6									226	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		385			371			411			199	
Travel Time (s)		8.8			8.4			9.3			4.5	
Peak Hour Factor	0.91	0.91	0.54	0.67	0.90	0.92	0.92	0.92	0.92	0.63	0.71	0.77
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	2%	2%	2%	7%	2%	2%
Adj. Flow (vph)	0	314	28	12	578	0	0	0	0	8	28	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	342	0	0	590	0	0	0	0	8	268	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			12			12	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2					1	2	
Detector Template	Left	Thru		Left	Thru					Left	Thru	
Leading Detector (ft)	20	100		20	100					20	100	
Trailing Detector (ft)	0	0		0	0					0	0	
Detector 1 Position(ft)	0	0		0	0					0	0	
Detector 1 Size(ft)	20	6		20	6					20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						4	
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6					4	4	
Switch Phase												

Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

12/07/2020

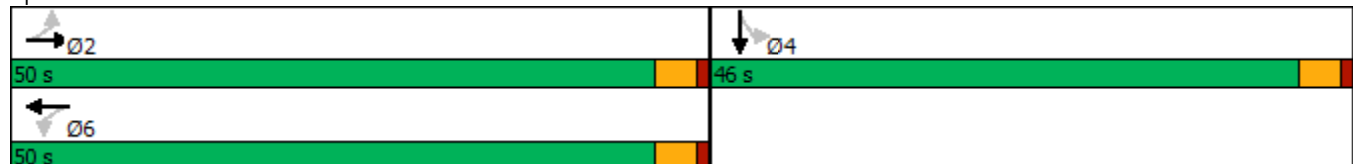


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0					15.0	15.0	
Minimum Split (s)	22.5	22.5		22.5	22.5					22.5	22.5	
Total Split (s)	50.0	50.0		50.0	50.0					46.0	46.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%					47.9%	47.9%	
Maximum Green (s)	46.0	46.0		46.0	46.0					42.0	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0					3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0			0.0					0.0	0.0	
Total Lost Time (s)		4.0			4.0					4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0	3.0	
Recall Mode	None	None		Max	Max					Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0					7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0					11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0					0	0	
Act Effect Green (s)		46.0			46.0					42.0	42.0	
Actuated g/C Ratio		0.48			0.48					0.44	0.44	
v/c Ratio		0.39			0.65					0.01	0.32	
Control Delay		17.3			23.2					15.4	4.9	
Queue Delay		1.3			22.3					0.0	0.0	
Total Delay		18.6			45.5					15.4	4.9	
LOS		B			D					B	A	
Approach Delay		18.6			45.5						5.2	
Approach LOS		B			D						A	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	28.7
Intersection Capacity Utilization	52.9%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	A

Splits and Phases: 29: 14th Street & Winchester Ave



Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↙↘			↕	↗	↘	↕↗↘				↗
Traffic Volume (vph)	432	232	0	0	359	346	311	592	69	0	0	25
Future Volume (vph)	432	232	0	0	359	346	311	592	69	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	1		0	0		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt						0.850		0.981				0.865
Flt Protected	0.950	0.977					0.950					
Satd. Flow (prot)	1579	3299	0	0	1863	1599	1805	4995	0	0	0	1644
Flt Permitted	0.950	0.977					0.950					
Satd. Flow (perm)	1579	3299	0	0	1863	1599	1805	4995	0	0	0	1644
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						82		25				213
Link Speed (mph)		30			30			30				30
Link Distance (ft)		373			385			393				292
Travel Time (s)		8.5			8.8			8.9				6.6
Peak Hour Factor	0.92	0.89	0.92	0.25	0.89	0.88	0.85	0.82	0.66	0.57	0.31	0.69
Heavy Vehicles (%)	4%	1%	0%	0%	2%	1%	0%	2%	1%	0%	0%	0%
Adj. Flow (vph)	470	261	0	0	403	393	366	722	105	0	0	36
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	240	491	0	0	403	393	366	827	0	0	0	36
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)		12			12			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1	2				1
Detector Template	Left	Thru			Thru	Right	Left	Thru				Right
Leading Detector (ft)	20	100			100	20	20	100				20
Trailing Detector (ft)	0	0			0	0	0	0				0
Detector 1 Position(ft)	0	0			0	0	0	0				0
Detector 1 Size(ft)	20	6			6	20	20	6				20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Split	NA			NA	Perm	Perm	NA				Perm
Protected Phases	3	3			2			4				

Lanes, Volumes, Timings  
 32: 13th Street & Winchester Ave

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						2	4					3
Detector Phase	3	3			2	2	4	4				3
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0				8.0
Minimum Split (s)	23.5	23.5			23.5	23.5	23.5	23.5				23.5
Total Split (s)	30.0	30.0			42.0	42.0	34.0	34.0				30.0
Total Split (%)	28.3%	28.3%			39.6%	39.6%	32.1%	32.1%				28.3%
Maximum Green (s)	24.5	24.5			36.5	36.5	28.5	28.5				24.5
Yellow Time (s)	3.6	3.6			3.6	3.6	3.5	3.5				3.6
All-Red Time (s)	1.9	1.9			1.9	1.9	2.0	2.0				1.9
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)	5.5	5.5			5.5	5.5	5.5	5.5				5.5
Lead/Lag	Lead	Lead					Lag	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
Recall Mode	None	None			C-Max	C-Max	None	None				None
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				7.0
Flash Dont Walk (s)	11.0	11.0			11.0	11.0	11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0				0
Act Effct Green (s)	21.6	21.6			40.7	40.7	27.2	27.2				21.6
Actuated g/C Ratio	0.20	0.20			0.38	0.38	0.26	0.26				0.20
v/c Ratio	0.75	0.73			0.56	0.59	0.79	0.64				0.07
Control Delay	31.0	24.2			30.9	26.0	50.0	36.2				0.3
Queue Delay	0.0	0.0			1.9	1.1	0.0	0.0				0.0
Total Delay	31.0	24.2			32.8	27.0	50.0	36.2				0.3
LOS	C	C			C	C	D	D				A
Approach Delay		26.5			30.0			40.4				0.3
Approach LOS		C			C			D				A

Intersection Summary

Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 58 (55%), Referenced to phase 2:WBT and 6:, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 33.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 62.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 32: 13th Street & Winchester Ave



Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑						↔↑	↔
Traffic Volume (vph)	0	582	232	173	522	0	0	0	0	82	525	467
Future Volume (vph)	0	582	232	173	522	0	0	0	0	82	525	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.960										0.850
Flt Protected				0.950							0.993	
Satd. Flow (prot)	0	4930	0	1787	3610	0	0	0	0	0	3585	1599
Flt Permitted				0.950							0.993	
Satd. Flow (perm)	0	4930	0	1787	3610	0	0	0	0	0	3585	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100										266
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			373			198			355	
Travel Time (s)		8.6			8.5			4.5			8.1	
Peak Hour Factor	0.25	0.86	0.94	0.85	0.88	0.25	0.92	0.92	0.92	0.82	0.89	0.90
Heavy Vehicles (%)	0%	1%	1%	1%	0%	100%	2%	2%	2%	0%	0%	1%
Adj. Flow (vph)	0	677	247	204	593	0	0	0	0	100	590	519
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	924	0	204	593	0	0	0	0	0	690	519
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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	



Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

12/07/2020

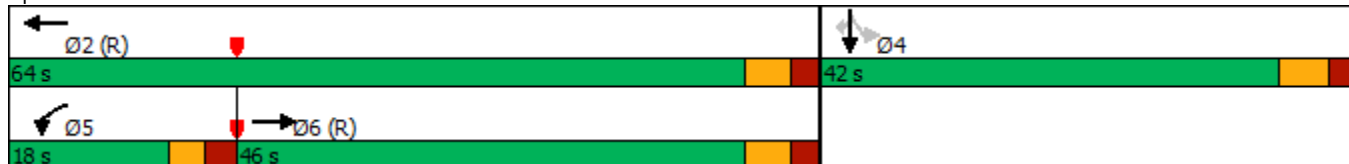


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases										4		4
Detector Phase		6		5	2					4	4	4
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		24.0		13.4	24.0					23.8	23.8	23.8
Total Split (s)		46.0		18.0	64.0					42.0	42.0	42.0
Total Split (%)		43.4%		17.0%	60.4%					39.6%	39.6%	39.6%
Maximum Green (s)		40.0		12.6	58.0					36.2	36.2	36.2
Yellow Time (s)		3.6		2.9	3.6					3.9	3.9	3.9
All-Red Time (s)		2.4		2.5	2.4					1.9	1.9	1.9
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0						5.8	5.8
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)		7.0			7.0					7.0	7.0	7.0
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)		42.7		15.3	63.5						30.7	30.7
Actuated g/C Ratio		0.40		0.14	0.60						0.29	0.29
v/c Ratio		0.45		0.79	0.27						0.66	0.80
Control Delay		28.5		51.0	17.2						35.9	25.7
Queue Delay		0.0		0.0	0.7						0.0	0.0
Total Delay		28.5		51.0	17.8						35.9	25.7
LOS		C		D	B						D	C
Approach Delay		28.5			26.3						31.5	
Approach LOS		C			C						C	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	29.1
Intersection LOS:	C
Intersection Capacity Utilization:	57.2%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 35: 12th Street & Winchester Ave



Lanes, Volumes, Timings  
 38: 11th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				
Traffic Volume (vph)	17	807	4	8	809	172	23	5	7	0	0	0
Future Volume (vph)	17	807	4	8	809	172	23	5	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.973			0.975				
Flt Protected		0.999			0.999			0.967				
Satd. Flow (prot)	0	3522	0	0	3456	0	0	1791	0	0	0	0
Flt Permitted		0.999			0.999			0.967				
Satd. Flow (perm)	0	3522	0	0	3456	0	0	1791	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		383			377			400				200
Travel Time (s)		8.7			8.6			9.1				4.5
Peak Hour Factor	0.85	0.91	0.33	0.67	0.88	0.86	0.58	0.63	0.64	0.92	0.25	0.92
Heavy Vehicles (%)	6%	2%	9%	0%	1%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	887	12	12	919	200	40	8	11	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	919	0	0	1131	0	0	59	0	0	0	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC  
 38: 11th Street & Winchester Ave

12/07/2020

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	17	807	4	8	809	172	23	5	7	0	0	0
Future Vol, veh/h	17	807	4	8	809	172	23	5	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	91	33	67	88	86	58	63	64	92	25	92
Heavy Vehicles, %	6	2	9	0	1	4	0	0	0	0	0	0
Mvmt Flow	20	887	12	12	919	200	40	8	11	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1119	0	0	899	0	0	1417	2076	450
Stage 1	-	-	-	-	-	-	933	933	-
Stage 2	-	-	-	-	-	-	484	1143	-
Critical Hdwy	4.22	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	2.26	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	597	-	-	764	-	-	130	54	562
Stage 1	-	-	-	-	-	-	348	348	-
Stage 2	-	-	-	-	-	-	591	277	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	597	-	-	764	-	-	116	0	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	0	-
Stage 1	-	-	-	-	-	-	325	0	-
Stage 2	-	-	-	-	-	-	565	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.6	0.3	48
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	140	597	-	-	764	-	-
HCM Lane V/C Ratio	0.418	0.034	-	-	0.016	-	-
HCM Control Delay (s)	48	11.2	0.4	-	9.8	0.2	-
HCM Lane LOS	E	B	A	-	A	A	-
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0	-	-

