CAPACITY ANALYSIS – 2008 NO-BUILD CONDITIONS

1: I-95 NB On Ramp & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)						4.0			4.0	4.0		
Lane Util. Factor						0.95			1.00	0.91		
Frt						0.95			1.00	1.00		
Flt Protected						0.98			0.95	1.00		
Satd. Flow (prot)						3283			1770	5074		
Flt Permitted						0.98			0.95	1.00		
Satd. Flow (perm)						3283			1770	5074		
Volume (vph)	0	0	0	1	8	5	7	4	313	1597	23	5
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1	9	5	8	4	340	1736	25	5
RTOR Reduction (vph)	0	0	0	0	0	8	0	0	0	1	0	0
Lane Group Flow (vph)	0	0	0	0	0	15	0	0	344	1760	0	0
Turn Type				Split	Split			Prot	Prot			Prot
Protected Phases				8	8	8		1	1	6		5
Permitted Phases												
Actuated Green, G (s)						2.8			23.5	68.0		
Effective Green, g (s)						4.8			24.5	69.0		
Actuated g/C Ratio						0.05			0.27	0.77		
Clearance Time (s)						6.0			5.0	5.0		
Vehicle Extension (s)						3.0			3.0	3.0		
Lane Grp Cap (vph)						175			482	3890		
v/s Ratio Prot						c0.00			c0.19	0.35		
v/s Ratio Perm												
v/c Ratio						0.09			0.71	0.45		
Uniform Delay, d1						40.5			29.6	3.8		
Progression Factor						1.00			0.79	1.52		
Incremental Delay, d2						0.2			3.7	0.3		
Delay (s)						40.7			27.2	6.0		
Level of Service						D			C	A		
Approach Delay (s)		0.0				40.7				9.5		
Approach LOS		A				D				A		

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

1: I-95 NB On Ramp & Chris Columbus Blvd.

Movement	SBL	SBT	SBR
Lane Configurations			
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	4.0	
Lane Util. Factor	1.00	0.91	
Frt	1.00	0.99	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1770	5014	
Flt Permitted	0.95	1.00	
Satd. Flow (perm)	1770	5014	
Volume (vph)	17	1280	132
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	18	1391	143
RTOR Reduction (vph)	0	10	0
Lane Group Flow (vph)	23	1524	0
Turn Type	Prot		
Protected Phases	5	2	
Permitted Phases			
Actuated Green, G (s)	3.2	47.7	
Effective Green, g (s)	4.2	48.7	
Actuated g/C Ratio	0.05	0.54	
Clearance Time (s)	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	83	2713	
v/s Ratio Prot	0.01	c0.30	
v/s Ratio Perm			
v/c Ratio	0.28	0.56	
Uniform Delay, d1	41.4	13.6	
Progression Factor	1.00	1.00	
Incremental Delay, d2	1.8	0.8	
Delay (s)	43.3	14.5	
Level of Service	D	B	
Approach Delay (s)		14.9	
Approach LOS		B	

Intersection Summary

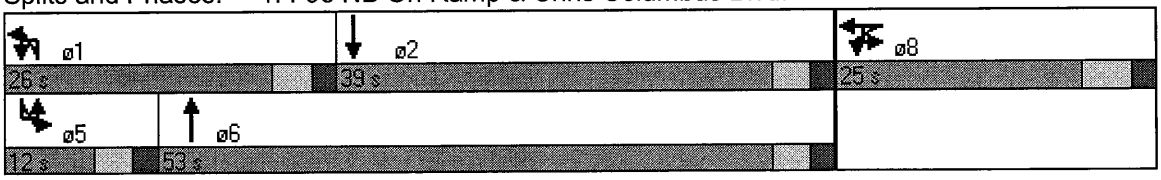
1: I-95 NB On Ramp & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		0		0		152		0	
Storage Lanes	0		0		0		0		1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50		50	50	50		50
Trailing Detector (ft)				0	0	0		0	0	0		0
Turning Speed (mph)	15		9	9	15		9	9	15		9	9
Right Turn on Red			Yes				Yes				Yes	
Link Speed (mph)		30				30				30		
Link Distance (ft)		369				514				1103		
Travel Time (s)		8.4				11.7				25.1		
Volume (vph)	0	0	0	1	8	5	7	4	313	1597	23	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Turn Type				Split	Split			Prot	Prot			Prot
Protected Phases				8	8	8		1	1	6		5
Permitted Phases												
Detector Phases				8	8	8		1	1	6		5
Minimum Initial (s)				7.0	7.0	7.0		4.6	4.6	34.0		4.6
Minimum Split (s)				13.0	13.0	13.0		10.0	10.0	53.0		10.0
Total Split (s)	0.0	0.0	0.0	25.0	25.0	25.0	0.0	26.0	26.0	53.0	0.0	12.0
Total Split (%)	0.0%	0.0%	0.0%	27.8%	27.8%	27.8%	0.0%	28.9%	28.9%	58.9%	0.0%	13.3%
Yellow Time (s)				4.0	4.0	4.0		3.0	3.0	3.0		3.0
All-Red Time (s)				2.0	2.0	2.0		2.0	2.0	2.0		2.0
Lead/Lag								Lead	Lead	Lag		Lead
Lead-Lag Optimize?								Yes	Yes	Yes		Yes
Recall Mode				None	None	None		None	None	C-Min		None

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 81 (90%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-95 NB On Ramp & Chris Columbus Blvd.



1: I-95 NB On Ramp & Chris Columbus Blvd.

Lane Group	SBL	SBT	SBR
Lane Configurations			
Ideal Flow (vphpl)	1900	1900	1900
Storage Length (ft)	320		0
Storage Lanes	1		0
Total Lost Time (s)	4.0	4.0	4.0
Leading Detector (ft)	50	50	
Trailing Detector (ft)	0	0	
Turning Speed (mph)	15		9
Right Turn on Red			Yes
Link Speed (mph)		30	
Link Distance (ft)		527	
Travel Time (s)		12.0	
Volume (vph)	17	1280	132
Peak Hour Factor	0.92	0.92	0.92
Turn Type	Prot		
Protected Phases	5	2	
Permitted Phases			
Detector Phases	5	2	
Minimum Initial (s)	4.6	34.0	
Minimum Split (s)	10.0	39.0	
Total Split (s)	12.0	39.0	0.0
Total Split (%)	13.3%	43.3%	0.0%
Yellow Time (s)	3.0	3.0	
All-Red Time (s)	2.0	2.0	
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	C-Min	

Intersection Summary

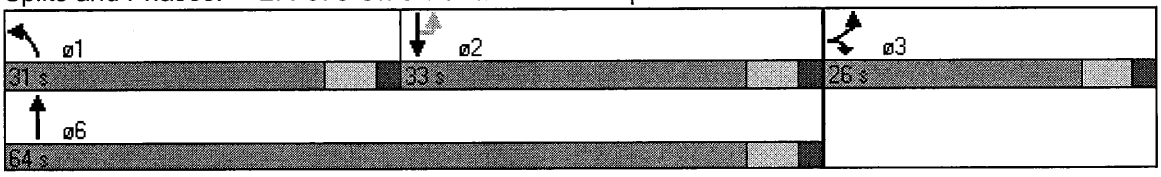
2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150		150		0
Storage Lanes	2	2	1		1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15		9		9
Right Turn on Red		Yes					Yes
Link Speed (mph)	30			30		30	
Link Distance (ft)	589			1367		1103	
Travel Time (s)	13.4			31.1		25.1	
Volume (vph)	139	1101	417	1772	10	1173	110
Peak Hour Factor	0.81	0.92	0.80	0.76	0.92	0.92	0.77
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%	3%
Turn Type		Prot	Prot		Perm		
Protected Phases	3	3	1	6		2	
Permitted Phases					2		
Detector Phases	3	3	1	6	2	2	
Minimum Initial (s)	20.0	20.0	25.0	27.0	27.0	27.0	
Minimum Split (s)	26.0	26.0	31.0	64.0	33.0	33.0	
Total Split (s)	26.0	26.0	31.0	64.0	33.0	33.0	0.0
Total Split (%)	28.9%	28.9%	34.4%	71.1%	36.7%	36.7%	0.0%
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	
Lead/Lag			Lead		Lag	Lag	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6.3 (7%), Referenced to phase 2:SBTU and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.



