
























# I-85/I-385 Interchange Improvements























## 2015 Alternate 4A PM

1: Woodruff Road & Roper Mountain Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	284	320	47	125	633	393	36	469	110	563	469	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Flt Protected	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	3372		1719	3438	1538	1719	3438	1538	3335	3438	1538
Satd. Flow (perm)	240	3372		927	3438	1538	831	3438	1538	3335	3438	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	316	356	52	139	703	437	40	521	122	626	521	72
RTOR Reduction (vph)	0	10	0	0	0	278	0	0	99	0	0	40
Lane Group Flow (vph)	316	398	0	139	703	159	40	521	23	626	521	32
Turn Type	pm+pt			pm+pt		Perm	Perm		Perm	Prot		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2			6
Actuated Green, G (s)	48.9	34.9		36.1	26.1	26.1	20.7	20.7	20.7	23.4	49.1	49.1
Effective Green, g (s)	48.9	34.9		36.1	26.1	26.1	20.7	20.7	20.7	23.4	49.1	49.1
Actuated g/C Ratio	0.44	0.32		0.33	0.24	0.24	0.19	0.19	0.19	0.21	0.45	0.45
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	4.3	5.5		4.3	5.5	5.5	4.9	4.9	4.9	4.3	4.9	4.9
Lane Grp Cap (vph)	359	1070		376	816	365	156	647	289	709	1535	687
v/s Ratio Prot	c0.15	0.12		0.03	0.20			c0.15		c0.19	0.15	
v/s Ratio Perm	c0.24			0.09		0.10	0.05		0.01			0.02
v/c Ratio	0.88	0.37		0.37	0.86	0.44	0.26	0.81	0.08	0.88	0.34	0.05
Uniform Delay, d1	28.8	29.1		27.0	40.2	35.7	38.1	42.7	36.8	42.0	19.9	17.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.54	0.36	0.20
Incremental Delay, d2	22.1	0.5		1.0	10.3	2.0	3.9	10.3	0.5	9.0	0.4	0.1
Delay (s)	50.9	29.6		28.0	50.5	37.7	42.0	53.0	37.3	31.5	7.6	3.5
Level of Service	D	C		C	D	D	D	D	D	C	A	A
Approach Delay (s)		38.9			43.7			49.6			19.6	
Approach LOS		D			D			D			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			36.3			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			79.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

2: Woodruff Road & Costco Driveway





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	13	881	85	189	1125	40	93	4	201	37	2	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Flt Protected	1.00	0.99		1.00	1.00	0.85	1.00	0.85		1.00	1.00	0.85
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	3393		1719	3438	1538	1719	1543		1719	1810	1538
Satd. Flow (perm)	311	3393		482	3438	1538	1369	1543		387	1810	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	979	94	210	1250	44	103	4	223	41	2	33
RTOR Reduction (vph)	0	4	0	0	0	10	0	176	0	0	0	27
Lane Group Flow (vph)	14	1069	0	210	1250	34	103	51	0	41	2	6
Turn Type	pm+pt			Perm		Perm	Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	118.3	118.3		105.4	105.4	105.4	18.7	18.7		18.7	18.7	25.1
Effective Green, g (s)	118.3	118.3		105.4	105.4	105.4	18.7	18.7		18.7	18.7	25.1
Actuated g/C Ratio	0.79	0.79		0.70	0.70	0.70	0.12	0.12		0.12	0.12	0.17
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	4.3	5.5		5.5	5.5	5.5	5.5	5.5		5.5	5.5	4.3
Lane Grp Cap (vph)	305	2676		339	2416	1081	171	192		48	226	324
v/s Ratio Prot	0.00	c0.32			0.36			0.03			0.00	0.00
v/s Ratio Perm	0.03			c0.44		0.02	0.08			c0.11		0.00
v/c Ratio	0.05	0.40		0.62	0.52	0.03	0.60	0.27		0.85	0.01	0.02
Uniform Delay, d1	5.7	4.9		11.7	10.4	6.8	62.1	59.4		64.3	57.5	52.1
Progression Factor	1.00	1.00		0.60	0.65	0.55	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.4		8.1	0.8	0.1	9.4	1.8		83.3	0.0	0.0
Delay (s)	5.8	5.3		15.1	7.5	3.8	71.5	61.3		147.6	57.6	52.2
Level of Service	A	A		B	A	A	E	E		F	E	D
Approach Delay (s)		5.3			8.5			64.5			103.8	
Approach LOS		A			A			E			F	

Intersection Summary

HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			





















I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

3: Green Heron Road & Woodruff Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	21	1	60	12	2	84	70	1347	11	2	859	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.3	6.3		6.3	6.3	6.3
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.90			1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1609			1734	1538	1719	3434		1719	3438	1538
Flt Permitted		0.91			0.80	1.00	0.29	1.00		0.14	1.00	1.00
Satd. Flow (perm)		1481			1447	1538	532	3434		262	3438	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	1	67	13	2	93	78	1497	12	2	954	2
RTOR Reduction (vph)	0	60	0	0	0	83	0	1	0	0	0	1
Lane Group Flow (vph)	0	31	0	0	15	10	78	1508	0	2	954	1
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm
Protected Phases		8			4			2			6	
Permitted Phases	8			4		4	2			6		6
Actuated Green, G (s)		7.9			7.9	7.9	55.8	55.8		55.8	55.8	55.8
Effective Green, g (s)		7.9			7.9	7.9	55.8	55.8		55.8	55.8	55.8
Actuated g/C Ratio		0.11			0.11	0.11	0.74	0.74		0.74	0.74	0.74
Clearance Time (s)		5.0			5.0	5.0	6.3	6.3		6.3	6.3	6.3
Vehicle Extension (s)		4.3			4.3	4.3	5.5	5.5		5.5	5.5	5.5
Lane Grp Cap (vph)		156			152	162	396	2555		195	2558	1144
v/s Ratio Prot								c0.44			0.28	
v/s Ratio Perm		c0.02			0.01	0.01	0.15			0.01		0.00
v/c Ratio		0.20			0.10	0.06	0.20	0.59		0.01	0.37	0.00
Uniform Delay, d1		30.7			30.3	30.2	2.9	4.4		2.5	3.4	2.5
Progression Factor		1.00			1.00	1.00	0.80	0.82		0.36	0.53	0.28
Incremental Delay, d2		1.0			0.5	0.2	1.1	1.0		0.1	0.4	0.0
Delay (s)		31.7			30.8	30.5	3.4	4.6		1.0	2.2	0.7
Level of Service		C			C	C	A	A		A	A	A
Approach Delay (s)		31.7			30.5			4.5			2.2	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			5.6				HCM Level of Service			A		
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)			11.3		
Intersection Capacity Utilization			79.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												


















I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

4: Woodruff Industrial Lane & Woodruff Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	146	33	272	199	29	28	53	1291	75	219	689	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.87		1.00	0.93		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1568		1719	1676		1719	3410		1719	3307	
Flt Permitted	0.72	1.00		0.16	1.00		0.25	1.00		0.05	1.00	
Satd. Flow (perm)	1296	1568		298	1676		451	3410		93	3307	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	162	37	302	221	32	31	59	1434	83	243	766	262
RTOR Reduction (vph)	0	144	0	0	23	0	0	3	0	0	22	0
Lane Group Flow (vph)	162	195	0	221	40	0	59	1514	0	243	1006	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	32.3	20.3		40.3	24.3		75.7	71.7		95.7	85.7	
Effective Green, g (s)	32.3	20.3		40.3	24.3		75.7	71.7		95.7	85.7	
Actuated g/C Ratio	0.22	0.14		0.27	0.16		0.50	0.48		0.64	0.57	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.3	4.3		4.3	4.3		4.3	5.5		4.3	5.5	
Lane Grp Cap (vph)	313	212		232	272		261	1630		254	1889	
v/s Ratio Prot	0.04	0.12		c0.10	0.02		0.01	0.44		c0.11	0.30	
v/s Ratio Perm	0.07			c0.15			0.11			c0.49		
v/c Ratio	0.52	0.92		0.95	0.15		0.23	0.93		0.96	0.53	
Uniform Delay, d1	51.0	64.0		47.8	53.9		19.3	36.8		51.5	19.8	
Progression Factor	1.00	1.00		1.00	1.00		0.77	0.80		0.84	1.05	
Incremental Delay, d2	2.2	40.2		46.1	0.4		0.6	9.2		42.6	1.0	
Delay (s)	53.2	104.2		93.9	54.3		15.4	38.7		86.1	21.8	
Level of Service	D	F		F	D		B	D		F	C	
Approach Delay (s)		87.7			85.1			37.8			34.1	
Approach LOS		F			F			D			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			47.1			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			99.8%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												












