CAPACITY ANALYSIS – PHASE I 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	5075		
Flt Permitted						0.98			0.95	1.00		
Satd. Flow (perm)						3283			1770	5075		
Volume (vph)	0	0	0	1	8	5	7	4	355	1629	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	386	1771	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	390	1795	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			31.8	79.6		
Effective Green, g (s)						4.8			32.8	80.6		
Actuated g/C Ratio						0.04			0.30	0.73		
Clearance Time (s)						6.0			5.0	5.0		
Vehicle Extension (s)						3.0			3.0	3.0		
Lane Grp Cap (vph)						143			528	3719		
v/s Ratio Prot						c0.00			c0.22	0.35		
v/s Ratio Perm												
v/c Ratio						0.11			0.74	0.48		
Uniform Delay, d1						50.5			34.7	6.1		
Progression Factor						1.00			1.00	0.46		
Incremental Delay, d2						0.3			3.8	0.3		
Delay (s)						50.9			38.6	3.1		
Level of Service						D			D	A		
Approach Delay (s)		0.0				50.9				9.4		
Approach LOS		A				D				A		

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
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	5017	
Flt Permitted	0.95	1.00	
Satd. Flow (perm)	1770	5017	
Volume (vph)	17	1346	132
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	18	1463	143
RTOR Reduction (vph)	0	8	0
Lane Group Flow (vph)	23	1598	0
Turn Type	Prot		
Protected Phases	5	2	
Permitted Phases			
Actuated Green, G (s)	11.6	59.4	
Effective Green, g (s)	12.6	60.4	
Actuated g/C Ratio	0.11	0.55	
Clearance Time (s)	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	203	2755	
v/s Ratio Prot	0.01	c0.32	
v/s Ratio Perm			
v/c Ratio	0.11	0.58	
Uniform Delay, d1	43.7	16.4	
Progression Factor	1.00	1.00	
Incremental Delay, d2	0.2	0.9	
Delay (s)	43.9	17.3	
Level of Service	D	B	
Approach Delay (s)		17.7	
Approach LOS		B	

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	4963	
Flt Permitted	0.95	1.00	0.95	1.00	0.10	1.00	
Satd. Flow (perm)	3433	2787	3367	4988	182	4963	
Volume (vph)	139	1233	459	1846	10	1239	110
Peak-hour factor, PHF	0.81	0.92	0.80	0.76	0.92	0.92	0.77
Adj. Flow (vph)	172	1340	574	2429	11	1347	143
RTOR Reduction (vph)	0	4	0	0	0	11	0
Lane Group Flow (vph)	172	1336	574	2429	11	1479	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)	28.2	59.5	25.3	69.8	38.5	38.5	
Effective Green, g (s)	30.2	61.5	27.3	71.8	40.5	40.5	
Actuated g/C Ratio	0.27	0.56	0.25	0.65	0.37	0.37	
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)	943	1558	836	3256	67	1827	
v/s Ratio Prot	0.05	c0.48	0.17	0.49		c0.30	
v/s Ratio Perm					0.06		
v/c Ratio	0.18	0.86	0.69	0.75	0.16	0.81	
Uniform Delay, d1	30.5	20.5	37.5	12.9	23.4	31.3	
Progression Factor	1.00	1.00	0.60	0.27	0.24	0.54	
Incremental Delay, d2	0.1	4.9	2.0	1.4	4.4	3.4	
Delay (s)	30.6	25.4	24.3	4.8	10.0	20.2	
Level of Service	C	C	C	A	B	C	
Approach Delay (s)	26.0			8.5		20.2	
Approach LOS	C			A		C	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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	5082		1770	5007	
Flt Permitted	0.75	1.00			0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1388	1583			1492		1770	5082		1770	5007	
Volume (vph)	250	0	93	15	3	0	183	2031	10	2	2233	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	2208	11	2	2427	276
RTOR Reduction (vph)	0	80	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	272	21	0	0	19	0	199	2219	0	2	2690	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								
Actuated Green, G (s)	21.2	21.2			21.2		12.2	71.4		1.4	60.6	
Effective Green, g (s)	23.2	23.2			23.2		13.2	72.4		2.4	61.6	
Actuated g/C Ratio	0.21	0.21			0.21		0.12	0.66		0.02	0.56	
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)	293	334			315		212	3345		39	2804	
v/s Ratio Prot		0.01					c0.11	0.44		0.00	c0.54	
v/s Ratio Perm	c0.20				0.01							
v/c Ratio	0.93	0.06			0.06		0.94	0.66		0.05	0.96	
Uniform Delay, d1	42.6	34.7			34.7		48.0	11.4		52.7	23.0	
Progression Factor	1.00	1.00			1.00		1.20	0.33		0.85	0.73	
Incremental Delay, d2	33.9	0.1			0.1		29.6	0.6		0.3	6.1	
Delay (s)	76.4	34.8			34.8		87.4	4.3		45.1	22.9	
Level of Service	E	C			C		F	A		D	C	
Approach Delay (s)		65.2			34.8			11.1			23.0	
Approach LOS		E			C			B			C	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

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)	599	0	329	20	2	4	21	291	1619	4	3	1576
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	358	29	3	6	23	316	1760	4	3	1771
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	375	374	358	0	32	0	0	339	1764	0	3	1771
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)	26.2	26.2	110.0		4.2			11.0	43.9		13.7	46.6
Effective Green, g (s)	28.2	28.2	110.0		6.2			12.0	44.9		14.7	47.6
Actuated g/C Ratio	0.26	0.26	1.00		0.06			0.11	0.41		0.13	0.43
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)	427	422	1504		114			375	2075		221	1582
v/s Ratio Prot	0.23	c0.23			0.02			0.10	c0.35		0.00	c0.48
v/s Ratio Perm			0.24									
v/c Ratio	0.88	0.89	0.24		0.28			0.90	0.85		0.01	1.12
Uniform Delay, d1	39.3	39.4	0.0		49.8			48.4	29.5		41.4	31.2
Progression Factor	1.00	1.00	1.00		1.00			0.90	0.72		0.90	0.76
Incremental Delay, d2	18.1	19.5	0.4		1.4			22.3	4.1		0.0	58.1
Delay (s)	57.4	58.8	0.4		51.1			65.7	25.4		37.4	81.8
Level of Service	E	E	A		D			E	C		D	F
Approach Delay (s)		39.4			51.1				31.9			54.9
Approach LOS		D			D				C			D

Intersection Summary			
HCM Average Control Delay	43.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.3%	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)	779
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	875
RTOR Reduction (vph)	0
Lane Group Flow (vph)	875
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	c0.55
v/c Ratio	0.55
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