2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.88	1.00	0.91	1.00	0.91	
Frt	1.00	0.85	1.00	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3433	2787	1736	4988	1752	4960	
Flt Permitted	0.95	1.00	0.95	1.00	0.14	1.00	
Satd. Flow (perm)	3433	2787	1736	4988	254	4960	
Volume (vph)	139	1101	417	1772	10	1173	110
Peak-hour factor, PHF	0.81	0.92	0.80	0.76	0.92	0.92	0.77
Adj. Flow (vph)	172	1197	521	2332	11	1275	143
RTOR Reduction (vph)	0	700	0	0	0	15	0
Lane Group Flow (vph)	172	497	521	2332	11	1403	0
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%	3%
Turn Type		Prot	Prot		Perm		
Protected Phases	3	3	1	6		2	
Permitted Phases					2		
Actuated Green, G (s)	20.0	20.0	25.0	58.0	27.0	27.0	
Effective Green, g (s)	22.0	22.0	27.0	60.0	29.0	29.0	
Actuated g/C Ratio	0.24	0.24	0.30	0.67	0.32	0.32	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	839	681	521	3325	82	1598	
v/s Ratio Prot	0.05	c0.18	c0.30	0.47		c0.28	
v/s Ratio Perm					0.04		
v/c Ratio	0.21	0.73	1.00	0.70	0.13	0.88	
Uniform Delay, d1	27.0	31.3	31.5	9.4	21.6	28.8	
Progression Factor	1.00	1.00	1.18	0.45	0.71	0.68	
Incremental Delay, d2	0.1	3.9	35.2	1.0	2.9	6.3	
Delay (s)	27.2	35.2	72.3	5.2	18.4	25.9	
Level of Service	C	D	E	A	B	C	
Approach Delay (s)	34.2			17.4		25.9	
Approach LOS	C			B		C	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

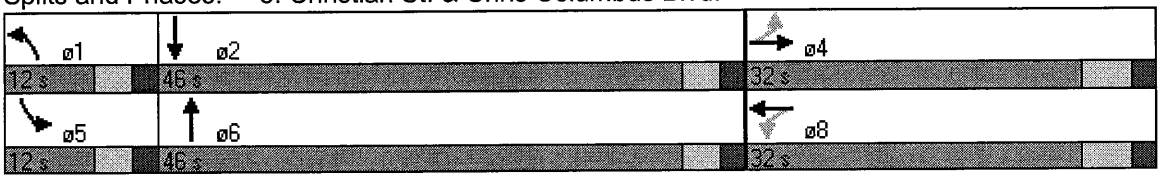
3: Christian St. & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	130		0	90		0
Storage Lanes	0		0	0		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		792			277			631			1367	
Travel Time (s)		18.0			6.3			14.3			31.1	
Volume (vph)	250	0	93	15	3	0	183	1915	10	2	2035	254
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								
Detector Phases	4	4		8	8		1	6		5	2	
Minimum Initial (s)	26.0	26.0		26.0	26.0		7.0	41.0		7.0	41.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		12.0	46.0		12.0	46.0	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	12.0	46.0	0.0	12.0	46.0	0.0
Total Split (%)	35.6%	35.6%	0.0%	35.6%	35.6%	0.0%	13.3%	51.1%	0.0%	13.3%	51.1%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 44.8 (50%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 3: Christian St. & Chris Columbus Blvd.



3: Christian St. & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frt		0.96			1.00		1.00	1.00		1.00	0.98	
Flt Protected		0.96			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1732			1787		1770	5081		1770	5001	
Flt Permitted		0.77			0.77		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1387			1433		1770	5081		1770	5001	
Volume (vph)	250	0	93	15	3	0	183	1915	10	2	2035	254
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	0	101	16	3	0	199	2082	11	2	2212	276
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	358	0	0	19	0	199	2093	0	2	2470	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								
Actuated Green, G (s)		26.0			26.0		7.0	46.6		1.4	41.0	
Effective Green, g (s)		28.0			28.0		8.0	47.6		2.4	42.0	
Actuated g/C Ratio		0.31			0.31		0.09	0.53		0.03	0.47	
Clearance Time (s)		6.0			6.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		432			446		157	2687		47	2334	
v/s Ratio Prot							c0.11	0.41		0.00	c0.49	
v/s Ratio Perm		c0.26			0.01							
v/c Ratio		0.83			0.04		1.27	0.78		0.04	1.06	
Uniform Delay, d1		28.8			21.6		41.0	17.0		42.7	24.0	
Progression Factor		1.00			1.00		1.02	0.62		1.33	0.71	
Incremental Delay, d2		12.3			0.0		132.0	0.5		0.2	31.7	
Delay (s)		41.1			21.7		173.6	11.0		56.8	48.9	
Level of Service		D			C		F	B		E	D	
Approach Delay (s)		41.1			21.7			25.1			48.9	
Approach LOS		D			C			C			D	

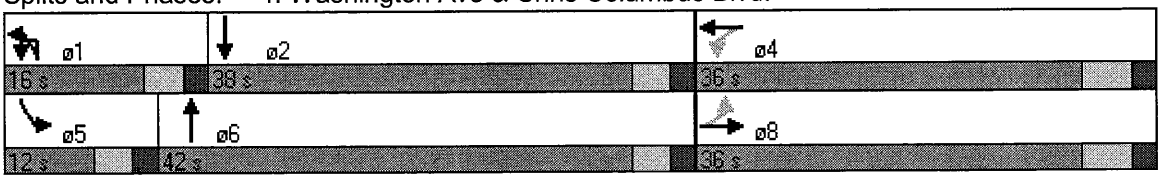
Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

4: Washington Ave & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	12	12	12	10	13
Storage Length (ft)	0		0	0		0		150		0	150	
Storage Lanes	1		0	0		0		1		0	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50		50	50
Trailing Detector (ft)	0	0		0	0		0	0	0		0	0
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		30			30				30			30
Link Distance (ft)		259			507				180			631
Travel Time (s)		5.9			11.5				4.1			14.3
Volume (vph)	599	0	0	20	2	4	21	278	1503	4	3	1378
Peak Hour Factor	0.80	0.92	0.92	0.69	0.69	0.69	0.92	0.92	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	3%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot	Prot			Prot	
Protected Phases		8			4		1	1	6		5	2
Permitted Phases	8			4								
Detector Phases	8	8		4	4		1	1	6		5	2
Minimum Initial (s)	30.0	30.0		30.0	30.0		11.0	11.0	29.0		5.0	29.0
Minimum Split (s)	36.0	36.0		36.0	36.0		16.0	16.0	34.0		10.0	34.0
Total Split (s)	36.0	36.0	0.0	36.0	36.0	0.0	16.0	16.0	42.0	0.0	12.0	38.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	17.8%	17.8%	46.7%	0.0%	13.3%	42.2%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lead/Lag							Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Min		Min	C-Min

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 50.3 (56%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: Washington Ave & Chris Columbus Blvd.



4: Washington Ave & Chris Columbus Blvd.

Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	0
Storage Lanes	0
Total Lost Time (s)	4.0
Leading Detector (ft)	
Trailing Detector (ft)	
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	779
Peak Hour Factor	0.89
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phases	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Yellow Time (s)	
All-Red Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	

Intersection Summary

4: Washington Ave & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	12	12	12	10	13
Total Lost time (s)	4.0				4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00				1.00			1.00	0.91		1.00	0.91
Frt	1.00				0.98			1.00	1.00		1.00	0.95
Flt Protected	0.95				0.96			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1752				2030			1770	5083		1652	4970
Flt Permitted	0.73				0.85			0.95	1.00		0.95	1.00
Satd. Flow (perm)	1351				1797			1770	5083		1652	4970
Volume (vph)	599	0	0	20	2	4	21	278	1503	4	3	1378
Peak-hour factor, PHF	0.80	0.92	0.92	0.69	0.69	0.69	0.92	0.92	0.92	0.92	0.89	0.89
Adj. Flow (vph)	749	0	0	29	3	6	23	302	1634	4	3	1548
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	0	113
Lane Group Flow (vph)	749	0	0	0	34	0	0	325	1638	0	3	2310
Heavy Vehicles (%)	3%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot	Prot			Prot	
Protected Phases		8			4		1	1	6		5	2
Permitted Phases	8			4								
Actuated Green, G (s)	30.0				30.0			11.0	38.2		5.8	33.0
Effective Green, g (s)	32.0				32.0			12.0	39.2		6.8	34.0
Actuated g/C Ratio	0.36				0.36			0.13	0.44		0.08	0.38
Clearance Time (s)	6.0				6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0				3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	480				639			236	2214		125	1878
v/s Ratio Prot								c0.18	0.32		0.00	c0.46
v/s Ratio Perm	c0.55				0.02							
v/c Ratio	1.56				0.05			1.38	0.74		0.02	1.23
Uniform Delay, d1	29.0				19.1			39.0	21.2		38.5	28.0
Progression Factor	1.00				1.00			1.08	0.65		1.13	0.82
Incremental Delay, d2	262.2				0.0			191.3	2.0		0.0	103.9
Delay (s)	291.2				19.1			233.6	15.8		43.5	126.8
Level of Service	F				B			F	B		D	F
Approach Delay (s)		291.2			19.1				51.8			126.7
Approach LOS		F			B				D			F

Intersection Summary			
HCM Average Control Delay	121.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

4: Washington Ave & Chris Columbus Blvd.