I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

5: I-85 SB Ramps & Woodruff Road

											
Movement	WBL2	WBL	WBR	SEL	SET	SER	NWL	NWT	NWR	NEL	NER
Lane Configurations											
Volume (vph)	224	0	30	0	1490	272	653	1114	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		6.3	6.3	6.5	6.1			
Lane Util. Factor	0.97		0.88		0.95	1.00	1.00	0.95			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	3335		2707		3438	1538	1719	3438			
Flt Permitted	0.95		1.00		1.00	1.00	0.05	1.00			
Satd. Flow (perm)	3335		2707		3438	1538	96	3438			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	249	0	33	0	1656	302	726	1238	0	0	0
RTOR Reduction (vph)	0	0	31	0	0	91	0	0	0	0	0
Lane Group Flow (vph)	249	0	2	0	1656	211	726	1238	0	0	0
Turn Type	custom		custom		Perm		pm+pt				
Protected Phases					2		1		6		
Permitted Phases	4		4				2		6		
Actuated Green, G (s)	11.0		11.0		68.6		68.6		127.9		
Effective Green, g (s)	11.0		11.0		68.6		68.6		127.9		
Actuated g/C Ratio	0.07		0.07		0.46		0.46		0.85		
Clearance Time (s)	5.0		5.0		6.3		6.3		6.5		
Vehicle Extension (s)	4.3		4.3		4.3		4.3		4.3		
Lane Grp Cap (vph)	245		199		1572		703		651		
v/s Ratio Prot					0.48		c0.39		0.36		
v/s Ratio Perm	c0.07		0.00				0.14		c0.56		
v/c Ratio	1.02		0.01		1.05		0.30		1.12		
Uniform Delay, d1	69.5		64.5		40.7		25.6		45.0		
Progression Factor	1.00		1.00		0.61		0.47		0.77		
Incremental Delay, d2	61.8		0.0		30.4		0.4		67.6		
Delay (s)	131.3		64.5		55.2		12.4		102.1		
Level of Service	F		E		E		B		F		
Approach Delay (s)			123.4		48.6				39.6		
Approach LOS			F		D				D		
Intersection Summary											
HCM Average Control Delay			49.4		HCM Level of Service			D			
HCM Volume to Capacity ratio			1.08								
Actuated Cycle Length (s)			150.0		Sum of lost time (s)			11.5			
Intersection Capacity Utilization			97.4%		ICU Level of Service			F			
Analysis Period (min)			15								
c Critical Lane Group											

I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

6: I-85 NB Ramps & Woodruff Rd

						
Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (vph)	500	582	727	987	0	1267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	6.5	6.5		6.5
Lane Util. Factor	0.97	0.88	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3335	2707	3438	1538		3438
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3335	2707	3438	1538		3438
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	556	647	808	1097	0	1408
RTOR Reduction (vph)	0	425	0	476	0	0
Lane Group Flow (vph)	556	222	808	621	0	1408
Turn Type		Prot		Perm		
Protected Phases	3	3	2			2 4
Permitted Phases				2		
Actuated Green, G (s)	31.4	31.4	84.5	84.5		106.5
Effective Green, g (s)	31.4	31.4	84.5	84.5		99.5
Actuated g/C Ratio	0.21	0.21	0.56	0.56		0.66
Clearance Time (s)	5.6	5.6	6.5	6.5		
Vehicle Extension (s)	4.3	4.3	4.3	4.3		
Lane Grp Cap (vph)	698	567	1937	866		2281
v/s Ratio Prot	c0.17	0.08	0.24			c0.41
v/s Ratio Perm				c0.40		
v/c Ratio	0.80	0.39	0.42	0.72		0.62
Uniform Delay, d1	56.3	51.1	18.7	24.0		14.4
Progression Factor	1.00	1.00	0.86	14.42		1.34
Incremental Delay, d2	6.9	0.7	0.1	0.5		0.3
Delay (s)	63.1	51.8	16.2	346.3		19.6
Level of Service	E	D	B	F		B
Approach Delay (s)	57.0		206.2			19.6
Approach LOS	E		F			B
<b>Intersection Summary</b>						
HCM Average Control Delay			108.3		HCM Level of Service	F
HCM Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	18.6
Intersection Capacity Utilization			66.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

























7: Carolina Point Pkwy & Woodruff Road



Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (vph)	207	73	1253	56	55	2115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3335	1538	3438	1538	1719	3438
Flt Permitted	0.95	1.00	1.00	1.00	0.17	1.00
Satd. Flow (perm)	3335	1538	3438	1538	314	3438
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	230	81	1392	62	61	2350
RTOR Reduction (vph)	0	73	0	11	0	0
Lane Group Flow (vph)	230	8	1392	51	61	2350
Turn Type	Perm		Perm		Perm	
Protected Phases	4		2 3 6			2 3 6
Permitted Phases	4	4		2 3 6	2 3 6	
Actuated Green, G (s)	15.0	15.0	122.4	122.4	122.4	122.4
Effective Green, g (s)	15.0	15.0	122.4	122.4	122.4	122.4
Actuated g/C Ratio	0.10	0.10	0.82	0.82	0.82	0.82
Clearance Time (s)	7.0	7.0				
Vehicle Extension (s)	4.3	4.3				
Lane Grp Cap (vph)	334	154	2805	1255	256	2805
v/s Ratio Prot	c0.07		0.40			c0.68
v/s Ratio Perm		0.01		0.03	0.19	
v/c Ratio	0.69	0.05	0.50	0.04	0.24	0.84
Uniform Delay, d1	65.2	61.1	4.3	2.6	3.2	8.0
Progression Factor	1.00	1.00	0.30	0.00	1.22	1.43
Incremental Delay, d2	6.6	0.2	0.2	0.0	0.1	0.2
Delay (s)	71.8	61.3	1.5	0.0	3.9	11.7
Level of Service	E	E	A	A	A	B
Approach Delay (s)	69.1		1.4			11.5
Approach LOS	E		A			B
<b>Intersection Summary</b>						
HCM Average Control Delay			12.3		HCM Level of Service	B
HCM Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			75.6%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

I-85/I-385 Interchange Improvements  
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8: Woodruff Road & Market Point Drive

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	402	887	37	95	1748	181	130	29	75	236	29	292	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.1	6.1	5.8	6.1	6.1	6.1	5.8	5.8	6.1	5.8	5.8	5.8	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	1719	1810	1538	3335	3438	1538	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	1719	1810	1538	3335	3438	1538	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	447	986	41	106	1942	201	144	32	83	262	32	324	
RTOR Reduction (vph)	0	0	15	0	0	52	0	0	69	0	0	194	
Lane Group Flow (vph)	447	986	26	106	1942	149	144	32	14	262	32	130	
Turn Type	Prot	pm+ov		Prot	Perm		Prot	pm+ov		Prot	Perm		
Protected Phases	5	2	3	1	6	3		8	1	7	4		
Permitted Phases	2			6						8			4
Actuated Green, G (s)	19.1	83.7	96.0	17.0	81.6	81.6	12.3	8.4	25.4	17.1	13.2	13.2	
Effective Green, g (s)	19.1	83.7	96.0	17.0	81.6	81.6	12.3	8.4	25.4	17.1	13.2	13.2	
Actuated g/C Ratio	0.13	0.56	0.64	0.11	0.54	0.54	0.08	0.06	0.17	0.11	0.09	0.09	
Clearance Time (s)	6.1	6.1	5.8	6.1	6.1	6.1	5.8	5.8	6.1	5.8	5.8	5.8	
Vehicle Extension (s)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	
Lane Grp Cap (vph)	425	1918	984	195	1870	837	141	101	260	380	303	135	
v/s Ratio Prot	c0.13	0.29	0.00	0.06	c0.56	c0.08		0.02	0.01	0.08	0.01		
v/s Ratio Perm	0.01			0.10						0.00			c0.08
v/c Ratio	1.05	0.51	0.03	0.54	1.04	0.18	1.02	0.32	0.05	0.69	0.11	0.96	
Uniform Delay, d1	65.5	20.5	9.9	62.8	34.2	17.3	68.8	68.0	52.2	63.9	63.0	68.1	
Progression Factor	1.02	0.64	0.76	0.70	0.43	0.30	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	55.3	0.9	0.0	1.8	24.9	0.2	81.5	2.8	0.1	5.8	0.2	65.7	
Delay (s)	121.9	14.1	7.5	45.9	39.8	5.4	150.4	70.9	52.4	69.7	63.2	133.9	
Level of Service	F	B	A	D	D	A	F	E	D	E	E	F	
Approach Delay (s)	46.6		37.0			109.2			103.0				
Approach LOS	D		D			F			F				
Intersection Summary													
HCM Average Control Delay			53.0		HCM Level of Service			D					
HCM Volume to Capacity ratio			1.03										
Actuated Cycle Length (s)			150.0		Sum of lost time (s)			23.8					
Intersection Capacity Utilization			88.7%		ICU Level of Service			E					
Analysis Period (min)			15										
c Critical Lane Group													




