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	325	0	0	0	0	1483	0	7	0	1923
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	342	0	0	0	0	1612	0	16	0	1982
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	438	0	342	0	0	0	0	1612	0	0	16	1982
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)	18.6		110.0					73.9			1.5	80.4
Effective Green, g (s)	20.6		110.0					74.9			2.5	81.4
Actuated g/C Ratio	0.19		1.00					0.68			0.02	0.74
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)	643		1583					3462			41	3727
v/s Ratio Prot	c0.13							0.32			0.01	c0.39
v/s Ratio Perm			0.22									
v/c Ratio	0.68		0.22					0.47			0.39	0.53
Uniform Delay, d1	41.6		0.0					8.2			53.0	6.1
Progression Factor	1.00		1.00					0.88			1.23	0.48
Incremental Delay, d2	3.0		0.3					0.4			2.4	0.2
Delay (s)	44.6		0.3					7.6			67.6	3.1
Level of Service	D		A					A			E	A
Approach Delay (s)		25.2			0.0			7.6				3.6
Approach LOS		C			A			A				A

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.6%	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	

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	11	11	11	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)	1625	1652	1531	1698	1701			1624	4898			1620
Flt Permitted	0.95	0.97	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1625	1652	1531	1698	1701			1624	4898			1620
Volume (vph)	218	38	128	41	37	41	19	131	1214	18	11	97
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	41	139	49	44	49	25	175	1518	38	12	111
RTOR Reduction (vph)	0	0	124	0	37	0	0	0	2	0	0	0
Lane Group Flow (vph)	135	143	15	49	56	0	0	200	1554	0	0	123
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	8.0	8.0			13.0	57.5			12.5
Effective Green, g (s)	12.0	12.0	12.0	10.0	10.0			14.0	58.5			13.5
Actuated g/C Ratio	0.11	0.11	0.11	0.09	0.09			0.13	0.53			0.12
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)	177	180	167	154	155			207	2605			199
v/s Ratio Prot	0.08	c0.09	0.01	0.03	c0.03			c0.12	0.32			0.08
v/s Ratio Perm												
v/c Ratio	0.76	0.79	0.09	0.32	0.36			0.97	0.60			0.62
Uniform Delay, d1	47.6	47.8	44.1	46.8	47.0			47.8	17.7			45.8
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.68	0.38			1.27
Incremental Delay, d2	17.5	21.0	0.2	1.2	1.4			50.3	0.9			5.0
Delay (s)	65.1	68.8	44.3	48.0	48.4			82.5	7.7			63.3
Level of Service	E	E	D	D	D			F	A			E
Approach Delay (s)		59.4			48.3				16.2			
Approach LOS		E			D				B			

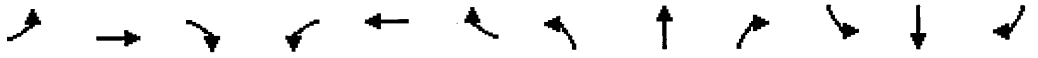
Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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)	4631	
Flt Permitted	1.00	
Satd. Flow (perm)	4631	
Volume (vph)	1918	220
Peak-hour factor, PHF	0.97	0.80
Adj. Flow (vph)	1977	275
RTOR Reduction (vph)	16	0
Lane Group Flow (vph)	2236	0
Heavy Vehicles (%)	3%	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)	2442	
v/s Ratio Prot	c0.48	
v/s Ratio Perm		
v/c Ratio	0.92	
Uniform Delay, d1	23.8	
Progression Factor	0.26	
Incremental Delay, d2	6.2	
Delay (s)	12.4	
Level of Service	B	
Approach Delay (s)	15.0	
Approach LOS	B	

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		4969		3433	3532	
Flt Permitted						1.00		1.00		0.95	1.00	
Satd. Flow (perm)						2787		4969		3433	3532	
Volume (vph)	0	0	0	0	0	51	0	1328	39	125	1955	27
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	55	0	1620	42	136	2327	32
RTOR Reduction (vph)	0	0	0	0	0	46	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	9	0	1660	0	136	2359	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)						15.8		83.2		15.8	110.0	
Effective Green, g (s)						17.8		84.2		17.8	110.0	
Actuated g/C Ratio						0.16		0.77		0.16	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)						451		3804		556	3532	
v/s Ratio Prot						0.00		0.33		0.04	c0.67	
v/s Ratio Perm												
v/c Ratio						0.02		0.44		0.24	0.67	
Uniform Delay, d1						38.8		4.5		40.2	0.0	
Progression Factor						1.00		0.50		0.87	1.00	
Incremental Delay, d2						0.0		0.3		0.1	0.6	
Delay (s)						38.8		2.6		35.0	0.6	
Level of Service						D		A		C	A	
Approach Delay (s)		0.0			38.8			2.6			2.5	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	3.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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			0.98	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		3274			1820	2787		5037		1770	3515	
Flt Permitted		0.99			0.98	1.00		0.90		0.95	1.00	
Satd. Flow (perm)		3274			1820	2787		4558		1770	3515	
Volume (vph)	79	78	109	73	81	104	4	1176	78	125	1660	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	88	122	79	88	113	4	1278	85	136	1677	79
RTOR Reduction (vph)	0	108	0	0	0	79	0	7	0	0	3	0
Lane Group Flow (vph)	0	191	0	0	167	34	0	1360	0	136	1753	0
Turn Type	Split			Split		pt+ov	Perm			Prot		
Protected Phases	4	4		8	8	8 1		2		1	6	
Permitted Phases							2					
Actuated Green, G (s)		10.7			14.0	30.5		46.8		16.5	68.3	
Effective Green, g (s)		12.7			16.0	33.5		47.8		17.5	69.3	
Actuated g/C Ratio		0.12			0.15	0.30		0.43		0.16	0.63	
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			265	849		1981		282	2214	
v/s Ratio Prot		c0.06			c0.09	0.01				0.08	c0.50	
v/s Ratio Perm								0.30				
v/c Ratio		0.51			0.63	0.04		0.69		0.48	0.79	
Uniform Delay, d1		45.7			44.2	26.9		25.1		42.1	15.0	
Progression Factor		1.00			1.00	1.00		1.00		0.75	0.45	
Incremental Delay, d2		1.1			4.8	0.0		1.9		1.0	2.2	
Delay (s)		46.8			49.0	27.0		27.0		32.4	8.9	
Level of Service		D			D	C		C		C	A	
Approach Delay (s)		46.8			40.1			27.0			10.6	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

