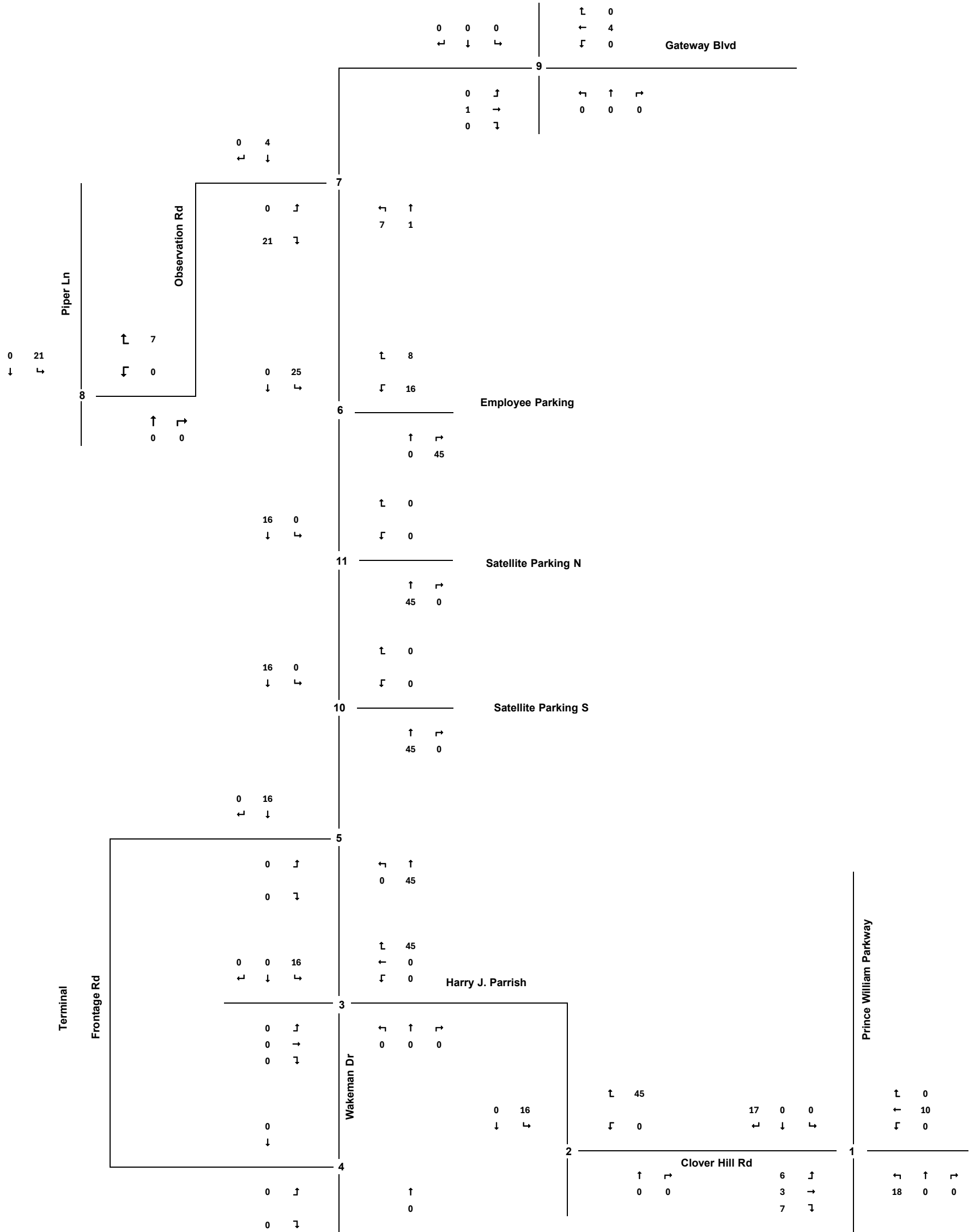
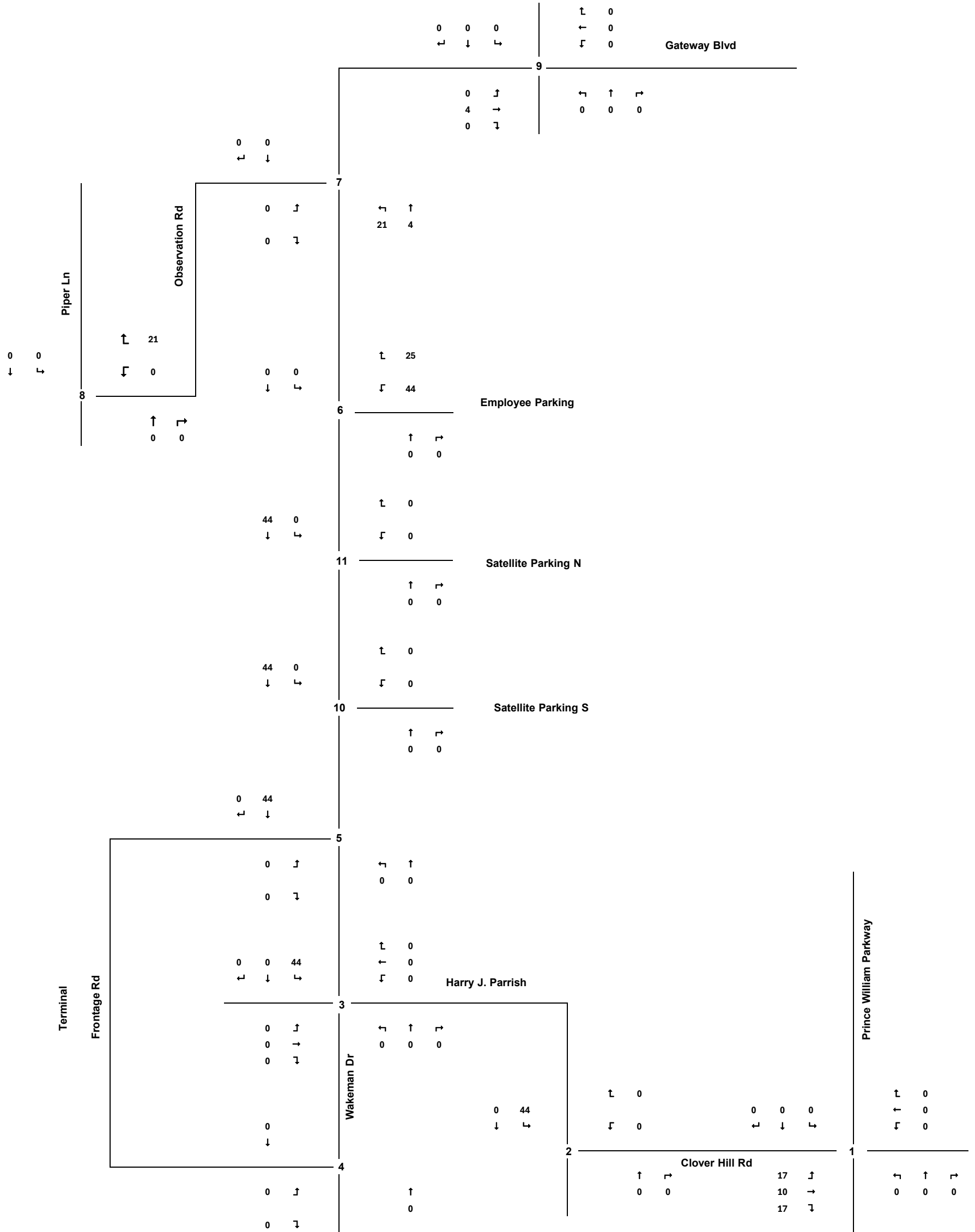


