


















# HCM Signalized Intersection Capacity Analysis

## 9: I-85 SB Ramps & Woodruff Road

5/27/2011

													
Movement	WBL2	WBL	WBR	SEL	SET	SER	NWL	NWT	NWR	NEL	NER		
Lane Configurations													
Volume (vph)	540	0	299	0	813	124	712	1279	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	0.10	1.00					
Satd. Flow (perm)	3335		2707		3438	1538	184	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)	600	0	332	0	903	138	791	1421	0	0	0		
RTOR Reduction (vph)	0	0	120	0	0	96	0	0	0	0	0		
Lane Group Flow (vph)	600	0	212	0	903	42	791	1421	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)	21.0		21.0		32.7		87.9		87.9				
Effective Green, g (s)	21.0		21.0		32.7		87.9		87.9				
Actuated g/C Ratio	0.18		0.18		0.27		0.73		0.73				
Clearance Time (s)	5.0		5.0		6.3		6.5		6.1				
Vehicle Extension (s)	4.3		4.3		4.3		4.3		4.3				
Lane Grp Cap (vph)	584		474		937		755		2518				
v/s Ratio Prot					0.26		c0.42		0.41				
v/s Ratio Perm	c0.18		0.08				0.03		c0.34				
v/c Ratio	1.03		0.45		0.96		0.10		1.05				
Uniform Delay, d1	49.5		44.3		43.1		32.6		30.9				
Progression Factor	1.00		1.00		0.61		0.45		1.05				
Incremental Delay, d2	44.4		1.1		20.0		0.4		39.9				
Delay (s)	93.9		45.4		46.4		15.0		72.3				
Level of Service	F		D		D		B		E				
Approach Delay (s)			76.6		42.2				30.0				
Approach LOS			E		D		C		A				
<b>Intersection Summary</b>													
HCM Average Control Delay			43.4		HCM Level of Service				D				
HCM Volume to Capacity ratio			1.01										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				11.5				
Intersection Capacity Utilization			93.5%		ICU Level of Service				F				
Analysis Period (min)			15										
c Critical Lane Group													