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	166	1258	1428	414
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	180	1367	1552	450
RTOR Reduction (vph)	0	0	0	0	0	101
Lane Group Flow (vph)	0	0	180	1367	1552	349
Turn Type			Prot			Perm
Protected Phases			5	2	6	
Permitted Phases						6
Actuated Green, G (s)			30.0	110.0	70.0	70.0
Effective Green, g (s)			31.0	110.0	71.0	71.0
Actuated g/C Ratio			0.28	1.00	0.65	0.65
Clearance Time (s)			5.0	5.0	5.0	5.0
Vehicle Extension (s)			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)			499	5085	3282	1022
v/s Ratio Prot			c0.10	0.27	c0.31	
v/s Ratio Perm						0.22
v/c Ratio			0.36	0.27	0.47	0.34
Uniform Delay, d1			31.6	0.0	10.0	8.9
Progression Factor			1.00	1.00	0.32	0.10
Incremental Delay, d2			0.4	0.1	0.3	0.6
Delay (s)			32.0	0.1	3.6	1.5
Level of Service			C	A	A	A
Approach Delay (s)	0.0			3.8	3.1	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	3.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
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			

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	516	64	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	561	70	55	424	0	0	0	0

Direction, Lane #	WB 1	NB 1
Volume Total (vph)	630	479
Volume Left (vph)	0	55
Volume Right (vph)	70	0
Hadj (s)	-0.03	0.06
Departure Headway (s)	5.4	5.8
Degree Utilization, x	0.94	0.77
Capacity (veh/h)	630	605
Control Delay (s)	43.8	25.3
Approach Delay (s)	43.8	25.3
Approach LOS	E	D

Intersection Summary				
Delay	35.8			
HCM Level of Service	E			
Intersection Capacity Utilization	61.1%	ICU Level of Service	B	
Analysis Period (min)	15			

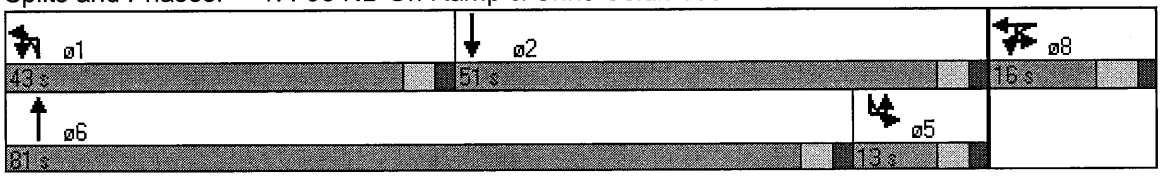
1: I-95 NB On Ramp & Chris Columbus Blvd.

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	355	1629	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	16.0	16.0	16.0	0.0	43.0	43.0	81.0	0.0	13.0
Total Split (%)	0.0%	0.0%	0.0%	14.5%	14.5%	14.5%	0.0%	39.1%	39.1%	73.6%	0.0%	11.8%
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	Lead		Lag
Lead-Lag Optimize?								Yes	Yes	Yes		Yes
Recall Mode				None	None	None		None	None	C-Min		None

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 109 (99%), 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	1346	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)	13.0	51.0	0.0
Total Split (%)	11.8%	46.4%	0.0%
Yellow Time (s)	3.0	3.0	
All-Red Time (s)	2.0	2.0	
Lead/Lag	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	C-Min	

Intersection Summary

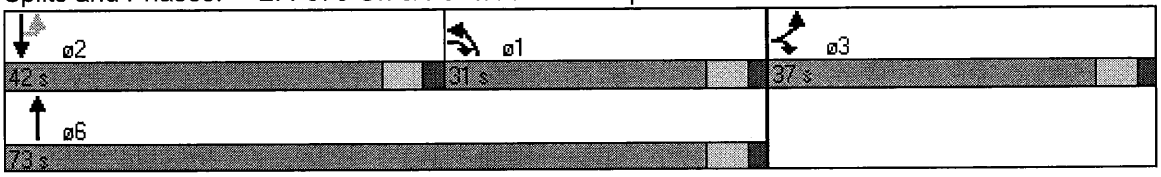
2: I-676 On & I-676/95 Off Ramp & Chris Columbus Blvd.

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	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)	139	1233	459	1846	10	1239	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		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			Lag		Lead	Lead	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None		None	C-Min	C-Min	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 29 (26%), 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.



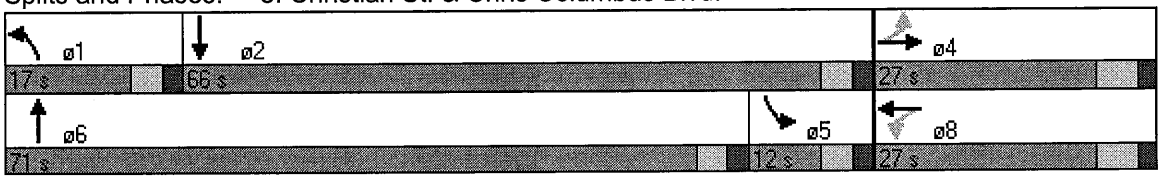
3: Christian St. & Chris Columbus Blvd.

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)	250	0	93	15	3	0	183	2031	10	2	2233	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)	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)	27.0	27.0	0.0	27.0	27.0	0.0	17.0	71.0	0.0	12.0	66.0	0.0
Total Split (%)	24.5%	24.5%	0.0%	24.5%	24.5%	0.0%	15.5%	64.5%	0.0%	10.9%	60.0%	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	Lead		Lag	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: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

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



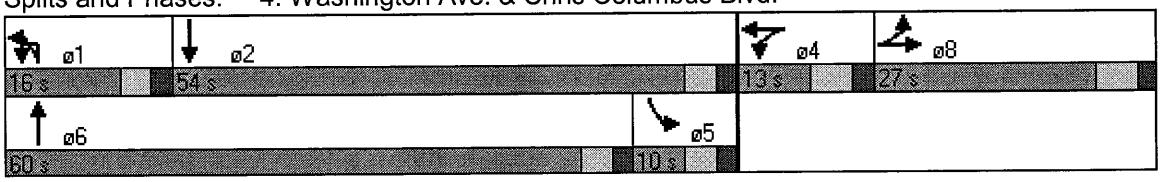
4: Washington Ave. & Chris Columbus Blvd.

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		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	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)	599	0	329	20	2	4	21	291	1619	4	3	1576
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)	27.0	27.0	0.0	13.0	13.0	0.0	16.0	16.0	60.0	0.0	10.0	54.0
Total Split (%)	24.5%	24.5%	0.0%	11.8%	11.8%	0.0%	14.5%	14.5%	54.5%	0.0%	9.1%	49.1%
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	Lead	Lead		Lag	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: 110
Actuated Cycle Length: 110
Offset: 32 (29%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 130
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)	779
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

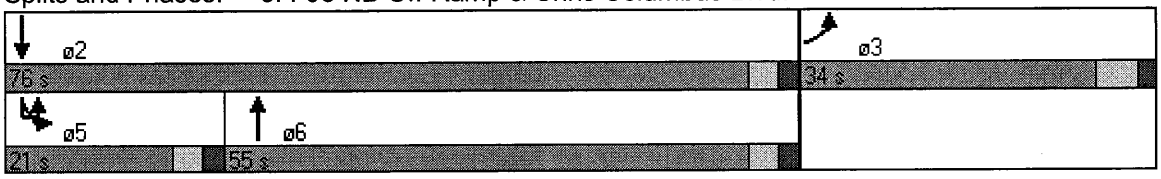
5: I-95 NB Off Ramp & Chris Columbus Blvd.