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	759	6	18	814	0	22	0	12	57	37	7
Future Volume (vph)	0	759	6	18	814	0	22	0	12	57	37	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998						0.938			0.989	
Fl <sub>t</sub> Protected					0.999			0.974			0.969	
Satd. Flow (prot)	0	3568	0	0	3572	0	0	1736	0	0	1536	0
Fl <sub>t</sub> Permitted					0.919			0.817			0.782	
Satd. Flow (perm)	0	3568	0	0	3286	0	0	1456	0	0	1240	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						24			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			383			411			247	
Travel Time (s)		8.6			8.7			9.3			5.6	
Peak Hour Factor	0.25	0.95	0.50	0.75	0.91	0.25	0.79	0.25	0.50	0.62	0.93	0.58
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	29%	0%	0%
Adj. Flow (vph)	0	799	12	24	895	0	28	0	24	92	40	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	811	0	0	919	0	0	52	0	0	144	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2		1	2	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		100		20	100		20	100		20	100	
Trailing Detector (ft)		0		0	0		0	0		0	0	
Detector 1 Position(ft)		0		0	0		0	0		0	0	
Detector 1 Size(ft)		6		20	6		20	6		20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94		94	94		94	94		94	94	
Detector 2 Size(ft)		6		6	6		6	6		6	6	
Detector 2 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6		2	2		4	4		4	4	
Permitted Phases				2	2		4	4		4	4	
Detector Phase		6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)		23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)		74.0		74.0	74.0		32.0	32.0		32.0	32.0	
Total Split (%)		69.8%		69.8%	69.8%		30.2%	30.2%		30.2%	30.2%	
Maximum Green (s)		69.0		69.0	69.0		26.5	26.5		26.5	26.5	
Yellow Time (s)		3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)		1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode		None		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effect Green (s)		76.9		76.9	76.9		18.6	18.6		18.6	18.6	
Actuated g/C Ratio		0.73		0.73	0.73		0.18	0.18		0.18	0.18	
v/c Ratio		0.31		0.39	0.39		0.19	0.19		0.65	0.65	
Control Delay		4.6		8.0	8.0		23.6	23.6		53.3	53.3	
Queue Delay		0.2		0.1	0.1		0.0	0.0		0.0	0.0	
Total Delay		4.7		8.1	8.1		23.6	23.6		53.3	53.3	
LOS		A		A	A		C	C		D	D	
Approach Delay		4.7		8.1	8.1		23.6	23.6		53.3	53.3	
Approach LOS		A		A	A		C	C		D	D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	10.5
Intersection LOS:	B
Intersection Capacity Utilization	56.6%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 42: 10th Street & Winchester Ave



Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	18	705	31	13	807	23	129	48	48	12	38	8
Future Volume (vph)	18	705	31	13	807	23	129	48	48	12	38	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.993			0.996			0.967			0.982	
Flt Protected		0.999			0.999			0.976			0.991	
Satd. Flow (prot)	0	3526	0	0	3549	0	0	1749	0	0	1812	0
Flt Permitted		0.893			0.926			0.812			0.919	
Satd. Flow (perm)	0	3152	0	0	3290	0	0	1455	0	0	1680	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			5			15			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			378			425			203	
Travel Time (s)		8.6			8.6			9.7			4.6	
Peak Hour Factor	0.75	0.95	0.78	0.54	0.73	0.72	0.95	0.67	0.71	0.75	0.63	0.67
Heavy Vehicles (%)	0%	1%	13%	0%	1%	9%	2%	6%	0%	0%	3%	0%
Adj. Flow (vph)	24	742	40	24	1105	32	136	72	68	16	60	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	806	0	0	1161	0	0	276	0	0	88	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	6	6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)	73.0	73.0		73.0	73.0		33.0	33.0		33.0	33.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	68.0	68.0		68.0	68.0		27.5	27.5		27.5	27.5	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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)		72.4			72.4			23.1			23.1	
Actuated g/C Ratio		0.68			0.68			0.22			0.22	
v/c Ratio		0.37			0.52			0.84			0.24	
Control Delay		8.2			11.9			59.0			31.4	
Queue Delay		0.0			0.2			0.0			0.0	
Total Delay		8.2			12.1			59.0			31.4	
LOS		A			B			E			C	
Approach Delay		8.2			12.1			59.0			31.4	
Approach LOS		A			B			E			C	

Intersection Summary

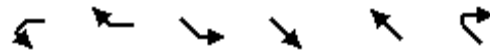
Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	17.0
Intersection LOS:	B
Intersection Capacity Utilization	61.5%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 45: 9th Street & Winchester Ave



Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

12/07/2020

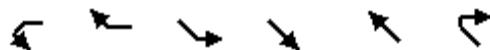


Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations		↑↑	↑↑	↑↑	↑↑	
Traffic Volume (vph)	0	834	419	743	934	0
Future Volume (vph)	0	834	419	743	934	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	1.00
Fr't		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	0	2814	3433	3574	3505	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	2814	3433	3574	3505	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		93				
Link Speed (mph)	30			30	30	
Link Distance (ft)	768			486	269	
Travel Time (s)	17.5			11.0	6.1	
Peak Hour Factor	0.92	0.88	0.91	0.85	0.75	0.92
Heavy Vehicles (%)	2%	1%	2%	1%	3%	2%
Adj. Flow (vph)	0	948	460	874	1245	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	948	460	874	1245	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors		2	2	1	1	
Detector Template		Thru	Thru	Right	Left	
Leading Detector (ft)		100	100	20	20	
Trailing Detector (ft)		0	0	0	0	
Detector 1 Position(ft)		0	0	0	0	
Detector 1 Size(ft)		6	6	20	20	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		Over	Prot	NA	NA	
Protected Phases		1	1	2	2	
Permitted Phases				1		
Detector Phase		1	1	2	2	
Switch Phase						



Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

12/07/2020

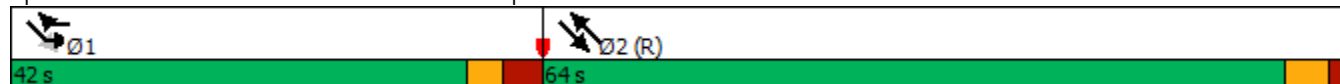


Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Minimum Initial (s)		15.0	15.0	20.0	20.0	
Minimum Split (s)		24.1	24.1	25.5	25.5	
Total Split (s)		42.0	42.0	64.0	64.0	
Total Split (%)		39.6%	39.6%	60.4%	60.4%	
Maximum Green (s)		35.9	35.9	58.5	58.5	
Yellow Time (s)		2.9	2.9	3.5	3.5	
All-Red Time (s)		3.2	3.2	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.1	6.1	5.5	5.5	
Lead/Lag		Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Recall Mode		None	None	C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effect Green (s)		35.8	35.8	106.0	58.6	
Actuated g/C Ratio		0.34	0.34	1.00	0.55	
v/c Ratio		0.94	0.40	0.24	0.64	
Control Delay		47.9	28.1	0.2	22.1	
Queue Delay		0.0	0.0	0.0	0.6	
Total Delay		47.9	28.1	0.2	22.7	
LOS		D	C	A	C	
Approach Delay	47.9			9.8	22.7	
Approach LOS	D			A	C	

Intersection Summary

















Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	35 (33%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	24.6
Intersection LOS:	C
Intersection Capacity Utilization:	64.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 48: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
49: 8th Street & Winchester Ave

12/07/2020

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	5	0	24	1	0	1	1	729	13	16	928	0
Future Volume (vph)	5	0	24	1	0	1	1	729	13	16	928	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.902			0.932			0.994				
Fl <sub>t</sub> Protected		0.987			0.976						0.998	
Satd. Flow (prot)	0	1655	0	0	1728	0	0	3510	0	0	3535	0
Fl <sub>t</sub> Permitted		0.987			0.976						0.998	
Satd. Flow (perm)	0	1655	0	0	1728	0	0	3510	0	0	3535	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		376			140			269			377	
Travel Time (s)		8.5			3.2			6.1			8.6	
Peak Hour Factor	0.42	0.92	0.75	0.25	0.92	0.25	0.25	0.96	0.41	0.44	0.93	0.25
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	2%	8%	0%	2%	0%
Adj. Flow (vph)	12	0	32	4	0	4	4	759	32	36	998	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	8	0	0	795	0	0	1034	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.0%						ICU Level of Service A					
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	24	1	0	1	1	729	13	16	928	0
Future Vol, veh/h	5	0	24	1	0	1	1	729	13	16	928	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	42	92	75	25	92	25	25	96	41	44	93	25
Heavy Vehicles, %	0	0	3	0	0	0	0	2	8	0	2	0
Mvmt Flow	12	0	32	4	0	4	4	759	32	36	998	0

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1354	1853	396	1458	1869	499	998	0	0	791	0	0
Stage 1	783	783	-	1070	1070	-	-	-	-	-	-	-
Stage 2	571	1070	-	388	799	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.96	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	110	75	600	92	73	522	701	-	-	838	-	-
Stage 1	357	407	-	240	300	-	-	-	-	-	-	-
Stage 2	478	300	-	613	401	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	100	67	600	80	65	522	701	-	-	838	-	-
Mov Cap-2 Maneuver	100	67	-	80	65	-	-	-	-	-	-	-
Stage 1	353	403	-	238	271	-	-	-	-	-	-	-
Stage 2	429	271	-	575	397	-	-	-	-	-	-	-

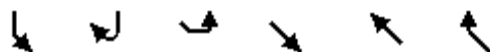
Approach	NB		SB		SE		NW	
HCM Control Delay, s	22		32.5		0.1		0.7	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	255	838	-	-	701	-	-	139
HCM Lane V/C Ratio	0.172	0.043	-	-	0.006	-	-	0.058
HCM Control Delay (s)	22	9.5	0.4	-	10.2	0.1	-	32.5
HCM Lane LOS	C	A	A	-	B	A	-	D
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.2

# Lanes, Volumes, Timings

## 3: Winchester Ave & Greenup Ave

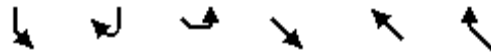
12/07/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	↙↘			↑↑	↑↑	↗↘
Traffic Volume (vph)	287	0	0	217	259	283
Future Volume (vph)	287	0	0	217	259	283
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			145
Storage Lanes	2	0	0			2
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	0.88
Fr <sub>t</sub>						0.850
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	3242	0	0	3471	3505	2682
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	3242	0	0	3471	3505	2682
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						354
Link Speed (mph)	30			30	30	
Link Distance (ft)	1088			775	945	
Travel Time (s)	24.7			17.6	21.5	
Peak Hour Factor	0.68	0.92	0.92	0.80	0.82	0.80
Heavy Vehicles (%)	8%	2%	2%	4%	3%	6%
Adj. Flow (vph)	422	0	0	271	316	354
Shared Lane Traffic (%)						
Lane Group Flow (vph)	422	0	0	271	316	354
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot			NA	NA	Free
Protected Phases	4			2	2	
Permitted Phases	4					Free
Minimum Split (s)	33.0			63.0	63.0	
Total Split (s)	33.0			63.0	63.0	
Total Split (%)	34.4%			65.6%	65.6%	
Maximum Green (s)	27.6			54.4	54.4	
Yellow Time (s)	3.4			3.6	3.6	
All-Red Time (s)	2.0			5.0	5.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.4			8.6	8.6	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effect Green (s)	27.6			54.4	54.4	96.0
Actuated g/C Ratio	0.29			0.57	0.57	1.00

Lanes, Volumes, Timings  
 3: Winchester Ave & Greenup Ave

12/07/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
v/c Ratio	0.45			0.14	0.16	0.13
Control Delay	29.9			10.0	10.2	0.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	29.9			10.0	10.2	0.1
LOS	C			B	B	A
Approach Delay	29.9			10.0	4.9	
Approach LOS	C			B	A	

Intersection Summary


















Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	50 (52%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	100
Control Type:	Pretimed
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	13.6
Intersection LOS:	B
Intersection Capacity Utilization	36.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	9	306	72	4	375	2	58	2	8	4	2	6
Future Volume (vph)	9	306	72	4	375	2	58	2	8	4	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.969			0.997				0.850		0.955	
Fl <sub>t</sub> Protected		0.999			0.999			0.955			0.976	
Satd. Flow (prot)	0	3309	0	0	3396	0	0	1797	1615	0	1345	0
Fl <sub>t</sub> Permitted		0.942			0.941			0.720			0.815	
Satd. Flow (perm)	0	3120	0	0	3199	0	0	1355	1615	0	1123	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			2				32		8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			476			361			347	
Travel Time (s)		8.8			10.8			8.2			7.9	
Peak Hour Factor	0.75	0.81	0.72	0.33	0.85	0.25	0.81	0.50	0.67	0.33	0.50	0.75
Heavy Vehicles (%)	0%	7%	1%	23%	5%	29%	1%	0%	0%	60%	0%	5%
Adj. Flow (vph)	12	378	100	12	441	8	72	4	12	12	4	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	490	0	0	461	0	0	76	12	0	24	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4		4	4		
Detector Phase	6	6		2	2		4	4	4	4	4	
Switch Phase												

Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

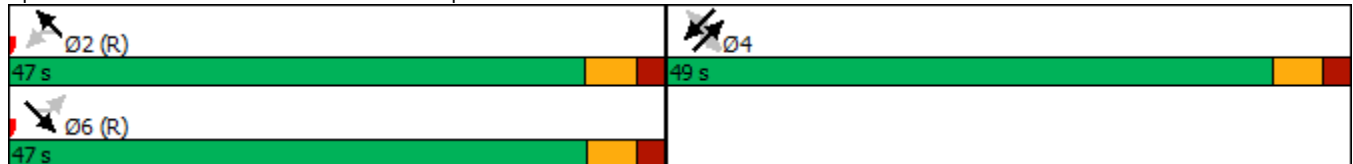


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)	41.3	41.3		41.2	41.2		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%	51.0%	51.0%	51.0%	
Maximum Green (s)	41.3	41.3		41.2	41.2		43.3	43.3	43.3	43.3	43.3	
Yellow Time (s)	3.5	3.5		3.6	3.6		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2	2.2	2.2	2.2	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.7			5.8			5.7	5.7		5.7	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)		77.3			77.2			11.6	11.6			11.6
Actuated g/C Ratio		0.81			0.80			0.12	0.12			0.12
v/c Ratio		0.19			0.18			0.47	0.05			0.17
Control Delay		3.0			3.3			48.4	3.6			30.5
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		3.0			3.3			48.4	3.6			30.5
LOS		A			A			D	A			C
Approach Delay		3.0			3.3			42.3				30.5
Approach LOS		A			A			D				C

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 63 (66%), Referenced to phase 2:NWTL and 6:SETL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 7.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 65.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 7: 29th Street & Greenup Ave



Lanes, Volumes, Timings  
 14: 18th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	203	2	5	241	4	3	6	3	2	4	1
Future Volume (vph)	4	203	2	5	241	4	3	6	3	2	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998			0.997			0.942			0.977	
Fl <sub>t</sub> Protected		0.998			0.998			0.993			0.984	
Satd. Flow (prot)	0	1875	0	0	1792	0	0	1777	0	0	1827	0
Fl <sub>t</sub> Permitted		0.998			0.998			0.993			0.984	
Satd. Flow (perm)	0	1875	0	0	1792	0	0	1777	0	0	1827	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			394			405			196	
Travel Time (s)		8.6			9.0			9.2			4.5	
Peak Hour Factor	0.33	0.69	0.50	0.31	0.65	0.50	0.75	0.50	0.25	0.25	0.33	0.25
Heavy Vehicles (%)	0%	1%	0%	20%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	294	4	16	371	8	4	12	12	8	12	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	310	0	0	395	0	0	28	0	0	24	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	25.5%
ICU Level of Service	A
Analysis Period (min)	15



HCM 6th Roundabout  
14: 18th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	5.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	310	395	28	24
Demand Flow Rate, veh/h	313	417	28	24
Vehicles Circulating, veh/h	39	28	317	413
Vehicles Exiting, veh/h	398	317	35	32
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.8	5.7	3.8	4.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	313	417	28	24
Cap Entry Lane, veh/h	1326	1341	999	906
Entry HV Adj Factor	0.991	0.948	1.000	1.000
Flow Entry, veh/h	310	395	28	24
Cap Entry, veh/h	1314	1272	999	906
V/C Ratio	0.236	0.311	0.028	0.027
Control Delay, s/veh	4.8	5.7	3.8	4.2
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

Lanes, Volumes, Timings  
 18: 17th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	2	193	27	5	235	5	8	15	11	4	12	11
Future Volume (vph)	2	193	27	5	235	5	8	15	11	4	12	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.996			0.955			0.940	
Flt Protected		0.999			0.998			0.987			0.989	
Satd. Flow (prot)	0	1807	0	0	1871	0	0	1770	0	0	1751	0
Flt Permitted		0.999			0.998			0.987			0.989	
Satd. Flow (perm)	0	1807	0	0	1871	0	0	1770	0	0	1751	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		398			378			396			394	
Travel Time (s)		9.0			8.6			9.0			9.0	
Peak Hour Factor	0.50	0.87	0.56	0.42	0.83	0.63	0.50	0.63	0.55	0.50	0.99	0.69
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	0%	3%	0%	0%	0%	2%
Adj. Flow (vph)	4	222	48	12	283	8	16	24	20	8	12	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	274	0	0	303	0	0	60	0	0	36	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	25.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th Roundabout  
18: 17th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	4.5			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	274	303	60	36
Demand Flow Rate, veh/h	280	306	61	36
Vehicles Circulating, veh/h	32	45	238	314
Vehicles Exiting, veh/h	318	254	74	37
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.5	4.7	3.8	3.9
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	280	306	61	36
Cap Entry Lane, veh/h	1336	1318	1082	1002
Entry HV Adj Factor	0.977	0.991	0.988	1.000
Flow Entry, veh/h	274	303	60	36
Cap Entry, veh/h	1305	1306	1070	1002
V/C Ratio	0.210	0.232	0.056	0.036
Control Delay, s/veh	4.5	4.7	3.8	3.9
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	514	9	19	375	2	11	1	7	6	2	5
Future Volume (vph)	5	514	9	19	375	2	11	1	7	6	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.997			0.999			0.949			0.942	
Flt Protected	0.950			0.950				0.976			0.979	
Satd. Flow (prot)	1805	3431	0	1770	3436	0	0	1725	0	0	1687	0
Flt Permitted	0.489			0.401				0.900			0.919	
Satd. Flow (perm)	929	3431	0	747	3436	0	0	1591	0	0	1584	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			12			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		394			188			394			336	
Travel Time (s)		9.0			4.3			9.0			7.6	
Peak Hour Factor	0.42	0.90	0.75	0.79	0.87	0.50	0.69	0.25	0.58	0.50	0.50	0.42
Heavy Vehicles (%)	0%	5%	0%	2%	5%	0%	4%	0%	0%	9%	0%	0%
Adj. Flow (vph)	12	571	12	24	431	4	16	4	12	12	4	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	583	0	24	435	0	0	32	0	0	28	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.4	23.4		23.4	23.4		24.1	24.1		24.1	24.1	
Total Split (s)	57.0	57.0		57.0	57.0		39.0	39.0		39.0	39.0	
Total Split (%)	59.4%	59.4%		59.4%	59.4%		40.6%	40.6%		40.6%	40.6%	
Maximum Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.4	5.4		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.34	0.34		0.34	0.34	
v/c Ratio	0.02	0.32		0.06	0.24		0.06	0.06		0.06	0.05	
Control Delay	6.6	9.8		11.2	12.1		15.6	15.6		15.6	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.6	9.8		11.2	12.1		15.6	15.6		15.6	15.0	
LOS	A	A		B	B		B	B		B	B	
Approach Delay		9.7			12.1			15.6			15.0	
Approach LOS		A			B			B			B	

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 4 (4%), Referenced to phase 2:EBWB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.32  
 Intersection Signal Delay: 11.0      Intersection LOS: B  
 Intersection Capacity Utilization 32.0%      ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 19: 17th Street & Greenup Ave



Lanes, Volumes, Timings  
 22: Winchester Ave & 16th Street

12/07/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↙	↘
Traffic Volume (vph)	9	220	247	7	2	7
Future Volume (vph)	9	220	247	7	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993			0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	1875	1852	0	1367	1599
Flt Permitted		0.996			0.950	
Satd. Flow (perm)	0	1875	1852	0	1367	1599
Link Speed (mph)		30	30		30	
Link Distance (ft)		386	398		394	
Travel Time (s)		8.8	9.0		9.0	
Peak Hour Factor	0.38	0.88	0.83	0.44	0.25	0.58
Heavy Vehicles (%)	0%	1%	2%	0%	32%	1%
Adj. Flow (vph)	24	250	298	16	8	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	274	314	0	8	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC  
22: Winchester Ave & 16th Street

12/07/2020

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	9	220	247	7	2	7
Future Vol, veh/h	9	220	247	7	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	38	88	83	44	25	58
Heavy Vehicles, %	0	1	2	0	32	1
Mvmt Flow	24	250	298	16	8	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	314	0	-	0	604 306
Stage 1	-	-	-	-	306 -
Stage 2	-	-	-	-	298 -
Critical Hdwy	4.1	-	-	-	6.72 6.21
Critical Hdwy Stg 1	-	-	-	-	5.72 -
Critical Hdwy Stg 2	-	-	-	-	5.72 -
Follow-up Hdwy	2.2	-	-	-	3.788 3.309
Pot Cap-1 Maneuver	1258	-	-	-	416 736
Stage 1	-	-	-	-	684 -
Stage 2	-	-	-	-	690 -
Platoon blocked, %	-	-	-	-	
Mov Cap-1 Maneuver	1258	-	-	-	407 736
Mov Cap-2 Maneuver	-	-	-	-	407 -
Stage 1	-	-	-	-	669 -
Stage 2	-	-	-	-	690 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1258	-	-	-	407	736
HCM Lane V/C Ratio	0.019	-	-	-	0.02	0.016
HCM Control Delay (s)	7.9	0	-	-	14	10
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1

Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	524	15	5	382	4	1	3	3	1	0	1
Future Volume (vph)	11	524	15	5	382	4	1	3	3	1	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.994			0.996				0.850		0.932	
Fl <sub>t</sub> Protected	0.950			0.950				0.988			0.976	
Satd. Flow (prot)	1805	3412	0	1752	3429	0	0	1877	1615	0	1728	0
Fl <sub>t</sub> Permitted	0.494			0.417				0.912			0.834	
Satd. Flow (perm)	939	3412	0	769	3429	0	0	1733	1615	0	1477	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4						33	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		396			394			394			359	
Travel Time (s)		9.0			9.0			9.0			8.2	
Peak Hour Factor	0.55	0.88	0.63	0.42	0.88	0.33	0.25	0.25	0.38	0.25	0.25	0.25
Heavy Vehicles (%)	0%	5%	9%	3%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	595	24	12	434	12	4	12	8	4	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	619	0	12	446	0	0	16	8	0	8	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	custom	Perm	NA	
Protected Phases		2			2			4	4		4	
Permitted Phases	2			2			4		2	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												



Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		24.1	24.1	24.1	24.1	24.1	
Total Split (s)	53.0	53.0		53.0	53.0		43.0	43.0	43.0	43.0	43.0	
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%	44.8%	44.8%	44.8%	
Maximum Green (s)	47.1	47.1		47.1	47.1		36.9	36.9	36.9	36.9	36.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Lost Time (s)	5.9	5.9		5.9	5.9			6.1	6.1			6.1
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)	84.0	84.0		84.0	84.0			8.0	96.0			8.0
Actuated g/C Ratio	0.88	0.88		0.88	0.88			0.08	1.00			0.08
v/c Ratio	0.02	0.21		0.02	0.15			0.11	0.00			0.05
Control Delay	1.7	1.5		2.2	1.6			42.8	0.0			0.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	1.7	1.5		2.2	1.6			42.8	0.0			0.5
LOS	A	A		A	A			D	A			A
Approach Delay		1.5			1.6			28.5				0.5
Approach LOS		A			A			C				A

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	0 (0%), Referenced to phase 2:WBEB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.21
Intersection Signal Delay:	2.1
Intersection LOS:	A
Intersection Capacity Utilization:	43.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 23: 16th Street & Greenup Ave



Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	210	25	3	245	6	7	18	15	4	22	16
Future Volume (vph)	34	210	25	3	245	6	7	18	15	4	22	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.995			0.960			0.947	
Flt Protected		0.992			0.999			0.988			0.994	
Satd. Flow (prot)	0	1775	0	0	1820	0	0	1661	0	0	1706	0
Flt Permitted		0.992			0.999			0.988			0.994	
Satd. Flow (perm)	0	1775	0	0	1820	0	0	1661	0	0	1706	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		371			386			399			396	
Travel Time (s)		8.4			8.8			9.1			9.0	
Peak Hour Factor	0.65	0.90	0.57	0.38	0.84	0.50	0.44	0.56	0.75	0.50	0.61	0.57
Heavy Vehicles (%)	8%	2%	12%	0%	4%	0%	14%	11%	0%	0%	5%	6%
Adj. Flow (vph)	52	233	44	8	292	12	16	32	20	8	36	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	0	312	0	0	68	0	0	72	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	41.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th Roundabout  
25: 15th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	5.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	329	312	68	72
Demand Flow Rate, veh/h	343	324	74	76
Vehicles Circulating, veh/h	54	110	302	330
Vehicles Exiting, veh/h	352	266	95	104
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.2	5.4	4.5	4.6
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	343	324	74	76
Cap Entry Lane, veh/h	1306	1233	1014	986
Entry HV Adj Factor	0.960	0.964	0.925	0.950
Flow Entry, veh/h	329	312	68	72
Cap Entry, veh/h	1254	1189	938	936
V/C Ratio	0.263	0.263	0.073	0.077
Control Delay, s/veh	5.2	5.4	4.5	4.6
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	530	18	8	360	16	4	9	14	6	6	7
Future Volume (vph)	17	530	18	8	360	16	4	9	14	6	6	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.992			0.990			0.938			0.959	
Flt Protected	0.950			0.950				0.989			0.980	
Satd. Flow (prot)	1703	3359	0	1597	3175	0	0	1592	0	0	1465	0
Flt Permitted	0.483			0.398				0.914			0.853	
Satd. Flow (perm)	866	3359	0	669	3175	0	0	1471	0	0	1275	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			10			17			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2266			396			396			410	
Travel Time (s)		51.5			9.0			9.0			9.3	
Peak Hour Factor	0.85	0.84	0.50	0.50	0.82	0.53	0.50	0.75	0.83	0.38	0.50	0.58
Heavy Vehicles (%)	6%	7%	0%	13%	13%	6%	0%	33%	0%	33%	0%	29%
Adj. Flow (vph)	20	631	36	16	439	30	8	12	17	16	12	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	667	0	16	469	0	0	37	0	0	40	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.5	23.5		23.5	23.5		24.1	24.1		24.1	24.1	
Total Split (s)	54.0	54.0		54.0	54.0		42.0	42.0		42.0	42.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	48.5	48.5		48.5	48.5		35.9	35.9		35.9	35.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	79.6	79.6		79.6	79.6		8.7	8.7		8.7	8.7	
Actuated g/C Ratio	0.83	0.83		0.83	0.83		0.09	0.09		0.09	0.09	
v/c Ratio	0.03	0.24		0.03	0.18		0.25	0.25		0.31	0.31	
Control Delay	2.5	2.6		1.5	1.5		30.1	30.1		37.8	37.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	2.5	2.6		1.5	1.5		30.1	30.1		37.8	37.8	
LOS	A	A		A	A		C	C		D	D	
Approach Delay		2.6			1.5		30.1	30.1			37.8	
Approach LOS		A			A		C	C			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 1 (1%), Referenced to phase 2:EBWB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.31  
 Intersection Signal Delay: 4.1  
 Intersection LOS: A  
 Intersection Capacity Utilization 31.6%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 26: 15th Street & Greenup Ave



Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	0	265	20	2	266	0	0	0	0	4	11	83
Future Volume (vph)	0	265	20	2	266	0	0	0	0	4	11	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.988										0.894
Fl <sub>t</sub> Protected					0.999							0.997
Satd. Flow (prot)	0	1843	0	0	1898	0	0	0	0	0	1655	0
Fl <sub>t</sub> Permitted					0.999							0.997
Satd. Flow (perm)	0	1843	0	0	1898	0	0	0	0	0	1655	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		385			371			411			199	
Travel Time (s)		8.8			8.4			9.3			4.5	
Peak Hour Factor	0.92	0.89	0.71	0.25	0.76	0.92	0.92	0.92	0.92	0.50	0.55	0.80
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	2%	2%	2%	7%	2%	2%
Adj. Flow (vph)	0	298	28	8	350	0	0	0	0	8	20	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	326	0	0	358	0	0	0	0	0	132	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	28.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th Roundabout  
29: 14th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	326	358	0	132
Demand Flow Rate, veh/h	332	358	0	135
Vehicles Circulating, veh/h	37	0	313	358
Vehicles Exiting, veh/h	456	313	56	0
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.9	4.8	0.0	5.2
Approach LOS	A	A	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	332	358	135	
Cap Entry Lane, veh/h	1329	1380	958	
Entry HV Adj Factor	0.982	1.000	0.975	
Flow Entry, veh/h	326	358	132	
Cap Entry, veh/h	1305	1380	934	
V/C Ratio	0.250	0.259	0.141	
Control Delay, s/veh	4.9	4.8	5.2	
LOS	A	A	A	
95th %tile Queue, veh	1	1	0	

Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

12/07/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	209	0	0	209	140	117	381	76	0	0	22
Future Volume (vph)	201	209	0	0	209	140	117	381	76	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	1		0	0		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt						0.850		0.967				0.865
Flt Protected	0.950	0.985					0.950					
Satd. Flow (prot)	1507	3249	0	0	1900	1524	1787	4902	0	0	0	1393
Flt Permitted	0.950	0.985					0.950					
Satd. Flow (perm)	1507	3249	0	0	1900	1524	1787	4902	0	0	0	1393
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						173		67				421
Link Speed (mph)		30			30			30				30
Link Distance (ft)		373			385			393				292
Travel Time (s)		8.5			8.8			8.9				6.6
Peak Hour Factor	0.81	0.95	0.92	0.25	0.72	0.81	0.70	0.95	0.66	0.25	0.31	0.69
Heavy Vehicles (%)	9%	3%	0%	0%	0%	6%	1%	3%	0%	0%	0%	18%
Adj. Flow (vph)	248	220	0	0	290	173	167	401	115	0	0	32
Shared Lane Traffic (%)	39%											
Lane Group Flow (vph)	151	317	0	0	290	173	167	516	0	0	0	32
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)		12			12			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1	2				1
Detector Template	Left	Thru			Thru	Right	Left	Thru				Right
Leading Detector (ft)	20	100			100	20	20	100				20
Trailing Detector (ft)	0	0			0	0	0	0				0
Detector 1 Position(ft)	0	0			0	0	0	0				0
Detector 1 Size(ft)	20	6			6	20	20	6				20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Split	NA			NA	Perm	Perm	NA				Perm
Protected Phases	3	3			2			4				



Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						2	4					3
Detector Phase	3	3			2	2	4	4				3
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0				8.0
Minimum Split (s)	23.5	23.5			23.5	23.5	23.5	23.5				23.5
Total Split (s)	30.0	30.0			42.0	42.0	34.0	34.0				30.0
Total Split (%)	28.3%	28.3%			39.6%	39.6%	32.1%	32.1%				28.3%
Maximum Green (s)	24.5	24.5			36.5	36.5	28.5	28.5				24.5
Yellow Time (s)	3.6	3.6			3.6	3.6	3.5	3.5				3.6
All-Red Time (s)	1.9	1.9			1.9	1.9	2.0	2.0				1.9
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)	5.5	5.5			5.5	5.5	5.5	5.5				5.5
Lead/Lag	Lead	Lead					Lag	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
Recall Mode	None	None			C-Max	C-Max	None	None				None
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				7.0
Flash Dont Walk (s)	11.0	11.0			11.0	11.0	11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0				0
Act Effct Green (s)	17.0	17.0			55.0	55.0	17.5	17.5				17.0
Actuated g/C Ratio	0.16	0.16			0.52	0.52	0.17	0.17				0.16
v/c Ratio	0.62	0.61			0.29	0.20	0.57	0.60				0.06
Control Delay	54.3	49.0			17.8	3.6	47.5	37.8				0.2
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Total Delay	54.3	49.0			17.8	3.6	47.5	37.8				0.2
LOS	D	D			B	A	D	D				A
Approach Delay		50.7			12.5			40.2				0.2
Approach LOS		D			B			D				A

Intersection Summary

Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 58 (55%), Referenced to phase 2:WBT and 6:, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.62  
 Intersection Signal Delay: 34.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 41.6%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 32: 13th Street & Winchester Ave



Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑						↔↑	↔
Traffic Volume (vph)	0	218	228	124	224	0	0	0	0	192	494	304
Future Volume (vph)	0	218	228	124	224	0	0	0	0	192	494	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.921										0.850
Flt Protected				0.950							0.978	
Satd. Flow (prot)	0	4552	0	1752	3438	0	0	0	0	0	3477	1455
Flt Permitted				0.950							0.978	
Satd. Flow (perm)	0	4552	0	1752	3438	0	0	0	0	0	3477	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		144										197
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			373			198			355	
Travel Time (s)		8.6			8.5			4.5			8.1	
Peak Hour Factor	0.25	0.98	0.92	0.72	0.89	0.25	0.92	0.92	0.92	0.43	0.92	0.77
Heavy Vehicles (%)	0%	6%	4%	3%	5%	100%	2%	2%	2%	1%	2%	11%
Adj. Flow (vph)	0	222	248	172	252	0	0	0	0	447	537	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	470	0	172	252	0	0	0	0	0	984	395
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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	

Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

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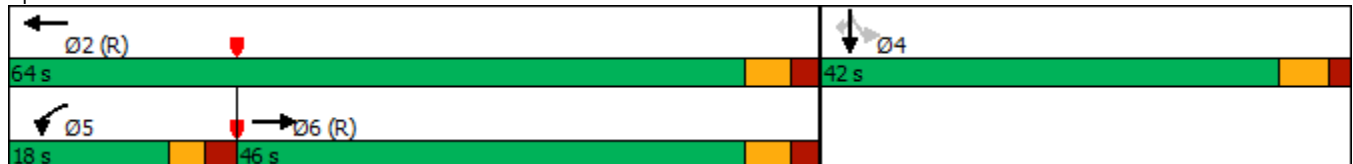


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases										4		4
Detector Phase		6		5	2					4	4	4
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		24.0		13.4	24.0					23.8	23.8	23.8
Total Split (s)		46.0		18.0	64.0					42.0	42.0	42.0
Total Split (%)		43.4%		17.0%	60.4%					39.6%	39.6%	39.6%
Maximum Green (s)		40.0		12.6	58.0					36.2	36.2	36.2
Yellow Time (s)		3.6		2.9	3.6					3.9	3.9	3.9
All-Red Time (s)		2.4		2.5	2.4					1.9	1.9	1.9
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0						5.8	5.8
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)		7.0			7.0					7.0	7.0	7.0
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)		41.2		12.3	58.9						35.3	35.3
Actuated g/C Ratio		0.39		0.12	0.56						0.33	0.33
v/c Ratio		0.25		0.85	0.13						0.85	0.64
Control Delay		12.0		69.9	20.0						41.1	19.7
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		12.0		69.9	20.0						41.1	19.7
LOS		B		E	B						D	B
Approach Delay		12.0			40.2						35.0	
Approach LOS		B			D						C	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	31.2
Intersection LOS:	C
Intersection Capacity Utilization:	49.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 35: 12th Street & Winchester Ave



Lanes, Volumes, Timings  
38: 11th Street & Winchester Ave

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				
Traffic Volume (vph)	8	437	3	13	307	208	2	4	9	0	0	0
Future Volume (vph)	8	437	3	13	307	208	2	4	9	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.947			0.923				
Flt Protected		0.999			0.998			0.993				
Satd. Flow (prot)	0	3516	0	0	3345	0	0	1741	0	0	0	0
Flt Permitted		0.999			0.998			0.993				
Satd. Flow (perm)	0	3516	0	0	3345	0	0	1741	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		383			377			400				200
Travel Time (s)		8.7			8.6			9.1				4.5
Peak Hour Factor	0.67	0.89	0.25	0.46	0.72	0.85	0.50	0.50	0.56	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	9%	0%	1%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	491	12	28	426	245	4	8	16	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	515	0	0	699	0	0	28	0	0	0	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC  
38: 11th Street & Winchester Ave

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Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	8	437	3	13	307	208	2	4	9	0	0	0
Future Vol, veh/h	8	437	3	13	307	208	2	4	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	89	25	46	72	85	50	50	56	92	92	92
Heavy Vehicles, %	6	2	9	0	1	4	0	0	0	0	0	0
Mvmt Flow	12	491	12	28	426	245	4	8	16	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	671	0	0	503	0	0	790	1248	252
Stage 1	-	-	-	-	-	-	521	521	-
Stage 2	-	-	-	-	-	-	269	727	-
Critical Hdwy	4.22	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	2.26	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	889	-	-	1072	-	-	331	175	754
Stage 1	-	-	-	-	-	-	566	535	-
Stage 2	-	-	-	-	-	-	758	432	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	889	-	-	1072	-	-	310	0	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	310	0	-
Stage 1	-	-	-	-	-	-	555	0	-
Stage 2	-	-	-	-	-	-	725	0	-