I-85/I-385 Interchange Improvements  
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9: Woodruff Road & Garlington Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	872	163	187	1576	183	266	150	119	336	277	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	6.1	6.1	5.2	6.1	6.1	5.2	5.2		5.2	5.2	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	1690		3335	1810	1538
Flt Permitted	0.95	1.00	1.00	0.18	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3335	3438	1538	332	3438	1538	3335	1690		3335	1810	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	181	969	181	208	1751	203	296	167	132	373	308	202
RTOR Reduction (vph)	0	0	90	0	0	58	0	19	0	0	0	0
Lane Group Flow (vph)	181	969	91	208	1751	145	296	280	0	373	308	202
Turn Type	Prot		Perm	pm+pt		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6						Free
Actuated Green, G (s)	8.8	72.8	72.8	92.0	78.0	78.0	14.3	24.3		17.2	27.2	150.0
Effective Green, g (s)	8.8	72.8	72.8	92.0	78.0	78.0	14.3	24.3		17.2	27.2	150.0
Actuated g/C Ratio	0.06	0.49	0.49	0.61	0.52	0.52	0.10	0.16		0.11	0.18	1.00
Clearance Time (s)	5.2	6.1	6.1	5.2	6.1	6.1	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3		4.3	4.3	
Lane Grp Cap (vph)	196	1669	746	333	1788	800	318	274		382	328	1538
v/s Ratio Prot	c0.05	0.28		0.06	c0.51		0.09	0.17		c0.11	c0.17	
v/s Ratio Perm			0.06	0.32		0.09						c0.13
v/c Ratio	0.92	0.58	0.12	0.62	0.98	0.18	0.93	1.02		0.98	0.94	0.13
Uniform Delay, d1	70.3	27.7	21.1	17.5	35.2	19.1	67.4	62.9		66.2	60.6	0.0
Progression Factor	1.25	0.67	0.84	0.84	0.43	0.23	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	39.8	1.3	0.3	3.5	14.7	0.4	33.4	59.8		39.6	34.2	0.2
Delay (s)	127.5	19.8	18.0	18.3	29.9	4.8	100.8	122.7		105.8	94.8	0.2
Level of Service	F	B	B	B	C	A	F	F		F	F	A
Approach Delay (s)		34.2			26.4			111.8			77.8	
Approach LOS		C			C			F			E	
<b>Intersection Summary</b>												
HCM Average Control Delay			47.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				16.5		
Intersection Capacity Utilization			91.0%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												





















I-85/I-385 Interchange Improvements  
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10: Woodruff Road & I-385 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	889	438	183	1411	0	0	0	0	696	0	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.6		6.6	6.6					5.7		4.0
Lane Util. Factor		0.95		1.00	0.95					0.97		1.00
Frt		0.95		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		3268		1719	3438					3335		1538
Flt Permitted		1.00		0.06	1.00					0.95		1.00
Satd. Flow (perm)		3268		101	3438					3335		1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	988	487	203	1568	0	0	0	0	773	0	594
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1436	0	203	1568	0	0	0	0	773	0	594
Turn Type			pm+pt							Prot		Free
Protected Phases		2		1	6					4		
Permitted Phases				6								Free
Actuated Green, G (s)		75.7		98.9	98.9					38.8		150.0
Effective Green, g (s)		75.7		98.9	98.9					38.8		150.0
Actuated g/C Ratio		0.50		0.66	0.66					0.26		1.00
Clearance Time (s)		6.6		6.6	6.6					5.7		
Vehicle Extension (s)		4.3		4.3	4.3					4.3		
Lane Grp Cap (vph)		1649		246	2267					863		1538
v/s Ratio Prot		c0.44		0.09	c0.46					c0.23		
v/s Ratio Perm				0.45								0.39
v/c Ratio		0.87		0.83	0.69					0.90		0.39
Uniform Delay, d1		32.8		45.5	16.0					53.6		0.0
Progression Factor		0.65		1.42	0.87					1.03		1.00
Incremental Delay, d2		4.6		2.3	0.2					12.1		0.7
Delay (s)		25.9		66.9	14.1					67.6		0.7
Level of Service		C		E	B					E		A
Approach Delay (s)		25.9			20.1			0.0			38.5	
Approach LOS		C			C			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			27.4			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				18.9		
Intersection Capacity Utilization			114.4%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												





















I-85/I-385 Interchange Improvements  
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11: Woodruff Road & I-385 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	482	1103	0	0	995	649	599	0	253	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1	5.0		5.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1719	3438			3438	1538	1719		1538			
Flt Permitted	0.08	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	139	3438			3438	1538	1719		1538			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	1226	0	0	1106	721	666	0	281	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	327	0	0	44	0	0	0
Lane Group Flow (vph)	536	1226	0	0	1106	394	666	0	237	0	0	0
Turn Type	pm+pt				Perm		Prot	custom				
Protected Phases	5	2			6		8					
Permitted Phases	2					6			8			
Actuated Green, G (s)	87.9	87.9			45.9	45.9	51.0		51.0			
Effective Green, g (s)	87.9	87.9			45.9	45.9	51.0		51.0			
Actuated g/C Ratio	0.59	0.59			0.31	0.31	0.34		0.34			
Clearance Time (s)	6.1	6.1			6.1	6.1	5.0		5.0			
Vehicle Extension (s)	4.3	4.3			4.3	4.3	4.3		4.3			
Lane Grp Cap (vph)	460	2015			1052	471	584		523			
v/s Ratio Prot	c0.28	0.36			0.32		c0.39					
v/s Ratio Perm	c0.40					0.26			0.15			
v/c Ratio	1.17	0.61			1.05	0.84	1.14		0.45			
Uniform Delay, d1	48.5	20.0			52.0	48.6	49.5		38.6			
Progression Factor	1.19	1.15			0.65	0.88	1.00		1.00			
Incremental Delay, d2	85.5	0.6			35.6	9.5	82.4		1.0			
Delay (s)	143.2	23.5			69.3	52.4	131.9		39.6			
Level of Service	F	C			E	D	F		D			
Approach Delay (s)		59.9			62.6			104.5			0.0	
Approach LOS		E			E			F			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			70.3		HCM Level of Service						E	
HCM Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)						11.1	
Intersection Capacity Utilization			114.4%		ICU Level of Service						H	
Analysis Period (min)			15									
c Critical Lane Group												



















I-85/I-385 Interchange Improvements  
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12: Woodruff Road & Commercial Drive

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	1142	45	10	1323	55	209	19	10	94	12	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.5		5.5	5.5		5.3	5.4		5.4	5.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3419		1719	3418		1719	1716		1719	1564	
Flt Permitted	0.05	1.00		0.19	1.00		0.32	1.00		0.74	1.00	
Satd. Flow (perm)	97	3419		353	3418		572	1716		1332	1564	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	188	1269	50	11	1470	61	232	21	11	104	13	124
RTOR Reduction (vph)	0	2	0	0	2	0	0	8	0	0	111	0
Lane Group Flow (vph)	188	1317	0	11	1529	0	232	24	0	104	26	0
Turn Type	pm+pt			Perm			pm+pt			Perm		
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	99.9	99.9		79.0	79.0		39.2	39.2		15.5	15.5	
Effective Green, g (s)	99.9	99.9		79.0	79.0		39.2	39.2		15.5	15.5	
Actuated g/C Ratio	0.67	0.67		0.53	0.53		0.26	0.26		0.10	0.10	
Clearance Time (s)	5.3	5.5		5.5	5.5		5.3	5.4		5.4	5.4	
Vehicle Extension (s)	4.3	4.3		4.3	4.3		4.3	4.3		4.3	4.3	
Lane Grp Cap (vph)	233	2277		186	1800		290	448		138	162	
v/s Ratio Prot	c0.08	0.39			c0.45		c0.10	0.01			0.02	
v/s Ratio Perm	0.45			0.03			c0.11			0.08		
v/c Ratio	0.81	0.58		0.06	0.85		0.80	0.05		0.75	0.16	
Uniform Delay, d1	45.1	13.6		17.3	30.4		47.8	41.5		65.4	61.3	
Progression Factor	1.41	0.77		0.96	0.90		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.4	0.9		0.4	3.9		15.7	0.1		22.4	0.7	
Delay (s)	80.1	11.4		17.1	31.3		63.5	41.6		87.8	62.0	
Level of Service	F	B		B	C		E	D		F	E	
Approach Delay (s)		20.0			31.1			60.9			73.1	
Approach LOS		B			C			E			E	
<b>Intersection Summary</b>												
HCM Average Control Delay			31.5			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			16.1			
Intersection Capacity Utilization			84.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												




