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)	412	0	325	0	0	0	0	1483	0	7	0	1923
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)	34.0	0.0	0.0	0.0	0.0	0.0	0.0	55.0	0.0	21.0	21.0	76.0
Total Split (%)	30.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	19.1%	19.1%	69.1%
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: 110
Actuated Cycle Length: 110
Offset: 84 (76%), 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

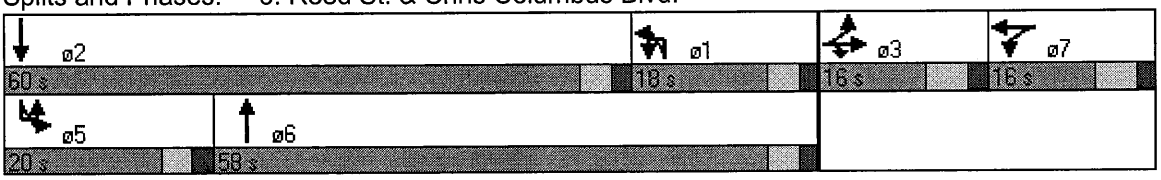
6: Reed St. & Chris Columbus Blvd.

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)	11	11	11	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)	218	38	128	41	37	41	19	131	1214	18	11	97
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	58.0	0.0	20.0	20.0
Total Split (%)	14.5%	14.5%	14.5%	14.5%	14.5%	0.0%	16.4%	16.4%	52.7%	0.0%	18.2%	18.2%
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							Lag	Lag	Lag		Lead	Lead
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: 83 (75%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

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



6: Reed St. & Chris Columbus Blvd.

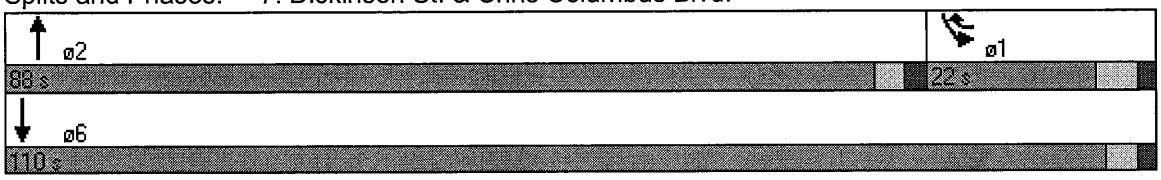
Lane Group	SBT	SBR
Lane Configurations	↑↑↑	
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	12
Storage Length (ft)		0
Storage Lanes		0
Total Lost Time (s)	4.0	4.0
Leading Detector (ft)	50	
Trailing Detector (ft)	0	
Turning Speed (mph)		9
Right Turn on Red		Yes
Link Speed (mph)	30	
Link Distance (ft)	487	
Travel Time (s)	11.1	
Volume (vph)	1918	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)	60.0	0.0
Total Split (%)	54.5%	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

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	51	0	1328	39	125	1955	27
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)						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	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: 50 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	

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



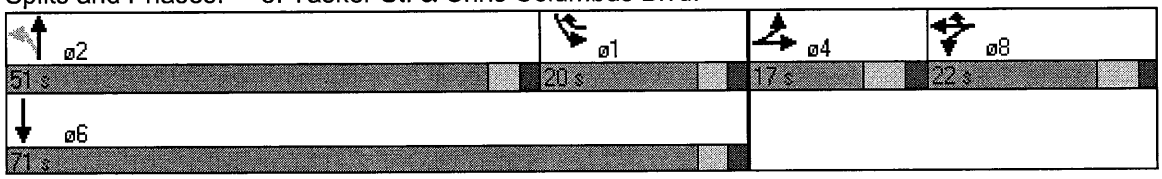
8: Tasker St. & Chris Columbus Blvd.

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	50	
Trailing Detector (ft)	0	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)	79	78	109	73	81	104	4	1176	78	125	1660	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	Split			Split		pt+ov	Perm			Prot		
Protected Phases	4	4		8	8	8 1		2		1	6	
Permitted Phases							2					
Detector Phases	4	4		8	8	8 1	2	2		1	6	
Minimum Initial (s)	10.0	10.0		10.0	10.0		30.0	30.0		4.0	30.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		35.0	35.0		9.0	35.0	
Total Split (s)	17.0	17.0	0.0	22.0	22.0	42.0	51.0	51.0	0.0	20.0	71.0	0.0
Total Split (%)	15.5%	15.5%	0.0%	20.0%	20.0%	38.2%	46.4%	46.4%	0.0%	18.2%	64.5%	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	Lead		Lag		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Min	C-Min		None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 80 (73%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

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



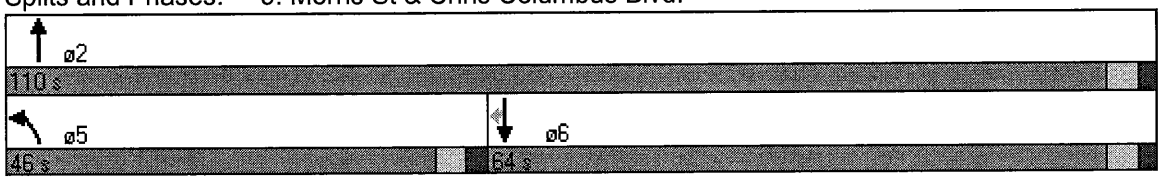
9: Morris St & Chris Columbus Blvd.

