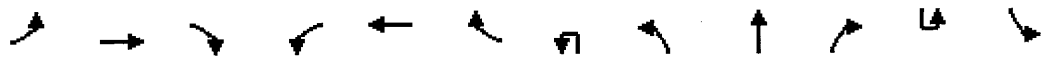
CAPACITY ANALYSIS – PHASE II WITHOUT DICKINSON STREET RAMP

1: I-95 NB On Ramp & 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
Total Lost time (s)					4.0			4.0	4.0			4.0
Lane Util. Factor					0.95			1.00	0.91			1.00
Frt					0.95			1.00	1.00			1.00
Flt Protected					0.98			0.95	1.00			0.95
Satd. Flow (prot)					3276			1770	5075			1770
Flt Permitted					0.98			0.95	1.00			0.95
Satd. Flow (perm)					3276			1770	5075			1770
Volume (vph)	0	0	0	10	5	8	4	377	1686	24	5	17
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	11	5	9	4	410	1833	26	5	18
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	0	0	0	17	0	0	414	1858	0	0	23
Turn Type				Split			Prot	Prot			Prot	Prot
Protected Phases				8	8		1	1	6		5	5
Permitted Phases												
Actuated Green, G (s)					4.2			32.8	86.5			3.3
Effective Green, g (s)					6.2			33.8	87.5			4.3
Actuated g/C Ratio					0.06			0.31	0.80			0.04
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)					185			544	4037			69
v/s Ratio Prot					c0.01			c0.23	0.37			0.01
v/s Ratio Perm												
v/c Ratio					0.09			0.76	0.46			0.33
Uniform Delay, d1					49.2			34.4	3.6			51.5
Progression Factor					1.00			0.65	0.31			1.00
Incremental Delay, d2					0.2			3.9	0.2			2.8
Delay (s)					49.4			26.4	1.3			54.3
Level of Service					D			C	A			D
Approach Delay (s)		0.0			49.4				5.9			
Approach LOS		A			D				A			

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

Movement	SBT	SBR
Lane Configurations	↑↑↑↱	
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	
Lane Util. Factor	0.91	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5018	
Flt Permitted	1.00	
Satd. Flow (perm)	5018	
Volume (vph)	1405	136
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1527	148
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	1666	0
Turn Type		
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	57.0	
Effective Green, g (s)	58.0	
Actuated g/C Ratio	0.53	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2646	
v/s Ratio Prot	c0.33	
v/s Ratio Perm		
v/c Ratio	0.63	
Uniform Delay, d1	18.4	
Progression Factor	1.00	
Incremental Delay, d2	1.1	
Delay (s)	19.6	
Level of Service	B	
Approach Delay (s)	20.0	
Approach LOS	C	

Intersection Summary

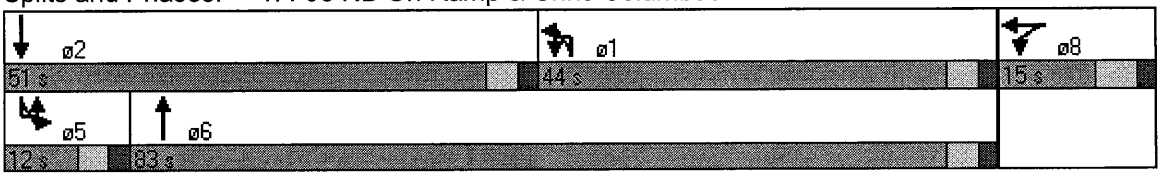
1: I-95 NB On Ramp & Chris Columbus Blvd.

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
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	9	15
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	10	5	8	4	377	1686	24	5	17
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			Prot	Prot			Prot	Prot
Protected Phases				8	8		1	1	6		5	5
Permitted Phases												
Detector Phases				8	8		1	1	6		5	5
Minimum Initial (s)				7.0	7.0		4.6	4.6	34.0		4.6	4.6
Minimum Split (s)				13.0	13.0		10.0	10.0	53.0		10.0	10.0
Total Split (s)	0.0	0.0	0.0	15.0	15.0	0.0	44.0	44.0	83.0	0.0	12.0	12.0
Total Split (%)	0.0%	0.0%	0.0%	13.6%	13.6%	0.0%	40.0%	40.0%	75.5%	0.0%	10.9%	10.9%
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							Lag	Lag	Lag		Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode				None	None		None	None	C-Min		None	None

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 108 (98%), 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	SBT	SBR
Lane Configurations		
Ideal Flow (vphpl)	1900	1900
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)	527	
Travel Time (s)	12.0	
Volume (vph)	1405	136
Peak Hour Factor	0.92	0.92
Turn Type		
Protected Phases	2	
Permitted Phases		
Detector Phases	2	
Minimum Initial (s)	34.0	
Minimum Split (s)	39.0	
Total Split (s)	51.0	0.0
Total Split (%)	46.4%	0.0%
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Recall Mode	C-Min	

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	4.0	
Lane Util. Factor	0.97	0.88	0.97	0.91	1.00	0.91	
Frt	1.00	0.85	1.00	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3433	2787	3367	4988	1752	4964	
Flt Permitted	0.95	1.00	0.95	1.00	0.11	1.00	
Satd. Flow (perm)	3433	2787	3367	4988	194	4964	
Volume (vph)	143	1306	485	1922	11	1294	114
Peak-hour factor, PHF	0.81	0.92	0.80	0.76	0.92	0.92	0.77
Adj. Flow (vph)	177	1420	606	2529	12	1407	148
RTOR Reduction (vph)	0	3	0	0	0	12	0
Lane Group Flow (vph)	177	1417	606	2529	12	1543	0
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%	3%
Turn Type		pt+ov	Prot		Perm		
Protected Phases	3	3 1	1	6		2	
Permitted Phases					2		
Actuated Green, G (s)	31.0	62.0	25.0	67.0	36.0	36.0	
Effective Green, g (s)	33.0	64.0	27.0	69.0	38.0	38.0	
Actuated g/C Ratio	0.30	0.58	0.25	0.63	0.35	0.35	
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)	1030	1622	826	3129	67	1715	
v/s Ratio Prot	0.05	c0.51	0.18	0.51		c0.31	
v/s Ratio Perm					0.06		
v/c Ratio	0.17	0.87	0.73	0.81	0.18	0.90	
Uniform Delay, d1	28.4	19.6	38.2	15.5	25.1	34.2	
Progression Factor	1.00	1.00	1.06	0.69	0.25	0.52	
Incremental Delay, d2	0.1	5.5	2.8	2.0	4.8	6.8	
Delay (s)	28.5	25.1	43.2	12.7	11.2	24.7	
Level of Service	C	C	D	B	B	C	
Approach Delay (s)	25.5			18.6		24.5	
Approach LOS	C			B		C	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

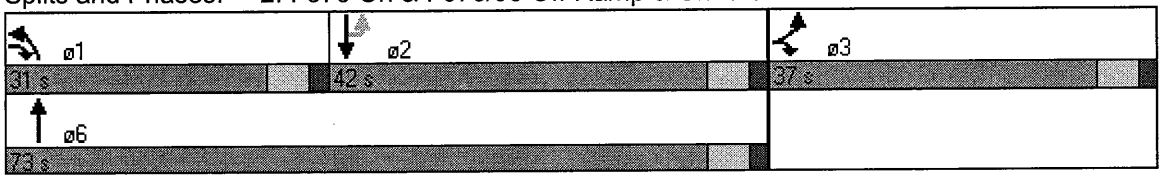
2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.