I-85/I-385 Interchange Improvements  
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13: Woodruff Road & Smith Hines Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1173	63	60	1209	1	169	1	133	5	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3		6.0	6.0			5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.94			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1719	3412		1719	3438			1656			1633	
Flt Permitted	0.14	1.00		0.13	1.00			0.82			0.89	
Satd. Flow (perm)	245	3412		234	3438			1390			1479	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	1303	70	67	1343	1	188	1	148	6	1	11
RTOR Reduction (vph)	0	5	0	0	0	0	0	31	0	0	8	0
Lane Group Flow (vph)	11	1368	0	67	1344	0	0	306	0	0	10	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			8			4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.2	43.2		43.5	43.5			20.5			20.5	
Effective Green, g (s)	43.2	43.2		43.5	43.5			20.5			20.5	
Actuated g/C Ratio	0.58	0.58		0.58	0.58			0.27			0.27	
Clearance Time (s)	6.3	6.3		6.0	6.0			5.0			5.0	
Vehicle Extension (s)	4.3	4.3		4.3	4.3			4.3			4.3	
Lane Grp Cap (vph)	141	1965		136	1994			380			404	
v/s Ratio Prot	c0.40			0.39								
v/s Ratio Perm	0.04			0.29				c0.22			0.01	
v/c Ratio	0.08	0.70		0.49	0.67			0.80			0.02	
Uniform Delay, d1	7.1	11.3		9.3	10.9			25.4			19.9	
Progression Factor	0.62	0.79		0.96	0.98			1.00			1.00	
Incremental Delay, d2	0.9	1.7		1.2	0.2			12.7			0.0	
Delay (s)	5.3	10.6		10.1	10.8			38.1			20.0	
Level of Service	A	B		B	B			D			B	
Approach Delay (s)	10.5			10.8				38.1			20.0	
Approach LOS	B			B				D			B	
Intersection Summary												
HCM Average Control Delay	13.7			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)			11.3					
Intersection Capacity Utilization	83.3%			ICU Level of Service			E					
Analysis Period (min)	15											
c Critical Lane Group												






















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14: Woodruff Road & Walmart Driveway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	1558	137	22	2324	43	372	7	6	39	1	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3		6.3	6.3		5.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.93			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1719	3396		1719	3429		1719	1683			1650	
Flt Permitted	0.04	1.00		0.06	1.00		0.69	1.00			0.86	
Satd. Flow (perm)	75	3396		104	3429		1258	1683			1454	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	1731	152	24	2582	48	413	8	7	43	1	41
RTOR Reduction (vph)	0	4	0	0	1	0	0	5	0	0	22	0
Lane Group Flow (vph)	24	1879	0	24	2629	0	413	10	0	0	63	0
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	99.7	99.7		90.4	90.4		39.0	39.0			39.0	
Effective Green, g (s)	99.7	99.7		90.4	90.4		39.0	39.0			39.0	
Actuated g/C Ratio	0.66	0.66		0.60	0.60		0.26	0.26			0.26	
Clearance Time (s)	6.3	6.3		6.3	6.3		5.0	5.0			5.0	
Vehicle Extension (s)	4.3	4.3		4.3	4.3		4.3	4.3			4.3	
Lane Grp Cap (vph)	83	2257		63	2067		327	438			378	
v/s Ratio Prot	0.01	c0.55			c0.77			0.01				
v/s Ratio Perm	0.19			0.23			c0.33				0.04	
v/c Ratio	0.29	0.83		0.38	1.27		1.26	0.02			0.17	
Uniform Delay, d1	37.6	18.9		15.4	29.8		55.5	41.3			42.9	
Progression Factor	0.78	0.55		0.72	0.72		1.00	1.00			1.00	
Incremental Delay, d2	2.6	3.2		13.5	125.6		140.6	0.0			0.3	
Delay (s)	32.0	13.7		24.6	147.0		196.1	41.3			43.3	
Level of Service	C	B		C	F		F	D			D	
Approach Delay (s)		13.9			145.9			190.7			43.3	
Approach LOS		B			F			F			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			98.4			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			17.6			
Intersection Capacity Utilization			102.3%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												




















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15: Woodruff Road & Verdin Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	1900	43	63	1229	74	255	205	125	54	218	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3		6.3	6.3		5.2	5.0	5.0	5.2	5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3427		1719	3409		1719	1810	1538	1719	1691	
Flt Permitted	0.12	1.00		0.04	1.00		0.14	1.00	1.00	0.62	1.00	
Satd. Flow (perm)	215	3427		76	3409		248	1810	1538	1115	1691	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	2111	48	70	1366	82	283	228	139	60	242	187
RTOR Reduction (vph)	0	1	0	0	3	0	0	0	9	0	19	0
Lane Group Flow (vph)	112	2158	0	70	1445	0	283	228	130	60	410	0
Turn Type	Perm			Perm			pm+pt			Perm	Perm	
Protected Phases	2			6			3		8		4	
Permitted Phases	2			6			8		8		4	
Actuated Green, G (s)	95.7	95.7		95.7	95.7		43.0	43.0	43.0	23.8	23.8	
Effective Green, g (s)	95.7	95.7		95.7	95.7		43.0	43.0	43.0	23.8	23.8	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.29	0.29	0.29	0.16	0.16	
Clearance Time (s)	6.3	6.3		6.3	6.3		5.2	5.0	5.0	5.2	5.2	
Vehicle Extension (s)	4.3	4.3		4.3	4.3		4.3	4.3	4.3	4.3	4.3	
Lane Grp Cap (vph)	137	2186		48	2175		206	519	441	177	268	
v/s Ratio Prot	0.63			0.42			c0.13	0.13		c0.24		
v/s Ratio Perm	0.52			c0.93			0.27		0.08	0.05		
v/c Ratio	0.82	0.99		1.46	0.66		1.37	0.44	0.30	0.34	1.53	
Uniform Delay, d1	20.5	26.5		27.1	17.1		46.8	43.7	41.7	56.1	63.1	
Progression Factor	0.32	0.34		1.49	1.45		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	32.4	14.1		250.7	0.7		195.8	0.9	0.6	1.8	257.3	
Delay (s)	39.0	23.1		291.3	25.6		242.6	44.6	42.3	57.9	320.4	
Level of Service	D	C		F	C		F	D	D	E	F	
Approach Delay (s)	23.9			37.8			130.3			288.2		
Approach LOS	C			D			F			F		
Intersection Summary												
HCM Average Control Delay			68.5	HCM Level of Service			E					
HCM Volume to Capacity ratio			1.46									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)			16.7					
Intersection Capacity Utilization			133.5%	ICU Level of Service			H					
Analysis Period (min)			15									
c Critical Lane Group												

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16: Woodruff Road & Butler Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	1683	117	371	1179	18	186	19	458	311	388	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3		6.3	6.3			5.0	6.3	5.0	5.0	
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt		0.99		1.00	1.00			1.00	0.85	1.00	0.97	
Flt Protected		1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)		3403		1719	3430			1731	1538	1719	1754	
Flt Permitted		0.91		0.06	1.00			0.17	1.00	0.52	1.00	
Satd. Flow (perm)		3112		108	3430			305	1538	949	1754	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	1870	130	412	1310	20	207	21	509	346	431	112
RTOR Reduction (vph)	0	4	0	0	1	0	0	0	1	0	6	0
Lane Group Flow (vph)	0	2018	0	412	1329	0	0	228	508	346	537	0
Turn Type	Perm			pm+pt			Perm		pm+ov	Perm		
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		60.7		81.7	81.7			57.0	71.7	57.0	57.0	
Effective Green, g (s)		60.7		81.7	81.7			57.0	71.7	57.0	57.0	
Actuated g/C Ratio		0.40		0.54	0.54			0.38	0.48	0.38	0.38	
Clearance Time (s)		6.3		6.3	6.3			5.0	6.3	5.0	5.0	
Vehicle Extension (s)		4.3		4.3	4.3			4.3	4.3	4.3	4.3	
Lane Grp Cap (vph)		1259		217	1868			116	735	361	667	
v/s Ratio Prot				c0.19	0.39				0.07		0.31	
v/s Ratio Perm		0.65		c0.85				c0.75	0.26	0.36		
v/c Ratio		1.60		1.90	0.71			1.97	0.69	0.96	0.80	
Uniform Delay, d1		44.6		50.4	25.4			46.5	30.5	45.3	41.5	
Progression Factor		0.59		0.81	0.88			1.00	1.00	1.00	1.00	
Incremental Delay, d2		272.8		415.3	1.5			464.1	3.2	36.5	7.6	
Delay (s)		299.0		456.3	23.9			510.6	33.7	81.8	49.1	
Level of Service		F		F	C			F	C	F	D	
Approach Delay (s)		299.0			126.1			181.2			61.9	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM Average Control Delay			187.9		HCM Level of Service				F			
HCM Volume to Capacity ratio			1.88									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				11.3			
Intersection Capacity Utilization			140.7%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												


