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	166	1258	1428	414
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Turn Type			Prot			Perm
Protected Phases			5	2	6	
Permitted Phases						6
Detector Phases			5	2	6	6
Minimum Initial (s)			30.0	35.0	35.0	35.0
Minimum Split (s)			35.0	40.0	40.0	40.0
Total Split (s)	0.0	0.0	46.0	110.0	64.0	64.0
Total Split (%)	0.0%	0.0%	41.8%	100.0%	58.2%	58.2%
Yellow Time (s)			3.0	3.0	3.0	3.0
All-Red Time (s)			2.0	2.0	2.0	2.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode			None	C-Min	C-Min	C-Min

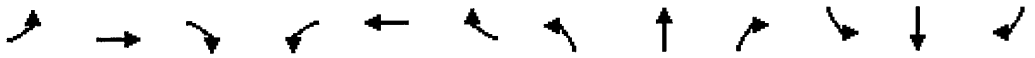
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 107 (97%), 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



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)		56			197			103			95	
Travel Time (s)		1.3			4.5			2.3			2.2	
Volume (vph)	0	0	0	0	516	64	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	5035		1736	5045
Flt Permitted					0.98			0.95	1.00		0.95	1.00
Satd. Flow (perm)					3313			1788	5035		1736	5045
Volume (vph)	0	0	0	7	3	8	6	502	1044	59	27	1251
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	528	1273	89	42	1472
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	6	0	0	6
Lane Group Flow (vph)	0	0	0	0	17	0	0	552	1356	0	42	1561
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			48.0	94.6		5.2	51.8
Effective Green, g (s)					6.2			49.0	95.6		6.2	52.8
Actuated g/C Ratio					0.05			0.41	0.80		0.05	0.44
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)					171			730	4011		90	2220
v/s Ratio Prot					c0.01			c0.31	0.27		0.02	c0.31
v/s Ratio Perm												
v/c Ratio					0.10			0.76	0.34		0.47	0.70
Uniform Delay, d1					54.2			30.4	3.4		55.3	27.2
Progression Factor					1.00			0.83	0.75		1.00	1.00
Incremental Delay, d2					0.2			4.0	0.2		3.8	1.9
Delay (s)					54.5			29.3	2.7		59.1	29.1
Level of Service					D			C	A		E	C
Approach Delay (s)		0.0			54.5				10.4			29.9
Approach LOS		A			D				B			C

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
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	

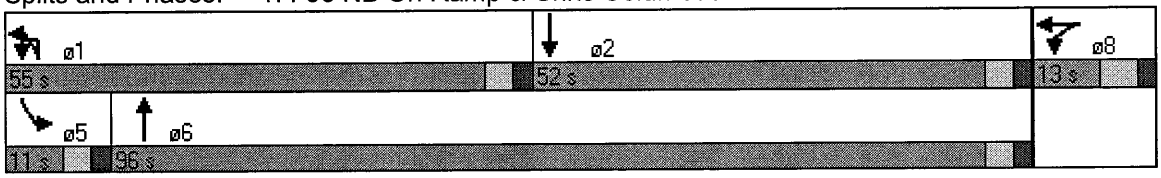
1: I-95 NB On Ramp & Chris Columbus Blvd.

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	502	1044	59	27	1251
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		10.0	10.0	27.0		5.0	27.0
Minimum Split (s)				13.0	13.0		15.0	15.0	53.0		10.0	32.0
Total Split (s)	0.0	0.0	0.0	13.0	13.0	0.0	55.0	55.0	96.0	0.0	11.0	52.0
Total Split (%)	0.0%	0.0%	0.0%	10.8%	10.8%	0.0%	45.8%	45.8%	80.0%	0.0%	9.2%	43.3%
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: 120
Actuated Cycle Length: 120
Offset: 106 (88%), 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 Bl

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	5070	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3400	2814	3467	5085	5070	
Volume (vph)	134	1213	634	1473	1162	104
Peak-hour factor, PHF	0.81	0.90	0.94	0.84	0.93	0.89
Adj. Flow (vph)	165	1348	674	1754	1249	117
RTOR Reduction (vph)	0	4	0	0	9	0
Lane Group Flow (vph)	165	1344	674	1754	1357	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)	31.5	66.3	28.8	76.5	41.7	
Effective Green, g (s)	33.5	68.3	30.8	78.5	43.7	
Actuated g/C Ratio	0.28	0.57	0.26	0.65	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)	949	1602	890	3326	1846	
v/s Ratio Prot	0.05	c0.48	0.19	0.34	c0.27	
v/s Ratio Perm						
v/c Ratio	0.17	0.84	0.76	0.53	0.74	
Uniform Delay, d1	32.8	21.3	41.2	11.0	33.1	
Progression Factor	1.00	1.00	0.71	0.52	0.27	
Incremental Delay, d2	0.1	4.0	2.6	0.4	2.0	
Delay (s)	32.9	25.4	31.7	6.1	10.7	
Level of Service	C	C	C	A	B	
Approach Delay (s)	26.2			13.2	10.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

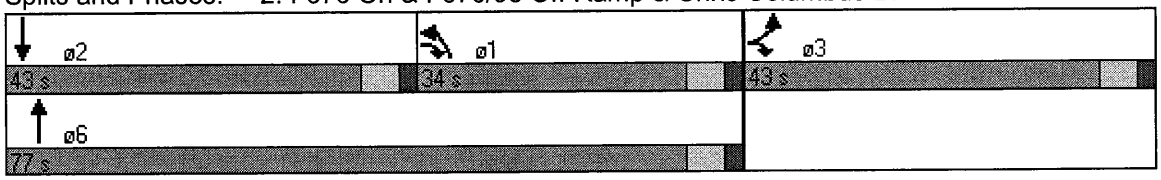
2: I-676 On & I-676/95 Off Ramp & Chris Columbus Bl

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)	134	1213	634	1473	1162	104
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)	43.0	77.0	34.0	77.0	43.0	0.0
Total Split (%)	35.8%	64.2%	28.3%	64.2%	35.8%	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: 120
Actuated Cycle Length: 120
Offset: 19 (16%), 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 Bl



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	1629			1774		1805	5081			1805	5030
Flt Permitted	0.79	1.00			0.74		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1471	1629			1355		1805	5081			1805	5030
Volume (vph)	157	2	142	13	2	2	172	1933	9	5	16	2025
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	2301	16	8	52	2132
RTOR Reduction (vph)	0	132	0	0	3	0	0	1	0	0	0	17
Lane Group Flow (vph)	191	36	0	0	27	0	198	2316	0	0	60	2453
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)	19.1	19.1			19.1		17.0	74.6			10.3	67.9
Effective Green, g (s)	21.1	21.1			21.1		18.0	75.6			11.3	68.9
Actuated g/C Ratio	0.18	0.18			0.18		0.15	0.63			0.09	0.57
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)	259	286			238		271	3201			170	2888
v/s Ratio Prot		0.02					c0.11	c0.46			0.03	c0.49
v/s Ratio Perm	c0.13				0.02							
v/c Ratio	0.74	0.13			0.11		0.73	0.72			0.35	0.85
Uniform Delay, d1	46.8	41.7			41.6		48.7	15.1			50.9	21.2
Progression Factor	1.00	1.00			1.00		0.94	0.52			0.96	0.87
Incremental Delay, d2	10.4	0.2			0.2		7.5	1.1			0.7	2.0
Delay (s)	57.3	41.9			41.8		53.4	9.0			49.6	20.4
Level of Service	E	D			D		D	A			D	C
Approach Delay (s)		50.1			41.8			12.5				21.1
Approach LOS		D			D			B				C