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	779
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	875
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

5: I-95 NB Off Ramp & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	148		0		110	
Storage Lanes	2		1	0		0	0		0		1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50					50		50	50	50
Trailing Detector (ft)	0		0					0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Right Turn on Red			Yes			Yes			Yes			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		596			153			487				641
Travel Time (s)		13.5			3.5			11.1				14.6
Volume (vph)	412	0	237	0	0	0	0	1355	0	7	0	1699
Peak Hour Factor	0.94	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.92	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	3%
Turn Type	Prot		Free							Prot	Prot	
Protected Phases	3							6		5	5	2
Permitted Phases			Free									
Detector Phases	3							6		5	5	2
Minimum Initial (s)	32.0							35.0		7.0	7.0	35.0
Minimum Split (s)	38.0							40.0		12.0	12.0	52.0
Total Split (s)	38.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	12.0	12.0	52.0
Total Split (%)	42.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	44.4%	0.0%	13.3%	13.3%	57.8%
Yellow Time (s)	4.0							3.0		3.0	3.0	3.0
All-Red Time (s)	2.0							2.0		2.0	2.0	2.0
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?								Yes		Yes	Yes	
Recall Mode	None							C-Min		None	None	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 90

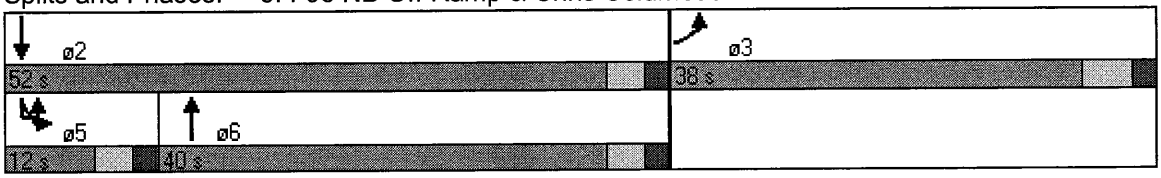
Actuated Cycle Length: 90

Offset: 10.5 (12%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 5: I-95 NB Off Ramp & Chris Columbus Blvd.



5: I-95 NB Off Ramp & Chris Columbus Blvd.

Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Total Lost Time (s)	4.0
Leading Detector (ft)	
Trailing Detector (ft)	
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	0
Peak Hour Factor	0.92
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phases	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Yellow Time (s)	
All-Red Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	

5: I-95 NB Off Ramp & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0			4.0	4.0
Lane Util. Factor	0.97		1.00					0.91			1.00	0.91
Frt	1.00		0.85					1.00			1.00	1.00
Flt Protected	0.95		1.00					1.00			0.95	1.00
Satd. Flow (prot)	3433		1583					5085			1805	5036
Flt Permitted	0.95		1.00					1.00			0.95	1.00
Satd. Flow (perm)	3433		1583					5085			1805	5036
Volume (vph)	412	0	237	0	0	0	0	1355	0	7	0	1699
Peak-hour factor, PHF	0.94	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.92	0.97
Adj. Flow (vph)	438	0	249	0	0	0	0	1473	0	16	0	1752
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	438	0	249	0	0	0	0	1473	0	0	16	1752
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	3%
Turn Type	Prot		Free							Prot	Prot	
Protected Phases	3							6		5	5	2
Permitted Phases			Free									
Actuated Green, G (s)	32.0		90.0					40.6			1.4	47.0
Effective Green, g (s)	34.0		90.0					41.6			2.4	48.0
Actuated g/C Ratio	0.38		1.00					0.46			0.03	0.53
Clearance Time (s)	6.0							5.0			5.0	5.0
Vehicle Extension (s)	3.0							3.0			3.0	3.0
Lane Grp Cap (vph)	1297		1583					2350			48	2686
v/s Ratio Prot	c0.13							0.29			0.01	c0.35
v/s Ratio Perm			0.16									
v/c Ratio	0.34		0.16					0.63			0.33	0.65
Uniform Delay, d1	20.0		0.0					18.3			43.0	15.0
Progression Factor	1.00		1.00					0.48			0.68	1.15
Incremental Delay, d2	0.2		0.2					1.0			1.0	0.3
Delay (s)	20.1		0.2					9.8			30.5	17.6
Level of Service	C		A					A			C	B
Approach Delay (s)		12.9			0.0			9.8				17.7
Approach LOS		B			A			A				B

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

5: I-95 NB Off Ramp & Chris Columbus Blvd.

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	0
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

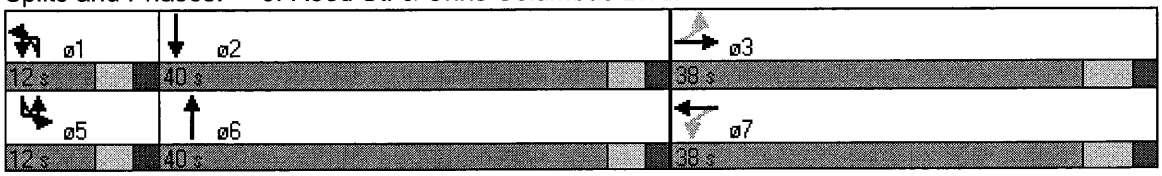
6: Reed St. & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	13	12	12	13	12	10	10	11	12	10	10
Storage Length (ft)	0		0	0		0		100		0		150
Storage Lanes	1		0	0		0		1		0		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50		50	50
Trailing Detector (ft)	0	0		0	0		0	0	0		0	0
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		30			30				30			
Link Distance (ft)		625			893				453			
Travel Time (s)		14.2			20.3				10.3			
Volume (vph)	218	29	128	30	33	22	19	81	1105	18	11	35
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.80	0.47	0.92	0.87
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	4%	2%	2%	4%	4%
Turn Type	Perm			Perm			Prot	Prot			Prot	Prot
Protected Phases		3			7		1	1	6		5	5
Permitted Phases	3			7								
Detector Phases	3	3		7	7		1	1	6		5	5
Minimum Initial (s)	32.0	32.0		32.0	32.0		7.0	7.0	35.0		7.0	7.0
Minimum Split (s)	38.0	38.0		38.0	38.0		12.0	12.0	40.0		12.0	12.0
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	12.0	12.0	40.0	0.0	12.0	12.0
Total Split (%)	42.2%	42.2%	0.0%	42.2%	42.2%	0.0%	13.3%	13.3%	44.4%	0.0%	13.3%	13.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lead/Lag							Lead	Lead	Lag		Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	None

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Reed St. & Chris Columbus Blvd.



6: Reed St. & Chris Columbus Blvd.

Lane Group	SBT	SBR
Lane Configurations	↑↑↑	
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	12
Storage Length (ft)		0
Storage Lanes		0
Total Lost Time (s)	4.0	4.0
Leading Detector (ft)	50	
Trailing Detector (ft)	0	
Turning Speed (mph)		9
Right Turn on Red		Yes
Link Speed (mph)	30	
Link Distance (ft)	487	
Travel Time (s)	11.1	
Volume (vph)	1668	220
Peak Hour Factor	0.97	0.80
Heavy Vehicles (%)	3%	0%
Turn Type		
Protected Phases	2	
Permitted Phases		
Detector Phases	2	
Minimum Initial (s)	35.0	
Minimum Split (s)	40.0	
Total Split (s)	40.0	0.0
Total Split (%)	44.4%	0.0%
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	C-Max	

Intersection Summary

6: Reed St. & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	12	12	13	12	10	10	11	12	10	10
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			4.0
Lane Util. Factor	1.00	1.00			1.00			1.00	0.91			1.00
Frt	1.00	0.88			0.97			1.00	1.00			1.00
Flt Protected	0.95	1.00			0.98			0.95	1.00			0.95
Satd. Flow (prot)	1888	1690			1843			1626	4896			1620
Flt Permitted	0.71	1.00			0.87			0.95	1.00			0.95
Satd. Flow (perm)	1409	1690			1631			1626	4896			1620
Volume (vph)	218	29	128	30	33	22	19	81	1105	18	11	35
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.80	0.47	0.92	0.87
Adj. Flow (vph)	237	32	139	36	39	26	25	108	1381	38	12	40
RTOR Reduction (vph)	0	80	0	0	14	0	0	0	3	0	0	0
Lane Group Flow (vph)	237	91	0	0	87	0	0	133	1416	0	0	52
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	4%	2%	2%	4%	4%
Turn Type	Perm			Perm			Prot	Prot			Prot	Prot
Protected Phases		3			7		1	1	6		5	5
Permitted Phases	3			7								
Actuated Green, G (s)	32.0	32.0			32.0			7.0	36.4			5.6
Effective Green, g (s)	34.0	34.0			34.0			8.0	37.4			6.6
Actuated g/C Ratio	0.38	0.38			0.38			0.09	0.42			0.07
Clearance Time (s)	6.0	6.0			6.0			5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			3.0
Lane Grp Cap (vph)	532	638			616			145	2035			119
v/s Ratio Prot		0.05						c0.08	0.29			0.03
v/s Ratio Perm	c0.17				0.05							
v/c Ratio	0.45	0.14			0.14			0.92	0.70			0.44
Uniform Delay, d1	20.9	18.4			18.4			40.7	21.6			39.9
Progression Factor	1.00	1.00			1.00			1.10	0.77			1.48
Incremental Delay, d2	0.6	0.1			0.1			48.2	1.9			2.1
Delay (s)	21.5	18.5			18.5			92.8	18.5			61.0
Level of Service	C	B			B			F	B			E
Approach Delay (s)		20.3			18.5				24.9			
Approach LOS		C			B				C			

Intersection Summary			
HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

6: Reed St. & Chris Columbus Blvd.

