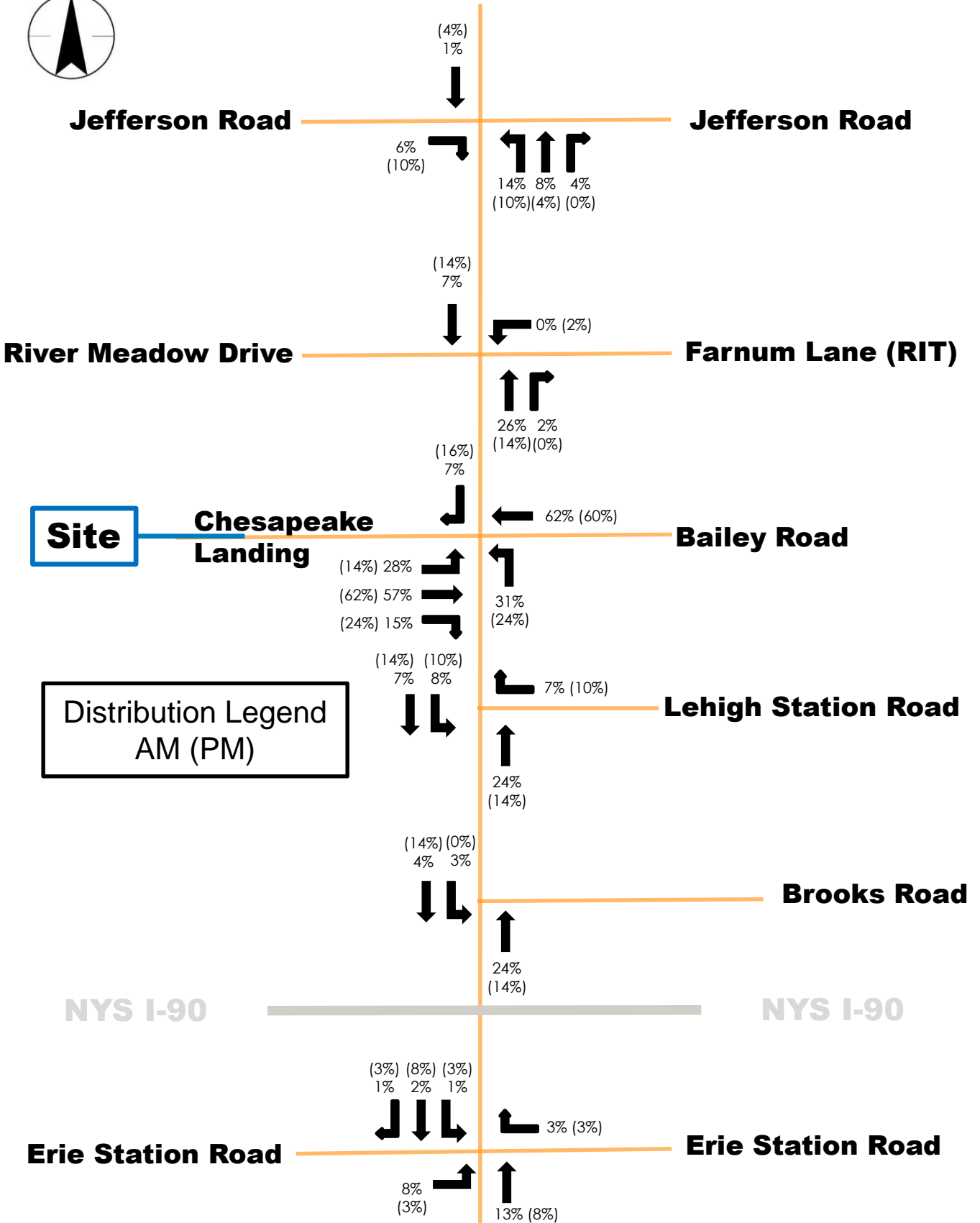


APPENDIX A
TRIP DISTRIBUTION DIAGRAMS

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East River Road

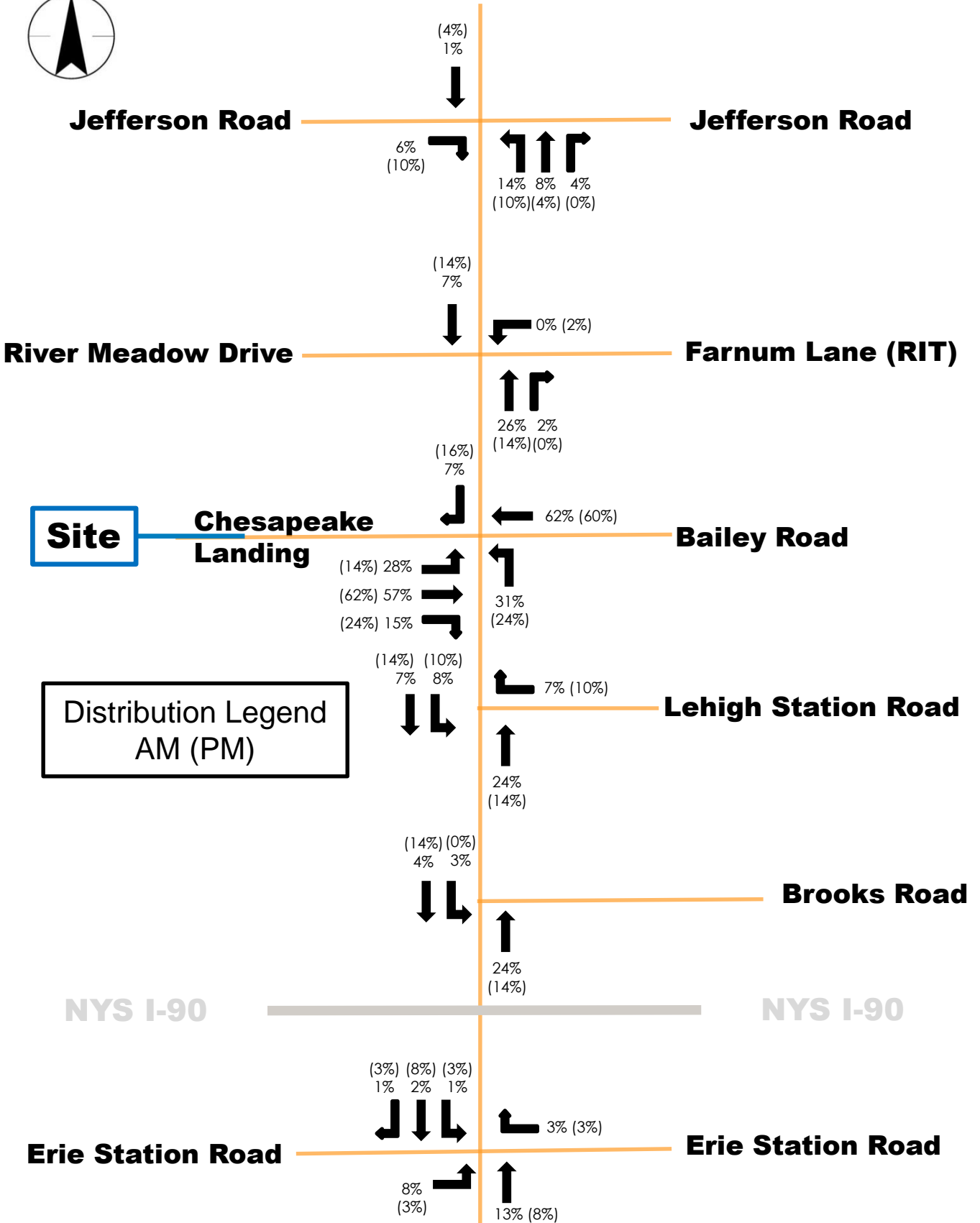


Trip (%) Distribution Diagram
Preserve Subdivisions – Sections 8 (Parcel #1)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

Trip (%) Distribution Diagram
 Preserve Subdivisions – Sections 9 (Parcel #2)
 East River Road Traffic Review

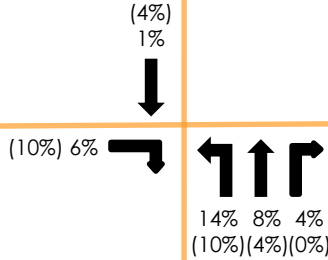




East River Road

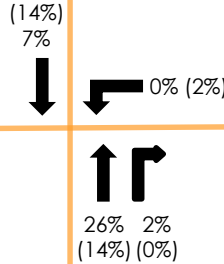
Jefferson Road

Jefferson Road



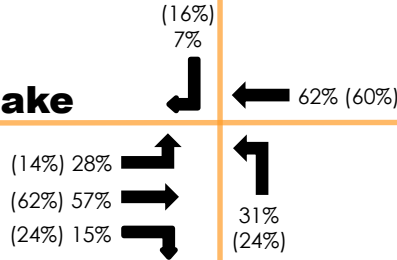
River Meadow Drive

Farnum Lane (RIT)



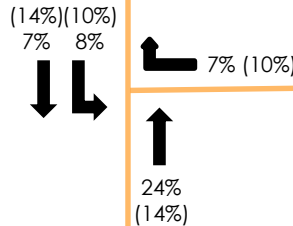
Site **Chesapeake Landing**

Bailey Road

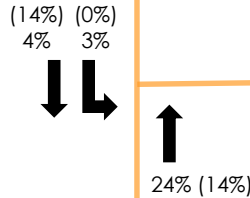


Distribution Legend
AM (PM)

Lehigh Station Road



Brooks Road

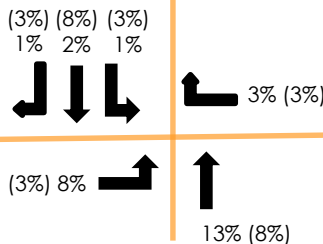


NYS I-90

NYS I-90

Erie Station Road

Erie Station Road



Trip (%) Distribution Diagram

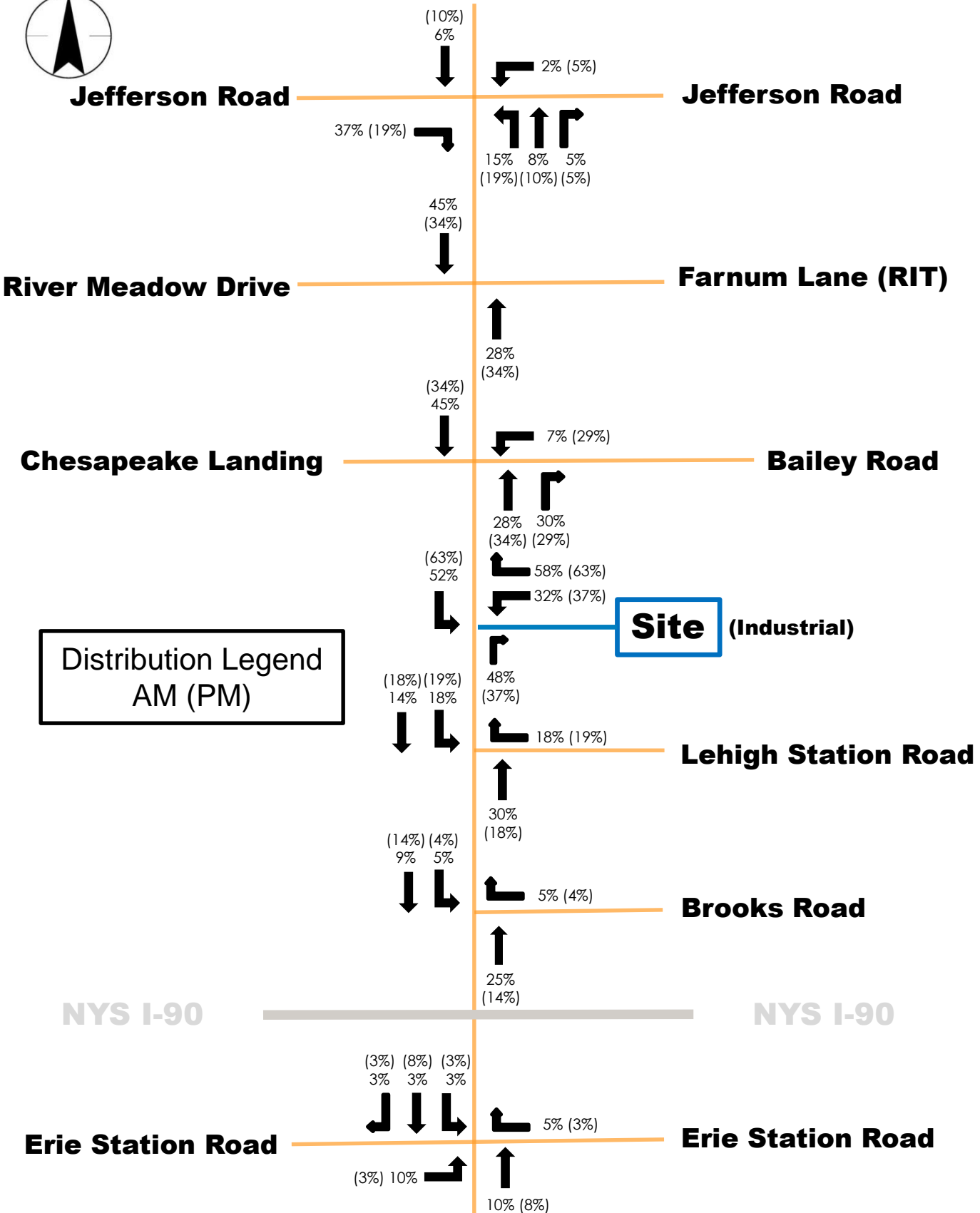
Section 10 – Preserve Subdivision (Parcel #3)

East River Road Traffic Review





East River Road

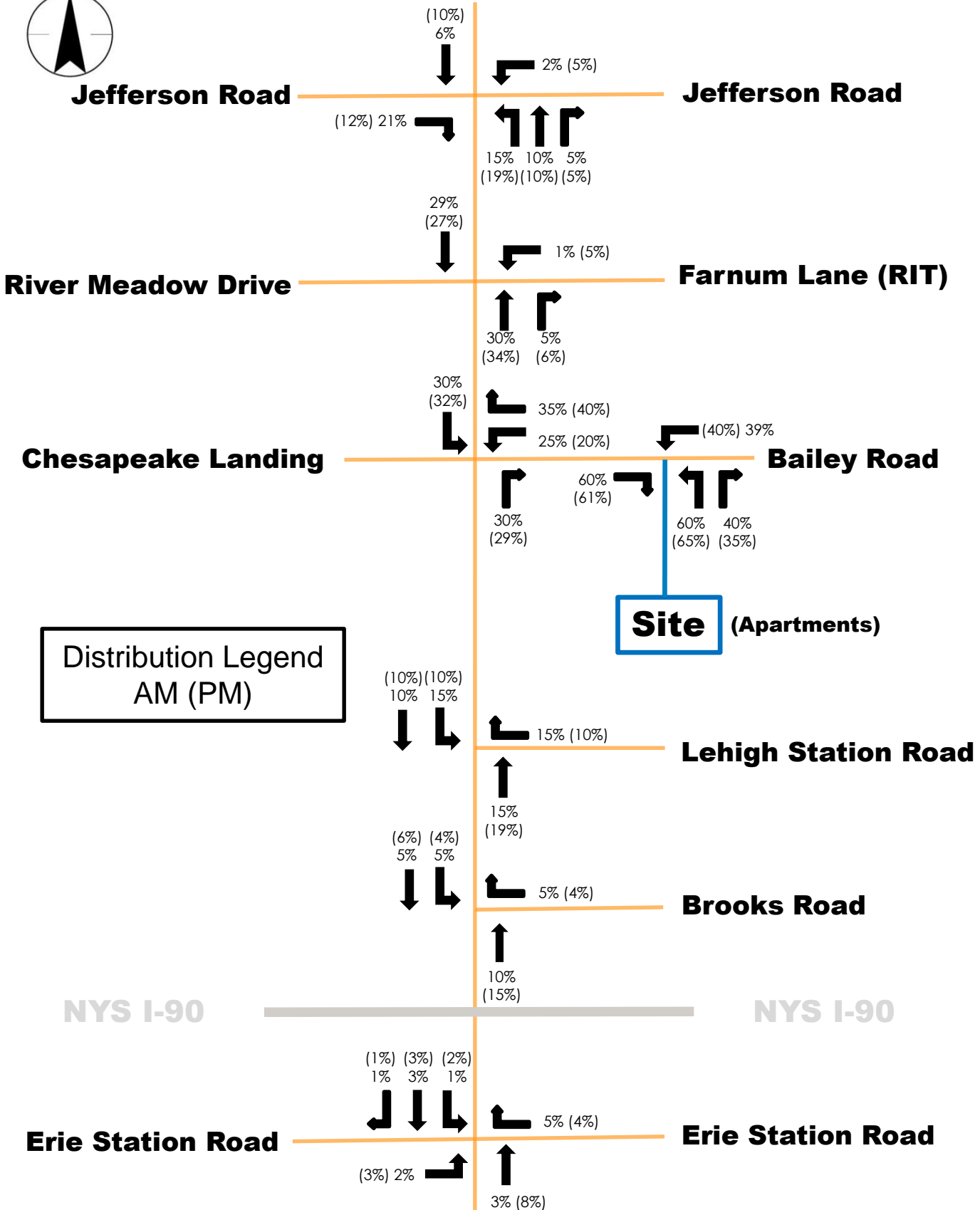


Trip (%) Distribution Diagram
Wallman Property (Parcel #4A)
 East River Road Traffic Review





East River Road



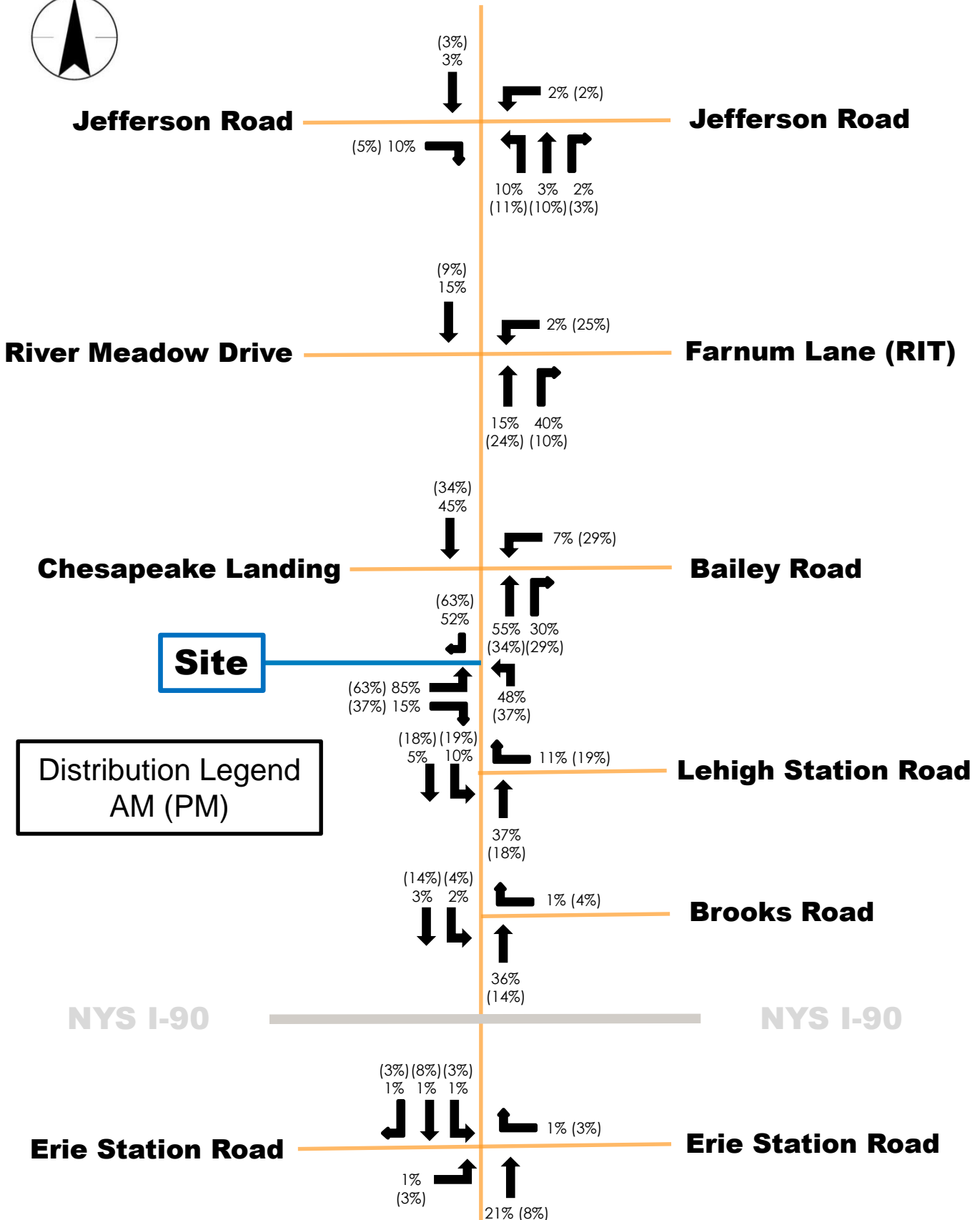
Distribution Legend
AM (PM)

Trip (%) Distribution Diagram
Wallman Property (Parcel #4B)
 East River Road Traffic Review





East River Road



Site

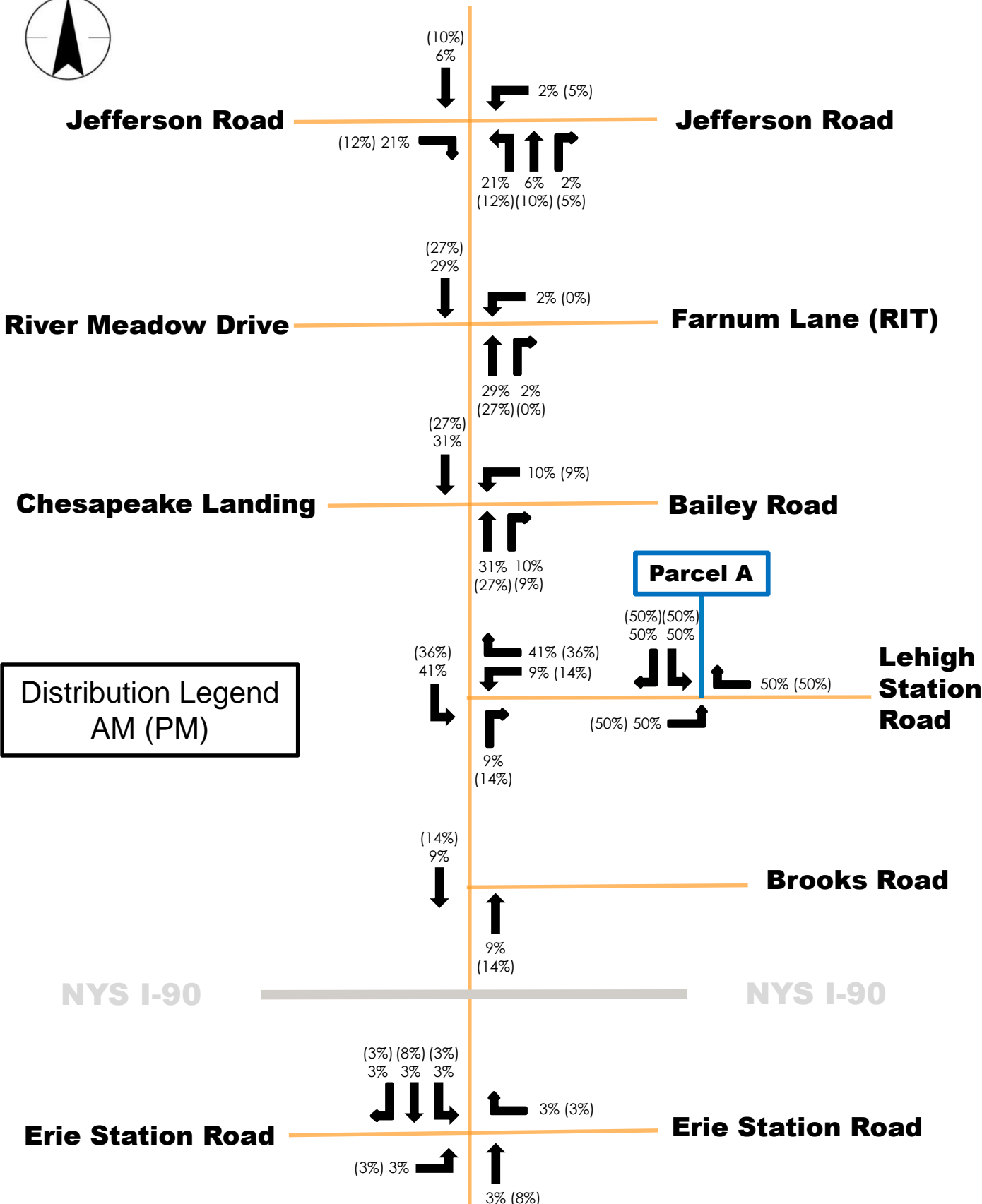
Distribution Legend
AM (PM)

Trip (%) Distribution Diagram
Riverwood Student Housing (Parcel #5)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

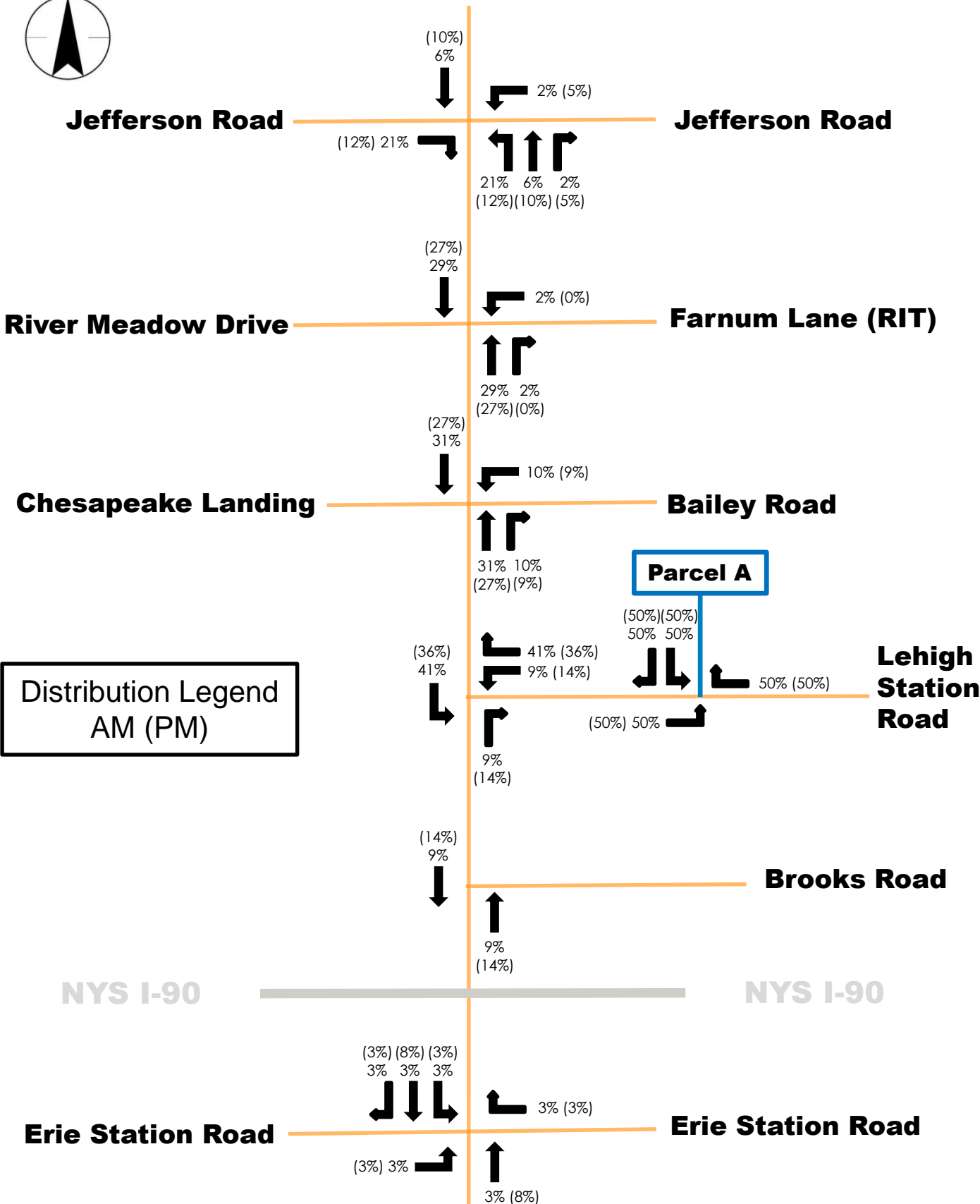
Parcel A

Trip (%) Distribution Diagram
DePaul/Jaynes Riverview Parcel A (Parcel #6)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

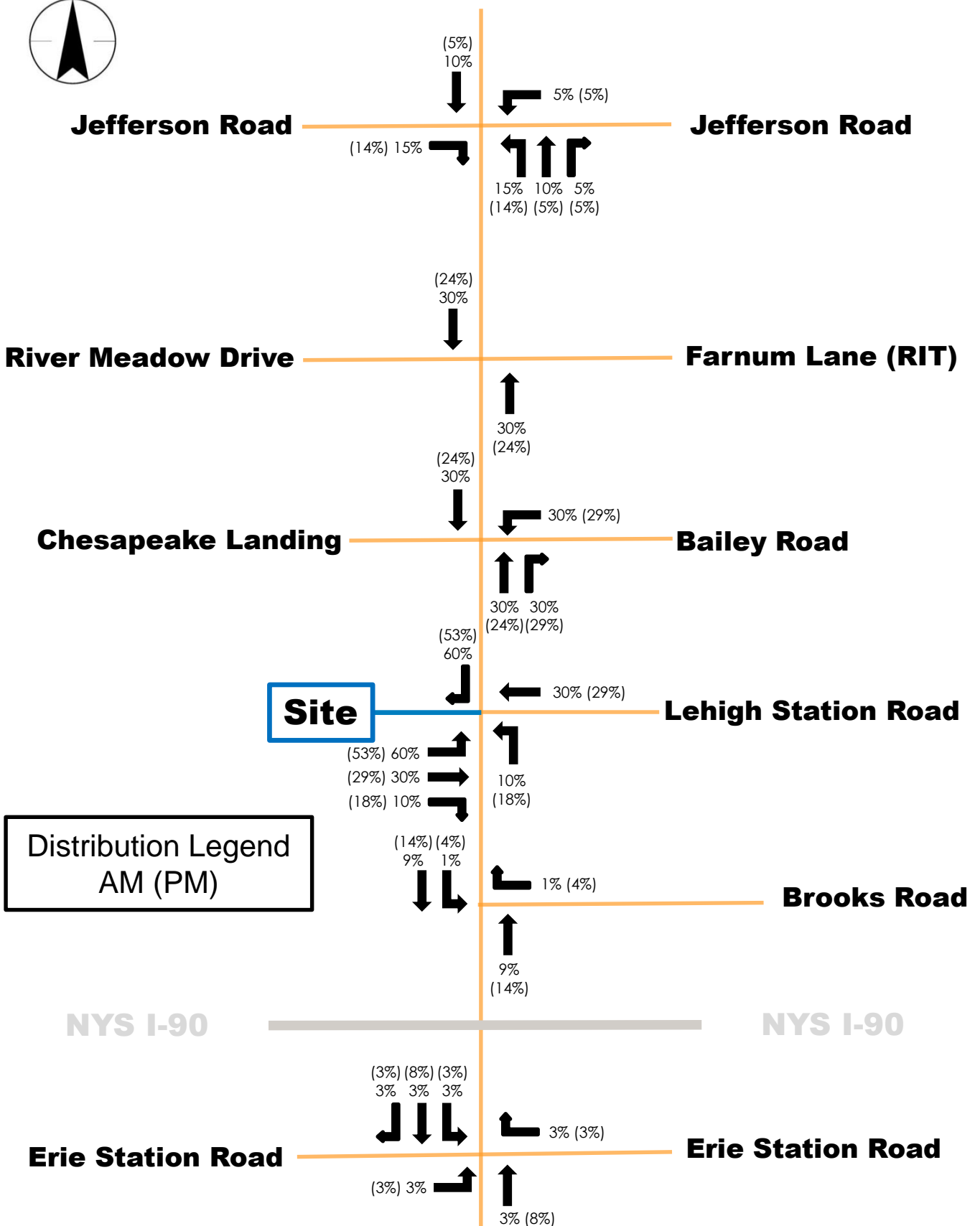
Parcel A

Trip (%) Distribution Diagram
DePaul/Jaynes Riverview Parcel B&D (Parcel #7)
 East River Road Traffic Review





East River Road



Site

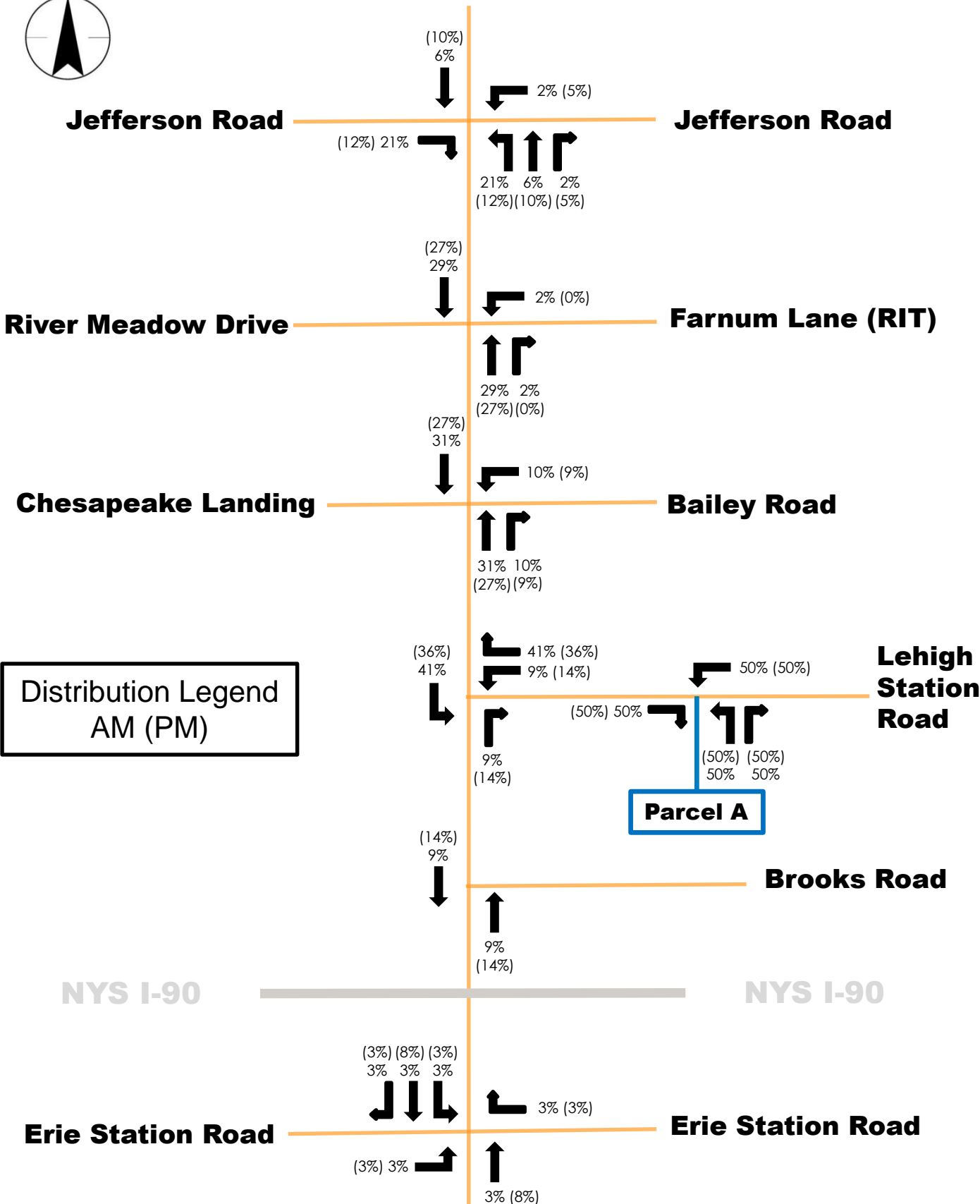
Distribution Legend
AM (PM)

Trip (%) Distribution Diagram
Riverwood Tech Campus (Parcel #8)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

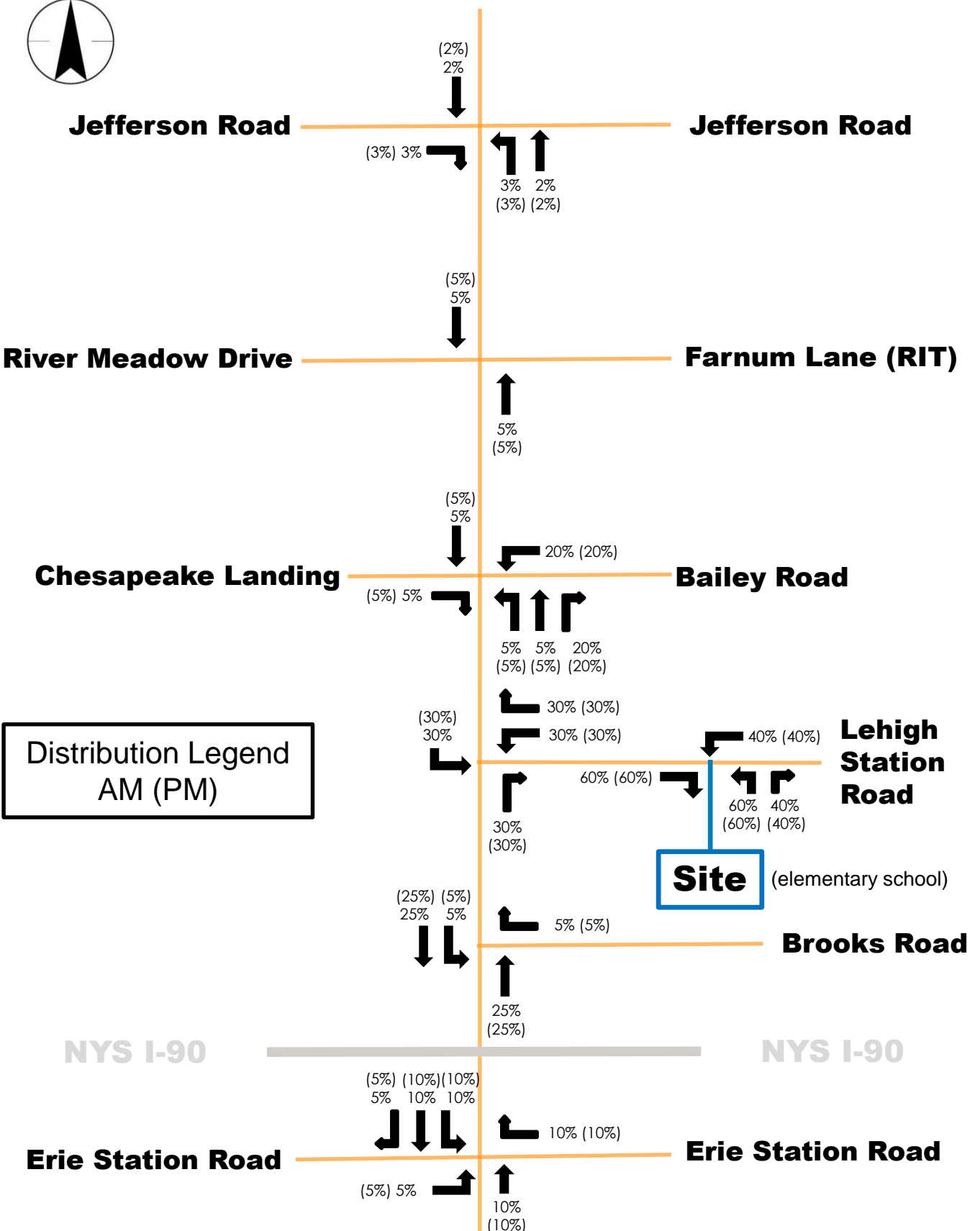
Parcel A

Trip (%) Distribution Diagram
DePaul/Jaynes Riverview Parcel E (Parcel #9)
 East River Road Traffic Review





East River Road

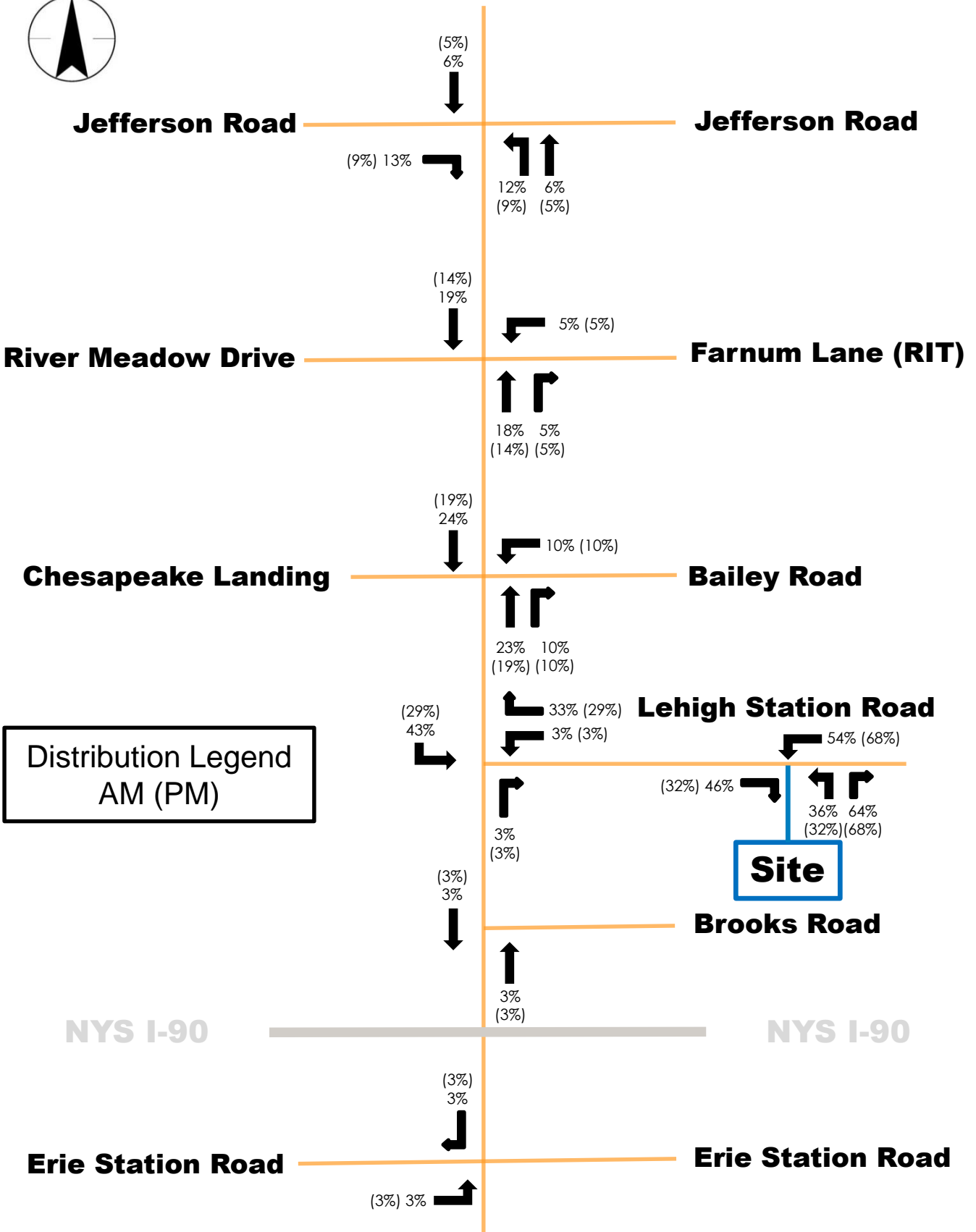


Trip (%) Distribution Diagram
Jaynes Riverview Parcel F (Parcel #10)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

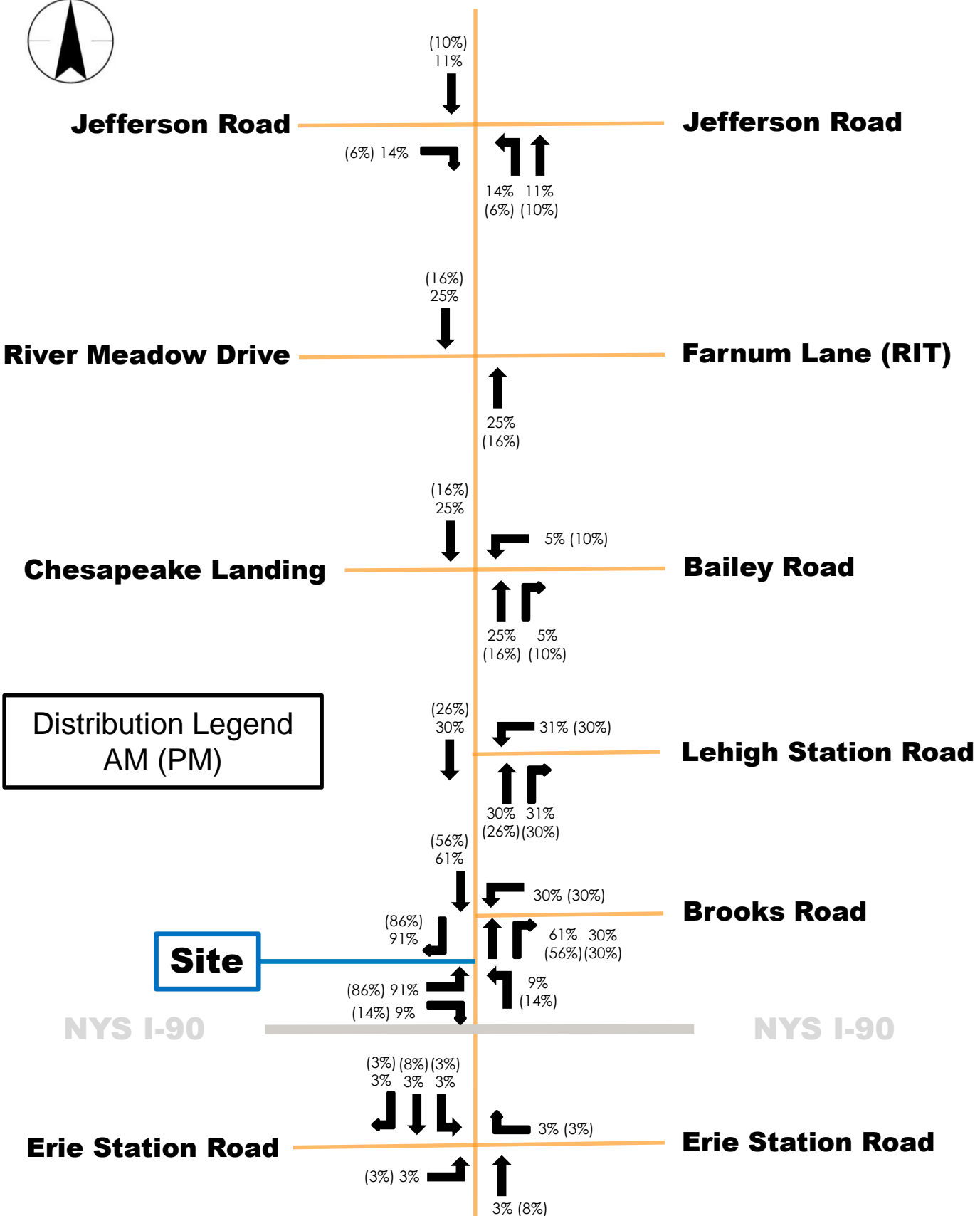
Site

Trip (%) Distribution Diagram
Section 3 – Chelsea Meadows (Parcel #11)
 East River Road Traffic Review





East River Road



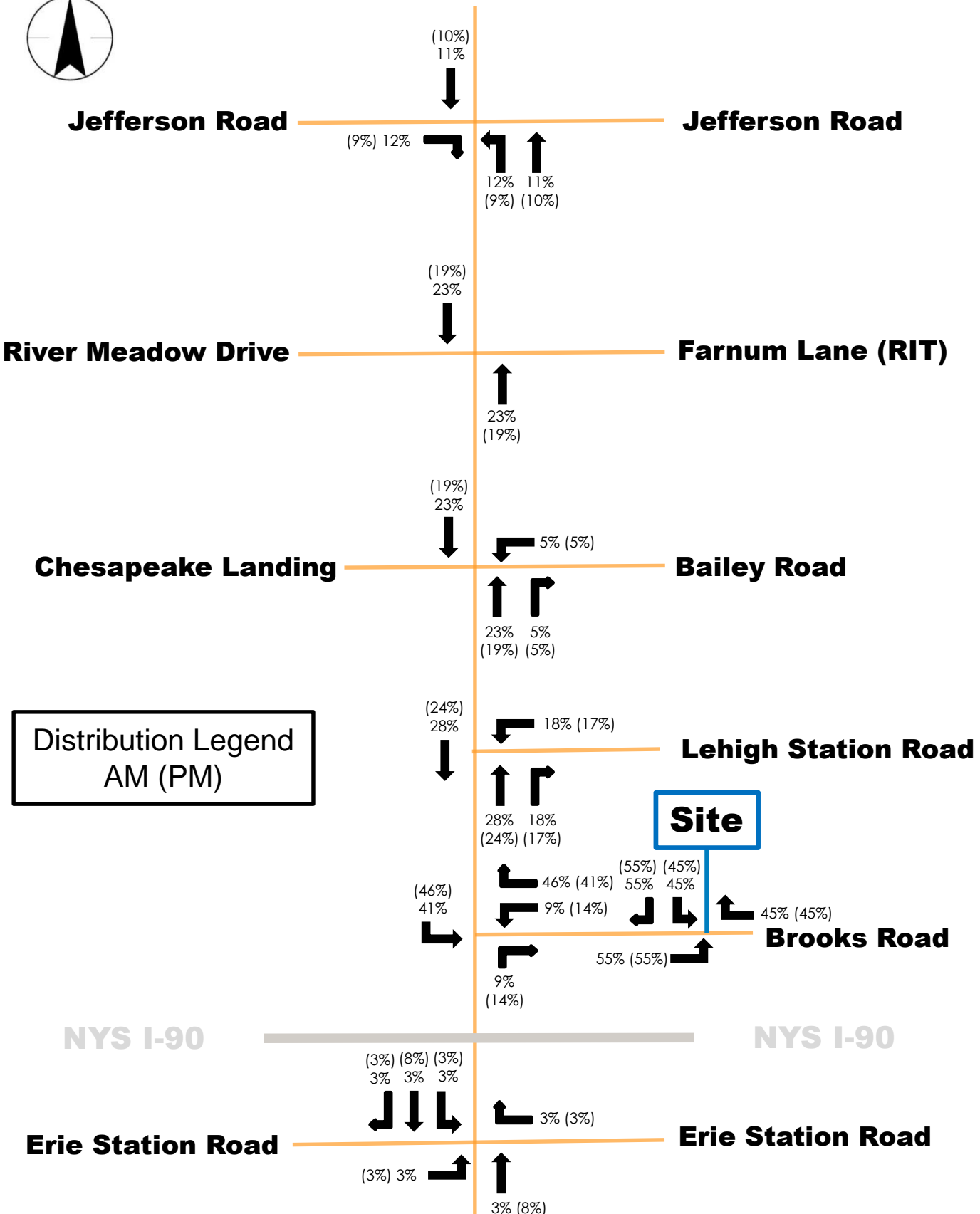
Site

Trip (%) Distribution Diagram
Graywood Commons (Parcel #13)
 East River Road Traffic Review





East River Road



Trip (%) Distribution Diagram
Jaynes Riverview Parcel I (Parcel #14)
 East River Road Traffic Review





East River Road

River Meadow Drive

Farnum Lane (RIT)

Chesapeake Landing

Bailey Road

Distribution Legend
AM (PM)