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	2		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)	143	1306	485	1922	11	1294	114
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		pt+ov	Prot		Perm		
Protected Phases	3	3 1	1	6		2	
Permitted Phases					2		
Detector Phases	3	3 1	1	6	2	2	
Minimum Initial (s)	20.0		25.0	27.0	27.0	27.0	
Minimum Split (s)	26.0		31.0	64.0	33.0	33.0	
Total Split (s)	37.0	68.0	31.0	73.0	42.0	42.0	0.0
Total Split (%)	33.6%	61.8%	28.2%	66.4%	38.2%	38.2%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	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	C-Max	C-Max	C-Max	

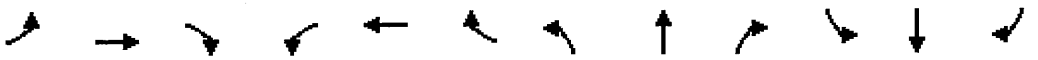
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 12 (11%), 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	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	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.85			1.00		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583			1787		1770	5081		1770	5009	
Flt Permitted	0.75	1.00			0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1388	1583			1482		1770	5081		1770	5009	
Volume (vph)	258	0	96	15	3	0	189	2123	11	2	2354	262
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)	280	0	104	16	3	0	205	2308	12	2	2559	285
RTOR Reduction (vph)	0	83	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	280	21	0	0	19	0	205	2320	0	2	2831	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								
Actuated Green, G (s)	20.0	20.0			20.0		16.0	72.6		1.4	58.0	
Effective Green, g (s)	22.0	22.0			22.0		17.0	73.6		2.4	59.0	
Actuated g/C Ratio	0.20	0.20			0.20		0.15	0.67		0.02	0.54	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	278	317			296		274	3400		39	2687	
v/s Ratio Prot		0.01					0.12	c0.46		0.00	c0.57	
v/s Ratio Perm	c0.20				0.01							
v/c Ratio	1.01	0.07			0.06		0.75	0.68		0.05	1.05	
Uniform Delay, d1	44.0	35.7			35.7		44.5	11.1		52.7	25.5	
Progression Factor	1.00	1.00			1.00		0.91	0.86		0.99	0.91	
Incremental Delay, d2	55.8	0.1			0.1		6.7	0.7		0.2	28.9	
Delay (s)	99.8	35.8			35.7		47.0	10.2		52.5	52.3	
Level of Service	F	D			D		D	B		D	D	
Approach Delay (s)		82.5			35.7			13.2			52.3	
Approach LOS		F			D			B			D	

Intersection Summary			
HCM Average Control Delay	37.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

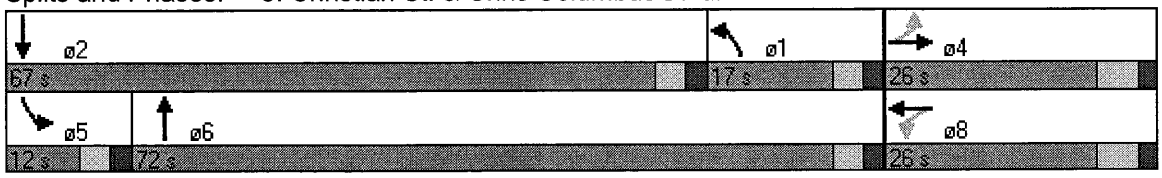
3: Christian St. & Chris Columbus Blvd.

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	1		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)	258	0	96	15	3	0	189	2123	11	2	2354	262
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)	10.0	10.0		10.0	10.0		7.0	20.0		7.0	20.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		12.0	25.0		12.0	25.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	17.0	72.0	0.0	12.0	67.0	0.0
Total Split (%)	23.6%	23.6%	0.0%	23.6%	23.6%	0.0%	15.5%	65.5%	0.0%	10.9%	60.9%	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							Lag	Lag		Lead	Lead	
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: 110
Actuated Cycle Length: 110
Offset: 64 (58%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

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



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		4.0	4.0
Lane Util. Factor	0.95	0.91	0.95		1.00			0.97	0.91		1.00	0.95
Frt	1.00	1.00	0.85		0.98			1.00	1.00		1.00	1.00
Flt Protected	0.95	0.95	1.00		0.96			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1665	1648	1504		2030			3433	5084		1652	3657
Flt Permitted	0.95	0.95	1.00		0.96			0.95	1.00		0.95	1.00
Satd. Flow (perm)	1665	1648	1504		2030			3433	5084		1652	3657
Volume (vph)	618	0	347	20	2	4	21	303	1699	4	3	1677
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)	772	0	377	29	3	6	23	329	1847	4	3	1884
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	386	386	377	0	32	0	0	352	1851	0	3	1884
Heavy Vehicles (%)	3%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Split		Free	Split			Prot	Prot			Prot	
Protected Phases	8	8		4	4		1	1	6		5	2
Permitted Phases			Free									
Actuated Green, G (s)	25.2	25.2	110.0		4.2			11.0	53.6		5.0	47.6
Effective Green, g (s)	27.2	27.2	110.0		6.2			12.0	54.6		6.0	48.6
Actuated g/C Ratio	0.25	0.25	1.00		0.06			0.11	0.50		0.05	0.44
Clearance Time (s)	6.0	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	3.0
Lane Grp Cap (vph)	412	408	1504		114			375	2524		90	1616
v/s Ratio Prot	0.23	c0.23			0.02			c0.10	0.36		0.00	c0.52
v/s Ratio Perm			0.25									
v/c Ratio	0.94	0.95	0.25		0.28			0.94	0.73		0.03	1.17
Uniform Delay, d1	40.6	40.7	0.0		49.8			48.6	21.9		49.3	30.7
Progression Factor	1.00	1.00	1.00		1.00			0.62	0.32		1.37	0.51
Incremental Delay, d2	28.7	30.8	0.4		1.4			27.9	1.7		0.1	77.6
Delay (s)	69.2	71.5	0.4		51.1			58.2	8.6		67.7	93.1
Level of Service	E	E	A		D			E	A		E	F
Approach Delay (s)		47.4			51.1				16.5			63.2
Approach LOS		D			D				B			E

Intersection Summary			
HCM Average Control Delay	43.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
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)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Volume (vph)	802
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	901
RTOR Reduction (vph)	0
Lane Group Flow (vph)	901
Heavy Vehicles (%)	2%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	110.0
Effective Green, g (s)	110.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	c0.57
v/c Ratio	0.57
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.6
Delay (s)	0.6
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary

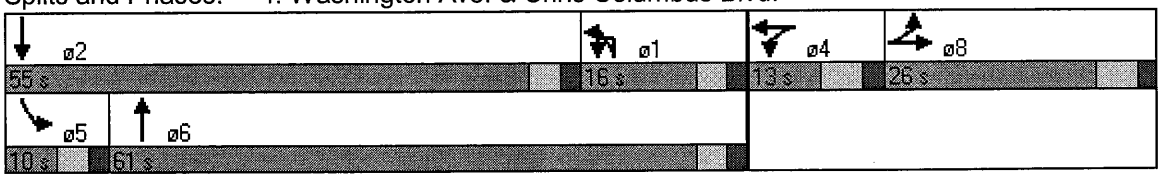
4: Washington Ave. & Chris Columbus Blvd.

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		1	0		0		2		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	50
Trailing Detector (ft)	0	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)		130			507				821			631
Travel Time (s)		3.0			11.5				18.7			14.3
Volume (vph)	618	0	347	20	2	4	21	303	1699	4	3	1677
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	Split		Free	Split			Prot	Prot			Prot	
Protected Phases	8	8		4	4		1	1	6		5	2
Permitted Phases			Free									
Detector Phases	8	8		4	4		1	1	6		5	2
Minimum Initial (s)	10.0	10.0		7.0	7.0		11.0	11.0	29.0		5.0	29.0
Minimum Split (s)	16.0	16.0		13.0	13.0		16.0	16.0	34.0		10.0	34.0
Total Split (s)	26.0	26.0	0.0	13.0	13.0	0.0	16.0	16.0	61.0	0.0	10.0	55.0
Total Split (%)	23.6%	23.6%	0.0%	11.8%	11.8%	0.0%	14.5%	14.5%	55.5%	0.0%	9.1%	50.0%
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							Lag	Lag	Lag		Lead	Lead
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: 110
Actuated Cycle Length: 110
Offset: 76 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
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	1
Total Lost Time (s)	4.0
Leading Detector (ft)	50
Trailing Detector (ft)	0
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	802
Peak Hour Factor	0.89
Heavy Vehicles (%)	2%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
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)	424	0	358	0	0	0	0	1563	0	8	0	2043
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)	451	0	377	0	0	0	0	1699	0	18	0	2106
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	451	0	377	0	0	0	0	1699	0	0	18	2106
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)	19.2		110.0					69.2			5.6	79.8
Effective Green, g (s)	21.2		110.0					70.2			6.6	80.8
Actuated g/C Ratio	0.19		1.00					0.64			0.06	0.73
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)	662		1583					3245			108	3699
v/s Ratio Prot	c0.13							0.33			0.01	c0.42
v/s Ratio Perm			0.24									
v/c Ratio	0.68		0.24					0.52			0.17	0.57
Uniform Delay, d1	41.3		0.0					10.8			49.1	6.7
Progression Factor	1.00		1.00					0.24			0.61	0.15
Incremental Delay, d2	2.9		0.4					0.3			0.2	0.2
Delay (s)	44.2		0.4					2.9			30.0	1.2
Level of Service	D		A					A			C	A
Approach Delay (s)		24.2			0.0			2.9				1.4
Approach LOS		C			A			A				A

Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
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	

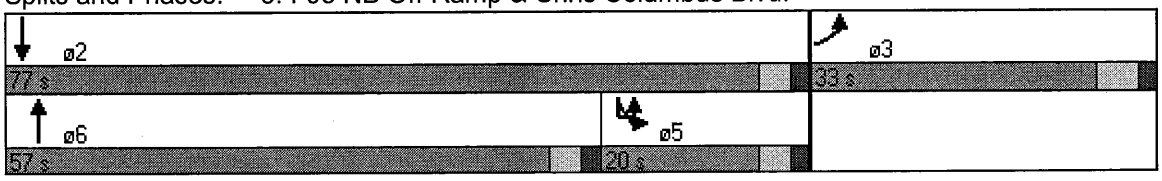
5: I-95 NB Off Ramp & Chris Columbus Blvd.