Movement	SBT	SBR
Lane Configurations	↑↑↑	
Ideal Flow (vphpl)	1900	1900
Lane Width	10	12
Total Lost time (s)	4.0	
Lane Util. Factor	0.91	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	4622	
Flt Permitted	1.00	
Satd. Flow (perm)	4622	
Volume (vph)	1668	220
Peak-hour factor, PHF	0.97	0.80
Adj. Flow (vph)	1720	275
RTOR Reduction (vph)	24	0
Lane Group Flow (vph)	1971	0
Heavy Vehicles (%)	3%	0%
Turn Type		
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	35.0	
Effective Green, g (s)	36.0	
Actuated g/C Ratio	0.40	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1849	
v/s Ratio Prot	c0.43	
v/s Ratio Perm		
v/c Ratio	1.07	
Uniform Delay, d1	27.0	
Progression Factor	0.26	
Incremental Delay, d2	39.4	
Delay (s)	46.4	
Level of Service	D	
Approach Delay (s)	46.8	
Approach LOS	D	

Intersection Summary

7: Dickinson St. & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control		Stop			Stop				Free			Free
Grade		0%			0%				0%			0%
Volume (veh/h)	0	0	0	0	0	0	116	100	1220	0	0	1819
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.73	0.75	0.82	0.92	0.92	0.84
Hourly flow rate (vph)	0	0	0	0	0	0	0	133	1488	0	0	2165
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)									450			453
pX, platoon unblocked	0.70	0.70	0.64	0.70	0.70	0.88	0.00	0.64			0.88	
vC, conflicting volume	2944	3936	738	2476	3952	496	0	2198			1488	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2122	3542	0	1452	3565	142	0	1739			1274	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.2			4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			2.2	
p0 queue free %	100	100	100	100	100	100	0	40			100	
cM capacity (veh/h)	10	2	690	33	2	771	0	222			474	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	431	595	595	0	866	866	465
Volume Left	133	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	32
cSH	222	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.60	0.35	0.35	0.00	0.51	0.51	0.27
Queue Length 95th (ft)	86	0	0	0	0	0	0
Control Delay (s)	34.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D						
Approach Delay (s)	9.3			0.0			
Approach LOS							

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	70.4%	ICU Level of Service	C	
Analysis Period (min)	15			

7: Dickinson St. & Chris Columbus Blvd.

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	27
Peak Hour Factor	0.84
Hourly flow rate (vph)	32
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	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

7: Dickinson St. & Chris Columbus Blvd.

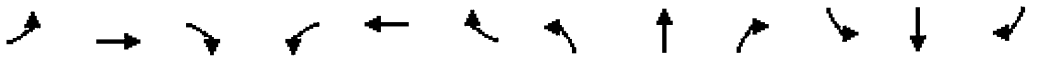
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Link Speed (mph)		30			30				30			30
Link Distance (ft)		611			184				450			453
Travel Time (s)		13.9			4.2				10.2			10.3
Volume (vph)	0	0	0	0	0	0	116	100	1220	0	0	1819
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.73	0.75	0.82	0.92	0.92	0.84
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	2%	2%
Sign Control		Stop			Stop				Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Turning Speed (mph)	9
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	27
Peak Hour Factor	0.84
Heavy Vehicles (%)	2%
Sign Control	

Intersection Summary

8: Tasker St. & Chris Columbus Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↑↑↕			↑↑↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.91			0.91	
Frt		0.94			0.95			1.00			0.99	
Flt Protected		0.98			1.00			1.00			1.00	
Satd. Flow (prot)		1730			1769			5081			5053	
Flt Permitted		0.82			0.97			0.93			1.00	
Satd. Flow (perm)		1437			1723			4746			5053	
Volume (vph)	79	69	109	10	77	46	4	1303	6	0	1762	78
Peak-hour factor, PHF	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.99	0.99
Adj. Flow (vph)	89	78	122	11	84	50	4	1416	7	0	1780	79
RTOR Reduction (vph)	0	22	0	0	21	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	267	0	0	124	0	0	1426	0	0	1854	0
Turn Type	Perm			Perm			Perm					
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		20.0			20.0			59.0			59.0	
Effective Green, g (s)		22.0			22.0			60.0			60.0	
Actuated g/C Ratio		0.24			0.24			0.67			0.67	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		351			421			3164			3369	
v/s Ratio Prot											c0.37	
v/s Ratio Perm		c0.19			0.07			0.30				
v/c Ratio		0.76			0.29			0.45			0.55	
Uniform Delay, d1		31.6			27.7			7.1			7.9	
Progression Factor		1.00			1.00			1.00			0.53	
Incremental Delay, d2		9.4			0.4			0.5			0.3	
Delay (s)		40.9			28.1			7.6			4.5	
Level of Service		D			C			A			A	
Approach Delay (s)		40.9			28.1			7.6			4.5	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

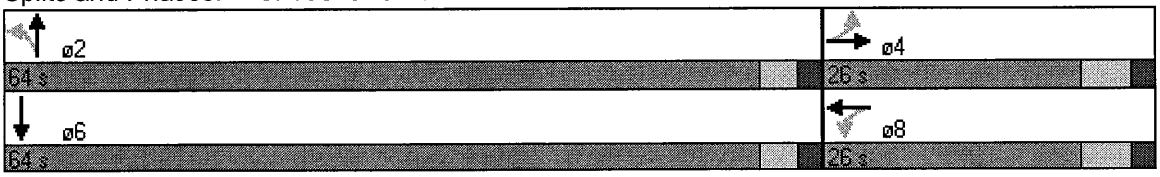
8: Tasker St. & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50			50	
Trailing Detector (ft)	0	0		0	0		0	0			0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			820			229			450	
Travel Time (s)		13.6			18.6			5.2			10.2	
Volume (vph)	79	69	109	10	77	46	4	1303	6	0	1762	78
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.99	0.99
Turn Type	Perm			Perm			Perm					
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phases	4	4		8	8		2	2			6	
Minimum Initial (s)	20.0	20.0		20.0	20.0		59.0	59.0			59.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		64.0	64.0			64.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	64.0	64.0	0.0	0.0	64.0	0.0
Total Split (%)	28.9%	28.9%	0.0%	28.9%	28.9%	0.0%	71.1%	71.1%	0.0%	0.0%	71.1%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0			3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Min	C-Min			C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 8: Tasker St. & Chris Columbus Blvd.



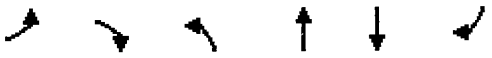
9: Morris St. & Chris Columbus Blvd.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑↑	↱
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	0	0	1313	1456	425
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1427	1583	462
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					229	
pX, platoon unblocked	0.84	0.84	0.84			
vC, conflicting volume	2058	528	2045			
vC1, stage 1 conf vol			0			
vC2, stage 2 conf vol			0			
vCu, unblocked vol	1874	43	1857			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)			3.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	53	851	643			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	476	476	476	528	528	528	462
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	462
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.28	0.28	0.28	0.31	0.31	0.31	0.27
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0			0.0			
Approach LOS							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

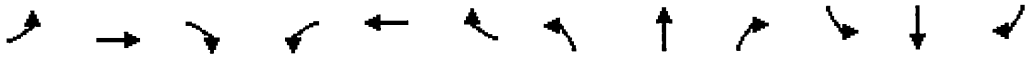
9: Morris St. & Chris Columbus Blvd.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			100
Storage Lanes	0	0	0			1
Turning Speed (mph)	15	9	15			9
Link Speed (mph)	30			30	30	
Link Distance (ft)	195			126	229	
Travel Time (s)	4.4			2.9	5.2	
Volume (vph)	0	0	0	1313	1456	425
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

10: Morris St. & Water St.

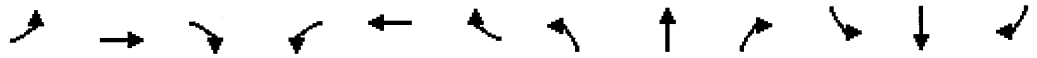


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	411	14	51	390	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	447	15	55	424	0	0	0	0

Direction, Lane #	WB 1	NB 1
Volume Total (vph)	462	479
Volume Left (vph)	0	55
Volume Right (vph)	15	0
Hadj (s)	0.01	0.06
Departure Headway (s)	5.3	5.3
Degree Utilization, x	0.68	0.70
Capacity (veh/h)	660	660
Control Delay (s)	18.6	19.7
Approach Delay (s)	18.6	19.7
Approach LOS	C	C

Intersection Summary			
Delay	19.2		
HCM Level of Service	C		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

10: Morris St. & Water St.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		58			195			116			118	
Travel Time (s)		1.3			4.4			2.6			2.7	
Volume (vph)	0	0	0	0	411	14	51	390	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