Lehigh Station Road

Brooks Road

Site

NYS I-90

NYS I-90

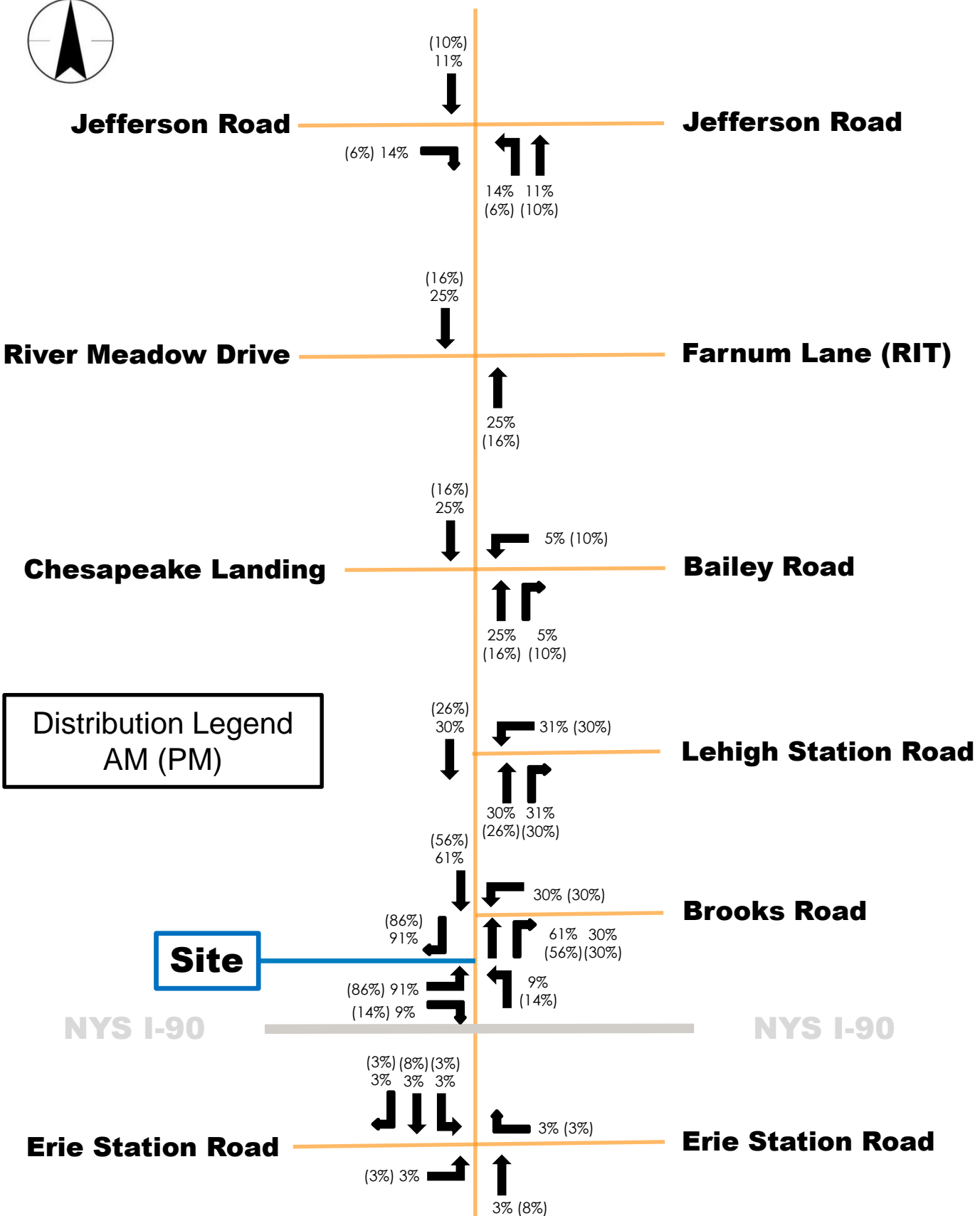
Erie Station Road

Erie Station Road

Trip (%) Distribution Diagram

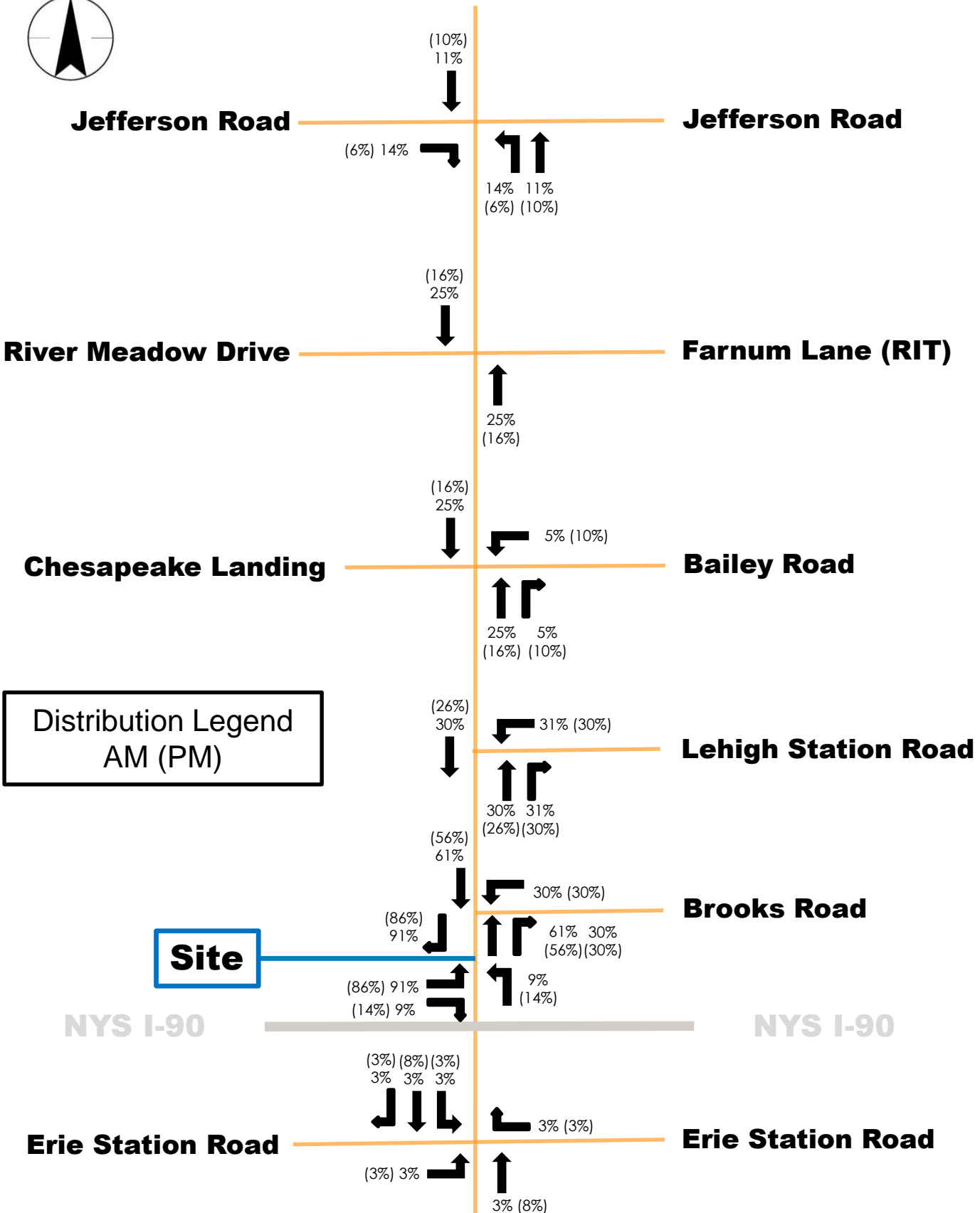
Jaynes Riverview Parcel J (Parcel #15)

East River Road Traffic Review





East River Road

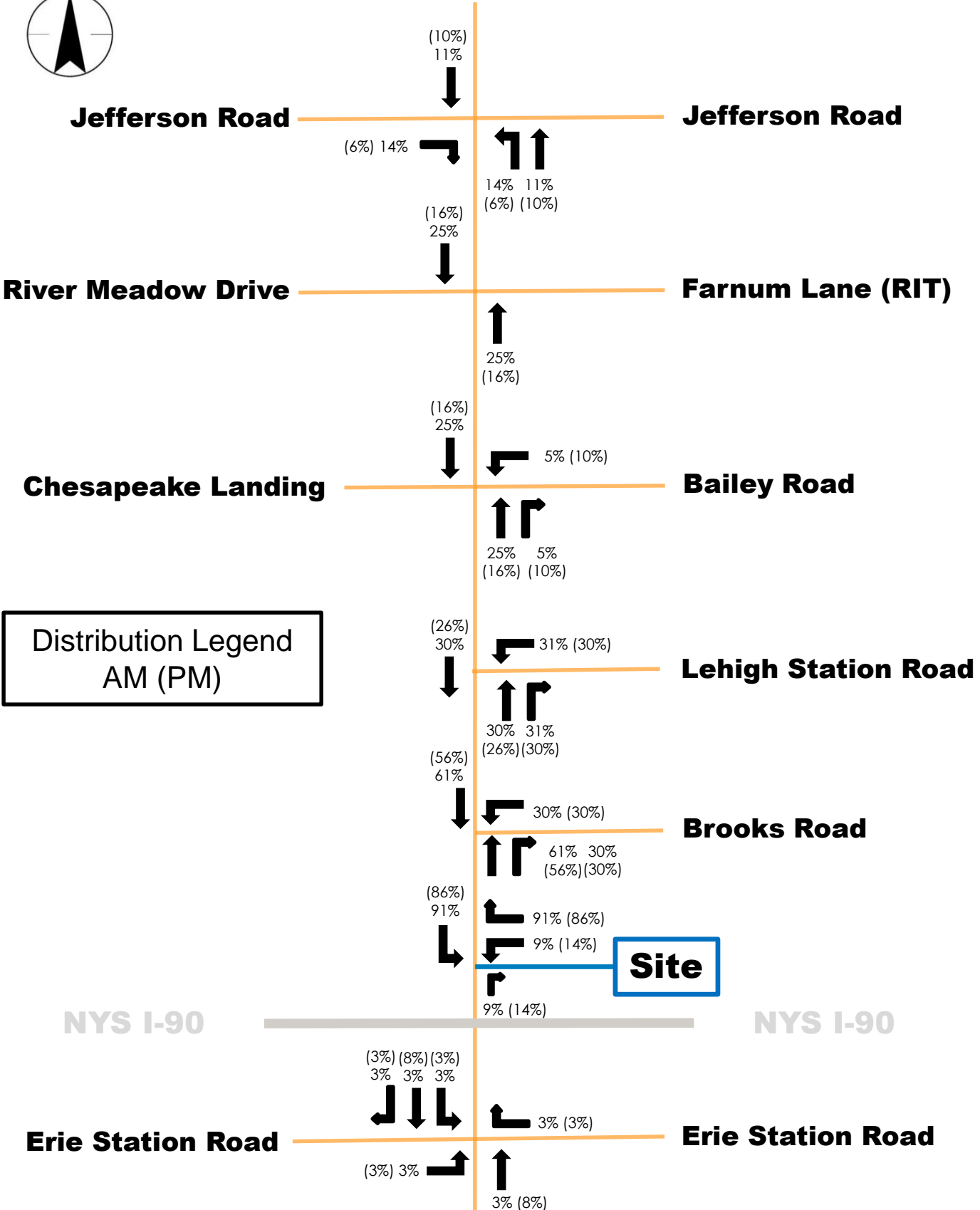


Trip (%) Distribution Diagram
Section 2 – Graywood Meadows (Parcel #16)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

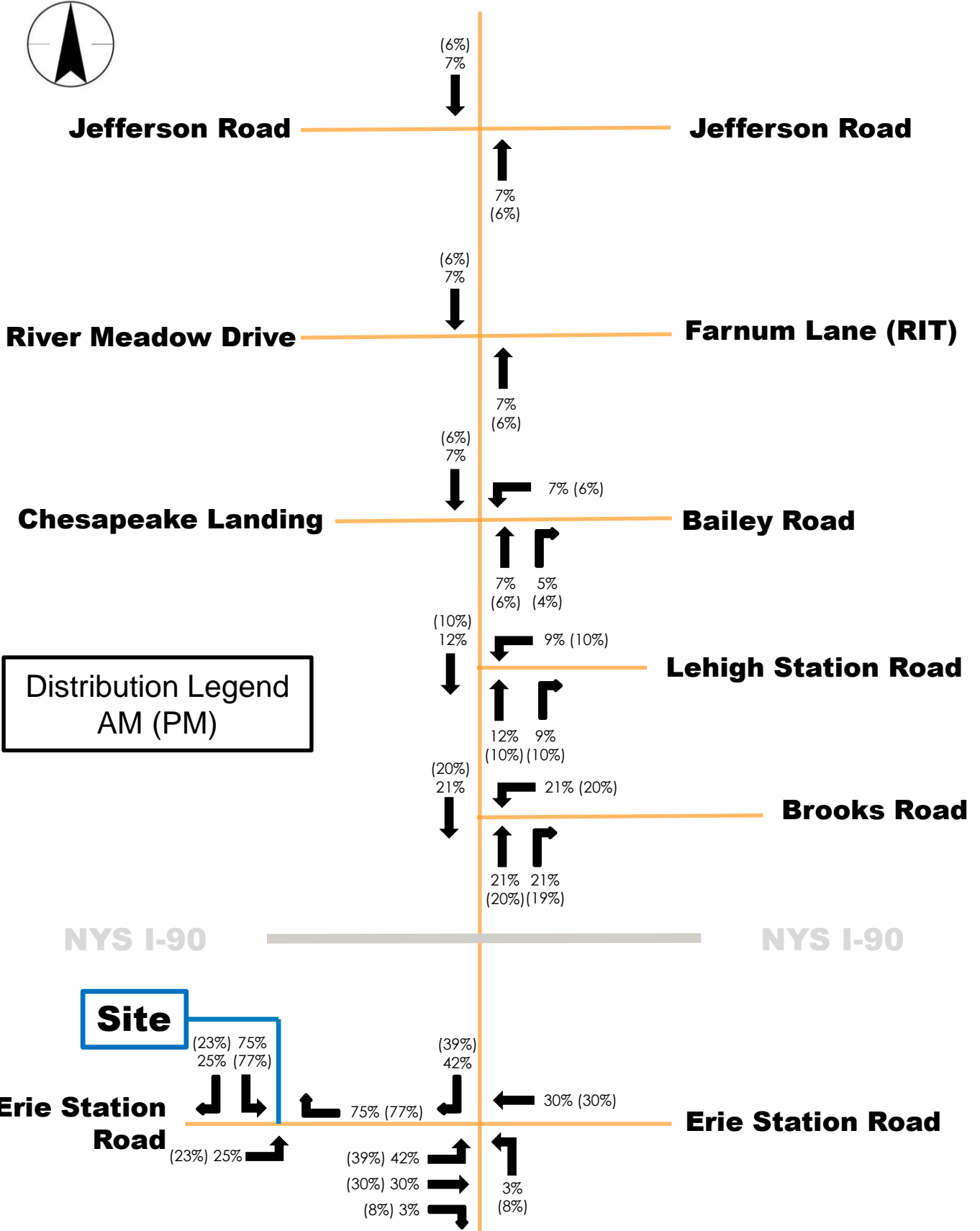
Site

Trip (%) Distribution Diagram
Jaynes Riverview Parcel N (Parcel #17)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

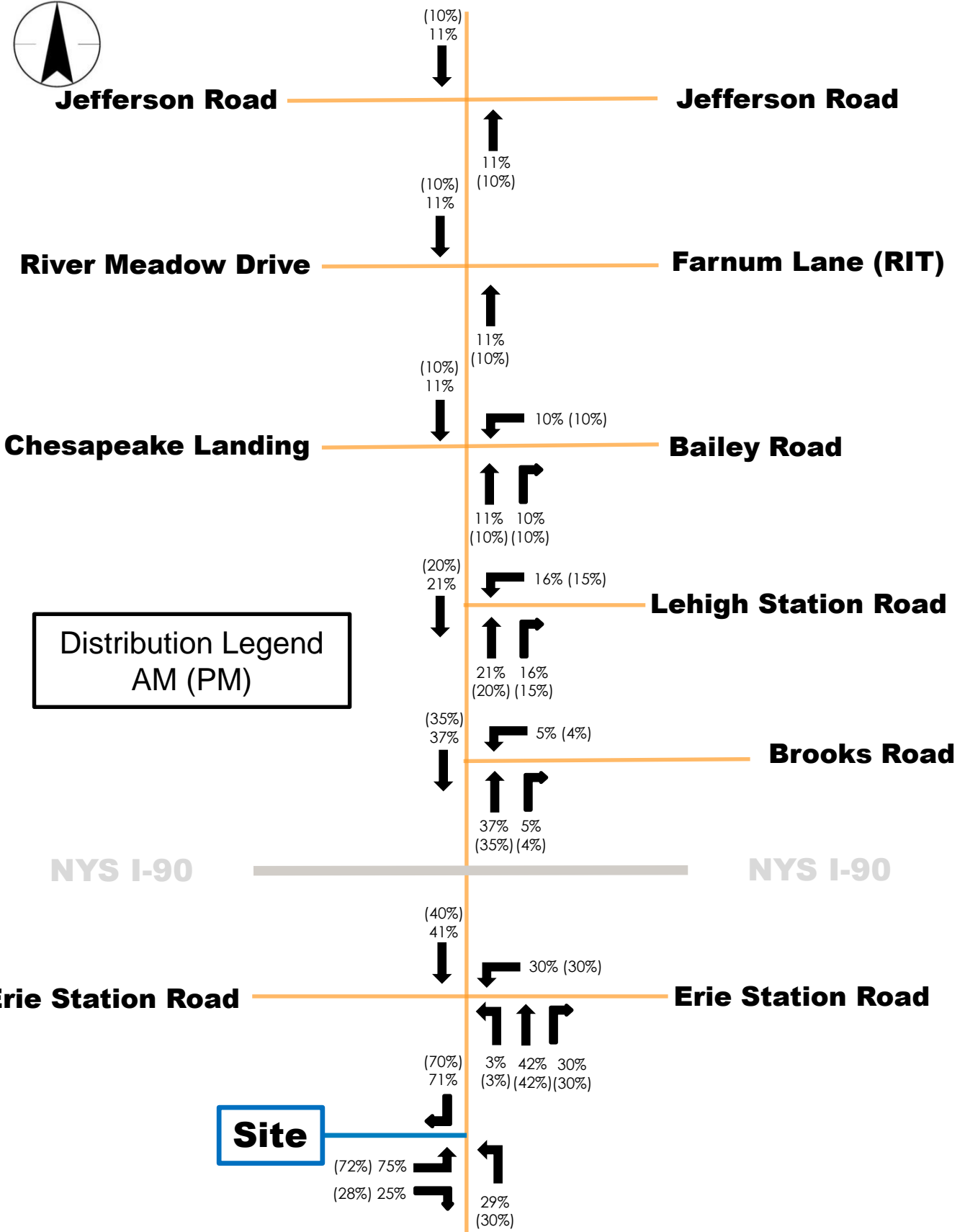
Site

Trip (%) Distribution Diagram
Riverton Parcel 'A' – Phase I-IV (Parcel #19)
 East River Road Traffic Review





East River Road



Distribution Legend
AM (PM)

Site

Trip (%) Distribution Diagram
Section 1 – Queens Park Subdivision (Parcel #20)
 East River Road Traffic Review



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APPENDIX B SYNCHRO OUTPUT

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2015 (ETC)





















EAST RIVER ROAD SYNCHRO FILES

BASE VOLUMES

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Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	38	10	10	10	94	5	496	71	318	187	1
Future Volume (vph)	19	38	10	10	10	94	5	496	71	318	187	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.981			0.999	
Flt Protected		0.984			0.976		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1818	1583	1770	1827	0	1770	1861	0
Flt Permitted		0.888			0.840		0.627			0.213		
Satd. Flow (perm)	0	1654	1583	0	1565	1583	1168	1827	0	397	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			104		9			1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	42	11	11	11	104	6	551	79	353	208	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	11	0	22	104	6	630	0	353	209	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	41.0	41.0		25.0	66.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

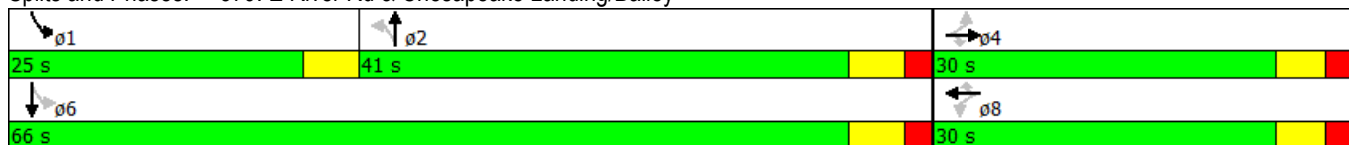
6/12/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	42.7%	42.7%		26.0%	68.8%	
Maximum Green (s)	24.5	24.5	24.5	24.5	24.5	24.5	35.0	35.0		21.0	60.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		12.6	12.6		12.6	12.6	32.5	32.5		53.8	53.3	
Actuated g/C Ratio		0.19	0.19		0.19	0.19	0.48	0.48		0.79	0.78	
v/c Ratio		0.21	0.03		0.08	0.28	0.01	0.72		0.55	0.14	
Control Delay		31.2	0.2		29.9	9.3	12.2	21.7		7.9	3.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		31.2	0.2		29.9	9.3	12.2	21.7		7.9	3.2	
LOS		C	A		C	A	B	C		A	A	
Approach Delay		26.6			12.9			21.6			6.2	
Approach LOS		C			B			C			A	
Queue Length 50th (ft)		26	0		9	0	1	211		37	23	
Queue Length 95th (ft)		65	0		31	42	9	#404		106	42	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		682	700		646	714	676	1062		804	1595	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.09	0.02		0.03	0.15	0.01	0.59		0.44	0.13	

Intersection Summary

Area Type: Other
 Cycle Length: 96
 Actuated Cycle Length: 68
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 14.9
 Intersection LOS: B
 Intersection Capacity Utilization 68.2%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks


















11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	16	644	57	7	152
Future Volume (Veh/h)	7	16	644	57	7	152
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	18	716	63	8	169
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	932	748			779	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	932	748			779	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	96			99	
cM capacity (veh/h)	293	413			838	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	26	779	177			
Volume Left	8	0	8			
Volume Right	18	63	0			
cSH	366	1700	838			
Volume to Capacity	0.07	0.46	0.01			
Queue Length 95th (ft)	6	0	1			
Control Delay (s)	15.6	0.0	0.5			
Lane LOS	C		A			
Approach Delay (s)	15.6	0.0	0.5			
Approach LOS	C					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization		47.4%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings
1370: E River & 253

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	332	8	32	67	53	5	349	245	45	49	47
Future Volume (vph)	203	332	8	32	67	53	5	349	245	45	49	47
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.948			0.945				0.850
Flt Protected		0.982			0.989						0.977	
Satd. Flow (prot)	0	3469	0	0	3318	0	0	1760	0	0	1820	1583
Flt Permitted		0.769			0.782			0.998			0.581	
Satd. Flow (perm)	0	2716	0	0	2624	0	0	1757	0	0	1082	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			59			50				64
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			262			587	
Travel Time (s)		4.5			2.9			4.5			10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	226	369	9	36	74	59	6	388	272	50	54	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	604	0	0	169	0	0	666	0	0	104	52
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	43.0	43.0		43.0	43.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	49.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		36.5			36.5			35.5			35.5	35.5
Actuated g/C Ratio		0.43			0.43			0.42			0.42	0.42
v/c Ratio		0.52			0.15			0.87			0.23	0.07

Lanes, Volumes, Timings

1370: E River & 253

6/12/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		19.7			9.9			35.6			17.7	3.6
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		19.7			9.9			35.6			17.7	3.6
LOS		B			A			D			B	A
Approach Delay		19.7			9.9			35.6			13.0	
Approach LOS		B			A			D			B	
Queue Length 50th (ft)		120			17			297			35	0
Queue Length 95th (ft)		169			36			#510			70	16
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		1167			1160			762			451	698
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.52			0.15			0.87			0.23	0.07

Intersection Summary
























Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 24.7
 Intersection Capacity Utilization 76.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253

ρ2 (R) 42 s				ρ4 43 s							
ρ6 (R) 42 s				ρ8 43 s							

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	609	34	361	25	302	160	76	20	96	43
Future Volume (vph)	210	1148	609	34	361	25	302	160	76	20	96	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	1761	1853	1575	1711	1863	1583
Flt Permitted	0.437			0.187			0.430			0.643		
Satd. Flow (perm)	787	3421	1583	322	4652	0	797	1853	1575	1158	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			692		13				76			131
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		593			1821			955			477	
Travel Time (s)		9.0			27.6			14.5			7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	692	39	410	28	343	182	86	23	109	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	692	39	438	0	343	182	86	23	109	49
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)		24			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	7			4		1	6			2	
Permitted Phases	7		7	4			6		6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	2
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

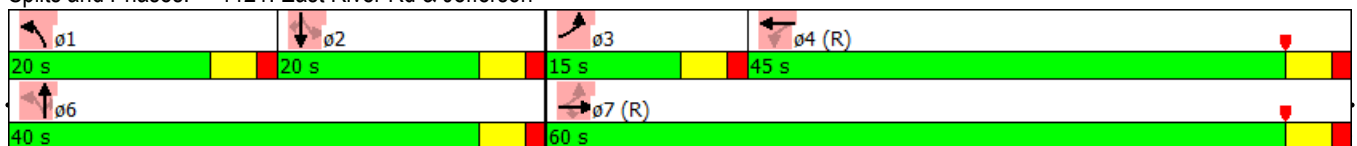
6/12/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	60.0	60.0	45.0	45.0		20.0	40.0	40.0	20.0	20.0	20.0
Total Split (%)	15.0%	60.0%	60.0%	45.0%	45.0%		20.0%	40.0%	40.0%	20.0%	20.0%	20.0%
Maximum Green (s)	10.0	55.0	55.0	40.0	40.0		15.0	35.0	35.0	15.0	15.0	15.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	61.5	61.5	61.5	46.5	46.5		31.5	31.5	31.5	11.7	11.7	11.7
Actuated g/C Ratio	0.62	0.62	0.62	0.46	0.46		0.32	0.32	0.32	0.12	0.12	0.12
v/c Ratio	0.41	0.62	0.56	0.26	0.20		0.84	0.31	0.16	0.17	0.50	0.16
Control Delay	10.4	14.9	2.8	24.7	16.5		48.2	26.9	7.3	41.0	48.7	1.2
Queue Delay	0.0	0.6	0.6	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	15.4	3.4	24.7	16.5		48.2	26.9	7.3	41.0	48.7	1.2
LOS	B	B	A	C	B		D	C	A	D	D	A
Approach Delay		11.2			17.1			36.1			34.9	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	54	367	33	15	57		184	87	4	13	66	0
Queue Length 95th (ft)	m79	m383	m36	45	84		#269	132	34	36	113	0
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	597	2102	1239	149	2168		410	676	623	191	307	370
Starvation Cap Reductn	0	379	220	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.76	0.68	0.26	0.20		0.84	0.27	0.14	0.12	0.36	0.13

Intersection Summary













Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 17.5
 Intersection LOS: B
 Intersection Capacity Utilization 73.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/12/2016

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	125	59	443	153	85	107
Future Volume (vph)	125	59	443	153	85	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	60		10	80	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.454	
Satd. Flow (perm)	1770	1583	1863	1583	846	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		66		63		
Link Speed (mph)	40		45			45
Link Distance (ft)	339		615			264
Travel Time (s)	5.8		9.3			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	139	66	492	170	94	119
Shared Lane Traffic (%)						
Lane Group Flow (vph)	139	66	492	170	94	119
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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		9	15	
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	23.0	23.0	57.0	57.0	57.0	57.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/12/2016

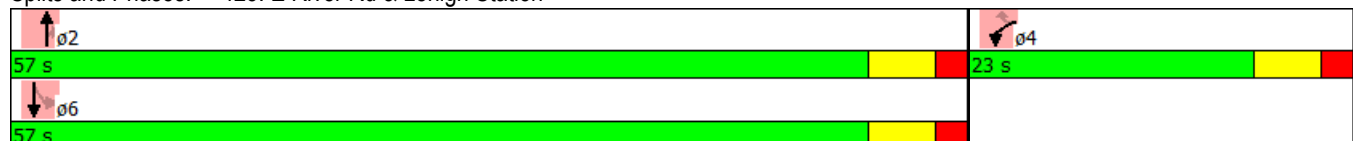


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	28.8%	28.8%	71.3%	71.3%	71.3%	71.3%
Maximum Green (s)	17.0	17.0	51.0	51.0	51.0	51.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	None	None	Max	Max	Max	Max
Act Effct Green (s)	14.0	14.0	56.4	56.4	56.4	56.4
Actuated g/C Ratio	0.19	0.19	0.75	0.75	0.75	0.75
v/c Ratio	0.42	0.19	0.35	0.14	0.15	0.09
Control Delay	31.2	8.6	5.6	3.1	5.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	8.6	5.6	3.1	5.2	4.3
LOS	C	A	A	A	A	A
Approach Delay	23.9		5.0			4.7
Approach LOS	C		A			A
Queue Length 50th (ft)	58	0	77	13	12	15
Queue Length 95th (ft)	108	30	152	38	34	36
Internal Link Dist (ft)	259		535			184
Turn Bay Length (ft)		60		10	80	
Base Capacity (vph)	437	440	1400	1205	636	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.15	0.35	0.14	0.15	0.09

Intersection Summary














Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 75
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 8.5
 Intersection Capacity Utilization 51.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

6/12/2016

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕	↕		↕			↕		
Traffic Volume (vph)	39	5	17	20	1	8	5	534	160	26	473	5	
Future Volume (vph)	39	5	17	20	1	8	5	534	160	26	473	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		70	0		0	0		0	
Storage Lanes	0		0	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.962				0.850		0.969			0.999		
Flt Protected		0.969			0.954						0.997		
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1805	0	0	1855	0	
Flt Permitted		0.794			0.834			0.996			0.949		
Satd. Flow (perm)	0	1423	0	0	1554	1583	0	1798	0	0	1766	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		19				43		31			1		
Link Speed (mph)		30			30			45			45		
Link Distance (ft)		322			368			2357			306		
Travel Time (s)		7.3			8.4			35.7			4.6		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	43	6	19	22	1	9	6	593	178	29	526	6	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	68	0	0	23	9	0	777	0	0	561	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	1		1	1	1	1	1		1	1		
Detector Template													
Leading Detector (ft)	50	50		50	50	50	50	50		50	50		
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)	50	50		50	50	50	50	50		50	50		
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		
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8		8	2			6			
Detector Phase	4	4		8	8	8	2	2		6	6		
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0		
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0		
Total Split (s)	30.0	30.0		30.0	30.0	30.0	46.0	46.0		46.0	46.0		

Lanes, Volumes, Timings
 653: E River Rd & River Meadows/RIT

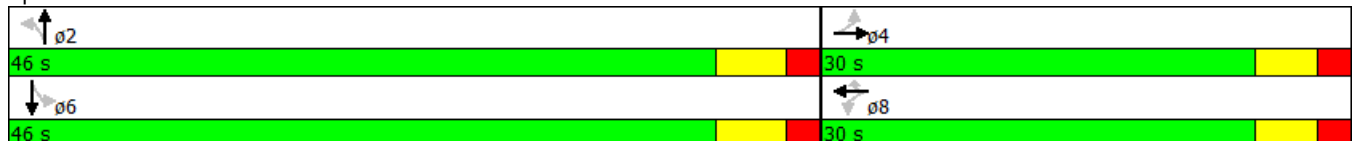
6/12/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	39.5%	39.5%		39.5%	39.5%	39.5%	60.5%	60.5%		60.5%	60.5%	
Maximum Green (s)	24.5	24.5		24.5	24.5	24.5	40.0	40.0		40.0	40.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effect Green (s)		12.2			12.2	12.2		40.9			40.9	
Actuated g/C Ratio		0.24			0.24	0.24		0.80			0.80	
v/c Ratio		0.19			0.06	0.02		0.54			0.40	
Control Delay		17.6			20.9	0.1		6.2			4.9	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		17.6			20.9	0.1		6.2			4.9	
LOS		B			C	A		A			A	
Approach Delay		17.6			15.0			6.2			4.9	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		15			7	0		126			80	
Queue Length 95th (ft)		46			24	0		220			136	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		776			838	873		1465			1433	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.09			0.03	0.01		0.53			0.39	

Intersection Summary





















Area Type: Other
 Cycle Length: 76
 Actuated Cycle Length: 51.1
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 6.4
 Intersection Capacity Utilization 65.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	22	8	77	33	332	9	209	26	96	440	10
Future Volume (vph)	5	22	8	77	33	332	9	209	26	96	440	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.983			0.997	
Flt Protected		0.990			0.966		0.950			0.950		
Satd. Flow (prot)	0	1844	1583	0	1799	1583	1770	1831	0	1770	1857	0
Flt Permitted		0.943			0.782		0.480			0.481		
Satd. Flow (perm)	0	1757	1583	0	1457	1583	894	1831	0	896	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			369		8			2	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	24	9	86	37	369	10	232	29	107	489	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	9	0	123	369	10	261	0	107	500	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	41.0	41.0		25.0	66.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

6/12/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	42.7%	42.7%		26.0%	68.8%	
Maximum Green (s)	24.5	24.5	24.5	24.5	24.5	24.5	35.0	35.0		21.0	60.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		13.1	13.1		13.1	13.1	15.9	15.9		28.4	26.3	
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.33	0.33		0.59	0.54	
v/c Ratio		0.06	0.02		0.31	0.53	0.03	0.43		0.14	0.49	
Control Delay		16.1	0.1		19.3	5.6	12.9	16.1		4.6	8.4	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		16.1	0.1		19.3	5.6	12.9	16.1		4.6	8.4	
LOS		B	A		B	A	B	B		A	A	
Approach Delay		12.5			9.0			16.0			7.8	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		7	0		30	0	2	57		10	66	
Queue Length 95th (ft)		25	0		75	54	11	123		29	151	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		990	927		821	1053	679	1392		1004	1857	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.03	0.01		0.15	0.35	0.01	0.19		0.11	0.27	

Intersection Summary

Area Type: Other
 Cycle Length: 96
 Actuated Cycle Length: 48.4
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 9.9
 Intersection Capacity Utilization 55.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks


















11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	24	203	19	17	562
Future Volume (Veh/h)	32	24	203	19	17	562
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	27	226	21	19	624
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	898	236			247	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	898	236			247	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			99	
cM capacity (veh/h)	305	802			1319	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	63	247	643			
Volume Left	36	0	19			
Volume Right	27	21	0			
cSH	416	1700	1319			
Volume to Capacity	0.15	0.15	0.01			
Queue Length 95th (ft)	13	0	1			
Control Delay (s)	15.2	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	15.2	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			53.3%	ICU Level of Service		A
Analysis Period (min)			15			













Lanes, Volumes, Timings
1370: E River & 253

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	160	5	201	295	39	7	115	109	48	343	227
Future Volume (vph)	50	160	5	201	295	39	7	115	109	48	343	227
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.996			0.989			0.936				0.850
Flt Protected		0.988			0.982			0.998			0.994	
Satd. Flow (prot)	0	3483	0	0	3437	0	0	1740	0	0	1852	1583
Flt Permitted		0.742			0.742			0.984			0.926	
Satd. Flow (perm)	0	2616	0	0	2597	0	0	1716	0	0	1725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			12			65				252
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			262			587	
Travel Time (s)		4.5			2.9			4.5			10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	178	6	223	328	43	8	128	121	53	381	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	594	0	0	257	0	0	434	252
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	43.0	43.0		43.0	43.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	49.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		36.5			36.5			35.5			35.5	35.5
Actuated g/C Ratio		0.43			0.43			0.42			0.42	0.42
v/c Ratio		0.21			0.53			0.34			0.60	0.31

Lanes, Volumes, Timings
1370: E River & 253

6/12/2016

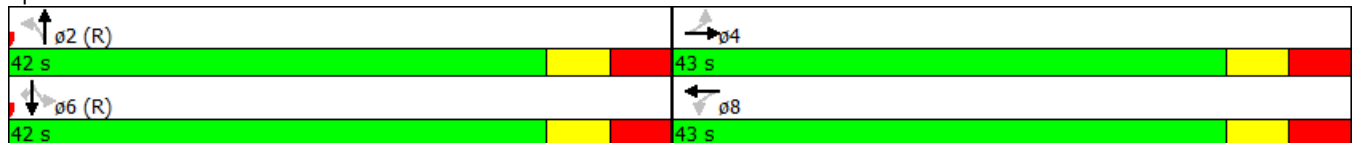
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		15.6			19.6			13.8			23.6	3.3
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		15.6			19.6			13.8			23.6	3.3
LOS		B			B			B			C	A
Approach Delay		15.6			19.6			13.8			16.2	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		40			116			65			175	0
Queue Length 95th (ft)		65			167			122			272	42
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		1125			1122			754			720	807
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.21			0.53			0.34			0.60	0.31

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 16.9
 Intersection Capacity Utilization 79.0%
 Analysis Period (min) 15



























Intersection LOS: B
ICU Level of Service D

Splits and Phases: 1370: E River & 253



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  							
Traffic Volume (vph)	45	602	284	80	1668	35	452	121	62	85	158	339
Future Volume (vph)	45	602	284	80	1668	35	452	121	62	85	158	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.997			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	1761	1853	1575	1711	1863	1583
Flt Permitted	0.071			0.415			0.364			0.677		
Satd. Flow (perm)	128	3421	1583	714	4685	0	675	1853	1575	1219	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			293			3			64			182
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		593			1821			955			477	
Travel Time (s)		9.0			27.6			14.5			7.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	293	82	1720	36	466	125	64	88	163	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	293	82	1756	0	466	125	64	88	163	349
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)		24			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	7			4		1	6			2	
Permitted Phases	7		7	4			6		6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	2
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
 1121: East River Rd & Jefferson

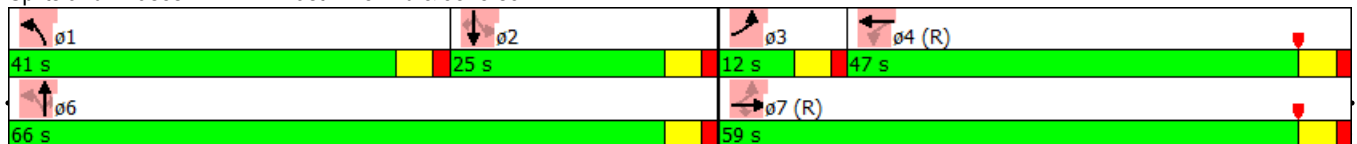
6/12/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	12.0	59.0	59.0	47.0	47.0		41.0	66.0	66.0	25.0	25.0	25.0	
Total Split (%)	9.6%	47.2%	47.2%	37.6%	37.6%		32.8%	52.8%	52.8%	20.0%	20.0%	20.0%	
Maximum Green (s)	7.0	54.0	54.0	42.0	42.0		36.0	61.0	61.0	20.0	20.0	20.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	
Lead/Lag	Lead			Lag		Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None	
Act Effct Green (s)	63.1	63.1	63.1	54.0	54.0		54.9	54.9	54.9	20.1	20.1	20.1	
Actuated g/C Ratio	0.50	0.50	0.50	0.43	0.43		0.44	0.44	0.44	0.16	0.16	0.16	
v/c Ratio	0.29	0.36	0.31	0.27	0.87		0.82	0.15	0.09	0.45	0.55	0.86	
Control Delay	30.6	30.6	16.3	30.4	39.8		38.4	19.9	4.2	54.1	54.6	44.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		1.1	0.0	0.0	0.0	0.0	0.5	
Total Delay	30.6	30.6	16.3	30.4	39.8		39.5	19.9	4.2	54.1	54.6	44.8	
LOS	C	C	B	C	D		D	B	A	D	D	D	
Approach Delay					26.2		39.4		32.3		48.8		
Approach LOS					C		D		C		D		
Queue Length 50th (ft)	27	194	118	45	495		272	57	0	64	120	134	
Queue Length 95th (ft)	m50	238	167	96	#677		349	89	24	119	194	#293	
Internal Link Dist (ft)				513		1741		875			397		
Turn Bay Length (ft)	500			425		780		260		225		275	
Base Capacity (vph)	172	1726	943	308	2024		622	926	819	221	338	435	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		42	0	0	0	0	8	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0	
Reduced v/c Ratio	0.27	0.36	0.31	0.27	0.87		0.80	0.13	0.08	0.40	0.48	0.82	

Intersection Summary













Area Type: Other
 Cycle Length: 125
 Actuated Cycle Length: 125
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 36.5 Intersection LOS: D
 Intersection Capacity Utilization 89.0% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/12/2016

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	87	206	150	62	117	429
Future Volume (vph)	87	206	150	62	117	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	60		10	80	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.651	
Satd. Flow (perm)	1770	1583	1863	1583	1213	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		229		69		
Link Speed (mph)	40		45			45
Link Distance (ft)	339		615			264
Travel Time (s)	5.8		9.3			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	229	167	69	130	477
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	229	167	69	130	477
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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		9	15	
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	22.0	22.0	38.0	38.0	38.0	38.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/12/2016

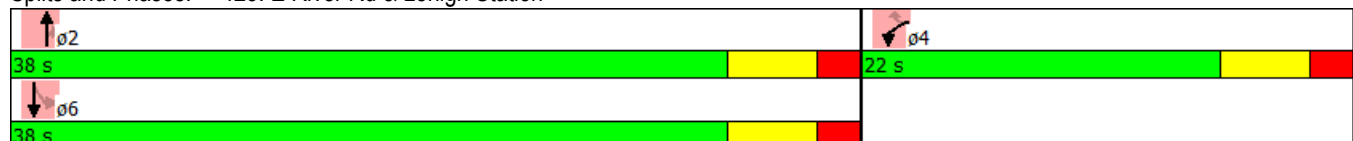


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	16.0	16.0	32.0	32.0	32.0	32.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	None	None	Min	Min	Min	Min
Act Effct Green (s)	12.2	12.2	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.29	0.29	0.50	0.50	0.50	0.50
v/c Ratio	0.19	0.37	0.18	0.08	0.22	0.52
Control Delay	13.1	4.6	6.5	2.2	7.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	4.6	6.5	2.2	7.2	9.6
LOS	B	A	A	A	A	A
Approach Delay	7.1		5.3			9.1
Approach LOS	A		A			A
Queue Length 50th (ft)	15	0	19	0	15	65
Queue Length 95th (ft)	51	39	45	12	39	135
Internal Link Dist (ft)	259		535			184
Turn Bay Length (ft)		60		10	80	
Base Capacity (vph)	745	799	1502	1289	978	1502
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.29	0.11	0.05	0.13	0.32

Intersection Summary


















Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 42.3
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 7.8
 Intersection Capacity Utilization 38.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	15	116	15	59	17	478	95	38	470	17
Future Volume (vph)	16	5	15	116	15	59	17	478	95	38	470	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944				0.850		0.978			0.996	
Flt Protected		0.979			0.958			0.999			0.996	
Satd. Flow (prot)	0	1722	0	0	1785	1583	0	1820	0	0	1848	0
Flt Permitted		0.841			0.721			0.980			0.932	
Satd. Flow (perm)	0	1479	0	0	1343	1583	0	1785	0	0	1729	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		20			4	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	129	17	66	19	531	106	42	522	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	146	66	0	656	0	0	583	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	26.0	26.0		26.0	26.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	46.0	46.0		46.0	46.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

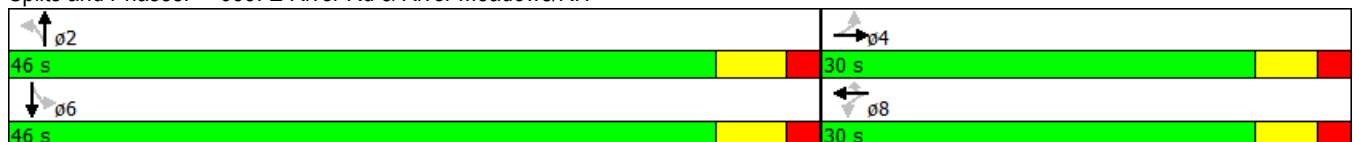
6/12/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	39.5%	39.5%		39.5%	39.5%	39.5%	60.5%	60.5%		60.5%	60.5%	
Maximum Green (s)	24.5	24.5		24.5	24.5	24.5	40.0	40.0		40.0	40.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		12.8			12.9	12.9		34.0			34.0	
Actuated g/C Ratio		0.25			0.25	0.25		0.66			0.66	
v/c Ratio		0.11			0.43	0.15		0.55			0.51	
Control Delay		13.0			22.3	6.6		9.3			8.9	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		13.0			22.3	6.6		9.3			8.9	
LOS		B			C	A		A			A	
Approach Delay		13.0			17.4			9.3			8.9	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		5			34	0		104			92	
Queue Length 95th (ft)		29			99	26		247			215	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		783			704	861		1491			1442	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.05			0.21	0.08		0.44			0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 76
 Actuated Cycle Length: 51.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 10.4
 Intersection Capacity Utilization 63.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 653: E River Rd & River Meadows/RIT























2015 (ETC)

EAST RIVER ROAD SYNCHRO FILES
BASE VOLUMES WITH MITIGATION

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Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

6/13/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	38	10	10	10	94	5	496	71	318	187	1
Future Volume (vph)	19	38	10	10	10	94	5	496	71	318	187	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.981			0.999	
Flt Protected		0.984			0.976		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1818	1583	1770	1827	0	1770	1861	0
Flt Permitted		0.889			0.841		0.627			0.212		
Satd. Flow (perm)	0	1656	1583	0	1567	1583	1168	1827	0	395	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			104		12			1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	42	11	11	11	104	6	551	79	353	208	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	11	0	22	104	6	630	0	353	209	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	43.0	43.0		21.0	64.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

6/13/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	53.8%	53.8%		26.3%	80.0%	
Maximum Green (s)	10.5	10.5	10.5	10.5	10.5	10.5	37.0	37.0		17.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		12.6	12.6		12.6	12.6	29.1	29.1		47.7	47.2	
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.47	0.47		0.77	0.76	
v/c Ratio		0.19	0.03		0.07	0.26	0.01	0.73		0.58	0.15	
Control Delay		28.2	0.1		27.4	8.8	9.8	19.5		9.2	3.4	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		28.2	0.1		27.4	8.8	9.8	19.5		9.2	3.4	
LOS		C	A		C	A	A	B		A	A	
Approach Delay		24.0			12.1			19.4			7.0	
Approach LOS		C			B			B			A	
Queue Length 50th (ft)		21	0		7	0	1	183		37	23	
Queue Length 95th (ft)		63	0		30	41	7	352		107	41	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		351	410		332	417	763	1197		754	1675	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.18	0.03		0.07	0.25	0.01	0.53		0.47	0.12	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 61.8
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 14.0
 Intersection Capacity Utilization 68.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey

21 s	43 s	16 s
64 s		16 s

HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks


















11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	16	644	57	7	152
Future Volume (Veh/h)	7	16	644	57	7	152
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	18	716	63	8	169
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	932	748			779	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	932	748			779	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	96			99	
cM capacity (veh/h)	293	413			838	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	26	779	177			
Volume Left	8	0	8			
Volume Right	18	63	0			
cSH	366	1700	838			
Volume to Capacity	0.07	0.46	0.01			
Queue Length 95th (ft)	6	0	1			
Control Delay (s)	15.6	0.0	0.5			
Lane LOS	C		A			
Approach Delay (s)	15.6	0.0	0.5			
Approach LOS	C					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			47.4%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1370: E River & 253

6/13/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	332	8	32	67	53	5	349	245	45	49	47
Future Volume (vph)	203	332	8	32	67	53	5	349	245	45	49	47
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.948			0.945				0.850
Flt Protected		0.982			0.989						0.977	
Satd. Flow (prot)	0	3469	0	0	3318	0	0	1760	0	0	1820	1583
Flt Permitted		0.769			0.782			0.998			0.581	
Satd. Flow (perm)	0	2716	0	0	2624	0	0	1757	0	0	1082	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			59			50				64
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	226	369	9	36	74	59	6	388	272	50	54	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	604	0	0	169	0	0	666	0	0	104	52
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	43.0	43.0		43.0	43.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	49.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		36.5			36.5			35.5			35.5	35.5
Actuated g/C Ratio		0.43			0.43			0.42			0.42	0.42
v/c Ratio		0.52			0.15			0.87			0.23	0.07

Lanes, Volumes, Timings
1370: E River & 253

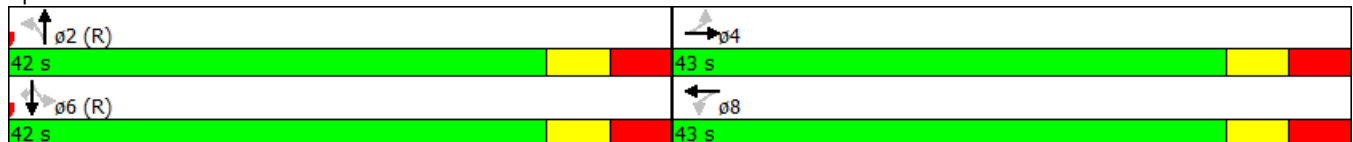
6/13/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		19.7			9.9			35.6			17.7	3.6
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		19.7			9.9			35.6			17.7	3.6
LOS		B			A			D			B	A
Approach Delay		19.7			9.9			35.6			13.0	
Approach LOS		B			A			D			B	
Queue Length 50th (ft)		120			17			297			35	0
Queue Length 95th (ft)		169			36			#510			70	16
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		1167			1160			762			451	698
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.52			0.15			0.87			0.23	0.07

Intersection Summary
























Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 24.7
 Intersection Capacity Utilization 76.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

6/13/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	609	34	361	25	302	160	76	20	96	43
Future Volume (vph)	210	1148	609	34	361	25	302	160	76	20	96	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.440			0.191			0.950			0.643		
Satd. Flow (perm)	792	3421	1583	329	4652	0	3416	1853	1575	1158	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			692		13				76			76
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		593			1821			955			477	
Travel Time (s)		9.0			27.6			14.5			7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	692	39	410	28	343	182	86	23	109	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	692	39	438	0	343	182	86	23	109	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

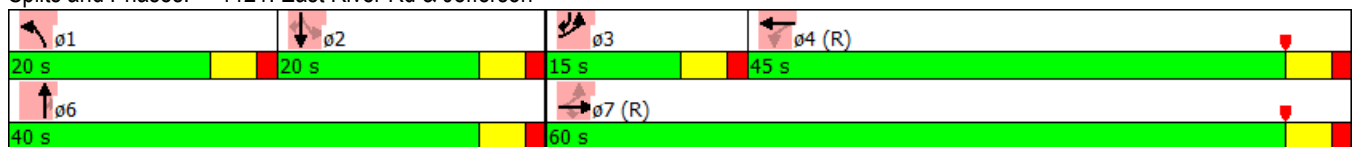
6/13/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	60.0	60.0	45.0	45.0		20.0	40.0	40.0	20.0	20.0	15.0
Total Split (%)	15.0%	60.0%	60.0%	45.0%	45.0%		20.0%	40.0%	40.0%	20.0%	20.0%	15.0%
Maximum Green (s)	10.0	55.0	55.0	40.0	40.0		15.0	35.0	35.0	15.0	15.0	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	62.9	62.9	62.9	48.0	48.0		14.9	30.1	30.1	11.7	11.7	26.6
Actuated g/C Ratio	0.63	0.63	0.63	0.48	0.48		0.15	0.30	0.30	0.12	0.12	0.27
v/c Ratio	0.40	0.61	0.55	0.25	0.20		0.67	0.33	0.16	0.17	0.50	0.10
Control Delay	4.9	6.6	1.4	23.9	15.9		47.1	27.7	7.4	41.0	48.7	3.0
Queue Delay	0.0	0.2	0.3	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.9	6.9	1.7	23.9	15.9		47.1	27.7	7.4	41.0	48.7	3.0
LOS	A	A	A	C	B		D	C	A	D	D	A
Approach Delay		5.1			16.5			35.7			35.4	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	30	174	12	15	56		106	88	4	13	66	0
Queue Length 95th (ft)	m49	m240	m23	44	84		148	132	34	36	113	12
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	610	2150	1252	157	2239		563	676	623	191	307	489
Starvation Cap Reductn	0	252	166	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.69	0.64	0.25	0.20		0.61	0.27	0.14	0.12	0.36	0.10

Intersection Summary













Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 13.5 Intersection LOS: B
 Intersection Capacity Utilization 66.7% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/13/2016

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	125	59	443	153	85	107
Future Volume (vph)	125	59	443	153	85	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	60		10	80	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.454	
Satd. Flow (perm)	1770	1583	1863	1583	846	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		66		63		
Link Speed (mph)	40		45			45
Link Distance (ft)	339		615			264
Travel Time (s)	5.8		9.3			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	139	66	492	170	94	119
Shared Lane Traffic (%)						
Lane Group Flow (vph)	139	66	492	170	94	119
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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		9	15	
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	23.0	23.0	57.0	57.0	57.0	57.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/13/2016

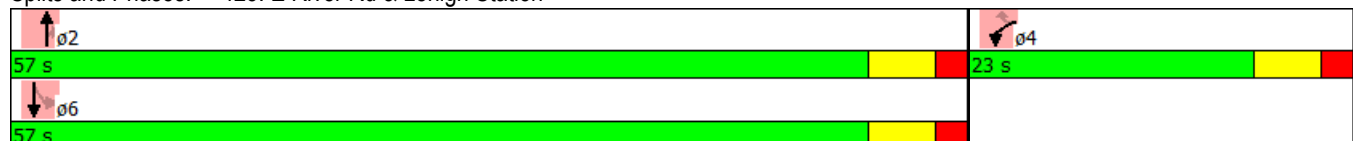


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	28.8%	28.8%	71.3%	71.3%	71.3%	71.3%
Maximum Green (s)	17.0	17.0	51.0	51.0	51.0	51.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	None	None	Max	Max	Max	Max
Act Effct Green (s)	14.0	14.0	56.4	56.4	56.4	56.4
Actuated g/C Ratio	0.19	0.19	0.75	0.75	0.75	0.75
v/c Ratio	0.42	0.19	0.35	0.14	0.15	0.09
Control Delay	31.2	8.6	5.6	3.1	5.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	8.6	5.6	3.1	5.2	4.3
LOS	C	A	A	A	A	A
Approach Delay	23.9		5.0			4.7
Approach LOS	C		A			A
Queue Length 50th (ft)	58	0	77	13	12	15
Queue Length 95th (ft)	108	30	152	38	34	36
Internal Link Dist (ft)	259		535			184
Turn Bay Length (ft)		60		10	80	
Base Capacity (vph)	437	440	1400	1205	636	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.15	0.35	0.14	0.15	0.09

Intersection Summary













Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 75
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 8.5
 Intersection Capacity Utilization 51.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

6/13/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	20	1	8	5	534	160	26	473	5
Future Volume (vph)	39	5	17	20	1	8	5	534	160	26	473	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962				0.850		0.969			0.999	
Flt Protected		0.969			0.954						0.997	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1805	0	0	1855	0
Flt Permitted		0.794			0.831			0.996			0.949	
Satd. Flow (perm)	0	1423	0	0	1548	1583	0	1798	0	0	1766	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				55		52			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	22	1	9	6	593	178	29	526	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	23	9	0	777	0	0	561	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	16.0	16.0		16.0	16.0	16.0	44.0	44.0		44.0	44.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