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
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)	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	

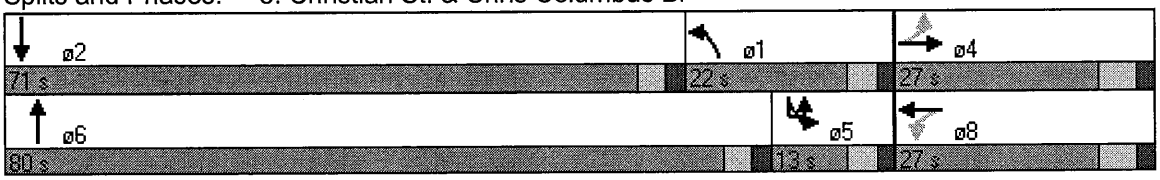
3: Christian St. & Chris Columbus Bl

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)	157	2	142	13	2	2	172	1933	9	5	16	2025
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	22.0	80.0	0.0	13.0	13.0	71.0
Total Split (%)	22.5%	22.5%	0.0%	22.5%	22.5%	0.0%	18.3%	66.7%	0.0%	10.8%	10.8%	59.2%
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							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: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

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



3: Christian St. & Chris Columbus Bl

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 Bl

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)	516	4	416	4	4	5	2	352	1589	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	452	8	12	12	2	387	1869	8	8	0
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	0	0	0	0
Lane Group Flow (vph)	270	284	452	0	21	0	0	389	1877	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)	22.1	22.1	120.0		4.2			13.8	66.5			5.2
Effective Green, g (s)	24.1	24.1	120.0		6.2			14.8	67.5			6.2
Actuated g/C Ratio	0.20	0.20	1.00		0.05			0.12	0.56			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)	334	333	1504		104			423	2859			85
v/s Ratio Prot	0.16	c0.17			0.01			c0.11	0.37			0.00
v/s Ratio Perm			0.30									
v/c Ratio	0.81	0.85	0.30		0.20			0.92	0.66			0.09
Uniform Delay, d1	45.7	46.2	0.0		54.5			52.0	18.2			54.2
Progression Factor	1.00	1.00	1.00		1.00			0.75	0.40			1.16
Incremental Delay, d2	13.4	18.6	0.5		0.9			20.7	0.9			0.3
Delay (s)	59.1	64.8	0.5		55.5			59.5	8.2			63.2
Level of Service	E	E	A		E			E	A			E
Approach Delay (s)		34.4			55.5				17.0			
Approach LOS		C			E				B			

Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

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	*1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3850	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3850	1583
Volume (vph)	1736	437
Peak-hour factor, PHF	0.92	0.90
Adj. Flow (vph)	1887	486
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1887	486
Heavy Vehicles (%)	2%	2%
Turn Type		Free
Protected Phases	2	
Permitted Phases		Free
Actuated Green, G (s)	57.9	120.0
Effective Green, g (s)	58.9	120.0
Actuated g/C Ratio	0.49	1.00
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1890	1583
v/s Ratio Prot	c0.49	
v/s Ratio Perm		c0.31
v/c Ratio	1.00	0.31
Uniform Delay, d1	30.5	0.0
Progression Factor	0.83	1.00
Incremental Delay, d2	15.7	0.3
Delay (s)	41.1	0.3
Level of Service	D	A
Approach Delay (s)	32.8	
Approach LOS	C	

Intersection Summary

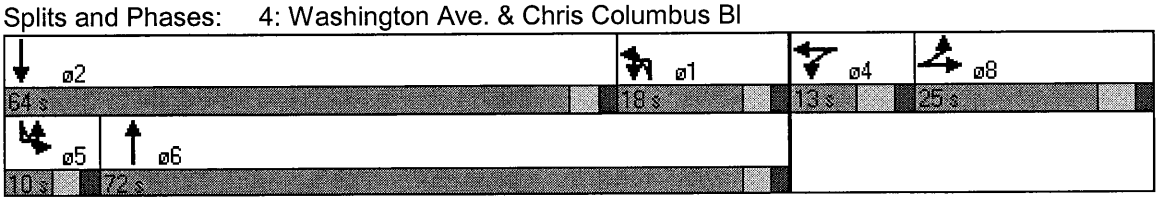
4: Washington Ave. & Chris Columbus Bl

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)		130			507				821			
Travel Time (s)		3.0			11.5				18.7			
Volume (vph)	516	4	416	4	4	5	2	352	1589	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		10.0	10.0	29.0		5.0	5.0
Minimum Split (s)	16.0	16.0		13.0	13.0		15.0	15.0	34.0		10.0	10.0
Total Split (s)	25.0	25.0	0.0	13.0	13.0	0.0	18.0	18.0	72.0	0.0	10.0	10.0
Total Split (%)	20.8%	20.8%	0.0%	10.8%	10.8%	0.0%	15.0%	15.0%	60.0%	0.0%	8.3%	8.3%
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							Lag	Lag	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: 120
Actuated Cycle Length: 120
Offset: 6 (5%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

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



4: Washington Ave. & Chris Columbus Bl

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)	1736	437
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)	64.0	0.0
Total Split (%)	53.3%	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

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	*1.00
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	5644
Flt Permitted	0.95		1.00					1.00			0.95	1.00
Satd. Flow (perm)	3433		1568					5085			1805	5644
Volume (vph)	391	0	349	0	0	0	0	1520	0	24	0	2135
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	485	0	0	0	0	1652	0	92	0	2224
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	514	0	485	0	0	0	0	1652	0	0	92	2224
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)	22.6		120.0					62.8			18.6	86.4
Effective Green, g (s)	24.6		120.0					63.8			19.6	87.4
Actuated g/C Ratio	0.21		1.00					0.53			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)	704		1568					2704			295	4111
v/s Ratio Prot	c0.15							c0.32			0.05	c0.39
v/s Ratio Perm			0.31									
v/c Ratio	0.73		0.31					0.61			0.31	0.54
Uniform Delay, d1	44.6		0.0					19.5			44.3	7.3
Progression Factor	1.00		1.00					0.09			0.59	0.15
Incremental Delay, d2	3.9		0.5					0.5			0.3	0.3
Delay (s)	48.5		0.5					2.2			26.2	1.4
Level of Service	D		A					A			C	A
Approach Delay (s)		25.2			0.0			2.2				2.3
Approach LOS		C			A			A				A

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.1%	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)	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	