1: I-95 NB On Ramp & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0		4.0	4.0
Lane Util. Factor					0.95			1.00	0.91		1.00	0.91
Frt					0.94			1.00	0.99		1.00	0.99
Flt Protected					0.98			0.95	1.00		0.95	1.00
Satd. Flow (prot)					3313			1788	5032		1736	5042
Flt Permitted					0.98			0.95	1.00		0.95	1.00
Satd. Flow (perm)					3313			1788	5032		1736	5042
Volume (vph)	0	0	0	7	3	8	6	417	980	59	27	1147
Peak-hour factor, PHF	0.92	0.92	0.92	0.64	0.64	0.64	0.25	0.95	0.82	0.66	0.65	0.85
Adj. Flow (vph)	0	0	0	11	5	12	24	439	1195	89	42	1349
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	5	0	0	7
Lane Group Flow (vph)	0	0	0	0	17	0	0	463	1279	0	42	1437
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	0%	1%	2%	2%	4%	2%
Turn Type				Split			Prot	Prot			Prot	
Protected Phases				8	8		1	1	6		5	2
Permitted Phases												
Actuated Green, G (s)					2.8			30.0	65.9		5.3	41.2
Effective Green, g (s)					4.8			31.0	66.9		6.3	42.2
Actuated g/C Ratio					0.05			0.34	0.74		0.07	0.47
Clearance Time (s)					6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)					3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)					177			616	3740		122	2364
v/s Ratio Prot					c0.01			c0.26	0.25		0.02	c0.29
v/s Ratio Perm												
v/c Ratio					0.09			0.75	0.34		0.34	0.61
Uniform Delay, d1					40.5			26.1	4.0		39.9	17.8
Progression Factor					1.00			0.70	2.25		1.00	1.00
Incremental Delay, d2					0.2			4.7	0.2		1.7	1.2
Delay (s)					40.8			23.1	9.2		41.6	18.9
Level of Service					D			C	A		D	B
Approach Delay (s)		0.0			40.8				12.9			19.6
Approach LOS		A			D				B			B

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	79
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	95
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

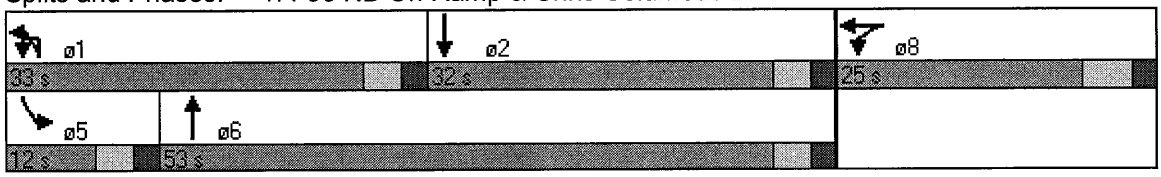
1: I-95 NB On Ramp & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		152		0	320	
Storage Lanes	0		0	0		0		1		0	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50		50	50	50		50	50
Trailing Detector (ft)				0	0		0	0	0		0	0
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		30			30				30			30
Link Distance (ft)		369			514				1103			527
Travel Time (s)		8.4			11.7				25.1			12.0
Volume (vph)	0	0	0	7	3	8	6	417	980	59	27	1147
Peak Hour Factor	0.92	0.92	0.92	0.64	0.64	0.64	0.25	0.95	0.82	0.66	0.65	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	0%	1%	2%	2%	4%	2%
Turn Type				Split			Prot	Prot			Prot	
Protected Phases				8	8		1	1	6		5	2
Permitted Phases												
Detector Phases				8	8		1	1	6		5	2
Minimum Initial (s)				7.0	7.0		5.0	5.0	27.0		5.0	27.0
Minimum Split (s)				13.0	13.0		10.0	10.0	53.0		10.0	32.0
Total Split (s)	0.0	0.0	0.0	25.0	25.0	0.0	33.0	33.0	53.0	0.0	12.0	32.0
Total Split (%)	0.0%	0.0%	0.0%	27.8%	27.8%	0.0%	36.7%	36.7%	58.9%	0.0%	13.3%	35.6%
Yellow Time (s)				4.0	4.0		3.0	3.0	3.0		3.0	3.0
All-Red Time (s)				2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lead/Lag							Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode				None	None		None	None	C-Min		None	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28.9 (32%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-95 NB On Ramp & Chris Columbus Blvd.



1: I-95 NB On Ramp & Chris Columbus Blvd.

Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Total Lost Time (s)	4.0
Leading Detector (ft)	
Trailing Detector (ft)	
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	79
Peak Hour Factor	0.83
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phases	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Yellow Time (s)	
All-Red Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	

Intersection Summary

2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.97	0.88	1.00	0.91		0.91	
Frt	1.00	0.85	1.00	1.00		0.99	
Flt Protected	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (prot)	3400	2814	1787	5085		5064	
Flt Permitted	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (perm)	3400	2814	1787	5085		5064	
Volume (vph)	134	1006	549	1324	0	1058	104
Peak-hour factor, PHF	0.81	0.90	0.94	0.84	0.92	0.93	0.89
Adj. Flow (vph)	165	1118	584	1576	0	1138	117
RTOR Reduction (vph)	0	703	0	0	0	14	0
Lane Group Flow (vph)	165	415	584	1576	0	1241	0
Heavy Vehicles (%)	3%	1%	1%	2%	2%	1%	1%
Turn Type		Prot	Prot		Perm		
Protected Phases	3	3	1	6		2	
Permitted Phases					2		
Actuated Green, G (s)	20.0	20.0	25.0	58.0		27.0	
Effective Green, g (s)	22.0	22.0	27.0	60.0		29.0	
Actuated g/C Ratio	0.24	0.24	0.30	0.67		0.32	
Clearance Time (s)	6.0	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	831	688	536	3390		1632	
v/s Ratio Prot	0.05	c0.15	c0.33	0.31		c0.25	
v/s Ratio Perm							
v/c Ratio	0.20	0.60	1.09	0.46		0.76	
Uniform Delay, d1	27.0	30.1	31.5	7.2		27.4	
Progression Factor	1.00	1.00	1.37	0.26		0.72	
Incremental Delay, d2	0.1	1.5	56.7	0.3		2.9	
Delay (s)	27.1	31.6	100.0	2.1		22.6	
Level of Service	C	C	F	A		C	
Approach Delay (s)	31.0			28.6		22.6	
Approach LOS	C			C		C	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

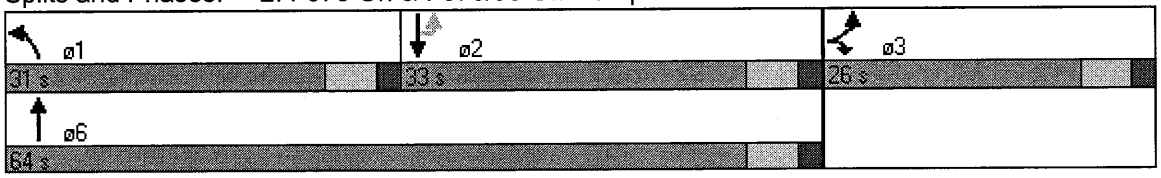
2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150		150		0
Storage Lanes	2	2	1		1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15		9		9
Right Turn on Red		Yes					Yes
Link Speed (mph)	30			30		30	
Link Distance (ft)	589			1367		1103	
Travel Time (s)	13.4			31.1		25.1	
Volume (vph)	134	1006	549	1324	0	1058	104
Peak Hour Factor	0.81	0.90	0.94	0.84	0.92	0.93	0.89
Heavy Vehicles (%)	3%	1%	1%	2%	2%	1%	1%
Turn Type		Prot	Prot		Perm		
Protected Phases	3	3	1	6		2	
Permitted Phases					2		
Detector Phases	3	3	1	6	2	2	
Minimum Initial (s)	20.0	20.0	25.0	27.0	27.0	27.0	
Minimum Split (s)	26.0	26.0	31.0	64.0	33.0	33.0	
Total Split (s)	26.0	26.0	31.0	64.0	33.0	33.0	0.0
Total Split (%)	28.9%	28.9%	34.4%	71.1%	36.7%	36.7%	0.0%
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	
Lead/Lag			Lead		Lag	Lag	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40.8 (45%), Referenced to phase 2:SBTU and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.



3: Christian St. & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.91			1.00	0.91
Frt		0.94			0.98		1.00	1.00			1.00	0.98
Flt Protected		0.97			0.96		0.95	1.00			0.95	1.00
Satd. Flow (prot)		1721			1774		1805	5080			1805	5014
Flt Permitted		0.82			0.76		0.95	1.00			0.61	1.00
Satd. Flow (perm)		1444			1399		1805	5080			1152	5014
Volume (vph)	157	2	142	13	2	2	172	1699	9	5	16	1714
Peak-hour factor, PHF	0.82	0.25	0.89	0.60	0.50	0.50	0.87	0.84	0.56	0.62	0.31	0.95
Adj. Flow (vph)	191	8	160	22	4	4	198	2023	16	8	52	1804
RTOR Reduction (vph)	0	32	0	0	3	0	0	1	0	0	0	30
Lane Group Flow (vph)	0	327	0	0	27	0	198	2038	0	0	60	2112
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%	0%	2%	0%	0%	0%	1%
Turn Type	Perm			Perm			Prot			custom	Prot	
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8						5		
Actuated Green, G (s)		26.0			26.0		7.0	42.4			5.6	41.0
Effective Green, g (s)		28.0			28.0		8.0	43.4			6.6	42.0
Actuated g/C Ratio		0.31			0.31		0.09	0.48			0.07	0.47
Clearance Time (s)		6.0			6.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		449			435		160	2450			84	2340
v/s Ratio Prot							c0.11	0.40				c0.42
v/s Ratio Perm		c0.23			0.02						0.05	
v/c Ratio		0.73			0.06		1.24	0.83			0.71	0.90
Uniform Delay, d1		27.6			21.8		41.0	20.1			40.8	22.1
Progression Factor		1.00			1.00		1.06	0.52			1.06	0.90
Incremental Delay, d2		5.8			0.1		133.5	2.0			15.8	3.9
Delay (s)		33.4			21.8		177.0	12.5			58.9	23.9
Level of Service		C			C		F	B			E	C
Approach Delay (s)		33.4			21.8			27.1				24.8
Approach LOS		C			C			C				C

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

3: Christian St. & Chris Columbus Blvd.