6/13/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	26.7%	26.7%		26.7%	26.7%	26.7%	73.3%	73.3%		73.3%	73.3%	
Maximum Green (s)	10.5	10.5		10.5	10.5	10.5	38.0	38.0		38.0	38.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effect Green (s)		12.3			12.3	12.3		39.9			39.9	
Actuated g/C Ratio		0.25			0.25	0.25		0.80			0.80	
v/c Ratio		0.19			0.06	0.02		0.54			0.40	
Control Delay		17.0			20.1	0.1		6.2			5.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		17.0			20.1	0.1		6.2			5.0	
LOS		B			C	A		A			A	
Approach Delay		17.0			14.5			6.2			5.0	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		15			7	0		121			79	
Queue Length 95th (ft)		44			23	0		220			140	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		375			393	443		1451			1415	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.18			0.06	0.02		0.54			0.40	

Intersection Summary





















Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 50.1
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 6.4
 Intersection Capacity Utilization 65.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
379: E River Rd & Chesapeake Landing/Bailey

6/13/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	22	8	77	33	332	9	209	26	96	440	10
Future Volume (vph)	5	22	8	77	33	332	9	209	26	96	440	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.983			0.997	
Flt Protected		0.990			0.966		0.950			0.950		
Satd. Flow (prot)	0	1844	1583	0	1799	1583	1770	1831	0	1770	1857	0
Flt Permitted		0.943			0.782		0.480			0.480		
Satd. Flow (perm)	0	1757	1583	0	1457	1583	894	1831	0	894	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			369		9			2	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	24	9	86	37	369	10	232	29	107	489	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	9	0	123	369	10	261	0	107	500	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0		14.0	47.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

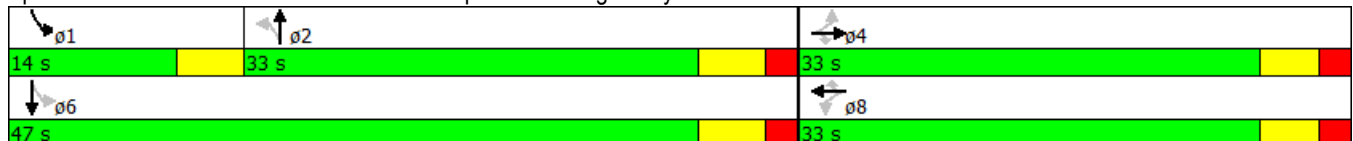
6/13/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%		17.5%	58.8%	
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	27.0	27.0		10.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		13.1	13.1		13.1	13.1	15.9	15.9		28.4	26.3	
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.33	0.33		0.59	0.54	
v/c Ratio		0.06	0.02		0.31	0.53	0.03	0.43		0.14	0.50	
Control Delay		16.2	0.1		19.3	5.6	12.9	16.1		4.6	8.4	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		16.2	0.1		19.3	5.6	12.9	16.1		4.6	8.4	
LOS		B	A		B	A	B	B		A	A	
Approach Delay		12.5			9.0			16.0			7.8	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		7	0		30	0	2	57		10	66	
Queue Length 95th (ft)		25	0		75	55	11	123		29	152	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		1106	1032		917	1134	553	1137		743	1585	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.03	0.01		0.13	0.33	0.02	0.23		0.14	0.32	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 48.3
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 9.9
 Intersection Capacity Utilization 55.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016




















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	24	203	19	17	562
Future Volume (Veh/h)	32	24	203	19	17	562
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	27	226	21	19	624
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	898	236			247	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	898	236			247	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			99	
cM capacity (veh/h)	305	802			1319	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	63	247	643			
Volume Left	36	0	19			
Volume Right	27	21	0			
cSH	416	1700	1319			
Volume to Capacity	0.15	0.15	0.01			
Queue Length 95th (ft)	13	0	1			
Control Delay (s)	15.2	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	15.2	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			53.3%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

1370: E River & 253

6/13/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	160	5	201	295	39	7	115	109	48	343	227
Future Volume (vph)	50	160	5	201	295	39	7	115	109	48	343	227
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.996			0.989			0.936				0.850
Flt Protected		0.988			0.982			0.998			0.994	
Satd. Flow (prot)	0	3483	0	0	3437	0	0	1740	0	0	1852	1583
Flt Permitted		0.742			0.742			0.984			0.926	
Satd. Flow (perm)	0	2616	0	0	2597	0	0	1716	0	0	1725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			12			65				252
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			262			587	
Travel Time (s)		4.5			2.9			4.5			10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	178	6	223	328	43	8	128	121	53	381	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	594	0	0	257	0	0	434	252
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	43.0	43.0		43.0	43.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	49.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		36.5			36.5			35.5			35.5	35.5
Actuated g/C Ratio		0.43			0.43			0.42			0.42	0.42
v/c Ratio		0.21			0.53			0.34			0.60	0.31

Lanes, Volumes, Timings
1370: E River & 253

6/13/2016

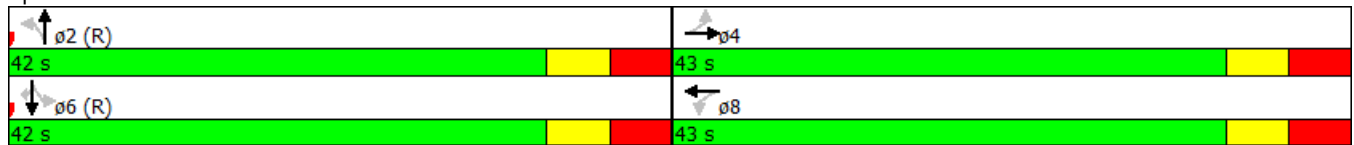
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		15.6			19.6			13.8			23.6	3.3
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		15.6			19.6			13.8			23.6	3.3
LOS		B			B			B			C	A
Approach Delay		15.6			19.6			13.8			16.2	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		40			116			65			175	0
Queue Length 95th (ft)		65			167			122			272	42
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		1125			1122			754			720	807
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.21			0.53			0.34			0.60	0.31

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 16.9
 Intersection Capacity Utilization 79.0%
 Analysis Period (min) 15
























Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 1370: E River & 253



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

6/12/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	284	80	1668	35	452	121	62	85	158	339
Future Volume (vph)	45	602	284	80	1668	35	452	121	62	85	158	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.080			0.416			0.950			0.677		
Satd. Flow (perm)	144	3421	1583	716	4685	0	3416	1853	1575	1219	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			293		4				82			87
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		593			1821			955			477	
Travel Time (s)		9.0			27.6			14.5			7.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	293	82	1720	36	466	125	64	88	163	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	293	82	1756	0	466	125	64	88	163	349
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

6/12/2016

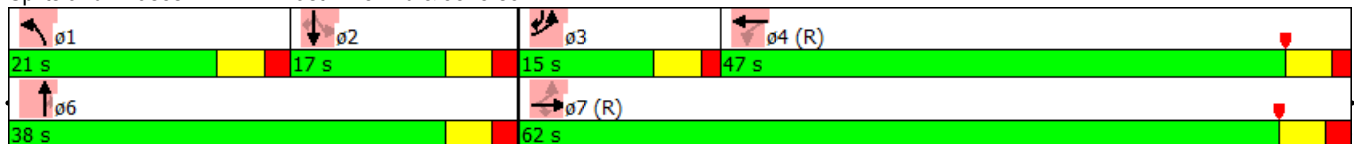
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	15.0	15.0		10.5	10.5	10.5	10.5	10.5	10.0
Total Split (s)	15.0	62.0	62.0	47.0	47.0		21.0	38.0	38.0	17.0	17.0	15.0
Total Split (%)	15.0%	62.0%	62.0%	47.0%	47.0%		21.0%	38.0%	38.0%	17.0%	17.0%	15.0%
Maximum Green (s)	10.0	56.5	56.5	42.0	42.0		15.5	32.5	32.5	11.5	11.5	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	1.5		2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	4.0	4.0	3.5	3.5		4.0	4.0	4.0	4.0	4.0	3.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Min	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	Min
Act Effct Green (s)	59.6	59.1	59.1	47.0	47.0		16.6	32.9	32.9	12.3	12.3	25.4
Actuated g/C Ratio	0.60	0.59	0.59	0.47	0.47		0.17	0.33	0.33	0.12	0.12	0.25
v/c Ratio	0.20	0.31	0.28	0.24	0.80		0.82	0.21	0.11	0.59	0.71	0.75
Control Delay	5.6	6.0	1.9	19.9	26.6		53.5	24.8	4.0	58.1	60.1	35.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	6.0	1.9	19.9	26.6		53.5	24.8	4.0	58.1	60.1	35.8
LOS	A	A	A	B	C		D	C	A	E	E	D
Approach Delay		4.7			26.3			43.1			45.7	
Approach LOS		A			C			D			D	
Queue Length 50th (ft)	4	72	6	31	347		148	56	0	53	101	152
Queue Length 95th (ft)	m7	98	m7	69	429		#220	100	20	#112	#185	251
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	266	2023	1056	336	2203		580	630	589	158	242	502
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.31	0.28	0.24	0.80		0.80	0.20	0.11	0.56	0.67	0.70

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 26.8
 Intersection Capacity Utilization 76.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D













95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/13/2016

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	87	206	150	62	117	429
Future Volume (vph)	87	206	150	62	117	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	60		10	80	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.651	
Satd. Flow (perm)	1770	1583	1863	1583	1213	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		229		69		
Link Speed (mph)	40		45			45
Link Distance (ft)	339		615			264
Travel Time (s)	5.8		9.3			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	229	167	69	130	477
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	229	167	69	130	477
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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		9	15	
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	22.0	22.0	38.0	38.0	38.0	38.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

6/13/2016



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	16.0	16.0	32.0	32.0	32.0	32.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	None	None	Min	Min	Min	Min
Act Effct Green (s)	12.2	12.2	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.29	0.29	0.50	0.50	0.50	0.50
v/c Ratio	0.19	0.37	0.18	0.08	0.22	0.52
Control Delay	13.1	4.6	6.5	2.2	7.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	4.6	6.5	2.2	7.2	9.6
LOS	B	A	A	A	A	A
Approach Delay	7.1		5.3			9.1
Approach LOS	A		A			A
Queue Length 50th (ft)	15	0	19	0	15	65
Queue Length 95th (ft)	51	39	45	12	39	135
Internal Link Dist (ft)	259		535			184
Turn Bay Length (ft)		60		10	80	
Base Capacity (vph)	745	799	1502	1289	978	1502
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.29	0.11	0.05	0.13	0.32

Intersection Summary


















Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 42.3
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 7.8
 Intersection Capacity Utilization 38.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

6/13/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	15	116	15	59	17	478	95	38	470	17
Future Volume (vph)	16	5	15	116	15	59	17	478	95	38	470	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944				0.850		0.978			0.996	
Flt Protected		0.979			0.958			0.999			0.996	
Satd. Flow (prot)	0	1722	0	0	1785	1583	0	1820	0	0	1848	0
Flt Permitted		0.840			0.721			0.980			0.932	
Satd. Flow (perm)	0	1477	0	0	1343	1583	0	1785	0	0	1729	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		24			4	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	129	17	66	19	531	106	42	522	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	146	66	0	656	0	0	583	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	26.0	26.0		26.0	26.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	50.0	50.0		50.0	50.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

6/13/2016

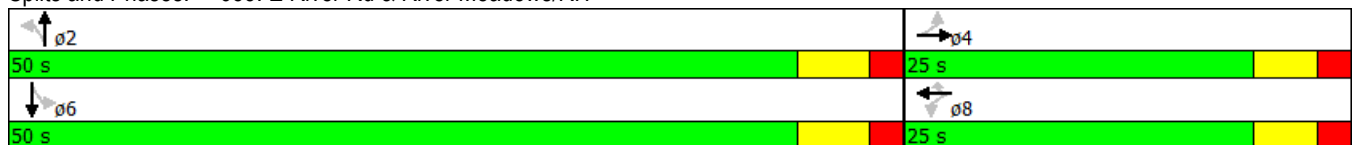


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%		66.7%	66.7%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	44.0	44.0		44.0	44.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		12.9			13.0	13.0		35.0			35.0	
Actuated g/C Ratio		0.24			0.25	0.25		0.66			0.66	
v/c Ratio		0.11			0.44	0.15		0.55			0.51	
Control Delay		13.7			23.4	6.9		9.0			8.8	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		13.7			23.4	6.9		9.0			8.8	
LOS		B			C	A		A			A	
Approach Delay		13.7			18.2			9.0			8.8	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		5			35	0		102			90	
Queue Length 95th (ft)		30			106	27		252			221	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		629			563	702		1549			1498	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.07			0.26	0.09		0.42			0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 52.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 10.4
 Intersection Capacity Utilization 63.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 653: E River Rd & River Meadows/RIT



2020 (ETC+5)
EAST RIVER ROAD SYNCHRO FILES
BASE VOLUMES

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	17	692	62	8	163
Future Volume (Veh/h)	7	17	692	62	8	163
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	19	769	69	9	181
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1002	804			838	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1002	804			838	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	95			99	
cM capacity (veh/h)	266	383			796	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	27	838	190			
Volume Left	8	0	9			
Volume Right	19	69	0			
cSH	339	1700	796			
Volume to Capacity	0.08	0.49	0.01			
Queue Length 95th (ft)	6	0	1			
Control Delay (s)	16.5	0.0	0.6			
Lane LOS	C		A			
Approach Delay (s)	16.5	0.0	0.6			
Approach LOS	C					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			50.2%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	19	38	10	10	10	94	5	501	71	318	189	1
Future Volume (vph)	19	38	10	10	10	94	5	501	71	318	189	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.981			0.999	
Flt Protected		0.984			0.976		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1818	1583	1770	1827	0	1770	1861	0
Flt Permitted		0.889			0.839		0.626			0.210		
Satd. Flow (perm)	0	1656	1583	0	1563	1583	1166	1827	0	391	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			104		13			1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	42	11	11	11	104	6	557	79	353	210	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	11	0	22	104	6	636	0	353	211	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	44.0	44.0		20.0	64.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	55.0%	55.0%		25.0%	80.0%	
Maximum Green (s)	10.5	10.5	10.5	10.5	10.5	10.5	38.0	38.0		16.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		12.6	12.6		12.6	12.6	29.4	29.4		47.8	47.3	
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.47	0.47		0.77	0.76	
v/c Ratio		0.19	0.03		0.07	0.26	0.01	0.73		0.58	0.15	
Control Delay		28.3	0.1		27.5	8.9	9.6	19.4		9.5	3.4	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		28.3	0.1		27.5	8.9	9.6	19.4		9.5	3.4	
LOS		C	A		C	A	A	B		A	A	
Approach Delay		24.1			12.1			19.3			7.2	
Approach LOS		C			B			B			A	
Queue Length 50th (ft)		22	0		7	0	1	185		37	23	
Queue Length 95th (ft)		64	0		30	42	7	353		109	41	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		350	409		330	416	773	1217		727	1672	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.18	0.03		0.07	0.25	0.01	0.52		0.49	0.13	

Intersection Summary













Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 61.9
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 14.0
 Intersection LOS: B
 Intersection Capacity Utilization 68.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	135	63	450	153	85	108
Future Volume (vph)	135	63	450	153	85	108
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	60		10	80	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.439	
Satd. Flow (perm)	1770	1583	1863	1583	818	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		70		62		
Link Speed (mph)	40		45			45
Link Distance (ft)	339		615			264
Travel Time (s)	5.8		9.3			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	150	70	500	170	94	120
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	70	500	170	94	120
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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		9	15	
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
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
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	23.0	23.0	57.0	57.0	57.0	57.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

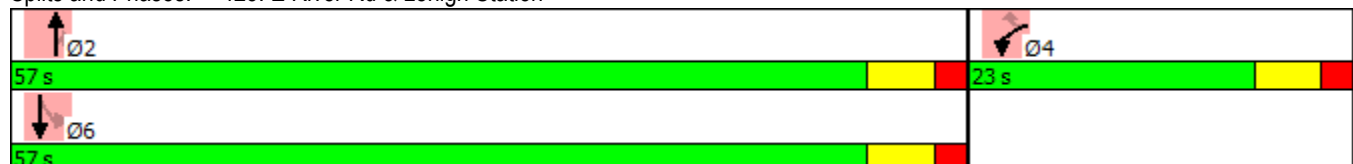


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	28.8%	28.8%	71.3%	71.3%	71.3%	71.3%
Maximum Green (s)	17.0	17.0	51.0	51.0	51.0	51.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	None	None	Max	Max	Max	Max
Act Effct Green (s)	14.4	14.4	52.5	52.5	52.5	52.5
Actuated g/C Ratio	0.19	0.19	0.69	0.69	0.69	0.69
v/c Ratio	0.45	0.20	0.39	0.15	0.17	0.09
Control Delay	31.7	8.4	6.4	3.3	5.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	8.4	6.4	3.3	5.5	4.5
LOS	C	A	A	A	A	A
Approach Delay	24.3		5.6			5.0
Approach LOS	C		A			A
Queue Length 50th (ft)	63	0	81	14	13	15
Queue Length 95th (ft)	116	31	157	38	35	37
Internal Link Dist (ft)	259		535			184
Turn Bay Length (ft)		60		10	80	
Base Capacity (vph)	431	438	1289	1114	566	1289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.16	0.39	0.15	0.17	0.09

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	75.9
Natural Cycle:	40
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	9.2
Intersection LOS:	A
Intersection Capacity Utilization:	51.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕			↕	
Traffic Volume (vph)	39	5	17	20	1	8	5	537	161	26	475	5
Future Volume (vph)	39	5	17	20	1	8	5	537	161	26	475	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962				0.850		0.969			0.999	
Flt Protected		0.969			0.954						0.997	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1805	0	0	1855	0
Flt Permitted		0.794			0.832			0.996			0.949	
Satd. Flow (perm)	0	1423	0	0	1550	1583	0	1798	0	0	1766	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				55		52			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	22	1	9	6	597	179	29	528	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	23	9	0	782	0	0	563	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	16.0	16.0		16.0	16.0	16.0	44.0	44.0		44.0	44.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	26.7%	26.7%		26.7%	26.7%	26.7%	73.3%	73.3%		73.3%	73.3%	
Maximum Green (s)	10.5	10.5		10.5	10.5	10.5	38.0	38.0		38.0	38.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.3			12.3	12.3		40.0			40.0	
Actuated g/C Ratio		0.25			0.25	0.25		0.80			0.80	
v/c Ratio		0.19			0.06	0.02		0.54			0.40	
Control Delay		17.0			20.2	0.1		6.2			5.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		17.0			20.2	0.1		6.2			5.0	
LOS		B			C	A		A			A	
Approach Delay		17.0			14.5			6.2			5.0	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		15			7	0		122			80	
Queue Length 95th (ft)		44			23	0		223			140	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		375			393	442		1450			1414	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.18			0.06	0.02		0.54			0.40	

Intersection Summary
























Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 50.2
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 6.4
 Intersection Capacity Utilization 65.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	609	34	361	25	303	161	76	20	96	43
Future Volume (vph)	210	1148	609	34	361	25	303	161	76	20	96	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.440			0.191			0.950			0.642		
Satd. Flow (perm)	792	3421	1583	329	4652	0	3416	1853	1575	1156	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			692		13				76			76
Link Speed (mph)		45		45			45		45		45	
Link Distance (ft)		593		1821			955		477		477	
Travel Time (s)		9.0		27.6			14.5		7.2		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	692	39	410	28	344	183	86	23	109	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	692	39	438	0	344	183	86	23	109	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

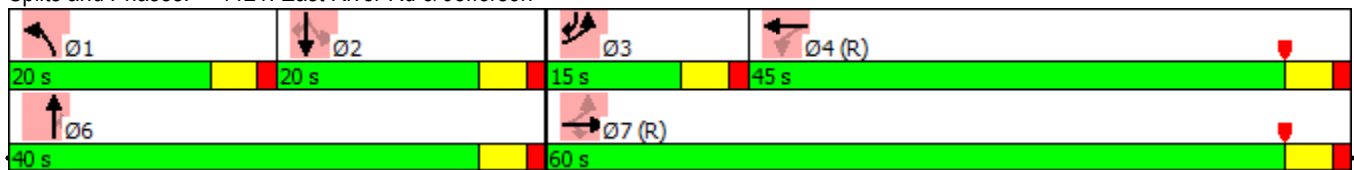


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.5	34.5	34.5	15.0	15.0		14.5	34.5	34.5	10.0	10.0	14.5
Total Split (s)	15.0	60.0	60.0	45.0	45.0		20.0	40.0	40.0	20.0	20.0	15.0
Total Split (%)	15.0%	60.0%	60.0%	45.0%	45.0%		20.0%	40.0%	40.0%	20.0%	20.0%	15.0%
Maximum Green (s)	10.0	55.0	55.0	40.0	40.0		15.0	35.0	35.0	15.0	15.0	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag			Lead			Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	62.9	62.9	62.9	48.0	48.0		14.9	30.1	30.1	11.7	11.7	26.6
Actuated g/C Ratio	0.63	0.63	0.63	0.48	0.48		0.15	0.30	0.30	0.12	0.12	0.27
v/c Ratio	0.40	0.61	0.55	0.25	0.20		0.67	0.33	0.16	0.17	0.50	0.10
Control Delay	4.9	6.6	1.4	23.9	15.9		47.1	27.7	7.4	41.1	48.7	3.0
Queue Delay	0.0	0.2	0.3	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.9	6.9	1.7	23.9	15.9		47.1	27.7	7.4	41.1	48.7	3.0
LOS	A	A	A	C	B		D	C	A	D	D	A
Approach Delay	5.1			16.5			35.8			35.4		
Approach LOS	A			B			D			D		
Queue Length 50th (ft)	30	174	12	15	56		107	89	4	13	66	0
Queue Length 95th (ft)	m49	m240	m23	44	84		148	133	34	36	113	12
Internal Link Dist (ft)	513			1741			875			397		
Turn Bay Length (ft)	500			425			780			260	225	275
Base Capacity (vph)	610	2150	1252	157	2239		563	676	623	190	307	489
Starvation Cap Reductn	0	252	166	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.69	0.64	0.25	0.20		0.61	0.27	0.14	0.12	0.36	0.10

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 13.5 Intersection LOS: B
 Intersection Capacity Utilization 66.7% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	203	322	8	33	67	53	5	356	246	45	50	47
Future Volume (vph)	203	322	8	33	67	53	5	356	246	45	50	47
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.948			0.945				0.850
Flt Protected		0.981			0.989						0.977	
Satd. Flow (prot)	0	3465	0	0	3318	0	0	1760	0	0	1820	1583
Flt Permitted		0.767			0.780			0.998			0.580	
Satd. Flow (perm)	0	2709	0	0	2617	0	0	1757	0	0	1080	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			59			49				64
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	226	358	9	37	74	59	6	396	273	50	56	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	593	0	0	170	0	0	675	0	0	106	52
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	43.0	43.0		43.0	43.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	49.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		36.5			36.5			35.5			35.5	35.5
Actuated g/C Ratio		0.43			0.43			0.42			0.42	0.42
v/c Ratio		0.51			0.15			0.89			0.24	0.07

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

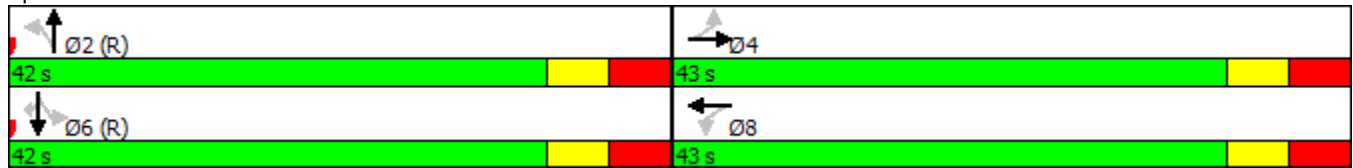


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		19.6			9.9			37.0			17.8	3.6
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		19.6			9.9			37.0			17.8	3.6
LOS		B			A			D			B	A
Approach Delay		19.6			9.9			37.0			13.1	
Approach LOS		B			A			D			B	
Queue Length 50th (ft)		117			17			304			36	0
Queue Length 95th (ft)		166			37			#523			72	16
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		1164			1157			762			451	698
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.51			0.15			0.89			0.24	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 25.3
 Intersection LOS: C
 Intersection Capacity Utilization 77.6%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	24	207	19	17	573
Future Volume (Veh/h)	33	24	207	19	17	573
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	37	27	230	21	19	637
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	916	240			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	916	240			251	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			99	
cM capacity (veh/h)	298	798			1314	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	64	251	656			
Volume Left	37	0	19			
Volume Right	27	21	0			
cSH	405	1700	1314			
Volume to Capacity	0.16	0.15	0.01			
Queue Length 95th (ft)	14	0	1			
Control Delay (s)	15.5	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	15.5	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			53.9%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	5	22	8	78	33	332	9	211	26	96	444	10
Future Volume (vph)	5	22	8	78	33	332	9	211	26	96	444	10
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.983			0.997	
Flt Protected		0.990			0.966		0.950			0.950		
Satd. Flow (prot)	0	1844	1583	0	1799	1583	1770	1831	0	1770	1857	0
Flt Permitted		0.942			0.780		0.478			0.479		
Satd. Flow (perm)	0	1755	1583	0	1453	1583	890	1831	0	892	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			369		9			2	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	24	9	87	37	369	10	234	29	107	493	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	9	0	124	369	10	263	0	107	504	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0		14.0	47.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

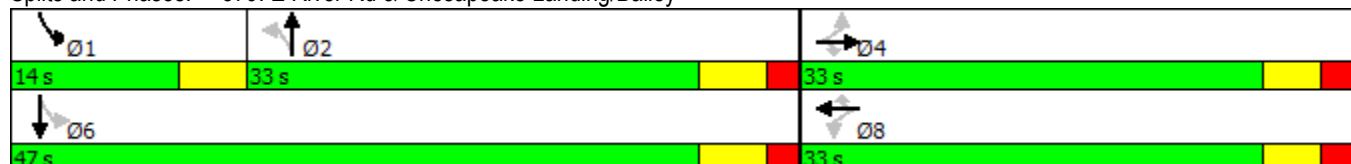


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%		17.5%	58.8%	
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	27.0	27.0		10.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		13.1	13.1		13.1	13.1	15.9	15.9		28.4	26.3	
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.33	0.33		0.59	0.54	
v/c Ratio		0.06	0.02		0.31	0.53	0.03	0.43		0.14	0.50	
Control Delay		16.3	0.1		19.4	5.6	12.9	16.1		4.6	8.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		16.3	0.1		19.4	5.6	12.9	16.1		4.6	8.5	
LOS		B	A		B	A	B	B		A	A	
Approach Delay		12.5			9.1			16.0			7.8	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		7	0		30	0	2	57		10	67	
Queue Length 95th (ft)		25	0		76	55	11	123		29	154	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		1103	1030		913	1132	550	1134		742	1582	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.03	0.01		0.14	0.33	0.02	0.23		0.14	0.32	

Intersection Summary













Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 48.4
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 10.0
 Intersection LOS: A
 Intersection Capacity Utilization 55.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	87	206	153	62	117	436
Future Volume (vph)	87	206	153	62	117	436
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	60		10	80	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.650	
Satd. Flow (perm)	1770	1583	1863	1583	1211	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		229		69		
Link Speed (mph)	40		45			45
Link Distance (ft)	339		615			264
Travel Time (s)	5.8		9.3			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	229	170	69	130	484
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	229	170	69	130	484
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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		9	15	
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
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
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	22.0	22.0	38.0	38.0	38.0	38.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

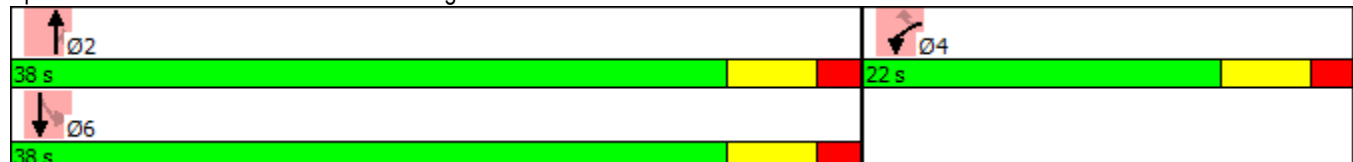


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	16.0	16.0	32.0	32.0	32.0	32.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	None	None	Min	Min	Min	Min
Act Effct Green (s)	12.2	12.2	21.2	21.2	21.2	21.2
Actuated g/C Ratio	0.29	0.29	0.50	0.50	0.50	0.50
v/c Ratio	0.19	0.37	0.18	0.08	0.22	0.52
Control Delay	13.2	4.6	6.5	2.2	7.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	4.6	6.5	2.2	7.2	9.7
LOS	B	A	A	A	A	A
Approach Delay	7.2		5.3			9.1
Approach LOS	A		A			A
Queue Length 50th (ft)	15	0	19	0	15	66
Queue Length 95th (ft)	51	39	45	12	40	137
Internal Link Dist (ft)	259		535			184
Turn Bay Length (ft)		60		10	80	
Base Capacity (vph)	743	797	1540	1321	1001	1540
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.29	0.11	0.05	0.13	0.31

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 42.5
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 7.8
 Intersection Capacity Utilization 38.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	116	15	59	17	480	96	38	472	17
Future Volume (vph)	16	5	15	116	15	59	17	480	96	38	472	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944				0.850		0.978			0.996	
Flt Protected		0.979			0.958			0.999			0.996	
Satd. Flow (prot)	0	1722	0	0	1785	1583	0	1820	0	0	1848	0
Flt Permitted		0.840			0.721			0.980			0.932	
Satd. Flow (perm)	0	1477	0	0	1343	1583	0	1785	0	0	1729	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		24			4	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	129	17	66	19	533	107	42	524	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	146	66	0	659	0	0	585	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	26.0	26.0		26.0	26.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	50.0	50.0		50.0	50.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016

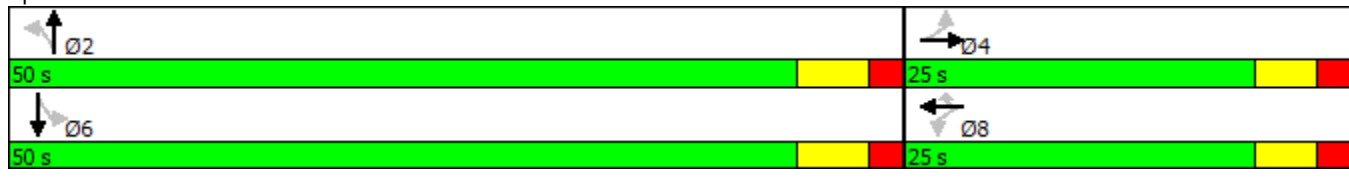


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%		66.7%	66.7%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	44.0	44.0		44.0	44.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		12.9			13.0	13.0		35.0			35.0	
Actuated g/C Ratio		0.24			0.25	0.25		0.66			0.66	
v/c Ratio		0.11			0.44	0.15		0.55			0.51	
Control Delay		13.7			23.4	6.9		9.1			8.8	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		13.7			23.4	6.9		9.1			8.8	
LOS		B			C	A		A			A	
Approach Delay		13.7			18.2			9.1			8.8	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		5			35	0		103			91	
Queue Length 95th (ft)		30			106	27		254			223	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		628			562	701		1548			1496	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.07			0.26	0.09		0.43			0.39	

Intersection Summary
























Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	52.7
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	10.4
Intersection LOS:	B
Intersection Capacity Utilization:	63.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	285	80	1668	35	453	121	62	85	158	339
Future Volume (vph)	45	602	285	80	1668	35	453	121	62	85	158	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.064			0.416			0.950			0.677		
Satd. Flow (perm)	115	3421	1583	716	4685	0	3416	1853	1575	1219	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			294		3				68			73
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	294	82	1720	36	467	125	64	88	163	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	294	82	1756	0	467	125	64	88	163	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

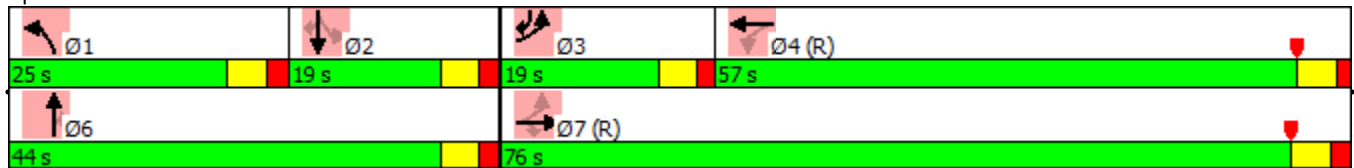


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	15.0	15.0		10.5	10.5	10.5	10.5	10.5	10.0
Total Split (s)	19.0	76.0	76.0	57.0	57.0		25.0	44.0	44.0	19.0	19.0	19.0
Total Split (%)	15.8%	63.3%	63.3%	47.5%	47.5%		20.8%	36.7%	36.7%	15.8%	15.8%	15.8%
Maximum Green (s)	14.0	70.5	70.5	52.0	52.0		19.5	38.5	38.5	13.5	13.5	14.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	1.5		2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	4.0	4.0	3.5	3.5		4.0	4.0	4.0	4.0	4.0	3.5
Lead/Lag	Lead			Lag			Lead			Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Min	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	Min
Act Effct Green (s)	74.4	73.9	73.9	59.2	59.2		20.1	38.1	38.1	14.0	14.0	29.7
Actuated g/C Ratio	0.62	0.62	0.62	0.49	0.49		0.17	0.32	0.32	0.12	0.12	0.25
v/c Ratio	0.20	0.29	0.27	0.23	0.76		0.82	0.21	0.12	0.62	0.75	0.78
Control Delay	8.6	10.7	5.4	21.8	28.4		60.7	30.4	6.5	69.4	72.4	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	10.7	5.4	21.8	28.4		60.7	30.4	6.5	69.4	72.4	45.2
LOS	A	B	A	C	C		E	C	A	E	E	D
Approach Delay					9.0	28.1					49.6	56.2
Approach LOS					A	C					D	E
Queue Length 50th (ft)	17	185	113	37	408		180	69	0	65	123	200
Queue Length 95th (ft)	m17	211	m92	78	500		240	117	29	#129	#215	302
Internal Link Dist (ft)				513	1741					875	397	
Turn Bay Length (ft)	500			425		780			260	225	275	
Base Capacity (vph)	277	2106	1087	353	2312		597	617	570	152	232	495
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.29	0.27	0.23	0.76		0.78	0.20	0.11	0.58	0.70	0.71

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 31.2 Intersection LOS: C
 Intersection Capacity Utilization 76.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	50	160	5	202	295	39	7	117	109	48	350	227
Future Volume (vph)	50	160	5	202	295	39	7	117	109	48	350	227
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.996			0.989			0.937				0.850
Flt Protected		0.988			0.982			0.998			0.994	
Satd. Flow (prot)	0	3483	0	0	3437	0	0	1742	0	0	1852	1583
Flt Permitted		0.741			0.742			0.983			0.927	
Satd. Flow (perm)	0	2612	0	0	2597	0	0	1716	0	0	1727	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			12			64				252
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	178	6	224	328	43	8	130	121	53	389	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	595	0	0	259	0	0	442	252
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	6
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	43.0	43.0		43.0	43.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	49.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		36.5			36.5			35.5			35.5	35.5
Actuated g/C Ratio		0.43			0.43			0.42			0.42	0.42
v/c Ratio		0.21			0.53			0.34			0.61	0.31

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

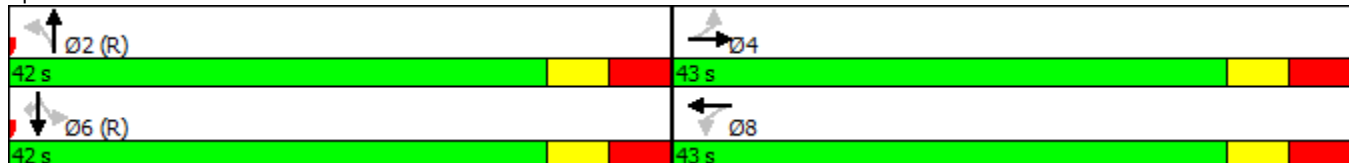


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		15.6			19.7			14.0			23.9	3.3
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		15.6			19.7			14.0			23.9	3.3
LOS		B			B			B			C	A
Approach Delay		15.6			19.7			14.0			16.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		40			117			67			179	0
Queue Length 95th (ft)		65			167			123			278	42
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		1123			1122			753			721	807
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.21			0.53			0.34			0.61	0.31

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 17.0
 Intersection LOS: B
 Intersection Capacity Utilization 79.6%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 1370: E River & 253



2020 (ETC+5)
EAST RIVER ROAD SYNCHRO FILES
BUILD VOLUMES

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	27	945	145	13	237
Future Volume (Veh/h)	35	27	945	145	13	237
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	30	1050	161	14	263
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1422	1130			1211	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1422	1130			1211	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	73	88			98	
cM capacity (veh/h)	146	248			576	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	69	1211	277			
Volume Left	39	0	14			
Volume Right	30	161	0			
cSH	178	1700	576			
Volume to Capacity	0.39	0.71	0.02			
Queue Length 95th (ft)	42	0	2			
Control Delay (s)	37.5	0.0	0.9			
Lane LOS	E		A			
Approach Delay (s)	37.5	0.0	0.9			
Approach LOS	E					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			68.8%	ICU Level of Service		C
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	34	70	19	151	22	94	11	695	162	318	409	2
Future Volume (vph)	34	70	19	151	22	94	11	695	162	318	409	2
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.972			0.999	
Flt Protected		0.984			0.958		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1785	1583	1770	1811	0	1770	1861	0
Flt Permitted		0.717			0.647		0.500			0.089		
Satd. Flow (perm)	0	1336	1583	0	1205	1583	931	1811	0	166	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			104		22			1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	21	168	24	104	12	772	180	353	454	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	21	0	192	104	12	952	0	353	456	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	18.0	18.0	18.0	18.0	18.0	18.0	47.0	47.0		15.0	62.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	58.8%	58.8%		18.8%	77.5%	
Maximum Green (s)	12.5	12.5	12.5	12.5	12.5	12.5	41.0	41.0		11.0	56.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		14.0	14.0		14.0	14.0	42.5	42.5		59.5	57.5	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.53	0.53		0.74	0.72	
v/c Ratio		0.50	0.06		0.91	0.29	0.02	0.98		0.94	0.34	
Control Delay		38.1	0.3		79.1	8.8	9.2	44.3		56.5	5.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		38.1	0.3		79.1	8.8	9.2	44.3		56.5	5.0	
LOS		D	A		E	A	A	D		E	A	
Approach Delay		32.3			54.4			43.9			27.5	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)		53	0		95	0	3	427		121	69	
Queue Length 95th (ft)		105	0		#217	40	10	#714		#284	107	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		233	355		210	362	494	972		374	1337	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.50	0.06		0.91	0.29	0.02	0.98		0.94	0.34	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 38.6
 Intersection LOS: D
 Intersection Capacity Utilization 90.6%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	167	118	149	39	586	241	126	149	236
Future Volume (vph)	32	16	5	167	118	149	39	586	241	126	149	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		100	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
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		0.962			0.916			0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1706	0	1770	1781	0	1770	1863	1583
Flt Permitted	0.292			0.742			0.652			0.181		
Satd. Flow (perm)	544	1792	0	1382	1706	0	1215	1781	0	337	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			79			51				262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			741			615				654
Travel Time (s)		11.9			12.6			9.3				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	186	131	166	43	651	268	140	166	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	186	297	0	43	919	0	140	166	262
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	1		1	1		1	1		1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		20	50		50	50	20
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	50		50	50		20	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	3.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	54.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	67.5%
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	48.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		-2.0	-2.0		0.0	-3.0		-2.0	-3.0	0.0
Total Lost Time (s)	6.0	6.0		4.0	4.0		6.0	3.0		4.0	3.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	15.1	15.1		17.1	17.1		48.1	51.1		50.1	51.1	48.1
Actuated g/C Ratio	0.20	0.20		0.23	0.23		0.64	0.68		0.67	0.68	0.64
v/c Ratio	0.33	0.07		0.59	0.66		0.06	0.75		0.62	0.13	0.24
Control Delay	34.2	19.7		34.2	26.7		6.3	13.3		25.0	5.2	1.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.2	19.7		34.2	26.7		6.3	13.3		25.0	5.2	1.5
LOS	C	B		C	C		A	B		C	A	A
Approach Delay		28.4			29.6			13.0			8.4	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	15	7		78	91		7	223		32	23	0
Queue Length 95th (ft)	42	25		140	170		21	466		#147	52	27
Internal Link Dist (ft)		442			661			535			574	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	145	482		405	556		777	1227		224	1266	1107
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.25	0.05		0.46	0.53		0.06	0.75		0.63	0.13	0.24

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 75.2
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 16.1
 Intersection LOS: B
 Intersection Capacity Utilization 92.1%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	22	1	8	5	698	209	26	687	6
Future Volume (vph)	39	5	17	22	1	8	5	698	209	26	687	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962				0.850		0.969			0.999	
Flt Protected		0.969			0.954						0.998	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1805	0	0	1857	0
Flt Permitted		0.793			0.828			0.996			0.951	
Satd. Flow (perm)	0	1421	0	0	1542	1583	0	1798	0	0	1770	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				55		53			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	24	1	9	6	776	232	29	763	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	25	9	0	1014	0	0	799	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.5	15.5		15.5	15.5	15.5	44.5	44.5		44.5	44.5	

Lanes, Volumes, Timings
 653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	25.8%	25.8%		25.8%	25.8%	25.8%	74.2%	74.2%		74.2%	74.2%	
Maximum Green (s)	10.0	10.0		10.0	10.0	10.0	38.5	38.5		38.5	38.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effect Green (s)		11.9			11.9	11.9		44.3			44.3	
Actuated g/C Ratio		0.22			0.22	0.22		0.81			0.81	
v/c Ratio		0.21			0.07	0.02		0.69			0.56	
Control Delay		18.3			21.3	0.1		9.6			6.6	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		18.3			21.3	0.1		9.6			6.6	
LOS		B			C	A		A			A	
Approach Delay		18.3			15.7			9.6			6.6	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		18			9	0		210			142	
Queue Length 95th (ft)		45			25	0		#516			247	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		323			334	386		1457			1424	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.21			0.07	0.02		0.70			0.56	

Intersection Summary
























Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 54.9
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 8.8
 Intersection LOS: A
 Intersection Capacity Utilization 76.8%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	737	57	361	25	394	221	87	20	159	43
Future Volume (vph)	210	1148	737	57	361	25	394	221	87	20	159	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.418			0.118			0.950			0.603		
Satd. Flow (perm)	753	3421	1583	203	4652	0	3416	1853	1575	1086	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			681		14				76			76
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	838	65	410	28	448	251	99	23	181	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	838	65	438	0	448	251	99	23	181	49
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

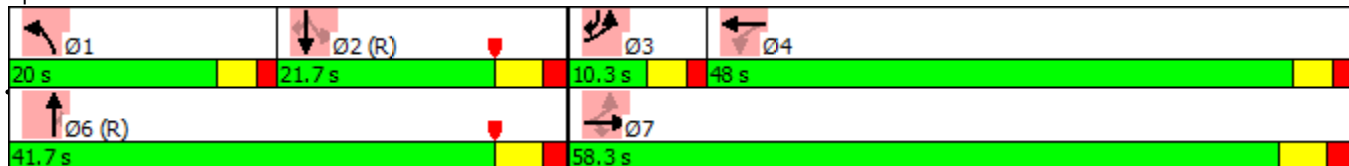


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	9.5	15.5	15.5	14.5	14.5		9.5	10.5	10.5	10.5	10.5	9.5
Total Split (s)	10.3	58.3	58.3	48.0	48.0		20.0	41.7	41.7	21.7	21.7	10.3
Total Split (%)	10.3%	58.3%	58.3%	48.0%	48.0%		20.0%	41.7%	41.7%	21.7%	21.7%	10.3%
Maximum Green (s)	5.8	52.8	52.8	43.5	43.5		15.5	36.2	36.2	16.2	16.2	5.8
Yellow Time (s)	3.0	3.5	3.5	3.0	3.0		3.0	3.5	3.5	3.5	3.5	3.0
All-Red Time (s)	1.5	2.0	2.0	1.5	1.5		1.5	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0	4.0	4.0	4.0	3.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Min	None	None	None	None		Min	C-Max	C-Max	C-Max	C-Max	Min
Act Effct Green (s)	49.6	48.6	48.6	39.3	39.3		17.2	43.4	43.4	23.2	23.2	34.5
Actuated g/C Ratio	0.50	0.49	0.49	0.39	0.39		0.17	0.43	0.43	0.23	0.23	0.34
v/c Ratio	0.54	0.79	0.75	0.82	0.24		0.76	0.31	0.14	0.09	0.42	0.08
Control Delay	16.6	23.7	6.1	90.7	19.3		48.7	21.2	7.4	35.1	38.5	3.0
Queue Delay	0.0	0.3	0.5	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	24.0	6.6	90.7	19.3		48.7	21.2	7.4	35.1	38.5	3.0
LOS	B	C	A	F	B		D	C	A	D	D	A
Approach Delay					17.1	28.5					34.9	31.3
Approach LOS					B	C					C	C
Queue Length 50th (ft)	74	361	67	36	64		138	104	8	12	102	0
Queue Length 95th (ft)	m71	m361	m61	#110	78		191	174	40	35	172	13
Internal Link Dist (ft)				513	1741				875	397		
Turn Bay Length (ft)	500			425		780			260	225	275	
Base Capacity (vph)	443	1857	1170	91	2101		606	804	726	251	431	595
Starvation Cap Reductn	0	133	83	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.76	0.77	0.71	0.21		0.74	0.31	0.14	0.09	0.42	0.08

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow, Master Intersection
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 23.1 Intersection LOS: C
 Intersection Capacity Utilization 73.0% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	279	369	11	42	79	82	8	439	284	63	77	76
Future Volume (vph)	279	369	11	42	79	82	8	439	284	63	77	76
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.940			0.948				0.850
Flt Protected		0.979			0.990			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3294	0	0	1764	0	0	1822	1583
Flt Permitted		0.737			0.658			0.997			0.580	
Satd. Flow (perm)	0	2603	0	0	2189	0	0	1761	0	0	1080	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			91			58				84
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	310	410	12	47	88	91	9	488	316	70	86	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	732	0	0	226	0	0	813	0	0	156	84
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	33.0	33.0		33.0	33.0		52.0	52.0		52.0	52.0	52.0
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.2%	61.2%		61.2%	61.2%	61.2%
Maximum Green (s)	25.0	25.0		25.0	25.0		44.0	44.0		44.0	44.0	44.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		26.5			26.5			45.5			45.5	45.5
Actuated g/C Ratio		0.31			0.31			0.54			0.54	0.54
v/c Ratio		0.90			0.30			0.84			0.27	0.09

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

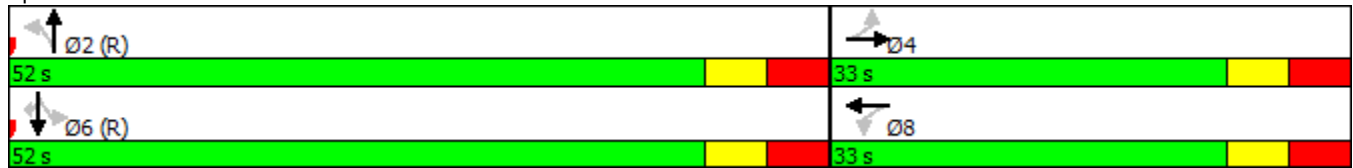


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		44.3			14.3			25.3			12.3	2.7
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		44.3			14.3			25.3			12.3	2.7
LOS		D			B			C			B	A
Approach Delay		44.3			14.3			25.3			8.9	
Approach LOS		D			B			C			A	
Queue Length 50th (ft)		195			27			322			42	0
Queue Length 95th (ft)		#305			56			#572			80	20
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		812			745			969			578	886
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.90			0.30			0.84			0.27	0.09

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 29.0
 Intersection LOS: C
 Intersection Capacity Utilization 93.1%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	122	32	366	71	39	840
Future Volume (Veh/h)	122	32	366	71	39	840
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	136	36	407	79	43	933
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1466	446			486	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1466	446			486	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	94			96	
cM capacity (veh/h)	135	612			1077	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	172	486	976			
Volume Left	136	0	43			
Volume Right	36	79	0			
cSH	162	1700	1077			
Volume to Capacity	1.06	0.29	0.04			
Queue Length 95th (ft)	217	0	3			
Control Delay (s)	145.5	0.0	1.1			
Lane LOS	F		A			
Approach Delay (s)	145.5	0.0	1.1			
Approach LOS	F					
Intersection Summary						
Average Delay		16.0				
Intersection Capacity Utilization		88.7%		ICU Level of Service		E
Analysis Period (min)		15				

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	9	40	15	184	64	332	22	418	217	96	601	18
Future Volume (vph)	9	40	15	184	64	332	22	418	217	96	601	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		190	110		0	120		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.949			0.996	
Flt Protected		0.991			0.964		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1796	1583	1770	1768	0	1770	1855	0
Flt Permitted		0.928			0.747		0.387			0.142		
Satd. Flow (perm)	0	1729	1583	0	1391	1583	721	1768	0	265	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			369		43			4	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			575			2357	
Travel Time (s)		9.4			8.6			8.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	17	204	71	369	24	464	241	107	668	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	17	0	275	369	24	705	0	107	688	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	41.0	41.0		14.0	55.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

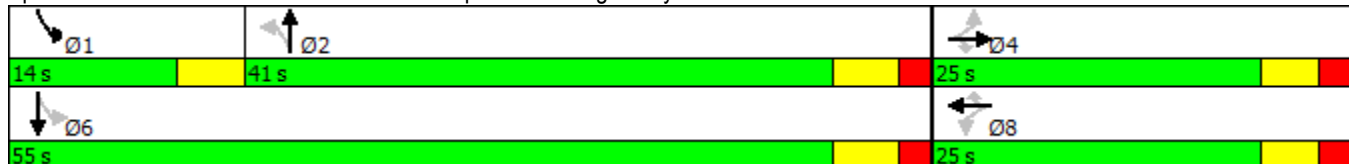


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	51.3%	51.3%		17.5%	68.8%	
Maximum Green (s)	19.5	19.5	19.5	19.5	19.5	19.5	35.0	35.0		10.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		19.1	19.1		19.1	19.1	33.4	33.4		45.6	43.5	
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.47	0.47		0.64	0.61	
v/c Ratio		0.12	0.03		0.74	0.53	0.07	0.83		0.25	0.61	
Control Delay		23.4	0.1		41.0	6.2	13.1	28.0		6.5	11.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		23.4	0.1		41.0	6.2	13.1	28.0		6.5	11.3	
LOS		C	A		D	A	B	C		A	B	
Approach Delay		17.8			21.0			27.5			10.7	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		21	0		126	0	7	283		17	177	
Queue Length 95th (ft)		48	0		#242	63	20	#499		34	272	
Internal Link Dist (ft)		333			361			495			2277	
Turn Bay Length (ft)			50			190	110			120		
Base Capacity (vph)		542	562		437	750	393	984		427	1317	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.10	0.03		0.63	0.49	0.06	0.72		0.25	0.52	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 71.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 19.4
 Intersection LOS: B
 Intersection Capacity Utilization 74.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	109	68	189	19	269	12	231	130	222	556	36
Future Volume (vph)	199	109	68	189	19	269	12	231	130	222	556	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.942			0.860			0.946				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1755	0	1770	1602	0	1770	1762	0	1770	1863	1583
Flt Permitted	0.455			0.623			0.245			0.436		
Satd. Flow (perm)	848	1755	0	1160	1602	0	456	1762	0	812	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			299			44				36
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			757			615				720
Travel Time (s)		16.5			12.9			9.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	221	121	76	210	21	299	13	257	144	247	618	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	197	0	210	320	0	13	401	0	247	618	40
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	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Thru		Left						Right
Leading Detector (ft)	20	50		50	50		20	50		50	50	20
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	50		50	50		20	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	3.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		25.0	25.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	41.0	41.0		41.0	41.0		49.0	49.0		49.0	49.0	49.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

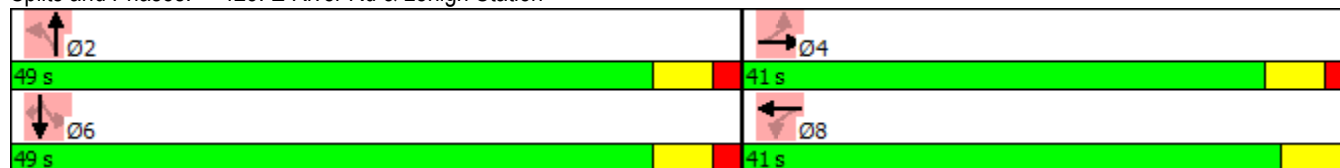


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	45.6%	45.6%		45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	54.4%
Maximum Green (s)	35.0	35.0		36.0	36.0		43.0	43.0		43.0	43.0	43.0
Yellow Time (s)	4.0	4.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	0.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		3.5	3.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	25.6	25.6		26.7	26.7		31.6	31.6		31.6	31.6	31.6
Actuated g/C Ratio	0.38	0.38		0.40	0.40		0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.69	0.28		0.46	0.39		0.06	0.47		0.65	0.70	0.05
Control Delay	31.9	13.8		20.4	4.3		12.5	13.6		24.4	20.2	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	31.9	13.8		20.4	4.3		12.5	13.6		24.4	20.2	4.9
LOS	C	B		C	A		B	B		C	C	A
Approach Delay		23.4			10.7			13.6			20.7	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	72	41		60	5		3	90		71	185	1
Queue Length 95th (ft)	186	105		146	56		14	198		186	376	17
Internal Link Dist (ft)		647			677			535			640	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	507	1066		713	1099		320	1252		571	1310	1124
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.44	0.18		0.29	0.29		0.04	0.32		0.43	0.47	0.04