Appendix J – Alternative #1 Construction Analysis Back-up

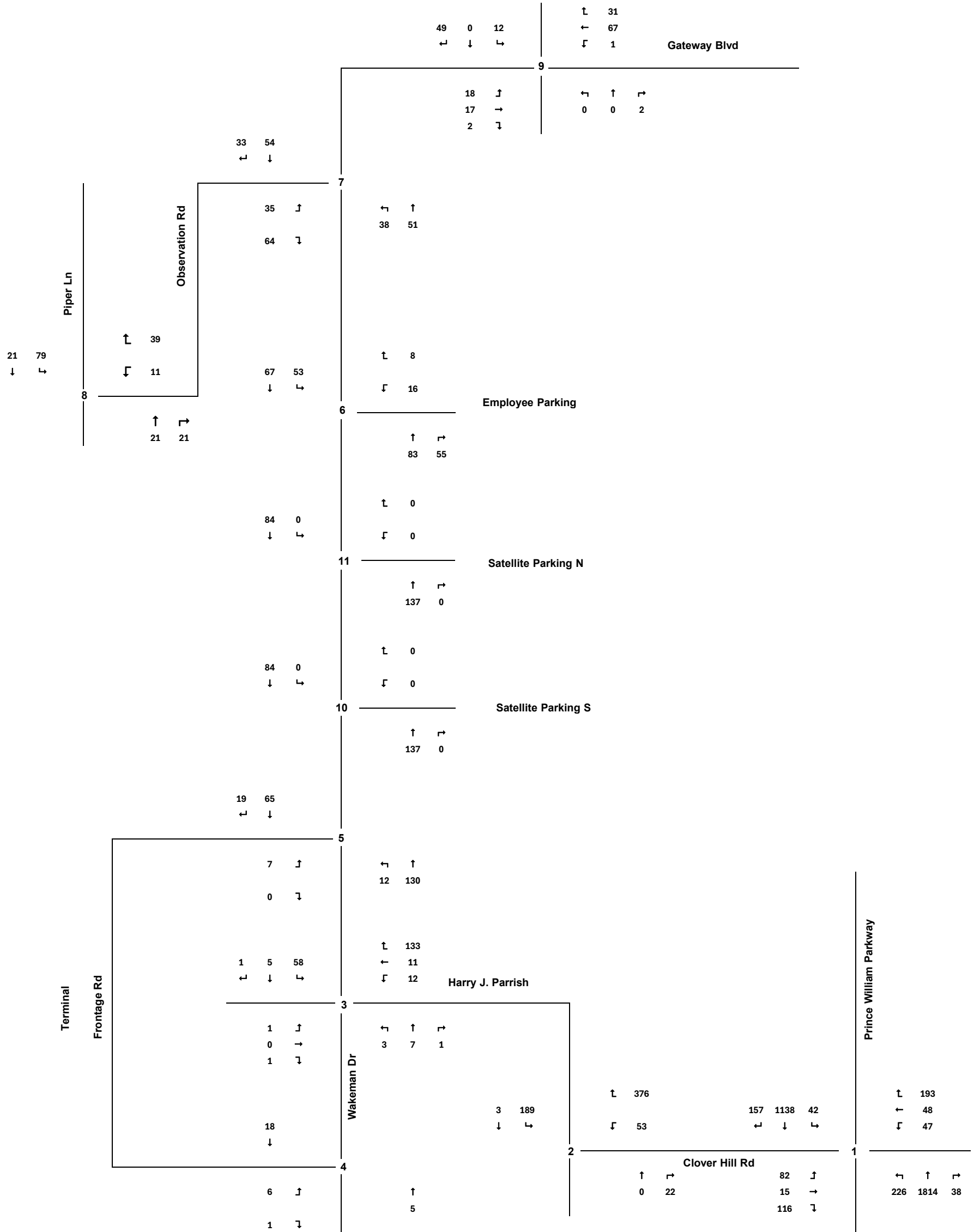
Scenario:
 2027 Alternative #1 Construction-Specific Weekday AM Peak Hour Increments



Scenario:
 2027 Alternative #1 Construction-Specific Weekday PM Peak Hour Increments



Scenario:
2027 Alternative #1 Construction Weekday AM Peak Hour Volumes



Scenario:
2027 Alternative #1 Construction Weekday PM Peak Hour Volumes



Measures of Effectiveness
 AM Peak Hour (6:30-7:30)