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	328
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	338
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

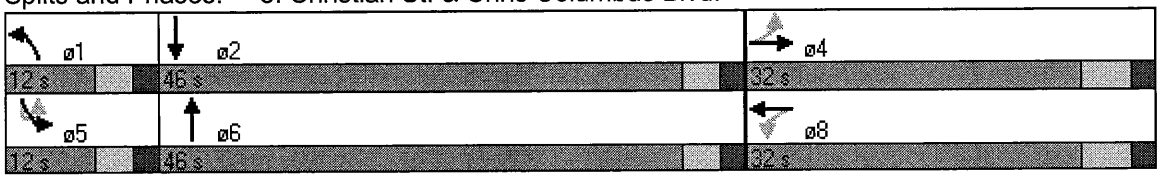
3: Christian St. & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	130		0		90	
Storage Lanes	0		0	0		0	1		0		1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Right Turn on Red			Yes			Yes			Yes			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		792			277			631				1367
Travel Time (s)		18.0			6.3			14.3				31.1
Volume (vph)	157	2	142	13	2	2	172	1699	9	5	16	1714
Peak Hour Factor	0.82	0.25	0.89	0.60	0.50	0.50	0.87	0.84	0.56	0.62	0.31	0.95
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%	0%	2%	0%	0%	0%	1%
Turn Type	Perm			Perm			Prot			custom	Prot	
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8						5		
Detector Phases	4	4		8	8		1	6		5	5	2
Minimum Initial (s)	26.0	26.0		26.0	26.0		7.0	41.0		7.0	7.0	41.0
Minimum Split (s)	32.0	32.0		32.0	32.0		12.0	46.0		12.0	12.0	46.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	12.0	46.0	0.0	12.0	12.0	46.0
Total Split (%)	35.6%	35.6%	0.0%	35.6%	35.6%	0.0%	13.3%	51.1%	0.0%	13.3%	13.3%	51.1%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag							Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	None	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88.1 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Christian St. & Chris Columbus Blvd.



3: Christian St. & Chris Columbus Blvd.

Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Total Lost Time (s)	4.0
Leading Detector (ft)	
Trailing Detector (ft)	
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	328
Peak Hour Factor	0.97
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phases	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Yellow Time (s)	
All-Red Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	

4: Washington Ave & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	12	12	12	12	10
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			4.0
Lane Util. Factor	1.00	1.00			1.00			1.00	0.91			1.00
Frt	1.00	1.00			0.95			1.00	1.00			1.00
Flt Protected	0.95	1.00			0.99			0.95	1.00			0.95
Satd. Flow (prot)	1752	1925			2019			1770	5081			1652
Flt Permitted	0.74	1.00			0.96			0.95	1.00			0.55
Satd. Flow (perm)	1358	1925			1965			1770	5081			953
Volume (vph)	516	4	0	4	4	5	2	326	1355	3	6	0
Peak-hour factor, PHF	0.96	0.25	0.92	0.50	0.33	0.42	0.91	0.91	0.85	0.38	0.75	0.92
Adj. Flow (vph)	538	16	0	8	12	12	2	358	1594	8	8	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	1	0	0	0
Lane Group Flow (vph)	538	16	0	0	25	0	0	360	1601	0	0	8
Heavy Vehicles (%)	3%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot	Prot			custom	Prot
Protected Phases		8			4		1	1	6			5
Permitted Phases	8			4							5	
Actuated Green, G (s)	32.0	32.0			32.0			9.0	35.7			6.3
Effective Green, g (s)	34.0	34.0			34.0			10.0	36.7			7.3
Actuated g/C Ratio	0.38	0.38			0.38			0.11	0.41			0.08
Clearance Time (s)	6.0	6.0			6.0			5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			3.0
Lane Grp Cap (vph)	513	727			742			197	2072			77
v/s Ratio Prot		0.01						c0.20	c0.32			
v/s Ratio Perm	c0.40				0.01							0.01
v/c Ratio	1.05	0.02			0.03			1.83	0.77			0.10
Uniform Delay, d1	28.0	17.6			17.6			40.0	23.0			38.3
Progression Factor	1.00	1.00			1.00			0.90	0.74			1.11
Incremental Delay, d2	53.1	0.0			0.0			388.9	2.5			0.3
Delay (s)	81.1	17.6			17.7			425.1	19.6			42.7
Level of Service	F	B			B			F	B			D
Approach Delay (s)		79.3			17.7				94.0			
Approach LOS		E			B				F			

Intersection Summary			
HCM Average Control Delay	70.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

4: Washington Ave & Chris Columbus Blvd.

Movement	SBT	SBR
Lane Configurations	↑↑↑	
Ideal Flow (vphpl)	1900	1900
Lane Width	13	12
Total Lost time (s)	4.0	
Lane Util. Factor	0.91	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	5067	
Flt Permitted	1.00	
Satd. Flow (perm)	5067	
Volume (vph)	1425	437
Peak-hour factor, PHF	0.92	0.90
Adj. Flow (vph)	1549	486
RTOR Reduction (vph)	63	0
Lane Group Flow (vph)	1972	0
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	33.0	
Effective Green, g (s)	34.0	
Actuated g/C Ratio	0.38	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1914	
v/s Ratio Prot	c0.39	
v/s Ratio Perm		
v/c Ratio	1.03	
Uniform Delay, d1	28.0	
Progression Factor	0.83	
Incremental Delay, d2	22.9	
Delay (s)	46.3	
Level of Service	D	
Approach Delay (s)	46.3	
Approach LOS	D	

Intersection Summary

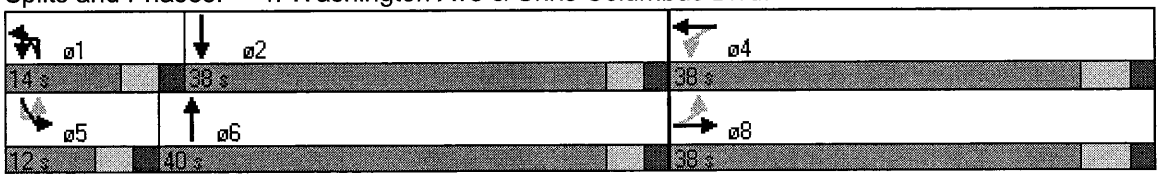
4: Washington Ave & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	12	12	12	12	10
Storage Length (ft)	0		0	0		0		150		0		150
Storage Lanes	1		0	0		0		1		0		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50		50	50
Trailing Detector (ft)	0	0		0	0		0	0	0		0	0
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		30			30				30			
Link Distance (ft)		259			507				180			
Travel Time (s)		5.9			11.5				4.1			
Volume (vph)	516	4	0	4	4	5	2	326	1355	3	6	0
Peak Hour Factor	0.96	0.25	0.92	0.50	0.33	0.42	0.91	0.91	0.85	0.38	0.75	0.92
Heavy Vehicles (%)	3%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot	Prot			custom	Prot
Protected Phases		8			4		1	1	6			5
Permitted Phases	8			4							5	
Detector Phases	8	8		4	4		1	1	6		5	5
Minimum Initial (s)	32.0	32.0		32.0	32.0		9.0	9.0	29.0		5.0	5.0
Minimum Split (s)	38.0	38.0		38.0	38.0		14.0	14.0	34.0		10.0	10.0
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	14.0	14.0	40.0	0.0	12.0	12.0
Total Split (%)	42.2%	42.2%	0.0%	42.2%	42.2%	0.0%	15.6%	15.6%	44.4%	0.0%	13.3%	13.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lead/Lag							Lead	Lead	Lag		Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Min		Min	Min

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 1.3 (1%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 4: Washington Ave & Chris Columbus Blvd.



4: Washington Ave & Chris Columbus Blvd.