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	67.1
Natural Cycle:	55
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	17.5
Intersection LOS:	B
Intersection Capacity Utilization:	80.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	144	15	59	17	686	102	38	607	20
Future Volume (vph)	16	5	15	144	15	59	17	686	102	38	607	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944				0.850		0.983			0.996	
Flt Protected		0.979			0.957			0.999			0.997	
Satd. Flow (prot)	0	1722	0	0	1783	1583	0	1829	0	0	1850	0
Flt Permitted		0.849			0.717			0.981			0.924	
Satd. Flow (perm)	0	1493	0	0	1336	1583	0	1796	0	0	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		18			4	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	160	17	66	19	762	113	42	674	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	177	66	0	894	0	0	738	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	26.0	26.0		26.0	26.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	50.0	50.0		50.0	50.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%		66.7%	66.7%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	44.0	44.0		44.0	44.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		15.4			15.4	15.4		42.5			42.5	
Actuated g/C Ratio		0.23			0.23	0.23		0.64			0.64	
v/c Ratio		0.11			0.57	0.16		0.77			0.67	
Control Delay		15.2			31.0	7.1		15.5			12.2	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.2			31.0	7.1		15.5			12.2	
LOS		B			C	A		B			B	
Approach Delay		15.2			24.5			15.5			12.2	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		8			67	0		220			164	
Queue Length 95th (ft)		30			127	27		#489			341	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		489			427	551		1250			1189	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.08			0.41	0.12		0.72			0.62	

Intersection Summary
























Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 66.5
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 15.4 Intersection LOS: B
 Intersection Capacity Utilization 75.2% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	344	94	1668	35	559	190	93	85	223	339
Future Volume (vph)	45	602	344	94	1668	35	559	190	93	85	223	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.070			0.416			0.950			0.634		
Satd. Flow (perm)	126	3421	1583	716	4685	0	3416	1853	1575	1142	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355		3				96			73
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	355	97	1720	36	576	196	96	88	230	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	355	97	1756	0	576	196	96	88	230	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

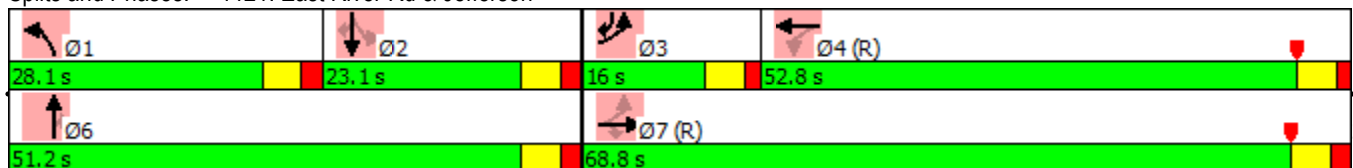


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	15.0	15.0		10.5	10.5	10.5	10.5	10.5	10.0
Total Split (s)	16.0	68.8	68.8	52.8	52.8		28.1	51.2	51.2	23.1	23.1	16.0
Total Split (%)	13.3%	57.3%	57.3%	44.0%	44.0%		23.4%	42.7%	42.7%	19.3%	19.3%	13.3%
Maximum Green (s)	11.0	63.3	63.3	47.8	47.8		22.6	45.7	45.7	17.6	17.6	11.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	1.5		2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	4.0	4.0	3.5	3.5		4.0	4.0	4.0	4.0	4.0	3.5
Lead/Lag	Lead			Lag			Lead			Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Min	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	Min
Act Effct Green (s)	67.1	66.6	66.6	54.4	54.4		23.4	45.4	45.4	18.0	18.0	31.2
Actuated g/C Ratio	0.56	0.56	0.56	0.45	0.45		0.20	0.38	0.38	0.15	0.15	0.26
v/c Ratio	0.24	0.33	0.34	0.30	0.83		0.87	0.28	0.15	0.51	0.82	0.75
Control Delay	13.4	15.8	8.8	25.8	33.7		61.1	26.7	5.1	58.0	72.8	42.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	13.4	15.8	8.8	25.8	33.7		61.1	26.7	5.1	58.0	72.8	42.7
LOS	B	B	A	C	C		E	C	A	E	E	D
Approach Delay	13.2			33.3			47.1			55.1		
Approach LOS	B			C			D			E		
Queue Length 50th (ft)	25	190	137	47	430		223	102	0	63	173	200
Queue Length 95th (ft)	m27	241	m195	98	535		#307	160	34	119	#293	298
Internal Link Dist (ft)	513			1741			875			397		
Turn Bay Length (ft)	500			425			780			260	225	275
Base Capacity (vph)	235	1898	1036	324	2124		686	728	677	181	296	507
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	22
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.33	0.34	0.30	0.83		0.84	0.27	0.14	0.49	0.78	0.72

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 34.7 Intersection LOS: C
 Intersection Capacity Utilization 79.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	89	175	9	225	320	58	15	188	123	72	446	284
Future Volume (vph)	89	175	9	225	320	58	15	188	123	72	446	284
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		200
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.986			0.949				0.850
Flt Protected		0.984			0.982			0.998			0.993	
Satd. Flow (prot)	0	3465	0	0	3427	0	0	1764	0	0	1850	1583
Flt Permitted		0.581			0.724			0.964			0.896	
Satd. Flow (perm)	0	2046	0	0	2527	0	0	1704	0	0	1669	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			14			51				288
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			262			587	
Travel Time (s)		4.5			2.9			4.5			10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	194	10	250	356	64	17	209	137	80	496	316
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	303	0	0	670	0	0	363	0	0	576	316
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	6
Permitted Phases	4			8			2			6		6
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	36.0	36.0		36.0	36.0		49.0	49.0		49.0	49.0	49.0
Total Split (%)	42.4%	42.4%		42.4%	42.4%		57.6%	57.6%		57.6%	57.6%	57.6%
Maximum Green (s)	28.0	28.0		28.0	28.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		29.5			29.5			42.5			42.5	42.5
Actuated g/C Ratio		0.35			0.35			0.50			0.50	0.50
v/c Ratio		0.43			0.76			0.41			0.69	0.34

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		23.3			30.6			13.1			21.6	3.2
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		23.3			30.6			13.1			21.6	3.2
LOS		C			C			B			C	A
Approach Delay		23.3			30.6			13.1			15.1	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		63			161			98			223	7
Queue Length 95th (ft)		100			228			163			346	47
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												200
Base Capacity (vph)		712			886			877			834	935
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.43			0.76			0.41			0.69	0.34

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 20.5
 Intersection LOS: C
 Intersection Capacity Utilization 92.9%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1370: E River & 253



2020 (ETC+5)

EAST RIVER ROAD SYNCHRO FILES
BUILD VOLUMES WITH MITIGATION

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↷	↷	↶	↷
Traffic Volume (veh/h)	35	27	945	145	13	237
Future Volume (Veh/h)	35	27	945	145	13	237
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	30	1050	161	14	263
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1341	1050			1211	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1341	1050			1211	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	89			98	
cM capacity (veh/h)	164	276			576	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	30	1050	161	14	263
Volume Left	39	0	0	0	14	0
Volume Right	0	30	0	161	0	0
cSH	164	276	1700	1700	576	1700
Volume to Capacity	0.24	0.11	0.62	0.09	0.02	0.15
Queue Length 95th (ft)	22	9	0	0	2	0
Control Delay (s)	33.7	19.6	0.0	0.0	11.4	0.0
Lane LOS	D	C			B	
Approach Delay (s)	27.6		0.0		0.6	
Approach LOS	D					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			59.7%	ICU Level of Service	B	
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	34	70	19	151	22	94	11	695	162	318	409	2
Future Volume (vph)	34	70	19	151	22	94	11	695	162	318	409	2
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		300	500		200	475		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.972			0.999	
Flt Protected		0.984			0.958		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1785	1583	1770	1811	0	1770	1861	0
Flt Permitted		0.717			0.647		0.500			0.089		
Satd. Flow (perm)	0	1336	1583	0	1205	1583	931	1811	0	166	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			104		22			1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			972			2357	
Travel Time (s)		9.4			8.6			14.7			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	21	168	24	104	12	772	180	353	454	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	21	0	192	104	12	952	0	353	456	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	18.0	18.0	18.0	18.0	18.0	18.0	47.0	47.0		15.0	62.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

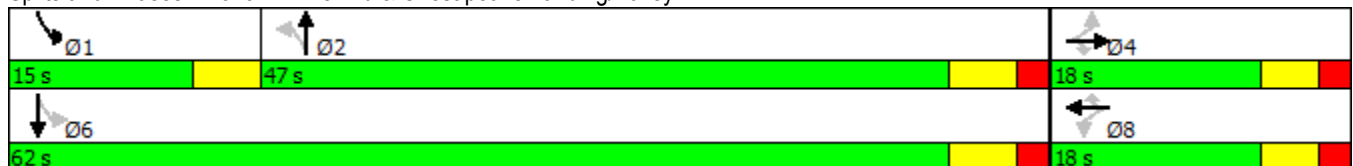


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	58.8%	58.8%		18.8%	77.5%	
Maximum Green (s)	12.5	12.5	12.5	12.5	12.5	12.5	41.0	41.0		11.0	56.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		14.0	14.0		14.0	14.0	42.5	42.5		59.5	57.5	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.53	0.53		0.74	0.72	
v/c Ratio		0.50	0.06		0.91	0.29	0.02	0.98		0.94	0.34	
Control Delay		38.1	0.3		79.1	8.8	9.2	44.3		56.5	5.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		38.1	0.3		79.1	8.8	9.2	44.3		56.5	5.0	
LOS		D	A		E	A	A	D		E	A	
Approach Delay		32.3			54.4			43.9			27.5	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)		53	0		95	0	3	427		121	69	
Queue Length 95th (ft)		105	0		#217	40	10	#714		#284	107	
Internal Link Dist (ft)		333			361			892			2277	
Turn Bay Length (ft)			125			300	500			475		
Base Capacity (vph)		233	355		210	362	494	972		374	1337	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.50	0.06		0.91	0.29	0.02	0.98		0.94	0.34	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 38.6
 Intersection LOS: D
 Intersection Capacity Utilization 90.6%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	167	118	149	39	586	241	126	149	236
Future Volume (vph)	32	16	5	167	118	149	39	586	241	126	149	236
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	100		100	200		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.916			0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1706	0	1770	1781	0	1770	1863	1583
Flt Permitted	0.357			0.742			0.652			0.152		
Satd. Flow (perm)	665	1792	0	1382	1706	0	1215	1781	0	283	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			79			51				262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			738			615				654
Travel Time (s)		11.9			12.6			9.3				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	186	131	166	43	651	268	140	166	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	186	297	0	43	919	0	140	166	262
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	1		1	1		1	1		1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50		50	50	20
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	50		50	50		50	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	54.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	67.5%
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	48.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0		-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0		4.0	3.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	14.9	17.0		17.0	17.0		41.1	42.2		41.1	42.2	39.0
Actuated g/C Ratio	0.22	0.26		0.26	0.26		0.62	0.63		0.62	0.63	0.59
v/c Ratio	0.24	0.05		0.53	0.60		0.06	0.80		0.80	0.14	0.25
Control Delay	29.0	18.7		30.2	23.4		5.6	15.5		47.9	5.4	1.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	29.0	18.7		30.2	23.4		5.6	15.5		47.9	5.4	1.7
LOS	C	B		C	C		A	B		D	A	A
Approach Delay		24.9			26.0			15.0			14.2	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	14	7		78	91		6	223		37	23	0
Queue Length 95th (ft)	40	24		140	170		19	466		#164	52	27
Internal Link Dist (ft)		442			658			535			574	
Turn Bay Length (ft)	200			200			100			200		100
Base Capacity (vph)	211	630		483	647		926	1390		215	1442	1240
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.17	0.04		0.39	0.46		0.05	0.66		0.65	0.12	0.21

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 66.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 17.6
 Intersection LOS: B
 Intersection Capacity Utilization 90.4%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	22	1	8	5	698	209	26	687	6
Future Volume (vph)	39	5	17	22	1	8	5	698	209	26	687	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962				0.850		0.969			0.999	
Flt Protected		0.969			0.954						0.998	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1805	0	0	1857	0
Flt Permitted		0.793			0.822			0.996			0.950	
Satd. Flow (perm)	0	1421	0	0	1531	1583	0	1798	0	0	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				47		53			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	24	1	9	6	776	232	29	763	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	25	9	0	1014	0	0	799	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.5	15.5		15.5	15.5	15.5	54.5	54.5		54.5	54.5	

Lanes, Volumes, Timings
 653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	22.1%	22.1%		22.1%	22.1%	22.1%	77.9%	77.9%		77.9%	77.9%	
Maximum Green (s)	10.0	10.0		10.0	10.0	10.0	48.5	48.5		48.5	48.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.4			12.4	12.4		50.0			50.0	
Actuated g/C Ratio		0.21			0.21	0.21		0.83			0.83	
v/c Ratio		0.22			0.08	0.02		0.67			0.54	
Control Delay		22.1			26.3	0.1		7.8			5.7	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		22.1			26.3	0.1		7.8			5.7	
LOS		C			C	A		A			A	
Approach Delay		22.1			19.4			7.8			5.7	
Approach LOS		C			B			A			A	
Queue Length 50th (ft)		21			10	0		210			142	
Queue Length 95th (ft)		52			29	0		377			234	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		307			315	363		1507			1473	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.22			0.08	0.02		0.67			0.54	

Intersection Summary
























Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 60
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 7.6
 Intersection LOS: A
 Intersection Capacity Utilization 76.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	737	57	361	25	394	221	87	20	159	43
Future Volume (vph)	210	1148	737	57	361	25	394	221	87	20	159	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.443			0.166			0.950			0.603		
Satd. Flow (perm)	798	3421	1583	286	4652	0	3416	1853	1575	1086	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			683		15				76			76
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		593			1821			955			477	
Travel Time (s)		9.0			27.6			14.5			7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	838	65	410	28	448	251	99	23	181	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	838	65	438	0	448	251	99	23	181	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

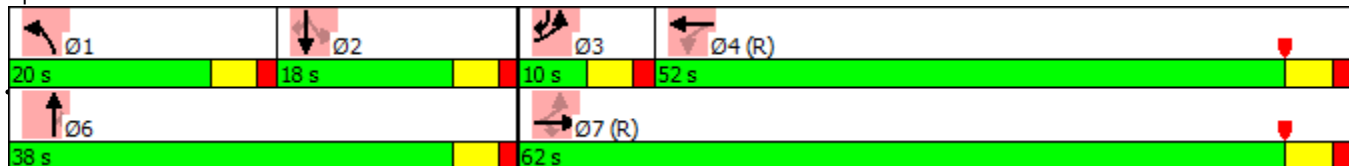


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	10.0	10.0		10.0	10.5	10.5	10.5	10.5	10.0
Total Split (s)	10.0	62.0	62.0	52.0	52.0		20.0	38.0	38.0	18.0	18.0	10.0
Total Split (%)	10.0%	62.0%	62.0%	52.0%	52.0%		20.0%	38.0%	38.0%	18.0%	18.0%	10.0%
Maximum Green (s)	5.0	57.0	57.0	47.0	47.0		15.0	33.0	33.0	13.0	13.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	60.0	60.0	60.0	49.3	49.3		16.1	33.0	33.0	13.4	13.4	24.1
Actuated g/C Ratio	0.60	0.60	0.60	0.49	0.49		0.16	0.33	0.33	0.13	0.13	0.24
v/c Ratio	0.44	0.64	0.69	0.46	0.19		0.82	0.41	0.17	0.16	0.72	0.11
Control Delay	5.9	8.0	3.0	30.7	14.1		53.5	27.9	8.7	40.5	58.4	3.7
Queue Delay	0.0	0.3	0.5	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	8.3	3.6	30.7	14.1		53.5	27.9	8.7	40.5	58.4	3.7
LOS	A	A	A	C	B		D	C	A	D	E	A
Approach Delay	6.4			16.2			39.9			46.2		
Approach LOS	A			B			D			D		
Queue Length 50th (ft)	43	226	45	27	53		143	120	10	13	111	0
Queue Length 95th (ft)	m45	m215	m37	73	72		#203	183	43	36	#184	14
Internal Link Dist (ft)	513			1741			875			397		
Turn Bay Length (ft)	500			425			780			260	225	275
Base Capacity (vph)	543	2051	1222	140	2302		563	639	593	157	270	438
Starvation Cap Reductn	0	245	115	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.72	0.76	0.46	0.19		0.80	0.39	0.17	0.15	0.67	0.11

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 17.0 Intersection LOS: B
 Intersection Capacity Utilization 68.8% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	279	369	11	42	79	82	8	439	284	63	77	76
Future Volume (vph)	279	369	11	42	79	82	8	439	284	63	77	76
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.940			0.948				0.850
Flt Protected		0.979			0.990			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3294	0	0	1764	0	0	1822	1583
Flt Permitted		0.737			0.726			0.997			0.613	
Satd. Flow (perm)	0	2603	0	0	2415	0	0	1761	0	0	1142	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			91			58				84
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	310	410	12	47	88	91	9	488	316	70	86	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	732	0	0	226	0	0	813	0	0	156	84
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	26.0
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	55.0

Lanes, Volumes, Timings

1370: E River & 253

11/22/2016

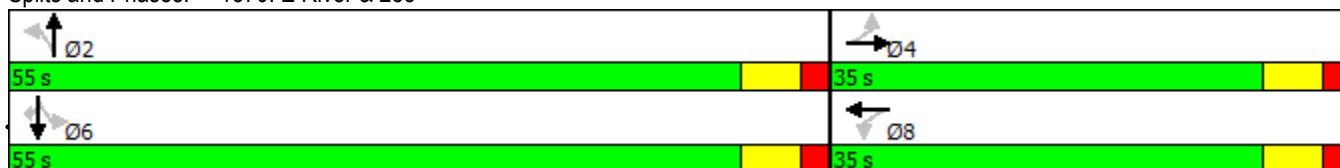


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	61.1%
Maximum Green (s)	29.0	29.0		29.0	29.0		49.0	49.0		49.0	49.0	49.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		26.8			26.8			40.2			40.2	40.2
Actuated g/C Ratio		0.35			0.35			0.53			0.53	0.53
v/c Ratio		0.80			0.25			0.85			0.26	0.10
Control Delay		32.0			12.8			24.9			11.6	2.5
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		32.0			12.8			24.9			11.6	2.5
LOS		C			B			C			B	A
Approach Delay		32.0			12.8			24.9			8.4	
Approach LOS		C			B			C			A	
Queue Length 50th (ft)		172			24			322			42	0
Queue Length 95th (ft)		#295			55			501			77	19
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		1091			1063			1236			790	1121
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.67			0.21			0.66			0.20	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 76.5
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 24.1
 Intersection LOS: C
 Intersection Capacity Utilization 88.1%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	122	32	366	71	39	840
Future Volume (Veh/h)	122	32	366	71	39	840
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	136	36	407	79	43	933
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1426	407			486	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1426	407			486	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	5	94			96	
cM capacity (veh/h)	143	644			1077	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	136	36	407	79	43	933
Volume Left	136	0	0	0	43	0
Volume Right	0	36	0	79	0	0
cSH	143	644	1700	1700	1077	1700
Volume to Capacity	0.95	0.06	0.24	0.05	0.04	0.55
Queue Length 95th (ft)	168	4	0	0	3	0
Control Delay (s)	123.1	10.9	0.0	0.0	8.5	0.0
Lane LOS	F	B			A	
Approach Delay (s)	99.6	0.0		0.4		
Approach LOS	F					
Intersection Summary						
Average Delay	10.7					
Intersection Capacity Utilization	57.6%		ICU Level of Service		B	
Analysis Period (min)	15					

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	9	40	15	184	64	332	22	418	217	96	601	18
Future Volume (vph)	9	40	15	184	64	332	22	418	217	96	601	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		300	500		0	475		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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			0.850			0.850		0.949			0.996	
Flt Protected		0.991			0.964		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1796	1583	1770	1768	0	1770	1855	0
Flt Permitted		0.928			0.747		0.387			0.142		
Satd. Flow (perm)	0	1729	1583	0	1391	1583	721	1768	0	265	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			369		43			4	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			441			897			2357	
Travel Time (s)		9.4			8.6			13.6			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	17	204	71	369	24	464	241	107	668	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	17	0	275	369	24	705	0	107	688	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	41.0	41.0		14.0	55.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

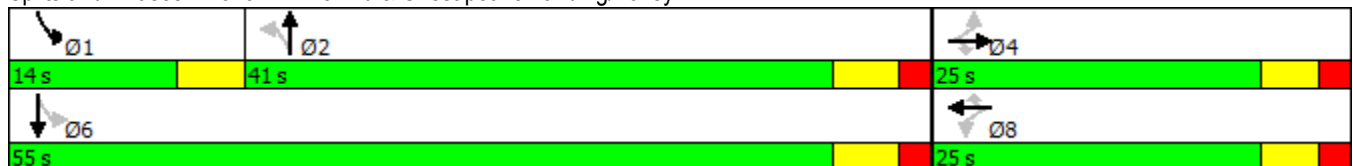


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	51.3%	51.3%		17.5%	68.8%	
Maximum Green (s)	19.5	19.5	19.5	19.5	19.5	19.5	35.0	35.0		10.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		19.1	19.1		19.1	19.1	33.4	33.4		45.6	43.5	
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.47	0.47		0.64	0.61	
v/c Ratio		0.12	0.03		0.74	0.53	0.07	0.83		0.25	0.61	
Control Delay		23.4	0.1		41.0	6.2	13.1	28.0		6.5	11.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		23.4	0.1		41.0	6.2	13.1	28.0		6.5	11.3	
LOS		C	A		D	A	B	C		A	B	
Approach Delay		17.8			21.0			27.5			10.7	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		21	0		126	0	7	283		17	177	
Queue Length 95th (ft)		48	0		#242	63	20	#499		34	272	
Internal Link Dist (ft)		333			361			817			2277	
Turn Bay Length (ft)			125			300	500			475		
Base Capacity (vph)		542	562		437	750	393	984		427	1317	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.10	0.03		0.63	0.49	0.06	0.72		0.25	0.52	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 71.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 19.4
 Intersection LOS: B
 Intersection Capacity Utilization 74.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	109	68	189	19	269	12	231	130	222	556	36
Future Volume (vph)	199	109	68	189	19	269	12	231	130	222	556	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		100	450		450
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.942			0.860			0.946				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1755	0	1770	1602	0	1770	1762	0	1770	1863	1583
Flt Permitted	0.470			0.622			0.249			0.439		
Satd. Flow (perm)	875	1755	0	1159	1602	0	464	1762	0	818	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			299			44				40
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			805			615				720
Travel Time (s)		16.5			13.7			9.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	221	121	76	210	21	299	13	257	144	247	618	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	197	0	210	320	0	13	401	0	247	618	40
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	1		1	1		1	1		1	1	1
Detector Template	Left	Thru			Thru		Left					Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	41.0	41.0		41.0	41.0		49.0	49.0		49.0	49.0	49.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

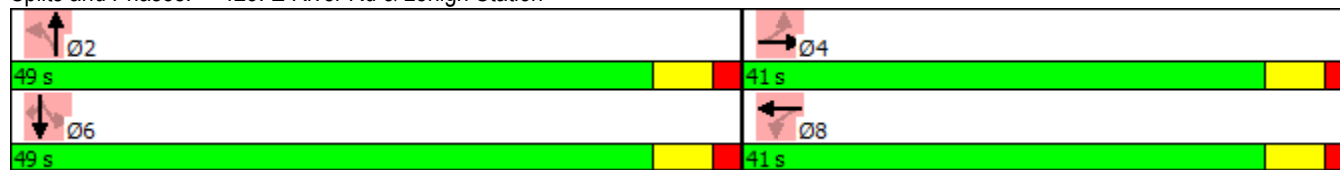


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	45.6%	45.6%		45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	54.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		43.0	43.0		43.0	43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	25.0	25.0		25.0	25.0		31.4	31.4		31.4	31.4	31.4
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.67	0.29		0.48	0.41		0.06	0.47		0.64	0.70	0.05
Control Delay	30.7	13.8		21.7	4.6		12.3	13.3		23.7	19.8	4.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	30.7	13.8		21.7	4.6		12.3	13.3		23.7	19.8	4.3
LOS	C	B		C	A		B	B		C	B	A
Approach Delay		22.8			11.4			13.3			20.2	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	71	41		61	5		3	88		69	180	0
Queue Length 95th (ft)	182	105		149	57		14	198		185	376	16
Internal Link Dist (ft)		647			725			535			640	
Turn Bay Length (ft)	200			200			100			450		450
Base Capacity (vph)	530	1080		702	1088		329	1264		581	1323	1136
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.42	0.18		0.30	0.29		0.04	0.32		0.43	0.47	0.04

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	66.3
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	17.3
Intersection LOS:	B
Intersection Capacity Utilization:	81.2%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	144	15	59	17	686	102	38	607	20
Future Volume (vph)	16	5	15	144	15	59	17	686	102	38	607	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944				0.850		0.983			0.996	
Flt Protected		0.979			0.957			0.999			0.997	
Satd. Flow (prot)	0	1722	0	0	1783	1583	0	1829	0	0	1850	0
Flt Permitted		0.850			0.717			0.981			0.924	
Satd. Flow (perm)	0	1495	0	0	1336	1583	0	1796	0	0	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		18			4	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	160	17	66	19	762	113	42	674	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	177	66	0	894	0	0	738	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	24.5	24.5		24.5	24.5	24.5	50.5	50.5		50.5	50.5	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.7%	32.7%		32.7%	32.7%	32.7%	67.3%	67.3%		67.3%	67.3%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	44.5	44.5		44.5	44.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		15.7			15.7	15.7		42.7			42.7	
Actuated g/C Ratio		0.23			0.23	0.23		0.64			0.64	
v/c Ratio		0.11			0.57	0.16		0.78			0.68	
Control Delay		15.3			30.8	7.2		15.5			12.2	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.3			30.8	7.2		15.5			12.2	
LOS		B			C	A		B			B	
Approach Delay		15.3			24.4			15.5			12.2	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		8			67	0		221			165	
Queue Length 95th (ft)		31			128	27		#462			334	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		474			413	535		1252			1191	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.09			0.43	0.12		0.71			0.62	

Intersection Summary
























Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 67
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 15.4 Intersection LOS: B
 Intersection Capacity Utilization 75.2% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	344	94	1668	35	559	190	93	85	223	339
Future Volume (vph)	45	602	344	94	1668	35	559	190	93	85	223	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.094			0.416			0.950			0.634		
Satd. Flow (perm)	169	3421	1583	716	4685	0	3416	1853	1575	1142	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355		4				96			85
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	355	97	1720	36	576	196	96	88	230	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	355	97	1756	0	576	196	96	88	230	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

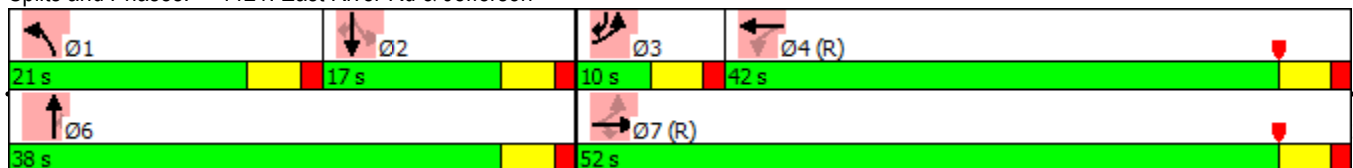


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	15.0	15.0		10.5	10.5	10.5	10.5	10.5	10.0
Total Split (s)	10.0	52.0	52.0	42.0	42.0		21.0	38.0	38.0	17.0	17.0	10.0
Total Split (%)	11.1%	57.8%	57.8%	46.7%	46.7%		23.3%	42.2%	42.2%	18.9%	18.9%	11.1%
Maximum Green (s)	5.0	47.0	47.0	37.0	37.0		16.0	33.0	33.0	12.0	12.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	48.9	48.9	48.9	38.9	38.9		17.3	34.1	34.1	13.2	13.2	23.3
Actuated g/C Ratio	0.54	0.54	0.54	0.43	0.43		0.19	0.38	0.38	0.15	0.15	0.26
v/c Ratio	0.23	0.33	0.35	0.31	0.87		0.88	0.28	0.15	0.52	0.84	0.74
Control Delay	6.8	7.9	3.7	20.6	29.1		51.3	20.6	4.6	47.6	64.4	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	7.9	3.7	20.6	29.1		51.3	20.6	4.6	47.6	64.4	33.7
LOS	A	A	A	C	C		D	C	A	D	E	C
Approach Delay	6.4			28.6			39.2			46.1		
Approach LOS	A			C			D			D		
Queue Length 50th (ft)	6	108	35	35	324		164	75	0	47	129	138
Queue Length 95th (ft)	m10	m140	m47	75	393		#253	127	30	96	#250	#261
Internal Link Dist (ft)	513			1741			875			397		
Turn Bay Length (ft)	500			425			780			260	225	275
Base Capacity (vph)	203	1859	1022	309	2027		664	710	662	171	279	472
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.33	0.35	0.31	0.87		0.87	0.28	0.15	0.51	0.82	0.74

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 28.2 Intersection LOS: C
 Intersection Capacity Utilization 79.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	89	175	9	225	320	58	15	188	123	72	446	284
Future Volume (vph)	89	175	9	225	320	58	15	188	123	72	446	284
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.986			0.949				0.850
Flt Protected		0.984			0.982			0.998			0.993	
Satd. Flow (prot)	0	3465	0	0	3427	0	0	1764	0	0	1850	1583
Flt Permitted		0.598			0.727			0.962			0.898	
Satd. Flow (perm)	0	2106	0	0	2537	0	0	1701	0	0	1673	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			14			48				303
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	194	10	250	356	64	17	209	137	80	496	316
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	303	0	0	670	0	0	363	0	0	576	316
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	39.0	39.0		39.0	39.0		51.0	51.0		51.0	51.0	51.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

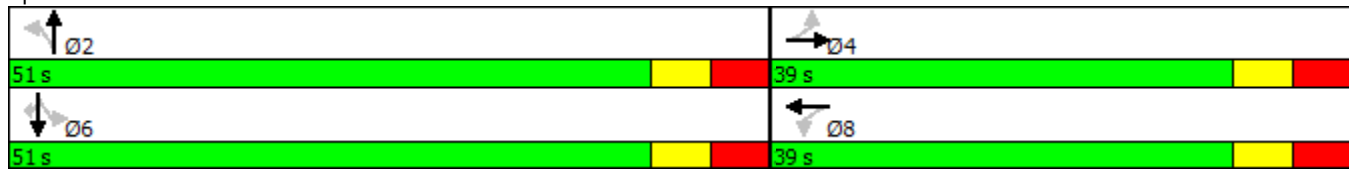


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	43.3%	43.3%		43.3%	43.3%		56.7%	56.7%		56.7%	56.7%	56.7%
Maximum Green (s)	31.0	31.0		31.0	31.0		43.0	43.0		43.0	43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		25.1			25.1			32.0			32.0	32.0
Actuated g/C Ratio		0.35			0.35			0.45			0.45	0.45
v/c Ratio		0.40			0.74			0.46			0.76	0.36
Control Delay		20.3			26.4			14.0			24.5	3.2
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		20.3			26.4			14.0			24.5	3.2
LOS		C			C			B			C	A
Approach Delay		20.3			26.4			14.0			17.0	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		51			132			90			204	3
Queue Length 95th (ft)		102			234			175			367	45
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		1027			1242			1150			1115	1156
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.30			0.54			0.32			0.52	0.27

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	70.9
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	19.8
Intersection LOS:	B
Intersection Capacity Utilization:	92.9%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 1370: E River & 253















2025 (ETC+10)
EAST RIVER ROAD SYNCHRO FILES
BASE VOLUMES

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	27	971	145	13	243
Future Volume (Veh/h)	24	27	971	145	13	243
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	30	1079	161	14	270
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1377	1079			1240	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1377	1079			1240	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	89			98	
cM capacity (veh/h)	156	265			562	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	27	30	1079	161	14	270
Volume Left	27	0	0	0	14	0
Volume Right	0	30	0	161	0	0
cSH	156	265	1700	1700	562	1700
Volume to Capacity	0.17	0.11	0.63	0.09	0.02	0.16
Queue Length 95th (ft)	15	9	0	0	2	0
Control Delay (s)	32.9	20.3	0.0	0.0	11.6	0.0
Lane LOS	D	C			B	
Approach Delay (s)	26.3		0.0	0.6		
Approach LOS	D					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			61.1%		ICU Level of Service	B
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	34	70	19	151	22	94	11	705	163	318	413	2
Future Volume (vph)	34	70	19	151	22	94	11	705	163	318	413	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		300	500		0	475		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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			0.850			0.850		0.972			0.999	
Flt Protected		0.984			0.958		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1785	1583	1770	1811	0	1770	1861	0
Flt Permitted		0.717			0.647		0.498			0.089		
Satd. Flow (perm)	0	1336	1583	0	1205	1583	928	1811	0	166	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			104		22			1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			581			887			2357	
Travel Time (s)		9.4			11.3			13.4			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	21	168	24	104	12	783	181	353	459	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	21	0	192	104	12	964	0	353	461	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	18.0	18.0	18.0	18.0	18.0	18.0	47.0	47.0		15.0	62.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	58.8%	58.8%		18.8%	77.5%	
Maximum Green (s)	12.5	12.5	12.5	12.5	12.5	12.5	41.0	41.0		11.0	56.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		14.0	14.0		14.0	14.0	42.5	42.5		59.5	57.5	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.53	0.53		0.74	0.72	
v/c Ratio		0.50	0.06		0.91	0.29	0.02	0.99		0.94	0.34	
Control Delay		38.1	0.3		79.1	8.8	9.2	47.3		56.5	5.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		38.1	0.3		79.1	8.8	9.2	47.3		56.5	5.0	
LOS		D	A		E	A	A	D		E	A	
Approach Delay		32.3			54.4			46.8			27.4	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)		53	0		95	0	3	440		121	70	
Queue Length 95th (ft)		105	0		#217	40	10	#728		#284	109	
Internal Link Dist (ft)		333			501			807			2277	
Turn Bay Length (ft)			125			300	500			475		
Base Capacity (vph)		233	355		210	362	493	972		374	1337	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.50	0.06		0.91	0.29	0.02	0.99		0.94	0.34	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 39.8
 Intersection LOS: D
 Intersection Capacity Utilization 91.2%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	168	118	149	39	599	243	126	152	236
Future Volume (vph)	32	16	5	168	118	149	39	599	243	126	152	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	100		100	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.916			0.957				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1706	0	1770	1783	0	1770	1863	1583
Flt Permitted	0.334			0.742			0.650			0.154		
Satd. Flow (perm)	622	1792	0	1382	1706	0	1211	1783	0	287	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			79			50				262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			738			615				654
Travel Time (s)		11.9			12.6			9.3				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	187	131	166	43	666	270	140	169	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	187	297	0	43	936	0	140	169	262
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	1		1	1		1	1		1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50		50	50	20
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	50		50	50		50	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	54.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	67.5%
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	48.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0		-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0		4.0	3.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	15.1	17.1		17.1	17.1		44.6	45.6		44.6	45.6	42.5
Actuated g/C Ratio	0.22	0.24		0.24	0.24		0.64	0.65		0.64	0.65	0.61
v/c Ratio	0.27	0.05		0.55	0.62		0.06	0.79		0.77	0.14	0.25
Control Delay	30.5	18.5		31.8	24.6		5.5	15.2		42.1	5.4	1.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	30.5	18.5		31.8	24.6		5.5	15.2		42.1	5.4	1.6
LOS	C	B		C	C		A	B		D	A	A
Approach Delay		25.7			27.4			14.8			12.7	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	14	7		78	91		6	232		37	24	0
Queue Length 95th (ft)	41	24		141	170		19	486		#163	53	27
Internal Link Dist (ft)		442			658			535			574	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	184	587		449	608		885	1335		210	1382	1200
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.20	0.04		0.42	0.49		0.05	0.70		0.67	0.12	0.22

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 70
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 17.4
 Intersection LOS: B
 Intersection Capacity Utilization 91.2%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	23	1	8	5	704	210	26	692	6
Future Volume (vph)	39	5	17	23	1	8	5	704	210	26	692	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962				0.850		0.969			0.999	
Flt Protected		0.969			0.954						0.998	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1805	0	0	1857	0
Flt Permitted		0.792			0.821			0.996			0.950	
Satd. Flow (perm)	0	1419	0	0	1529	1583	0	1798	0	0	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				47		53			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	26	1	9	6	782	233	29	769	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	27	9	0	1021	0	0	805	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.5	15.5		15.5	15.5	15.5	54.5	54.5		54.5	54.5	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	22.1%	22.1%		22.1%	22.1%	22.1%	77.9%	77.9%		77.9%	77.9%	
Maximum Green (s)	10.0	10.0		10.0	10.0	10.0	48.5	48.5		48.5	48.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.3			12.3	12.3		50.3			50.3	
Actuated g/C Ratio		0.20			0.20	0.20		0.83			0.83	
v/c Ratio		0.22			0.09	0.03		0.68			0.55	
Control Delay		22.1			26.2	0.1		8.0			5.8	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		22.1			26.2	0.1		8.0			5.8	
LOS		C			C	A		A			A	
Approach Delay		22.1			19.7			8.0			5.8	
Approach LOS		C			B			A			A	
Queue Length 50th (ft)		21			11	0		214			143	
Queue Length 95th (ft)		52			30	0		384			237	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		304			312	360		1507			1473	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.22			0.09	0.03		0.68			0.55	

Intersection Summary
























Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	60.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	7.8
Intersection LOS:	A
Intersection Capacity Utilization:	77.2%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	740	57	361	25	395	222	87	20	159	43
Future Volume (vph)	210	1148	740	57	361	25	395	222	87	20	159	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.443			0.166			0.950			0.603		
Satd. Flow (perm)	798	3421	1583	286	4652	0	3416	1853	1575	1086	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			683		15				76			76
Link Speed (mph)		45		45			45		45		45	
Link Distance (ft)		593		1821			955		477		477	
Travel Time (s)		9.0		27.6			14.5		7.2		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	841	65	410	28	449	252	99	23	181	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	841	65	438	0	449	252	99	23	181	49
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)		24		11			24		24		24	
Link Offset(ft)		0		0			0		0		0	
Crosswalk Width(ft)		16		16			16		16		16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

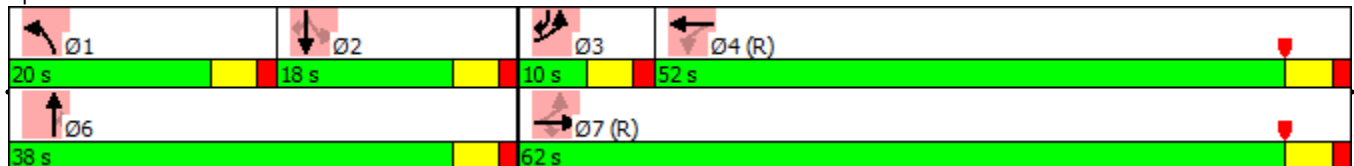


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	10.0	10.0		10.0	10.5	10.5	10.5	10.5	10.0
Total Split (s)	10.0	62.0	62.0	52.0	52.0		20.0	38.0	38.0	18.0	18.0	10.0
Total Split (%)	10.0%	62.0%	62.0%	52.0%	52.0%		20.0%	38.0%	38.0%	18.0%	18.0%	10.0%
Maximum Green (s)	5.0	57.0	57.0	47.0	47.0		15.0	33.0	33.0	13.0	13.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag			Lead			Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	60.0	60.0	60.0	49.3	49.3		16.1	33.0	33.0	13.4	13.4	24.1
Actuated g/C Ratio	0.60	0.60	0.60	0.49	0.49		0.16	0.33	0.33	0.13	0.13	0.24
v/c Ratio	0.44	0.64	0.69	0.46	0.19		0.82	0.41	0.17	0.16	0.72	0.11
Control Delay	5.9	8.0	3.0	30.7	14.1		53.7	28.0	8.7	40.5	58.4	3.7
Queue Delay	0.0	0.3	0.6	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	8.3	3.6	30.7	14.1		53.7	28.0	8.7	40.5	58.4	3.7
LOS	A	A	A	C	B		D	C	A	D	E	A
Approach Delay	6.4			16.2			40.0			46.2		
Approach LOS	A			B			D			D		
Queue Length 50th (ft)	43	226	46	27	53		143	121	10	13	111	0
Queue Length 95th (ft)	m45	m215	m37	73	72		#204	185	43	36	#184	14
Internal Link Dist (ft)	513			1741			875			397		
Turn Bay Length (ft)	500			425			780			260	225	275
Base Capacity (vph)	543	2051	1222	140	2302		563	639	593	157	270	438
Starvation Cap Reductn	0	245	115	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.72	0.76	0.46	0.19		0.80	0.39	0.17	0.15	0.67	0.11

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 17.0 Intersection LOS: B
 Intersection Capacity Utilization 68.9% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	279	369	11	42	79	82	8	453	286	63	79	76
Future Volume (vph)	279	369	11	42	79	82	8	453	286	63	79	76
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.940			0.948				0.850
Flt Protected		0.979			0.990			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3294	0	0	1764	0	0	1822	1583
Flt Permitted		0.737			0.720			0.997			0.614	
Satd. Flow (perm)	0	2603	0	0	2395	0	0	1761	0	0	1144	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			91			58				84
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	310	410	12	47	88	91	9	503	318	70	88	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	732	0	0	226	0	0	830	0	0	158	84
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	26.0
Total Split (s)	34.0	34.0		34.0	34.0		56.0	56.0		56.0	56.0	56.0

Lanes, Volumes, Timings

1370: E River & 253

11/22/2016

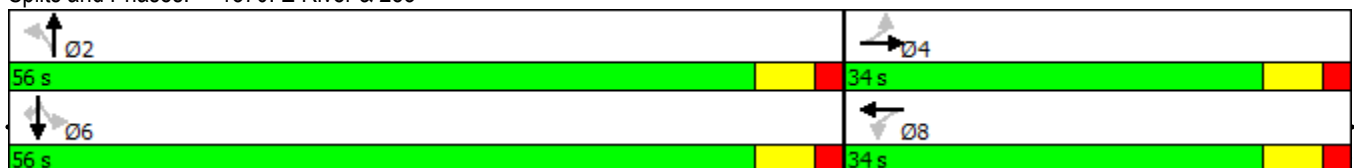


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	37.8%	37.8%		37.8%	37.8%		62.2%	62.2%		62.2%	62.2%	62.2%
Maximum Green (s)	28.0	28.0		28.0	28.0		50.0	50.0		50.0	50.0	50.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		26.4			26.4			41.2			41.2	41.2
Actuated g/C Ratio		0.34			0.34			0.54			0.54	0.54
v/c Ratio		0.82			0.26			0.86			0.26	0.09
Control Delay		33.7			13.2			24.8			11.1	2.4
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		33.7			13.2			24.8			11.1	2.4
LOS		C			B			C			B	A
Approach Delay		33.7			13.2			24.8			8.1	
Approach LOS		C			B			C			A	
Queue Length 50th (ft)		174			24			325			41	0
Queue Length 95th (ft)		#305			56			508			76	18
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		1044			1014			1248			799	1131
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.70			0.22			0.67			0.20	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 77
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 24.7
 Intersection LOS: C
 Intersection Capacity Utilization 88.4%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	122	32	374	71	39	863
Future Volume (Veh/h)	122	32	374	71	39	863
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	136	36	416	79	43	959
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1461	416			495	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1461	416			495	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	94			96	
cM capacity (veh/h)	136	637			1069	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	136	36	416	79	43	959
Volume Left	136	0	0	0	43	0
Volume Right	0	36	0	79	0	0
cSH	136	637	1700	1700	1069	1700
Volume to Capacity	1.00	0.06	0.24	0.05	0.04	0.56
Queue Length 95th (ft)	178	4	0	0	3	0
Control Delay (s)	139.9	11.0	0.0	0.0	8.5	0.0
Lane LOS	F	B			A	
Approach Delay (s)	112.9		0.0		0.4	
Approach LOS	F					
Intersection Summary						
Average Delay			11.9			
Intersection Capacity Utilization			58.8%		ICU Level of Service	B
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	9	40	15	185	64	332	22	423	217	96	610	18
Future Volume (vph)	9	40	15	185	64	332	22	423	217	96	610	18
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		300	500		200	475		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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			0.850			0.850		0.949			0.996	
Flt Protected		0.991			0.964		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1796	1583	1770	1768	0	1770	1855	0
Flt Permitted		0.928			0.746		0.378			0.139		
Satd. Flow (perm)	0	1729	1583	0	1390	1583	704	1768	0	259	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			369		42			4	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			584			833			2357	
Travel Time (s)		9.4			11.4			12.6			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	17	206	71	369	24	470	241	107	678	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	17	0	277	369	24	711	0	107	698	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	41.0	41.0		14.0	55.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

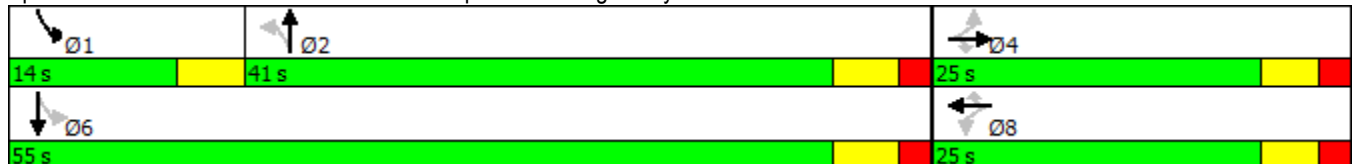


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	51.3%	51.3%		17.5%	68.8%	
Maximum Green (s)	19.5	19.5	19.5	19.5	19.5	19.5	35.0	35.0		10.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		19.2	19.2		19.2	19.2	33.6	33.6		45.9	43.7	
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.47	0.47		0.64	0.61	
v/c Ratio		0.12	0.03		0.75	0.53	0.07	0.84		0.25	0.62	
Control Delay		23.4	0.1		41.5	6.1	13.1	28.5		6.5	11.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		23.4	0.1		41.5	6.1	13.1	28.5		6.5	11.5	
LOS		C	A		D	A	B	C		A	B	
Approach Delay		17.8			21.3			28.0			10.8	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		21	0		127	0	7	289		17	182	
Queue Length 95th (ft)		48	0		#246	63	20	#507		34	279	
Internal Link Dist (ft)		333			504			753			2277	
Turn Bay Length (ft)			125			300	500			475		
Base Capacity (vph)		539	559		433	747	382	977		423	1314	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.10	0.03		0.64	0.49	0.06	0.73		0.25	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 72
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 19.6
 Intersection LOS: B
 Intersection Capacity Utilization 74.8%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	109	68	189	19	269	12	235	131	222	569	36
Future Volume (vph)	199	109	68	189	19	269	12	235	131	222	569	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.942			0.860			0.946				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1755	0	1770	1602	0	1770	1762	0	1770	1863	1583
Flt Permitted	0.469			0.621			0.239			0.434		
Satd. Flow (perm)	874	1755	0	1157	1602	0	445	1762	0	808	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			299			44				36
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			805			615				720
Travel Time (s)		16.5			13.7			9.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	221	121	76	210	21	299	13	261	146	247	632	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	197	0	210	320	0	13	407	0	247	632	40
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	1		1	1		1	1		1	1	1
Detector Template	Left	Thru			Thru		Left					Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	41.0	41.0		41.0	41.0		49.0	49.0		49.0	49.0	49.0

Lanes, Volumes, Timings

428: E River Rd & Lehigh Station

11/22/2016

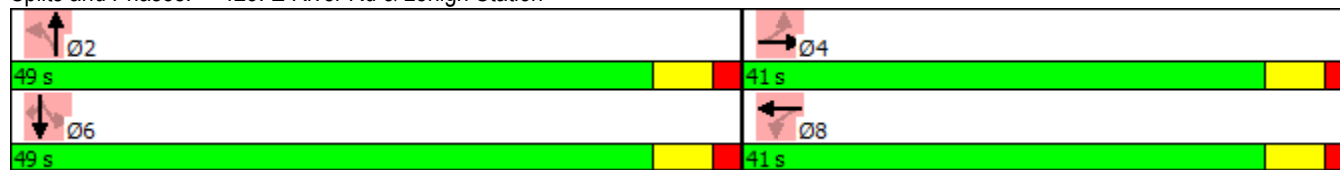


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	45.6%	45.6%		45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	54.4%
Maximum Green (s)	35.0	35.0		35.0	35.0		43.0	43.0		43.0	43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	25.1	25.1		25.1	25.1		31.9	31.9		31.9	31.9	31.9
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.48	0.48		0.48	0.48	0.48
v/c Ratio	0.67	0.29		0.48	0.41		0.06	0.47		0.64	0.71	0.05
Control Delay	31.1	14.0		22.0	4.6		12.4	13.4		24.1	20.2	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	31.1	14.0		22.0	4.6		12.4	13.4		24.1	20.2	4.9
LOS	C	B		C	A		B	B		C	C	A
Approach Delay		23.0			11.5			13.4			20.6	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	72	41		63	5		3	90		70	188	1
Queue Length 95th (ft)	182	105		149	57		14	202		187	389	17
Internal Link Dist (ft)		647			725			535			640	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	524	1069		693	1080		313	1254		569	1313	1126
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.42	0.18		0.30	0.30		0.04	0.32		0.43	0.48	0.04

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	66.9
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	17.6
Intersection LOS:	B
Intersection Capacity Utilization:	81.9%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	145	15	59	17	691	103	38	611	20
Future Volume (vph)	16	5	15	145	15	59	17	691	103	38	611	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944				0.850		0.983			0.996	
Flt Protected		0.979			0.957			0.999			0.997	
Satd. Flow (prot)	0	1722	0	0	1783	1583	0	1829	0	0	1850	0
Flt Permitted		0.850			0.717			0.981			0.923	
Satd. Flow (perm)	0	1495	0	0	1336	1583	0	1796	0	0	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		18			4	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	161	17	66	19	768	114	42	679	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	178	66	0	901	0	0	743	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	24.5	24.5		24.5	24.5	24.5	50.5	50.5		50.5	50.5	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.7%	32.7%		32.7%	32.7%	32.7%	67.3%	67.3%		67.3%	67.3%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	44.5	44.5		44.5	44.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		15.7			15.7	15.7		43.2			43.2	
Actuated g/C Ratio		0.23			0.23	0.23		0.64			0.64	
v/c Ratio		0.11			0.57	0.16		0.78			0.68	
Control Delay		15.4			31.2	7.2		15.6			12.3	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.4			31.2	7.2		15.6			12.3	
LOS		B			C	A		B			B	
Approach Delay		15.4			24.7			15.6			12.3	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		8			69	0		226			167	
Queue Length 95th (ft)		31			129	27		#480			339	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		470			410	531		1243			1181	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.09			0.43	0.12		0.72			0.63	

Intersection Summary
























Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 67.5
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 15.5 Intersection LOS: B
 Intersection Capacity Utilization 75.5% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 653: E River Rd & River Meadows/RIT



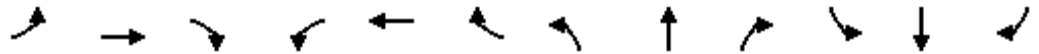
Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	346	94	1668	35	561	191	93	85	223	339
Future Volume (vph)	45	602	346	94	1668	35	561	191	93	85	223	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.094			0.416			0.950			0.634		
Satd. Flow (perm)	169	3421	1583	716	4685	0	3416	1853	1575	1142	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			357		4				96			85
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	357	97	1720	36	578	197	96	88	230	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	357	97	1756	0	578	197	96	88	230	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

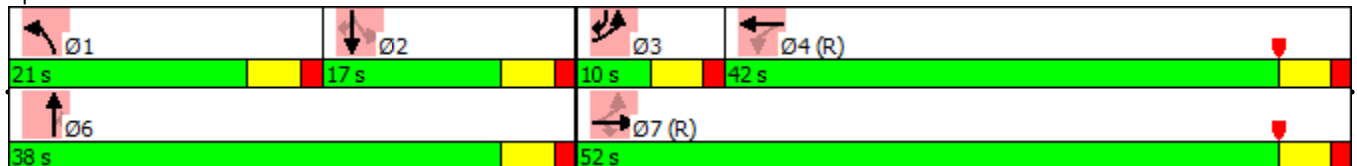


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	15.0	15.0		10.5	10.5	10.5	10.5	10.5	10.0
Total Split (s)	10.0	52.0	52.0	42.0	42.0		21.0	38.0	38.0	17.0	17.0	10.0
Total Split (%)	11.1%	57.8%	57.8%	46.7%	46.7%		23.3%	42.2%	42.2%	18.9%	18.9%	11.1%
Maximum Green (s)	5.0	47.0	47.0	37.0	37.0		16.0	33.0	33.0	12.0	12.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	48.9	48.9	48.9	38.9	38.9		17.3	34.1	34.1	13.2	13.2	23.3
Actuated g/C Ratio	0.54	0.54	0.54	0.43	0.43		0.19	0.38	0.38	0.15	0.15	0.26
v/c Ratio	0.23	0.33	0.35	0.31	0.87		0.88	0.28	0.15	0.52	0.84	0.74
Control Delay	6.8	7.9	3.7	20.6	29.1		51.6	20.6	4.6	47.6	64.4	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	7.9	3.7	20.6	29.1		51.6	20.6	4.6	47.6	64.4	33.7
LOS	A	A	A	C	C		D	C	A	D	E	C
Approach Delay		6.4			28.6			39.4			46.1	
Approach LOS		A			C			D			D	
Queue Length 50th (ft)	6	104	35	35	324		165	76	0	47	129	138
Queue Length 95th (ft)	m10	m141	m47	75	393		#254	128	30	96	#250	#261
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	203	1859	1023	309	2027		664	710	662	171	279	472
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.33	0.35	0.31	0.87		0.87	0.28	0.15	0.51	0.82	0.74