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				821
Travel Time (s)		13.5			3.5			11.1				18.7
Volume (vph)	424	0	358	0	0	0	0	1563	0	8	0	2043
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)	10.0							35.0		7.0	7.0	35.0
Minimum Split (s)	16.0							40.0		12.0	12.0	52.0
Total Split (s)	33.0	0.0	0.0	0.0	0.0	0.0	0.0	57.0	0.0	20.0	20.0	77.0
Total Split (%)	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	51.8%	0.0%	18.2%	18.2%	70.0%
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								Lead		Lag	Lag	
Lead-Lag Optimize?								Yes		Yes	Yes	
Recall Mode	None							C-Min		None	None	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 70
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	

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	4.0			4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	0.97	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1793	1768	1583	1698	1693			1624	4899			1620
Flt Permitted	0.95	0.97	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1793	1768	1583	1698	1693			1624	4899			1620
Volume (vph)	224	41	132	45	39	48	19	135	1280	18	12	118
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)	243	45	143	54	46	57	25	180	1600	38	13	136
RTOR Reduction (vph)	0	0	127	0	41	0	0	0	2	0	0	0
Lane Group Flow (vph)	143	145	16	54	62	0	0	205	1636	0	0	149
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	4%	2%	2%	4%	4%
Turn Type	Split		Prot	Split			Prot	Prot			Prot	Prot
Protected Phases	3	3	3	7	7		1	1	6		5	5
Permitted Phases												
Actuated Green, G (s)	10.0	10.0	10.0	10.0	10.0			13.0	42.3			25.7
Effective Green, g (s)	12.0	12.0	12.0	12.0	12.0			14.0	43.3			26.7
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11			0.13	0.39			0.24
Clearance Time (s)	6.0	6.0	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	3.0			3.0
Lane Grp Cap (vph)	196	193	173	185	185			207	1928			393
v/s Ratio Prot	0.08	c0.08	0.01	0.03	c0.04			c0.13	0.33			0.09
v/s Ratio Perm												
v/c Ratio	0.73	0.75	0.09	0.29	0.34			0.99	0.85			0.38
Uniform Delay, d1	47.4	47.6	44.1	45.1	45.3			47.9	30.4			34.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.84	0.35			0.60
Incremental Delay, d2	12.7	15.1	0.2	0.9	1.1			50.4	3.6			0.5
Delay (s)	60.2	62.7	44.3	46.0	46.4			90.9	14.2			21.4
Level of Service	E	E	D	D	D			F	B			C
Approach Delay (s)		55.8			46.2				22.7			
Approach LOS		E			D				C			

Intersection Summary			
HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.1%	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)	4632	
Flt Permitted	1.00	
Satd. Flow (perm)	4632	
Volume (vph)	2043	227
Peak-hour factor, PHF	0.97	0.80
Adj. Flow (vph)	2106	284
RTOR Reduction (vph)	16	0
Lane Group Flow (vph)	2374	0
Heavy Vehicles (%)	3%	0%
Turn Type		
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	55.0	
Effective Green, g (s)	56.0	
Actuated g/C Ratio	0.51	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2358	
v/s Ratio Prot	c0.51	
v/s Ratio Perm		
v/c Ratio	1.01	
Uniform Delay, d1	27.0	
Progression Factor	0.39	
Incremental Delay, d2	19.0	
Delay (s)	29.5	
Level of Service	C	
Approach Delay (s)	29.0	
Approach LOS	C	

Intersection Summary

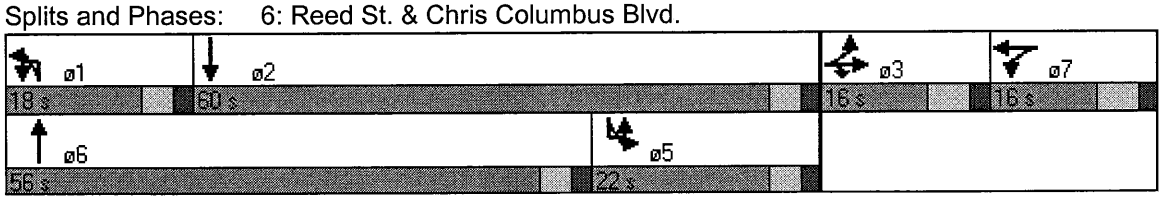
6: Reed St. & Chris Columbus Blvd.

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		1	1		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	50
Trailing Detector (ft)	0	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)	224	41	132	45	39	48	19	135	1280	18	12	118
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	Split		Prot	Split			Prot	Prot			Prot	Prot
Protected Phases	3	3	3	7	7		1	1	6		5	5
Permitted Phases												
Detector Phases	3	3	3	7	7		1	1	6		5	5
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	7.0	35.0		7.0	7.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0		12.0	12.0	40.0		12.0	12.0
Total Split (s)	16.0	16.0	16.0	16.0	16.0	0.0	18.0	18.0	56.0	0.0	22.0	22.0
Total Split (%)	14.5%	14.5%	14.5%	14.5%	14.5%	0.0%	16.4%	16.4%	50.9%	0.0%	20.0%	20.0%
Yellow Time (s)	4.0	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	2.0
Lead/Lag							Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None		None	None	C-Min		None	None

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 85 (77%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

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

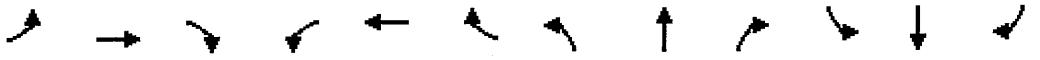


6: Reed St. & Chris Columbus Blvd.

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)	2043	227
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)	60.0	0.0
Total Split (%)	54.5%	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

7: Dickinson 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						0.88		0.91		0.97	0.95	
Frt						0.85		1.00		1.00	1.00	
Flt Protected						1.00		1.00		0.95	1.00	
Satd. Flow (prot)						2787		4964		3433	3532	
Flt Permitted						1.00		1.00		0.95	1.00	
Satd. Flow (perm)						2787		4964		3433	3532	
Volume (vph)	0	0	0	0	0	67	0	1383	50	162	2050	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.82	0.92	0.92	0.84	0.84
Adj. Flow (vph)	0	0	0	0	0	73	0	1687	54	176	2440	33
RTOR Reduction (vph)	0	0	0	0	0	40	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	33	0	1734	0	176	2473	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type						Over				Prot		
Protected Phases						1		2		1	6	
Permitted Phases												
Actuated Green, G (s)						48.0		51.0		48.0	110.0	
Effective Green, g (s)						50.0		52.0		50.0	110.0	
Actuated g/C Ratio						0.45		0.47		0.45	1.00	
Clearance Time (s)						6.0		5.0		6.0	5.0	
Vehicle Extension (s)						3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)						1267		2347		1560	3532	
v/s Ratio Prot						0.01		0.35		0.05	c0.70	
v/s Ratio Perm												
v/c Ratio						0.03		0.74		0.11	0.70	
Uniform Delay, d1						16.6		23.5		17.2	0.0	
Progression Factor						1.00		0.39		0.33	1.00	
Incremental Delay, d2						0.0		1.8		0.0	0.6	
Delay (s)						16.6		11.1		5.7	0.6	
Level of Service						B		B		A	A	
Approach Delay (s)		0.0			16.6			11.1			0.9	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	5.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	60.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

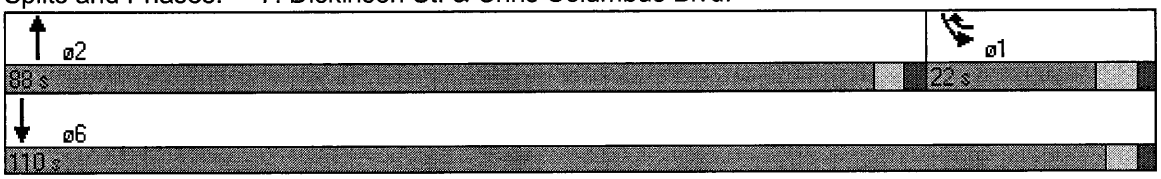
7: Dickinson St. & Chris Columbus Blvd.