Approach	EB			WB			NB		
HCM Control Delay, s	0.3			0.5			11.4		
HCM LOS							B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	587	889	-	-	1072	-	-
HCM Lane V/C Ratio	0.048	0.013	-	-	0.026	-	-
HCM Control Delay (s)	11.4	9.1	0.1	-	8.4	0.2	-
HCM Lane LOS	B	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	416	4	3	306	0	6	0	5	27	15	1
Future Volume (vph)	0	416	4	3	306	0	6	0	5	27	15	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.997						0.910			0.990	
Fl <sub>t</sub> Protected					0.999			0.984			0.972	
Satd. Flow (prot)	0	3564	0	0	3571	0	0	1701	0	0	1568	0
Fl <sub>t</sub> Permitted					0.952			0.900			0.810	
Satd. Flow (perm)	0	3564	0	0	3403	0	0	1556	0	0	1307	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						21			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			383			411			247	
Travel Time (s)		8.6			8.7			9.3			5.6	
Peak Hour Factor	0.25	0.94	0.50	0.75	0.92	0.25	0.75	0.25	0.31	0.84	0.75	0.25
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	29%	0%	0%
Adj. Flow (vph)	0	443	8	4	333	0	8	0	16	32	20	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	337	0	0	24	0	0	56	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2		1	2	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		100		20	100		20	100		20	100	
Trailing Detector (ft)		0		0	0		0	0		0	0	
Detector 1 Position(ft)		0		0	0		0	0		0	0	
Detector 1 Size(ft)		6		20	6		20	6		20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94		94	94		94	94		94	94	
Detector 2 Size(ft)		6		6	6		6	6		6	6	
Detector 2 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6		2	2		4	4		4	4	
Permitted Phases				2	2		4	4		4	4	
Detector Phase		6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)		23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)		74.0		74.0	74.0		32.0	32.0		32.0	32.0	
Total Split (%)		69.8%		69.8%	69.8%		30.2%	30.2%		30.2%	30.2%	
Maximum Green (s)		69.0		69.0	69.0		26.5	26.5		26.5	26.5	
Yellow Time (s)		3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)		1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode		None		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		85.6		85.6	85.6		15.0	15.0		15.0	15.0	
Actuated g/C Ratio		0.81		0.81	0.81		0.14	0.14		0.14	0.14	
v/c Ratio		0.16		0.12	0.12		0.10	0.10		0.30	0.30	
Control Delay		2.8		4.4	4.4		19.1	19.1		43.9	43.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		2.8		4.4	4.4		19.1	19.1		43.9	43.9	
LOS		A		A	A		B	B		D	D	
Approach Delay		2.8		4.4	4.4		19.1	19.1		43.9	43.9	
Approach LOS		A		A	A		B	B		D	D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	6.5
Intersection LOS:	A
Intersection Capacity Utilization:	32.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 42: 10th Street & Winchester Ave



Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	29	399	15	10	290	13	31	28	16	5	22	6
Future Volume (vph)	29	399	15	10	290	13	31	28	16	5	22	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Flt		0.993			0.992			0.960			0.979	
Flt Protected		0.995			0.997			0.984			0.989	
Satd. Flow (prot)	0	3400	0	0	3441	0	0	1763	0	0	1840	0
Flt Permitted		0.854			0.893			0.875			0.927	
Satd. Flow (perm)	0	2918	0	0	3082	0	0	1568	0	0	1724	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			10			19			8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			378			425			203	
Travel Time (s)		8.6			8.6			9.7			4.6	
Peak Hour Factor	0.52	0.87	0.63	0.31	0.70	0.54	0.86	0.70	0.50	0.42	0.69	0.75
Heavy Vehicles (%)	0%	3%	53%	0%	2%	39%	0%	0%	6%	0%	0%	0%
Adj. Flow (vph)	56	459	24	32	414	24	36	40	32	12	32	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	539	0	0	470	0	0	108	0	0	52	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	6	6		2	2		4	4		4	4	
Switch Phase												



Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)	73.0	73.0		73.0	73.0		33.0	33.0		33.0	33.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	68.0	68.0		68.0	68.0		27.5	27.5		27.5	27.5	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		80.2			80.2			15.3			15.3	
Actuated g/C Ratio		0.76			0.76			0.14			0.14	
v/c Ratio		0.24			0.20			0.45			0.20	
Control Delay		4.1			3.2			40.4			37.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.1			3.2			40.4			37.1	
LOS		A			A			D			D	
Approach Delay		4.1			3.2			40.4			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

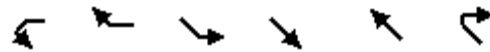
Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	8.6
Intersection LOS:	A
Intersection Capacity Utilization:	46.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 45: 9th Street & Winchester Ave



Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

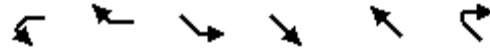
12/07/2020



Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations		↑↑	↑↑	↑↑	↑↑	
Traffic Volume (vph)	0	344	357	443	324	0
Future Volume (vph)	0	344	357	443	324	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	1.00
Fr't		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	0	2608	3433	3471	3438	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	2608	3433	3471	3438	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		772				
Link Speed (mph)	30			30	30	
Link Distance (ft)	768			487	269	
Travel Time (s)	17.5			11.1	6.1	
Peak Hour Factor	0.92	0.84	0.91	0.86	0.83	0.92
Heavy Vehicles (%)	2%	9%	2%	4%	5%	2%
Adj. Flow (vph)	0	410	392	515	390	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	410	392	515	390	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors		2	2	1	1	
Detector Template		Thru	Thru	Right	Left	
Leading Detector (ft)		100	100	20	20	
Trailing Detector (ft)		0	0	0	0	
Detector 1 Position(ft)		0	0	0	0	
Detector 1 Size(ft)		6	6	20	20	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		Over	Prot	NA	NA	
Protected Phases		1	1	2	2	
Permitted Phases				1		
Detector Phase		1	1	2	2	
Switch Phase						

Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

12/07/2020

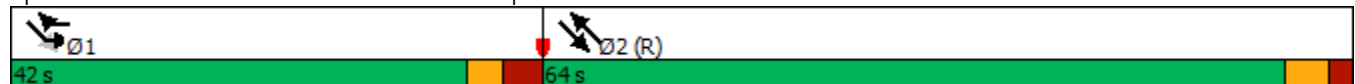


Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Minimum Initial (s)		15.0	15.0	20.0	20.0	
Minimum Split (s)		24.1	24.1	25.5	25.5	
Total Split (s)		42.0	42.0	64.0	64.0	
Total Split (%)		39.6%	39.6%	60.4%	60.4%	
Maximum Green (s)		35.9	35.9	58.5	58.5	
Yellow Time (s)		2.9	2.9	3.5	3.5	
All-Red Time (s)		3.2	3.2	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.1	6.1	5.5	5.5	
Lead/Lag		Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Recall Mode		None	None	C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effect Green (s)		20.5	20.5	106.0	73.9	
Actuated g/C Ratio		0.19	0.19	1.00	0.70	
v/c Ratio		0.36	0.59	0.15	0.16	
Control Delay		0.9	42.2	0.1	9.7	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		0.9	42.2	0.1	9.7	
LOS		A	D	A	A	
Approach Delay	0.9			18.3	9.7	
Approach LOS	A			B	A	

Intersection Summary

















Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 35 (33%), Referenced to phase 2:NWSE, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 12.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 38.8%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 48: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
49: 8th Street & Winchester Ave

12/07/2020

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	1	0	4	0	0	0	0	439	4	3	323	1
Future Volume (vph)	1	0	4	0	0	0	0	439	4	3	323	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Flt		0.892						0.997			0.999	
Flt Protected		0.990										
Satd. Flow (prot)	0	1639	0	0	1900	0	0	3525	0	0	3537	0
Flt Permitted		0.990										
Satd. Flow (perm)	0	1639	0	0	1900	0	0	3525	0	0	3537	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		376			140			269			377	
Travel Time (s)		8.5			3.2			6.1			8.6	
Peak Hour Factor	0.25	0.92	0.25	0.92	0.92	0.92	0.92	0.94	0.50	0.75	0.79	0.25
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	2%	8%	0%	2%	0%
Adj. Flow (vph)	4	0	16	0	0	0	0	467	8	4	409	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	0	0	0	475	0	0	417	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.3%						ICU Level of Service A					
Analysis Period (min)	15											

HCM 6th TWSC  
49: 8th Street & Winchester Ave

12/07/2020

Intersection												
Int Delay, s/veh	0.3											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	4	0	0	0	0	439	4	3	323	1
Future Vol, veh/h	1	0	4	0	0	0	0	439	4	3	323	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	25	92	92	92	92	94	50	75	79	25
Heavy Vehicles, %	0	0	3	0	0	0	0	2	8	0	2	0
Mvmt Flow	4	0	16	0	0	0	0	467	8	4	409	4

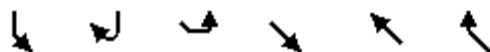
Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	684	892	238	653	894	207	413	0	0	475	0	0
Stage 1	471	471	-	419	419	-	-	-	-	-	-	-
Stage 2	213	421	-	234	475	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.96	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	339	283	760	356	283	805	1157	-	-	1098	-	-
Stage 1	548	563	-	588	593	-	-	-	-	-	-	-
Stage 2	775	592	-	754	561	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	338	282	760	347	282	805	1157	-	-	1098	-	-
Mov Cap-2 Maneuver	338	282	-	347	282	-	-	-	-	-	-	-
Stage 1	548	563	-	588	590	-	-	-	-	-	-	-
Stage 2	771	589	-	738	561	-	-	-	-	-	-	-

Approach	NB	SB	SE	NW
HCM Control Delay, s	11.1	0	0	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	608	1098	-	-	1157	-	-	-
HCM Lane V/C Ratio	0.033	0.004	-	-	-	-	-	-
HCM Control Delay (s)	11.1	8.3	0	-	0	-	-	0
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

### Lanes, Volumes, Timings 3: Winchester Ave & Greenup Ave

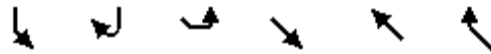
12/07/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	382	0	0	384	269	521
Future Volume (vph)	382	0	0	384	269	521
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			145
Storage Lanes	2	0	0			2
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	0.88
Frt						0.850
Flt Protected	0.950					
Satd. Flow (prot)	3335	0	0	3539	3574	2760
Flt Permitted	0.950					
Satd. Flow (perm)	3335	0	0	3539	3574	2760
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						579
Link Speed (mph)	30			30	30	
Link Distance (ft)	1088			775	945	
Travel Time (s)	24.7			17.6	21.5	
Peak Hour Factor	0.81	0.92	0.92	0.93	0.96	0.90
Heavy Vehicles (%)	5%	2%	2%	2%	1%	3%
Adj. Flow (vph)	472	0	0	413	280	579
Shared Lane Traffic (%)						
Lane Group Flow (vph)	472	0	0	413	280	579
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot			NA	NA	Free
Protected Phases	4			2	2	
Permitted Phases	4					Free
Minimum Split (s)	33.0			63.0	63.0	
Total Split (s)	33.0			63.0	63.0	
Total Split (%)	34.4%			65.6%	65.6%	
Maximum Green (s)	27.6			54.4	54.4	
Yellow Time (s)	3.4			3.6	3.6	
All-Red Time (s)	2.0			5.0	5.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.4			8.6	8.6	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effect Green (s)	27.6			54.4	54.4	96.0
Actuated g/C Ratio	0.29			0.57	0.57	1.00

Lanes, Volumes, Timings  
 3: Winchester Ave & Greenup Ave

12/07/2020



Lane Group	SBL	SBR	SEL	SET	NWT	NWR
v/c Ratio	0.49			0.21	0.14	0.21
Control Delay	30.5			10.5	10.0	0.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	30.5			10.5	10.0	0.2
LOS	C			B	B	A
Approach Delay	30.5			10.5	3.4	
Approach LOS	C			B	A	

Intersection Summary


















Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	50 (52%), Referenced to phase 2:NWSE, Start of Green
Natural Cycle:	100
Control Type:	Pretimed
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	12.4
Intersection LOS:	B
Intersection Capacity Utilization	36.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	404	99	8	630	1	73	1	8	1	3	5
Future Volume (vph)	3	404	99	8	630	1	73	1	8	1	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr't		0.970			0.999				0.850		0.904	
Flt Protected		0.999			0.999			0.954			0.993	
Satd. Flow (prot)	0	3310	0	0	3419	0	0	1795	1615	0	1521	0
Flt Permitted		0.944			0.946			0.715			0.949	
Satd. Flow (perm)	0	3128	0	0	3238	0	0	1346	1615	0	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			1				32		20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			476			361			347	
Travel Time (s)		8.8			10.8			8.2			7.9	
Peak Hour Factor	0.38	0.90	0.85	0.67	0.75	0.25	0.87	0.25	0.67	0.25	0.75	0.25
Heavy Vehicles (%)	0%	7%	1%	23%	5%	29%	1%	0%	0%	60%	0%	5%
Adj. Flow (vph)	8	449	116	12	840	4	84	4	12	4	4	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	573	0	0	856	0	0	88	12	0	28	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			4	
Permitted Phases	6			2			4		4	4		
Detector Phase	6	6		2	2		4	4	4	4	4	
Switch Phase												