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 28.2 Intersection LOS: C
 Intersection Capacity Utilization 80.0% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	89	175	9	227	320	58	15	192	124	72	460	284
Future Volume (vph)	89	175	9	227	320	58	15	192	124	72	460	284
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.986			0.949				0.850
Flt Protected		0.984			0.982			0.998			0.993	
Satd. Flow (prot)	0	3465	0	0	3427	0	0	1764	0	0	1850	1583
Flt Permitted		0.595			0.727			0.962			0.899	
Satd. Flow (perm)	0	2095	0	0	2537	0	0	1701	0	0	1675	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			13			50				278
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	194	10	252	356	64	17	213	138	80	511	316
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	303	0	0	672	0	0	368	0	0	591	316
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	37.0	37.0		37.0	37.0		53.0	53.0		53.0	53.0	53.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.1%	41.1%		41.1%	41.1%		58.9%	58.9%		58.9%	58.9%	58.9%
Maximum Green (s)	29.0	29.0		29.0	29.0		45.0	45.0		45.0	45.0	45.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		24.7			24.7			33.0			33.0	33.0
Actuated g/C Ratio		0.35			0.35			0.46			0.46	0.46
v/c Ratio		0.42			0.76			0.45			0.76	0.36
Control Delay		21.3			28.2			13.3			23.8	3.7
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		21.3			28.2			13.3			23.8	3.7
LOS		C			C			B			C	A
Approach Delay		21.3			28.2			13.3			16.8	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		53			137			92			214	9
Queue Length 95th (ft)		106			245			169			363	51
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		947			1152			1185			1152	1175
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.32			0.58			0.31			0.51	0.27

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	71.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	20.2
Intersection LOS:	C
Intersection Capacity Utilization:	93.9%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 1370: E River & 253















2025 (ETC+10)
EAST RIVER ROAD SYNCHRO FILES
BUILD VOLUMES

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	58	978	147	22	268
Future Volume (Veh/h)	41	58	978	147	22	268
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	46	64	1087	163	24	298
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1433	1087			1250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1433	1087			1250	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	67	76			96	
cM capacity (veh/h)	141	263			557	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	46	64	1087	163	24	298
Volume Left	46	0	0	0	24	0
Volume Right	0	64	0	163	0	0
cSH	141	263	1700	1700	557	1700
Volume to Capacity	0.33	0.24	0.64	0.10	0.04	0.18
Queue Length 95th (ft)	33	23	0	0	3	0
Control Delay (s)	42.3	23.1	0.0	0.0	11.8	0.0
Lane LOS	E	C			B	
Approach Delay (s)	31.1		0.0		0.9	
Approach LOS	D					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			61.7%		ICU Level of Service	
Analysis Period (min)			15		B	

Lanes, Volumes, Timings
379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	34	70	19	161	22	94	11	806	194	318	444	2
Future Volume (vph)	34	70	19	161	22	94	11	806	194	318	444	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		300	500		200	475		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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			0.850			0.850		0.971			0.999	
Flt Protected		0.984			0.958		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1785	1583	1770	1809	0	1770	1861	0
Flt Permitted		0.653			0.642		0.482			0.086		
Satd. Flow (perm)	0	1216	1583	0	1196	1583	898	1809	0	160	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			104		24			1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			594			1064			2357	
Travel Time (s)		9.4			11.6			16.1			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	21	179	24	104	12	896	216	353	493	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	21	0	203	104	12	1112	0	353	495	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	17.4	17.4	17.4	17.4	17.4	17.4	48.6	48.6		14.0	62.6	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

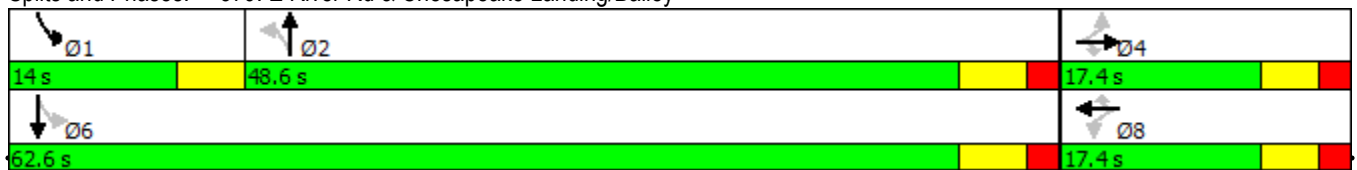


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	60.8%	60.8%		17.5%	78.3%	
Maximum Green (s)	11.9	11.9	11.9	11.9	11.9	11.9	42.6	42.6		10.0	56.6	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		13.4	13.4		13.4	13.4	44.1	44.1		60.1	58.1	
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.55	0.55		0.75	0.73	
v/c Ratio		0.57	0.06		1.01	0.30	0.02	1.10		1.01	0.37	
Control Delay		43.1	0.3		104.6	9.1	8.5	81.7		72.9	5.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		43.1	0.3		104.6	9.1	8.5	81.7		72.9	5.0	
LOS		D	A		F	A	A	F		E	A	
Approach Delay		36.5			72.2			80.9			33.3	
Approach LOS		D			E			F			C	
Queue Length 50th (ft)		54	0		~105	0	3	~639		~125	75	
Queue Length 95th (ft)		#116	0		#236	41	10	#877		#297	115	
Internal Link Dist (ft)		333			514			984			2277	
Turn Bay Length (ft)			125			300	500			475		
Base Capacity (vph)		203	344		200	351	495	1007		351	1351	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.57	0.06		1.01	0.30	0.02	1.10		1.01	0.37	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 60.6
 Intersection LOS: E
 Intersection Capacity Utilization 99.0%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	197	118	262	39	618	263	160	158	236
Future Volume (vph)	32	16	5	197	118	262	39	618	263	160	158	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.897			0.955				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1671	0	1770	1779	0	1770	1863	1583
Flt Permitted	0.233			0.742			0.646			0.134		
Satd. Flow (perm)	434	1792	0	1382	1671	0	1203	1779	0	250	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			138			53				262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			738			615				654
Travel Time (s)		11.9			12.6			9.3				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	219	131	291	43	687	292	178	176	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	219	422	0	43	979	0	178	176	262
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	1		1	1		1	1		1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50		50	50	20
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	50		50	50		50	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	54.0

Lanes, Volumes, Timings

428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	67.5%
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	48.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0		-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0		4.0	3.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	17.2	19.2		19.2	19.2		50.1	51.1		50.1	51.1	48.1
Actuated g/C Ratio	0.22	0.25		0.25	0.25		0.65	0.66		0.65	0.66	0.62
v/c Ratio	0.38	0.05		0.64	0.81		0.06	0.82		1.10	0.14	0.24
Control Delay	37.4	18.0		35.1	32.0		6.0	17.6		123.3	5.8	1.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	37.4	18.0		35.1	32.0		6.0	17.6		123.3	5.8	1.6
LOS	D	B		D	C		A	B		F	A	A
Approach Delay		29.6			33.0			17.2			38.0	
Approach LOS		C			C			B			D	
Queue Length 50th (ft)	15	7		94	130		7	325		~106	31	0
Queue Length 95th (ft)	44	24		165	#266		19	#640		#151	55	27
Internal Link Dist (ft)		442			658			535			574	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	112	515		394	575		779	1193		162	1230	1083
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.32	0.05		0.56	0.73		0.06	0.82		1.10	0.14	0.24

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 77.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 27.3 Intersection LOS: C
 Intersection Capacity Utilization 94.0% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	24	1	8	5	800	216	26	721	6
Future Volume (vph)	39	5	17	24	1	8	5	800	216	26	721	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962				0.850		0.971			0.999	
Flt Protected		0.969			0.954						0.998	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1809	0	0	1857	0
Flt Permitted		0.791			0.810			0.996			0.945	
Satd. Flow (perm)	0	1417	0	0	1509	1583	0	1801	0	0	1759	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				47		48			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	27	1	9	6	889	240	29	801	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	28	9	0	1135	0	0	837	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.5	15.5		15.5	15.5	15.5	54.5	54.5		54.5	54.5	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	22.1%	22.1%		22.1%	22.1%	22.1%	77.9%	77.9%		77.9%	77.9%	
Maximum Green (s)	10.0	10.0		10.0	10.0	10.0	48.5	48.5		48.5	48.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.0			12.0	12.0		52.5			52.5	
Actuated g/C Ratio		0.19			0.19	0.19		0.83			0.83	
v/c Ratio		0.24			0.10	0.03		0.75			0.57	
Control Delay		22.5			26.4	0.1		10.7			6.1	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		22.5			26.4	0.1		10.7			6.1	
LOS		C			C	A		B			A	
Approach Delay		22.5			20.0			10.7			6.1	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)		21			12	0		281			155	
Queue Length 95th (ft)		52			31	0		#664			259	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		285			287	339		1488			1446	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.24			0.10	0.03		0.76			0.58	

Intersection Summary
























Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 63
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 9.4 Intersection LOS: A
 Intersection Capacity Utilization 82.6% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	760	59	361	25	461	246	93	20	167	43
Future Volume (vph)	210	1148	760	59	361	25	461	246	93	20	167	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.439			0.158			0.950			0.588		
Satd. Flow (perm)	790	3421	1583	272	4652	0	3416	1853	1575	1059	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			703		14				76			76
Link Speed (mph)		45		45			45		45		45	
Link Distance (ft)		593		1821			955		477		477	
Travel Time (s)		9.0		27.6			14.5		7.2		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	864	67	410	28	524	280	106	23	190	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	864	67	438	0	524	280	106	23	190	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

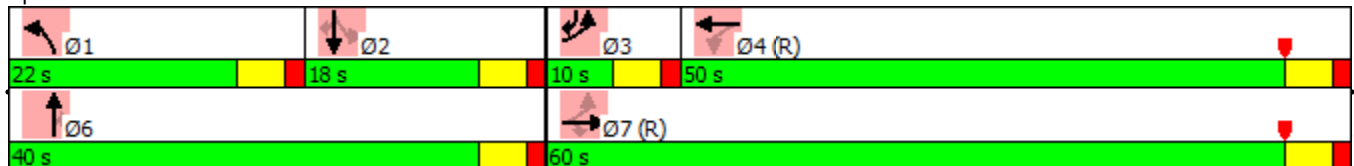


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	10.0	10.0		10.0	10.5	10.5	10.5	10.5	10.0
Total Split (s)	10.0	60.0	60.0	50.0	50.0		22.0	40.0	40.0	18.0	18.0	10.0
Total Split (%)	10.0%	60.0%	60.0%	50.0%	50.0%		22.0%	40.0%	40.0%	18.0%	18.0%	10.0%
Maximum Green (s)	5.0	55.0	55.0	45.0	45.0		17.0	35.0	35.0	13.0	13.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag			Lead			Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	57.8	57.8	57.8	47.2	47.2		18.1	35.2	35.2	13.6	13.6	24.2
Actuated g/C Ratio	0.58	0.58	0.58	0.47	0.47		0.18	0.35	0.35	0.14	0.14	0.24
v/c Ratio	0.46	0.66	0.71	0.52	0.20		0.85	0.43	0.18	0.16	0.75	0.11
Control Delay	6.8	9.1	3.6	37.2	15.3		53.8	26.8	8.7	40.5	60.3	3.7
Queue Delay	0.0	0.4	0.6	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	9.4	4.2	37.2	15.3		53.8	26.8	8.7	40.5	60.3	3.7
LOS	A	A	A	D	B		D	C	A	D	E	A
Approach Delay	7.3			18.2			40.2			47.9		
Approach LOS	A			B			D			D		
Queue Length 50th (ft)	50	230	59	29	56		167	132	12	13	117	0
Queue Length 95th (ft)	m51	m228	m48	#89	76		#236	199	46	36	#203	14
Internal Link Dist (ft)	513			1741			875			397		
Turn Bay Length (ft)	500			425			780			260	225	275
Base Capacity (vph)	521	1975	1211	128	2203		631	676	623	153	270	440
Starvation Cap Reductn	0	218	109	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.74	0.78	0.52	0.20		0.83	0.41	0.17	0.15	0.70	0.11

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 18.6 Intersection LOS: B
 Intersection Capacity Utilization 71.2% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	282	369	11	42	79	85	8	457	286	73	90	86
Future Volume (vph)	282	369	11	42	79	85	8	457	286	73	90	86
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.938			0.949				0.850
Flt Protected		0.979			0.990			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3287	0	0	1766	0	0	1822	1583
Flt Permitted		0.736			0.720			0.997			0.582	
Satd. Flow (perm)	0	2600	0	0	2390	0	0	1762	0	0	1084	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			94			58				96
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	313	410	12	47	88	94	9	508	318	81	100	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	735	0	0	229	0	0	835	0	0	181	96
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	26.0
Total Split (s)	34.0	34.0		34.0	34.0		56.0	56.0		56.0	56.0	56.0

Lanes, Volumes, Timings

1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	37.8%	37.8%		37.8%	37.8%		62.2%	62.2%		62.2%	62.2%	62.2%
Maximum Green (s)	28.0	28.0		28.0	28.0		50.0	50.0		50.0	50.0	50.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		26.5			26.5			41.4			41.4	41.4
Actuated g/C Ratio		0.34			0.34			0.54			0.54	0.54
v/c Ratio		0.82			0.26			0.86			0.31	0.11
Control Delay		34.1			13.1			25.1			11.9	2.3
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		34.1			13.1			25.1			11.9	2.3
LOS		C			B			C			B	A
Approach Delay		34.1			13.1			25.1			8.6	
Approach LOS		C			B			C			A	
Queue Length 50th (ft)		176			24			329			49	0
Queue Length 95th (ft)		#307			56			513			89	20
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		1035			1007			1241			752	1128
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.71			0.23			0.67			0.24	0.09

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 77.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 24.8
 Intersection LOS: C
 Intersection Capacity Utilization 92.8%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.













Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	128	50	416	82	74	885
Future Volume (Veh/h)	128	50	416	82	74	885
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	142	56	462	91	82	983
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1609	462			553	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1609	462			553	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	91			92	
cM capacity (veh/h)	106	600			1017	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	142	56	462	91	82	983
Volume Left	142	0	0	0	82	0
Volume Right	0	56	0	91	0	0
cSH	106	600	1700	1700	1017	1700
Volume to Capacity	1.34	0.09	0.27	0.05	0.08	0.58
Queue Length 95th (ft)	247	8	0	0	7	0
Control Delay (s)	278.1	11.6	0.0	0.0	8.8	0.0
Lane LOS	F	B			A	
Approach Delay (s)	202.7		0.0		0.7	
Approach LOS	F					
Intersection Summary						
Average Delay			22.5			
Intersection Capacity Utilization			60.3%		ICU Level of Service	B
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↗		↗	↗	
Traffic Volume (vph)	9	40	15	215	64	332	22	474	234	96	705	18
Future Volume (vph)	9	40	15	215	64	332	22	474	234	96	705	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		300	500		500	475		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			75		
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			0.850			0.850		0.950			0.996	
Flt Protected		0.991			0.963		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1794	1583	1770	1770	0	1770	1855	0
Flt Permitted		0.924			0.739		0.295			0.105		
Satd. Flow (perm)	0	1721	1583	0	1377	1583	550	1770	0	196	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			369		42			3	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			689			1198			2357	
Travel Time (s)		9.4			13.4			18.2			35.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	17	239	71	369	24	527	260	107	783	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	17	0	310	369	24	787	0	107	803	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								Yes				
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	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	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	0.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0		14.0	16.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	42.0	42.0		14.0	56.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	52.5%	52.5%		17.5%	70.0%	
Maximum Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	36.0	36.0		10.0	50.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5		2.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min		None	Min	
Act Effct Green (s)		19.6	19.6		19.6	19.6	35.8	35.8		48.3	46.2	
Actuated g/C Ratio		0.26	0.26		0.26	0.26	0.48	0.48		0.65	0.62	
v/c Ratio		0.12	0.03		0.86	0.54	0.09	0.90		0.28	0.70	
Control Delay		24.2	0.1		53.1	6.3	13.0	34.3		6.7	13.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		24.2	0.1		53.1	6.3	13.0	34.3		6.7	13.1	
LOS		C	A		D	A	B	C		A	B	
Approach Delay		18.4			27.6			33.7			12.3	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		21	0		150	0	6	338		16	221	
Queue Length 95th (ft)		49	0		#298	64	20	#584		33	341	
Internal Link Dist (ft)		333			609			1118			2277	
Turn Bay Length (ft)			125			300	500			475		
Base Capacity (vph)		474	505		379	703	284	935		376	1318	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.11	0.03		0.82	0.52	0.08	0.84		0.28	0.61	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 74.6
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 23.7
 Intersection LOS: C
 Intersection Capacity Utilization 79.9%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	109	68	225	19	327	12	246	180	329	587	36
Future Volume (vph)	199	109	68	225	19	327	12	246	180	329	587	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		100	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.942			0.858			0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1755	0	1770	1598	0	1770	1745	0	1770	1863	1583
Flt Permitted	0.355			0.587			0.251			0.387		
Satd. Flow (perm)	661	1755	0	1093	1598	0	468	1745	0	721	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			363			64				36
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			805			615				720
Travel Time (s)		16.5			13.7			9.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	221	121	76	250	21	363	13	273	200	366	652	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	197	0	250	384	0	13	473	0	366	652	40
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	1		1	1		1	1		1	1	1
Detector Template	Left	Thru			Thru		Left					Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	37.0	37.0		37.0	37.0		53.0	53.0		53.0	53.0	53.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

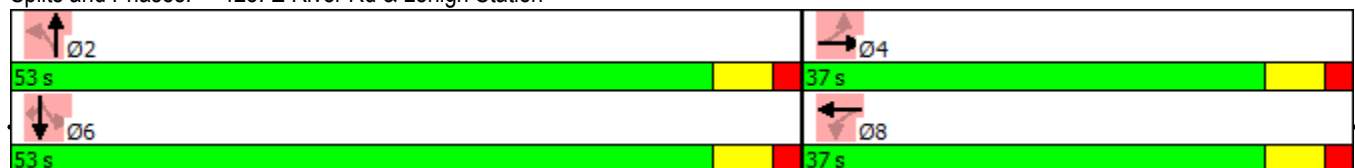


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.1%	41.1%		41.1%	41.1%		58.9%	58.9%		58.9%	58.9%	58.9%
Maximum Green (s)	31.0	31.0		31.0	31.0		47.0	47.0		47.0	47.0	47.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		4.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	31.6	31.6		31.6	31.6		46.7	46.7		46.7	46.7	46.7
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.53	0.53		0.53	0.53	0.53
v/c Ratio	0.93	0.30		0.63	0.47		0.05	0.49		0.95	0.66	0.05
Control Delay	72.9	17.7		32.2	5.1		10.7	13.0		57.6	18.5	4.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	72.9	17.7		32.2	5.1		10.7	13.0		57.6	18.5	4.0
LOS	E	B		C	A		B	B		E	B	A
Approach Delay		46.9			15.8			13.0			31.5	
Approach LOS		D			B			B			C	
Queue Length 50th (ft)	119	62		116	8		3	135		183	247	1
Queue Length 95th (ft)	#261	115		202	66		13	214		#376	366	15
Internal Link Dist (ft)		647			725			535			640	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	247	680		408	824		261	1002		402	1039	899
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.89	0.29		0.61	0.47		0.05	0.47		0.91	0.63	0.04

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 87.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 26.7
 Intersection LOS: C
 Intersection Capacity Utilization 89.4%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	145	15	59	17	742	103	38	706	20
Future Volume (vph)	16	5	15	145	15	59	17	742	103	38	706	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944				0.850		0.984			0.996	
Flt Protected		0.979			0.957			0.999			0.998	
Satd. Flow (prot)	0	1722	0	0	1783	1583	0	1831	0	0	1852	0
Flt Permitted		0.849			0.717			0.979			0.927	
Satd. Flow (perm)	0	1493	0	0	1336	1583	0	1794	0	0	1720	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		17			3	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			2357			306	
Travel Time (s)		7.3			8.4			35.7			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	161	17	66	19	824	114	42	784	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	178	66	0	957	0	0	848	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	24.5	24.5		24.5	24.5	24.5	50.5	50.5		50.5	50.5	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.7%	32.7%		32.7%	32.7%	32.7%	67.3%	67.3%		67.3%	67.3%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	44.5	44.5		44.5	44.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		15.8			15.8	15.8		44.7			44.7	
Actuated g/C Ratio		0.23			0.23	0.23		0.65			0.65	
v/c Ratio		0.12			0.58	0.16		0.82			0.76	
Control Delay		15.3			32.0	7.2		17.8			15.3	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.3			32.0	7.2		17.8			15.3	
LOS		B			C	A		B			B	
Approach Delay		15.3			25.3			17.8			15.3	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		8			69	0		257			213	
Queue Length 95th (ft)		31			129	27		#616			#451	
Internal Link Dist (ft)		242			288			2277			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		456			398	517		1205			1151	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.09			0.45	0.13		0.79			0.74	

Intersection Summary
























Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 69.1
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 17.6
 Intersection LOS: B
 Intersection Capacity Utilization 80.9%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	385	109	1668	35	585	211	101	85	261	339
Future Volume (vph)	45	602	385	109	1668	35	585	211	101	85	261	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	1863	1583
Flt Permitted	0.099			0.416			0.950			0.622		
Satd. Flow (perm)	178	3421	1583	716	4685	0	3416	1853	1575	1120	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			397		4				104			85
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	397	112	1720	36	603	218	104	88	269	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	397	112	1756	0	603	218	104	88	269	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	3	7			4		1	6			2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	2	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

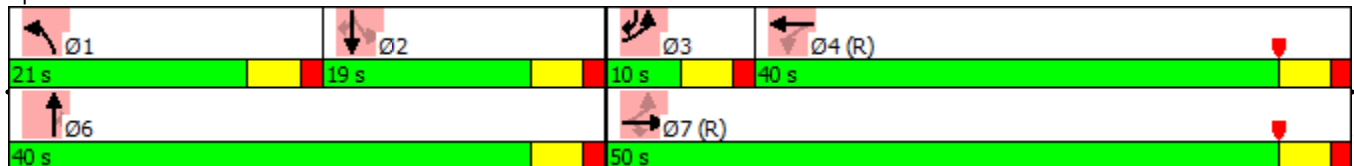


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.5	15.5	15.0	15.0		10.5	10.5	10.5	10.5	10.5	10.0
Total Split (s)	10.0	50.0	50.0	40.0	40.0		21.0	40.0	40.0	19.0	19.0	10.0
Total Split (%)	11.1%	55.6%	55.6%	44.4%	44.4%		23.3%	44.4%	44.4%	21.1%	21.1%	11.1%
Maximum Green (s)	5.0	45.0	45.0	35.0	35.0		16.0	35.0	35.0	14.0	14.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag			Lead			Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	46.8	46.8	46.8	36.8	36.8		17.5	36.2	36.2	15.2	15.2	25.2
Actuated g/C Ratio	0.52	0.52	0.52	0.41	0.41		0.19	0.40	0.40	0.17	0.17	0.28
v/c Ratio	0.23	0.35	0.39	0.38	0.91		0.91	0.29	0.15	0.47	0.86	0.69
Control Delay	7.6	9.3	4.9	23.7	34.1		55.1	19.5	4.2	42.7	62.9	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	9.3	4.9	23.7	34.1		55.1	19.5	4.2	42.7	62.9	29.8
LOS	A	A	A	C	C		E	B	A	D	E	C
Approach Delay	7.6			33.5			41.0			44.0		
Approach LOS	A			C			D			D		
Queue Length 50th (ft)	8	136	82	44	339		174	82	0	45	150	133
Queue Length 95th (ft)	m14	m175	m158	92	#447		#271	135	30	93	#282	232
Internal Link Dist (ft)	513			1741			875			397		
Turn Bay Length (ft)	500			425			780			260	225	275
Base Capacity (vph)	203	1780	1014	293	1920		664	751	700	192	320	503
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.35	0.39	0.38	0.91		0.91	0.29	0.15	0.46	0.84	0.69

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 30.6
 Intersection LOS: C
 Intersection Capacity Utilization 80.9%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	101	175	9	227	320	69	15	222	124	78	476	290
Future Volume (vph)	101	175	9	227	320	69	15	222	124	78	476	290
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.983			0.954				0.850
Flt Protected		0.983			0.982			0.998			0.993	
Satd. Flow (prot)	0	3462	0	0	3416	0	0	1774	0	0	1850	1583
Flt Permitted		0.580			0.724			0.964			0.886	
Satd. Flow (perm)	0	2042	0	0	2519	0	0	1713	0	0	1650	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17			42				291
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	194	10	252	356	77	17	247	138	87	529	322
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	0	0	685	0	0	402	0	0	616	322
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	38.0	38.0		38.0	38.0		52.0	52.0		52.0	52.0	52.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

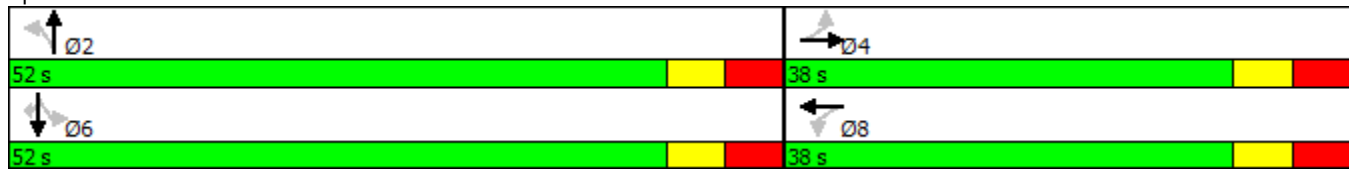


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	42.2%	42.2%		42.2%	42.2%		57.8%	57.8%		57.8%	57.8%	57.8%
Maximum Green (s)	30.0	30.0		30.0	30.0		44.0	44.0		44.0	44.0	44.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		25.7			25.7			34.8			34.8	34.8
Actuated g/C Ratio		0.35			0.35			0.47			0.47	0.47
v/c Ratio		0.45			0.78			0.49			0.80	0.36
Control Delay		22.4			29.5			14.5			25.9	3.5
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		22.4			29.5			14.5			25.9	3.5
LOS		C			C			B			C	A
Approach Delay		22.4			29.5			14.5			18.2	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		60			149			113			241	8
Queue Length 95th (ft)		110			245			198			403	50
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		917			1138			1123			1068	1127
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.34			0.60			0.36			0.58	0.29

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	74.2
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	21.4
Intersection LOS:	C
Intersection Capacity Utilization:	97.1%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 1370: E River & 253



2025 (ETC+10)

EAST RIVER ROAD SYNCHRO FILES
BUILD VOLUMES WITH MITIGATION

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	58	978	147	22	268
Future Volume (Veh/h)	41	58	978	147	22	268
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	46	64	1087	163	24	298
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1433	1087			1250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1433	1087			1250	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	67	76			96	
cM capacity (veh/h)	141	263			557	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	46	64	1087	163	24	298
Volume Left	46	0	0	0	24	0
Volume Right	0	64	0	163	0	0
cSH	141	263	1700	1700	557	1700
Volume to Capacity	0.33	0.24	0.64	0.10	0.04	0.18
Queue Length 95th (ft)	33	23	0	0	3	0
Control Delay (s)	42.3	23.1	0.0	0.0	11.8	0.0
Lane LOS	E	C			B	
Approach Delay (s)	31.1		0.0		0.9	
Approach LOS	D					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			61.7%		ICU Level of Service	
Analysis Period (min)			15		B	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↑	↗	↗	↗	↗
Traffic Volume (vph)	34	70	19	161	22	94	11	806	194	318	444	2
Future Volume (vph)	34	70	19	161	22	94	11	806	194	318	444	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			75			75		
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			0.850			0.850			0.850		0.999	
Flt Protected		0.984			0.958		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1785	1583	1770	1863	1583	1770	1861	0
Flt Permitted		0.753			0.638		0.482			0.082		
Satd. Flow (perm)	0	1403	1583	0	1188	1583	898	1863	1583	153	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			104			216			1
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			591			814				854
Travel Time (s)		9.4			11.5			12.3				12.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	21	179	24	104	12	896	216	353	493	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	21	0	203	104	12	896	216	353	495	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	52.0	52.0	52.0	16.0	68.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	57.8%	57.8%	57.8%	17.8%	75.6%	
Maximum Green (s)	16.5	16.5	16.5	16.5	16.5	16.5	46.0	46.0	46.0	12.0	62.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		17.4	17.4		17.4	17.4	45.9	45.9	45.9	64.0	62.0	
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.52	0.52	0.52	0.73	0.71	
v/c Ratio		0.42	0.06		0.86	0.26	0.03	0.92	0.23	0.98	0.38	
Control Delay		36.7	0.3		69.1	8.5	10.5	35.8	2.3	69.0	6.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		36.7	0.3		69.1	8.5	10.5	35.8	2.3	69.0	6.2	
LOS		D	A		E	A	B	D	A	E	A	
Approach Delay		31.1			48.6			29.1			32.4	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)		58	0		112	0	3	438	0	147	96	
Queue Length 95th (ft)		110	0		#236	41	12	#710	32	#326	143	
Internal Link Dist (ft)		333			511			734			774	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		287	392		243	407	486	1009	956	360	1348	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.40	0.05		0.84	0.26	0.02	0.89	0.23	0.98	0.37	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 87.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 32.8
 Intersection LOS: C
 Intersection Capacity Utilization 87.2%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	197	118	262	39	618	263	160	158	236
Future Volume (vph)	32	16	5	197	118	262	39	618	263	160	158	236
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.897			0.955				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1671	0	1770	1779	0	1770	1863	1583
Flt Permitted	0.214			0.742			0.646			0.078		
Satd. Flow (perm)	399	1792	0	1382	1671	0	1203	1779	0	145	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			118			39				262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			925			615				654
Travel Time (s)		11.9			15.8			9.3				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	219	131	291	43	687	292	178	176	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	219	422	0	43	979	0	178	176	262
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	1		1	1		1	1		1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50		50	50	20
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	50		50	50		50	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		10.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		10.0	64.0	64.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	28.9%	28.9%		28.9%	28.9%		60.0%	60.0%		11.1%	71.1%	71.1%
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		6.0	58.0	58.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0		-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0		2.0	3.0	6.0
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	18.7	20.7		20.7	20.7		49.0	50.0		61.0	60.0	57.0
Actuated g/C Ratio	0.21	0.24		0.24	0.24		0.56	0.57		0.69	0.68	0.65
v/c Ratio	0.42	0.06		0.67	0.87		0.06	0.95		0.71	0.14	0.23
Control Delay	47.2	21.9		42.1	43.4		9.6	37.4		32.2	5.4	1.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.2	21.9		42.1	43.4		9.6	37.4		32.2	5.4	1.4
LOS	D	C		D	D		A	D		C	A	A
Approach Delay		37.1			42.9			36.2			11.4	
Approach LOS		D			D			D			B	
Queue Length 50th (ft)	18	8		112	169		11	477		44	31	0
Queue Length 95th (ft)	50	28		191	#333		26	#785		#141	53	25
Internal Link Dist (ft)		442			845			535			574	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	90	454		346	507		686	1052		249	1296	1136
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.40	0.05		0.63	0.83		0.06	0.93		0.71	0.14	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 87.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 31.5 Intersection LOS: C
 Intersection Capacity Utilization 94.0% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	24	1	8	5	800	216	26	721	6
Future Volume (vph)	39	5	17	24	1	8	5	800	216	26	721	6
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	100		200	100		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			75			75		
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		0.962				0.850		0.971			0.999	
Flt Protected		0.969			0.954						0.998	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1809	0	0	1857	0
Flt Permitted		0.791			0.760			0.996			0.943	
Satd. Flow (perm)	0	1417	0	0	1416	1583	0	1801	0	0	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				36		39			1	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1503			306	
Travel Time (s)		7.3			8.4			22.8			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	27	1	9	6	889	240	29	801	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	28	9	0	1135	0	0	837	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	70.0	70.0		70.0	70.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	22.2%	22.2%		22.2%	22.2%	22.2%	77.8%	77.8%		77.8%	77.8%	
Maximum Green (s)	14.5	14.5		14.5	14.5	14.5	64.0	64.0		64.0	64.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.7			12.7	12.7		64.6			64.6	
Actuated g/C Ratio		0.16			0.16	0.16		0.81			0.81	
v/c Ratio		0.28			0.12	0.03		0.77			0.59	
Control Delay		29.5			34.5	0.2		10.9			6.4	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		29.5			34.5	0.2		10.9			6.4	
LOS		C			C	A		B			A	
Approach Delay		29.5			26.2			10.9			6.4	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)		26			15	0		285			156	
Queue Length 95th (ft)		63			38	1		574			282	
Internal Link Dist (ft)		242			288			1423			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		320			305	369		1470			1426	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.21			0.09	0.02		0.77			0.59	

Intersection Summary
























Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	79.5
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	10.0
Intersection LOS:	A
Intersection Capacity Utilization:	82.6%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	760	59	361	25	461	246	93	20	167	43
Future Volume (vph)	210	1148	760	59	361	25	461	246	93	20	167	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.423			0.180			0.950			0.588		
Satd. Flow (perm)	762	3421	1583	310	4652	0	3416	1853	1575	1059	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			635		11				131			131
Link Speed (mph)		45		45			45		45		45	
Link Distance (ft)		593		1821			955		477		477	
Travel Time (s)		9.0		27.6			14.5		7.2		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	864	67	410	28	524	280	106	23	190	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	864	67	438	0	524	280	106	23	190	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0		10.0	10.0	10.0	5.0	10.0	10.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	15.0	10.0	10.0	10.0	10.0		15.0	34.5	34.5	10.0	34.5	15.0
Total Split (s)	15.0	46.5	46.5	31.5	31.5		19.0	43.5	43.5	10.0	34.5	15.0
Total Split (%)	15.0%	46.5%	46.5%	31.5%	31.5%		19.0%	43.5%	43.5%	10.0%	34.5%	15.0%
Maximum Green (s)	10.0	41.5	41.5	26.5	26.5		14.0	38.5	38.5	5.0	29.5	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)							7.0	7.0			7.0	
Flash Dont Walk (s)							22.0	22.0			22.0	
Pedestrian Calls (#/hr)							0	0			0	
Act Effct Green (s)	60.1	60.1	60.1	43.2	43.2		15.5	28.9	28.9	20.4	13.9	30.8
Actuated g/C Ratio	0.60	0.60	0.60	0.43	0.43		0.16	0.29	0.29	0.20	0.14	0.31
v/c Ratio	0.41	0.63	0.72	0.50	0.22		0.99	0.52	0.19	0.09	0.39	0.08
Control Delay	11.4	14.5	6.7	40.7	18.8		80.2	34.5	3.9	22.9	40.9	0.3
Queue Delay	0.0	0.5	0.7	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	15.0	7.4	40.7	18.8		80.2	34.5	3.9	22.9	40.9	0.3
LOS	B	B	A	D	B		F	C	A	C	D	A
Approach Delay		11.9			21.7			57.2				31.7
Approach LOS		B			C			E				C
Queue Length 50th (ft)	58	198	90	28	56		174	146	0	10	60	0
Queue Length 95th (ft)	m66	m313	m87	#105	98		#271	226	24	25	84	0
Internal Link Dist (ft)		513			1741			875				397
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	586	2057	1205	133	2014		529	741	708	258	1097	578
Starvation Cap Reductn	0	339	107	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.76	0.79	0.50	0.22		0.99	0.38	0.15	0.09	0.17	0.08

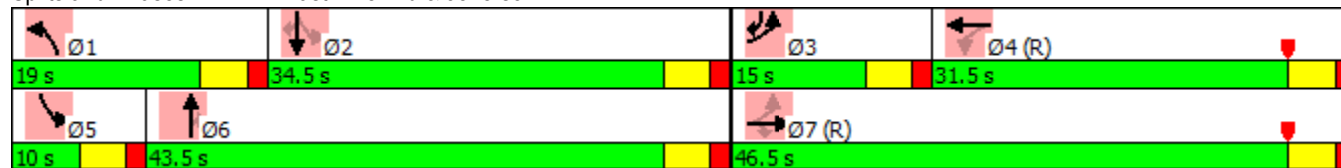
Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 24.5 Intersection LOS: C
 Intersection Capacity Utilization 70.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings
 1121: East River Rd & Jefferson

11/22/2016

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	282	369	11	42	79	85	8	457	286	73	90	86
Future Volume (vph)	282	369	11	42	79	85	8	457	286	73	90	86
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.938			0.949				0.850
Flt Protected		0.979			0.990			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3287	0	0	1766	0	0	1822	1583
Flt Permitted		0.735			0.722			0.997			0.578	
Satd. Flow (perm)	0	2596	0	0	2397	0	0	1762	0	0	1077	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			94			56				96
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	313	410	12	47	88	94	9	508	318	81	100	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	735	0	0	229	0	0	835	0	0	181	96
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	26.0
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	55.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

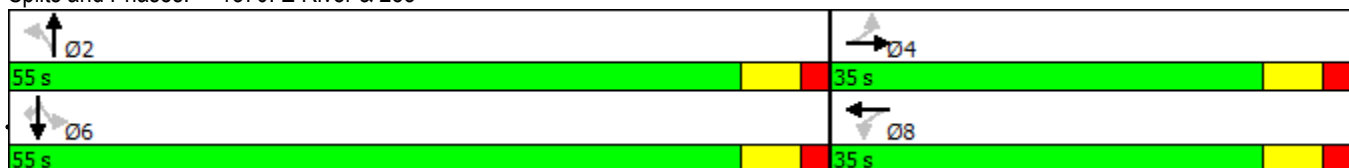


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	61.1%
Maximum Green (s)	29.0	29.0		29.0	29.0		49.0	49.0		49.0	49.0	49.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		27.1			27.1			41.6			41.6	41.6
Actuated g/C Ratio		0.35			0.35			0.53			0.53	0.53
v/c Ratio		0.81			0.26			0.87			0.32	0.11
Control Delay		33.3			12.9			26.1			12.3	2.5
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		33.3			12.9			26.1			12.3	2.5
LOS		C			B			C			B	A
Approach Delay		33.3			12.9			26.1			8.9	
Approach LOS		C			B			C			A	
Queue Length 50th (ft)		183			25			340			51	0
Queue Length 95th (ft)		#298			55			#543			92	20
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		1059			1032			1207			726	1099
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.69			0.22			0.69			0.25	0.09

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 78.1
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 24.9
 Intersection LOS: C
 Intersection Capacity Utilization 92.8%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	168	50	416	82	74	885
Future Volume (Veh/h)	168	50	416	82	74	885
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	187	56	462	91	82	983
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1609	462			553	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1609	462			553	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	91			92	
cM capacity (veh/h)	106	600			1017	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	187	56	462	91	82	983
Volume Left	187	0	0	0	82	0
Volume Right	0	56	0	91	0	0
cSH	106	600	1700	1700	1017	1700
Volume to Capacity	1.77	0.09	0.27	0.05	0.08	0.58
Queue Length 95th (ft)	371	8	0	0	7	0
Control Delay (s)	449.4	11.6	0.0	0.0	8.8	0.0
Lane LOS	F	B			A	
Approach Delay (s)	348.5		0.0		0.7	
Approach LOS	F					
Intersection Summary						
Average Delay			45.9			
Intersection Capacity Utilization			62.6%		ICU Level of Service	B
Analysis Period (min)	15					

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕	↗	↗	↗	↗
Traffic Volume (vph)	9	40	15	215	64	332	22	474	234	96	705	18
Future Volume (vph)	9	40	15	215	64	332	22	474	234	96	705	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			75			75		
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			0.850			0.850			0.850		0.996	
Flt Protected		0.991			0.963		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1794	1583	1770	1863	1583	1770	1855	0
Flt Permitted		0.929			0.739		0.255			0.254		
Satd. Flow (perm)	0	1730	1583	0	1377	1583	475	1863	1583	473	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			369			260		3	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			709			1010			855	
Travel Time (s)		9.4			13.8			15.3			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	17	239	71	369	24	527	260	107	783	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	17	0	310	369	24	527	260	107	803	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0	44.0	44.0	44.0	14.0	58.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

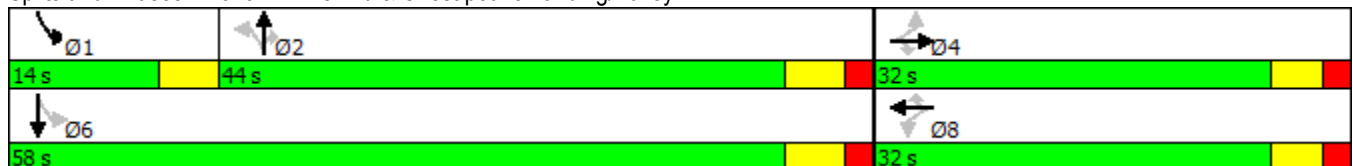


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	35.6%	35.6%	35.6%	35.6%	35.6%	35.6%	48.9%	48.9%	48.9%	15.6%	64.4%	
Maximum Green (s)	26.5	26.5	26.5	26.5	26.5	26.5	38.0	38.0	38.0	10.0	52.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		22.8	22.8		22.8	22.8	31.7	31.7	31.7	44.1	41.9	
Actuated g/C Ratio		0.31	0.31		0.31	0.31	0.43	0.43	0.43	0.60	0.57	
v/c Ratio		0.10	0.03		0.73	0.50	0.12	0.66	0.31	0.21	0.76	
Control Delay		22.0	0.1		37.3	5.4	16.9	23.4	3.3	7.9	18.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		22.0	0.1		37.3	5.4	16.9	23.4	3.3	7.9	18.1	
LOS		C	A		D	A	B	C	A	A	B	
Approach Delay		16.7			20.0			16.8			16.9	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		19	0		139	0	8	216	0	21	278	
Queue Length 95th (ft)		49	0		#275	61	25	338	42	43	447	
Internal Link Dist (ft)		333			629			930			775	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		718	707		571	873	278	1091	1034	502	1344	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.08	0.02		0.54	0.42	0.09	0.48	0.25	0.21	0.60	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 74
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 17.7
 Intersection LOS: B
 Intersection Capacity Utilization 79.3%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	79	49	225	19	327	12	246	180	329	587	36
Future Volume (vph)	145	79	49	225	19	327	12	246	180	329	587	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.943			0.858			0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1757	0	1770	1598	0	1770	1745	0	1770	1863	1583
Flt Permitted	0.326			0.663			0.417			0.185		
Satd. Flow (perm)	607	1757	0	1235	1598	0	777	1745	0	345	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			363			44				36
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			805			615				720
Travel Time (s)		16.5			13.7			9.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	161	88	54	250	21	363	13	273	200	366	652	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	142	0	250	384	0	13	473	0	366	652	40
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	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Thru		Left						Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		15.0	16.0	16.0
Total Split (s)	35.0	35.0		35.0	35.0		34.0	34.0		21.0	55.0	55.0

Lanes, Volumes, Timings

428: E River Rd & Lehigh Station

11/22/2016

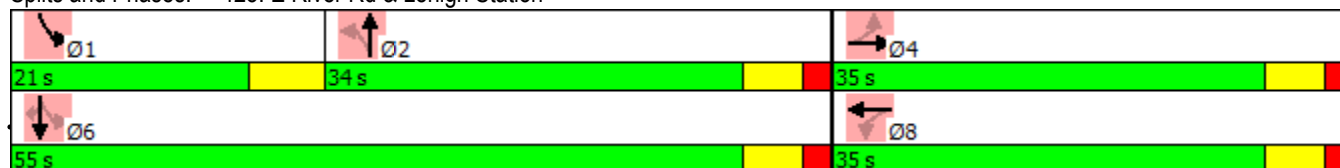


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	38.9%	38.9%		38.9%	38.9%		37.8%	37.8%		23.3%	61.1%	61.1%
Maximum Green (s)	29.0	29.0		29.0	29.0		28.0	28.0		16.0	49.0	49.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		3.5	4.5	4.5
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	26.2	26.2		26.2	26.2		25.8	25.8		46.2	45.1	45.1
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.32	0.32		0.57	0.56	0.56
v/c Ratio	0.82	0.24		0.62	0.50		0.05	0.81		0.77	0.63	0.04
Control Delay	59.9	17.0		32.0	5.8		21.6	35.9		26.1	15.9	3.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	59.9	17.0		32.0	5.8		21.6	35.9		26.1	15.9	3.7
LOS	E	B		C	A		C	D		C	B	A
Approach Delay		39.8			16.1			35.5			18.9	
Approach LOS		D			B			D			B	
Queue Length 50th (ft)	81	42		117	8		5	221		111	233	1
Queue Length 95th (ft)	#193	85		199	70		19	#375		#244	346	14
Internal Link Dist (ft)		647			725			535			640	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	237	708		482	845		293	686		517	1205	1037
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.68	0.20		0.52	0.45		0.04	0.69		0.71	0.54	0.04

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 80.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 24.0
 Intersection LOS: C
 Intersection Capacity Utilization 86.3%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	145	15	59	17	742	103	38	706	20
Future Volume (vph)	16	5	15	145	15	59	17	742	103	38	706	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	100		200	100		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			75			75		
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		0.944				0.850		0.984			0.996	
Flt Protected		0.979			0.957			0.999			0.998	
Satd. Flow (prot)	0	1722	0	0	1783	1583	0	1831	0	0	1852	0
Flt Permitted		0.849			0.717			0.979			0.926	
Satd. Flow (perm)	0	1493	0	0	1336	1583	0	1794	0	0	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		17			3	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1502			1209	
Travel Time (s)		7.3			8.4			22.8			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	161	17	66	19	824	114	42	784	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	178	66	0	957	0	0	848	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	65.0	65.0		65.0	65.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016

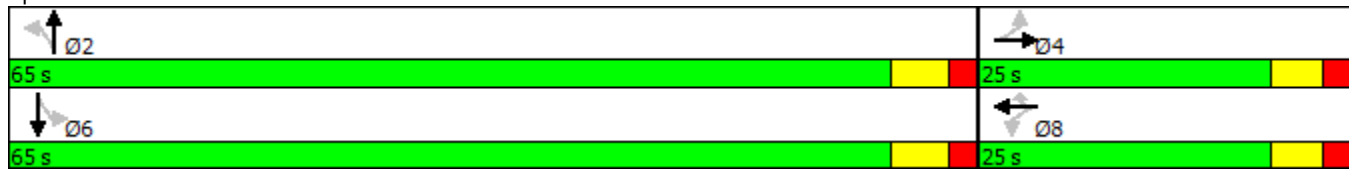


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	27.8%	27.8%		27.8%	27.8%	27.8%	72.2%	72.2%		72.2%	72.2%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	59.0	59.0		59.0	59.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		16.7			16.7	16.7		51.6			51.6	
Actuated g/C Ratio		0.22			0.22	0.22		0.67			0.67	
v/c Ratio		0.12			0.62	0.17		0.79			0.74	
Control Delay		19.3			38.9	8.8		15.4			13.5	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		19.3			38.9	8.8		15.4			13.5	
LOS		B			D	A		B			B	
Approach Delay		19.3			30.7			15.4			13.5	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		9			78	0		277			231	
Queue Length 95th (ft)		37			159	32		516			425	
Internal Link Dist (ft)		242			288			1422			1129	
Turn Bay Length (ft)						70						
Base Capacity (vph)		429			373	490		1449			1385	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.10			0.48	0.13		0.66			0.61	

Intersection Summary
























Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	77
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	16.5
Intersection LOS:	B
Intersection Capacity Utilization:	80.9%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/23/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	388	109	1668	35	585	211	101	85	261	339
Future Volume (vph)	45	602	388	109	1668	35	585	211	101	85	261	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.093			0.416			0.950			0.622		
Satd. Flow (perm)	167	3421	1583	716	4685	0	3416	1853	1575	1120	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			400		4				145			145
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	400	112	1720	36	603	218	104	88	269	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	400	112	1756	0	603	218	104	88	269	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/23/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.5	10.5	10.5	10.0	10.5	10.0
Total Split (s)	13.0	56.0	56.0	43.0	43.0		22.0	24.0	24.0	10.0	12.0	13.0
Total Split (%)	14.4%	62.2%	62.2%	47.8%	47.8%		24.4%	26.7%	26.7%	11.1%	13.3%	14.4%
Maximum Green (s)	8.0	51.0	51.0	38.0	38.0		17.0	19.0	19.0	5.0	7.0	8.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	52.5	52.5	52.5	40.7	40.7		18.2	22.5	22.5	15.3	8.8	20.6
Actuated g/C Ratio	0.58	0.58	0.58	0.45	0.45		0.20	0.25	0.25	0.17	0.10	0.23
v/c Ratio	0.19	0.31	0.37	0.35	0.83		0.87	0.47	0.21	0.38	0.78	0.74
Control Delay	8.8	5.2	1.3	20.4	26.1		49.8	33.8	3.2	27.3	57.0	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	5.2	1.3	20.4	26.1		49.8	33.8	3.2	27.3	57.0	28.9
LOS	A	A	A	C	C		D	C	A	C	E	C
Approach Delay		3.9			25.7			40.8			39.4	
Approach LOS		A			C			D			D	
Queue Length 50th (ft)	4	27	0	41	317		171	109	0	35	80	106
Queue Length 95th (ft)	m10	m57	m0	86	385		#259	180	20	69	#144	#208
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	260	1996	1090	324	2121		702	463	502	232	344	492
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.31	0.37	0.35	0.83		0.86	0.47	0.21	0.38	0.78	0.71

Intersection Summary

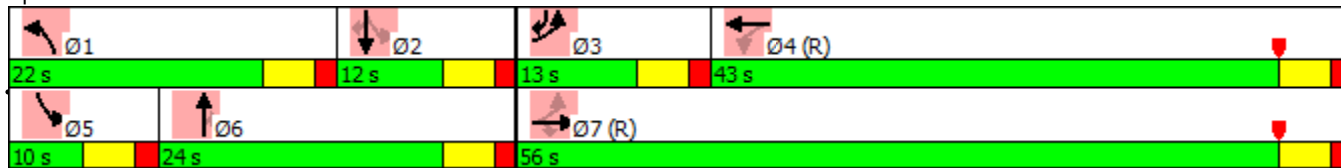
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 25.8 Intersection LOS: C
 Intersection Capacity Utilization 80.7% ICU Level of Service D
 Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	101	175	9	227	320	69	15	222	124	78	476	290
Future Volume (vph)	101	175	9	227	320	69	15	222	124	78	476	290
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.983			0.954				0.850
Flt Protected		0.983			0.982			0.998			0.993	
Satd. Flow (prot)	0	3462	0	0	3416	0	0	1774	0	0	1850	1583
Flt Permitted		0.580			0.724			0.964			0.886	
Satd. Flow (perm)	0	2042	0	0	2519	0	0	1713	0	0	1650	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			16			43				278
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	194	10	252	356	77	17	247	138	87	529	322
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	0	0	685	0	0	402	0	0	616	322
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	37.0	37.0		37.0	37.0		53.0	53.0		53.0	53.0	53.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

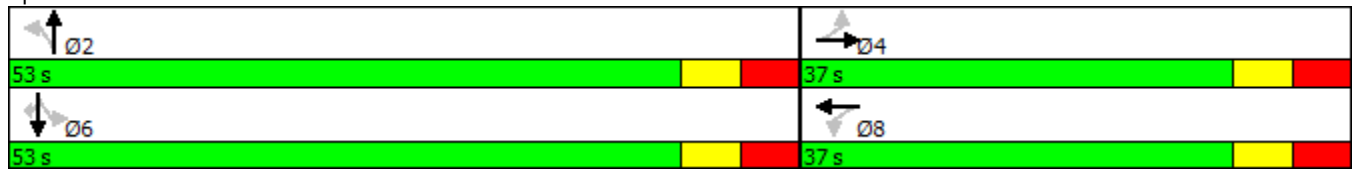


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.1%	41.1%		41.1%	41.1%		58.9%	58.9%		58.9%	58.9%	58.9%
Maximum Green (s)	29.0	29.0		29.0	29.0		45.0	45.0		45.0	45.0	45.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		25.4			25.4			34.9			34.9	34.9
Actuated g/C Ratio		0.34			0.34			0.47			0.47	0.47
v/c Ratio		0.45			0.78			0.48			0.79	0.36
Control Delay		22.6			30.1			14.2			25.4	3.7
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		22.6			30.1			14.2			25.4	3.7
LOS		C			C			B			C	A
Approach Delay		22.6			30.1			14.2			18.0	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		59			148			113			241	11
Queue Length 95th (ft)		112			250			192			392	53
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		888			1102			1148			1092	1142
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.36			0.62			0.35			0.56	0.28

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	74
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	21.5
Intersection LOS:	C
Intersection Capacity Utilization:	97.1%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 1370: E River & 253



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2030 (ETC+15)
EAST RIVER ROAD SYNCHRO FILES
BASE VOLUMES

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	58	1017	147	22	277
Future Volume (Veh/h)	41	58	1017	147	22	277
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	46	64	1130	163	24	308
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1486	1130			1293	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1486	1130			1293	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	74			96	
cM capacity (veh/h)	131	248			536	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	46	64	1130	163	24	308
Volume Left	46	0	0	0	24	0
Volume Right	0	64	0	163	0	0
cSH	131	248	1700	1700	536	1700
Volume to Capacity	0.35	0.26	0.66	0.10	0.04	0.18
Queue Length 95th (ft)	36	25	0	0	4	0
Control Delay (s)	46.7	24.5	0.0	0.0	12.0	0.0
Lane LOS	E	C			B	
Approach Delay (s)	33.8		0.0		0.9	
Approach LOS	D					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			63.8%		ICU Level of Service	
Analysis Period (min)			15		B	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↑	↗	↗	↘	↘
Traffic Volume (vph)	34	70	19	161	22	94	11	821	195	318	450	2
Future Volume (vph)	34	70	19	161	22	94	11	821	195	318	450	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			75			75		
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			0.850			0.850			0.850		0.999	
Flt Protected		0.984			0.958		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1785	1583	1770	1863	1583	1770	1861	0
Flt Permitted		0.738			0.636		0.479			0.080		
Satd. Flow (perm)	0	1375	1583	0	1185	1583	892	1863	1583	149	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			104			217			1
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			550			782				655
Travel Time (s)		9.4			10.7			11.8				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	21	179	24	104	12	912	217	353	500	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	21	0	203	104	12	912	217	353	502	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	54.0	54.0	54.0	15.0	69.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