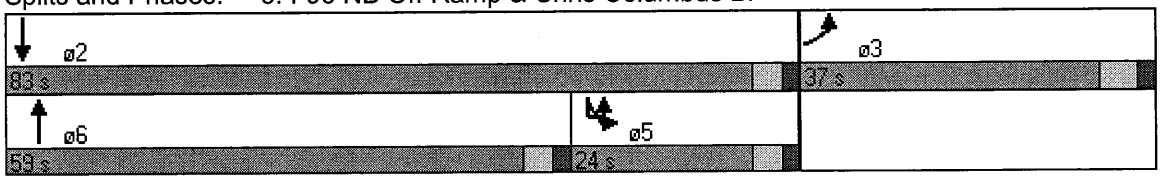
5: I-95 NB Off Ramp & Chris Columbus Bl

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			500				821
Travel Time (s)		13.5			3.5			11.4				18.7
Volume (vph)	391	0	349	0	0	0	0	1520	0	24	0	2135
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)	37.0	0.0	0.0	0.0	0.0	0.0	0.0	59.0	0.0	24.0	24.0	83.0
Total Split (%)	30.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	49.2%	0.0%	20.0%	20.0%	69.2%
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: 120
Actuated Cycle Length: 120
Offset: 2 (2%), 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 Bl



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	

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	11	11	11	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	0.91			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)	1625	1659	1561	1681	1694			1636	4899			1652
Flt Permitted	0.95	0.97	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1625	1659	1561	1681	1694			1636	4899			1652
Volume (vph)	189	35	158	37	26	53	18	175	1277	20	2	119
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	42	158	53	52	82	20	190	1596	43	3	172
RTOR Reduction (vph)	0	0	142	0	47	0	0	0	3	0	0	0
Lane Group Flow (vph)	126	133	16	53	87	0	0	210	1636	0	0	175
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)	10.1	10.1	10.1	5.7	5.7			15.1	46.5			35.7
Effective Green, g (s)	12.1	12.1	12.1	7.7	7.7			16.1	47.5			36.7
Actuated g/C Ratio	0.10	0.10	0.10	0.06	0.06			0.13	0.40			0.31
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)	164	167	157	108	109			219	1939			505
v/s Ratio Prot	0.08	c0.08	0.01	0.03	c0.05			c0.13	0.33			0.11
v/s Ratio Perm												
v/c Ratio	0.77	0.80	0.10	0.49	0.80			0.96	0.84			0.35
Uniform Delay, d1	52.6	52.7	49.0	54.3	55.4			51.6	32.9			32.3
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.68	0.88			0.48
Incremental Delay, d2	19.2	22.5	0.3	3.5	32.9			46.8	4.4			0.4
Delay (s)	71.8	75.3	49.3	57.7	88.3			82.0	33.3			16.1
Level of Service	E	E	D	E	F			F	C			B
Approach Delay (s)		64.4			79.6				38.8			
Approach LOS		E			E				D			

Intersection Summary			
HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

6: Reed St. & Chris Columbus Bl

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)	4671	
Flt Permitted	1.00	
Satd. Flow (perm)	4671	
Volume (vph)	2154	226
Peak-hour factor, PHF	0.94	0.78
Adj. Flow (vph)	2291	290
RTOR Reduction (vph)	13	0
Lane Group Flow (vph)	2568	0
Heavy Vehicles (%)	2%	1%
Turn Type		
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	67.1	
Effective Green, g (s)	68.1	
Actuated g/C Ratio	0.57	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2651	
v/s Ratio Prot	c0.55	
v/s Ratio Perm		
v/c Ratio	0.97	
Uniform Delay, d1	24.9	
Progression Factor	0.25	
Incremental Delay, d2	10.6	
Delay (s)	16.8	
Level of Service	B	
Approach Delay (s)	16.7	
Approach LOS	B	

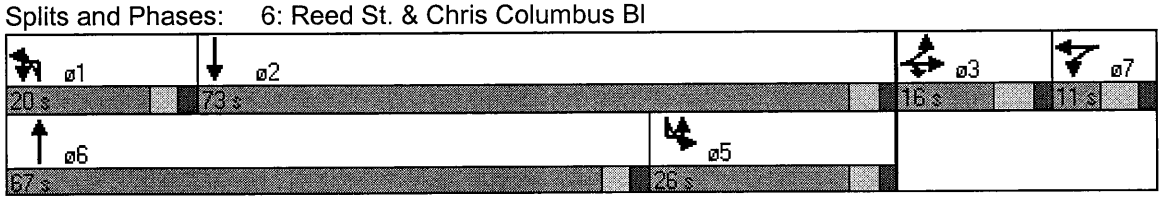
Intersection Summary

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)	11	11	11	12	13	12	10	10	11	12	10	10
Storage Length (ft)	0		0	0		0		314		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)	189	35	158	37	26	53	18	175	1277	20	2	119
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	11.0	11.0	0.0	20.0	20.0	67.0	0.0	26.0	26.0
Total Split (%)	13.3%	13.3%	13.3%	9.2%	9.2%	0.0%	16.7%	16.7%	55.8%	0.0%	21.7%	21.7%
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: 120
Actuated Cycle Length: 120
Offset: 16 (13%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

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



6: Reed St. & Chris Columbus Bl

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)	500	
Travel Time (s)	11.4	
Volume (vph)	2154	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)	73.0	0.0
Total Split (%)	60.8%	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

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		5056		3433	3539	
Flt Permitted						1.00		1.00		0.95	1.00	
Satd. Flow (perm)						2787		5056		3433	3539	
Volume (vph)	0	0	0	0	0	104	0	1386	60	295	2071	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	113	0	1631	65	321	2251	0
RTOR Reduction (vph)	0	0	0	0	0	67	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	46	0	1694	0	321	2251	0
Turn Type						Over				Prot		
Protected Phases						1		2		1	6	
Permitted Phases												
Actuated Green, G (s)						15.4		93.6		15.4	120.0	
Effective Green, g (s)						17.4		94.6		17.4	120.0	
Actuated g/C Ratio						0.14		0.79		0.14	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)						404		3986		498	3539	
v/s Ratio Prot						0.02		0.33		0.09	c0.64	
v/s Ratio Perm												
v/c Ratio						0.11		0.42		0.64	0.64	
Uniform Delay, d1						44.6		4.0		48.4	0.0	
Progression Factor						1.00		0.28		1.07	1.00	
Incremental Delay, d2						0.1		0.3		1.1	0.3	
Delay (s)						44.7		1.4		52.9	0.3	
Level of Service						D		A		D	A	
Approach Delay (s)		0.0			44.7			1.4			6.9	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