Lanes, Volumes, Timings  
7: 29th Street & Greenup Ave

12/07/2020

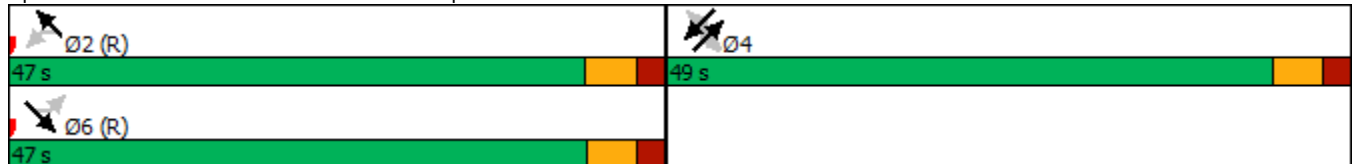


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)	41.3	41.3		41.2	41.2		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (s)	47.0	47.0		47.0	47.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%	51.0%	51.0%	51.0%	
Maximum Green (s)	41.3	41.3		41.2	41.2		43.3	43.3	43.3	43.3	43.3	
Yellow Time (s)	3.5	3.5		3.6	3.6		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2	2.2	2.2	2.2	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.7			5.8			5.7	5.7		5.7	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)		76.6			76.5			12.3	12.3			12.3
Actuated g/C Ratio		0.80			0.80			0.13	0.13			0.13
v/c Ratio		0.23			0.33			0.51	0.05			0.14
Control Delay		3.5			4.2			49.1	3.5			20.2
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		3.5			4.2			49.1	3.5			20.2
LOS		A			A			D	A			C
Approach Delay		3.5			4.2			43.7				20.2
Approach LOS		A			A			D				C

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 63 (66%), Referenced to phase 2:NWTL and 6:SETL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 6.8  
 Intersection LOS: A  
 Intersection Capacity Utilization 65.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 7: 29th Street & Greenup Ave



Lanes, Volumes, Timings  
 14: 18th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	238	6	7	431	22	6	4	3	5	10	8
Future Volume (vph)	4	238	6	7	431	22	6	4	3	5	10	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.989			0.970			0.963	
Flt Protected		0.999			0.999			0.973			0.987	
Satd. Flow (prot)	0	1869	0	0	1863	0	0	1793	0	0	1806	0
Flt Permitted		0.999			0.999			0.973			0.987	
Satd. Flow (perm)	0	1869	0	0	1863	0	0	1793	0	0	1806	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			394			405			196	
Travel Time (s)		8.6			9.0			9.2			4.5	
Peak Hour Factor	0.50	0.89	0.50	0.44	0.81	0.46	0.30	0.50	0.38	0.42	0.50	0.67
Heavy Vehicles (%)	0%	1%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	8	267	12	16	532	48	20	8	8	12	20	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	287	0	0	596	0	0	36	0	0	44	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	37.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th Roundabout  
14: 18th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	6.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	287	596	36	44
Demand Flow Rate, veh/h	290	601	36	44
Vehicles Circulating, veh/h	53	36	290	573
Vehicles Exiting, veh/h	564	290	53	64
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.7	7.2	3.8	5.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	290	601	36	44
Cap Entry Lane, veh/h	1307	1330	1027	769
Entry HV Adj Factor	0.991	0.992	1.000	1.000
Flow Entry, veh/h	287	596	36	44
Cap Entry, veh/h	1295	1319	1027	769
V/C Ratio	0.222	0.452	0.035	0.057
Control Delay, s/veh	4.7	7.2	3.8	5.3
LOS	A	A	A	A
95th %tile Queue, veh	1	2	0	0

Lanes, Volumes, Timings  
18: 17th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	3	224	41	2	425	18	21	21	19	5	19	26
Future Volume (vph)	3	224	41	2	425	18	21	21	19	5	19	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.977			0.991			0.959			0.942	
Fl <sub>t</sub> Protected		0.999			0.999			0.985			0.995	
Satd. Flow (prot)	0	1810	0	0	1864	0	0	1773	0	0	1766	0
Fl <sub>t</sub> Permitted		0.999			0.999			0.985			0.995	
Satd. Flow (perm)	0	1810	0	0	1864	0	0	1773	0	0	1766	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		398			378			396			394	
Travel Time (s)		9.0			8.6			9.0			9.0	
Peak Hour Factor	0.38	0.85	0.73	0.25	0.95	0.56	0.88	0.66	0.79	0.63	0.48	0.72
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	0%	3%	0%	0%	0%	2%
Adj. Flow (vph)	8	264	56	8	447	32	24	32	24	8	40	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	0	487	0	0	80	0	0	84	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	39.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th Roundabout  
18: 17th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	5.7			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	328	487	80	84
Demand Flow Rate, veh/h	336	491	81	85
Vehicles Circulating, veh/h	56	65	285	483
Vehicles Exiting, veh/h	512	301	107	73
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.1	6.4	4.2	5.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	336	491	81	85
Cap Entry Lane, veh/h	1303	1291	1032	843
Entry HV Adj Factor	0.975	0.991	0.988	0.988
Flow Entry, veh/h	328	487	80	84
Cap Entry, veh/h	1271	1280	1020	833
V/C Ratio	0.258	0.380	0.079	0.101
Control Delay, s/veh	5.1	6.4	4.2	5.3
LOS	A	A	A	A
95th %tile Queue, veh	1	2	0	0

Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	588	15	12	827	5	31	1	14	9	10	7
Future Volume (vph)	4	588	15	12	827	5	31	1	14	9	10	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.995			0.999			0.955			0.959	
Fl <sub>t</sub> Protected	0.950			0.950				0.971			0.985	
Satd. Flow (prot)	1805	3426	0	1770	3436	0	0	1721	0	0	1748	0
Fl <sub>t</sub> Permitted	0.187			0.337				0.844			0.935	
Satd. Flow (perm)	355	3426	0	628	3436	0	0	1496	0	0	1659	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			1			20			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		394			188			394			336	
Travel Time (s)		9.0			4.3			9.0			7.6	
Peak Hour Factor	0.50	0.86	0.63	0.60	0.77	0.63	0.86	0.25	0.70	0.75	0.63	0.58
Heavy Vehicles (%)	0%	5%	0%	2%	5%	0%	4%	0%	0%	9%	0%	0%
Adj. Flow (vph)	8	684	24	20	1074	8	36	4	20	12	16	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	708	0	20	1082	0	0	60	0	0	40	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
19: 17th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.4	23.4		23.4	23.4		24.1	24.1		24.1	24.1	
Total Split (s)	57.0	57.0		57.0	57.0		39.0	39.0		39.0	39.0	
Total Split (%)	59.4%	59.4%		59.4%	59.4%		40.6%	40.6%		40.6%	40.6%	
Maximum Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.4	5.4		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	51.6	51.6		51.6	51.6		32.9	32.9		32.9	32.9	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.34	0.34		0.34	0.34	
v/c Ratio	0.04	0.38		0.06	0.59		0.11	0.11		0.07	0.07	
Control Delay	7.0	10.4		11.3	16.6		16.5	16.5		16.8	16.8	
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.0	10.6		11.3	16.6		16.5	16.5		16.8	16.8	
LOS	A	B		B	B		B	B		B	B	
Approach Delay		10.5			16.5		16.5	16.5			16.8	
Approach LOS		B			B		B	B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	96
Offset:	4 (4%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	14.3
Intersection LOS:	B
Intersection Capacity Utilization:	39.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 19: 17th Street & Greenup Ave



Lanes, Volumes, Timings  
 22: Winchester Ave & 16th Street

12/07/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	251	455	17	17	58
Future Volume (vph)	17	251	455	17	17	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994			0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	1875	1853	0	1367	1599
Flt Permitted		0.996			0.950	
Satd. Flow (perm)	0	1875	1853	0	1367	1599
Link Speed (mph)		30	30		30	
Link Distance (ft)		386	398		394	
Travel Time (s)		8.8	9.0		9.0	
Peak Hour Factor	0.71	0.88	0.90	0.71	0.85	0.76
Heavy Vehicles (%)	0%	1%	2%	0%	32%	1%
Adj. Flow (vph)	24	285	506	24	20	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	309	530	0	20	76
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.2%
ICU Level of Service	A
Analysis Period (min)	15



HCM 6th TWSC  
22: Winchester Ave & 16th Street

12/07/2020

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	17	251	455	17	17	58
Future Vol, veh/h	17	251	455	17	17	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	71	88	90	71	85	76
Heavy Vehicles, %	0	1	2	0	32	1
Mvmt Flow	24	285	506	24	20	76

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	530	0	-	0	851 518
Stage 1	-	-	-	-	518 -
Stage 2	-	-	-	-	333 -
Critical Hdwy	4.1	-	-	-	6.72 6.21
Critical Hdwy Stg 1	-	-	-	-	5.72 -
Critical Hdwy Stg 2	-	-	-	-	5.72 -
Follow-up Hdwy	2.2	-	-	-	3.788 3.309
Pot Cap-1 Maneuver	1048	-	-	-	294 560
Stage 1	-	-	-	-	541 -
Stage 2	-	-	-	-	664 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1048	-	-	-	286 560
Mov Cap-2 Maneuver	-	-	-	-	286 -
Stage 1	-	-	-	-	526 -
Stage 2	-	-	-	-	664 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1048	-	-	-	286	560
HCM Lane V/C Ratio	0.023	-	-	-	0.07	0.136
HCM Control Delay (s)	8.5	0	-	-	18.5	12.4
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.5

Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	582	32	12	845	8	20	3	13	12	4	8
Future Volume (vph)	8	582	32	12	845	8	20	3	13	12	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.990			0.998				0.850		0.964	
Flt Protected	0.950			0.950				0.962			0.979	
Satd. Flow (prot)	1805	3395	0	1752	3433	0	0	1828	1615	0	1793	0
Flt Permitted	0.277			0.376				0.741			0.840	
Satd. Flow (perm)	526	3395	0	694	3433	0	0	1408	1615	0	1539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2							11
Link Speed (mph)		30			30			30				30
Link Distance (ft)		396			394			394				359
Travel Time (s)		9.0			9.0			9.0				8.2
Peak Hour Factor	0.40	0.86	0.67	0.50	0.85	0.67	0.63	0.38	0.81	0.67	0.33	0.75
Heavy Vehicles (%)	0%	5%	9%	3%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	677	48	24	994	12	32	8	16	18	12	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	725	0	24	1006	0	0	40	16	0	41	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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	custom	Perm		NA
Protected Phases		2			2			4	4			4
Permitted Phases	2			2			4		2	4		
Detector Phase	2	2		2	2		4	4	4	4		4
Switch Phase												

Lanes, Volumes, Timings  
23: 16th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		24.1	24.1	24.1	24.1	24.1	
Total Split (s)	53.0	53.0		53.0	53.0		43.0	43.0	43.0	43.0	43.0	
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%	44.8%	44.8%	44.8%	
Maximum Green (s)	47.1	47.1		47.1	47.1		36.9	36.9	36.9	36.9	36.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1			6.1	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
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 Effect Green (s)	79.2	79.2		79.2	79.2			8.8	96.0		8.8	
Actuated g/C Ratio	0.82	0.82		0.82	0.82			0.09	1.00		0.09	
v/c Ratio	0.05	0.26		0.04	0.36			0.31	0.01		0.27	
Control Delay	2.2	2.1		2.5	2.6			47.0	0.0		36.5	
Queue Delay	0.0	0.1		0.0	0.1			0.0	0.0		0.0	
Total Delay	2.2	2.2		2.5	2.7			47.0	0.0		36.5	
LOS	A	A		A	A			D	A		D	
Approach Delay		2.2			2.7			33.6			36.5	
Approach LOS		A			A			C			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.36  
 Intersection Signal Delay: 4.2  
 Intersection LOS: A  
 Intersection Capacity Utilization 45.5%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 23: 16th Street & Greenup Ave