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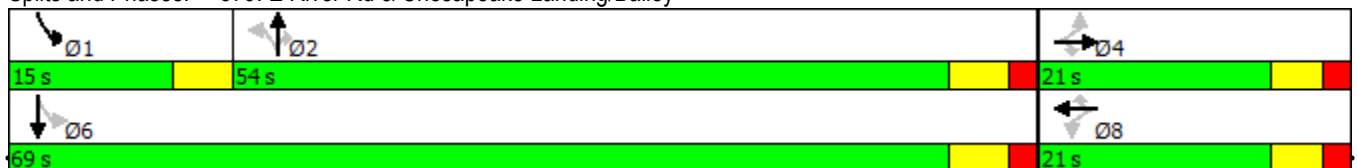


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%	60.0%	60.0%	60.0%	16.7%	76.7%	
Maximum Green (s)	15.5	15.5	15.5	15.5	15.5	15.5	48.0	48.0	48.0	11.0	63.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		17.0	17.0		17.0	17.0	47.5	47.5	47.5	64.5	62.5	
Actuated g/C Ratio		0.19	0.19		0.19	0.19	0.54	0.54	0.54	0.73	0.71	
v/c Ratio		0.44	0.06		0.89	0.27	0.02	0.91	0.23	1.04	0.38	
Control Delay		38.2	0.3		74.8	8.7	9.5	32.8	2.1	85.6	6.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		38.2	0.3		74.8	8.7	9.5	32.8	2.1	85.6	6.0	
LOS		D	A		E	A	A	C	A	F	A	
Approach Delay		32.4			52.4			26.7			38.8	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)		59	0		114	0	3	428	0	~166	93	
Queue Length 95th (ft)		112	0		#244	42	11	#706	30	#337	139	
Internal Link Dist (ft)		333			470			702			575	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		265	374		229	390	502	1049	987	340	1367	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.44	0.06		0.89	0.27	0.02	0.87	0.22	1.04	0.37	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 88
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 34.5
 Intersection LOS: C
 Intersection Capacity Utilization 88.0%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	199	118	262	39	638	265	160	163	236
Future Volume (vph)	32	16	5	199	118	262	39	638	265	160	163	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.897			0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1671	0	1770	1781	0	1770	1863	1583
Flt Permitted	0.213			0.742			0.643			0.077		
Satd. Flow (perm)	397	1792	0	1382	1671	0	1198	1781	0	143	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			118			38				262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			925			615				654
Travel Time (s)		11.9			15.8			9.3				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	221	131	291	43	709	294	178	181	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	221	422	0	43	1003	0	178	181	262
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	1		1	1		1	1		1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50		50	50	20
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	50		50	50		50	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		10.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		10.0	64.0	64.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	28.9%	28.9%		28.9%	28.9%		60.0%	60.0%		11.1%	71.1%	71.1%
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		6.0	58.0	58.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0		-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0		2.0	3.0	6.0
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	18.8	20.8		20.8	20.8		50.1	51.1		62.1	61.1	58.1
Actuated g/C Ratio	0.21	0.23		0.23	0.23		0.56	0.57		0.70	0.69	0.65
v/c Ratio	0.43	0.06		0.68	0.88		0.06	0.97		0.72	0.14	0.23
Control Delay	47.6	21.9		43.0	44.3		9.6	40.4		33.0	5.4	1.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.6	21.9		43.0	44.3		9.6	40.4		33.0	5.4	1.4
LOS	D	C		D	D		A	D		C	A	A
Approach Delay		37.3			43.8			39.1			11.6	
Approach LOS		D			D			D			B	
Queue Length 50th (ft)	18	8		113	169		11	503		45	32	0
Queue Length 95th (ft)	50	28		#193	#333		26	#815		#143	55	25
Internal Link Dist (ft)		442			845			535			574	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	89	448		342	502		674	1038		246	1279	1124
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.40	0.05		0.65	0.84		0.06	0.97		0.72	0.14	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 88.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 33.1 Intersection LOS: C
 Intersection Capacity Utilization 95.2% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	24	1	8	5	808	218	26	728	6
Future Volume (vph)	39	5	17	24	1	8	5	808	218	26	728	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	100		200	100		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			75			75		
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		0.962				0.850		0.971			0.999	
Flt Protected		0.969			0.954						0.998	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1809	0	0	1857	0
Flt Permitted		0.791			0.755			0.996			0.943	
Satd. Flow (perm)	0	1417	0	0	1406	1583	0	1801	0	0	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				36		48			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1702			306	
Travel Time (s)		7.3			8.4			25.8			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	27	1	9	6	898	242	29	809	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	28	9	0	1146	0	0	845	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.5	15.5		15.5	15.5	15.5	74.5	74.5		74.5	74.5	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	17.2%	17.2%		17.2%	17.2%	17.2%	82.8%	82.8%		82.8%	82.8%	
Maximum Green (s)	10.0	10.0		10.0	10.0	10.0	68.5	68.5		68.5	68.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effect Green (s)		12.4			12.4	12.4		65.3			65.3	
Actuated g/C Ratio		0.16			0.16	0.16		0.82			0.82	
v/c Ratio		0.29			0.13	0.03		0.77			0.59	
Control Delay		31.6			36.5	0.2		10.1			6.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		31.6			36.5	0.2		10.1			6.0	
LOS		C			D	A		B			A	
Approach Delay		31.6			27.7			10.1			6.0	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)		26			14	0		289			158	
Queue Length 95th (ft)		67			40	0		497			243	
Internal Link Dist (ft)		242			288			1622			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		236			219	277		1506			1460	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.29			0.13	0.03		0.76			0.58	

Intersection Summary
























Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 79.7
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 9.5
 Intersection Capacity Utilization 83.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service E

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	765	59	361	25	463	247	93	20	168	43
Future Volume (vph)	210	1148	765	59	361	25	463	247	93	20	168	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.423			0.180			0.950			0.587		
Satd. Flow (perm)	762	3421	1583	310	4652	0	3416	1853	1575	1057	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			634		11				131			131
Link Speed (mph)		45		45			45		45		45	
Link Distance (ft)		593		1821			955		477		477	
Travel Time (s)		9.0		27.6			14.5		7.2		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	869	67	410	28	526	281	106	23	191	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	869	67	438	0	526	281	106	23	191	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0		10.0	10.0	10.0	5.0	10.0	10.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	15.0	10.0	10.0	10.0	10.0		15.0	34.5	34.5	10.0	34.5	15.0
Total Split (s)	15.0	46.5	46.5	31.5	31.5		19.0	43.5	43.5	10.0	34.5	15.0
Total Split (%)	15.0%	46.5%	46.5%	31.5%	31.5%		19.0%	43.5%	43.5%	10.0%	34.5%	15.0%
Maximum Green (s)	10.0	41.5	41.5	26.5	26.5		14.0	38.5	38.5	5.0	29.5	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)							7.0	7.0			7.0	
Flash Dont Walk (s)							22.0	22.0			22.0	
Pedestrian Calls (#/hr)							0	0			0	
Act Effct Green (s)	60.1	60.1	60.1	43.1	43.1		15.5	28.9	28.9	20.4	13.9	30.9
Actuated g/C Ratio	0.60	0.60	0.60	0.43	0.43		0.16	0.29	0.29	0.20	0.14	0.31
v/c Ratio	0.41	0.63	0.72	0.50	0.22		0.99	0.53	0.19	0.09	0.39	0.08
Control Delay	11.5	14.5	6.9	40.8	18.8		81.1	34.5	3.8	22.9	40.8	0.3
Queue Delay	0.0	0.5	0.7	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	15.1	7.5	40.8	18.8		81.1	34.5	3.8	22.9	40.8	0.3
LOS	B	B	A	D	B		F	C	A	C	D	A
Approach Delay		12.0			21.7			57.8				31.7
Approach LOS		B			C			E				C
Queue Length 50th (ft)	58	200	91	28	56		174	146	0	10	61	0
Queue Length 95th (ft)	m66	m313	m88	#106	98		#273	226	24	25	85	0
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	585	2056	1204	133	2013		529	741	708	257	1097	579
Starvation Cap Reductn	0	339	105	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.76	0.79	0.50	0.22		0.99	0.38	0.15	0.09	0.17	0.08

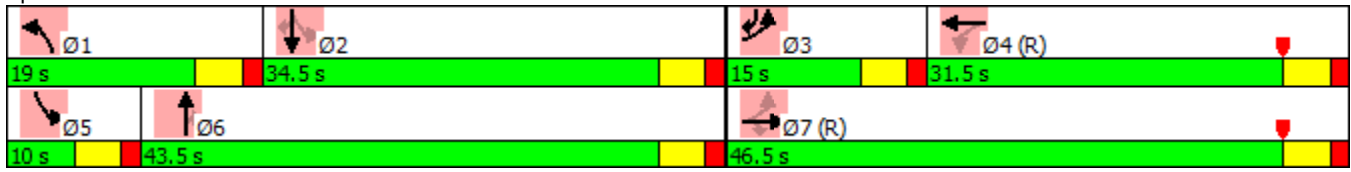
Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 24.7 Intersection LOS: C
 Intersection Capacity Utilization 70.8% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings
 1121: East River Rd & Jefferson

11/22/2016

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	282	369	11	43	79	85	8	478	290	73	93	86
Future Volume (vph)	282	369	11	43	79	85	8	478	290	73	93	86
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.939			0.950				0.850
Flt Protected		0.979			0.990			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3290	0	0	1768	0	0	1822	1583
Flt Permitted		0.735			0.709			0.997			0.578	
Satd. Flow (perm)	0	2596	0	0	2356	0	0	1764	0	0	1077	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			94			57				96
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	313	410	12	48	88	94	9	531	322	81	103	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	735	0	0	230	0	0	862	0	0	184	96
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	26.0
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	57.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	63.3%
Maximum Green (s)	27.0	27.0		27.0	27.0		51.0	51.0		51.0	51.0	51.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		26.5			26.5			42.8			42.8	42.8
Actuated g/C Ratio		0.34			0.34			0.54			0.54	0.54
v/c Ratio		0.84			0.27			0.87			0.31	0.11
Control Delay		36.1			13.6			26.0			11.5	2.2
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		36.1			13.6			26.0			11.5	2.2
LOS		D			B			C			B	A
Approach Delay		36.1			13.6			26.0			8.3	
Approach LOS		D			B			C			A	
Queue Length 50th (ft)		184			25			340			49	0
Queue Length 95th (ft)		#317			58			532			88	19
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		974			942			1236			744	1123
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.75			0.24			0.70			0.25	0.09

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 78.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 25.8
 Intersection LOS: C
 Intersection Capacity Utilization 94.3%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	128	50	428	82	74	919
Future Volume (Veh/h)	128	50	428	82	74	919
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	142	56	476	91	82	1021
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1661	476			567	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1661	476			567	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	90			92	
cM capacity (veh/h)	98	589			1005	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	142	56	476	91	82	1021
Volume Left	142	0	0	0	82	0
Volume Right	0	56	0	91	0	0
cSH	98	589	1700	1700	1005	1700
Volume to Capacity	1.45	0.10	0.28	0.05	0.08	0.60
Queue Length 95th (ft)	263	8	0	0	7	0
Control Delay (s)	325.8	11.8	0.0	0.0	8.9	0.0
Lane LOS	F	B			A	
Approach Delay (s)	236.9		0.0		0.7	
Approach LOS	F					
Intersection Summary						
Average Delay			25.5			
Intersection Capacity Utilization			62.1%		ICU Level of Service	B
Analysis Period (min)	15					

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕	↗	↗	↗	↗
Traffic Volume (vph)	9	40	15	216	64	332	22	480	234	96	718	18
Future Volume (vph)	9	40	15	216	64	332	22	480	234	96	718	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			75			75		
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			0.850			0.850			0.850		0.996	
Flt Protected		0.991			0.963		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1794	1583	1770	1863	1583	1770	1855	0
Flt Permitted		0.929			0.739		0.239			0.247		
Satd. Flow (perm)	0	1730	1583	0	1377	1583	445	1863	1583	460	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			369			260			2
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			441			906				802
Travel Time (s)		9.4			8.6			13.7				12.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	17	240	71	369	24	533	260	107	798	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	17	0	311	369	24	533	260	107	818	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	43.0	43.0	43.0	14.0	57.0	

Lanes, Volumes, Timings

379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

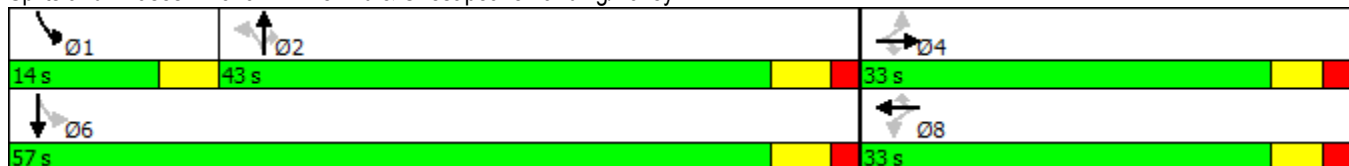


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	47.8%	47.8%	47.8%	15.6%	63.3%	
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	37.0	37.0	37.0	10.0	51.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		23.1	23.1		23.1	23.1	31.8	31.8	31.8	44.1	41.9	
Actuated g/C Ratio		0.31	0.31		0.31	0.31	0.43	0.43	0.43	0.59	0.56	
v/c Ratio		0.10	0.03		0.73	0.49	0.13	0.67	0.32	0.22	0.78	
Control Delay		21.5	0.1		36.5	5.2	17.7	24.2	3.4	8.2	19.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		21.5	0.1		36.5	5.2	17.7	24.2	3.4	8.2	19.3	
LOS		C	A		D	A	B	C	A	A	B	
Approach Delay		16.4			19.6			17.4			18.0	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		20	0		142	0	8	222	0	21	291	
Queue Length 95th (ft)		48	0		#252	60	25	352	43	45	478	
Internal Link Dist (ft)		333			361			826			722	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		740	725		588	888	252	1057	1011	494	1322	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.07	0.02		0.53	0.42	0.10	0.50	0.26	0.22	0.62	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 74.4
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 18.2 Intersection LOS: B
 Intersection Capacity Utilization 80.0% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	109	68	226	19	327	12	253	181	329	606	36
Future Volume (vph)	199	109	68	226	19	327	12	253	181	329	606	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.942			0.858			0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1755	0	1770	1598	0	1770	1745	0	1770	1863	1583
Flt Permitted	0.361			0.591			0.395			0.152		
Satd. Flow (perm)	672	1755	0	1101	1598	0	736	1745	0	283	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			363			42				36
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			805			615				720
Travel Time (s)		16.5			13.7			9.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	221	121	76	251	21	363	13	281	201	366	673	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	197	0	251	384	0	13	482	0	366	673	40
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	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Thru		Left						Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		8.0	16.0	16.0
Total Split (s)	38.0	38.0		38.0	38.0		33.0	33.0		19.0	52.0	52.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	42.2%	42.2%		42.2%	42.2%		36.7%	36.7%		21.1%	57.8%	57.8%
Maximum Green (s)	32.0	32.0		32.0	32.0		27.0	27.0		14.0	46.0	46.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		3.5	4.5	4.5
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	31.4	31.4		31.4	31.4		26.3	26.3		46.1	45.1	45.1
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.31	0.31		0.54	0.53	0.53
v/c Ratio	0.90	0.29		0.62	0.47		0.06	0.85		0.88	0.69	0.05
Control Delay	65.5	16.9		30.8	5.0		22.4	41.9		42.5	19.9	4.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	65.5	16.9		30.8	5.0		22.4	41.9		42.5	19.9	4.2
LOS	E	B		C	A		C	D		D	B	A
Approach Delay		42.6			15.2			41.4			27.0	
Approach LOS		D			B			D			C	
Queue Length 50th (ft)	116	61		114	8		5	232		138	267	1
Queue Length 95th (ft)	#254	113		199	65		19	#400		#302	395	16
Internal Link Dist (ft)		647			725			535			640	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	265	718		435	851		247	615		424	1044	903
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.83	0.27		0.58	0.45		0.05	0.78		0.86	0.64	0.04

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 85.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 29.3 Intersection LOS: C
 Intersection Capacity Utilization 89.4% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	147	15	59	17	749	104	38	713	20
Future Volume (vph)	16	5	15	147	15	59	17	749	104	38	713	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	100		200	100		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			75			75		
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		0.944				0.850		0.984			0.997	
Flt Protected		0.979			0.957			0.999			0.998	
Satd. Flow (prot)	0	1722	0	0	1783	1583	0	1831	0	0	1853	0
Flt Permitted		0.848			0.717			0.979			0.926	
Satd. Flow (perm)	0	1491	0	0	1336	1583	0	1794	0	0	1720	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		17			3	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1555			1209	
Travel Time (s)		7.3			8.4			23.6			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	163	17	66	19	832	116	42	792	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	180	66	0	967	0	0	856	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	65.0	65.0		65.0	65.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016

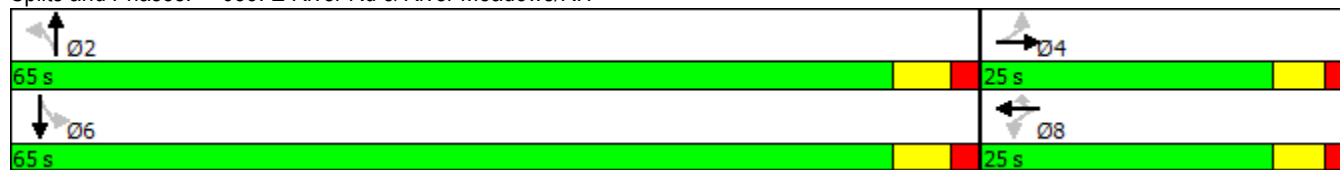


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	27.8%	27.8%		27.8%	27.8%	27.8%	72.2%	72.2%		72.2%	72.2%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	59.0	59.0		59.0	59.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		16.8			16.8	16.8		52.1			52.1	
Actuated g/C Ratio		0.22			0.22	0.22		0.67			0.67	
v/c Ratio		0.12			0.62	0.17		0.80			0.74	
Control Delay		19.3			39.4	8.8		15.7			13.7	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		19.3			39.4	8.8		15.7			13.7	
LOS		B			D	A		B			B	
Approach Delay		19.3			31.2			15.7			13.7	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		10			81	0		288			238	
Queue Length 95th (ft)		37			161	32		530			433	
Internal Link Dist (ft)		242			288			1475			1129	
Turn Bay Length (ft)						70						
Base Capacity (vph)		425			370	486		1436			1374	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.10			0.49	0.14		0.67			0.62	

Intersection Summary
























Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 77.6
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 81.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	390	109	1668	35	588	212	101	85	262	339
Future Volume (vph)	45	602	390	109	1668	35	588	212	101	85	262	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.093			0.416			0.950			0.621		
Satd. Flow (perm)	167	3421	1583	716	4685	0	3416	1853	1575	1118	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			402		4				145			145
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	402	112	1720	36	606	219	104	88	270	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	402	112	1756	0	606	219	104	88	270	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

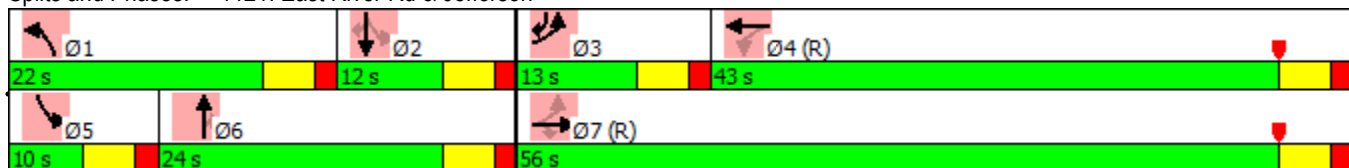


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.5	10.5	10.5	10.0	10.5	10.0
Total Split (s)	13.0	56.0	56.0	43.0	43.0		22.0	24.0	24.0	10.0	12.0	13.0
Total Split (%)	14.4%	62.2%	62.2%	47.8%	47.8%		24.4%	26.7%	26.7%	11.1%	13.3%	14.4%
Maximum Green (s)	8.0	51.0	51.0	38.0	38.0		17.0	19.0	19.0	5.0	7.0	8.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	52.5	52.5	52.5	40.7	40.7		18.2	22.5	22.5	15.3	8.8	20.6
Actuated g/C Ratio	0.58	0.58	0.58	0.45	0.45		0.20	0.25	0.25	0.17	0.10	0.23
v/c Ratio	0.19	0.31	0.37	0.35	0.83		0.88	0.47	0.21	0.38	0.78	0.74
Control Delay	8.8	5.2	1.3	20.4	26.1		50.1	33.8	3.2	27.3	57.2	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	5.2	1.3	20.4	26.1		50.1	33.8	3.2	27.3	57.2	28.9
LOS	A	A	A	C	C		D	C	A	C	E	C
Approach Delay		3.9			25.7			41.0			39.5	
Approach LOS		A			C			D			D	
Queue Length 50th (ft)	4	27	0	41	317		172	110	0	35	80	106
Queue Length 95th (ft)	m10	m57	m0	86	385		#261	181	20	69	#144	#208
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	260	1995	1090	324	2120		702	463	502	232	344	492
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.31	0.37	0.35	0.83		0.86	0.47	0.21	0.38	0.78	0.71

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 25.9 Intersection LOS: C
 Intersection Capacity Utilization 80.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	175	9	230	320	69	15	229	126	78	497	290
Future Volume (vph)	101	175	9	230	320	69	15	229	126	78	497	290
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.983			0.954				0.850
Flt Protected		0.983			0.982			0.998			0.993	
Satd. Flow (prot)	0	3462	0	0	3416	0	0	1774	0	0	1850	1583
Flt Permitted		0.576			0.723			0.964			0.888	
Satd. Flow (perm)	0	2028	0	0	2515	0	0	1713	0	0	1654	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			16			43				278
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				759
Travel Time (s)		4.5			2.9			4.5				12.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	194	10	256	356	77	17	254	140	87	552	322
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	0	0	689	0	0	411	0	0	639	322
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	37.0	37.0		37.0	37.0		53.0	53.0		53.0	53.0	53.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

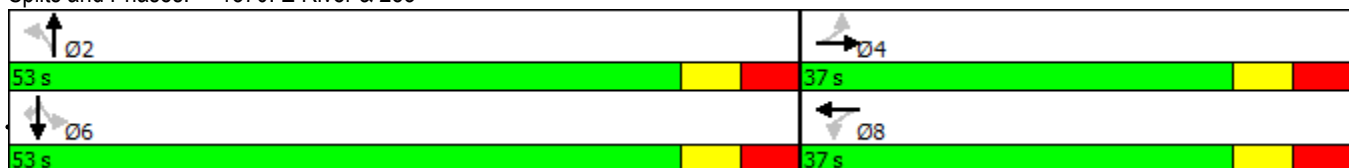


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.1%	41.1%		41.1%	41.1%		58.9%	58.9%		58.9%	58.9%	58.9%
Maximum Green (s)	29.0	29.0		29.0	29.0		45.0	45.0		45.0	45.0	45.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		25.8			25.8			36.0			36.0	36.0
Actuated g/C Ratio		0.34			0.34			0.48			0.48	0.48
v/c Ratio		0.45			0.79			0.49			0.81	0.36
Control Delay		23.1			31.1			14.3			26.5	3.7
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		23.1			31.1			14.3			26.5	3.7
LOS		C			C			B			C	A
Approach Delay		23.1			31.1			14.3			18.8	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		62			155			119			262	11
Queue Length 95th (ft)		112			#254			198			416	53
Internal Link Dist (ft)		184			89			182			679	
Turn Bay Length (ft)												425
Base Capacity (vph)		862			1076			1123			1070	1122
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.37			0.64			0.37			0.60	0.29

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 75.5
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 22.2
 Intersection LOS: C
 Intersection Capacity Utilization 98.8%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



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2030 (ETC+15)
EAST RIVER ROAD SYNCHRO FILES
BUILD VOLUMES

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	43	63	1048	150	29	297
Future Volume (Veh/h)	43	63	1048	150	29	297
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	70	1164	167	32	330
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	6					
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1558	1164			1331	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1558	1164			1331	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	70			94	
cM capacity (veh/h)	116	237			519	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	118	1164	167	32	330	
Volume Left	48	0	0	32	0	
Volume Right	70	0	167	0	0	
cSH	286	1700	1700	519	1700	
Volume to Capacity	0.41	0.68	0.10	0.06	0.19	
Queue Length 95th (ft)	48	0	0	5	0	
Control Delay (s)	38.6	0.0	0.0	12.4	0.0	
Lane LOS	E		B			
Approach Delay (s)	38.6	0.0	1.1			
Approach LOS	E					
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			65.7%		ICU Level of Service	C
Analysis Period (min)	15					

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	34	70	24	181	22	94	15	828	212	318	456	2
Future Volume (vph)	34	70	24	181	22	94	15	828	212	318	456	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			25			75		
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			0.850			0.850			0.850		0.999	
Flt Protected		0.984			0.957		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1783	1583	1770	1863	1583	1770	1861	0
Flt Permitted		0.717			0.637		0.476			0.081		
Satd. Flow (perm)	0	1336	1583	0	1187	1583	887	1863	1583	151	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			104			236			1
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			612			919				631
Travel Time (s)		9.4			11.9			13.9				9.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	27	201	24	104	17	920	236	353	507	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	27	0	225	104	17	920	236	353	509	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	22.2	22.2	22.2	22.2	22.2	22.2	52.8	52.8	52.8	15.0	67.8	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

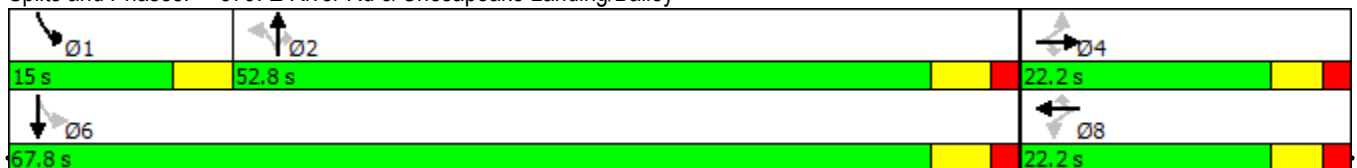


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	58.7%	58.7%	58.7%	16.7%	75.3%	
Maximum Green (s)	16.7	16.7	16.7	16.7	16.7	16.7	46.8	46.8	46.8	11.0	61.8	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		18.2	18.2		18.2	18.2	47.2	47.2	47.2	64.2	62.2	
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.53	0.53	0.53	0.72	0.70	
v/c Ratio		0.42	0.07		0.93	0.26	0.04	0.93	0.25	1.05	0.39	
Control Delay		36.9	0.3		79.0	8.3	10.2	37.0	2.2	88.5	6.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		36.9	0.3		79.0	8.3	10.2	37.0	2.2	88.5	6.5	
LOS		D	A		E	A	B	D	A	F	A	
Approach Delay		30.0			56.6			29.6			40.1	
Approach LOS		C			E			C			D	
Queue Length 50th (ft)		58	0		127	0	4	451	0	~167	101	
Queue Length 95th (ft)		111	0		#266	41	14	#732	32	#338	150	
Internal Link Dist (ft)		333			532			839			551	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		274	391		243	407	482	1013	968	336	1327	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.42	0.07		0.93	0.26	0.04	0.91	0.24	1.05	0.38	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 88.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 36.8
 Intersection LOS: D
 Intersection Capacity Utilization 89.5%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	225	118	286	39	691	298	190	164	236
Future Volume (vph)	32	16	5	225	118	286	39	691	298	190	164	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.894			0.955				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1665	0	1770	1779	0	1770	1863	1583
Flt Permitted	0.200			0.742			0.643			0.065		
Satd. Flow (perm)	373	1792	0	1382	1665	0	1198	1779	0	121	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			112			40				262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			925			847				1112
Travel Time (s)		11.9			15.8			12.8				16.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	250	131	318	43	768	331	211	182	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	250	449	0	43	1099	0	211	182	262
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	1		1	1		1	1		1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50		50	50	20
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	50		50	50		50	50		50	50	20
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		10.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		64.0	64.0		10.0	74.0	74.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	26.0%	26.0%		26.0%	26.0%		64.0%	64.0%		10.0%	74.0%	74.0%
Maximum Green (s)	20.0	20.0		20.0	20.0		58.0	58.0		6.0	68.0	68.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0		-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0		2.0	3.0	6.0
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	20.0	22.0		22.0	22.0		60.0	61.0		72.0	71.0	68.0
Actuated g/C Ratio	0.20	0.22		0.22	0.22		0.60	0.61		0.72	0.71	0.68
v/c Ratio	0.49	0.06		0.82	0.99		0.06	1.00		0.96	0.14	0.23
Control Delay	59.8	25.8		60.2	70.8		8.6	47.1		77.0	5.0	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	59.8	25.8		60.2	70.8		8.6	47.1		77.0	5.0	1.2
LOS	E	C		E	E		A	D		E	A	A
Approach Delay		46.2			67.0			45.6			26.7	
Approach LOS		D			E			D			C	
Queue Length 50th (ft)	21	9		153	225		11	631		82	32	0
Queue Length 95th (ft)	#65	31		#284	#430		25	#972		#228	54	23
Internal Link Dist (ft)		442			845			767			1032	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	74	398		304	453		718	1100		219	1322	1160
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.49	0.06		0.82	0.99		0.06	1.00		0.96	0.14	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 46.6 Intersection LOS: D
 Intersection Capacity Utilization 101.6% ICU Level of Service G
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	39	5	17	24	1	8	5	814	218	26	734	6
Future Volume (vph)	39	5	17	24	1	8	5	814	218	26	734	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	100		200	100		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			75			75		
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		0.962				0.850		0.972			0.999	
Flt Protected		0.969			0.954						0.998	
Satd. Flow (prot)	0	1736	0	0	1777	1583	0	1811	0	0	1857	0
Flt Permitted		0.791			0.755			0.996			0.943	
Satd. Flow (perm)	0	1417	0	0	1406	1583	0	1803	0	0	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				36		48			1	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1726			306	
Travel Time (s)		7.3			8.4			26.2			4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	27	1	9	6	904	242	29	816	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	28	9	0	1152	0	0	852	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.5	15.5		15.5	15.5	15.5	74.5	74.5		74.5	74.5	

Lanes, Volumes, Timings
 653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	17.2%	17.2%		17.2%	17.2%	17.2%	82.8%	82.8%		82.8%	82.8%	
Maximum Green (s)	10.0	10.0		10.0	10.0	10.0	68.5	68.5		68.5	68.5	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.4			12.4	12.4		65.6			65.6	
Actuated g/C Ratio		0.16			0.16	0.16		0.82			0.82	
v/c Ratio		0.29			0.13	0.03		0.77			0.59	
Control Delay		31.6			36.6	0.2		10.2			6.1	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		31.6			36.6	0.2		10.2			6.1	
LOS		C			D	A		B			A	
Approach Delay		31.6			27.8			10.2			6.1	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)		26			14	0		293			161	
Queue Length 95th (ft)		67			40	0		505			248	
Internal Link Dist (ft)		242			288			1646			226	
Turn Bay Length (ft)						70						
Base Capacity (vph)		235			218	276		1505			1457	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.29			0.13	0.03		0.77			0.58	

Intersection Summary
























Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 80
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 9.5
 Intersection LOS: A
 Intersection Capacity Utilization 83.5%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	768	59	361	25	467	250	93	20	170	43
Future Volume (vph)	210	1148	768	59	361	25	467	250	93	20	170	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.421			0.177			0.950			0.586		
Satd. Flow (perm)	758	3421	1583	305	4652	0	3416	1853	1575	1055	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			642		10				131			131
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		593			1821			955			477	
Travel Time (s)		9.0			27.6			14.5			7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	873	67	410	28	531	284	106	23	193	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	873	67	438	0	531	284	106	23	193	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0		10.0	10.0	10.0	5.0	10.0	10.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

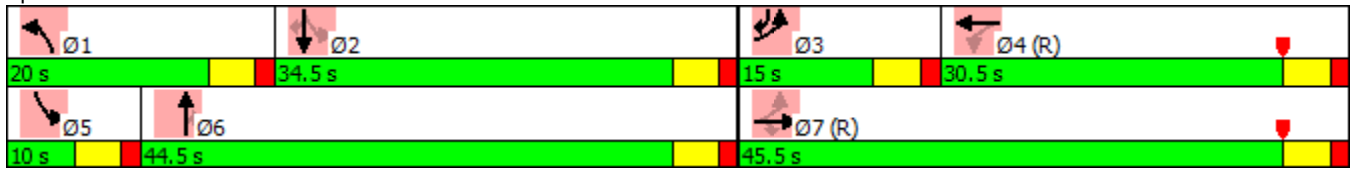


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	15.0	10.0	10.0	10.0	10.0		15.0	34.5	34.5	10.0	34.5	15.0
Total Split (s)	15.0	45.5	45.5	30.5	30.5		20.0	44.5	44.5	10.0	34.5	15.0
Total Split (%)	15.0%	45.5%	45.5%	30.5%	30.5%		20.0%	44.5%	44.5%	10.0%	34.5%	15.0%
Maximum Green (s)	10.0	40.5	40.5	25.5	25.5		15.0	39.5	39.5	5.0	29.5	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)							7.0	7.0			7.0	
Flash Dont Walk (s)							22.0	22.0			22.0	
Pedestrian Calls (#/hr)							0	0			0	
Act Effct Green (s)	59.5	59.5	59.5	42.4	42.4		16.5	29.5	29.5	20.0	13.5	30.6
Actuated g/C Ratio	0.60	0.60	0.60	0.42	0.42		0.16	0.30	0.30	0.20	0.14	0.31
v/c Ratio	0.41	0.64	0.73	0.52	0.22		0.94	0.52	0.19	0.09	0.40	0.09
Control Delay	11.4	14.8	6.4	42.7	19.3		68.5	34.0	3.8	22.9	41.5	0.3
Queue Delay	0.0	0.5	0.6	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	15.3	7.0	42.7	19.3		68.5	34.0	3.8	22.9	41.5	0.3
LOS	B	B	A	D	B		E	C	A	C	D	A
Approach Delay		11.9			22.4			50.4			32.3	
Approach LOS		B			C			D			C	
Queue Length 50th (ft)	59	216	91	29	57		174	145	0	10	61	0
Queue Length 95th (ft)	m67	m314	m87	#107	99		#264	228	24	25	86	0
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	579	2033	1201	129	1980		563	759	723	254	1097	574
Starvation Cap Reductn	0	316	96	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.76	0.79	0.52	0.22		0.94	0.37	0.15	0.09	0.18	0.09

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 23.1 Intersection LOS: C
 Intersection Capacity Utilization 70.9% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	↕
Traffic Volume (vph)	287	369	11	43	79	75	8	488	290	81	101	91
Future Volume (vph)	287	369	11	43	79	75	8	488	290	81	101	91
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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			0.943			0.950				0.850
Flt Protected		0.979			0.989			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3301	0	0	1768	0	0	1822	1583
Flt Permitted		0.738			0.700			0.997			0.552	
Satd. Flow (perm)	0	2607	0	0	2336	0	0	1764	0	0	1028	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			83			56				101
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	319	410	12	48	88	83	9	542	322	90	112	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	741	0	0	219	0	0	873	0	0	202	101
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	26.0
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	57.0

Lanes, Volumes, Timings

1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	63.3%
Maximum Green (s)	27.0	27.0		27.0	27.0		51.0	51.0		51.0	51.0	51.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		26.7			26.7			43.5			43.5	43.5
Actuated g/C Ratio		0.34			0.34			0.55			0.55	0.55
v/c Ratio		0.85			0.26			0.88			0.36	0.11
Control Delay		36.9			14.3			26.7			12.2	2.2
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		36.9			14.3			26.7			12.2	2.2
LOS		D			B			C			B	A
Approach Delay		36.9			14.3			26.7			8.9	
Approach LOS		D			B			C			A	
Queue Length 50th (ft)		190			26			350			55	0
Queue Length 95th (ft)		#321			57			#563			99	19
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		965			916			1220			700	1111
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.77			0.24			0.72			0.29	0.09

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 79.5
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 26.4
 Intersection LOS: C
 Intersection Capacity Utilization 95.8%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	130	57	437	83	75	930
Future Volume (Veh/h)	130	57	437	83	75	930
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	144	63	486	92	83	1033
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1685	486			578	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1685	486			578	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	89			92	
cM capacity (veh/h)	95	581			996	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	144	63	486	92	83	1033
Volume Left	144	0	0	0	83	0
Volume Right	0	63	0	92	0	0
cSH	95	581	1700	1700	996	1700
Volume to Capacity	1.52	0.11	0.29	0.05	0.08	0.61
Queue Length 95th (ft)	276	9	0	0	7	0
Control Delay (s)	358.8	11.9	0.0	0.0	8.9	0.0
Lane LOS	F	B			A	
Approach Delay (s)	253.3		0.0		0.7	
Approach LOS	F					
Intersection Summary						
Average Delay			28.0			
Intersection Capacity Utilization			62.8%		ICU Level of Service	B
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↖	↗
Traffic Volume (vph)	9	40	17	223	64	332	23	483	241	96	720	18
Future Volume (vph)	9	40	17	223	64	332	23	483	241	96	720	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			75			75		
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			0.850			0.850			0.850		0.996	
Flt Protected		0.991			0.963		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1794	1583	1770	1863	1583	1770	1855	0
Flt Permitted		0.928			0.738		0.238			0.247		
Satd. Flow (perm)	0	1729	1583	0	1375	1583	443	1863	1583	460	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			369			268			2
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			441			854				663
Travel Time (s)		9.4			8.6			12.9				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	19	248	71	369	26	537	268	107	800	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	19	0	319	369	26	537	268	107	820	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0	44.0	44.0	44.0	14.0	58.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	35.6%	35.6%	35.6%	35.6%	35.6%	35.6%	48.9%	48.9%	48.9%	15.6%	64.4%	
Maximum Green (s)	26.5	26.5	26.5	26.5	26.5	26.5	38.0	38.0	38.0	10.0	52.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		23.4	23.4		23.4	23.4	32.5	32.5	32.5	44.8	42.6	
Actuated g/C Ratio		0.31	0.31		0.31	0.31	0.43	0.43	0.43	0.59	0.57	
v/c Ratio		0.10	0.03		0.75	0.50	0.14	0.67	0.32	0.22	0.78	
Control Delay		22.1	0.1		38.5	5.3	17.5	23.9	3.3	8.0	19.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		22.1	0.1		38.5	5.3	17.5	23.9	3.3	8.0	19.0	
LOS		C	A		D	A	B	C	A	A	B	
Approach Delay		16.3			20.7			17.0			17.8	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		20	0		149	0	8	230	0	22	303	
Queue Length 95th (ft)		49	0		#288	61	26	346	42	43	465	
Internal Link Dist (ft)		333			361			774			583	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		701	693		558	861	253	1067	1021	492	1329	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.08	0.03		0.57	0.43	0.10	0.50	0.26	0.22	0.62	

Intersection Summary






















Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 75.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 18.3
 Intersection LOS: B
 Intersection Capacity Utilization 80.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	109	68	237	19	336	12	254	191	338	608	36
Future Volume (vph)	199	109	68	237	19	336	12	254	191	338	608	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	100		0	100		100
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			100			100		
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		0.942			0.858			0.936				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1755	0	1770	1598	0	1770	1744	0	1770	1863	1583
Flt Permitted	0.352			0.591			0.392			0.135		
Satd. Flow (perm)	656	1755	0	1101	1598	0	730	1744	0	251	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			373			43				36
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			805			816				720
Travel Time (s)		16.5			13.7			12.4				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	221	121	76	263	21	373	13	282	212	376	676	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	197	0	263	394	0	13	494	0	376	676	40
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	1		1	1		1	1		1	1	1
Detector Template	Left	Thru			Thru		Left					Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0		8.0	16.0	16.0
Total Split (s)	39.0	39.0		39.0	39.0		32.0	32.0		19.0	51.0	51.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

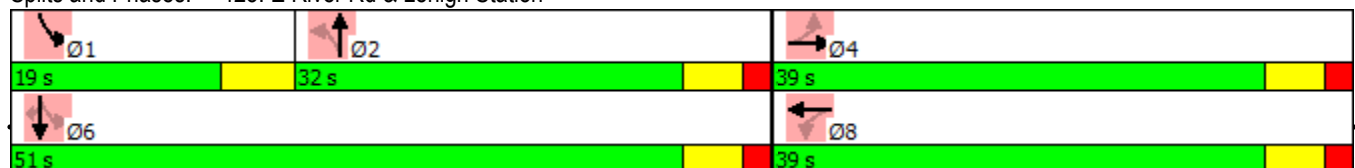


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	43.3%	43.3%		43.3%	43.3%		35.6%	35.6%		21.1%	56.7%	56.7%
Maximum Green (s)	33.0	33.0		33.0	33.0		26.0	26.0		14.0	45.0	45.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		3.5	4.5	4.5
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0		3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min		None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	31.9	31.9		31.9	31.9		26.1	26.1		46.3	45.3	45.3
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.30	0.30		0.54	0.52	0.52
v/c Ratio	0.91	0.29		0.65	0.48		0.06	0.89		0.92	0.69	0.05
Control Delay	68.1	16.4		31.2	4.9		23.2	46.4		51.3	20.6	4.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	68.1	16.4		31.2	4.9		23.2	46.4		51.3	20.6	4.4
LOS	E	B		C	A		C	D		D	C	A
Approach Delay		43.7			15.4			45.8			30.5	
Approach LOS		D			B			D			C	
Queue Length 50th (ft)	115	59		119	7		5	245		156	276	1
Queue Length 95th (ft)	#254	110		207	65		19	#428		#334	409	16
Internal Link Dist (ft)		647			725			736			640	
Turn Bay Length (ft)	200			200			100			100		100
Base Capacity (vph)	264	732		444	866		234	589		410	1012	876
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.84	0.27		0.59	0.45		0.06	0.84		0.92	0.67	0.05

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 86.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 31.8 Intersection LOS: C
 Intersection Capacity Utilization 91.1% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	16	5	15	147	15	59	17	752	104	38	716	20
Future Volume (vph)	16	5	15	147	15	59	17	752	104	38	716	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		70	100		200	100		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			75			75		
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		0.944				0.850		0.984			0.997	
Flt Protected		0.979			0.957			0.999			0.998	
Satd. Flow (prot)	0	1722	0	0	1783	1583	0	1831	0	0	1853	0
Flt Permitted		0.848			0.717			0.979			0.926	
Satd. Flow (perm)	0	1491	0	0	1336	1583	0	1794	0	0	1720	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		17			3	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1694			1209	
Travel Time (s)		7.3			8.4			25.7			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	163	17	66	19	836	116	42	796	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	180	66	0	971	0	0	860	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	65.0	65.0		65.0	65.0	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016

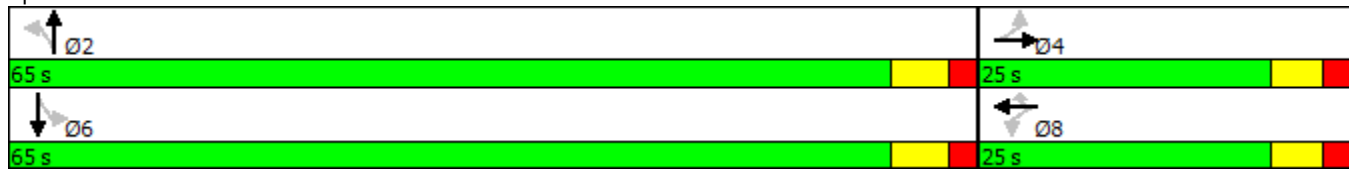


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	27.8%	27.8%		27.8%	27.8%	27.8%	72.2%	72.2%		72.2%	72.2%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	59.0	59.0		59.0	59.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5		-1.5			-1.5	
Total Lost Time (s)		4.0			4.0	4.0		4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		16.8			16.8	16.8		52.3			52.3	
Actuated g/C Ratio		0.22			0.22	0.22		0.67			0.67	
v/c Ratio		0.12			0.62	0.17		0.80			0.74	
Control Delay		19.3			39.6	8.8		15.9			13.8	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		19.3			39.6	8.8		15.9			13.8	
LOS		B			D	A		B			B	
Approach Delay		19.3			31.3			15.9			13.8	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		10			82	0		292			242	
Queue Length 95th (ft)		37			161	32		535			438	
Internal Link Dist (ft)		242			288			1614			1129	
Turn Bay Length (ft)						70						
Base Capacity (vph)		423			368	484		1430			1369	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.10			0.49	0.14		0.68			0.63	

Intersection Summary
























Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	77.8
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	16.9
Intersection LOS:	B
Intersection Capacity Utilization:	81.6%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	392	109	1668	35	589	213	101	85	263	339
Future Volume (vph)	45	602	392	109	1668	35	589	213	101	85	263	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.097			0.416			0.950			0.621		
Satd. Flow (perm)	175	3421	1583	716	4685	0	3416	1853	1575	1118	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			404		4				145			145
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	404	112	1720	36	607	220	104	88	271	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	404	112	1756	0	607	220	104	88	271	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

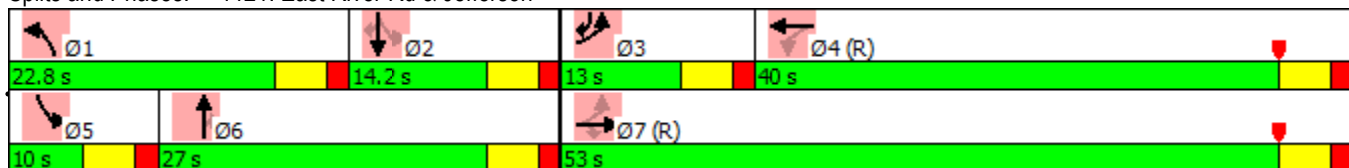


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.5	10.5	10.5	10.0	10.5	10.0
Total Split (s)	13.0	53.0	53.0	40.0	40.0		22.8	27.0	27.0	10.0	14.2	13.0
Total Split (%)	14.4%	58.9%	58.9%	44.4%	44.4%		25.3%	30.0%	30.0%	11.1%	15.8%	14.4%
Maximum Green (s)	8.0	48.0	48.0	35.0	35.0		17.8	22.0	22.0	5.0	9.2	8.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	50.2	50.2	50.2	38.8	38.8		18.8	24.8	24.8	16.9	10.4	21.9
Actuated g/C Ratio	0.56	0.56	0.56	0.43	0.43		0.21	0.28	0.28	0.19	0.12	0.24
v/c Ratio	0.20	0.33	0.38	0.36	0.87		0.85	0.43	0.19	0.35	0.66	0.71
Control Delay	8.7	6.0	1.4	22.6	29.8		46.9	30.7	2.8	24.5	46.5	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	6.0	1.4	22.6	29.8		46.9	30.7	2.8	24.5	46.5	26.2
LOS	A	A	A	C	C		D	C	A	C	D	C
Approach Delay		4.3			29.4			38.1			33.7	
Approach LOS		A			C			D			C	
Queue Length 50th (ft)	4	28	0	42	326		171	105	0	33	78	105
Queue Length 95th (ft)	m10	m58	m0	92	#447		#253	173	19	65	120	200
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	259	1908	1061	308	2019		732	509	538	253	420	519
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.33	0.38	0.36	0.87		0.83	0.43	0.19	0.35	0.65	0.67

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 26.0 Intersection LOS: C
 Intersection Capacity Utilization 80.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	175	9	230	320	72	15	232	126	82	500	292
Future Volume (vph)	101	175	9	230	320	72	15	232	126	82	500	292
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		425
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.983			0.954				0.850
Flt Protected		0.983			0.982			0.998			0.993	
Satd. Flow (prot)	0	3462	0	0	3416	0	0	1774	0	0	1850	1583
Flt Permitted		0.574			0.723			0.964			0.882	
Satd. Flow (perm)	0	2021	0	0	2515	0	0	1713	0	0	1643	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17			42				278
Link Speed (mph)		40			40			40				40
Link Distance (ft)		264			169			262				587
Travel Time (s)		4.5			2.9			4.5				10.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	194	10	256	356	80	17	258	140	91	556	324
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	0	0	692	0	0	415	0	0	647	324
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	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
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)	50	50		50	50		50	50		50	50	50
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
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	28.0
Total Split (s)	37.0	37.0		37.0	37.0		53.0	53.0		53.0	53.0	53.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

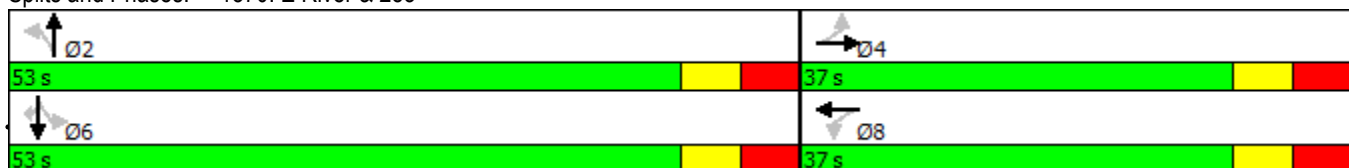


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.1%	41.1%		41.1%	41.1%		58.9%	58.9%		58.9%	58.9%	58.9%
Maximum Green (s)	29.0	29.0		29.0	29.0		45.0	45.0		45.0	45.0	45.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5			6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)		26.0			26.0			36.6			36.6	36.6
Actuated g/C Ratio		0.34			0.34			0.48			0.48	0.48
v/c Ratio		0.46			0.80			0.49			0.82	0.36
Control Delay		23.3			31.5			14.4			27.3	3.7
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		23.3			31.5			14.4			27.3	3.7
LOS		C			C			B			C	A
Approach Delay		23.3			31.5			14.4			19.5	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		63			160			123			272	12
Queue Length 95th (ft)		112			#256			200			427	54
Internal Link Dist (ft)		184			89			182			507	
Turn Bay Length (ft)												425
Base Capacity (vph)		849			1064			1110			1050	1112
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.37			0.65			0.37			0.62	0.29

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 76.2
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 22.6
 Intersection LOS: C
 Intersection Capacity Utilization 99.4%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



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2030 (ETC+15)

EAST RIVER ROAD SYNCHRO FILES
BUILD VOLUMES WITH MITIGATION

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	43	65	1048	150	29	297
Future Volume (Veh/h)	43	65	1048	150	29	297
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	72	1164	167	32	330
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1558	1164			1331	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1558	1164			1331	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	70			94	
cM capacity (veh/h)	116	237			519	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	48	72	1164	167	32	330
Volume Left	48	0	0	0	32	0
Volume Right	0	72	0	167	0	0
cSH	116	237	1700	1700	519	1700
Volume to Capacity	0.41	0.30	0.68	0.10	0.06	0.19
Queue Length 95th (ft)	44	31	0	0	5	0
Control Delay (s)	56.2	26.7	0.0	0.0	12.4	0.0
Lane LOS	F	D			B	
Approach Delay (s)	38.5		0.0		1.1	
Approach LOS	E					
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			65.8%		ICU Level of Service	
Analysis Period (min)			15		C	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	34	70	24	181	22	94	15	828	212	318	456	2
Future Volume (vph)	34	70	24	181	22	94	15	828	212	318	456	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
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			0.850			0.850			0.850		0.999	
Flt Protected		0.984			0.957		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1783	1583	1770	1863	1583	1770	1861	0
Flt Permitted		0.717			0.637		0.476			0.081		
Satd. Flow (perm)	0	1336	1583	0	1187	1583	887	1863	1583	151	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			104			236			1
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			441			877				776
Travel Time (s)		9.4			8.6			13.3				11.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	27	201	24	104	17	920	236	353	507	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	27	0	225	104	17	920	236	353	509	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	22.2	22.2	22.2	22.2	22.2	22.2	52.8	52.8	52.8	15.0	67.8	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

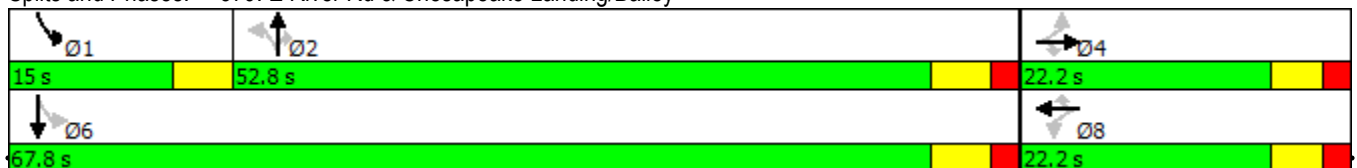


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	58.7%	58.7%	58.7%	16.7%	75.3%	
Maximum Green (s)	16.7	16.7	16.7	16.7	16.7	16.7	46.8	46.8	46.8	11.0	61.8	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		18.2	18.2		18.2	18.2	47.2	47.2	47.2	64.2	62.2	
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.53	0.53	0.53	0.72	0.70	
v/c Ratio		0.42	0.07		0.93	0.26	0.04	0.93	0.25	1.05	0.39	
Control Delay		36.9	0.3		79.0	8.3	10.2	37.0	2.2	88.5	6.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		36.9	0.3		79.0	8.3	10.2	37.0	2.2	88.5	6.5	
LOS		D	A		E	A	B	D	A	F	A	
Approach Delay		30.0			56.6			29.6			40.1	
Approach LOS		C			E			C			D	
Queue Length 50th (ft)		58	0		127	0	4	451	0	~167	101	
Queue Length 95th (ft)		111	0		#266	41	14	#732	32	#338	150	
Internal Link Dist (ft)		333			361			797			696	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		274	391		243	407	482	1013	968	336	1327	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.42	0.07		0.93	0.26	0.04	0.91	0.24	1.05	0.38	