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	
Trailing Detector (ft)						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)		611			184			450			453	
Travel Time (s)		13.9			4.2			10.2			10.3	
Volume (vph)	0	0	0	0	0	67	0	1383	50	162	2050	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.82	0.92	0.92	0.84	0.84
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type						Over				Prot		
Protected Phases						1		2		1	6	
Permitted Phases												
Detector Phases						1		2		1	6	
Minimum Initial (s)						7.0		35.0		7.0	35.0	
Minimum Split (s)						13.0		40.0		13.0	40.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	22.0	0.0	88.0	0.0	22.0	110.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	80.0%	0.0%	20.0%	100.0%	0.0%
Yellow Time (s)						4.0		3.0		4.0	3.0	
All-Red Time (s)						2.0		2.0		2.0	2.0	
Lead/Lag						Lag		Lead		Lag		
Lead-Lag Optimize?						Yes		Yes		Yes		
Recall Mode						None		C-Min		None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 45 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 7: Dickinson St. & Chris Columbus Blvd.



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		4.0	4.0	
Lane Util. Factor		0.95			1.00	0.88		0.91		1.00	0.95	
Frt		0.94			1.00	0.85		0.99		1.00	0.99	
Flt Protected		0.99			0.97	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		3274			1815	2787		5028		1770	3515	
Flt Permitted		0.99			0.97	1.00		1.00		0.95	1.00	
Satd. Flow (perm)		3274			1815	2787		5028		1770	3515	
Volume (vph)	82	82	113	93	84	122	0	1222	99	162	1715	81
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)	92	92	127	101	91	133	0	1328	108	176	1732	82
RTOR Reduction (vph)	0	107	0	0	0	89	0	8	0	0	3	0
Lane Group Flow (vph)	0	204	0	0	192	44	0	1428	0	176	1811	0
Turn Type	Split			Split		pt+ov				Prot		
Protected Phases	4	4		8	8	8 1		2		1	6	
Permitted Phases												
Actuated Green, G (s)		10.7			14.7	35.5		47.8		14.8	67.6	
Effective Green, g (s)		12.7			16.7	36.5		48.8		15.8	68.6	
Actuated g/C Ratio		0.12			0.15	0.33		0.44		0.14	0.62	
Clearance Time (s)		6.0			6.0			5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		378			276	925		2231		254	2192	
v/s Ratio Prot		c0.06			c0.11	0.02		0.28		0.10	c0.52	
v/s Ratio Perm												
v/c Ratio		0.54			0.70	0.05		0.64		0.69	0.83	
Uniform Delay, d1		45.9			44.2	25.0		23.8		44.8	16.1	
Progression Factor		1.00			1.00	1.00		1.00		0.98	0.91	
Incremental Delay, d2		1.5			7.4	0.0		1.4		5.6	2.6	
Delay (s)		47.4			51.7	25.0		25.2		49.4	17.3	
Level of Service		D			D	C		C		D	B	
Approach Delay (s)		47.4			40.7			25.2			20.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	25.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

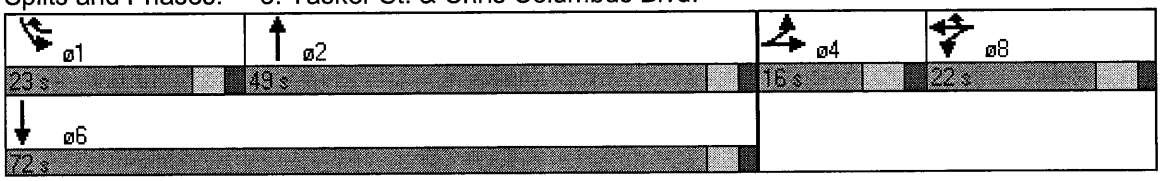
8: Tasker St. & Chris Columbus Blvd.

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	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)		600			820			229			450	
Travel Time (s)		13.6			18.6			5.2			10.2	
Volume (vph)	82	82	113	93	84	122	0	1222	99	162	1715	81
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	Split			Split		pt+ov				Prot		
Protected Phases	4	4		8	8	8 1		2		1	6	
Permitted Phases												
Detector Phases	4	4		8	8	8 1		2		1	6	
Minimum Initial (s)	10.0	10.0		10.0	10.0			30.0		4.0	30.0	
Minimum Split (s)	16.0	16.0		16.0	16.0			35.0		9.0	35.0	
Total Split (s)	16.0	16.0	0.0	22.0	22.0	45.0	0.0	49.0	0.0	23.0	72.0	0.0
Total Split (%)	14.5%	14.5%	0.0%	20.0%	20.0%	40.9%	0.0%	44.5%	0.0%	20.9%	65.5%	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								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None		None	None			C-Min		None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 46 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
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						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			1.00	0.91	0.91	1.00
Frt			1.00	1.00	1.00	0.85
Flt Protected			0.95	1.00	1.00	1.00
Satd. Flow (prot)			1770	5085	5085	1583
Flt Permitted			0.95	1.00	1.00	1.00
Satd. Flow (perm)			1770	5085	5085	1583
Volume (vph)	0	0	171	1321	1489	432
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	186	1436	1618	470
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	186	1436	1618	470
Turn Type			Prot			Free
Protected Phases			5	2	6	
Permitted Phases						Free
Actuated Green, G (s)			30.0	110.0	70.0	110.0
Effective Green, g (s)			31.0	110.0	71.0	110.0
Actuated g/C Ratio			0.28	1.00	0.65	1.00
Clearance Time (s)			5.0	5.0	5.0	
Vehicle Extension (s)			3.0	3.0	3.0	
Lane Grp Cap (vph)			499	5085	3282	1583
v/s Ratio Prot			c0.11	0.28	c0.32	
v/s Ratio Perm						0.30
v/c Ratio			0.37	0.28	0.49	0.30
Uniform Delay, d1			31.7	0.0	10.1	0.0
Progression Factor			1.00	1.00	0.31	1.00
Incremental Delay, d2			0.5	0.1	0.3	0.3
Delay (s)			32.2	0.1	3.5	0.3
Level of Service			C	A	A	A
Approach Delay (s)	0.0			3.8	2.8	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	3.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

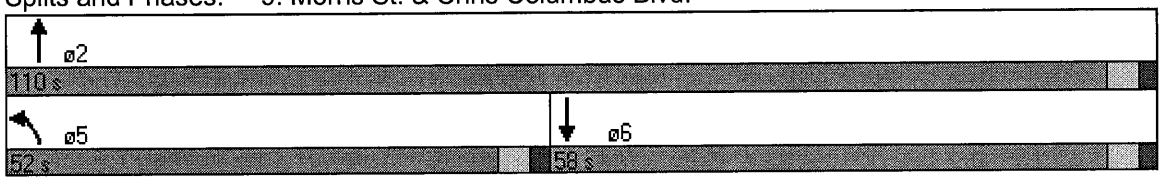
9: Morris St. & Chris Columbus Blvd.

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	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)			50	50	50	50
Trailing Detector (ft)			0	0	0	0
Turning Speed (mph)	15	9	15			9
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	197			126	229	
Travel Time (s)	4.5			2.9	5.2	
Volume (vph)	0	0	171	1321	1489	432
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Turn Type			Prot			Free
Protected Phases			5	2	6	
Permitted Phases						Free
Detector Phases			5	2	6	
Minimum Initial (s)			30.0	35.0	35.0	
Minimum Split (s)			35.0	40.0	40.0	
Total Split (s)	0.0	0.0	52.0	110.0	58.0	0.0
Total Split (%)	0.0%	0.0%	47.3%	100.0%	52.7%	0.0%
Yellow Time (s)			3.0	3.0	3.0	
All-Red Time (s)			2.0	2.0	2.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode			None	C-Min	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 49 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 9: Morris St. & Chris Columbus Blvd.



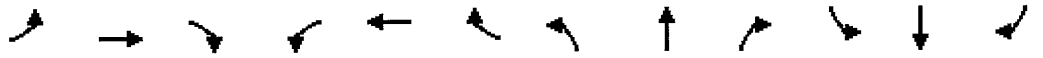
10: Morris St. & Water St.