Lane Group	SBT	SBR
Lane Configurations	↑↑↑	
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	13	12
Storage Length (ft)		0
Storage Lanes		0
Total Lost Time (s)	4.0	4.0
Leading Detector (ft)	50	
Trailing Detector (ft)	0	
Turning Speed (mph)		9
Right Turn on Red		Yes
Link Speed (mph)	30	
Link Distance (ft)	631	
Travel Time (s)	14.3	
Volume (vph)	1425	437
Peak Hour Factor	0.92	0.90
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases	2	
Permitted Phases		
Detector Phases	2	
Minimum Initial (s)	29.0	
Minimum Split (s)	34.0	
Total Split (s)	38.0	0.0
Total Split (%)	42.2%	0.0%
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	C-Min	

Intersection Summary

5: I-95 NB Off Ramp & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0			4.0	4.0
Lane Util. Factor	0.97		1.00					0.91			1.00	0.91
Frt	1.00		0.85					1.00			1.00	1.00
Flt Protected	0.95		1.00					1.00			0.95	1.00
Satd. Flow (prot)	3433		1568					5085			1805	5136
Flt Permitted	0.95		1.00					1.00			0.95	1.00
Satd. Flow (perm)	3433		1568					5085			1805	5136
Volume (vph)	391	0	211	0	0	0	0	1261	0	24	0	1783
Peak-hour factor, PHF	0.76	0.92	0.72	0.92	0.92	0.92	0.92	0.92	0.92	0.26	0.26	0.96
Adj. Flow (vph)	514	0	293	0	0	0	0	1371	0	92	0	1857
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	514	0	293	0	0	0	0	1371	0	0	92	1857
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	0%	0%	1%
Turn Type	Prot		Free							Prot	Prot	
Protected Phases	3							6		5	5	2
Permitted Phases			Free									
Actuated Green, G (s)	32.0		90.0					36.4			5.6	47.0
Effective Green, g (s)	34.0		90.0					37.4			6.6	48.0
Actuated g/C Ratio	0.38		1.00					0.42			0.07	0.53
Clearance Time (s)	6.0							5.0			5.0	5.0
Vehicle Extension (s)	3.0							3.0			3.0	3.0
Lane Grp Cap (vph)	1297		1568					2113			132	2739
v/s Ratio Prot	c0.15							0.27			0.05	c0.36
v/s Ratio Perm			0.19									
v/c Ratio	0.40		0.19					0.65			0.70	0.68
Uniform Delay, d1	20.5		0.0					21.0			40.7	15.4
Progression Factor	1.00		1.00					0.45			0.72	1.09
Incremental Delay, d2	0.2		0.3					1.3			8.6	0.8
Delay (s)	20.7		0.3					10.7			38.1	17.5
Level of Service	C		A					B			D	B
Approach Delay (s)		13.3			0.0			10.7				18.4
Approach LOS		B			A			B				B

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	0
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

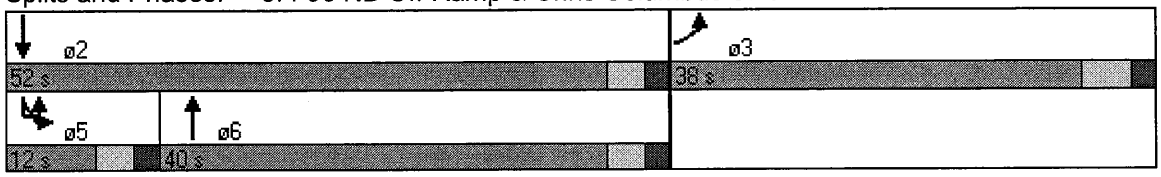
5: I-95 NB Off Ramp & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	148		0		110	
Storage Lanes	2		1	0		0	0		0		1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50					50		50	50	50
Trailing Detector (ft)	0		0					0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Right Turn on Red			Yes			Yes			Yes			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		596			153			487				641
Travel Time (s)		13.5			3.5			11.1				14.6
Volume (vph)	391	0	211	0	0	0	0	1261	0	24	0	1783
Peak Hour Factor	0.76	0.92	0.72	0.92	0.92	0.92	0.92	0.92	0.92	0.26	0.26	0.96
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	0%	0%	1%
Turn Type	Prot		Free							Prot	Prot	
Protected Phases	3							6		5	5	2
Permitted Phases			Free									
Detector Phases	3							6		5	5	2
Minimum Initial (s)	32.0							35.0		7.0	7.0	35.0
Minimum Split (s)	38.0							40.0		12.0	12.0	52.0
Total Split (s)	38.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	12.0	12.0	52.0
Total Split (%)	42.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	44.4%	0.0%	13.3%	13.3%	57.8%
Yellow Time (s)	4.0							3.0		3.0	3.0	3.0
All-Red Time (s)	2.0							2.0		2.0	2.0	2.0
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?								Yes		Yes	Yes	
Recall Mode	None							C-Min		None	None	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 49.9 (55%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: I-95 NB Off Ramp & Chris Columbus Blvd.



5: I-95 NB Off Ramp & Chris Columbus Blvd.

Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Total Lost Time (s)	4.0
Leading Detector (ft)	
Trailing Detector (ft)	
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	0
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phases	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Yellow Time (s)	
All-Red Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	

Intersection Summary

6: Reed St. & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	12	12	13	12	10	10	11	12	10	10
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			4.0
Lane Util. Factor	1.00	1.00			1.00			1.00	0.91			1.00
Frt	1.00	0.87			0.96			1.00	1.00			1.00
Flt Protected	0.95	1.00			0.99			0.95	1.00			0.95
Satd. Flow (prot)	1888	1707			1845			1636	4896			1652
Flt Permitted	0.74	1.00			0.91			0.95	1.00			0.95
Satd. Flow (perm)	1463	1707			1706			1636	4896			1652
Volume (vph)	189	21	158	15	17	17	18	121	1057	20	2	21
Peak-hour factor, PHF	0.87	0.83	1.00	0.70	0.50	0.65	0.92	0.92	0.80	0.47	0.69	0.69
Adj. Flow (vph)	217	25	158	21	34	26	20	132	1321	43	3	30
RTOR Reduction (vph)	0	86	0	0	16	0	0	0	3	0	0	0
Lane Group Flow (vph)	217	97	0	0	65	0	0	152	1361	0	0	33
Heavy Vehicles (%)	2%	1%	0%	2%	0%	0%	3%	3%	2%	0%	2%	2%
Turn Type	Perm			Perm			Prot	Prot			Prot	Prot
Protected Phases		3			7		1	1	6		5	5
Permitted Phases	3			7								
Actuated Green, G (s)	32.0	32.0			32.0			7.0	37.8			4.2
Effective Green, g (s)	34.0	34.0			34.0			8.0	38.8			5.2
Actuated g/C Ratio	0.38	0.38			0.38			0.09	0.43			0.06
Clearance Time (s)	6.0	6.0			6.0			5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			3.0
Lane Grp Cap (vph)	553	645			644			145	2111			95
v/s Ratio Prot		0.06						c0.09	c0.28			0.02
v/s Ratio Perm	c0.15				0.04							
v/c Ratio	0.39	0.15			0.10			1.05	0.64			0.35
Uniform Delay, d1	20.5	18.5			18.1			41.0	20.2			40.8
Progression Factor	1.00	1.00			1.00			1.37	0.75			1.46
Incremental Delay, d2	0.5	0.1			0.1			84.3	1.4			1.8
Delay (s)	20.9	18.6			18.2			140.5	16.4			61.2
Level of Service	C	B			B			F	B			E
Approach Delay (s)		19.8			18.2				28.9			
Approach LOS		B			B				C			

Intersection Summary			
HCM Average Control Delay	54.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

6: Reed St. & Chris Columbus Blvd.

Movement	SBT	SBR
Lane Configurations	↑↑↑↱	
Ideal Flow (vphpl)	1900	1900
Lane Width	10	12
Total Lost time (s)	4.0	
Lane Util. Factor	0.91	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	4657	
Flt Permitted	1.00	
Satd. Flow (perm)	4657	
Volume (vph)	1762	226
Peak-hour factor, PHF	0.94	0.78
Adj. Flow (vph)	1874	290
RTOR Reduction (vph)	23	0
Lane Group Flow (vph)	2141	0
Heavy Vehicles (%)	2%	1%
Turn Type		
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	35.0	
Effective Green, g (s)	36.0	
Actuated g/C Ratio	0.40	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1863	
v/s Ratio Prot	c0.46	
v/s Ratio Perm		
v/c Ratio	1.15	
Uniform Delay, d1	27.0	
Progression Factor	0.27	
Incremental Delay, d2	72.7	
Delay (s)	80.1	
Level of Service	F	
Approach Delay (s)	79.8	
Approach LOS	E	

Intersection Summary

6: Reed St. & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	13	12	12	13	12	10	10	11	12	10	10
Storage Length (ft)	0		0	0		0		100		0		150
Storage Lanes	1		0	0		0		1		0		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50		50	50
Trailing Detector (ft)	0	0		0	0		0	0	0		0	0
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		30			30				30			
Link Distance (ft)		625			893				453			
Travel Time (s)		14.2			20.3				10.3			
Volume (vph)	189	21	158	15	17	17	18	121	1057	20	2	21
Peak Hour Factor	0.87	0.83	1.00	0.70	0.50	0.65	0.92	0.92	0.80	0.47	0.69	0.69
Heavy Vehicles (%)	2%	1%	0%	2%	0%	0%	3%	3%	2%	0%	2%	2%
Turn Type	Perm			Perm			Prot	Prot			Prot	Prot
Protected Phases		3			7		1	1	6		5	5
Permitted Phases	3			7								
Detector Phases	3	3		7	7		1	1	6		5	5
Minimum Initial (s)	32.0	32.0		32.0	32.0		7.0	7.0	35.0		7.0	7.0
Minimum Split (s)	38.0	38.0		38.0	38.0		12.0	12.0	40.0		12.0	12.0
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	12.0	12.0	40.0	0.0	12.0	12.0
Total Split (%)	42.2%	42.2%	0.0%	42.2%	42.2%	0.0%	13.3%	13.3%	44.4%	0.0%	13.3%	13.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lead/Lag							Lead	Lead	Lag		Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max		None	None

Intersection Summary

Area Type: Other

Cycle Length: 90

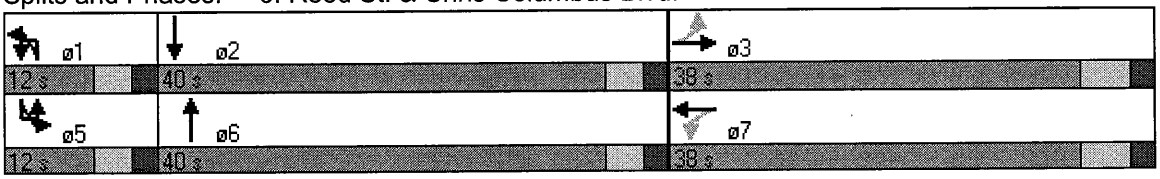
Actuated Cycle Length: 90

Offset: 47.2 (52%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 6: Reed St. & Chris Columbus Blvd.