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17: Woodruff Road & Bell Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	2403	110	37	1732	11	147	1	40	15	1	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		6.2	6.2			5.4			5.4	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.97			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.99	
Satd. Flow (prot)	1719	3416		1719	3435			1692			1600	
Flt Permitted	0.07	1.00		0.04	1.00			0.67			0.94	
Satd. Flow (perm)	128	3416		64	3435			1170			1515	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	2670	122	41	1924	12	163	1	44	17	1	69
RTOR Reduction (vph)	0	2	0	0	0	0	0	7	0	0	30	0
Lane Group Flow (vph)	74	2790	0	41	1936	0	0	201	0	0	57	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			8			4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	113.8	113.8		113.8	113.8			24.6			24.6	
Effective Green, g (s)	113.8	113.8		113.8	113.8			24.6			24.6	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.16			0.16	
Clearance Time (s)	6.2	6.2		6.2	6.2			5.4			5.4	
Vehicle Extension (s)	4.3	4.3		4.3	4.3			4.3			4.3	
Lane Grp Cap (vph)	97	2592		49	2606			192			248	
v/s Ratio Prot	c0.82			0.56								
v/s Ratio Perm	0.58			0.64				c0.17			0.04	
v/c Ratio	0.76	1.08		0.84	0.74			1.05			0.23	
Uniform Delay, d1	10.4	18.1		12.0	10.0			62.7			54.5	
Progression Factor	0.58	0.59		1.33	0.99			1.00			1.00	
Incremental Delay, d2	5.1	35.2		80.8	1.8			78.3			0.8	
Delay (s)	11.1	45.8		96.7	11.7			141.0			55.2	
Level of Service	B	D		F	B			F			E	
Approach Delay (s)	44.9			13.5				141.0			55.2	
Approach LOS	D			B				F			E	
Intersection Summary												
HCM Average Control Delay	36.9			HCM Level of Service			D					
HCM Volume to Capacity ratio	1.07											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			11.6					
Intersection Capacity Utilization	96.9%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												
























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18: Woodruff Road & SC 14

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	157	1291	363	100	853	74	186	276	54	202	412	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3	5.0	6.3	6.3		5.0	5.0	6.3	5.0	5.0	6.3
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	3438	1538	1719	3397		1719	1810	1538	1719	1810	1538
Flt Permitted	0.12	1.00	1.00	0.06	1.00		0.10	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	223	3438	1538	117	3397		186	1810	1538	578	1810	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	174	1434	403	111	948	82	207	307	60	224	458	130
RTOR Reduction (vph)	0	0	48	0	4	0	0	0	35	0	0	41
Lane Group Flow (vph)	174	1434	355	111	1026	0	207	307	25	224	458	89
Turn Type	pm+pt		pm+ov	pm+pt			pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	80.2	67.5	82.5	68.6	61.7		54.0	39.0	45.9	52.0	38.0	50.7
Effective Green, g (s)	80.2	67.5	82.5	68.6	61.7		54.0	39.0	45.9	52.0	38.0	50.7
Actuated g/C Ratio	0.53	0.45	0.55	0.46	0.41		0.36	0.26	0.31	0.35	0.25	0.34
Clearance Time (s)	6.3	6.3	5.0	6.3	6.3		5.0	5.0	6.3	5.0	5.0	6.3
Vehicle Extension (s)	4.3	4.3	4.3	4.3	4.3		4.3	4.3	4.3	4.3	4.3	4.3
Lane Grp Cap (vph)	246	1547	846	127	1397		220	471	471	307	459	520
v/s Ratio Prot	c0.06	c0.42	0.04	0.04	0.30		c0.09	0.17	0.00	0.07	c0.25	0.01
v/s Ratio Perm	0.32		0.19	0.36			0.24		0.01	0.18		0.04
v/c Ratio	0.71	0.93	0.42	0.87	0.73		0.94	0.65	0.05	0.73	1.00	0.17
Uniform Delay, d1	25.3	38.9	19.7	33.2	37.2		42.4	49.5	36.7	38.7	56.0	34.9
Progression Factor	1.49	1.02	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	1.3	0.0	45.5	3.5		44.8	3.8	0.1	9.3	41.2	0.2
Delay (s)	38.6	41.2	19.5	78.7	40.7		87.2	53.2	36.8	48.0	97.2	35.1
Level of Service	D	D	B	E	D		F	D	D	D	F	D
Approach Delay (s)		36.6			44.4			63.8			73.7	
Approach LOS		D			D			E			E	
<b>Intersection Summary</b>												
HCM Average Control Delay			48.6			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			22.6			
Intersection Capacity Utilization			92.0%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

I-85/I-385 Interchange Improvements  
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19: E Parkins Mill Road & US 276

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	120	67	102	72	83	156	1167	198	85	1455	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Flt Protected	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	3254		3335	1810	1538	1719	4940	1538	3335	4940	1538
Satd. Flow (perm)	1276	3254		3335	1810	1538	1719	4940	1538	3335	4940	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	133	74	113	80	92	173	1297	220	94	1617	260
RTOR Reduction (vph)	0	67	0	0	0	82	0	0	104	0	0	137
Lane Group Flow (vph)	120	140	0	113	80	10	173	1297	116	94	1617	123
Turn Type	pm+pt			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8					4			6			2
Actuated Green, G (s)	11.0	7.8		4.0	8.6	8.6	11.8	42.2	42.2	5.0	35.4	35.4
Effective Green, g (s)	11.0	7.8		4.0	8.6	8.6	11.8	42.2	42.2	5.0	35.4	35.4
Actuated g/C Ratio	0.14	0.10		0.05	0.11	0.11	0.15	0.53	0.53	0.06	0.44	0.44
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	4.3	4.9		4.3	4.9	4.9	4.3	4.9	4.9	4.3	4.9	4.9
Lane Grp Cap (vph)	193	317		167	195	165	254	2606	811	208	2186	681
v/s Ratio Prot	0.02	0.04		c0.03	0.04		c0.10	0.26		0.03	c0.33	
v/s Ratio Perm	c0.06					0.01			0.08			0.08
v/c Ratio	0.62	0.44		0.68	0.41	0.06	0.68	0.50	0.14	0.45	0.74	0.18
Uniform Delay, d1	32.1	34.0		37.4	33.3	32.1	32.3	12.1	9.7	36.2	18.5	13.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.07	1.10	2.12	1.00	1.00	1.00
Incremental Delay, d2	7.4	2.0		11.8	2.8	0.3	5.9	0.5	0.3	2.5	2.3	0.6
Delay (s)	39.5	36.0		49.2	36.2	32.4	40.6	13.8	20.7	38.6	20.8	14.1
Level of Service	D	D		D	D	C	D	B	C	D	C	B
Approach Delay (s)		37.3			40.1			17.5			20.7	
Approach LOS		D			D			B			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			22.0				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			64.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

I-85/I-385 Interchange Improvements  
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20: Duvall Drive & US 276



Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (vph)	393	152	1254	370	142	1128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.3		6.3	6.3
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	1538	4771		1719	4940
Flt Permitted	0.95	1.00	1.00		0.21	1.00
Satd. Flow (perm)	1719	1538	4771		387	4940
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	437	169	1393	411	158	1253
RTOR Reduction (vph)	0	15	133	0	0	0
Lane Group Flow (vph)	437	154	1671	0	158	1253
Turn Type	Perm				Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	9.0	9.0	18.7		18.7	18.7
Effective Green, g (s)	9.0	9.0	18.7		18.7	18.7
Actuated g/C Ratio	0.22	0.22	0.47		0.47	0.47
Clearance Time (s)	6.0	6.0	6.3		6.3	6.3
Vehicle Extension (s)	4.9	4.9	4.9		4.9	4.9
Lane Grp Cap (vph)	387	346	2230		181	2309
v/s Ratio Prot	c0.25		0.35			0.25
v/s Ratio Perm		0.10			c0.41	
v/c Ratio	1.13	0.45	0.75		0.87	0.54
Uniform Delay, d1	15.5	13.4	8.7		9.6	7.6
Progression Factor	1.00	1.00	0.85		1.00	1.00
Incremental Delay, d2	85.7	1.8	1.6		40.1	0.9
Delay (s)	101.2	15.2	9.0		49.7	8.5
Level of Service	F	B	A		D	A
Approach Delay (s)	77.2		9.0			13.1
Approach LOS	E		A			B
<b>Intersection Summary</b>						
HCM Average Control Delay			21.4		HCM Level of Service	C
HCM Volume to Capacity ratio			0.96			
Actuated Cycle Length (s)			40.0		Sum of lost time (s)	12.3
Intersection Capacity Utilization			83.1%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						





















I-85/I-385 Interchange Improvements  
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23: US 276 & Millennium Blvd

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	93	1766	117	31	1289	10	88	53	68	62	21	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.5	6.5	4.5	6.5	6.5	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		1.00	1.00	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	3335	3148		1719	1810	2707
Flt Permitted	0.10	1.00	1.00	0.07	1.00	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	183	3438	1538	125	3438	1538	3335	3148		1810	1810	2707
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	103	1962	130	34	1432	11	98	59	76	69	23	56
RTOR Reduction (vph)	0	0	47	0	0	5	0	71	0	0	0	49
Lane Group Flow (vph)	103	1962	83	34	1432	6	98	64	0	69	23	7
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			pm+pt		pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases	2		2	6		6				4		4
Actuated Green, G (s)	69.7	61.7	61.7	61.2	57.7	57.7	8.0	6.0		10.0	4.0	12.0
Effective Green, g (s)	69.7	61.7	61.7	61.2	57.7	57.7	8.0	6.0		10.0	4.0	12.0
Actuated g/C Ratio	0.70	0.62	0.62	0.61	0.58	0.58	0.08	0.06		0.10	0.04	0.12
Clearance Time (s)	4.0	6.5	6.5	4.5	6.5	6.5	6.0	6.0		6.0	6.0	4.0
Vehicle Extension (s)	4.3	4.9	4.9	4.3	4.9	4.9	4.3	6.4		4.3	6.4	4.3
Lane Grp Cap (vph)	250	2117	947	132	1980	886	266	189		175	72	324
v/s Ratio Prot	c0.03	c0.57		0.01	0.42		c0.03	c0.02		0.02	0.01	0.00
v/s Ratio Perm	0.25		0.05	0.15		0.00				0.02		0.00
v/c Ratio	0.41	0.93	0.09	0.26	0.72	0.01	0.37	0.34		0.39	0.32	0.02
Uniform Delay, d1	10.6	17.2	7.8	17.0	15.4	9.1	43.7	45.2		42.3	46.8	38.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.7	7.9	0.1	1.6	1.6	0.0	1.4	3.3		2.3	7.8	0.0
Delay (s)	12.4	25.2	7.9	18.6	17.1	9.1	45.1	48.5		44.6	54.6	39.0
Level of Service	B	C	A	B	B	A	D	D		D	D	D
Approach Delay (s)		23.6			17.0			47.0			44.0	
Approach LOS		C			B			D			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			23.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			100.2			Sum of lost time (s)				16.5		
Intersection Capacity Utilization			80.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

I-85/I-385 Interchange Improvements  
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24: Pelham Road & The Parkway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	803	675	0	928	733	0	0	0	287	474	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	5.8	5.8		5.8	5.3				5.3	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00		0.95	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3335	3438	1538		3438	1538				1719	1810	1538
Flt Permitted	0.95	1.00	1.00		1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3335	3438	1538		3438	1538				1719	1810	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	227	892	750	0	1031	814	0	0	0	319	527	318
RTOR Reduction (vph)	0	0	68	0	0	10	0	0	0	0	0	152
Lane Group Flow (vph)	227	892	682	0	1031	804	0	0	0	319	527	166
Turn Type	Prot		Perm	Perm		custom				Perm		Perm
Protected Phases	5	2			6	4					4	
Permitted Phases			2	6		6				4		4
Actuated Green, G (s)	10.2	61.1	61.1		45.1	82.9				37.8	37.8	37.8
Effective Green, g (s)	10.2	61.1	61.1		45.1	82.9				37.8	37.8	37.8
Actuated g/C Ratio	0.09	0.56	0.56		0.41	0.75				0.34	0.34	0.34
Clearance Time (s)	5.8	5.8	5.8		5.8	5.3				5.3	5.3	5.3
Vehicle Extension (s)	4.3	4.3	4.3		4.3	4.3				4.3	4.3	4.3
Lane Grp Cap (vph)	309	1910	854		1410	1159				591	622	529
v/s Ratio Prot	0.07	0.26			0.30	0.24					c0.29	
v/s Ratio Perm			c0.44			0.28				0.19		0.11
v/c Ratio	0.73	0.47	0.80		0.73	0.69				0.54	0.85	0.31
Uniform Delay, d1	48.6	14.7	19.5		27.3	7.0				29.1	33.4	26.6
Progression Factor	1.00	1.00	1.00		0.63	0.80				1.00	1.00	1.00
Incremental Delay, d2	9.6	0.8	7.7		2.4	1.5				1.4	11.0	0.5
Delay (s)	58.2	15.5	27.3		19.6	7.1				30.5	44.4	27.1
Level of Service	E	B	C		B	A				C	D	C
Approach Delay (s)		25.4			14.1			0.0			35.9	
Approach LOS		C			B			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			23.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				11.1		
Intersection Capacity Utilization			106.5%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

I-85/I-385 Interchange Improvements  
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25: Pelham Road & I-85 SB off ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	↑↑
Volume (vph)	0	1090	1350	0	446	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6	5.6		5.3	5.3
Lane Util. Factor		0.95	0.95		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3438	3438		1719	2707
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3438	3438		1719	2707
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1211	1500	0	496	346
RTOR Reduction (vph)	0	0	0	0	0	26
Lane Group Flow (vph)	0	1211	1500	0	496	320
Turn Type					Perm	
Protected Phases		2	6		4	
Permitted Phases						4
Actuated Green, G (s)		61.6	61.6		37.5	37.5
Effective Green, g (s)		61.6	61.6		37.5	37.5
Actuated g/C Ratio		0.56	0.56		0.34	0.34
Clearance Time (s)		5.6	5.6		5.3	5.3
Vehicle Extension (s)		4.3	4.3		4.3	4.3
Lane Grp Cap (vph)		1925	1925		586	923
v/s Ratio Prot		0.35	c0.44		c0.29	
v/s Ratio Perm						0.12
v/c Ratio		0.63	0.78		0.85	0.35
Uniform Delay, d1		16.4	18.9		33.6	27.1
Progression Factor		0.86	1.01		1.00	1.00
Incremental Delay, d2		1.4	2.3		11.5	0.4
Delay (s)		15.6	21.3		45.1	27.5
Level of Service		B	C		D	C
Approach Delay (s)		15.6	21.3		37.9	
Approach LOS		B	C		D	
<b>Intersection Summary</b>						
HCM Average Control Delay			23.3		HCM Level of Service	C
HCM Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	10.9
Intersection Capacity Utilization			104.6%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

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26: Pelham Road & I-85 NB off ramp

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↔	↔
Volume (vph)	557	0	0	621	1329	732
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8			5.8	5.0	5.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3438			3438	3335	1538
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3438			3438	3335	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	619	0	0	690	1477	813
RTOR Reduction (vph)	0	0	0	0	0	21
Lane Group Flow (vph)	619	0	0	690	1477	792
Turn Type					Perm	
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	31.8			31.8	67.4	67.4
Effective Green, g (s)	31.8			31.8	67.4	67.4
Actuated g/C Ratio	0.29			0.29	0.61	0.61
Clearance Time (s)	5.8			5.8	5.0	5.0
Vehicle Extension (s)	4.3			4.3	4.3	4.3
Lane Grp Cap (vph)	994			994	2043	942
v/s Ratio Prot	0.18			c0.20	0.44	
v/s Ratio Perm						c0.52
v/c Ratio	0.62			0.69	0.72	0.84
Uniform Delay, d1	33.9			34.8	14.8	17.0
Progression Factor	0.70			0.84	1.00	1.00
Incremental Delay, d2	2.2			3.2	1.4	7.3
Delay (s)	26.1			32.5	16.2	24.3
Level of Service	C			C	B	C
Approach Delay (s)	26.1			32.5	19.1	
Approach LOS	C			C	B	
<b>Intersection Summary</b>						
HCM Average Control Delay			22.9		HCM Level of Service	C
HCM Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	10.8
Intersection Capacity Utilization			135.4%		ICU Level of Service	H
Analysis Period (min)			15			
c Critical Lane Group						






