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	537	66	53	402	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	584	72	58	437	0	0	0	0

Direction, Lane #	WB 1	NB 1
Volume Total (vph)	655	495
Volume Left (vph)	0	58
Volume Right (vph)	72	0
Hadj (s)	-0.03	0.06
Departure Headway (s)	5.4	5.9
Degree Utilization, x	0.99	0.81
Capacity (veh/h)	657	609
Control Delay (s)	54.8	28.7
Approach Delay (s)	54.8	28.7
Approach LOS	F	D

Intersection Summary			
Delay	43.6		
HCM Level of Service	E		
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
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)		60			197			103			95	
Travel Time (s)		1.4			4.5			2.3			2.2	
Volume (vph)	0	0	0	0	537	66	53	402	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)					3318			1788	5036		1736	5046
Flt Permitted					0.98			0.95	1.00		0.95	1.00
Satd. Flow (perm)					3318			1788	5036		1736	5046
Volume (vph)	0	0	0	10	3	9	6	549	1099	61	28	1326
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	16	5	14	24	578	1340	92	43	1560
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	5	0	0	5
Lane Group Flow (vph)	0	0	0	0	22	0	0	602	1427	0	43	1654
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)					4.2			54.5	104.1		5.7	55.3
Effective Green, g (s)					6.2			55.5	105.1		6.7	56.3
Actuated g/C Ratio					0.05			0.43	0.81		0.05	0.43
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)					158			763	4071		89	2185
v/s Ratio Prot					c0.01			c0.34	0.28		0.02	c0.33
v/s Ratio Perm												
v/c Ratio					0.14			0.79	0.35		0.48	0.76
Uniform Delay, d1					59.3			32.2	3.3		60.0	31.1
Progression Factor					1.00			0.81	1.26		1.00	1.00
Incremental Delay, d2					0.4			4.7	0.2		4.1	2.5
Delay (s)					59.7			30.8	4.4		64.1	33.6
Level of Service					E			C	A		E	C
Approach Delay (s)		0.0			59.7				12.2			34.4
Approach LOS		A			E				B			C

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

1: I-95 NB On 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)	82
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	99
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	

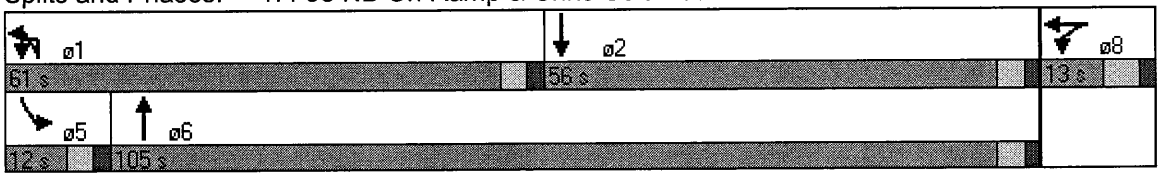
1: I-95 NB On Ramp & Chris Columbus Blvd.

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	10	3	9	6	549	1099	61	28	1326
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	13.0	13.0	0.0	61.0	61.0	105.0	0.0	12.0	56.0
Total Split (%)	0.0%	0.0%	0.0%	10.0%	10.0%	0.0%	46.9%	46.9%	80.8%	0.0%	9.2%	43.1%
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: 130
Actuated Cycle Length: 130
Offset: 96 (74%), 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)	82
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	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	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	0.97	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	3467	5085	5072	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3400	2814	3467	5085	5072	
Volume (vph)	139	1326	685	1572	1235	107
Peak-hour factor, PHF	0.81	0.90	0.94	0.84	0.93	0.89
Adj. Flow (vph)	172	1473	729	1871	1328	120
RTOR Reduction (vph)	0	3	0	0	8	0
Lane Group Flow (vph)	172	1470	729	1871	1440	0
Heavy Vehicles (%)	3%	1%	1%	2%	1%	1%
Turn Type		pt+ov	Prot			
Protected Phases	3	3 1	1	6	2	
Permitted Phases						
Actuated Green, G (s)	37.1	73.8	30.7	80.9	44.2	
Effective Green, g (s)	39.1	75.8	32.7	82.9	46.2	
Actuated g/C Ratio	0.30	0.58	0.25	0.64	0.36	
Clearance Time (s)	6.0		6.0	6.0	6.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1023	1641	872	3243	1803	
v/s Ratio Prot	0.05	c0.52	0.21	0.37	c0.28	
v/s Ratio Perm						
v/c Ratio	0.17	0.90	0.84	0.58	0.80	
Uniform Delay, d1	33.5	23.7	46.1	13.5	37.7	
Progression Factor	1.00	1.00	0.84	0.71	0.26	
Incremental Delay, d2	0.1	6.8	4.9	0.5	2.6	
Delay (s)	33.6	30.4	43.5	10.0	12.5	
Level of Service	C	C	D	B	B	
Approach Delay (s)	30.8			19.4	12.5	
Approach LOS	C			B	B	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

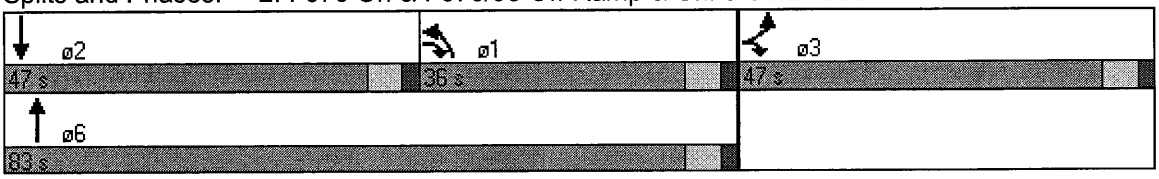
2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150			0
Storage Lanes	2	2	2			0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	
Turning Speed (mph)	15	9	15			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	1326	685	1572	1235	107
Peak Hour Factor	0.81	0.90	0.94	0.84	0.93	0.89
Heavy Vehicles (%)	3%	1%	1%	2%	1%	1%
Turn Type		pt+ov	Prot			
Protected Phases	3	3 1	1	6	2	
Permitted Phases						
Detector Phases	3	3 1	1	6	2	
Minimum Initial (s)	20.0		25.0	27.0	27.0	
Minimum Split (s)	26.0		31.0	64.0	33.0	
Total Split (s)	47.0	83.0	36.0	83.0	47.0	0.0
Total Split (%)	36.2%	63.8%	27.7%	63.8%	36.2%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	C-Min	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBT 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	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91			1.00	0.91
Frt	1.00	0.86			0.98		1.00	1.00			1.00	0.98
Flt Protected	0.95	1.00			0.96		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1770	1628			1774		1805	5081			1805	5035
Flt Permitted	0.78	1.00			0.69		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1459	1628			1268		1805	5081			1805	5035
Volume (vph)	162	2	146	13	2	2	177	2078	10	5	16	2201
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)	198	8	164	22	4	4	203	2474	18	8	52	2317
RTOR Reduction (vph)	0	137	0	0	3	0	0	1	0	0	0	15
Lane Group Flow (vph)	198	35	0	0	27	0	203	2491	0	0	60	2650
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%	0%	2%	0%	0%	0%	1%
Turn Type	Perm			Perm			Prot			Prot	Prot	
Protected Phases		4			8		1	6		5	5	2
Permitted Phases	4			8								
Actuated Green, G (s)	19.6	19.6			19.6		18.5	87.1			7.3	75.9
Effective Green, g (s)	21.6	21.6			21.6		19.5	88.1			8.3	76.9
Actuated g/C Ratio	0.17	0.17			0.17		0.15	0.68			0.06	0.59
Clearance Time (s)	6.0	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	3.0
Lane Grp Cap (vph)	242	270			211		271	3443			115	2978
v/s Ratio Prot		0.02					c0.11	c0.49			0.03	c0.53
v/s Ratio Perm	c0.14				0.02							
v/c Ratio	0.82	0.13			0.13		0.75	0.72			0.52	0.89
Uniform Delay, d1	52.3	46.2			46.2		52.9	13.2			58.9	22.9
Progression Factor	1.00	1.00			1.00		0.87	0.48			0.96	0.74
Incremental Delay, d2	18.9	0.2			0.3		8.0	1.0			2.1	2.3
Delay (s)	71.2	46.4			46.4		54.1	7.4			58.6	19.2
Level of Service	E	D			D		D	A			E	B
Approach Delay (s)		59.7			46.4			10.9				20.1
Approach LOS		E			D			B				C

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
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)	338
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	348
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	

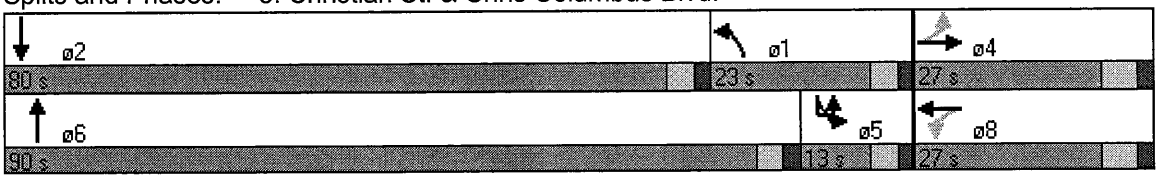
3: Christian St. & Chris Columbus Blvd.