1. Prince William Parkway at Clover Hill Rd

Signalized Delay - HCM 2000

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)									
			Eastbound		Westbound		Northbound			Southbound		
			LT	R	LT	R	L	T	R	L	T	R
2024 Existing	31.7 (C)	Lane Group	97.3 (F)	57.9 (E)	64.5 (E)	59.3 (E)	76.3 (E)	27.6 (C)	0.0 (A)	81.9 (F)	22.5 (C)	0.1 (A)
		Approach	88.1 (F)		60.9 (E)		29.9 (C)			23.0 (C)		
		Lane Group	84.8 (F)	59.5 (E)	64.8 (E)	60.1 (E)	80.0 (F)	25.9 (C)	0.0 (A)	77.4 (E)	26.1 (C)	0.1 (A)
2027 No Build	33.1 (C)	Approach	70.8 (E)		61.5 (E)		30.9 (C)			25.0 (C)		
		Lane Group	90.9 (F)	59.1 (E)	65.2 (E)	59.6 (E)	81.4 (F)	27.5 (C)	0.0 (A)	78.1 (E)	28.6 (C)	0.1 (A)
		Approach	73.5 (E)		61.5 (E)		32.9 (C)			26.8 (C)		
ALT 1 2027 Construction	35.1 (D)	Lane Group	97.3 (F)	57.9 (E)	64.5 (E)	59.3 (E)	76.3 (E)	27.6 (C)	0.0 (A)	81.9 (F)	22.5 (C)	0.1 (A)
		Approach	88.1 (F)		60.9 (E)		29.9 (C)			23.0 (C)		
		Lane Group	84.8 (F)	59.5 (E)	64.8 (E)	60.1 (E)	80.0 (F)	25.9 (C)	0.0 (A)	77.4 (E)	26.1 (C)	0.1 (A)

95th Percentile Queues- Synchro Lanes, Volumes, Timings

Scenario		Eastbound		Westbound		Northbound			Southbound		
		LT	R	LT	R	L	T	R	L	T	R
Storage Length Available (ft)		1115	1115	1075	1075	470	-	355	470	-	280
95 th Percentile Queue Length (ft)	2024 Existing	144	0	160	28	183	#1243	0	92	614	0
	2027 No Build	180	62	165	80	#408	#1331	0	105	699	0
	ALT 1 2027 Construction	199	64	182	80	#468	#1341	0	105	702	0

indicates 95 percentile volume exceeds capacity, queue may be longer.

Measures of Effectiveness

AM Peak Hour (6:30-7:30)

2. Harry J. Parrish Blvd at Clover Hill Rd

Unsignalized Delay - HCM 2000

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)				
			Southeastbound	Northwestbound		Southwestbound	
			LT	T	R	L	R
2024 Existing	4.8 (A)	Lane Group	11.4	0.0	8.5	7.3	0.0
			(B)	(A)	(A)	(A)	(A)
		Approach	11.4	8.5		1.5	
			(B)	(A)		(A)	
2027 No Build	4.4 (A)	Lane Group	11.2	0.0	8.4	7.3	0.0
			(B)	(A)	(A)	(A)	(A)
		Approach	11.2	8.4		1.0	
			(B)	(A)		(A)	
ALT 1 2027 Construction	4.3 (A)	Lane Group	11.3	0.0	8.4	7.3	0.0
			(B)	(A)	(A)	(A)	(A)
		Approach	11.3	8.4		0.9	
			(B)	(A)		(A)	

95th Percentile Queues - HCM 2000

Scenario		Southeastbound	Northwestbound		Southwestbound	
		LT	T	R	L	R
Storage Length Available (ft)		1210	405	255	1115	1115
95 th Percentile Queue Length (ft)	2024 Existing	15	0	4	3	0
	2027 No Build	24	0	2	3	0
	ALT 1 2027 Construction	27	0	2	3	0

Measures of Effectiveness
 AM Peak Hour (6:30-7:30)

3. Harry J. Parrish at Wakeman Drive

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)					
			Eastbound	Westbound	Northbound		Southbound	
			LTR	LTR	L	TR	L	TR
2024 Existing	6.5 (A)	Lane Group	9.3	7.6	7.2	0.0	7.3	0.0
			(A)	(A)	(A)	(A)	(A)	(A)
		Approach	9.3	7.6	2.4		5.1	
			(A)	(A)	(A)		(A)	
2027 No Build	7.1 (A)	Lane Group	9.1	7.9	7.2	0.0	7.3	0.0
			(A)	(A)	(A)	(A)	(A)	(A)
		Approach	9.1	7.9	2		6.4	
			(A)	(A)	(A)		(A)	
ALT 1 2027 Construction	7.5 (A)	Lane Group	9.3	8.3	7.2	0.0	7.3	0.0
			(F)	(A)	(A)	(A)	(A)	(A)
		Approach	9.3	8.3	2.0		6.0	
			(A)	(A)	(A)		(A)	

95th Percentile Queues - HCM 2000

Scenario		Eastbound	Westbound	Northbound	Southbound
		LTR	LTR	LTR	LTR
Storage Length Available (ft)		140	790	260	235
95 th Percentile Queue Length (ft)	2024 Existing	1	14	0	4
	2027 No Build	0	10	0	3
	ALT 1 2027 Construction	0	15	0	3

Measures of Effectiveness

AM Peak Hour (6:30-7:30)

4. Wakeman Drive at Frontage Rd Exit

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)			
			Eastbound		Northbound	Southbound
			L	R	T	T
2024 Existing	3.0 (A)	Lane Group	8.8	8.4	-	-
			(A)	(A)	-	-
		Approach	8.7		-	-
			(A)		-	-
2027 No Build	2.0 (A)	Lane Group	8.6	8.4	-	-
			(A)	(A)	-	-
		Approach	8.6		-	-
			(A)		-	-
ALT 1 2027 Construction	2.0 (A)	Lane Group	8.6	8.4	-	-
			(A)	(A)	-	-
		Approach	8.6		-	-
			(A)		-	-

95th Percentile Queues - HCM 2000

Scenario		Eastbound		Northbound	Southbound
		L	R	T	T
Storage Length Available (ft)		170	170	845	260
95 th Percentile Queue Length (ft)	2024 Existing	1	0	0	0
	2027 No Build	1	0	0	0
	ALT 1 2027 Construction	1	0	0	0

Measures of Effectiveness

AM Peak Hour (6:30-7:30)

5. Wakeman Drive at Frontage Road Entrance

Unsignalized Delay - HCM 2000

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)			
			Eastbound	Northbound	Southbound	
			LR	LT	T	R
2024 Existing	1.4 (A)	Lane Group	10.0	1.2	0.0	0.0
			(B)	(A)	(A)	(A)
		Approach	10.0	1.2	0.0	
			(B)	(A)	(A)	
2027 No Build	1.0 (A)	Lane Group	9.8	1	0.0	0.0
			(A)	(A)	(A)	(A)
		Approach	9.8	1	0.0	
			(A)	(A)	(A)	
ALT 1 2027 Construction	0.8 (A)	Lane Group	10.3	0.7	0.0	0.0
			(B)	(A)	(A)	(A)
		Approach	10.3	0.7	0.0	
			(B)	(A)	(A)	