I-85/I-385 Interchange Improvements  
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27: Pelham Road & Boland Court

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	855	378	310	1157	20	220	17	294	27	13	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7			6.3	6.3		6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	0.95		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1719	3280		1719	3429			1729	1538		1672	
Flt Permitted	0.21	1.00		0.08	1.00			0.73	1.00		0.70	
Satd. Flow (perm)	381	3280		136	3429			1316	1538		1189	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	62	950	420	344	1286	22	244	19	327	30	14	33
RTOR Reduction (vph)	0	45	0	0	1	0	0	0	253	0	25	0
Lane Group Flow (vph)	62	1325	0	344	1307	0	0	263	74	0	52	0
Turn Type	Perm			pm+pt			Perm			Perm	Perm	
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	46.6	46.6		72.1	72.1			24.9	24.9		24.9	
Effective Green, g (s)	46.6	46.6		72.1	72.1			24.9	24.9		24.9	
Actuated g/C Ratio	0.42	0.42		0.66	0.66			0.23	0.23		0.23	
Clearance Time (s)	6.7	6.7		6.7	6.7			6.3	6.3		6.3	
Vehicle Extension (s)	4.9	4.9		4.3	4.9			4.3	4.3		4.3	
Lane Grp Cap (vph)	161	1390		360	2248			298	348		269	
v/s Ratio Prot		0.40		c0.16	0.38							
v/s Ratio Perm	0.16			c0.46				c0.20	0.05		0.04	
v/c Ratio	0.39	0.95		0.96	0.58			0.88	0.21		0.19	
Uniform Delay, d1	21.8	30.6		35.1	10.5			41.1	34.6		34.4	
Progression Factor	0.73	0.67		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	4.5	11.3		36.0	1.1			25.8	0.5		0.6	
Delay (s)	20.5	31.9		71.1	11.7			66.9	35.1		35.0	
Level of Service	C	C		E	B			E	D		C	
Approach Delay (s)		31.4			24.0			49.3			35.0	
Approach LOS		C			C			D			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			31.0			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.0			
Intersection Capacity Utilization			89.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												


















I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

28: Forsythia Dr & E Butler Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	0	4	34	0	99	7	674	17	79	991	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.90		1.00	1.00		1.00	1.00	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1719	1538		1607		1719	3425		1719	3429	
Flt Permitted		0.53	1.00		0.91		0.24	1.00		0.36	1.00	
Satd. Flow (perm)		965	1538		1478		429	3425		649	3429	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	0	4	38	0	110	8	749	19	88	1101	19
RTOR Reduction (vph)	0	0	4	0	98	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	13	0	0	50	0	8	767	0	88	1119	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		9.9	9.9		9.9		68.1	68.1		68.1	68.1	
Effective Green, g (s)		9.9	9.9		9.9		68.1	68.1		68.1	68.1	
Actuated g/C Ratio		0.11	0.11		0.11		0.76	0.76		0.76	0.76	
Clearance Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.3	4.3		4.3		4.3	4.3		4.3	4.3	
Lane Grp Cap (vph)		106	169		163		325	2592		491	2595	
v/s Ratio Prot								0.22			c0.33	
v/s Ratio Perm		0.01	0.00		c0.03		0.02			0.14		
v/c Ratio		0.12	0.00		0.31		0.02	0.30		0.18	0.43	
Uniform Delay, d1		36.1	35.7		36.9		2.7	3.4		3.1	4.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00		0.37	0.38	
Incremental Delay, d2		0.8	0.0		1.7		0.1	0.3		0.7	0.5	
Delay (s)		37.0	35.7		38.6		2.9	3.7		1.8	2.0	
Level of Service		D	D		D		A	A		A	A	
Approach Delay (s)		36.7			38.6			3.7			1.9	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM Average Control Delay		5.4			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.42										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		60.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												





















I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

30: E Butler Road & I-385 SB Ramps

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	0	730	75	388	663	0	412	0	419	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.0		6.0			
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00			
Frt		0.99		1.00	1.00		1.00		0.85			
Flt Protected		1.00		0.95	1.00		0.95		1.00			
Satd. Flow (prot)		3390		1719	3438		1719		1538			
Flt Permitted		1.00		0.12	1.00		0.95		1.00			
Satd. Flow (perm)		3390		225	3438		1719		1538			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	811	83	431	737	0	458	0	466	0	0	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	141	0	0	0
Lane Group Flow (vph)	0	885	0	431	737	0	458	0	325	0	0	0
Turn Type				pm+pt			Prot		custom			
Protected Phases		2		1	6		4					
Permitted Phases				6					4			
Actuated Green, G (s)		26.1		51.7	51.7		26.3		26.3			
Effective Green, g (s)		26.1		51.7	51.7		26.3		26.3			
Actuated g/C Ratio		0.29		0.57	0.57		0.29		0.29			
Clearance Time (s)		6.0		6.0	6.0		6.0		6.0			
Vehicle Extension (s)		4.3		4.3	4.3		4.3		4.3			
Lane Grp Cap (vph)		983		455	1975		502		449			
v/s Ratio Prot		0.26		c0.21	0.21		c0.27					
v/s Ratio Perm				c0.34					0.21			
v/c Ratio		0.90		0.95	0.37		0.91		0.72			
Uniform Delay, d1		30.7		24.8	10.4		30.7		28.6			
Progression Factor		0.89		0.51	0.88		1.00		1.00			
Incremental Delay, d2		12.6		25.5	0.4		21.4		6.3			
Delay (s)		39.9		38.0	9.5		52.1		34.9			
Level of Service		D		D	A		D		C			
Approach Delay (s)		39.9			20.1			43.5			0.0	
Approach LOS		D			C			D			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			33.2			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			81.9%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												
























I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

31: E Butler Road & I-385 NB Ramps

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 							
Volume (vph)	268	874	0	0	1009	756	0	0	0	42	0	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0		6.0
Lane Util. Factor	1.00	0.95			0.95	1.00				1.00		1.00
Frt	1.00	1.00			1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1719	3438			3438	1538				1719		1538
Flt Permitted	0.16	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	282	3438			3438	1538				1719		1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	298	971	0	0	1121	840	0	0	0	47	0	244
RTOR Reduction (vph)	0	0	0	0	0	318	0	0	0	0	0	149
Lane Group Flow (vph)	298	971	0	0	1121	522	0	0	0	47	0	95
Turn Type	pm+pt				custom					custom		custom
Protected Phases	5	2										8
Permitted Phases	2				6	6				8		
Actuated Green, G (s)	66.6	66.6			47.6	47.6				11.4		11.4
Effective Green, g (s)	66.6	66.6			47.6	47.6				11.4		11.4
Actuated g/C Ratio	0.74	0.74			0.53	0.53				0.13		0.13
Clearance Time (s)	6.0	6.0			6.0	6.0				6.0		6.0
Vehicle Extension (s)	4.3	4.3			4.3	4.3				4.3		4.3
Lane Grp Cap (vph)	416	2544			1818	813				218		195
v/s Ratio Prot	c0.10	0.28										c0.06
v/s Ratio Perm	c0.43				0.33	0.34				0.03		
v/c Ratio	0.72	0.38			0.62	0.64				0.22		0.49
Uniform Delay, d1	11.2	4.2			14.8	15.1				35.3		36.6
Progression Factor	0.61	0.78			1.00	1.00				1.00		1.00
Incremental Delay, d2	2.8	0.2			1.6	3.9				0.8		3.0
Delay (s)	9.6	3.5			16.4	19.0				36.1		39.6
Level of Service	A	A			B	B				D		D
Approach Delay (s)		4.9			17.5			0.0			39.0	
Approach LOS		A			B			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			14.7		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			81.9%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												




