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	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	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)	162	2	146	13	2	2	177	2078	10	5	16	2201
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			Prot	Prot	
Protected Phases		4			8		1	6		5	5	2
Permitted Phases	4			8								
Detector Phases	4	4		8	8		1	6		5	5	2
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	20.0		7.0	7.0	20.0
Minimum Split (s)	16.0	16.0		16.0	16.0		12.0	25.0		12.0	12.0	25.0
Total Split (s)	27.0	27.0	0.0	27.0	27.0	0.0	23.0	90.0	0.0	13.0	13.0	80.0
Total Split (%)	20.8%	20.8%	0.0%	20.8%	20.8%	0.0%	17.7%	69.2%	0.0%	10.0%	10.0%	61.5%
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							Lag	Lead		Lag	Lag	Lead
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: 130
Actuated Cycle Length: 130
Offset: 117 (90%), 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)	338
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			4.0
Lane Util. Factor	0.95	0.91	0.95		1.00			0.97	0.91			1.00
Frt	1.00	1.00	0.85		0.95			1.00	1.00			1.00
Flt Protected	0.95	0.95	1.00		0.99			0.95	1.00			0.95
Satd. Flow (prot)	1665	1657	1504		2019			3433	5082			1652
Flt Permitted	0.95	0.95	1.00		0.99			0.95	1.00			0.95
Satd. Flow (perm)	1665	1657	1504		2019			3433	5082			1652
Volume (vph)	532	4	445	4	4	5	2	372	1723	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)	554	16	484	8	12	12	2	409	2027	8	8	0
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	0	0	0	0
Lane Group Flow (vph)	278	292	484	0	21	0	0	411	2035	0	0	8
Heavy Vehicles (%)	3%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Split		Free	Split			Prot	Prot			Prot	Prot
Protected Phases	8	8		4	4		1	1	6		5	5
Permitted Phases			Free									
Actuated Green, G (s)	24.2	24.2	130.0		4.2			14.0	74.6			5.0
Effective Green, g (s)	26.2	26.2	130.0		6.2			15.0	75.6			6.0
Actuated g/C Ratio	0.20	0.20	1.00		0.05			0.12	0.58			0.05
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)	336	334	1504		96			396	2955			76
v/s Ratio Prot	0.17	c0.18			0.01			c0.12	0.40			0.00
v/s Ratio Perm			c0.32									
v/c Ratio	0.83	0.87	0.32		0.21			1.04	0.69			0.11
Uniform Delay, d1	49.7	50.3	0.0		59.6			57.5	19.0			59.4
Progression Factor	1.00	1.00	1.00		1.00			0.79	0.38			0.62
Incremental Delay, d2	15.3	21.5	0.6		1.1			49.2	1.0			0.3
Delay (s)	65.0	71.8	0.6		60.7			94.9	8.3			37.0
Level of Service	E	E	A		E			F	A			D
Approach Delay (s)		37.3			60.7				22.8			
Approach LOS		D			E				C			

Intersection Summary			
HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
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	4.0
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3657	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3657	1583
Volume (vph)	1903	450
Peak-hour factor, PHF	0.92	0.90
Adj. Flow (vph)	2068	500
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	2068	500
Heavy Vehicles (%)	2%	2%
Turn Type		Free
Protected Phases	2	
Permitted Phases		Free
Actuated Green, G (s)	65.6	130.0
Effective Green, g (s)	66.6	130.0
Actuated g/C Ratio	0.51	1.00
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1874	1583
v/s Ratio Prot	c0.57	
v/s Ratio Perm		0.32
v/c Ratio	1.10	0.32
Uniform Delay, d1	31.7	0.0
Progression Factor	0.59	1.00
Incremental Delay, d2	51.6	0.3
Delay (s)	70.2	0.3
Level of Service	E	A
Approach Delay (s)	56.5	
Approach LOS	E	

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		300		0		150
Storage Lanes	1		1	0		0		2		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	50
Trailing Detector (ft)	0	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				821			
Travel Time (s)		5.9			11.5				18.7			
Volume (vph)	532	4	445	4	4	5	2	372	1723	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	Split		Free	Split			Prot	Prot			Prot	Prot
Protected Phases	8	8		4	4		1	1	6		5	5
Permitted Phases			Free									
Detector Phases	8	8		4	4		1	1	6		5	5
Minimum Initial (s)	10.0	10.0		7.0	7.0		9.0	9.0	29.0		5.0	5.0
Minimum Split (s)	16.0	16.0		13.0	13.0		14.0	14.0	34.0		10.0	10.0
Total Split (s)	25.0	25.0	0.0	13.0	13.0	0.0	19.0	19.0	82.0	0.0	10.0	10.0
Total Split (%)	19.2%	19.2%	0.0%	10.0%	10.0%	0.0%	14.6%	14.6%	63.1%	0.0%	7.7%	7.7%
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							Lag	Lag	Lead		Lag	Lag
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: 130

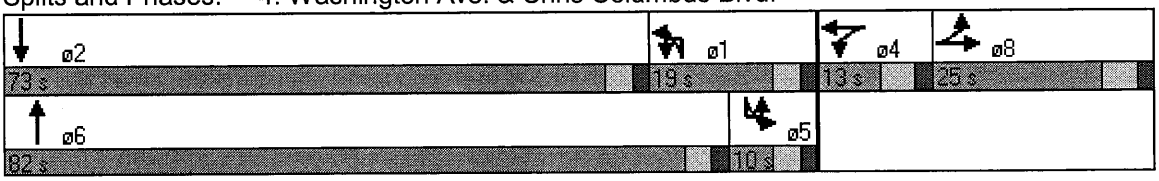
Actuated Cycle Length: 130

Offset: 118 (91%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

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		1
Total Lost Time (s)	4.0	4.0
Leading Detector (ft)	50	50
Trailing Detector (ft)	0	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)	1903	450
Peak Hour Factor	0.92	0.90
Heavy Vehicles (%)	2%	2%
Turn Type		Free
Protected Phases	2	
Permitted Phases		Free
Detector Phases	2	
Minimum Initial (s)	29.0	
Minimum Split (s)	34.0	
Total Split (s)	73.0	0.0
Total Split (%)	56.2%	0.0%
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lead/Lag	Lead	
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)	403	0	410	0	0	0	0	1663	0	25	0	2330
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)	530	0	569	0	0	0	0	1808	0	96	0	2427
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	530	0	569	0	0	0	0	1808	0	0	96	2427
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)	24.7		130.0					69.5			19.8	94.3
Effective Green, g (s)	26.7		130.0					70.5			20.8	95.3
Actuated g/C Ratio	0.21		1.00					0.54			0.16	0.73
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)	705		1568					2758			289	3765
v/s Ratio Prot	c0.15							0.36			0.05	c0.47
v/s Ratio Perm			0.36									
v/c Ratio	0.75		0.36					0.66			0.33	0.64
Uniform Delay, d1	48.5		0.0					21.1			48.4	8.8
Progression Factor	1.00		1.00					0.09			0.56	0.11
Incremental Delay, d2	4.5		0.7					0.6			0.3	0.3
Delay (s)	53.1		0.7					2.5			27.5	1.3
Level of Service	D		A					A			C	A
Approach Delay (s)		25.9			0.0			2.5				2.3
Approach LOS		C			A			A				A

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

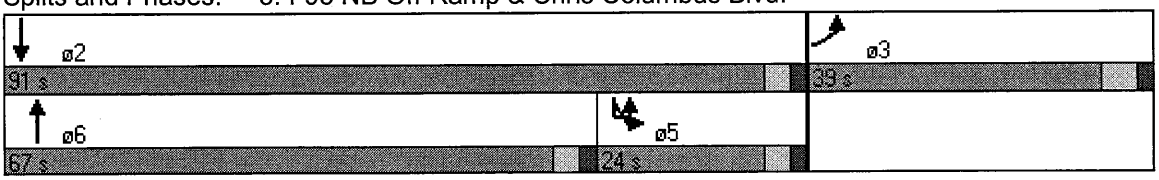
Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	0
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn 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				821
Travel Time (s)		13.5			3.5			11.1				18.7
Volume (vph)	403	0	410	0	0	0	0	1663	0	25	0	2330
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)	10.0							35.0		7.0	7.0	35.0
Minimum Split (s)	16.0							40.0		12.0	12.0	52.0
Total Split (s)	39.0	0.0	0.0	0.0	0.0	0.0	0.0	67.0	0.0	24.0	24.0	91.0
Total Split (%)	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	51.5%	0.0%	18.5%	18.5%	70.0%
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								Lead		Lag	Lag	
Lead-Lag Optimize?								Yes		Yes	Yes	
Recall Mode	None							C-Min		None	None	C-Min