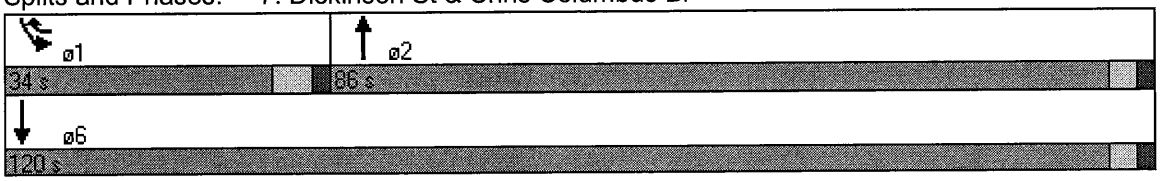
7: Dickinson St & Chris Columbus Bl

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	104	0	1386	60	295	2071	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	34.0	0.0	86.0	0.0	34.0	120.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	28.3%	0.0%	71.7%	0.0%	28.3%	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						Lead		Lag		Lead		
Lead-Lag Optimize?						Yes		Yes		Yes		
Recall Mode						None		C-Min		None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 7: Dickinson St & Chris Columbus Bl



8: Tasker St & Chris Columbus Bl

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)		3288			1800	2682		4998		1805	3550	
Flt Permitted		0.99			0.97	1.00		1.00		0.95	1.00	
Satd. Flow (perm)		3288			1800	2682		4998		1805	3550	
Volume (vph)	91	108	120	146	109	164	0	1193	119	98	1887	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	130	154	239	142	174	0	1356	205	107	2007	104
RTOR Reduction (vph)	0	65	0	0	0	72	0	16	0	0	3	0
Lane Group Flow (vph)	0	319	0	0	381	102	0	1545	0	107	2108	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)		10.0			23.0	40.2		53.8		11.2	70.0	
Effective Green, g (s)		12.0			25.0	41.2		54.8		12.2	71.0	
Actuated g/C Ratio		0.10			0.21	0.34		0.46		0.10	0.59	
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			375	921		2282		184	2100	
v/s Ratio Prot		c0.10			c0.21	0.04		0.31		0.06	c0.59	
v/s Ratio Perm												
v/c Ratio		0.97			1.02	0.11		0.68		0.58	1.00	
Uniform Delay, d1		53.8			47.5	26.9		25.6		51.5	24.5	
Progression Factor		1.00			1.00	1.00		1.00		1.03	0.85	
Incremental Delay, d2		41.5			50.6	0.1		1.6		3.6	18.1	
Delay (s)		95.3			98.1	27.0		27.2		56.4	38.8	
Level of Service		F			F	C		C		E	D	
Approach Delay (s)		95.3			75.8			27.2			39.7	
Approach LOS		F			E			C			D	

Intersection Summary			
HCM Average Control Delay	44.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

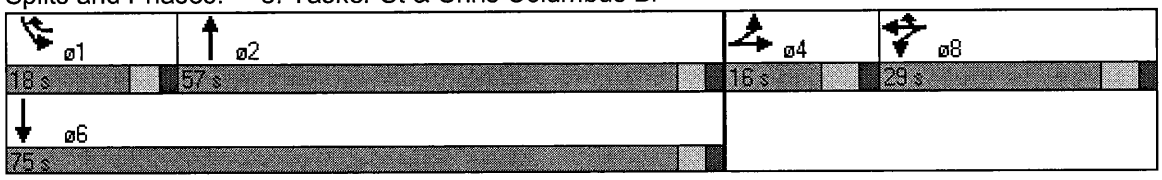
8: Tasker St & Chris Columbus Bl

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)	91	108	120	146	109	164	0	1193	119	98	1887	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	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	29.0	29.0	47.0	0.0	57.0	0.0	18.0	75.0	0.0
Total Split (%)	13.3%	13.3%	0.0%	24.2%	24.2%	39.2%	0.0%	47.5%	0.0%	15.0%	62.5%	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	

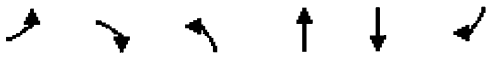
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 76 (63%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 8: Tasker St & Chris Columbus Bl



9: Morris St. & Chris Columbus Bl



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	140	1312	1675	478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	152	1426	1821	520
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	152	1426	1821	520
Turn Type			Prot			Free
Protected Phases			5	2	6	
Permitted Phases						Free
Actuated Green, G (s)			35.0	120.0	75.0	120.0
Effective Green, g (s)			36.0	120.0	76.0	120.0
Actuated g/C Ratio			0.30	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)			531	5085	3221	1583
v/s Ratio Prot			0.09	0.28	c0.36	
v/s Ratio Perm						c0.33
v/c Ratio			0.29	0.28	0.57	0.33
Uniform Delay, d1			32.2	0.0	12.6	0.0
Progression Factor			1.00	1.00	0.34	1.00
Incremental Delay, d2			0.3	0.1	0.1	0.1
Delay (s)			32.5	0.1	4.3	0.1
Level of Service			C	A	A	A
Approach Delay (s)	0.0			3.3	3.4	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	3.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

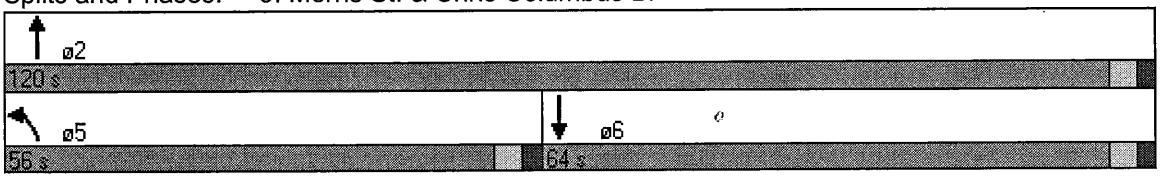
9: Morris St. & Chris Columbus Bl

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	120			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	140	1312	1675	478
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)			35.0	35.0	35.0	
Minimum Split (s)			40.0	40.0	40.0	
Total Split (s)	0.0	0.0	56.0	120.0	64.0	0.0
Total Split (%)	0.0%	0.0%	46.7%	100.0%	53.3%	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: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

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



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	548	70	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	596	76	80	739	0	0	0	0

Direction, Lane #	WB 1	NB 1
Volume Total (vph)	672	820
Volume Left (vph)	0	80
Volume Right (vph)	76	0
Hadj (s)	-0.03	0.05
Departure Headway (s)	5.7	5.8
Degree Utilization, x	1.07	1.33
Capacity (veh/h)	639	631
Control Delay (s)	79.5	176.3
Approach Delay (s)	79.5	176.3
Approach LOS	F	F

Intersection Summary			
Delay	132.7		
HCM Level of Service	F		
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
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)		51			197			103			108	
Travel Time (s)		1.2			4.5			2.3			2.5	
Volume (vph)	0	0	0	0	548	70	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	