Intersection Summary























Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 88.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 36.8
 Intersection LOS: D
 Intersection Capacity Utilization 89.5%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	225	118	286	39	641	298	190	164	236
Future Volume (vph)	32	16	5	225	118	286	39	641	298	190	164	236
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	450		450	450		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1665	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.202			0.742			0.643			0.146		
Satd. Flow (perm)	376	1792	0	1382	1665	0	1198	1863	1583	272	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			137				331			262
Link Speed (mph)		30			40			45			45	
Link Distance (ft)		522			925			910			983	
Travel Time (s)		11.9			15.8			13.8			14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	250	131	318	43	712	331	211	182	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	250	449	0	43	712	331	211	182	262
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	1		1	1		1	1	1	1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50	50	50	50	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	50		50	50		50	50	50	50	50	20
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	30.0	30.0		30.0	30.0		49.0	49.0	49.0	11.0	60.0	60.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.4%	54.4%	54.4%	12.2%	66.7%	66.7%
Maximum Green (s)	24.0	24.0		24.0	24.0		43.0	43.0	43.0	7.0	54.0	54.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0	-1.0	-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0	5.0	2.0	3.0	6.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0	4.0	3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	19.8	21.9		21.9	21.9		37.7	38.8	36.7	51.1	50.0	46.9
Actuated g/C Ratio	0.25	0.28		0.28	0.28		0.48	0.49	0.46	0.65	0.63	0.59
v/c Ratio	0.38	0.05		0.65	0.80		0.08	0.78	0.36	0.60	0.15	0.25
Control Delay	40.2	19.2		35.9	31.6		12.2	24.2	2.8	15.9	6.8	1.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	19.2		35.9	31.6		12.2	24.2	2.8	15.9	6.8	1.7
LOS	D	B		D	C		B	C	A	B	A	A
Approach Delay		31.8			33.1			17.2			7.7	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	16	7		119	159		12	305	0	43	38	0
Queue Length 95th (ft)	48	26		206	#314		30	451	42	#96	64	28
Internal Link Dist (ft)		442			845			830			903	
Turn Bay Length (ft)	200			200			450		450	450		100
Base Capacity (vph)	118	613		470	656		705	1121	1052	352	1378	1195
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.04		0.53	0.68		0.06	0.64	0.31	0.60	0.13	0.22

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 79.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 19.5 Intersection LOS: B
 Intersection Capacity Utilization 80.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕		↕	↕	
Traffic Volume (vph)	39	5	17	24	1	8	5	814	218	26	734	6
Future Volume (vph)	39	5	17	24	1	8	5	814	218	26	734	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	500		200	350		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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		0.962				0.850		0.968			0.999	
Flt Protected		0.969			0.954		0.950			0.950		
Satd. Flow (prot)	0	1736	0	0	1777	1583	1770	1803	0	1770	1861	0
Flt Permitted		0.791			0.755		0.299			0.156		
Satd. Flow (perm)	0	1417	0	0	1406	1583	557	1803	0	291	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				36		47			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1581			720	
Travel Time (s)		7.3			8.4			24.0			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	27	1	9	6	904	242	29	816	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	28	9	6	1146	0	29	823	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.8	15.8		15.8	15.8	15.8	74.2	74.2		74.2	74.2	

Lanes, Volumes, Timings
 653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	17.6%	17.6%		17.6%	17.6%	17.6%	82.4%	82.4%		82.4%	82.4%	
Maximum Green (s)	10.3	10.3		10.3	10.3	10.3	68.2	68.2		68.2	68.2	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0			4.0	4.0	4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.5			12.5	12.5	65.3	65.3		65.3	65.3	
Actuated g/C Ratio		0.16			0.16	0.16	0.82	0.82		0.82	0.82	
v/c Ratio		0.29			0.13	0.03	0.01	0.77		0.12	0.54	
Control Delay		31.4			36.3	0.2	2.4	10.2		3.8	5.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		31.4			36.3	0.2	2.4	10.2		3.8	5.3	
LOS		C			D	A	A	B		A	A	
Approach Delay		31.4			27.5			10.2				5.2
Approach LOS		C			C			B				A
Queue Length 50th (ft)		26			14	0	1	289		3	143	
Queue Length 95th (ft)		67			40	0	3	506		11	219	
Internal Link Dist (ft)		242			288			1501			640	
Turn Bay Length (ft)						170	500			350		
Base Capacity (vph)		241			224	283	461	1502		241	1543	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.13	0.03	0.01	0.76		0.12	0.53	

Intersection Summary
























Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 79.8
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 83.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service E

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/23/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	768	59	361	25	427	250	93	20	170	43
Future Volume (vph)	210	1148	768	59	361	25	427	250	93	20	170	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.437			0.163			0.950			0.586		
Satd. Flow (perm)	787	3421	1583	281	4652	0	3416	1853	1575	1055	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			671		17				145			145
Link Speed (mph)		45		45			45		45		45	
Link Distance (ft)		593		1821			955		477		477	
Travel Time (s)		9.0		27.6			14.5		7.2		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	873	67	410	28	485	284	106	23	193	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	873	67	438	0	485	284	106	23	193	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/23/2016

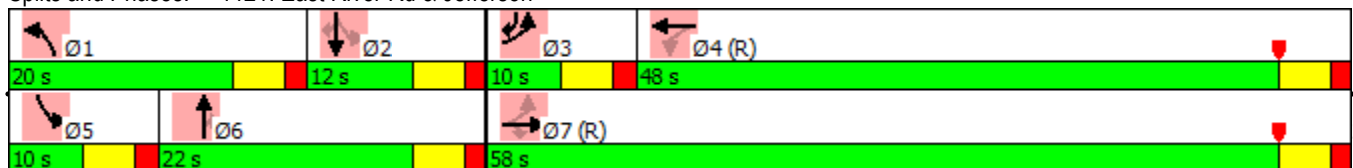


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	58.0	58.0	48.0	48.0		20.0	22.0	22.0	10.0	12.0	10.0
Total Split (%)	11.1%	64.4%	64.4%	53.3%	53.3%		22.2%	24.4%	24.4%	11.1%	13.3%	11.1%
Maximum Green (s)	5.0	53.0	53.0	43.0	43.0		15.0	17.0	17.0	5.0	7.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	55.1	55.1	55.1	44.7	44.7		16.0	23.9	23.9	14.9	8.4	18.7
Actuated g/C Ratio	0.61	0.61	0.61	0.50	0.50		0.18	0.27	0.27	0.17	0.09	0.21
v/c Ratio	0.43	0.62	0.71	0.48	0.19		0.80	0.58	0.20	0.10	0.59	0.11
Control Delay	5.9	7.7	3.3	29.7	12.4		46.4	35.9	3.3	23.6	46.9	0.5
Queue Delay	0.0	0.2	0.5	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	8.0	3.8	29.7	12.4		46.4	35.9	3.3	23.6	46.9	0.5
LOS	A	A	A	C	B		D	D	A	C	D	A
Approach Delay		6.2			14.7			37.8			36.3	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	44	204	64	24	46		136	129	0	9	56	0
Queue Length 95th (ft)	m46	m212	m81	70	64		#186	#255	20	26	89	0
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	552	2094	1229	139	2320		626	491	524	222	334	444
Starvation Cap Reductn	0	209	94	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.69	0.77	0.48	0.19		0.77	0.58	0.20	0.10	0.58	0.11

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 16.0 Intersection LOS: B
 Intersection Capacity Utilization 70.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕		↕	↕
Traffic Volume (vph)	287	369	11	43	79	95	8	488	290	81	101	91
Future Volume (vph)	287	369	11	43	79	95	8	488	290	81	101	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		425
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
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			0.934				0.850			0.850
Flt Protected		0.979			0.990			0.999			0.978	
Satd. Flow (prot)	0	3458	0	0	3273	0	0	1861	1583	0	1822	1583
Flt Permitted		0.730			0.770			0.995			0.512	
Satd. Flow (perm)	0	2578	0	0	2545	0	0	1853	1583	0	954	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			106				304			101
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			549			867	
Travel Time (s)		4.5			2.9			9.4			14.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	319	410	12	48	88	106	9	542	322	90	112	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	741	0	0	242	0	0	551	322	0	202	101
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	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	42.0	42.0		42.0	42.0		48.0	48.0	48.0	48.0	48.0	48.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

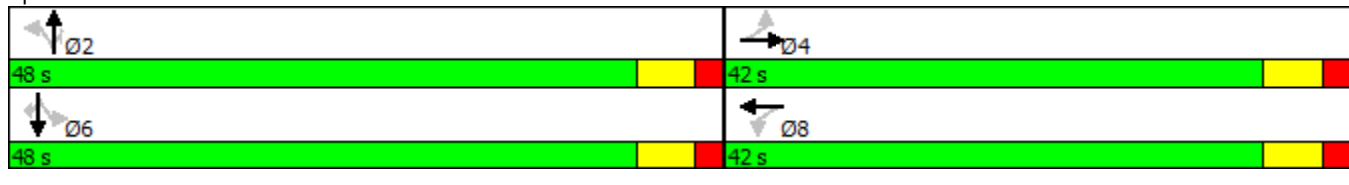


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%	53.3%	53.3%	53.3%	53.3%
Maximum Green (s)	36.0	36.0		36.0	36.0		42.0	42.0	42.0	42.0	42.0	42.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5	-1.5		-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5	4.5		4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)		25.7			25.7			27.5	27.5		27.5	27.5
Actuated g/C Ratio		0.41			0.41			0.44	0.44		0.44	0.44
v/c Ratio		0.70			0.22			0.68	0.37		0.49	0.14
Control Delay		20.9			8.6			19.8	3.5		18.4	3.4
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		20.9			8.6			19.8	3.5		18.4	3.4
LOS		C			A			B	A		B	A
Approach Delay		20.9			8.6			13.8			13.4	
Approach LOS		C			A			B			B	
Queue Length 50th (ft)		111			15			153	4		50	0
Queue Length 95th (ft)		243			48			328	48		132	25
Internal Link Dist (ft)		184			89			469			787	
Turn Bay Length (ft)									300			425
Base Capacity (vph)		1663			1679			1347	1233		693	1178
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.45			0.14			0.41	0.26		0.29	0.09

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	63
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	15.6
Intersection LOS:	B
Intersection Capacity Utilization:	78.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	130	57	437	83	75	930
Future Volume (Veh/h)	130	57	437	83	75	930
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	144	63	486	92	83	1033
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1685	486			578	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1685	486			578	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	89			92	
cM capacity (veh/h)	95	581			996	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	144	63	486	92	83	1033
Volume Left	144	0	0	0	83	0
Volume Right	0	63	0	92	0	0
cSH	95	581	1700	1700	996	1700
Volume to Capacity	1.52	0.11	0.29	0.05	0.08	0.61
Queue Length 95th (ft)	276	9	0	0	7	0
Control Delay (s)	358.8	11.9	0.0	0.0	8.9	0.0
Lane LOS	F	B			A	
Approach Delay (s)	253.3		0.0		0.7	
Approach LOS	F					
Intersection Summary						
Average Delay			28.0			
Intersection Capacity Utilization			69.1%		ICU Level of Service	C
Analysis Period (min)	15					

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕	↗	↗	↗	↗
Traffic Volume (vph)	9	40	17	223	64	332	23	483	241	96	720	18
Future Volume (vph)	9	40	17	223	64	332	23	483	241	96	720	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			25			75		
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			0.850			0.850			0.850		0.996	
Flt Protected		0.991			0.963		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1794	1583	1770	1863	1583	1770	1855	0
Flt Permitted		0.929			0.738		0.235			0.243		
Satd. Flow (perm)	0	1730	1583	0	1375	1583	438	1863	1583	453	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			369			268			2
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			663			1011				793
Travel Time (s)		9.4			12.9			15.3				12.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	19	248	71	369	26	537	268	107	800	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	19	0	319	369	26	537	268	107	820	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	NA
Protected Phases		4			8			2		1		6
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1		6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	16.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	43.0	43.0	43.0	14.0	57.0	57.0

Lanes, Volumes, Timings

379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

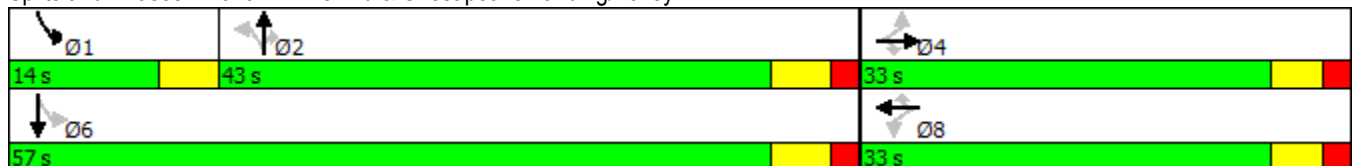


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	47.8%	47.8%	47.8%	15.6%	63.3%	
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	37.0	37.0	37.0	10.0	51.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		23.5	23.5		23.5	23.5	32.0	32.0	32.0	44.4	42.2	
Actuated g/C Ratio		0.31	0.31		0.31	0.31	0.43	0.43	0.43	0.59	0.56	
v/c Ratio		0.10	0.03		0.74	0.49	0.14	0.68	0.32	0.22	0.79	
Control Delay		21.6	0.1		37.3	5.2	18.1	24.5	3.4	8.3	19.6	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		21.6	0.1		37.3	5.2	18.1	24.5	3.4	8.3	19.6	
LOS		C	A		D	A	B	C	A	A	B	
Approach Delay		16.0			20.1			17.5			18.3	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		20	0		149	0	8	228	0	22	302	
Queue Length 95th (ft)		48	0		#279	60	27	354	43	45	481	
Internal Link Dist (ft)		333			583			931			713	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		731	718		581	882	245	1045	1005	488	1313	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.07	0.03		0.55	0.42	0.11	0.51	0.27	0.22	0.62	

Intersection Summary























Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 75
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 18.5
 Intersection LOS: B
 Intersection Capacity Utilization 80.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	79	49	237	19	336	12	254	191	338	608	36
Future Volume (vph)	145	79	49	237	19	336	12	254	191	338	608	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	450		450	450		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			75			100			100		
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		0.943			0.858				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1757	0	1770	1598	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.345			0.666			0.408			0.382		
Satd. Flow (perm)	643	1757	0	1241	1598	0	760	1863	1583	712	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			373				212			33
Link Speed (mph)		30			40			45			45	
Link Distance (ft)		727			805			615			720	
Travel Time (s)		16.5			13.7			9.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	161	88	54	263	21	373	13	282	212	376	676	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	142	0	263	394	0	13	282	212	376	676	40
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	1		1	1		1	1	1	1	1	1
Detector Template	Left	Thru			Thru		Left					Right
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	45.0	45.0		45.0	45.0		32.0	32.0	32.0	23.0	55.0	55.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

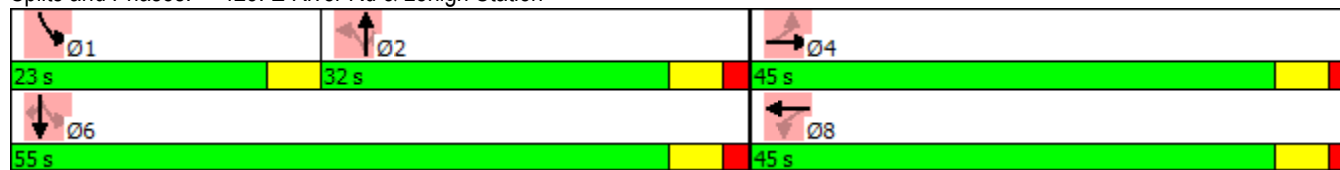


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	45.0%	45.0%		45.0%	45.0%		32.0%	32.0%	32.0%	23.0%	55.0%	55.0%
Maximum Green (s)	39.0	39.0		39.0	39.0		26.0	26.0	26.0	19.0	49.0	49.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	2.5	4.5	4.5
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0	4.0	3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	25.3	25.3		25.3	25.3		19.5	19.5	19.5	40.6	38.4	38.4
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.27	0.27	0.27	0.55	0.52	0.52
v/c Ratio	0.73	0.23		0.62	0.50		0.06	0.57	0.37	0.60	0.69	0.05
Control Delay	43.2	14.8		28.0	5.2		26.1	31.0	6.2	15.4	19.3	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	14.8		28.0	5.2		26.1	31.0	6.2	15.4	19.3	5.3
LOS	D	B		C	A		C	C	A	B	B	A
Approach Delay		29.9			14.3			20.5			17.4	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	61	32		95	6		4	109	0	87	209	1
Queue Length 95th (ft)	159	83		204	65		22	238	54	207	462	18
Internal Link Dist (ft)		647			725			535			640	
Turn Bay Length (ft)	200			200			450		450	450		100
Base Capacity (vph)	383	1062		739	1103		307	754	767	712	1350	1156
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.13		0.36	0.36		0.04	0.37	0.28	0.53	0.50	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	73.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	18.7
Intersection LOS:	B
Intersection Capacity Utilization:	85.4%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕		↕	↕	
Traffic Volume (vph)	16	5	15	147	15	59	17	752	104	38	716	20
Future Volume (vph)	16	5	15	147	15	59	17	752	104	38	716	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	500		200	350		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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		0.944				0.850		0.982			0.996	
Flt Protected		0.979			0.957		0.950			0.950		
Satd. Flow (prot)	0	1722	0	0	1783	1583	1770	1829	0	1770	1855	0
Flt Permitted		0.850			0.717		0.239			0.165		
Satd. Flow (perm)	0	1495	0	0	1336	1583	445	1829	0	307	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		16				3
Link Speed (mph)		30			30			45				45
Link Distance (ft)		322			368			1564				1209
Travel Time (s)		7.3			8.4			23.7				18.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	163	17	66	19	836	116	42	796	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	180	66	19	952	0	42	818	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	64.0	64.0		64.0	64.0	

Lanes, Volumes, Timings
 653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	28.9%	28.9%		28.9%	28.9%	28.9%	71.1%	71.1%		71.1%	71.1%	
Maximum Green (s)	20.5	20.5		20.5	20.5	20.5	58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0			4.0	4.0	4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		16.9			16.9	16.9	50.5	50.5		50.5	50.5	
Actuated g/C Ratio		0.22			0.22	0.22	0.66	0.66		0.66	0.66	
v/c Ratio		0.12			0.61	0.16	0.06	0.78		0.21	0.66	
Control Delay		18.8			37.6	8.5	5.9	15.1		8.7	11.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		18.8			37.6	8.5	5.9	15.1		8.7	11.4	
LOS		B			D	A	A	B		A	B	
Approach Delay		18.8			29.8			14.9			11.3	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		9			77	0	3	269		7	201	
Queue Length 95th (ft)		36			158	32	11	514		25	371	
Internal Link Dist (ft)		242			288			1484			1129	
Turn Bay Length (ft)						170	500			350		
Base Capacity (vph)		455			396	515	356	1469		246	1487	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.09			0.45	0.13	0.05	0.65		0.17	0.55	

Intersection Summary
























Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	76.2
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	15.3
Intersection LOS:	B
Intersection Capacity Utilization:	73.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	392	109	1668	35	589	213	101	85	263	339
Future Volume (vph)	45	602	392	109	1668	35	589	213	101	85	263	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.097			0.416			0.950			0.621		
Satd. Flow (perm)	175	3421	1583	716	4685	0	3416	1853	1575	1118	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			404		4				145			145
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	404	112	1720	36	607	220	104	88	271	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	404	112	1756	0	607	220	104	88	271	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

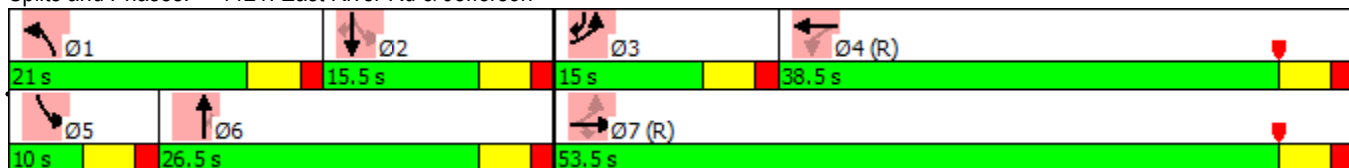


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0		15.5	15.5	15.5	10.0	15.5	15.0
Total Split (s)	15.0	53.5	53.5	38.5	38.5		21.0	26.5	26.5	10.0	15.5	15.0
Total Split (%)	16.7%	59.4%	59.4%	42.8%	42.8%		23.3%	29.4%	29.4%	11.1%	17.2%	16.7%
Maximum Green (s)	10.0	48.5	48.5	33.5	33.5		16.0	21.5	21.5	5.0	10.5	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	Min	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	Min
Act Effct Green (s)	50.7	50.7	50.7	38.8	38.8		17.5	24.3	24.3	17.8	11.3	23.2
Actuated g/C Ratio	0.56	0.56	0.56	0.43	0.43		0.19	0.27	0.27	0.20	0.13	0.26
v/c Ratio	0.19	0.32	0.38	0.36	0.87		0.91	0.44	0.20	0.33	0.61	0.68
Control Delay	8.3	5.8	1.3	22.9	30.0		55.9	31.3	2.9	24.2	43.4	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	5.8	1.3	22.9	30.0		55.9	31.3	2.9	24.2	43.4	23.9
LOS	A	A	A	C	C		E	C	A	C	D	C
Approach Delay		4.2			29.6			44.2			31.4	
Approach LOS		A			C			D			C	
Queue Length 50th (ft)	4	28	0	41	318		175	106	0	33	77	104
Queue Length 95th (ft)	m10	m57	m0	95	#465		#274	174	19	66	117	188
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	294	1925	1068	308	2020		664	503	534	264	471	565
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.32	0.38	0.36	0.87		0.91	0.44	0.19	0.33	0.58	0.62

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 26.9 Intersection LOS: C
 Intersection Capacity Utilization 80.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕		↕	↕
Traffic Volume (vph)	102	175	9	230	320	72	15	237	126	82	500	292
Future Volume (vph)	102	175	9	230	320	72	15	237	126	82	500	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		425
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.983				0.850			0.850
Flt Protected		0.982			0.982			0.997			0.993	
Satd. Flow (prot)	0	3458	0	0	3416	0	0	1857	1583	0	1850	1583
Flt Permitted		0.575			0.723			0.948			0.903	
Satd. Flow (perm)	0	2025	0	0	2515	0	0	1766	1583	0	1682	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17				140			278
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			643			587	
Travel Time (s)		4.5			2.9			11.0			10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	113	194	10	256	356	80	17	263	140	91	556	324
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	0	692	0	0	280	140	0	647	324
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	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	37.0	37.0		37.0	37.0		53.0	53.0	53.0	53.0	53.0	53.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	41.1%	41.1%		41.1%	41.1%		58.9%	58.9%	58.9%	58.9%	58.9%	58.9%
Maximum Green (s)	29.0	29.0		29.0	29.0		45.0	45.0	45.0	45.0	45.0	45.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5	-1.5		-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5	6.5		6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)		25.9			25.9			35.9	35.9		35.9	35.9
Actuated g/C Ratio		0.34			0.34			0.48	0.48		0.48	0.48
v/c Ratio		0.45			0.79			0.33	0.17		0.81	0.36
Control Delay		23.1			31.1			13.7	2.7		26.2	3.8
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		23.1			31.1			13.7	2.7		26.2	3.8
LOS		C			C			B	A		C	A
Approach Delay		23.1			31.1			10.0			18.7	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		61			155			84	0		264	12
Queue Length 95th (ft)		112			#256			139	27		418	54
Internal Link Dist (ft)		184			89			563			507	
Turn Bay Length (ft)									300			425
Base Capacity (vph)		861			1077			1142	1073		1088	1122
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.37			0.64			0.25	0.13		0.59	0.29

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 75.4
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 21.3
 Intersection LOS: C
 Intersection Capacity Utilization 92.0%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



2035 (ETC+20)
EAST RIVER ROAD SYNCHRO FILES
BASE VOLUMES

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HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	43	63	1100	150	29	309
Future Volume (Veh/h)	43	63	1100	150	29	309
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	70	1222	167	32	343
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1629	1222			1389	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1629	1222			1389	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	68			94	
cM capacity (veh/h)	105	219			493	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	48	70	1222	167	32	343
Volume Left	48	0	0	0	32	0
Volume Right	0	70	0	167	0	0
cSH	105	219	1700	1700	493	1700
Volume to Capacity	0.46	0.32	0.72	0.10	0.06	0.20
Queue Length 95th (ft)	50	33	0	0	5	0
Control Delay (s)	65.7	29.0	0.0	0.0	12.8	0.0
Lane LOS	F	D			B	
Approach Delay (s)	43.9		0.0		1.1	
Approach LOS	E					
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			68.5%	ICU Level of Service	C	
Analysis Period (min)			15			

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↑	↗	↖	↗	
Traffic Volume (vph)	34	70	24	181	22	94	15	898	213	318	464	2
Future Volume (vph)	34	70	24	181	22	94	15	898	213	318	464	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			25			75		
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			0.850			0.850			0.850		0.999	
Flt Protected		0.984			0.957		0.950			0.950		
Satd. Flow (prot)	0	1833	1583	0	1783	1583	1770	1863	1583	1770	1861	0
Flt Permitted		0.573			0.617		0.472			0.078		
Satd. Flow (perm)	0	1067	1583	0	1149	1583	879	1863	1583	145	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			104			237		1	
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		413			797			938			826	
Travel Time (s)		9.4			15.5			14.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	78	27	201	24	104	17	998	237	353	516	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	27	0	225	104	17	998	237	353	518	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	19.0	19.0	19.0	19.0	19.0	19.0	53.0	53.0	53.0	18.0	71.0	

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

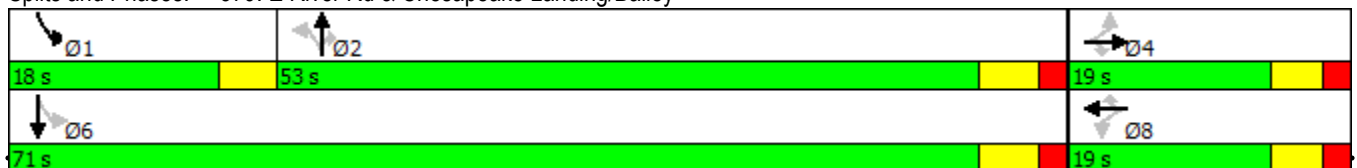


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	21.1%	21.1%	21.1%	21.1%	21.1%	21.1%	58.9%	58.9%	58.9%	20.0%	78.9%	
Maximum Green (s)	13.5	13.5	13.5	13.5	13.5	13.5	47.0	47.0	47.0	14.0	65.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		15.0	15.0		15.0	15.0	48.5	48.5	48.5	68.1	66.1	
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.54	0.54	0.54	0.76	0.74	
v/c Ratio		0.65	0.08		1.17	0.30	0.04	0.99	0.25	0.92	0.38	
Control Delay		54.0	0.5		155.6	9.5	10.1	48.4	2.1	54.2	5.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		54.0	0.5		155.6	9.5	10.1	48.4	2.1	54.2	5.2	
LOS		D	A		F	A	B	D	A	D	A	
Approach Delay		43.9			109.4			39.1			25.0	
Approach LOS		D			F			D			C	
Queue Length 50th (ft)		62	0		~154	0	4	530	0	143	87	
Queue Length 95th (ft)		#139	0		#296	43	14	#827	32	#306	130	
Internal Link Dist (ft)		333			717			858			746	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		178	335		192	351	475	1007	965	391	1381	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.65	0.08		1.17	0.30	0.04	0.99	0.25	0.90	0.38	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 89.6
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 43.6
 Intersection LOS: D
 Intersection Capacity Utilization 93.1%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	16	5	227	118	286	39	668	301	190	171	236
Future Volume (vph)	32	16	5	227	118	286	39	668	301	190	171	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	450		450	450		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			75			100			100		
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		0.962			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1665	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.234			0.742			0.638			0.133		
Satd. Flow (perm)	436	1792	0	1382	1665	0	1188	1863	1583	248	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			151				334			262
Link Speed (mph)		30			40			45				45
Link Distance (ft)		522			925			615				654
Travel Time (s)		11.9			15.8			9.3				9.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	18	6	252	131	318	43	742	334	211	190	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	24	0	252	449	0	43	742	334	211	190	262
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	1		1	1		1	1	1	1	1	1
Detector Template	Left						Left					Right
Leading Detector (ft)	20	50		50	50		50	50	50	50	50	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	50		50	50		50	50	50	50	50	20
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	26.0	26.0		26.0	26.0		44.0	44.0	44.0	10.0	54.0	54.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	32.5%	32.5%		32.5%	32.5%		55.0%	55.0%	55.0%	12.5%	67.5%	67.5%
Maximum Green (s)	20.0	20.0		20.0	20.0		38.0	38.0	38.0	6.0	48.0	48.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0		-2.0	-2.0		-2.0	-3.0	-1.0	-2.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0		4.0	4.0		4.0	3.0	5.0	2.0	3.0	6.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0	4.0	3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	17.1	19.2		19.2	19.2		35.2	36.2	34.2	47.5	46.4	43.4
Actuated g/C Ratio	0.23	0.26		0.26	0.26		0.48	0.50	0.47	0.65	0.64	0.60
v/c Ratio	0.35	0.05		0.69	0.82		0.07	0.80	0.36	0.63	0.16	0.25
Control Delay	35.6	18.0		36.5	31.0		10.8	23.6	2.7	18.0	6.1	1.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	18.0		36.5	31.0		10.8	23.6	2.7	18.0	6.1	1.6
LOS	D	B		D	C		B	C	A	B	A	A
Approach Delay		28.6			32.9			16.9			8.1	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	15	7		111	139		11	283	0	37	34	0
Queue Length 95th (ft)	44	24		#195	#291		27	435	40	#112	59	27
Internal Link Dist (ft)		442			845			535			574	
Turn Bay Length (ft)	200			200			450		450	450		100
Base Capacity (vph)	123	558		428	619		668	1074	1019	333	1336	1153
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.04		0.59	0.73		0.06	0.69	0.33	0.63	0.14	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 72.8
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 19.3
 Intersection LOS: B
 Intersection Capacity Utilization 82.3%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕		↕	↕	
Traffic Volume (vph)	39	5	17	25	1	8	5	824	221	26	744	6
Future Volume (vph)	39	5	17	25	1	8	5	824	221	26	744	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	500		200	350		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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		0.962				0.850		0.968			0.999	
Flt Protected		0.969			0.954		0.950			0.950		
Satd. Flow (prot)	0	1736	0	0	1777	1583	1770	1803	0	1770	1861	0
Flt Permitted		0.791			0.753		0.295			0.150		
Satd. Flow (perm)	0	1417	0	0	1403	1583	550	1803	0	279	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				36		48			2	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1531			754	
Travel Time (s)		7.3			8.4			23.2			11.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	6	19	28	1	9	6	916	246	29	827	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	29	9	6	1162	0	29	834	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	15.5	15.5		15.5	15.5	15.5	26.0	26.0		26.0	26.0	
Total Split (s)	15.8	15.8		15.8	15.8	15.8	74.2	74.2		74.2	74.2	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016

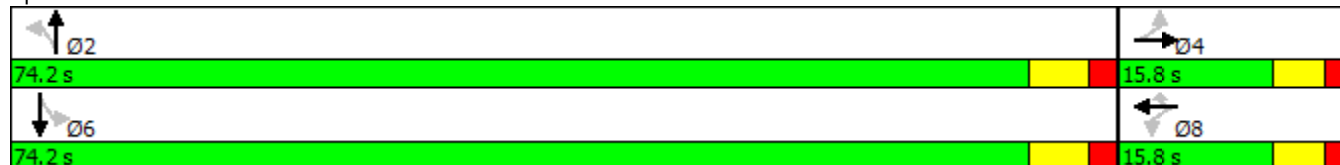


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	17.6%	17.6%		17.6%	17.6%	17.6%	82.4%	82.4%		82.4%	82.4%	
Maximum Green (s)	10.3	10.3		10.3	10.3	10.3	68.2	68.2		68.2	68.2	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0			4.0	4.0	4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		12.5			12.5	12.5	66.1	66.1		66.1	66.1	
Actuated g/C Ratio		0.16			0.16	0.16	0.82	0.82		0.82	0.82	
v/c Ratio		0.29			0.13	0.03	0.01	0.78		0.13	0.55	
Control Delay		31.6			36.7	0.2	2.4	10.6		4.0	5.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		31.6			36.7	0.2	2.4	10.6		4.0	5.3	
LOS		C			D	A	A	B		A	A	
Approach Delay		31.6			28.0			10.6				5.3
Approach LOS		C			C			B				A
Queue Length 50th (ft)		27			15	0	1	300		3	147	
Queue Length 95th (ft)		67			41	0	3	533		11	225	
Internal Link Dist (ft)		242			288			1451			674	
Turn Bay Length (ft)						170	500			350		
Base Capacity (vph)		239			221	280	454	1499		231	1539	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.13	0.03	0.01	0.78		0.13	0.54	

Intersection Summary
























Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 80.6
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 9.4
 Intersection Capacity Utilization 83.9%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service E

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1148	774	59	361	25	470	252	93	20	171	43
Future Volume (vph)	210	1148	774	59	361	25	470	252	93	20	171	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4652	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.437			0.161			0.950			0.584		
Satd. Flow (perm)	787	3421	1583	277	4652	0	3416	1853	1575	1052	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			723		17				145			145
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		593			1821			955			477	
Travel Time (s)		9.0			27.6			14.5			7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	239	1305	880	67	410	28	534	286	106	23	194	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1305	880	67	438	0	534	286	106	23	194	49
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)		24			11			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

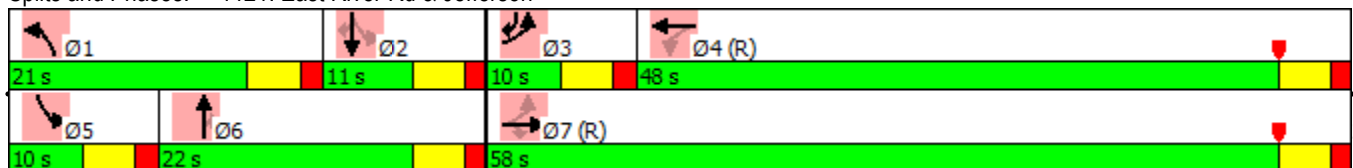


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	10.0	15.0	15.0	15.0	15.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	58.0	58.0	48.0	48.0		21.0	22.0	22.0	10.0	11.0	10.0
Total Split (%)	11.1%	64.4%	64.4%	53.3%	53.3%		23.3%	24.4%	24.4%	11.1%	12.2%	11.1%
Maximum Green (s)	5.0	53.0	53.0	43.0	43.0		16.0	17.0	17.0	5.0	6.0	5.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	54.8	54.8	54.8	44.5	44.5		17.1	24.2	24.2	14.1	7.6	17.9
Actuated g/C Ratio	0.61	0.61	0.61	0.49	0.49		0.19	0.27	0.27	0.16	0.08	0.20
v/c Ratio	0.44	0.63	0.71	0.49	0.19		0.83	0.58	0.20	0.11	0.65	0.11
Control Delay	5.9	7.8	3.1	30.5	12.4		47.0	35.8	3.3	23.8	51.1	0.5
Queue Delay	0.0	0.2	0.5	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	8.1	3.6	30.5	12.4		47.0	35.8	3.3	23.8	51.1	0.5
LOS	A	A	A	C	B		D	D	A	C	D	A
Approach Delay		6.2			14.8			38.5			39.4	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	44	204	57	24	46		150	130	0	9	57	0
Queue Length 95th (ft)	m46	m211	m62	71	64		#214	#259	20	26	#92	0
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	549	2084	1246	136	2308		664	497	528	212	298	431
Starvation Cap Reductn	0	210	105	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.70	0.77	0.49	0.19		0.80	0.58	0.20	0.11	0.65	0.11

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 16.7 Intersection LOS: B
 Intersection Capacity Utilization 71.5% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕		↕	↕
Traffic Volume (vph)	287	369	11	43	79	95	8	516	295	81	105	91
Future Volume (vph)	287	369	11	43	79	95	8	516	295	81	105	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		425
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
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			0.934				0.850			0.850
Flt Protected		0.979			0.990			0.999			0.979	
Satd. Flow (prot)	0	3458	0	0	3273	0	0	1861	1583	0	1824	1583
Flt Permitted		0.730			0.768			0.995			0.503	
Satd. Flow (perm)	0	2578	0	0	2539	0	0	1853	1583	0	937	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			106				282			101
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			549			855	
Travel Time (s)		4.5			2.9			9.4			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	319	410	12	48	88	106	9	573	328	90	117	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	741	0	0	242	0	0	582	328	0	207	101
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	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	40.0	40.0		40.0	40.0		50.0	50.0	50.0	50.0	50.0	50.0

Lanes, Volumes, Timings
1370: E River & 253

11/22/2016

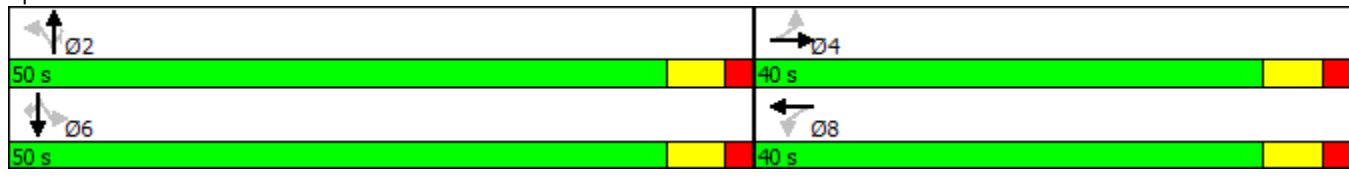


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	44.4%	44.4%		44.4%	44.4%		55.6%	55.6%	55.6%	55.6%	55.6%	55.6%
Maximum Green (s)	34.0	34.0		34.0	34.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5	-1.5		-1.5	-1.5
Total Lost Time (s)		4.5			4.5			4.5	4.5		4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)		25.7			25.7			29.4	29.4		29.4	29.4
Actuated g/C Ratio		0.40			0.40			0.45	0.45		0.45	0.45
v/c Ratio		0.72			0.23			0.69	0.38		0.49	0.13
Control Delay		22.7			9.2			19.7	4.0		17.9	3.1
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		22.7			9.2			19.7	4.0		17.9	3.1
LOS		C			A			B	A		B	A
Approach Delay		22.7			9.2			14.0			13.1	
Approach LOS		C			A			B			B	
Queue Length 50th (ft)		122			16			170	10		53	0
Queue Length 95th (ft)		253			51			337	55		131	24
Internal Link Dist (ft)		184			89			469			775	
Turn Bay Length (ft)									300			425
Base Capacity (vph)		1526			1545			1357	1235		686	1186
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.49			0.16			0.43	0.27		0.30	0.09

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	64.8
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	16.3
Intersection LOS:	B
Intersection Capacity Utilization:	79.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1370: E River & 253



HCM Unsignalized Intersection Capacity Analysis

4: East River & Brooks

11/22/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	130	51	453	82	75	975
Future Volume (Veh/h)	130	51	453	82	75	975
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	144	57	503	91	83	1083
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1752	503			594	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1752	503			594	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	90			92	
cM capacity (veh/h)	86	569			982	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	144	57	503	91	83	1083
Volume Left	144	0	0	0	83	0
Volume Right	0	57	0	91	0	0
cSH	86	569	1700	1700	982	1700
Volume to Capacity	1.67	0.10	0.30	0.05	0.08	0.64
Queue Length 95th (ft)	295	8	0	0	7	0
Control Delay (s)	431.8	12.0	0.0	0.0	9.0	0.0
Lane LOS	F	B			A	
Approach Delay (s)	312.8	0.0		0.6		
Approach LOS	F					
Intersection Summary						
Average Delay	32.4					
Intersection Capacity Utilization	65.2%		ICU Level of Service		C	
Analysis Period (min)	15					

Lanes, Volumes, Timings
 379: E River Rd & Chesapeake Landing/Bailey

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕	↗	↗	↗	↗
Traffic Volume (vph)	9	40	17	224	64	332	23	491	241	96	738	18
Future Volume (vph)	9	40	17	224	64	332	23	491	241	96	738	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	200		300	500		500	475		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			75			75			75		
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			0.850			0.850			0.850		0.996	
Flt Protected		0.991			0.963		0.950			0.950		
Satd. Flow (prot)	0	1846	1583	0	1794	1583	1770	1863	1583	1770	1855	0
Flt Permitted		0.929			0.738		0.216			0.236		
Satd. Flow (perm)	0	1730	1583	0	1375	1583	402	1863	1583	440	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			369			268			2
Link Speed (mph)		30			35			45				45
Link Distance (ft)		413			813			1170				672
Travel Time (s)		9.4			15.8			17.7				10.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	44	19	249	71	369	26	546	268	107	820	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	19	0	320	369	26	546	268	107	840	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								Yes				
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	1	1	1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	15.5	15.5	15.5	15.5	15.5	15.5	16.0	16.0	16.0	14.0	16.0	
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	43.0	43.0	43.0	14.0	57.0	

Lanes, Volumes, Timings

379: E River Rd & Chesapeake Landing/Bailey

11/22/2016

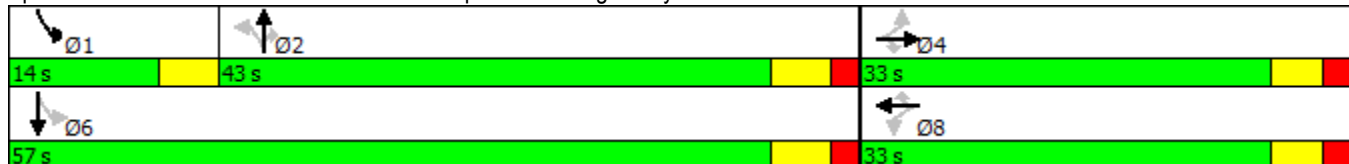


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	47.8%	47.8%	47.8%	15.6%	63.3%	
Maximum Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	37.0	37.0	37.0	10.0	51.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.5	4.5	4.5	2.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	2.0	2.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	Min	
Act Effct Green (s)		23.7	23.7		23.7	23.7	32.4	32.4	32.4	44.7	42.6	
Actuated g/C Ratio		0.31	0.31		0.31	0.31	0.43	0.43	0.43	0.59	0.56	
v/c Ratio		0.10	0.03		0.74	0.49	0.15	0.68	0.32	0.22	0.80	
Control Delay		21.6	0.1		37.6	5.2	18.6	24.7	3.4	8.4	20.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		21.6	0.1		37.6	5.2	18.6	24.7	3.4	8.4	20.5	
LOS		C	A		D	A	B	C	A	A	C	
Approach Delay		16.0			20.2			17.7			19.2	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		20	0		151	0	9	235	0	22	318	
Queue Length 95th (ft)		48	0		#279	60	27	363	43	45	504	
Internal Link Dist (ft)		333			733			1090			592	
Turn Bay Length (ft)			125			300	500		500	475		
Base Capacity (vph)		724	712		575	877	223	1034	998	481	1308	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.07	0.03		0.56	0.42	0.12	0.53	0.27	0.22	0.64	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 75.5
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 18.9
 Intersection LOS: B
 Intersection Capacity Utilization 81.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 379: E River Rd & Chesapeake Landing/Bailey



Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	109	68	239	19	336	12	263	192	338	639	36
Future Volume (vph)	199	109	68	239	19	336	12	263	192	338	639	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		60	450		450	450		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			75			100			100		
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		0.942			0.858				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1755	0	1770	1598	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.376			0.603			0.333			0.348		
Satd. Flow (perm)	700	1755	0	1123	1598	0	620	1863	1583	648	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			373				213			33
Link Speed (mph)		30			40			45				45
Link Distance (ft)		727			805			615				720
Travel Time (s)		16.5			13.7			9.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	221	121	76	266	21	373	13	292	213	376	710	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	197	0	266	394	0	13	292	213	376	710	40
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	1		1	1		1	1	1	1	1	1
Detector Template	Left	Thru			Thru		Left					Right
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0		26.0	26.0		16.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	47.0	47.0		47.0	47.0		32.0	32.0	32.0	21.0	53.0	53.0

Lanes, Volumes, Timings
428: E River Rd & Lehigh Station

11/22/2016

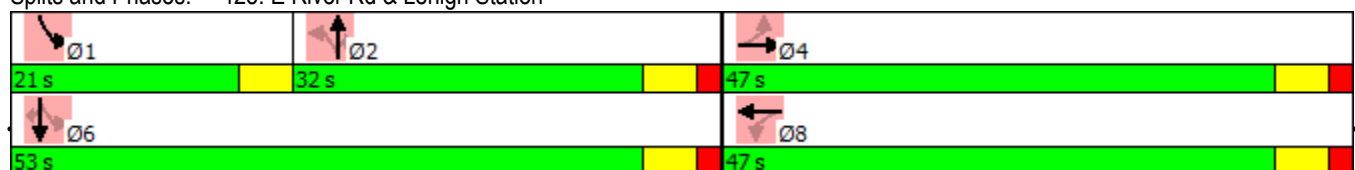


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	47.0%	47.0%		47.0%	47.0%		32.0%	32.0%	32.0%	21.0%	53.0%	53.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		26.0	26.0	26.0	17.0	47.0	47.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	2.5	4.5	4.5
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		3.0	3.0		4.0	4.0	4.0	3.0	4.0	4.0
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	Min
Walk Time (s)				5.0	5.0							
Flash Dont Walk (s)				15.0	15.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	32.0	32.0		32.0	32.0		21.1	21.1	21.1	42.3	40.2	40.2
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.26	0.26	0.26	0.52	0.49	0.49
v/c Ratio	0.81	0.28		0.61	0.46		0.08	0.61	0.38	0.67	0.78	0.05
Control Delay	47.5	15.2		27.5	4.5		28.3	34.8	6.3	20.3	25.7	6.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	15.2		27.5	4.5		28.3	34.8	6.3	20.3	25.7	6.0
LOS	D	B		C	A		C	C	A	C	C	A
Approach Delay		32.3			13.8			22.9			23.2	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	104	56		112	7		6	142	0	120	304	2
Queue Length 95th (ft)	#243	112		209	63		22	247	54	217	523	19
Internal Link Dist (ft)		647			725			535			640	
Turn Bay Length (ft)	200			200			450		450	450		100
Base Capacity (vph)	386	987		620	1049		221	666	702	605	1174	1010
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.20		0.43	0.38		0.06	0.44	0.30	0.62	0.60	0.04

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 81.8
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 22.3 Intersection LOS: C
 Intersection Capacity Utilization 89.8% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 428: E River Rd & Lehigh Station



Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕		↕	↕	
Traffic Volume (vph)	16	5	15	149	15	59	17	761	106	38	725	20
Future Volume (vph)	16	5	15	149	15	59	17	761	106	38	725	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	500		200	350		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			75			75		
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		0.944				0.850		0.982			0.996	
Flt Protected		0.979			0.957		0.950			0.950		
Satd. Flow (prot)	0	1722	0	0	1783	1583	1770	1829	0	1770	1855	0
Flt Permitted		0.848			0.716		0.236			0.162		
Satd. Flow (perm)	0	1491	0	0	1334	1583	440	1829	0	302	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				66		17			3	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		322			368			1685			1209	
Travel Time (s)		7.3			8.4			25.5			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	6	17	166	17	66	19	846	118	42	806	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	183	66	19	964	0	42	828	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	1		1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
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)	50	50		50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.5	24.5		24.5	24.5	24.5	16.0	16.0		16.0	16.0	
Total Split (s)	25.2	25.2		25.2	25.2	25.2	64.8	64.8		64.8	64.8	

Lanes, Volumes, Timings
653: E River Rd & River Meadows/RIT

11/22/2016

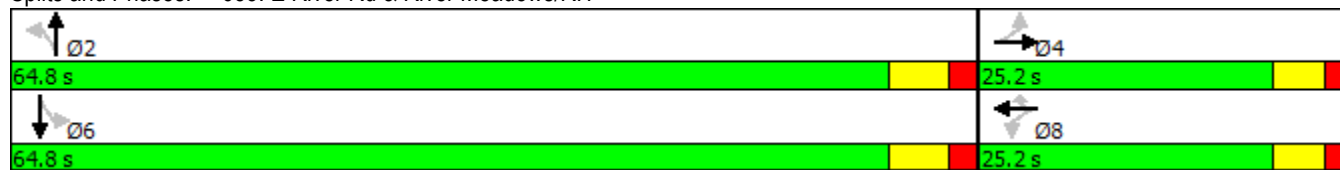


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	28.0%	28.0%		28.0%	28.0%	28.0%	72.0%	72.0%		72.0%	72.0%	
Maximum Green (s)	19.7	19.7		19.7	19.7	19.7	58.8	58.8		58.8	58.8	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)		4.0			4.0	4.0	4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0						
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0						
Pedestrian Calls (#/hr)	0	0		0	0	0						
Act Effct Green (s)		16.9			16.9	16.9	51.3	51.3		51.3	51.3	
Actuated g/C Ratio		0.22			0.22	0.22	0.67	0.67		0.67	0.67	
v/c Ratio		0.12			0.63	0.17	0.06	0.79		0.21	0.67	
Control Delay		19.2			39.1	8.7	5.7	15.1		8.6	11.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		19.2			39.1	8.7	5.7	15.1		8.6	11.3	
LOS		B			D	A	A	B		A	B	
Approach Delay		19.2			31.0			14.9			11.2	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		9			80	0	3	280		7	209	
Queue Length 95th (ft)		37			163	32	11	511		24	368	
Internal Link Dist (ft)		242			288			1605			1129	
Turn Bay Length (ft)						170	500			350		
Base Capacity (vph)		434			377	495	353	1474		242	1492	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.09			0.49	0.13	0.05	0.65		0.17	0.55	

Intersection Summary
























Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	76.9
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	15.4
Intersection LOS:	B
Intersection Capacity Utilization:	73.6%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 653: E River Rd & River Meadows/RIT



Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	602	395	109	1668	35	594	214	101	85	265	339
Future Volume (vph)	45	602	395	109	1668	35	594	214	101	85	265	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	10	10	9	12	12	12	11	12	12
Grade (%)		0%			2%			1%			0%	
Storage Length (ft)	500		0	425		930	780		260	225		275
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	0.95	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1635	4685	0	3416	1853	1575	1711	3539	1583
Flt Permitted	0.097			0.416			0.950			0.620		
Satd. Flow (perm)	175	3421	1583	716	4685	0	3416	1853	1575	1116	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			407		4				145			145
Link Speed (mph)		45			45			45				45
Link Distance (ft)		593			1821			955				477
Travel Time (s)		9.0			27.6			14.5				7.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	621	407	112	1720	36	612	221	104	88	273	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	621	407	112	1756	0	612	221	104	88	273	349
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)		24			11			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.11	1.11	1.16	1.01	1.01	1.01	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	0.0	0.0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	7			4		1	6		5	2	3
Permitted Phases	7		7	4					6	2		2
Detector Phase	3	7	7	4	4		1	6	6	5	2	3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
1121: East River Rd & Jefferson

11/22/2016

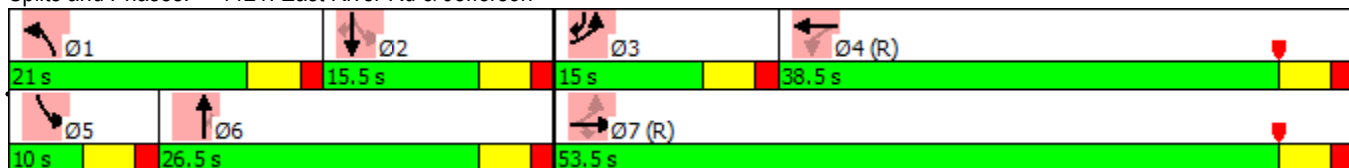


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0		15.5	15.5	15.5	10.0	15.5	15.0
Total Split (s)	15.0	53.5	53.5	38.5	38.5		21.0	26.5	26.5	10.0	15.5	15.0
Total Split (%)	16.7%	59.4%	59.4%	42.8%	42.8%		23.3%	29.4%	29.4%	11.1%	17.2%	16.7%
Maximum Green (s)	10.0	48.5	48.5	33.5	33.5		16.0	21.5	21.5	5.0	10.5	10.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0		2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	Min	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	Min
Act Effct Green (s)	50.6	50.6	50.6	38.8	38.8		17.5	24.4	24.4	17.9	11.4	23.2
Actuated g/C Ratio	0.56	0.56	0.56	0.43	0.43		0.19	0.27	0.27	0.20	0.13	0.26
v/c Ratio	0.19	0.32	0.38	0.36	0.87		0.92	0.44	0.20	0.33	0.61	0.68
Control Delay	8.3	5.8	1.4	22.9	30.0		57.0	31.3	2.9	24.2	43.5	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	5.8	1.4	22.9	30.0		57.0	31.3	2.9	24.2	43.5	23.9
LOS	A	A	A	C	C		E	C	A	C	D	C
Approach Delay		4.2			29.6			45.0			31.4	
Approach LOS		A			C			D			C	
Queue Length 50th (ft)	4	28	0	41	318		177	106	0	33	77	104
Queue Length 95th (ft)	m11	m57	m0	95	#465		#277	175	19	66	118	188
Internal Link Dist (ft)		513			1741			875			397	
Turn Bay Length (ft)	500			425			780		260	225		275
Base Capacity (vph)	294	1924	1068	308	2019		664	503	534	264	471	566
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.32	0.38	0.36	0.87		0.92	0.44	0.19	0.33	0.58	0.62

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 27.1 Intersection LOS: C
 Intersection Capacity Utilization 80.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1121: East River Rd & Jefferson