Lanes, Volumes, Timings  
25: 15th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	31	243	17	20	474	19	29	29	21	4	18	25
Future Volume (vph)	31	243	17	20	474	19	29	29	21	4	18	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.996			0.965			0.940	
Flt Protected		0.995			0.998			0.982			0.994	
Satd. Flow (prot)	0	1823	0	0	1869	0	0	1761	0	0	1729	0
Flt Permitted		0.995			0.998			0.982			0.994	
Satd. Flow (perm)	0	1823	0	0	1869	0	0	1761	0	0	1729	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		371			386			399			396	
Travel Time (s)		8.4			8.8			9.1			9.0	
Peak Hour Factor	0.71	0.64	0.61	0.63	0.76	1.00	0.56	0.56	0.58	0.50	0.56	0.78
Heavy Vehicles (%)	0%	3%	6%	0%	1%	5%	3%	3%	0%	0%	6%	0%
Adj. Flow (vph)	44	380	28	32	624	19	52	52	36	8	32	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	452	0	0	675	0	0	140	0	0	72	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	47.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th Roundabout  
25: 15th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	8.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	452	675	140	72
Demand Flow Rate, veh/h	465	682	144	74
Vehicles Circulating, veh/h	74	152	443	716
Vehicles Exiting, veh/h	716	435	96	118
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.4	10.1	5.8	6.8
Approach LOS	A	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	465	682	144	74
Cap Entry Lane, veh/h	1280	1182	878	665
Entry HV Adj Factor	0.971	0.989	0.975	0.974
Flow Entry, veh/h	452	675	140	72
Cap Entry, veh/h	1243	1169	856	648
V/C Ratio	0.363	0.577	0.164	0.111
Control Delay, s/veh	6.4	10.1	5.8	6.8
LOS	A	B	A	A
95th %tile Queue, veh	2	4	1	0

Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	574	5	15	849	9	27	9	35	13	12	15
Future Volume (vph)	12	574	5	15	849	9	27	9	35	13	12	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr't		0.997			0.998			0.937				0.950
Flt Protected	0.950			0.950				0.980				0.982
Satd. Flow (prot)	1444	3496	0	1805	3533	0	0	1603	0	0	1525	0
Flt Permitted	0.283			0.386				0.871				0.815
Satd. Flow (perm)	430	3496	0	733	3533	0	0	1424	0	0	1266	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2			52				28
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2266			396			396				410
Travel Time (s)		51.5			9.0			9.0				9.3
Peak Hour Factor	0.60	0.84	0.42	0.63	0.89	0.75	0.56	0.56	0.63	0.46	0.60	0.54
Heavy Vehicles (%)	25%	3%	0%	0%	2%	0%	4%	44%	3%	31%	0%	13%
Adj. Flow (vph)	20	683	12	24	954	12	48	16	56	28	20	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	695	0	24	966	0	0	120	0	0	76	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)		12			12			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
26: 15th Street & Greenup Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	23.5	23.5		23.5	23.5		24.1	24.1		24.1	24.1	
Total Split (s)	54.0	54.0		54.0	54.0		42.0	42.0		42.0	42.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	48.5	48.5		48.5	48.5		35.9	35.9		35.9	35.9	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.9	3.9		3.9	3.9	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)	73.4	73.4		73.4	73.4		11.0	11.0		11.0	11.0	
Actuated g/C Ratio	0.76	0.76		0.76	0.76		0.11	0.11		0.11	0.11	
v/c Ratio	0.06	0.26		0.04	0.36		0.57	0.57		0.45	0.45	
Control Delay	4.1	3.9		2.1	2.5		34.1	34.1		34.4	34.4	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	4.1	3.9		2.1	2.6		34.1	34.1		34.4	34.4	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		3.9			2.6		34.1	34.1		34.4	34.4	
Approach LOS		A			A		C	C		C	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 1 (1%), Referenced to phase 2:EBWB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 6.3  
 Intersection LOS: A  
 Intersection Capacity Utilization 40.1%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 26: 15th Street & Greenup Ave



Lanes, Volumes, Timings  
29: 14th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	0	286	15	8	520	0	0	0	0	5	20	185
Future Volume (vph)	0	286	15	8	520	0	0	0	0	5	20	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.989										0.883
Fl <sub>t</sub> Protected					0.999							0.999
Satd. Flow (prot)	0	1845	0	0	1898	0	0	0	0	0	1641	0
Fl <sub>t</sub> Permitted					0.999							0.999
Satd. Flow (perm)	0	1845	0	0	1898	0	0	0	0	0	1641	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		385			371			411			199	
Travel Time (s)		8.8			8.4			9.3			4.5	
Peak Hour Factor	0.91	0.91	0.54	0.67	0.90	0.92	0.92	0.92	0.92	0.63	0.71	0.77
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	2%	2%	2%	7%	2%	2%
Adj. Flow (vph)	0	314	28	12	578	0	0	0	0	8	28	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	342	0	0	590	0	0	0	0	0	276	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type:	Other
Control Type:	Roundabout
Intersection Capacity Utilization	53.2%
ICU Level of Service	A
Analysis Period (min)	15

























HCM 6th Roundabout  
29: 14th Street & Winchester Ave

12/07/2020

Intersection				
Intersection Delay, s/veh	6.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	342	590	0	276
Demand Flow Rate, veh/h	348	590	0	283
Vehicles Circulating, veh/h	50	0	329	590
Vehicles Exiting, veh/h	823	329	69	0
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.1	6.7	0.0	9.6
Approach LOS	A	A	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	348	590	283	
Cap Entry Lane, veh/h	1311	1380	756	
Entry HV Adj Factor	0.982	1.000	0.977	
Flow Entry, veh/h	342	590	276	
Cap Entry, veh/h	1288	1380	738	
V/C Ratio	0.265	0.428	0.374	
Control Delay, s/veh	5.1	6.7	9.6	
LOS	A	A	A	
95th %tile Queue, veh	1	2	2	

Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

12/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						  				
Traffic Volume (vph)	432	232	0	0	359	346	311	592	69	0	0	25
Future Volume (vph)	432	232	0	0	359	346	311	592	69	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	1		0	0		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt						0.850		0.981				0.865
Flt Protected	0.950	0.977					0.950					
Satd. Flow (prot)	1579	3299	0	0	1863	1599	1805	4995	0	0	0	1644
Flt Permitted	0.950	0.977					0.950					
Satd. Flow (perm)	1579	3299	0	0	1863	1599	1805	4995	0	0	0	1644
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						82		25				213
Link Speed (mph)		30			30			30				30
Link Distance (ft)		373			385			393				292
Travel Time (s)		8.5			8.8			8.9				6.6
Peak Hour Factor	0.92	0.89	0.92	0.25	0.89	0.88	0.85	0.82	0.66	0.57	0.31	0.69
Heavy Vehicles (%)	4%	1%	0%	0%	2%	1%	0%	2%	1%	0%	0%	0%
Adj. Flow (vph)	470	261	0	0	403	393	366	722	105	0	0	36
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	240	491	0	0	403	393	366	827	0	0	0	36
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)		12			12			12				12
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1	2				1
Detector Template	Left	Thru			Thru	Right	Left	Thru				Right
Leading Detector (ft)	20	100			100	20	20	100				20
Trailing Detector (ft)	0	0			0	0	0	0				0
Detector 1 Position(ft)	0	0			0	0	0	0				0
Detector 1 Size(ft)	20	6			6	20	20	6				20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Split	NA			NA	Perm	Perm	NA				Perm
Protected Phases	3	3			2			4				

Lanes, Volumes, Timings  
32: 13th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						2	4					3
Detector Phase	3	3			2	2	4	4				3
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0				8.0
Minimum Split (s)	23.5	23.5			23.5	23.5	23.5	23.5				23.5
Total Split (s)	30.0	30.0			42.0	42.0	34.0	34.0				30.0
Total Split (%)	28.3%	28.3%			39.6%	39.6%	32.1%	32.1%				28.3%
Maximum Green (s)	24.5	24.5			36.5	36.5	28.5	28.5				24.5
Yellow Time (s)	3.6	3.6			3.6	3.6	3.5	3.5				3.6
All-Red Time (s)	1.9	1.9			1.9	1.9	2.0	2.0				1.9
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)	5.5	5.5			5.5	5.5	5.5	5.5				5.5
Lead/Lag	Lead	Lead					Lag	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
Recall Mode	None	None			C-Max	C-Max	None	None				None
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				7.0
Flash Dont Walk (s)	11.0	11.0			11.0	11.0	11.0	11.0				11.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0				0
Act Effct Green (s)	21.6	21.6			40.7	40.7	27.2	27.2				21.6
Actuated g/C Ratio	0.20	0.20			0.38	0.38	0.26	0.26				0.20
v/c Ratio	0.75	0.73			0.56	0.59	0.79	0.64				0.07
Control Delay	31.0	24.2			30.9	26.0	50.0	36.2				0.3
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0				0.0
Total Delay	31.0	24.2			30.9	26.0	50.0	36.2				0.3
LOS	C	C			C	C	D	D				A
Approach Delay		26.5			28.5			40.4				0.3
Approach LOS		C			C			D				A

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	58 (55%), Referenced to phase 2:WBT and 6:, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	32.7
Intersection LOS:	C
Intersection Capacity Utilization:	62.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 32: 13th Street & Winchester Ave



Lanes, Volumes, Timings  
35: 12th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑						↙↑	↗
Traffic Volume (vph)	0	582	232	173	522	0	0	0	0	82	525	467
Future Volume (vph)	0	582	232	173	522	0	0	0	0	82	525	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.960										0.850
Flt Protected				0.950							0.993	
Satd. Flow (prot)	0	4930	0	1787	3610	0	0	0	0	0	3585	1599
Flt Permitted				0.950							0.993	
Satd. Flow (perm)	0	4930	0	1787	3610	0	0	0	0	0	3585	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100										266
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		377			373			198			355	
Travel Time (s)		8.6			8.5			4.5			8.1	
Peak Hour Factor	0.25	0.86	0.94	0.85	0.88	0.25	0.92	0.92	0.92	0.82	0.89	0.90
Heavy Vehicles (%)	0%	1%	1%	1%	0%	100%	2%	2%	2%	0%	0%	1%
Adj. Flow (vph)	0	677	247	204	593	0	0	0	0	100	590	519
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	924	0	204	593	0	0	0	0	0	690	519
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)		12			12			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	

Lanes, Volumes, Timings  
 35: 12th Street & Winchester Ave

12/07/2020

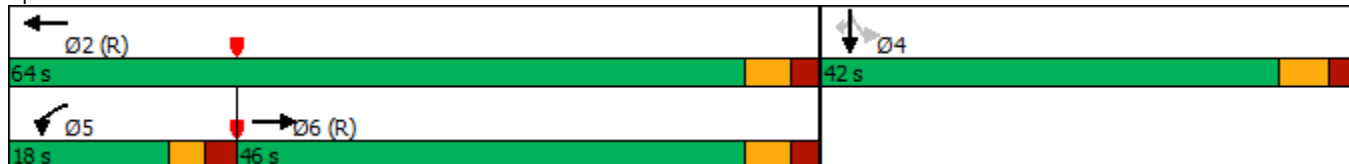


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases										4		4
Detector Phase		6		5	2					4	4	4
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		24.0		13.4	24.0					23.8	23.8	23.8
Total Split (s)		46.0		18.0	64.0					42.0	42.0	42.0
Total Split (%)		43.4%		17.0%	60.4%					39.6%	39.6%	39.6%
Maximum Green (s)		40.0		12.6	58.0					36.2	36.2	36.2
Yellow Time (s)		3.6		2.9	3.6					3.9	3.9	3.9
All-Red Time (s)		2.4		2.5	2.4					1.9	1.9	1.9
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0						5.8	5.8
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)		7.0			7.0					7.0	7.0	7.0
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)		42.7		15.3	63.5						30.7	30.7
Actuated g/C Ratio		0.40		0.14	0.60						0.29	0.29
v/c Ratio		0.45		0.79	0.27						0.66	0.80
Control Delay		28.5		51.0	17.2						35.9	25.7
Queue Delay		0.0		0.0	0.7						0.0	0.0
Total Delay		28.5		51.0	17.8						35.9	25.7
LOS		C		D	B						D	C
Approach Delay		28.5			26.3						31.5	
Approach LOS		C			C						C	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	29.1
Intersection LOS:	C
Intersection Capacity Utilization:	57.2%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 35: 12th Street & Winchester Ave



Lanes, Volumes, Timings  
38: 11th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				
Traffic Volume (vph)	17	807	4	8	809	172	23	5	7	0	0	0
Future Volume (vph)	17	807	4	8	809	172	23	5	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.973			0.975				
Flt Protected		0.999			0.999			0.967				
Satd. Flow (prot)	0	3522	0	0	3456	0	0	1791	0	0	0	0
Flt Permitted		0.999			0.999			0.967				
Satd. Flow (perm)	0	3522	0	0	3456	0	0	1791	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		383			377			400				200
Travel Time (s)		8.7			8.6			9.1				4.5
Peak Hour Factor	0.85	0.91	0.33	0.67	0.88	0.86	0.58	0.63	0.64	0.92	0.25	0.92
Heavy Vehicles (%)	6%	2%	9%	0%	1%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	887	12	12	919	200	40	8	11	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	919	0	0	1131	0	0	59	0	0	0	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC  
38: 11th Street & Winchester Ave