95th Percentile Queues - HCM 2000

Scenario		Eastbound	Northbound	Southbound	
		LR	LT	T	R
Storage Length Available (ft)		150	235	875	165
95 th Percentile Queue Length (ft)	2024 Existing	2	1	0	0
	2027 No Build	1	1	0	0
	ALT 1 2027 Construction	1	1	0	0

Measures of Effectiveness

AM Peak Hour (6:30-7:30)

6. Wakeman Drive at Employee Lot

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)				
			Southeastbound		Northwestbound		Southwestbound
			L	T	T	R	LR
2024 Existing	1.1 (A)	Lane Group	7.4	0.0	0.0	0.0	0.0
			(A)	(A)	(A)	(A)	(A)
		Approach	2.1		0.0		0.0
			(A)		(A)	(A)	
2027 No Build	1.1 (A)	Lane Group	7.4	0.0	0.0	0.0	0.0
			(A)	(A)	(A)	(A)	(A)
		Approach	2.2		0.0		0.0
			(A)		(A)	(A)	
ALT 1 2027 Construction	2.3 (A)	Lane Group	7.6	0.0	0.0	0.0	10.2
			(A)	(A)	(A)	(A)	(B)
		Approach	3.4		0.0		10.2
			(A)		(A)	(B)	

95th Percentile Queues - HCM 2000

Scenario		Southeastbound	Northwestbound	Southwestbound
		LT	TR	LR
Storage Length Available (ft)		325	170	255
95 th Percentile Queue Length (ft)	2024 Existing	2	0	0
	2027 No Build	2	0	0
	ALT 1 2027 Construction	3	0	3

Measures of Effectiveness

AM Peak Hour (6:30-7:30)

7. Wakeman Drive at Observation Rd

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)				
			Eastbound		Northbound		Southbound
			L	R	L	T	TR
2024 Existing	4.8 (A)	Lane Group	11.0	8.9	7.5	0.0	0.0
			(B)	(A)	(A)	(A)	(A)
		Approach	10.1		3.3		0.0
			(B)	(A)	(A)	(A)	(A)
2027 No Build	4.0 (A)	Lane Group	10.0	8.8	7.5	0.0	0.0
			(A)	(A)	(A)	(A)	(A)
		Approach	9.3		2.9		0.0
			(A)	(A)	(A)	(A)	(A)
ALT 1 2027 Construction	4.4 (A)	Lane Group	10.2	8.9	7.5	0.0	0.0
			(B)	(A)	(A)	(A)	(A)
		Approach	9.4		3.2		0.0
			(A)	(A)	(A)	(A)	(A)

95th Percentile Queues - HCM 2000

Scenario		Eastbound		Northbound		Southbound
		L	R	L	T	TR
Storage Length Available (ft)		105	865	145	620	240
95 th Percentile Queue Length (ft)	2024 Existing	10	5	3	0	0
	2027 No Build	4	4	2	0	0
	ALT 1 2027 Construction	4	6	2	0	0

Measures of Effectiveness
 AM Peak Hour (6:30-7:30)
 8. Observation Rd at Piper Ln

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)			
			Westbound	Northbound	Southbound	
			LR	TR	L	T
2024 Existing	3.0 (A)	Lane Group	9.5	0.0	7.5	7.5
			(A)	(A)	(A)	(A)
		Approach	9.5	0.0	3.3	3.3
			(A)	(A)	(A)	(A)
2027 No Build	5.0 (A)	Lane Group	9.0	0.0	7.5	7.5
			(A)	(A)	(A)	(A)
		Approach	9.0	0.0	5.5	5.5
			(A)	(A)	(A)	(A)
ALT 1 2027 Construction	5.4 (A)	Lane Group	0.2	0.0	7.5	0.0
			(A)	(A)	(A)	(A)
		Approach	9.0	0.0	5.9	
			(A)	(A)	(A)	

*Note: Intersection configuration and location changed between 2024 Existing and 2027 No Build Conditions

95th Percentile Queues - HCM 2000

Scenario	Westbound	Northbound	Southbound
	LR	TR	LT
Storage Length Available (ft)	1630	640	600
95 th Percentile Queue Length (ft)	2024 Existing	4	2
	2027 No Build	4	3
	ALT 1 2027 Construction	5	0

*Note: Intersection configuration and location changed between 2024 Existing and 2027 No Build Conditions

Measures of Effectiveness
 AM Peak Hour (6:30-7:30)
 9. Gateway Blvd at Carolina Dr

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)						
			Eastbound		Westbound		Northbound	Southbound	
			L	T	L	T	LTR	LT	R
2024 Existing	4.0 (A)	Lane Group	7.6	0.0	7.3	0.0	8.4	10.0	9.0
			(A)	(A)	(A)	(A)	(A)	(B)	(A)
		Approach	3.1		0.2		8.4		9.2
			(A)		(A)		(A)		(A)
2027 No Build	3.6 (A)	Lane Group	7.5	0.0	7.2	0.0	8.4	9.6	8.8
			(A)	(A)	(A)	(A)	(A)	(A)	(A)
		Approach	3.7		0.1		8.4		9.0
			(A)		(A)		(A)		(A)
ALT 1 2027 Construction	3.6 (A)	Lane Group	7.5	0.0	7.2	0.0	8.4	9.7	8.8
			(A)	(A)	(A)	(A)	(A)	(A)	(A)
		Approach	3.7		0.1		8.4		9.0
			(A)		(A)		(A)		(A)

95th Percentile Queues - HCM 2000

Scenario	Eastbound	Westbound	Northbound	Southbound	
	LT	LT	LTR	TR	
Storage Length Available (ft)	200	305	0	105	
95 th Percentile Queue Length (ft)	2024 Existing	1	0	0	7
	2027 No Build	1	0	0	4
	ALT 1 2027 Construction	1	0	0	4

indicates 95 percentile volume exceeds capacity, queue may be longer.