Lanes, Volumes, Timings
1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕		↕	↕
Traffic Volume (vph)	102	175	9	234	320	72	15	241	128	82	527	292
Future Volume (vph)	102	175	9	234	320	72	15	241	128	82	527	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		425
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
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		0.995			0.983				0.850			0.850
Flt Protected		0.982			0.982			0.997			0.993	
Satd. Flow (prot)	0	3458	0	0	3416	0	0	1857	1583	0	1850	1583
Flt Permitted		0.571			0.722			0.934			0.906	
Satd. Flow (perm)	0	2011	0	0	2512	0	0	1740	1583	0	1688	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17				142			265
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		264			169			643			915	
Travel Time (s)		4.5			2.9			11.0			15.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	113	194	10	260	356	80	17	268	142	91	586	324
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	0	696	0	0	285	142	0	677	324
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	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	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	0.0
Detector 1 Queue (s)	0.0	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	0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	36.0	36.0		36.0	36.0		54.0	54.0	54.0	54.0	54.0	54.0

Lanes, Volumes, Timings

1370: E River & 253

11/22/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Maximum Green (s)	28.0	28.0		28.0	28.0		46.0	46.0	46.0	46.0	46.0	46.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)		-1.5			-1.5			-1.5	-1.5		-1.5	-1.5
Total Lost Time (s)		6.5			6.5			6.5	6.5		6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min		Min	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)		25.9			25.9			37.5	37.5		37.5	37.5
Actuated g/C Ratio		0.34			0.34			0.49	0.49		0.49	0.49
v/c Ratio		0.47			0.81			0.34	0.17		0.82	0.36
Control Delay		24.1			33.1			13.4	2.6		26.8	3.9
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		24.1			33.1			13.4	2.6		26.8	3.9
LOS		C			C			B	A		C	A
Approach Delay		24.1			33.1			9.8			19.4	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)		63			161			86	0		287	16
Queue Length 95th (ft)		115			#283			138	26		438	56
Internal Link Dist (ft)		184			89			563			835	
Turn Bay Length (ft)									300			425
Base Capacity (vph)		803			1010			1115	1066		1082	1110
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.39			0.69			0.26	0.13		0.63	0.29

Intersection Summary

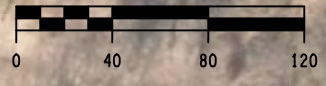
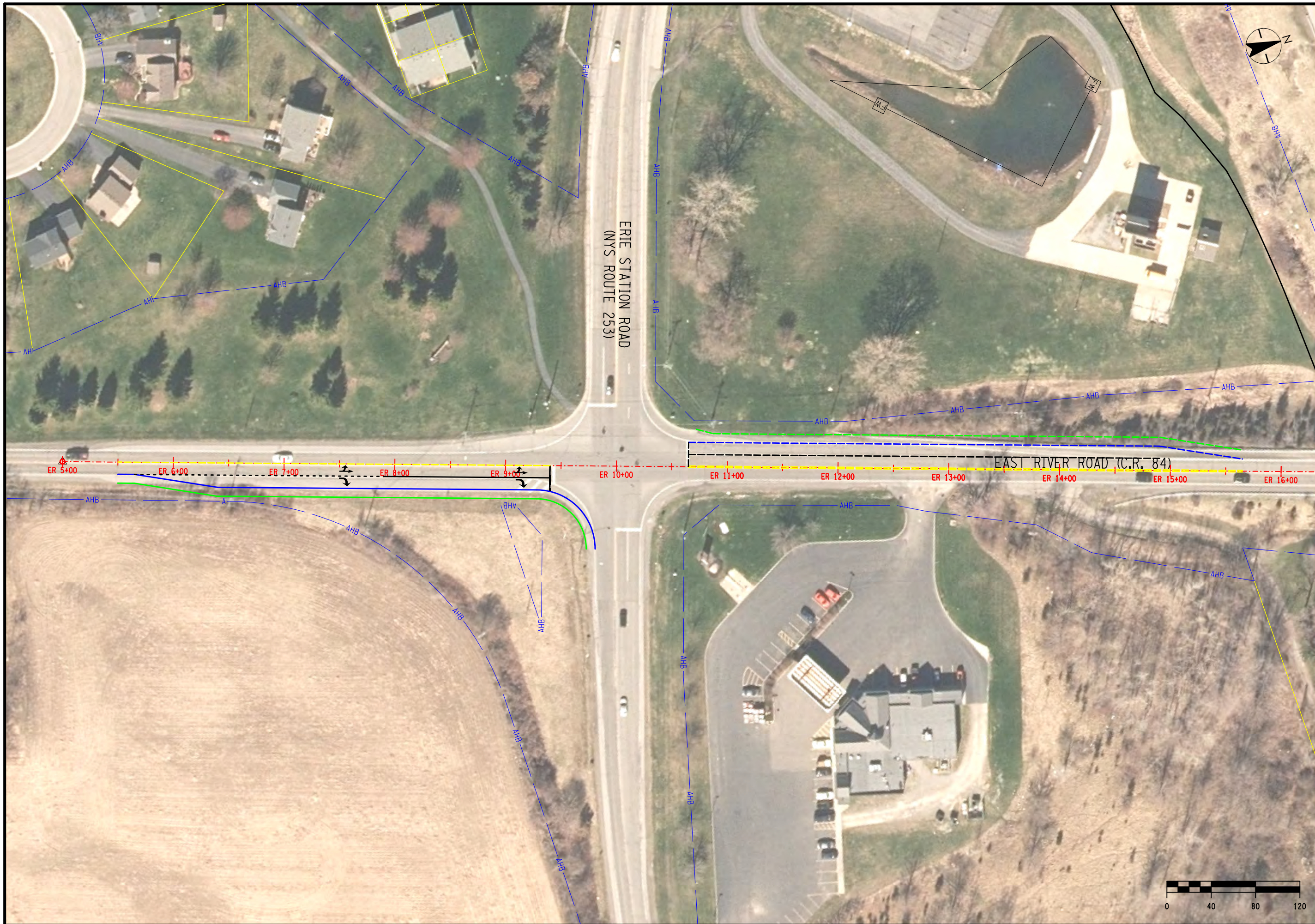
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 77
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 22.2
 Intersection LOS: C
 Intersection Capacity Utilization 93.7%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1370: E River & 253



APPENDIX C
PROPOSED IMPROVEMENT CONCEPTS

Design File: U:\192500398\Transportation\PreliminaryDrawing\Plan Set\2030 Improvements\plan_01.dgn
 Date/Time: 3/13/2018 4:17:09 PM
 Plotted By: rweilnau



<p>Stantec Consulting Services Inc. 61 Commercial Street, Suite 100 Henrietta, NY 14456 Tel: (585) 745-1440 Fax: (585) 272-1814 www.stantec.com</p>		PROJECT MANAGER: R. WEILNAU																
		DRAWN BY: R. WEILNAU																
<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>REVISION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>			NO.	DATE	BY	REVISION												
NO.	DATE	BY	REVISION															
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PROJECT NAME	COUNTY ROAD																	
EAST RIVER ROAD TRAFFIC REVIEW	CR 84																	
LIMITS																		
ERIE STATION ROAD TO JEFFERSON ROAD																		
TOWN																		
HENRIETTA																		
CAPITAL PROJECT NO.																		
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SCALE: 1" = 40' DATE ISSUED: 6/10/2016																		
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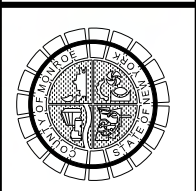
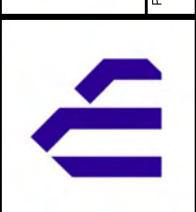
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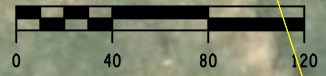
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PROJECT MANAGER: **R. WEILNAU**
 DRAWN BY: **R. WEILNAU**



PROJECT NAME	COUNTY ROAD
EAST RIVER ROAD TRAFFIC REVIEW	CR 84
LIMITS	ERIE STATION ROAD TO JEFFERSON ROAD
TOWN	HENRIETTA
CAPITAL PROJECT NO.	X
EXISTING HIGHWAY	
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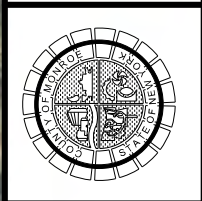
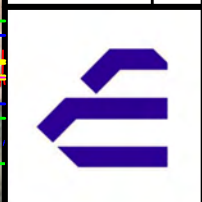
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PROJECT NAME
 EAST RIVER ROAD TRAFFIC REVIEW

LIMITS
 ERIE STATION ROAD TO JEFFERSON ROAD

TOWN
 HENRIETTA

CAPITAL PROJECT NO.
 X



COUNTY ROAD
 CR 84

2020 HIGHWAY IMPROVEMENTS BROOKS

SCALE: 1" = 40'

DATE ISSUED: 6/10/2016

DRAWING NO.
 CPL-3

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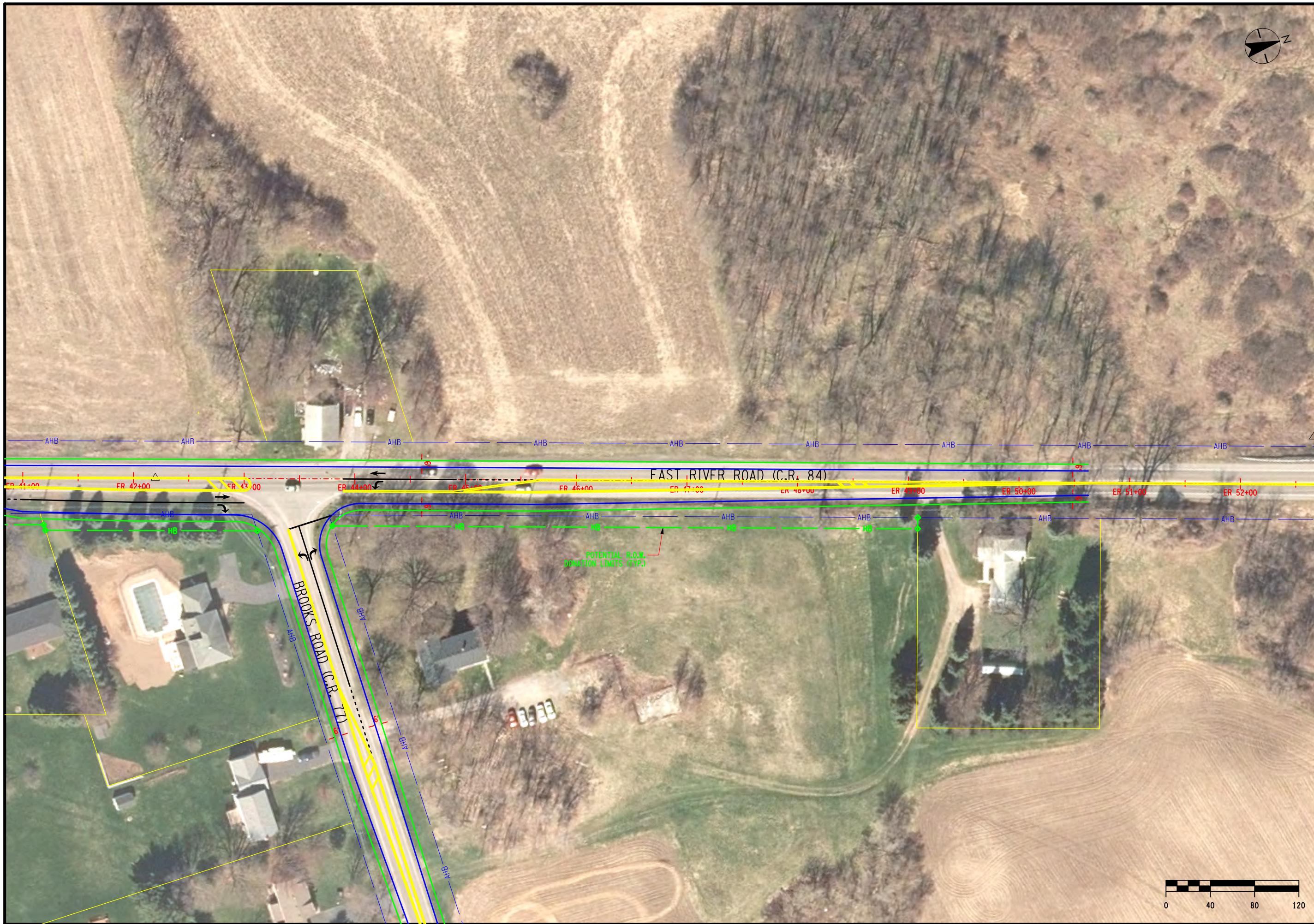
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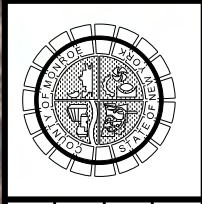
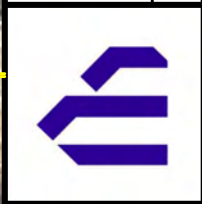
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COUNTY ROAD
 CR 84

PROJECT NAME
 EAST RIVER ROAD TRAFFIC REVIEW

LIMITS
 ERIE STATION ROAD TO JEFFERSON ROAD

TOWN
 HENRIETTA

CAPITAL PROJECT NO.
 X

2020 HIGHWAY IMPROVEMENTS BROOKS

SCALE: 1" = 40'

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DRAWING NO. CPL-4

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PROJECT NAME
 EAST RIVER ROAD TRAFFIC REVIEW

COUNTY ROAD
 CR 84

LIMITS
 ERIE STATION ROAD TO JEFFERSON ROAD

TOWN
 HENRIETTA

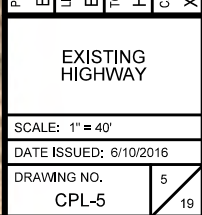
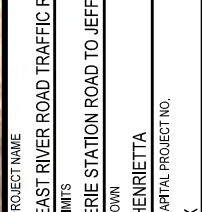
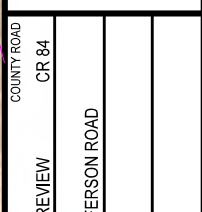
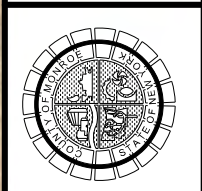
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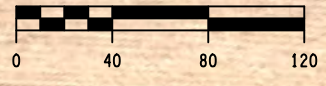
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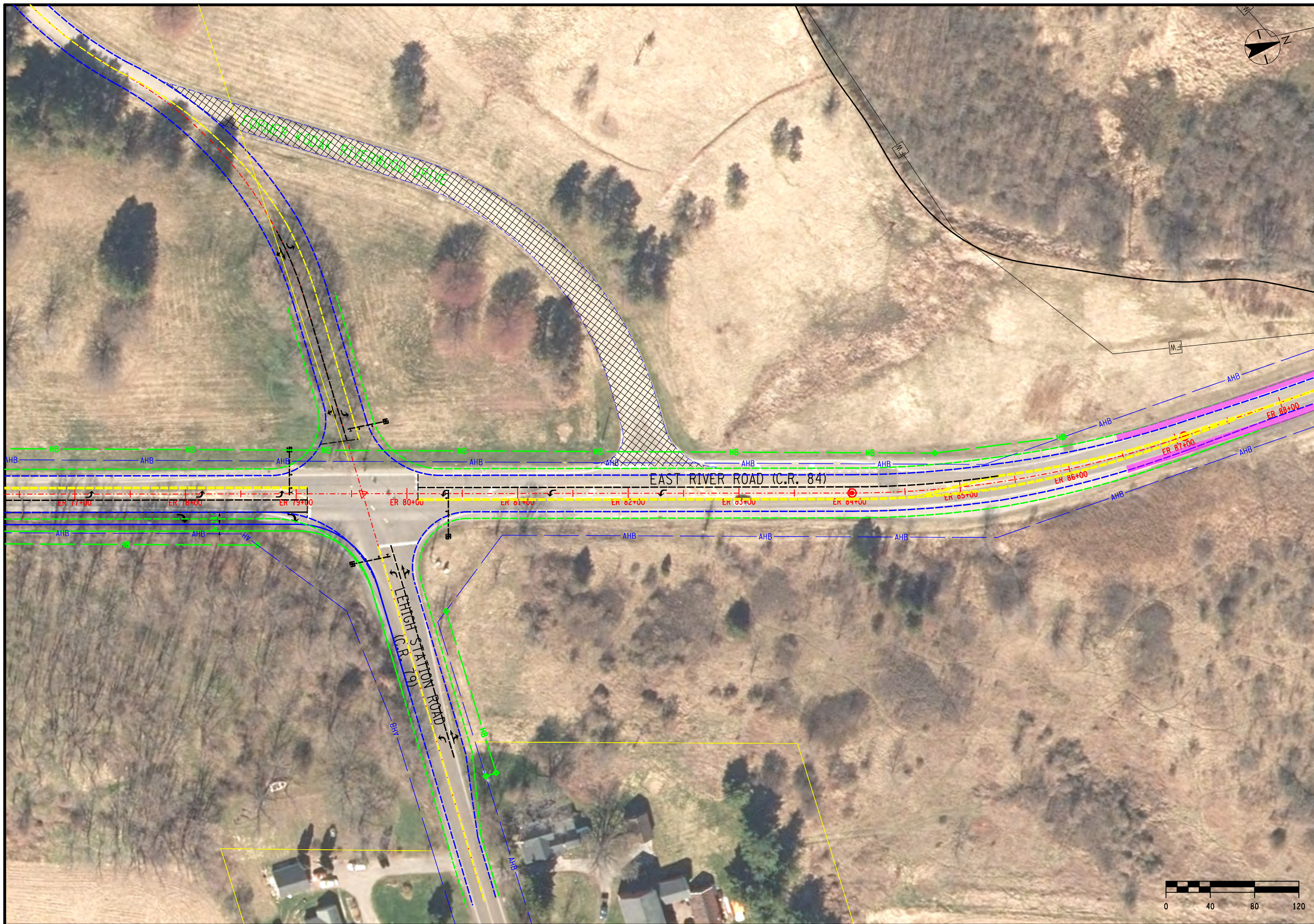


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		COUNTY ROAD CR 84
PROJECT NAME EAST RIVER ROAD TRAFFIC REVIEW		TOWN HENRIETTA
LIMITS ERIE STATION ROAD TO JEFFERSON ROAD		CAPITAL PROJECT NO. X
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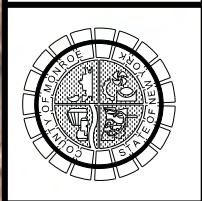
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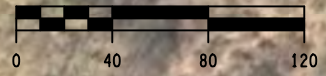
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PROJECT NAME	COUNTY ROAD
EAST RIVER ROAD TRAFFIC REVIEW	CR 84
LIMITS	ERIE STATION ROAD TO JEFFERSON ROAD
TOWN	HENRIETTA
CAPITAL PROJECT NO.	X

2030 HIGHWAY IMPROVEMENTS	
SCALE: 1" = 40'	
DATE ISSUED: 6/10/2016	
DRAWING NO.	7
CPL-7	19

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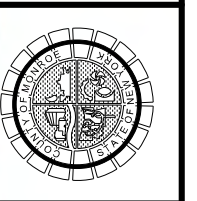


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PROJECT NAME	COUNTY ROAD
EAST RIVER ROAD TRAFFIC REVIEW	CR 84
LIMITS	
ERIE STATION ROAD TO JEFFERSON ROAD	
TOWN	
HENRIETTA	
CAPITAL PROJECT NO.	
	X

2030 HIGHWAY IMPROVEMENTS	
SCALE: 1" = 40'	
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CPL-8	19

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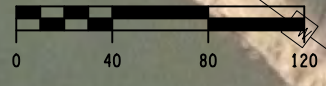
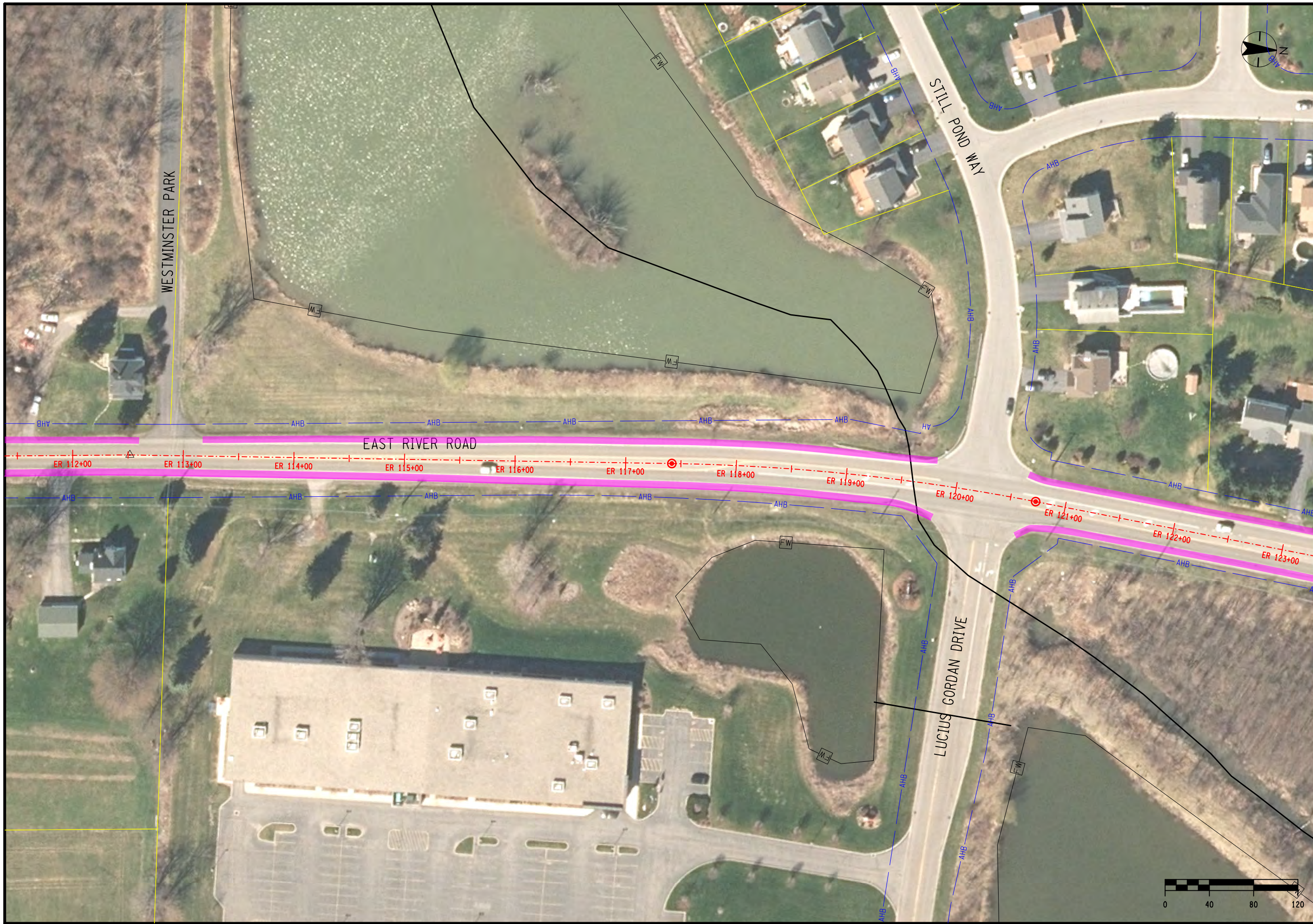
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PROJECT NAME: COUNTY ROAD
 EAST RIVER ROAD TRAFFIC REVIEW CR 84
 LIMITS
 TOWN: HENRIETTA
 CAPITAL PROJECT NO. X

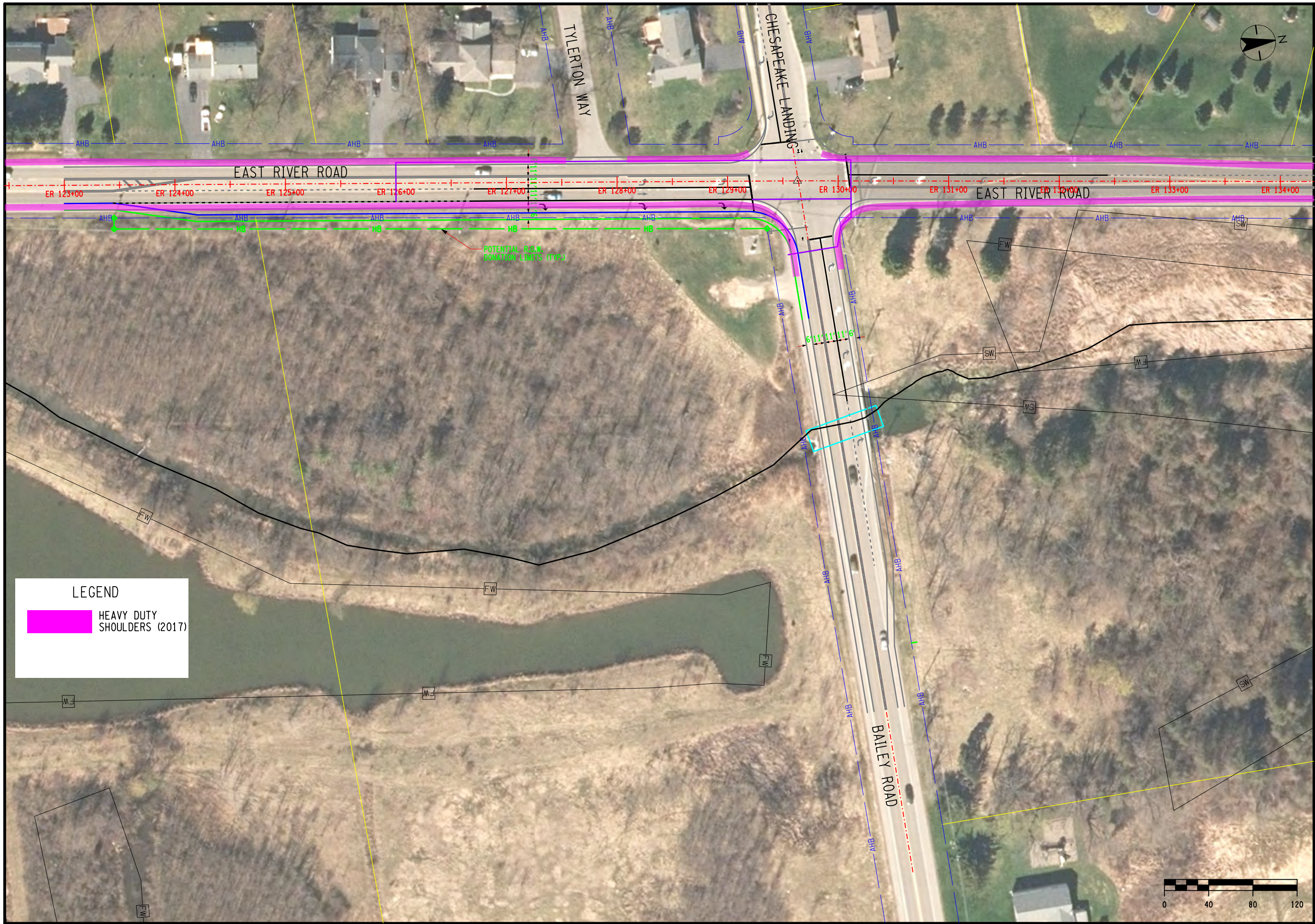
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PROJECT NAME EAST RIVER ROAD TRAFFIC REVIEW	COUNTY ROAD CR 84	NO. DATE BY: REVISION:
LIMITS ERIE STATION ROAD TO JEFFERSON ROAD	TOWN HENRIETTA	
CAPITAL PROJECT NO. CPL-10		
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LEGEND

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NO.	DATE	BY	REVISION

PROJECT NAME: EAST RIVER ROAD TRAFFIC REVIEW
 COUNTY ROAD: CR 84

LIMITS: ERIE STATION ROAD TO JEFFERSON ROAD
 TOWN: HENRIETTA
 CAPITAL PROJECT NO.: X

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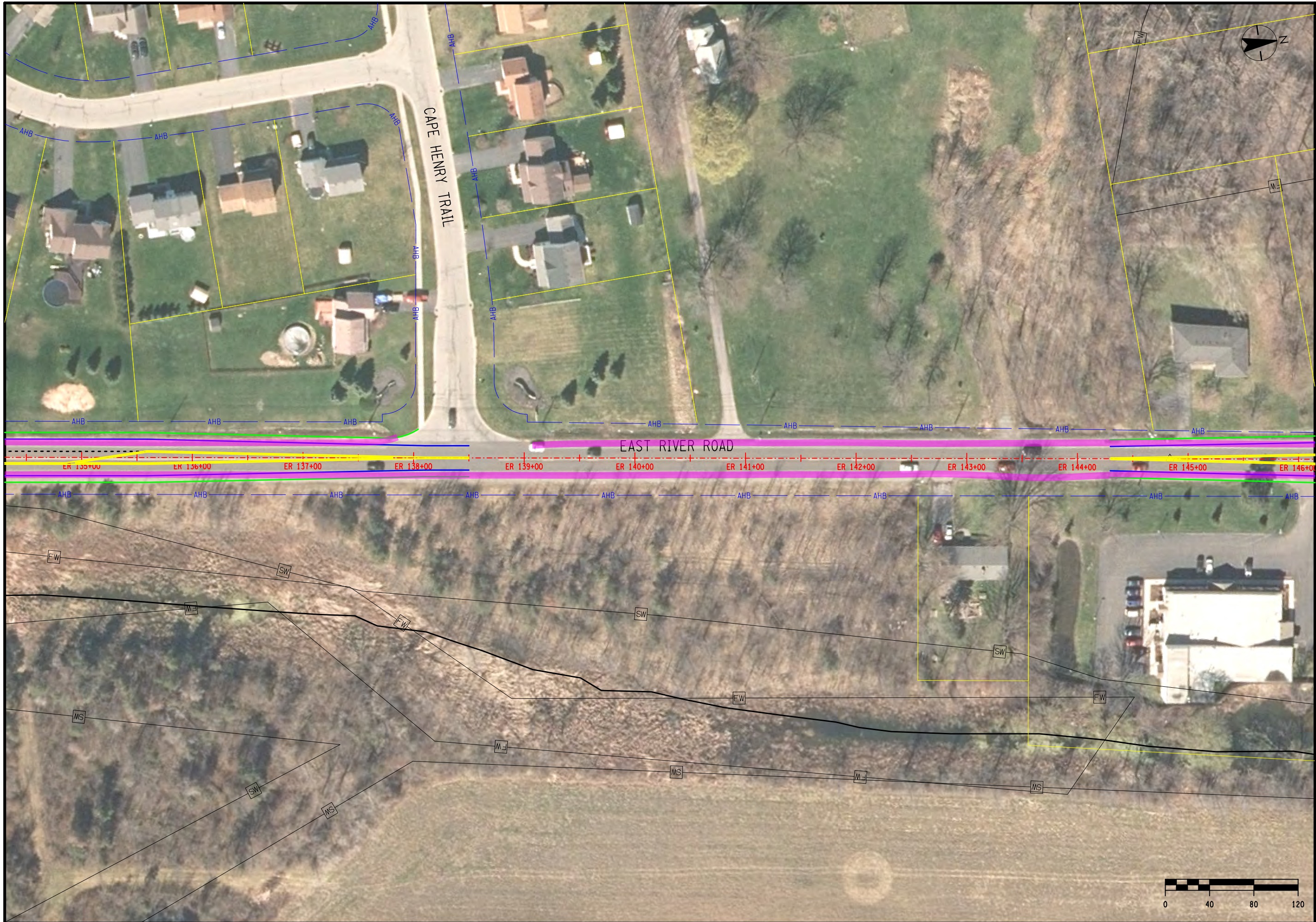
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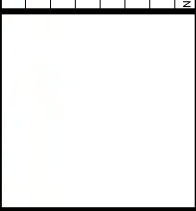
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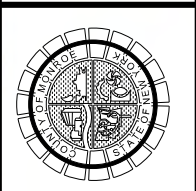
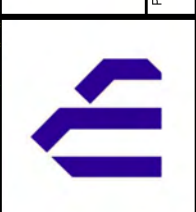
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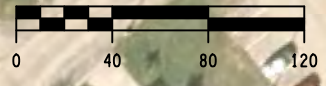
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COUNTY ROAD
 CR 84
 PROJECT NAME
EAST RIVER ROAD TRAFFIC REVIEW
 LIMITS
 ERIE STATION ROAD TO JEFFERSON ROAD
 TOWN
 HENRIETTA
 CAPITAL PROJECT NO.
 X

2025 AND 2030
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 IMPROVEMENTS
 SCALE: 1" = 40'
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 DRAWING NO. CPL-12
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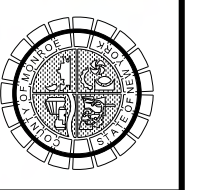
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PROJECT NAME	COUNTY ROAD
EAST RIVER ROAD TRAFFIC REVIEW	CR 84
LIMITS	ERIE STATION ROAD TO JEFFERSON ROAD
TOWN	HENRIETTA
CAPITAL PROJECT NO.	X

2030 HIGHWAY IMPROVEMENTS	
SCALE: 1" = 40'	DATE ISSUED: 6/10/2016
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NO.	DATE	BY	REVISION

PROJECT NAME
 EAST RIVER ROAD TRAFFIC REVIEW

COUNTY ROAD
 CR 84

LIMITS
 ERIE STATION ROAD TO JEFFERSON ROAD

TOWN
 HENRIETTA

CAPITAL PROJECT NO.
 X

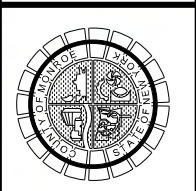
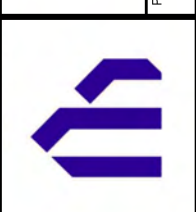
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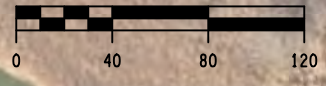
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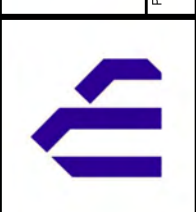
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PROJECT NAME	COUNTY ROAD
EAST RIVER ROAD TRAFFIC REVIEW	CR 84
LIMITS	ERIE STATION ROAD TO JEFFERSON ROAD
TOWN	HENRIETTA
CAPITAL PROJECT NO.	X

SCALE: 1" = 40'
DATE ISSUED: 6/10/2016
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NO.	DATE	BY	REVISION

PROJECT NAME
 EAST RIVER ROAD TRAFFIC REVIEW

COUNTY ROAD
 CR 84

LIMITS
 ERIE STATION ROAD TO JEFFERSON ROAD

TOWN
 HENRIETTA

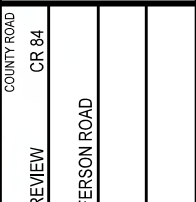
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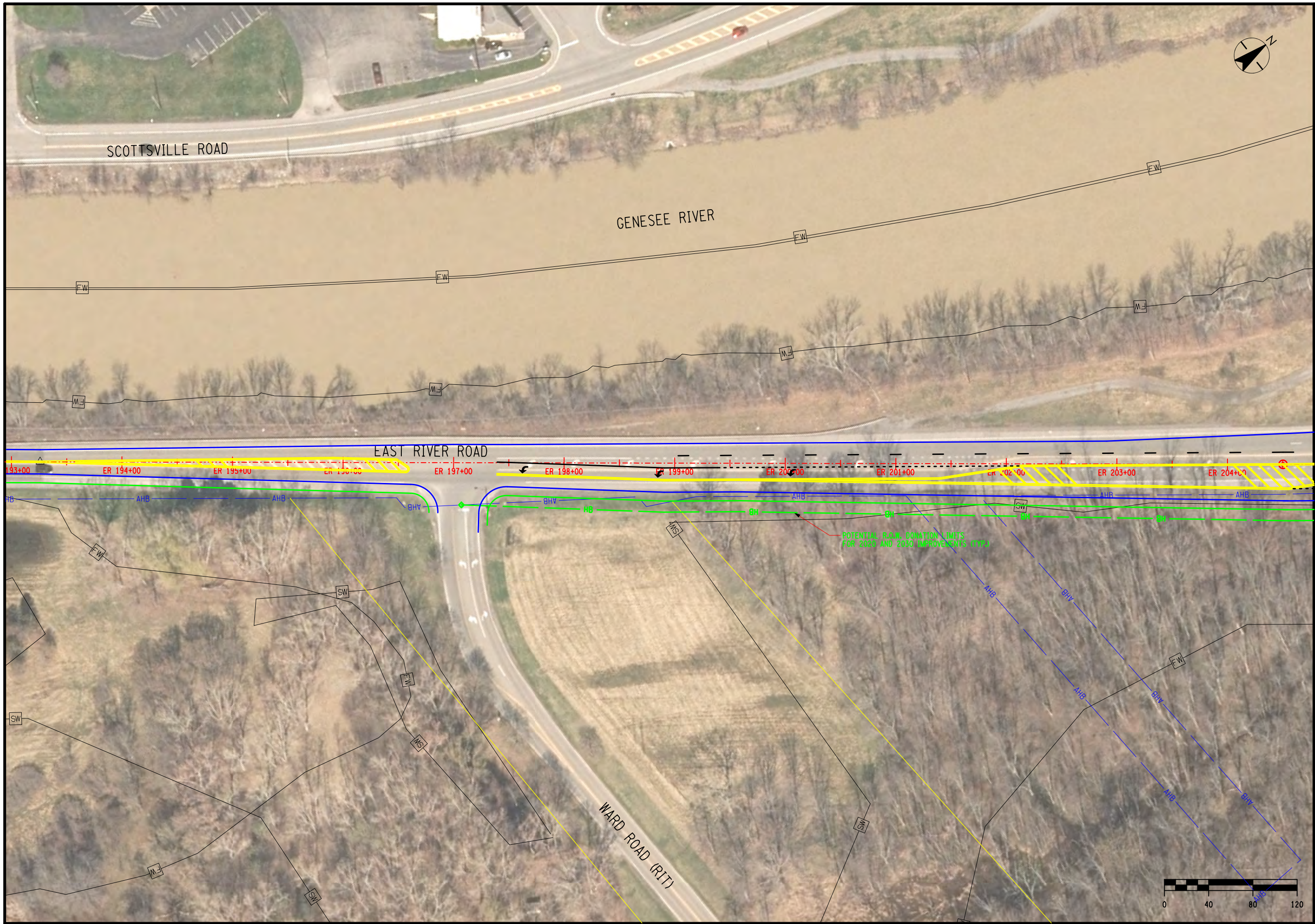
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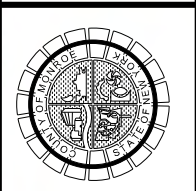
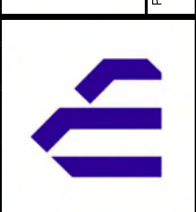
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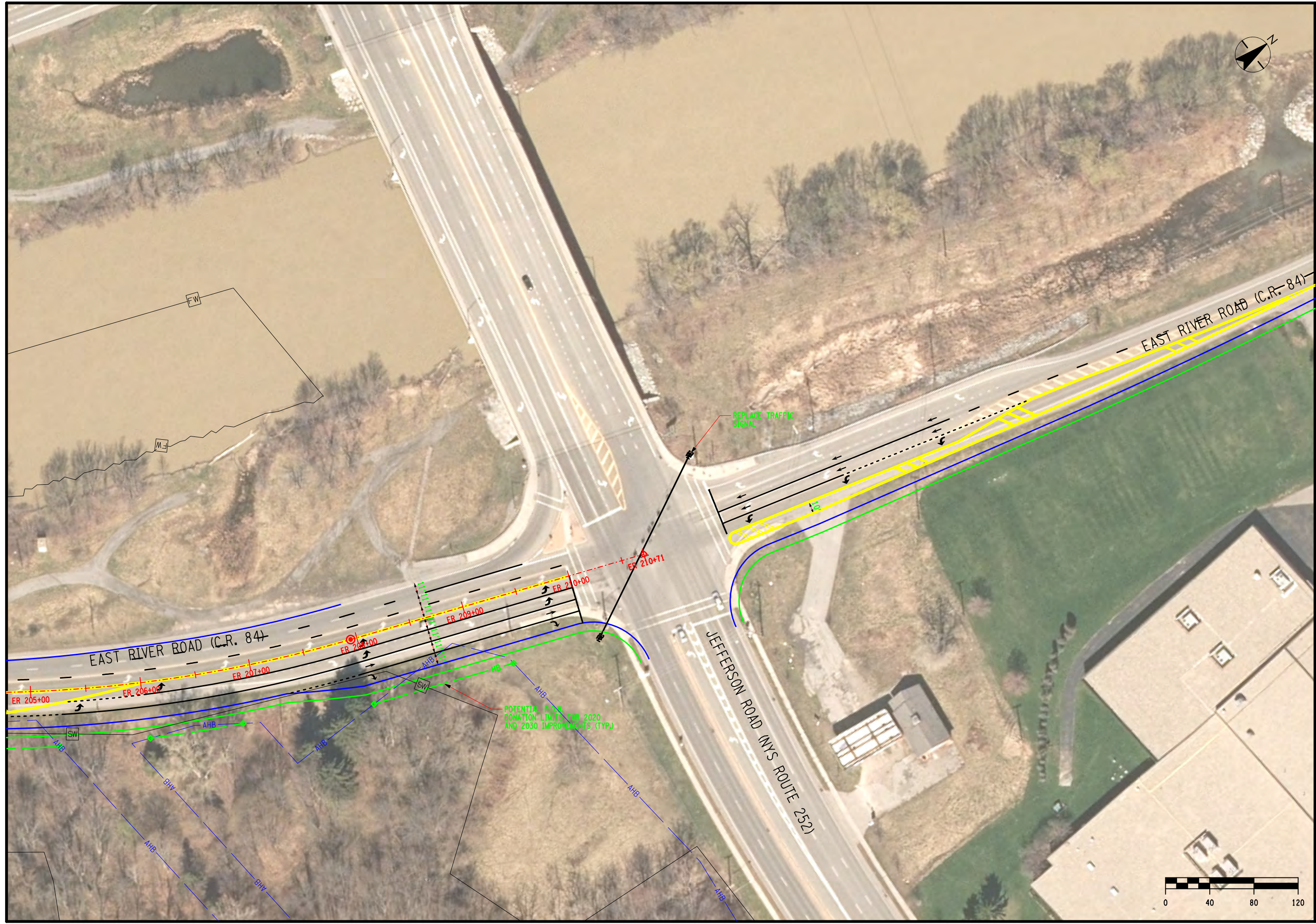
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PROJECT MANAGER: R. WEILNAU
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PROJECT NAME	COUNTY ROAD
EAST RIVER ROAD TRAFFIC REVIEW	CR 84
LIMITS	ERIE STATION ROAD TO JEFFERSON ROAD
TOWN	HENRIETTA
CAPITAL PROJECT NO.	X
2025 HIGHWAY IMPROVEMENTS JEFFERSON	
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DRAWING NO. CPL-17	17
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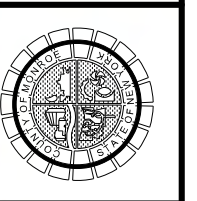
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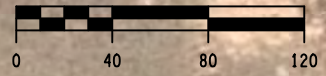
PROJECT MANAGER: R. WEILNAU
DRAWN BY: R. WEILNAU

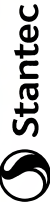




COUNTY ROAD CR 84
PROJECT NAME EAST RIVER ROAD TRAFFIC REVIEW
LIMITS ERIE STATION ROAD TO JEFFERSON ROAD
TOWN HENRIETTA
CAPITAL PROJECT NO. X

2020 HIGHWAY IMPROVEMENTS JEFFERSON
SCALE: 1" = 40'
DATE ISSUED: 6/10/2016
DRAWING NO. CPL-18
18
19

Design File: U:\1925003861\Transportation\Preliminary\Drawing\Plan Set\Existing\cpl_19.dgn
 Date/Time: 6/13/2016 9:23:51 AM
 Plotted By: eturberg



 Stantec Stantec Consulting Services Inc. 61 Commercial Street, Suite 100 Detroit, MI 48226 Tel: (585) 751-1400 Fax: (585) 272-1814 www.stantec.com		PROJECT MANAGER: R. WEILNAU
		PROJECT NAME: EAST RIVER ROAD TRAFFIC REVIEW
		COUNTY ROAD: CR 84
LIMITS: ERIE STATION ROAD TO JEFFERSON ROAD		TOWN: HENRIETTA
CAPITAL PROJECT NO. X		EXISTING HIGHWAY
SCALE: 1" = 40' DATE ISSUED: 6/10/2016		
DRAWING NO. CPL-19	NO. DATE BY: 19	REVISION

APPENDIX D

OPINION OF PROBABLE COST

2020				
Concept Opinion of Probable Cost -East River Road				
Intersection	Section	Area	Unit Cost	Total Cost
Jefferson Road (NYS Route 252)	Clearing and Grubbing	20000	\$1.5	\$30,000
	Lane Widening	10285	\$10	\$102,850
	Shoulder	15400	\$8	\$115,500
	Road/Driveway Culvert	0	\$100	\$0
	Drainage	-	\$20,000	\$20,000
	Milling/Overlay	52000	\$2.0	\$104,000
	Signing/Striping	1000	\$10	\$10,000
	Traffic Signal	-	\$150,000	\$150,000
	RIT Light Poles	2	\$7,500	\$15,000
	Utility (RG&E Poles)	3	\$10,000	\$30,000
			Sub-Total	\$577,350
		Contingency	25.00%	\$144,338
		WZTC	15.00%	\$86,603
		Survey & Stakeout	2.50%	\$14,434
		Mobilization	4.00%	\$23,094
			Sub-Total	\$845,818
			Say	\$900,000
			Construction Inspection (12%)	\$108,000
			Engineering (15%)	\$135,000
			R.O.W.	\$?
		Wetlands	\$?	
		Total	\$1,143,000	

2020				
Erie Station Road (NYS 253)	Clearing and Grubbing	2500	\$1.5	\$3,750
	Lane Widening	1900	\$10	\$19,000
	Shoulder	3000	\$8	\$22,500
	Bailey Road Box Culvert	0	\$100	\$0
	Drainage	-	\$10,000	\$10,000
	Milling/Overlay	3000	\$2.0	\$6,000
	Signing/Striping	500	\$10	\$5,000
	Traffic Signal Mast Arm	1	\$25,000	\$25,000
	Utility Poles	3	\$10,000	\$30,000
			Sub-Total	\$121,250
		Contingency	25.00%	\$30,313
		WZTC	10.00%	\$12,125
		Survey & Stakeout	2.50%	\$3,031
		Mobilization	4.00%	\$4,850
			Total	\$171,569
			Say	\$200,000
			Construction Inspection (12%)	\$24,000
			Engineering (15%)	\$30,000
			R.O.W.	\$?
			Wetlands	\$?
		Total =	\$254,000	

2020				
Concept Opinion of Probable Cost -East River Road				
Intersection	Section	Area	Unit Cost	Total Cost
Brooks Road (CR 77)	Clearing and Grubbing	10000	\$1.5	\$15,000
	Lane Widening	10235	\$10	\$102,350
	Shoulder	11720	\$8	\$87,900
	Road/Driveway Culvert	0	\$100	\$0
	Drainage	-	\$3,000	\$3,000
	Milling/Overlay	12300	\$2.0	\$24,600
	Signing/Striping	500	\$10	\$5,000
	Traffic Signal	-	\$100,000	\$100,000
	Utility		\$10,000	\$0
			Sub-Total	\$337,850
		Contingency	25.00%	\$84,463
		WZTC	10.00%	\$33,785
		Survey & Stakeout	2.50%	\$8,446
		Mobilization	4.00%	\$13,514
			Sub-Total	\$478,058
			Say	\$500,000
		Engineering (15%)		\$75,000
		Construction Inspection (12%)		\$60,000
		R.O.W.		\$?
		Wetlands		\$?
Total =				\$635,000

2020				
Bailey Road (CR 81)	Clearing and Grubbing	0	\$1.5	\$0
	Lane Widening	1300	\$10	\$13,000
	Shoulder	5830	\$8	\$43,725
	Bailey Road Box Culvert	1	\$40,000	\$40,000
	Drainage	1	\$5,000	\$5,000
	Milling/Overlay	55215	\$2.0	\$110,430
	Signing/Striping	1000	\$10	\$10,000
	Traffic Signal Mast Arm	-	\$0	\$0
	Utility Poles	0	\$10,000	\$0
			Sub-Total	\$222,155
		Contingency	25.00%	\$55,539
		WZTC	10.00%	\$22,216
		Survey & Stakeout	2.50%	\$5,554
		Mobilization	4.00%	\$8,886
			Total	\$314,349
			Say	\$400,000
		Construction Inspection (12%)		\$48,000
		Engineering (15%)		\$60,000
		R.O.W.		\$?
		Wetlands		\$?
Total =				\$508,000

2025					
Intersection	Section	Area	Unit Cost	Total Cost	
Bailey Road (CR 81)	Clearing and Grubbing	5000	\$1.5	\$7,500	
	Lane Widening	3000	\$10	\$30,000	
	Shoulder	4000	\$8	\$30,000	
	Road/Driveway Culvert	0	\$8,000	\$0	
	Drainage	-	\$10,000	\$0	
	Milling/Overlay	0	\$2.0	\$0	
	Signing/Striping	700	\$10	\$7,000	
	Traffic Signal	-	\$0	\$0	
	Utility Poles	0	\$15,000	\$0	
				Sub-Total	\$74,500
	Contingency			25.00%	\$18,625
	WZTC			10.00%	\$7,450
	Survey & Stakeout			2.50%	\$1,863
	Mobilization			4.00%	\$2,980
				Sub-Total	\$105,418
				Say	\$110,000
				Engineering (12%)	\$13,200
				Construction Inspection (15%)	\$16,500
				R.O.W.	\$?
				Wetlands	\$?
			Total =	\$139,700	

2025					
Intersection	Section	Area	Unit Cost	Total Cost	
Jefferson Road (NYS Route 252)	Clearing and Grubbing	8000	\$1.5	\$12,000	
	Lane Widening	22935	\$10	\$229,350	
	Shoulder	19490	\$8	\$146,175	
	Road/Driveway Culvert	0	\$100	\$0	
	Drainage	-	\$10,000	\$10,000	
	Milling/Overlay	138237	\$2.0	\$276,474	
	Signing/Striping	1400	\$10	\$14,000	
	Traffic Signal	-	\$150,000	\$150,000	
	Utility	2	\$10,000	\$20,000	
				Sub-Total	\$857,999
	Contingency			20.00%	\$171,600
	WZTC			10.00%	\$85,800
	Survey & Stakeout			2.50%	\$21,450
	Mobilization			4.00%	\$34,320
				Sub-Total	\$1,171,169
				Say	\$1,200,000
				Engineering (12%)	\$144,000
				Construction Inspection (15%)	\$180,000
				R.O.W.	\$?
				Wetlands	\$?
			Total =	\$1,524,000	

2030					
Concept Opinion of Probable Cost -East River Road					
Intersection	Section	Area	Unit Cost	Total Cost	
Erie Station Road (NYS Route 253)	Clearing and Grubbing	1000	\$1.5	\$1,500	
	Lane Widening	4000	\$10	\$40,000	
	Shoulder	3300	\$8	\$24,750	
	Road/Driveway Culvert	0	\$100	\$0	
	Drainage	-	\$10,000	\$10,000	
	Milling/Overlay	0	\$2.0	\$0	
	Signing/Striping	500	\$10	\$5,000	
	Traffic Signal	-	\$0	\$0	
	Utility Poles	0	\$10,000	\$0	
				Sub-Total	\$81,250
	Contingency			25.00%	\$20,313
	WZTC			10.00%	\$8,125
	Survey & Stakeout			2.50%	\$2,031
	Mobilization			4.00%	\$3,250
				Sub-Total	\$114,969
				Say	\$120,000
				Engineering (12%)	\$24,000
				Construction Inspection (15%)	\$18,000
				R.O.W.	\$?
				Wetlands	\$?
Total =				\$162,000	

2030					
Intersection	Section	Area	Unit Cost	Total Cost	
Farnum Lane (RIT)/River Meadow Drive	Clearing and Grubbing	16000	\$1.5	\$24,000	
	Lane Widening	7500	\$10	\$75,000	
	Shoulder	20500	\$8	\$153,750	
	Road/Driveway Culvert	0	\$100	\$0	
	Drainage	-	\$10,000	\$10,000	
	Milling/Overlay	27744	\$2.0	\$55,488	
	Signing/Striping	1200	\$10	\$12,000	
	Traffic Signal	-	\$100,000	\$100,000	
	Utility Poles	0	\$10,000	\$0	
				Sub-Total	\$406,238
	Contingency			25.00%	\$101,560
	WZTC			10.00%	\$40,624
	Survey & Stakeout			2.50%	\$10,156
	Mobilization			4.00%	\$16,250
				Sub-Total	\$574,827
				Say	\$600,000
				Engineering (15%)	\$90,000
				Construction Inspection (12%)	\$72,000
				R.O.W.	\$?
				Wetlands	\$?
Total =				\$762,000	

2030					
Concept Opinion of Probable Cost -East River Road					
Intersection	Section	Area	Unit Cost	Total Cost	
Lehigh Station Road (CR 79)	Clearing and Grubbing	5000	\$1.5	\$7,500	
	Lane Widening	2500	\$10	\$25,000	
	Shoulder	3250	\$8	\$24,375	
	Road/Driveway Culvert	0	\$100	\$0	
	Drainage	-	\$0	\$0	
	Milling/Overlay	0	\$2.0	\$0	
	Signing/Striping	500	\$10	\$5,000	
	Traffic Signal	-	\$100,000	\$0	
	Utility Poles	0	\$10,000	\$0	
			Sub-Total		\$61,875
		Contingency		25.00%	\$15,469
		WZTC		10.00%	\$6,188
		Survey & Stakeout		2.50%	\$1,547
		Mobilization		4.00%	\$2,475
			Sub-Total		\$87,553
			Say		\$90,000
			Construction Inspection (12%)		\$10,800
			Engineering (15%)		\$13,500
			R.O.W.		\$?
			Wetlands		\$?
		Total		\$114,300	