12/07/2020

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	17	807	4	8	809	172	23	5	7	0	0	0
Future Vol, veh/h	17	807	4	8	809	172	23	5	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	91	33	67	88	86	58	63	64	92	25	92
Heavy Vehicles, %	6	2	9	0	1	4	0	0	0	0	0	0
Mvmt Flow	20	887	12	12	919	200	40	8	11	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1119	0	0	899	0	0	1417	2076	450
Stage 1	-	-	-	-	-	-	933	933	-
Stage 2	-	-	-	-	-	-	484	1143	-
Critical Hdwy	4.22	-	-	4.1	-	-	6.8	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.8	5.5	-
Follow-up Hdwy	2.26	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	597	-	-	764	-	-	130	54	562
Stage 1	-	-	-	-	-	-	348	348	-
Stage 2	-	-	-	-	-	-	591	277	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	597	-	-	764	-	-	116	0	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	0	-
Stage 1	-	-	-	-	-	-	325	0	-
Stage 2	-	-	-	-	-	-	565	0	-

Approach	EB			WB			NB		
HCM Control Delay, s	0.6			0.3			48		
HCM LOS							E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	140	597	-	-	764	-	-
HCM Lane V/C Ratio	0.418	0.034	-	-	0.016	-	-
HCM Control Delay (s)	48	11.2	0.4	-	9.8	0.2	-
HCM Lane LOS	E	B	A	-	A	A	-
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0	-	-

Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	759	6	18	814	0	22	0	12	57	37	7
Future Volume (vph)	0	759	6	18	814	0	22	0	12	57	37	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998						0.938			0.989	
Fl <sub>t</sub> Protected					0.999			0.974			0.969	
Satd. Flow (prot)	0	3568	0	0	3572	0	0	1736	0	0	1536	0
Fl <sub>t</sub> Permitted					0.919			0.817			0.782	
Satd. Flow (perm)	0	3568	0	0	3286	0	0	1456	0	0	1240	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						24			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		378			383			411			247	
Travel Time (s)		8.6			8.7			9.3			5.6	
Peak Hour Factor	0.25	0.95	0.50	0.75	0.91	0.25	0.79	0.25	0.50	0.62	0.93	0.58
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	29%	0%	0%
Adj. Flow (vph)	0	799	12	24	895	0	28	0	24	92	40	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	811	0	0	919	0	0	52	0	0	144	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2		1	2	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		100		20	100		20	100		20	100	
Trailing Detector (ft)		0		0	0		0	0		0	0	
Detector 1 Position(ft)		0		0	0		0	0		0	0	
Detector 1 Size(ft)		6		20	6		20	6		20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94		94	94		94	94		94	94	
Detector 2 Size(ft)		6		6	6		6	6		6	6	
Detector 2 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6		2	2		4	4		4	4	
Permitted Phases				2	2		4	4		4	4	
Detector Phase		6		2	2		4	4		4	4	
Switch Phase												



Lanes, Volumes, Timings  
42: 10th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)		23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)		74.0		74.0	74.0		32.0	32.0		32.0	32.0	
Total Split (%)		69.8%		69.8%	69.8%		30.2%	30.2%		30.2%	30.2%	
Maximum Green (s)		69.0		69.0	69.0		26.5	26.5		26.5	26.5	
Yellow Time (s)		3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)		1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode		None		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		76.9		76.9	76.9		18.6	18.6		18.6	18.6	
Actuated g/C Ratio		0.73		0.73	0.73		0.18	0.18		0.18	0.18	
v/c Ratio		0.31		0.39	0.39		0.19	0.19		0.65	0.65	
Control Delay		4.6		8.0	8.0		23.6	23.6		53.3	53.3	
Queue Delay		0.2		0.1	0.1		0.0	0.0		0.0	0.0	
Total Delay		4.7		8.1	8.1		23.6	23.6		53.3	53.3	
LOS		A		A	A		C	C		D	D	
Approach Delay		4.7		8.1	8.1		23.6	23.6		53.3	53.3	
Approach LOS		A		A	A		C	C		D	D	

Intersection Summary

Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	90 (85%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	10.5
Intersection LOS:	B
Intersection Capacity Utilization	56.6%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 42: 10th Street & Winchester Ave



Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				↕
Traffic Volume (vph)	18	705	31	13	807	23	129	48	48	12	38	8
Future Volume (vph)	18	705	31	13	807	23	129	48	48	12	38	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.993			0.996			0.967				0.982
Fl <sub>t</sub> Protected		0.999			0.999			0.976				0.991
Satd. Flow (prot)	0	3526	0	0	3549	0	0	1749	0	0	1812	0
Fl <sub>t</sub> Permitted		0.893			0.926			0.812				0.919
Satd. Flow (perm)	0	3152	0	0	3290	0	0	1455	0	0	1680	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			5			15				7
Link Speed (mph)		30			30			30				30
Link Distance (ft)		377			378			425				203
Travel Time (s)		8.6			8.6			9.7				4.6
Peak Hour Factor	0.75	0.95	0.78	0.54	0.73	0.72	0.95	0.67	0.71	0.75	0.63	0.67
Heavy Vehicles (%)	0%	1%	13%	0%	1%	9%	2%	6%	0%	0%	3%	0%
Adj. Flow (vph)	24	742	40	24	1105	32	136	72	68	16	60	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	806	0	0	1161	0	0	276	0	0	88	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			0				0
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4				4
Permitted Phases	6			2			4			4		
Detector Phase	6	6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings  
45: 9th Street & Winchester Ave

12/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.5	23.5		23.5	23.5	
Total Split (s)	73.0	73.0		73.0	73.0		33.0	33.0		33.0	33.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	68.0	68.0		68.0	68.0		27.5	27.5		27.5	27.5	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.5			5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
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 Effect Green (s)		72.4			72.4			23.1			23.1	
Actuated g/C Ratio		0.68			0.68			0.22			0.22	
v/c Ratio		0.37			0.52			0.84			0.24	
Control Delay		8.2			11.9			59.0			31.4	
Queue Delay		0.0			0.2			0.0			0.0	
Total Delay		8.2			12.1			59.0			31.4	
LOS		A			B			E			C	
Approach Delay		8.2			12.1			59.0			31.4	
Approach LOS		A			B			E			C	

Intersection Summary

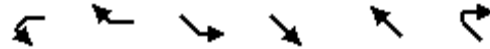
Area Type:	Other
Cycle Length:	106
Actuated Cycle Length:	106
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	17.0
Intersection LOS:	B
Intersection Capacity Utilization:	61.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 45: 9th Street & Winchester Ave



Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

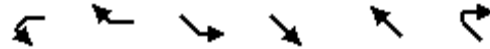
12/07/2020



Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations		↑↑	↑↑	↑↑	↑↑	
Traffic Volume (vph)	0	834	419	743	934	0
Future Volume (vph)	0	834	419	743	934	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	1.00
Fr't		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	0	2814	3433	3574	3505	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	2814	3433	3574	3505	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		93				
Link Speed (mph)	30			30	30	
Link Distance (ft)	768			486	269	
Travel Time (s)	17.5			11.0	6.1	
Peak Hour Factor	0.92	0.88	0.91	0.85	0.75	0.92
Heavy Vehicles (%)	2%	1%	2%	1%	3%	2%
Adj. Flow (vph)	0	948	460	874	1245	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	948	460	874	1245	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors		2	2	1	1	
Detector Template		Thru	Thru	Right	Left	
Leading Detector (ft)		100	100	20	20	
Trailing Detector (ft)		0	0	0	0	
Detector 1 Position(ft)		0	0	0	0	
Detector 1 Size(ft)		6	6	20	20	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		Over	Prot	NA	NA	
Protected Phases		1	1	2	2	
Permitted Phases				1		
Detector Phase		1	1	2	2	
Switch Phase						

Lanes, Volumes, Timings  
48: Winchester Ave & Greenup Ave

12/07/2020

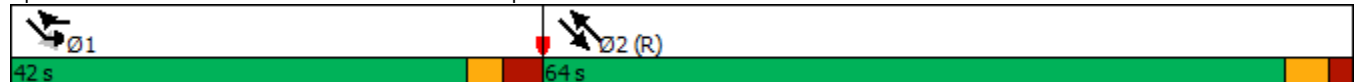


Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Minimum Initial (s)		15.0	15.0	20.0	20.0	
Minimum Split (s)		24.1	24.1	25.5	25.5	
Total Split (s)		42.0	42.0	64.0	64.0	
Total Split (%)		39.6%	39.6%	60.4%	60.4%	
Maximum Green (s)		35.9	35.9	58.5	58.5	
Yellow Time (s)		2.9	2.9	3.5	3.5	
All-Red Time (s)		3.2	3.2	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.1	6.1	5.5	5.5	
Lead/Lag		Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Recall Mode		None	None	C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effect Green (s)		35.8	35.8	106.0	58.6	
Actuated g/C Ratio		0.34	0.34	1.00	0.55	
v/c Ratio		0.94	0.40	0.24	0.64	
Control Delay		47.9	28.1	0.2	22.1	
Queue Delay		0.0	0.0	0.0	0.6	
Total Delay		47.9	28.1	0.2	22.7	
LOS		D	C	A	C	
Approach Delay	47.9			9.8	22.7	
Approach LOS	D			A	C	

Intersection Summary

















Area Type: Other  
 Cycle Length: 106  
 Actuated Cycle Length: 106  
 Offset: 35 (33%), Referenced to phase 2:NWSE, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 24.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 64.7%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 48: Winchester Ave & Greenup Ave



Lanes, Volumes, Timings  
49: 8th Street & Winchester Ave

12/07/2020

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	5	0	24	1	0	1	1	729	13	16	928	0
Future Volume (vph)	5	0	24	1	0	1	1	729	13	16	928	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.902			0.932			0.994				
Fl <sub>t</sub> Protected		0.987			0.976						0.998	
Satd. Flow (prot)	0	1655	0	0	1728	0	0	3510	0	0	3535	0
Fl <sub>t</sub> Permitted		0.987			0.976						0.998	
Satd. Flow (perm)	0	1655	0	0	1728	0	0	3510	0	0	3535	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		376			140			269			377	
Travel Time (s)		8.5			3.2			6.1			8.6	
Peak Hour Factor	0.42	0.92	0.75	0.25	0.92	0.25	0.25	0.96	0.41	0.44	0.93	0.25
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	2%	8%	0%	2%	0%
Adj. Flow (vph)	12	0	32	4	0	4	4	759	32	36	998	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	8	0	0	795	0	0	1034	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			0			0	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.0%					ICU Level of Service A						
Analysis Period (min)	15											

HCM 6th TWSC  
49: 8th Street & Winchester Ave

12/07/2020

Intersection												
Int Delay, s/veh	1.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	24	1	0	1	1	729	13	16	928	0
Future Vol, veh/h	5	0	24	1	0	1	1	729	13	16	928	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	42	92	75	25	92	25	25	96	41	44	93	25
Heavy Vehicles, %	0	0	3	0	0	0	0	2	8	0	2	0
Mvmt Flow	12	0	32	4	0	4	4	759	32	36	998	0

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1354	1853	396	1458	1869	499	998	0	0	791	0	0
Stage 1	783	783	-	1070	1070	-	-	-	-	-	-	-
Stage 2	571	1070	-	388	799	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.96	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	110	75	600	92	73	522	701	-	-	838	-	-
Stage 1	357	407	-	240	300	-	-	-	-	-	-	-
Stage 2	478	300	-	613	401	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	100	67	600	80	65	522	701	-	-	838	-	-
Mov Cap-2 Maneuver	100	67	-	80	65	-	-	-	-	-	-	-
Stage 1	353	403	-	238	271	-	-	-	-	-	-	-
Stage 2	429	271	-	575	397	-	-	-	-	-	-	-

Approach	NB		SB		SE		NW	
HCM Control Delay, s	22		32.5		0.1		0.7	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	255	838	-	-	701	-	-	139
HCM Lane V/C Ratio	0.172	0.043	-	-	0.006	-	-	0.058
HCM Control Delay (s)	22	9.5	0.4	-	10.2	0.1	-	32.5
HCM Lane LOS	C	A	A	-	B	A	-	D
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.2