Intersection Summary
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 122 (94%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 70
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	4.0			4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.90			1.00	1.00			1.00
Flt Protected	0.95	0.97	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1793	1777	1615	1681	1685			1636	4900			1652
Flt Permitted	0.95	0.97	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1793	1777	1615	1681	1685			1636	4900			1652
Volume (vph)	194	40	163	46	29	68	18	181	1398	20	2	158
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)	223	48	163	66	58	105	20	197	1748	43	3	229
RTOR Reduction (vph)	0	0	148	0	50	0	0	0	2	0	0	0
Lane Group Flow (vph)	134	137	15	66	113	0	0	217	1789	0	0	232
Heavy Vehicles (%)	2%	1%	0%	2%	0%	0%	3%	3%	2%	0%	2%	2%
Turn Type	Split		Prot	Split			Prot	Prot			Prot	Prot
Protected Phases	3	3	3	7	7		1	1	6		5	5
Permitted Phases												
Actuated Green, G (s)	10.0	10.0	10.0	7.0	7.0			16.0	53.3			37.7
Effective Green, g (s)	12.0	12.0	12.0	9.0	9.0			17.0	54.3			38.7
Actuated g/C Ratio	0.09	0.09	0.09	0.07	0.07			0.13	0.42			0.30
Clearance Time (s)	6.0	6.0	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	3.0			3.0
Lane Grp Cap (vph)	166	164	149	116	117			214	2047			492
v/s Ratio Prot	0.07	c0.08	0.01	0.04	c0.07			c0.13	0.37			0.14
v/s Ratio Perm												
v/c Ratio	0.81	0.84	0.10	0.57	0.96			1.01	0.87			0.47
Uniform Delay, d1	57.9	58.0	54.1	58.6	60.3			56.5	34.7			37.3
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.95	0.39			0.52
Incremental Delay, d2	24.2	29.1	0.3	6.3	71.2			56.5	4.2			0.6
Delay (s)	82.0	87.1	54.4	64.9	131.6			110.1	17.7			20.0
Level of Service	F	F	D	E	F			F	B			C
Approach Delay (s)		73.2			112.4				27.7			
Approach LOS		E			F				C			

Intersection Summary			
HCM Average Control Delay	34.8	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.5%	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)	4675	
Flt Permitted	1.00	
Satd. Flow (perm)	4675	
Volume (vph)	2364	233
Peak-hour factor, PHF	0.94	0.78
Adj. Flow (vph)	2515	299
RTOR Reduction (vph)	11	0
Lane Group Flow (vph)	2803	0
Heavy Vehicles (%)	2%	1%
Turn Type		
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	75.0	
Effective Green, g (s)	76.0	
Actuated g/C Ratio	0.58	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2733	
v/s Ratio Prot	c0.60	
v/s Ratio Perm		
v/c Ratio	1.03	
Uniform Delay, d1	27.0	
Progression Factor	0.23	
Incremental Delay, d2	22.5	
Delay (s)	28.8	
Level of Service	C	
Approach Delay (s)	28.1	
Approach LOS	C	

Intersection Summary

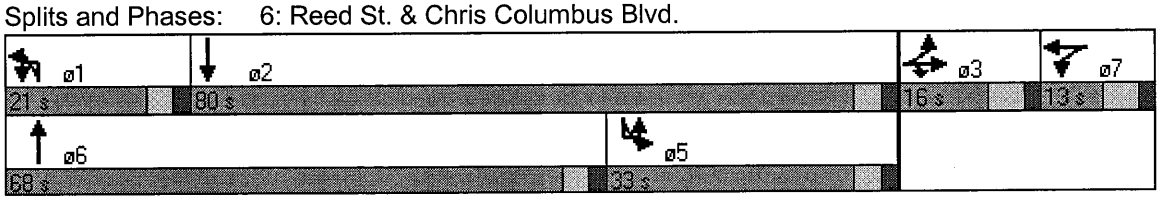
6: Reed St. & Chris Columbus Blvd.

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		1	1		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	50
Trailing Detector (ft)	0	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)	194	40	163	46	29	68	18	181	1398	20	2	158
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	Split		Prot	Split			Prot	Prot			Prot	Prot
Protected Phases	3	3	3	7	7		1	1	6		5	5
Permitted Phases												
Detector Phases	3	3	3	7	7		1	1	6		5	5
Minimum Initial (s)	10.0	10.0	10.0	5.0	5.0		7.0	7.0	35.0		7.0	7.0
Minimum Split (s)	16.0	16.0	16.0	11.0	11.0		12.0	12.0	40.0		12.0	12.0
Total Split (s)	16.0	16.0	16.0	13.0	13.0	0.0	21.0	21.0	68.0	0.0	33.0	33.0
Total Split (%)	12.3%	12.3%	12.3%	10.0%	10.0%	0.0%	16.2%	16.2%	52.3%	0.0%	25.4%	25.4%
Yellow Time (s)	4.0	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	2.0
Lead/Lag							Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None		None	None	C-Min		None	None

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 11 (8%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

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

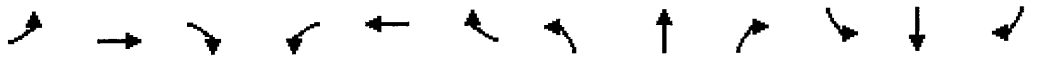


6: Reed St. & Chris Columbus Blvd.

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)	2364	233
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)	80.0	0.0
Total Split (%)	61.5%	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

7: Dickinson 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						0.88		0.91		0.97	0.95	
Frt						0.85		0.99		1.00	1.00	
Flt Protected						1.00		1.00		0.95	1.00	
Satd. Flow (prot)						2787		5047		3433	3539	
Flt Permitted						1.00		1.00		0.95	1.00	
Satd. Flow (perm)						2787		5047		3433	3539	
Volume (vph)	0	0	0	0	0	145	0	1471	85	411	2179	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	158	0	1731	92	447	2368	0
RTOR Reduction (vph)	0	0	0	0	0	30	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	128	0	1816	0	447	2368	0
Turn Type						Over				Prot		
Protected Phases						1		2		1	6	
Permitted Phases												
Actuated Green, G (s)						58.4		60.6		58.4	130.0	
Effective Green, g (s)						60.4		61.6		60.4	130.0	
Actuated g/C Ratio						0.46		0.47		0.46	1.00	
Clearance Time (s)						6.0		5.0		6.0	5.0	
Vehicle Extension (s)						3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)						1295		2392		1595	3539	
v/s Ratio Prot						0.05		c0.36		0.13	c0.67	
v/s Ratio Perm												
v/c Ratio						0.10		0.76		0.28	0.67	
Uniform Delay, d1						19.5		28.1		21.4	0.0	
Progression Factor						1.00		0.36		0.29	1.00	
Incremental Delay, d2						0.0		1.7		0.0	0.3	
Delay (s)						19.6		11.7		6.3	0.3	
Level of Service						B		B		A	A	
Approach Delay (s)		0.0			19.6			11.7			1.2	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

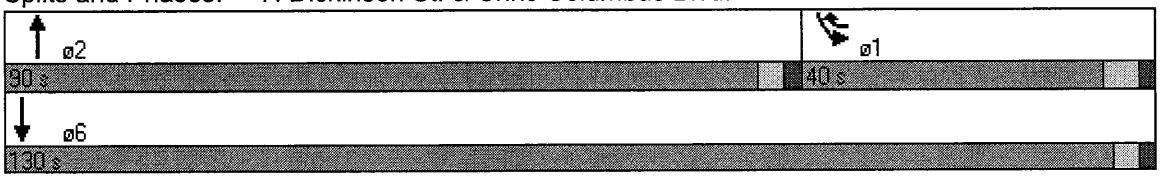
7: Dickinson St. & Chris Columbus Blvd.

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	
Trailing Detector (ft)						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)		611			184			450			453	
Travel Time (s)		13.9			4.2			10.2			10.3	
Volume (vph)	0	0	0	0	0	145	0	1471	85	411	2179	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.85	0.92	0.92	0.92	0.92
Turn Type						Over				Prot		
Protected Phases						1		2		1	6	
Permitted Phases												
Detector Phases						1		2		1	6	
Minimum Initial (s)						4.0		35.0		4.0	35.0	
Minimum Split (s)						10.0		40.0		10.0	40.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	40.0	0.0	90.0	0.0	40.0	130.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	30.8%	0.0%	69.2%	0.0%	30.8%	100.0%	0.0%
Yellow Time (s)						4.0		3.0		4.0	3.0	
All-Red Time (s)						2.0		2.0		2.0	2.0	
Lead/Lag						Lag		Lead		Lag		
Lead-Lag Optimize?						Yes		Yes		Yes		
Recall Mode						None		C-Min		None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 101 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 7: Dickinson St. & Chris Columbus Blvd.