6: Reed St. & Chris Columbus Blvd.

Lane Group	SBT	SBR
Lane Configurations		
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	12
Storage Length (ft)		0
Storage Lanes		0
Total Lost Time (s)	4.0	4.0
Leading Detector (ft)	50	
Trailing Detector (ft)	0	
Turning Speed (mph)		9
Right Turn on Red		Yes
Link Speed (mph)	30	
Link Distance (ft)	487	
Travel Time (s)	11.1	
Volume (vph)	1762	226
Peak Hour Factor	0.94	0.78
Heavy Vehicles (%)	2%	1%
Turn Type		
Protected Phases	2	
Permitted Phases		
Detector Phases	2	
Minimum Initial (s)	35.0	
Minimum Split (s)	40.0	
Total Split (s)	40.0	0.0
Total Split (%)	44.4%	0.0%
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	C-Max	

Intersection Summary

7: Dickinson St. & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control		Stop			Stop				Free			Free
Grade		0%			0%				0%			0%
Volume (veh/h)	0	0	0	0	0	0	79	109	1215	0	1	1951
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.85	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	125	1429	0	1	2121
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)									450			453
pX, platoon unblocked	0.69	0.69	0.63	0.69	0.69	0.87	0.00	0.63			0.87	
vC, conflicting volume	2850	3803	707	2389	3803	476	0	2121			1429	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1947	3329	0	1279	3329	106	0	1595			1199	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			2.2	
p0 queue free %	100	100	100	100	100	100	0	51			100	
cM capacity (veh/h)	16	3	679	52	3	809	0	255			504	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	411	572	572	1	848	848	424
Volume Left	125	0	0	1	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	255	1700	1700	504	1700	1700	1700
Volume to Capacity	0.49	0.34	0.34	0.00	0.50	0.50	0.25
Queue Length 95th (ft)	63	0	0	0	0	0	0
Control Delay (s)	23.0	0.0	0.0	12.2	0.0	0.0	0.0
Lane LOS	C			B			
Approach Delay (s)	6.1			0.0			
Approach LOS							

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	71.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	0
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
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	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

7: Dickinson St. & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Link Speed (mph)		30			30				30			30
Link Distance (ft)		611			184				450			453
Travel Time (s)		13.9			4.2				10.2			10.3
Volume (vph)	0	0	0	0	0	0	79	109	1215	0	1	1951
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.85	0.92	0.92	0.92
Sign Control		Stop			Stop				Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Turning Speed (mph)	9
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	0
Peak Hour Factor	0.92
Sign Control	

Intersection Summary

8: Tasker St. & Chris Columbus Blvd.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↑↑↕			↑↑↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.91			0.91	
Frt		0.94			0.97			1.00			0.99	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1734			1763			5079			5101	
Flt Permitted		0.75			0.87			0.92			1.00	
Satd. Flow (perm)		1314			1536			4664			5101	
Volume (vph)	91	94	120	18	100	47	6	1267	7	0	1949	85
Peak-hour factor, PHF	0.91	0.83	0.78	0.61	0.77	0.94	0.75	0.88	0.58	0.92	0.94	0.82
Adj. Flow (vph)	100	113	154	30	130	50	8	1440	12	0	2073	104
RTOR Reduction (vph)	0	12	0	0	13	0	0	1	0	0	6	0
Lane Group Flow (vph)	0	355	0	0	197	0	0	1459	0	0	2171	0
Heavy Vehicles (%)	1%	0%	4%	2%	3%	6%	1%	2%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm					
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		20.0			20.0			59.0			59.0	
Effective Green, g (s)		22.0			22.0			60.0			60.0	
Actuated g/C Ratio		0.24			0.24			0.67			0.67	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		321			375			3109			3401	
v/s Ratio Prot											c0.43	
v/s Ratio Perm		c0.27			0.13			0.31				
v/c Ratio		1.11			0.53			0.47			0.64	
Uniform Delay, d1		34.0			29.5			7.3			8.7	
Progression Factor		1.00			1.00			1.00			1.79	
Incremental Delay, d2		81.7			1.3			0.5			0.1	
Delay (s)		115.7			30.8			7.8			15.7	
Level of Service		F			C			A			B	
Approach Delay (s)		115.7			30.8			7.8			15.7	
Approach LOS		F			C			A			B	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

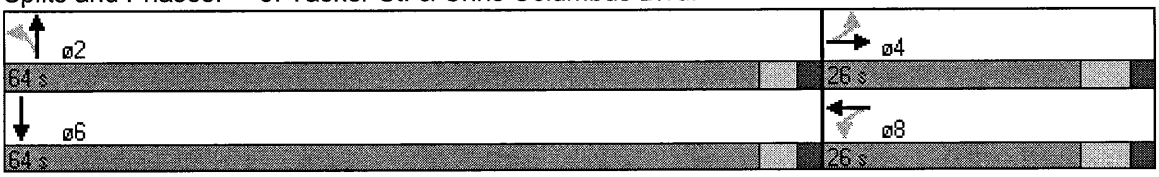
c Critical Lane Group

8: Tasker St. & Chris Columbus Blvd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50			50	
Trailing Detector (ft)	0	0		0	0		0	0			0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			820			229			450	
Travel Time (s)		13.6			18.6			5.2			10.2	
Volume (vph)	91	94	120	18	100	47	6	1267	7	0	1949	85
Peak Hour Factor	0.91	0.83	0.78	0.61	0.77	0.94	0.75	0.88	0.58	0.92	0.94	0.82
Heavy Vehicles (%)	1%	0%	4%	2%	3%	6%	1%	2%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm					
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phases	4	4		8	8		2	2			6	
Minimum Initial (s)	20.0	20.0		20.0	20.0		59.0	59.0			59.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		64.0	64.0			64.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	64.0	64.0	0.0	0.0	64.0	0.0
Total Split (%)	28.9%	28.9%	0.0%	28.9%	28.9%	0.0%	71.1%	71.1%	0.0%	0.0%	71.1%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0			3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Min	C-Min			C-Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 24 (27%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Tasker St. & Chris Columbus Blvd.



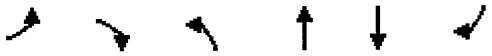
9: Morris St. & Chris Columbus Blvd.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑↑	↱
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	0	0	1280	1623	464
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1391	1764	504
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					229	
pX, platoon unblocked	0.78	0.78	0.78			
vC, conflicting volume	2228	588	2268			
vC1, stage 1 conf vol			0			
vC2, stage 2 conf vol			0			
vCu, unblocked vol	2010	0	2062			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)			3.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	40	845	622			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	464	464	464	588	588	588	504
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	504
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.27	0.27	0.27	0.35	0.35	0.35	0.30
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0			0.0			
Approach LOS							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		

9: Morris St. & Chris Columbus Blvd.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			100
Storage Lanes	0	0	0			1
Turning Speed (mph)	15	9	15			9
Link Speed (mph)	30			30	30	
Link Distance (ft)	209			126	229	
Travel Time (s)	4.8			2.9	5.2	
Volume (vph)	0	0	0	1280	1623	464
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

10: Morris St. & Water St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	449	15	74	680	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	488	16	80	739	0	0	0	0

Direction, Lane #	WB 1	NB 1
Volume Total (vph)	504	820
Volume Left (vph)	0	80
Volume Right (vph)	16	0
Hadj (s)	0.01	0.05
Departure Headway (s)	5.8	5.5
Degree Utilization, x	0.81	1.26
Capacity (veh/h)	615	661
Control Delay (s)	28.8	148.0
Approach Delay (s)	28.8	148.0
Approach LOS	D	F

Intersection Summary			
Delay	102.6		
HCM Level of Service	F		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

10: Morris St. & Water St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		44			209			150			142	
Travel Time (s)		1.0			4.8			3.4			3.2	
Volume (vph)	0	0	0	0	449	15	74	680	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	