Measures of Effectiveness

PM Peak Hour (3:15 PM - 4:15 PM)

1. Prince William Parkway at Clover Hill Rd

Signalized Delay - HCM 2000

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)									
			Eastbound		Westbound		Northbound			Southbound		
			LT	R	LT	R	L	T	R	L	T	R
2024 Existing	31.4 (C)	Lane Group	78.3 (E)	61.2 (E)	71.0 (E)	61.3 (E)	75.8 (E)	24.8 (C)	0.1 (A)	73.6 (E)	25.6 (C)	0.0 (A)
		Approach	69.6 (E)		65.0 (E)		25.2 (C)			28.5 (C)		
2027 No Build	48.0 (D)	Lane Group	84.9 (F)	62.9 (E)	70.0 (E)	62.4 (E)	77.1 (E)	29.8 (C)	0.1 (A)	80.1 (F)	54.0 (D)	0.0 (A)
		Approach	71.7 (E)		65.1 (E)		31.0 (C)			55.0 (D)		
ALT 1 2027 Construction	52.9 (D)	Lane Group	88.7 (F)	62.2 (E)	70.5 (E)	61.5 (E)	78.7 (E)	32.4 (C)	0.1 (A)	82.2 (F)	61.7 (E)	0.0 (A)
		Approach	73.4 (E)		64.7 (E)		33.4 (C)			62.2 (E)		

95th Percentile Queues - Synchro Lanes, Volumes, Timings

Scenario		Eastbound		Westbound		Northbound			Southbound		
		LT	R	LT	R	L	T	R	L	T	R
Storage Length Available (ft)		1115	1115	1075	1075	470	-	355	470	-	280
95 th Percentile Queue Length (ft)	2024 Existing	163	12	68	48	57	852	0	267	#1306	0
	2027 No Build	246	80	142	65	154	1015	0	291	#1727	0
	ALT 1 2027 Construction	293	82	143	65	155	1038	0	295	#1762	0

indicates 95 percentile volume exceeds capacity, queue may be longer.

Measures of Effectiveness
 PM Peak Hour (3:15 PM - 4:15 PM)
 2. Harry J. Parrish Blvd at Clover Hill Rd

Unsignalized Delay - HCM 2000

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)					
			Southeastbound		Northwestbound		Southwestbound	
			LT	T	R	L	R	
2024 Existing	6.5 (A)	Lane Group	9.6	9.0	8.6	0.0	0.0	
			(A)	(A)	(A)	(A)	(A)	
		Approach	9.6	8.6		0.0		
			(A)	(A)		(A)		
2027 No Build	7.4 (A)	Lane Group	10.4	9.0	8.5	0.0	0.0	
			(B)	(A)	(A)	(A)	(A)	
		Approach	10.4	8.6		0.0		
			(B)	(A)		(A)		
ALT 1 2027 Construction	7.9 (A)	Lane Group	10.8	9.0	8.5	0.0	0.0	
			(B)	(A)	(A)	(A)	(A)	
		Approach	10.8	8.6		0.0		
			(B)	(A)		(A)		

95th Percentile Queues - HCM 2000

Scenario		Southeastbound	Northwestbound		Southwestbound	
		LT	T	R	L	R
Storage Length Available (ft)		1210	405	255	1115	1115
95 th Percentile Queue Length (ft)	2024 Existing	14	1	5	0	0
	2027 No Build	33	0	4	0	0
	ALT 1 2027 Construction	41	0	4	0	0

Measures of Effectiveness
 PM Peak Hour (3:15 PM - 4:15 PM)
 3. Harry J. Parrish at Wakeman Drive

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)					
			Eastbound	Westbound	Northbound		Southbound	
			LTR	LTR	L	TR	L	TR
2024 Existing	6.9 (A)	Lane Group	9.9	8.5	7.2	0.0	7.4	0
			(A)	(A)	(A)	(A)	(A)	(A)
		Approach	9.9	8.5	0.7		6.4	
			(A)	(A)	(A)		(A)	
2027 No Build	6.8 (A)	Lane Group	9.7	8.3	7.2	0.0	7.4	0
			(A)	(A)	(A)	(A)	(A)	(A)
		Approach	9.7	8.3	0.6		6.6	
			(A)	(A)	(A)		(A)	
ALT 1 2027 Construction	7.0 (A)	Lane Group	10.4	8.3	7.2	0.0	7.4	0
			(B)	(A)	(A)	(A)	(A)	(A)
		Approach	10.4	8.3	0.6		7.0	
			(B)	(A)	(A)		(A)	

95th Percentile Queues - HCM 2000

Scenario		Eastbound	Westbound	Northbound	Southbound
		LTR	LTR	LTR	LTR
Storage Length Available (ft)		140	790	260	235
95 th Percentile Queue Length (ft)	2024 Existing	4	10	0	4
	2027 No Build	2	6	0	3
	ALT 1 2027 Construction	2	7	0	6

Measures of Effectiveness

PM Peak Hour (3:15 PM - 4:15 PM)

4. Wakeman Drive at Frontage Rd Exit

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)			
			Eastbound		Northbound	Southbound
			L	R	T	T
2024 Existing	1.5 (A)	Lane Group	8.8	0.0	0.0	0.0
			(A)	(A)	(A)	(A)
		Approach	8.8		0.0	0.0
			(A)		(A)	(A)
2027 No Build	0.9 (A)	Lane Group	8.7	0.0	0.0	0.0
			(A)	(A)	(A)	(A)
		Approach	8.7		0.0	0.0
			(A)		(A)	(A)
ALT 1 2027 Construction	0.9 (A)	Lane Group	8.7	0.0	0.0	0.0
			(A)	(A)	(A)	(A)
		Approach	8.7		0.0	0.0
			(A)		(A)	(A)

95th Percentile Queues - HCM 2000

Scenario		Eastbound		Northbound	Southbound
		L	R	T	T
Storage Length Available (ft)		170	170	845	260
95 th Percentile Queue Length (ft)	2024 Existing	1	0	0	0
	2027 No Build	0	0	0	0
	ALT 1	0	0	0	0
	2027 Construction	0	0	0	0

Measures of Effectiveness
 PM Peak Hour (3:15 PM - 4:15 PM)
 5. Wakeman Drive at Frontage Road Entrance

Unsignalized Delay - HCM 2000

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)			
			Eastbound	Northbound	Southbound	
			LR	LT	T	R
2024 Existing	1.7 (A)	Lane Group	9.5	0.8	0.0	0.0
			(A)	(A)	(A)	(A)
		Approach	9.5	0.8	0.0	
			(A)	(A)	(A)	
2027 No Build	1.2 (A)	Lane Group	9.3	0.4	0.0	0.0
			(A)	(A)	(A)	(A)
		Approach	9.3	0.4	0.0	
			(A)	(A)	(A)	
ALT 1 2027 Construction	1.0 (A)	Lane Group	9.6	0.0	0.0	0.0
			(A)	(A)	(A)	(A)
		Approach	9.6	0.5	0.0	
			(A)	(A)	(A)	