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		4.0	4.0	
Lane Util. Factor		0.95			1.00	0.88		0.91		1.00	0.95	
Frt		0.94			1.00	0.85		0.98		1.00	0.99	
Flt Protected		0.99			0.97	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		3292			1796	2682		4975		1805	3550	
Flt Permitted		0.99			0.97	1.00		1.00		0.95	1.00	
Satd. Flow (perm)		3292			1796	2682		4975		1805	3550	
Volume (vph)	93	116	124	197	115	211	0	1251	165	137	1957	88
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)	102	140	159	323	149	224	0	1422	284	149	2082	107
RTOR Reduction (vph)	0	54	0	0	0	64	0	23	0	0	3	0
Lane Group Flow (vph)	0	347	0	0	472	160	0	1683	0	149	2186	0
Heavy Vehicles (%)	1%	0%	4%	2%	3%	6%	1%	2%	0%	0%	1%	0%
Turn Type	Split			Split		pt+ov				Prot		
Protected Phases	4	4		8	8	8 1		2		1	6	
Permitted Phases												
Actuated Green, G (s)		11.0			29.0	47.5		55.5		12.5	73.0	
Effective Green, g (s)		13.0			31.0	48.5		56.5		13.5	74.0	
Actuated g/C Ratio		0.10			0.24	0.37		0.43		0.10	0.57	
Clearance Time (s)		6.0			6.0			5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		329			428	1001		2162		187	2021	
v/s Ratio Prot		c0.11			c0.26	0.06		0.34		0.08	c0.62	
v/s Ratio Perm												
v/c Ratio		1.05			1.10	0.16		0.78		0.80	1.08	
Uniform Delay, d1		58.5			49.5	27.2		31.4		56.9	28.0	
Progression Factor		1.00			1.00	1.00		1.00		0.83	1.49	
Incremental Delay, d2		64.7			74.3	0.1		2.8		15.8	44.0	
Delay (s)		123.2			123.8	27.2		34.2		63.1	85.7	
Level of Service		F			F	C		C		E	F	
Approach Delay (s)		123.2			92.7			34.2			84.3	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM Average Control Delay	71.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

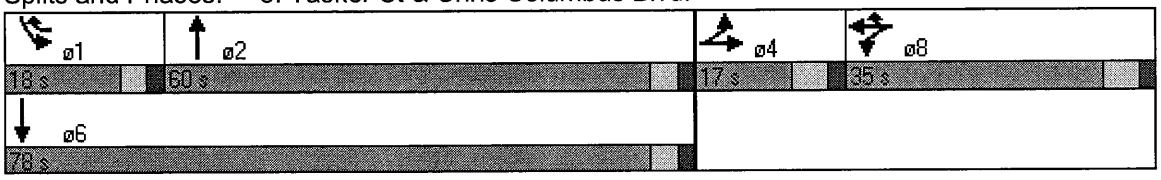
8: Tasker St & Chris Columbus Blvd.

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	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)		600			820			229			450	
Travel Time (s)		13.6			18.6			5.2			10.2	
Volume (vph)	93	116	124	197	115	211	0	1251	165	137	1957	88
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	Split			Split		pt+ov				Prot		
Protected Phases	4	4		8	8	8 1		2		1	6	
Permitted Phases												
Detector Phases	4	4		8	8	8 1		2		1	6	
Minimum Initial (s)	10.0	10.0		10.0	10.0			30.0		4.0	30.0	
Minimum Split (s)	16.0	16.0		16.0	16.0			35.0		9.0	35.0	
Total Split (s)	17.0	17.0	0.0	35.0	35.0	53.0	0.0	60.0	0.0	18.0	78.0	0.0
Total Split (%)	13.1%	13.1%	0.0%	26.9%	26.9%	40.8%	0.0%	46.2%	0.0%	13.8%	60.0%	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								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None		None	None			C-Min		None	C-Min	

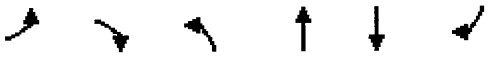
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 98 (75%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 140
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						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			1.00	0.91	0.91	1.00
Frt			1.00	1.00	1.00	0.85
Flt Protected			0.95	1.00	1.00	1.00
Satd. Flow (prot)			1770	5085	5085	1583
Flt Permitted			0.95	1.00	1.00	1.00
Satd. Flow (perm)			1770	5085	5085	1583
Volume (vph)	0	0	145	1416	1772	506
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	158	1539	1926	550
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	158	1539	1926	550
Turn Type			Prot			Free
Protected Phases			5	2	6	
Permitted Phases						Free
Actuated Green, G (s)			39.0	130.0	81.0	130.0
Effective Green, g (s)			40.0	130.0	82.0	130.0
Actuated g/C Ratio			0.31	1.00	0.63	1.00
Clearance Time (s)			5.0	5.0	5.0	
Vehicle Extension (s)			3.0	3.0	3.0	
Lane Grp Cap (vph)			545	5085	3207	1583
v/s Ratio Prot			0.09	0.30	c0.38	
v/s Ratio Perm						c0.35
v/c Ratio			0.29	0.30	0.60	0.35
Uniform Delay, d1			34.2	0.0	14.3	0.0
Progression Factor			1.00	1.00	0.37	1.00
Incremental Delay, d2			0.3	0.2	0.1	0.1
Delay (s)			34.5	0.2	5.4	0.1
Level of Service			C	A	A	A
Approach Delay (s)	0.0			3.4	4.2	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

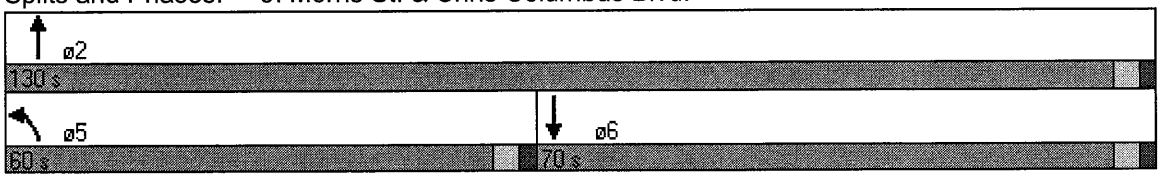
9: Morris St. & Chris Columbus Blvd.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150			100
Storage Lanes	0	0	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)			50	50	50	50
Trailing Detector (ft)			0	0	0	0
Turning Speed (mph)	15	9	15			9
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	193			126	229	
Travel Time (s)	4.4			2.9	5.2	
Volume (vph)	0	0	145	1416	1772	506
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Turn Type			Prot			Free
Protected Phases			5	2	6	
Permitted Phases						Free
Detector Phases			5	2	6	
Minimum Initial (s)			39.0	35.0	35.0	
Minimum Split (s)			44.0	40.0	40.0	
Total Split (s)	0.0	0.0	60.0	130.0	70.0	0.0
Total Split (%)	0.0%	0.0%	46.2%	100.0%	53.8%	0.0%
Yellow Time (s)			3.0	3.0	3.0	
All-Red Time (s)			2.0	2.0	2.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode			None	C-Min	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 102 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Splits and Phases: 9: Morris St. & Chris Columbus Blvd.



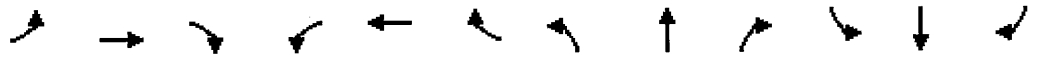
10: Morris St & Water St.

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	573	78	76	701	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	623	85	83	762	0	0	0	0

Direction, Lane #	WB 1	NB 1
Volume Total (vph)	708	845
Volume Left (vph)	0	83
Volume Right (vph)	85	0
Hadj (s)	-0.04	0.05
Departure Headway (s)	5.7	5.8
Degree Utilization, x	1.13	1.37
Capacity (veh/h)	633	622
Control Delay (s)	98.3	193.1
Approach Delay (s)	98.3	193.1
Approach LOS	F	F

Intersection Summary			
Delay	149.9		
HCM Level of Service	F		
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
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)		59			193			117			103	
Travel Time (s)		1.3			4.4			2.7			2.3	
Volume (vph)	0	0	0	0	573	78	76	701	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	