I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

34: Frontage Road & Roper Mountain Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	12	366	592	50	54	174	1224	189	13	950	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Flt Protected	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	1546		1633	1649	1538	1719	3438	1538	1719	3425	
Satd. Flow (perm)	1719	1546		1633	1649	1538	172	3438	1538	201	3425	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	13	407	658	56	60	193	1360	210	14	1056	28
RTOR Reduction (vph)	0	130	0	0	0	20	0	0	106	0	2	0
Lane Group Flow (vph)	28	290	0	355	359	40	193	1360	104	14	1082	0
Turn Type	Split			Split		Perm	pm+pt		Perm	Perm		
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	18.0	18.0		23.0	23.0	23.0	51.0	51.0	51.0	36.0	36.0	
Effective Green, g (s)	18.0	18.0		23.0	23.0	23.0	51.0	51.0	51.0	36.0	36.0	
Actuated g/C Ratio	0.16	0.16		0.21	0.21	0.21	0.46	0.46	0.46	0.33	0.33	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	4.9	4.9		4.9	4.9	4.9	4.3	4.9	4.9	4.9	4.9	
Lane Grp Cap (vph)	281	253		341	345	322	206	1594	713	66	1121	
v/s Ratio Prot	0.02	c0.19		0.22	c0.22		0.08	c0.40			0.32	
v/s Ratio Perm						0.03	c0.36		0.07	0.07		
v/c Ratio	0.10	1.14		1.04	1.04	0.12	0.94	0.85	0.15	0.21	0.97	
Uniform Delay, d1	39.1	46.0		43.5	43.5	35.3	27.3	26.2	17.0	26.7	36.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.78	0.94	1.01	1.00	1.00	
Incremental Delay, d2	0.3	101.2		59.8	59.4	0.4	39.7	4.9	0.3	7.2	19.7	
Delay (s)	39.4	147.2		103.3	102.9	35.7	61.1	29.5	17.6	33.9	56.1	
Level of Service	D	F		F	F	D	E	C	B	C	E	
Approach Delay (s)		140.4			97.9			31.5			55.8	
Approach LOS		F			F			C			E	
<b>Intersection Summary</b>												
HCM Average Control Delay			62.6			HCM Level of Service			E			
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			115.7%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												













I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

35: I-385 NB Ramps & Roper Mountain Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	426	0	470	333	1117	0	0	1416	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.95	0.95	0.88	0.97	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1633	1633	2707	3335	3438			3438	1538
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1633	1633	2707	3335	3438			3438	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	473	0	522	370	1241	0	0	1573	547
RTOR Reduction (vph)	0	0	0	0	0	156	0	0	0	0	0	234
Lane Group Flow (vph)	0	0	0	236	237	366	370	1241	0	0	1573	313
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				19.4	19.4	19.4	14.7	78.6			57.9	57.9
Effective Green, g (s)				19.4	19.4	19.4	14.7	78.6			57.9	57.9
Actuated g/C Ratio				0.18	0.18	0.18	0.13	0.71			0.53	0.53
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				4.9	4.9	4.9	4.3	4.9			4.9	4.9
Lane Grp Cap (vph)				288	288	477	446	2457			1810	810
v/s Ratio Prot							c0.11	0.36			c0.46	
v/s Ratio Perm				0.14	0.15	0.14						0.20
v/c Ratio				0.82	0.82	0.77	0.83	0.51			0.87	0.39
Uniform Delay, d1				43.6	43.6	43.2	46.4	7.0			22.7	15.5
Progression Factor				1.00	1.00	1.00	1.11	0.75			0.69	1.10
Incremental Delay, d2				18.3	18.8	8.5	5.6	0.3			0.6	0.1
Delay (s)				61.9	62.4	51.6	57.3	5.5			16.2	17.2
Level of Service				E	E	D	E	A			B	B
Approach Delay (s)		0.0			56.6			17.4			16.5	
Approach LOS		A			E			B			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			25.2				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			115.4%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												





















I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

36: Roper Mountain Road & I-385 SB Ramps

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑	↑	↑	↑↑		↑	↑	↑↑			
Volume (vph)	0	1010	663	1133	709	0	440	0	443	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	6.4	5.8	6.4		6.1	6.1	6.1			
Lane Util. Factor		0.91	1.00	1.00	0.95		0.95	0.95	0.88			
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00			
Satd. Flow (prot)		4940	1538	1719	3438		1633	1633	2707			
Flt Permitted		1.00	1.00	0.15	1.00		0.95	0.95	1.00			
Satd. Flow (perm)		4940	1538	275	3438		1633	1633	2707			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1122	737	1259	788	0	489	0	492	0	0	0
RTOR Reduction (vph)	0	0	172	0	0	0	0	0	439	0	0	0
Lane Group Flow (vph)	0	1122	565	1259	788	0	244	245	53	0	0	0
Turn Type		Perm		pm+pt			Perm		Perm			
Protected Phases		2		1	6			4				
Permitted Phases			2	6			4		4			
Actuated Green, G (s)		35.6	35.6	86.2	85.6		11.9	11.9	11.9			
Effective Green, g (s)		35.6	35.6	86.2	85.6		11.9	11.9	11.9			
Actuated g/C Ratio		0.32	0.32	0.78	0.78		0.11	0.11	0.11			
Clearance Time (s)		6.4	6.4	5.8	6.4		6.1	6.1	6.1			
Vehicle Extension (s)		4.9	4.9	4.3	4.9		4.9	4.9	4.9			
Lane Grp Cap (vph)		1599	498	796	2675		177	177	293			
v/s Ratio Prot		0.23		c0.64	0.23							
v/s Ratio Perm			0.37	c0.60			0.15	0.15	0.02			
v/c Ratio		0.70	1.13	1.58	0.29		1.38	1.38	0.18			
Uniform Delay, d1		32.6	37.2	22.2	3.5		49.0	49.0	44.6			
Progression Factor		0.49	0.37	0.65	0.84		1.00	1.00	1.00			
Incremental Delay, d2		1.7	75.6	264.7	0.1		201.6	203.9	0.6			
Delay (s)		17.6	89.4	279.2	3.1		250.7	253.0	45.2			
Level of Service		B	F	F	A		F	F	D			
Approach Delay (s)		46.1			172.9			148.2			0.0	
Approach LOS		D			F			F			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			119.7			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.52									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			11.9			
Intersection Capacity Utilization			115.4%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

I-85/I-385 Interchange Improvements  
2015 Alternate 4A PM

37: Roper Mountain Road & Congaree Road

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	104	1041	1	6	771	375	625	1	322	4	1	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8	6.4			6.4	6.4	6.1	6.1			6.1	6.1
Lane Util. Factor	1.00	0.91			0.95	1.00	1.00	1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.85			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00			0.96	1.00
Satd. Flow (prot)	1719	4939			3437	1538	1719	1539			1740	1538
Flt Permitted	0.12	1.00			0.94	1.00	0.75	1.00			0.86	1.00
Satd. Flow (perm)	214	4939			3233	1538	1365	1539			1554	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	116	1157	1	7	857	417	694	1	358	4	1	8
RTOR Reduction (vph)	0	0	0	0	0	290	0	73	0	0	0	4
Lane Group Flow (vph)	116	1158	0	0	864	127	694	286	0	0	5	4
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.6	43.6			33.6	33.6	53.9	53.9			53.9	53.9
Effective Green, g (s)	43.6	43.6			33.6	33.6	53.9	53.9			53.9	53.9
Actuated g/C Ratio	0.40	0.40			0.31	0.31	0.49	0.49			0.49	0.49
Clearance Time (s)	5.8	6.4			6.4	6.4	6.1	6.1			6.1	6.1
Vehicle Extension (s)	4.3	4.9			4.9	4.9	4.9	4.9			4.9	4.9
Lane Grp Cap (vph)	142	1958			988	470	669	754			761	754
v/s Ratio Prot	0.03	c0.23						0.19				
v/s Ratio Perm	c0.29				0.27	0.08	c0.51				0.00	0.00
v/c Ratio	0.82	0.59			0.87	0.27	1.04	0.38			0.01	0.01
Uniform Delay, d1	27.5	26.2			36.2	28.9	28.1	17.6			14.4	14.3
Progression Factor	0.98	1.00			1.20	2.66	1.00	1.00			1.00	1.00
Incremental Delay, d2	20.8	0.8			9.9	1.3	44.8	0.6			0.0	0.0
Delay (s)	47.6	27.0			53.2	78.2	72.9	18.2			14.4	14.3
Level of Service	D	C			D	E	E	B			B	B
Approach Delay (s)		28.9			61.3			54.2			14.4	
Approach LOS		C			E			D			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			47.7		HCM Level of Service			D				
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)			12.5				
Intersection Capacity Utilization			107.0%		ICU Level of Service			G				
Analysis Period (min)			15									
c Critical Lane Group												