95th Percentile Queues - HCM 2000

Scenario		Eastbound	Northbound	Southbound	
		LR	L	T	R
Storage Length Available (ft)		150	235	875	165
95 th Percentile Queue Length (ft)	2024 Existing	3	1	0	0
	2027 No Build	2	0	0	0
	ALT 1 2027 Construction	2	0	0	0

Measures of Effectiveness
 PM Peak Hour (3:15 PM - 4:15 PM)
 6. Wakeman Drive at Employee Lot

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)				
			Southeastbound		Northwestbound		Southwestbound
			L	T	T	R	LR
2024 Existing	2.5 (A)	Lane Group	0.0	0.0	0.0	0.0	9.1
			(A)	(A)	(A)	(A)	(A)
		Approach	0.0		0		9.1
			(A)		(A)		(A)
2027 No Build	2.5 (A)	Lane Group	0.0	0.0	0.0	0.0	9.2
			(A)	(A)	(A)	(A)	(A)
		Approach	0.0		0		9.2
			(A)		(A)		(A)
ALT 1 2027 Construction	4.4 (A)	Lane Group	0.0	0.0	0.0	0.0	9.8
			(A)	(A)	(A)	(A)	(A)
		Approach	0.0		0		9.8
			(A)		(A)		(A)

95th Percentile Queues - HCM 2000

Scenario		Southeastbound	Northwestbound	Southwestbound
		LT	TR	LR
Storage Length Available (ft)		325	170	255
95 th Percentile Queue Length (ft)	2024 Existing	0	0	5
	2027 No Build	0	0	6
	ALT 1 2027 Construction	0	0	14

Measures of Effectiveness

PM Peak Hour (3:15 PM - 4:15 PM)

7. Wakeman Drive at Observation Rd

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)				
			Eastbound		Northbound		Southbound
			L	R	L	T	TR
2024 Existing	4.2 (A)	Lane Group	11.2 (B)	8.8 (A)	7.5 (A)	0.0 (A)	0.0 (A)
		Approach	10.0 (A)		3.6 (A)		0.0 (A)
2027 No Build	3.9 (A)	Lane Group	10.7 (B)	8.7 (A)	7.5 (A)	0.0 (A)	0.0 (A)
		Approach	9.5 (A)		3.5 (A)		0.0 (A)
ALT 1 2027 Construction	4.1 (A)	Lane Group	11.2 (B)	8.7 (A)	7.5 (A)	0.0 (A)	0.0 (A)
		Approach	9.7 (A)		3.9 (A)		0.0 (A)

95th Percentile Queues - HCM 2000

Scenario		Eastbound		Northbound		Southbound
		L	R	L	T	TR
Storage Length Available (ft)		105	865	145	620	240
95 th Percentile Queue Length (ft)	2024 Existing	6	3	4	0	0
	2027 No Build	3	3	4	0	0
	ALT 1 2027 Construction	3	3	5	0	0

Measures of Effectiveness
 PM Peak Hour (3:15 PM - 4:15 PM)
 8. Observation Rd at Piper Ln

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)			
			Westbound	Northbound	Southbound	
			LR	TR	L	T
2024 Existing	2.6 (A)	Lane Group	9.7	0.0	7.4	0.0
			(A)	(A)	(A)	(A)
		Approach	9.7	0.0	2.0	
			(A)	(A)	(A)	
2027 No Build	5.8 (A)	Lane Group	9.2	0.0	7.4	0.0
			(A)	(A)	(A)	(A)
		Approach	9.2	0.0	3.6	
			(A)	(A)	(A)	
ALT 1 2027 Construction	6.1 (A)	Lane Group	9.2	0.0	7.4	0.0
			(A)	(A)	(A)	(A)
		Approach	9.2	0.0	3.6	
			(A)	(A)	(A)	

*Note: Intersection configuration and location changed between 2024 Existing and 2027 No Action Conditions

95th Percentile Queues - HCM 2000

Scenario	Westbound	Northbound	Southbound
	LR	TR	LT
Storage Length Available (ft)	1630	640	600
95 th Percentile Queue Length (ft)	2024 Existing	4	2
	2027 No Build	10	2
	ALT 1 2027 Construction	12	0

Measures of Effectiveness
 PM Peak Hour (3:15 PM - 4:15 PM)
 9. Gateway Blvd at Carolina Dr

Unsignalized Delay - HCM 6th Edition Two Way Stop Control

Scenario	Overall Delay (LOS)	Lane Group/ Approach	Delay (sec/veh)						
			Eastbound		Westbound		Northbound	Southbound	
			L	T	L	T	LTR	LT	R
2024 Existing	5.9 (A)	Lane Group	7.4 (A)	0.0 (A)	7.6 (A)	0.0 (A)	10.1 (B)	11.8 (B)	8.7 (A)
		Approach	3.5 (A)		1.7 (A)		10.1 (B)	10.5 (B)	
2027 No Build	5.4 (A)	Lane Group	7.4 (A)	0.0 (A)	7.5 (A)	0.0 (A)	9.4 (A)	10.9 (B)	8.6 (A)
		Approach	4.0 (A)		1.4 (A)		9.4 (A)	9.9 (A)	
ALT 1 2027 Construction	5.3 (A)	Lane Group	7.4 (A)	0.0 (A)	7.5 (A)	0.0 (A)	9.4 (A)	10.9 (B)	8.6 (A)
		Approach	3.8 (A)		1.4 (A)		9.4 (A)	9.9 (A)	

95th Percentile Queues - HCM 2000

Scenario		Eastbound	Westbound	Northbound	Southbound
		LT	LT	LTR	TR
Storage Length Available (ft)		200	305	0	105
95 th Percentile Queue Length (ft)	2024 Existing	3	1	4	10
	2027 No Build	3	1	1	6
	ALT 1 2027 Construction	3	1	1	6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	82	15	116	47	48	193	226	1814	38	42	1138	157
Future Volume (vph)	82	15	116	47	48	193	226	1814	38	42	1138	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			-4%			-2%			0%	
Storage Length (ft)	0		0	0		0	470		280	470		355
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850				0.850			0.850		0.850
Fl _t Protected		0.959			0.976			0.950			0.950	
Satd. Flow (prot)	0	1354	1569	0	1794	1584	1770	3408	1470	1570	3167	1553
Fl _t Permitted		0.656			0.747			0.950			0.950	
Satd. Flow (perm)	0	926	1569	0	1373	1584	1770	3408	1470	1570	3167	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126			210			113			113
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		1253			1187			3553			2951	
Travel Time (s)		34.2			32.4			44.0			36.6	
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
Heavy Vehicles (%)	44%	0%	5%	11%	0%	4%	3%	7%	11%	15%	14%	4%
Adj. Flow (vph)	89	16	126	51	52	210	246	1972	41	46	1237	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	105	126	0	103	210	246	1972	41	46	1237	171
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1		1	1	1	4	1	1	4	1
Detector Template		Thru	Right		Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)		35	35		35	35	35	406	46	35	406	46
Trailing Detector (ft)		-5	-5		-5	-5	-5	94	40	-5	94	40
Detector 1 Position(ft)		-5	-5		-5	-5	-5	94	40	-5	94	40
Detector 1 Size(ft)		40	40		40	40	40	6	6	40	6	6
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								196			196	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								298			298	









Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								400			400	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			Free			Free
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	7.0	20.0		7.0	20.0	
Minimum Split (s)	43.2	43.2	43.2	43.2	43.2	43.2	14.5	34.6		14.9	34.9	
Total Split (s)	43.2	43.2	43.2	43.2	43.2	43.2	37.5	107.6		37.9	108.0	
Total Split (%)	22.9%	22.9%	22.9%	22.9%	22.9%	22.9%	19.9%	57.0%		20.1%	57.2%	
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	30.0	100.0		30.0	100.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.7	5.6		4.9	5.9	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	2.8	2.0		3.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.2	7.2		7.2	7.2	7.5	7.6		7.9	7.9	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0		4.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0		7.0			7.0	
Flash Don't Walk (s)	28.0	28.0	28.0	28.0	28.0	28.0		20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		23.1	23.1		23.1	23.1	26.9	104.0	157.7	11.2	84.8	157.7
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.17	0.66	1.00	0.07	0.54	1.00
v/c Ratio		0.78	0.37		0.52	0.51	0.82	0.88	0.03	0.41	0.73	0.11
Control Delay (s/veh)		101.7	12.4		72.9	11.7	85.5	30.5	0.0	86.2	32.1	0.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		101.7	12.4		72.9	11.7	85.5	30.5	0.0	86.2	32.1	0.1
LOS		F	B		E	B	F	C	A	F	C	A
Approach Delay (s/veh)		53.0			31.8			35.9			30.1	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)		105	0		99	0	240	872	0	46	517	0
Queue Length 95th (ft)		199	64		182	80	#468	#1341	0	105	702	0
Internal Link Dist (ft)		1173			1107			3473			2871	
Turn Bay Length (ft)							470		280	470		355
Base Capacity (vph)		214	461		318	529	342	2248	1470	303	2044	1553
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.49	0.27		0.32	0.40	0.72	0.88	0.03	0.15	0.61	0.11

Intersection Summary

Area Type:	Other
Cycle Length:	188.7
Actuated Cycle Length:	157.7
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay (s/veh):	34.5
Intersection LOS:	C
Intersection Capacity Utilization:	88.8%
ICU Level of Service:	E
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1: PW Pkwy (234 By-Pass)way/PW Pkwy (234 By-Pass) & Clover Hill Rd

 Ø1 37.5 s	 Ø2 108 s	 Ø4 43.2 s
 Ø5 37.9 s	 Ø6 107.6 s	 Ø8 43.2 s

HCM Signalized Intersection Capacity Analysis

Manassas HEF EA

1: PW Pkwy (234 By-Pass)way/PW Pkwy (234 By-Pass) & Clover Hill Rd

02/07/2026



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕↕	↗	↘	↕↕	↗
Traffic Volume (vph)	82	15	116	47	48	193	226	1814	38	42	1138	157
Future Volume (vph)	82	15	116	47	48	193	226	1814	38	42	1138	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			-4%			-2%				0%
Total Lost time (s)		7.2	7.2		7.2	7.2	7.5	7.6	4.0	7.9	7.9	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1354	1569		1793	1584	1770	3408	1470	1570	3167	1553
Flt Permitted		0.66	1.00		0.75	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		926	1569		1374	1584	1770	3408	1470	1570	3167	1553
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)	89	16	126	51	52	210	246	1972	41	46	1237	171
RTOR Reduction (vph)	0	0	108	0	0	180	0	0	0	0	0	0
Lane Group Flow (vph)	0	105	18	0	103	30	246	1972	41	46	1237	171
Heavy Vehicles (%)	44%	0%	5%	11%	0%	4%	3%	7%	11%	15%	14%	4%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases		8			4		1	6		5		2
Permitted Phases	8		8	4		4			Free			Free
Actuated Green, G (s)		23.1	23.1		23.1	23.1	26.9	104.0	159.3	9.5	86.7	159.3
Effective Green, g (s)		23.1	23.1		23.1	23.1	26.9	104.0	159.3	9.5	86.7	159.3
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.17	0.65	1.00	0.06	0.54	1.00
Clearance Time (s)		7.2	7.2		7.2	7.2	7.5	7.6		7.9	7.9	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	4.0	3.0		4.0	3.0	
Lane Grp Cap (vph)		134	227		199	229	298	2224	1470	93	1723	1553
v/s Ratio Prot							c0.14	c0.58		0.03	0.39	
v/s Ratio Perm		c0.11	0.01		0.07	0.02			0.03			0.11
v/c Ratio		0.78	0.08		0.52	0.13	0.83	0.89	0.03	0.49	0.72	0.11
Uniform Delay, d1		65.7	58.9		62.9	59.4	63.9	22.8	0.0	72.6	27.2	0.0
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		25.2	0.2		2.3	0.3	17.5	4.7	0.0	5.5	1.5	0.1
Delay (s)		90.9	59.1		65.2	59.6	81.4	27.5	0.0	78.1	28.6	0.1
Level of Service		F	E		E	E	F	C	A	E	C	A
Approach Delay (s/veh)		73.5			61.5			32.9			26.8	
Approach LOS		E			E			C			C	

Intersection Summary

HCM 2000 Control Delay (s/veh)	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	159.3	Sum of lost time (s)	22.7
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group














Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕	↑	↗	↖	↗
Traffic Volume (vph)	189	3	0	22	53	376
Future Volume (vph)	189	3	0	22	53	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t				0.850		0.850
Fl _t Protected		0.953			0.950	
Satd. Flow (prot)	0	1488	1900	1615	1805	1553
Fl _t Permitted		0.953			0.950	
Satd. Flow (perm)	0	1488	1900	1615	1805	1553
Link Speed (mph)		35	35		25	
Link Distance (ft)		4575	551		1253	
Travel Time (s)		89.1	10.7		34.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	22%	0%	0%	0%	0%	4%
Adj. Flow (vph)	205	3	0	24	58	409
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	208	0	24	58	409
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 2: Harry J. Parrish Blvd & Clover Hill Rd

Manassas HEF EA
 02/07/2026

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	189	3	0	22	53	376
Future Volume (Veh/h)	189	3	0	22	53	376
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	205	3	0	24	58	409
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1253					
pX, platoon unblocked						
vC, conflicting volume	116	116	116	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	116	116	116	0	0	
tC, single (s)	7.3	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.7	4.0	4.0	3.3	2.2	
p0 queue free %	74	100	100	98	96	
cM capacity (veh/h)	776	750	750	1091	1636	
Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2	
Volume Total	208	0	24	58	409	
Volume Left	205	0	0	58	0	
Volume Right	0	0	24	0	409	
cSH	776	1700	1091	1636	1700	
Volume to Capacity	0.27	0.00	0.02	0.04	0.24	
Queue Length 95th (ft)	27	0	2	3	0	
Control Delay (s/veh)	11.3	0.0	8.4	7.3	0.0	
Lane LOS	B	A	A	A		
Approach Delay (s/veh)	11.3	8.4		0.9		
Approach LOS	B	A				
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			26.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
3: Parking Lot/Harry J. Parrish Blvd

Manassas HEF EA
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














Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	0	1	12	11	133	3	7	1	58	5	1
Future Volume (vph)	1	0	1	12	11	133	3	7	1	58	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.885			0.989			0.998	
Flt Protected		0.976			0.996			0.988			0.956	
Satd. Flow (prot)	0	1728	0	0	1633	0	0	1857	0	0	1755	0
Flt Permitted		0.976			0.996			0.988			0.956	
Satd. Flow (perm)	0	1728	0	0	1633	0	0	1857	0	0	1755	0
Link Speed (mph)		20			35			35			35	
Link Distance (ft)		296			4575			313			332	
Travel Time (s)		10.1			89.1			6.1			6.5	
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	0%	0%	0%	2%	20%	0%
Adj. Flow (vph)	1	0	1	13	12	145	3	8	1	63	5	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	170	0	0	12	0	0	69	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 3: Parking Lot/Harry J. Parrish Blvd

Manassas HEF EA
 02/07/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	12	11	133	3	7	1	58	5	1
Future Volume (Veh/h)	1	0	1	12	11	133	3	7	1	58	5	1
Sign Control		Stop			Stop			Free			Free	
Grade		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)	1	0	1	13	12	145	3	8	1	63	5	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	152	147	6	147	147	9	6			9		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	152	147	6	147	147	9	6			9		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	98	86	100			96		
cM capacity (veh/h)	678	718	1083	799	718	1070	1628			1611		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	2	170	12	69								
Volume Left	1	13	3	63								
Volume Right	1	145	1	1								
cSH	834	1009	1628	1611								
Volume to Capacity	0.00*	0.17	0.00*	0.04								
Queue Length 95th (ft)	0	15	0	3								
Control Delay (s/veh)	9.3	9.3	1.8	6.7								
Lane LOS	A	A	A	A								
Approach Delay (s/veh)	9.3	9.3	1.8	6.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			8.2									
Intersection Capacity Utilization			25.8%		ICU Level of Service				A			
Analysis Period (min)			15									

* Value less than 0.01.

Intersection												
Int Delay, s/veh	7.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	12	11	133	3	7	1	58	5	1
Future Vol, veh/h	1	0	1	12	11	133	3	7	1	58	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	3	0	0	0	2	20	0
Mvmt Flow	1	0	1	13	12	145	3	8	1	63	5	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	153	147	6	147	147	9	6	0	0	9	0	0
Stage 1	132	132	-	15	15	-	-	-	-	-	-	-
Stage 2	21	15	-	132	132	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.23	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.327	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	819	748	1083	826	748	1070	1628	-	-	1611	-	-
Stage 1	876	791	-	1010	887	-	-	-	-	-	-	-
Stage 2	1003	887	-	876	791	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	677	717	1083	800	717	1070	1628	-	-	1611	-	-
Mov Cap-2 Maneuver	677	717	-	800	717	-	-	-	-	-	-	-
Stage 1	874	760	-	1008	885	-	-	-	-	-	-	-
Stage 2	854	885	-	841	760	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.3		8.3		2		6.6	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	833	1255	1611	-	-
HCM Lane V/C Ratio	0.002	-	-	0.003	0.135	0.039	-	-
HCM Ctrl Dly (s/v)	7.2	0	-	9.3	8.3	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0	0.5	0.1	-	-

Lanes, Volumes, Timings
4: Wakeman Dr & Frontage Rd Exit

Manassas HEF EA
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	1	0	5	18	0
Future Volume (vph)	6	1	0	5	18	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.850					
Fl _t Protected	0.950					
Satd. Flow (prot)	1805	1615	0	1900	1792	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	1805	1615	0	1900	1792	0
Link Speed (mph)	20			35	35	
Link Distance (ft)	393			735	313	
Travel Time (s)	13.4			14.3	6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%
Adj. Flow (vph)	7	1	0	5	20	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	1	0	5	20	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 4: Wakeman Dr & Frontage Rd Exit

Manassas HEF EA
 02/07/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	1	0	5	18	0
Future Volume (Veh/h)	6	1	0	5	18	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	1	0	5	20	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	25	20	20			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	25	20	20			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	996	1064	1609			
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	7	1	5	20		
Volume Left	7	0	0	0		
Volume Right	0	1	0	0		
cSH	996	1064	1700	1700		
Volume to Capacity	0.00*	0.00*	0.00*	0.01		
Queue Length 95th (ft)	1	0	0	0		
Control Delay (s/veh)	8.6	8.4	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s/veh)	8.6		0.0	0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			13.3%	ICU Level of Service	A	
Analysis Period (min)			15			

* Value less than 0.01.

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	6	1	0	5	18	0
Future Vol, veh/h	6	1	0	5	18	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	6	0
Mvmt Flow	7	1	0	5	20	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	25	20	-	0	-	0
Stage 1	20	-	-	-	-	-
Stage 2	5	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	996	1064	0	-	-	0
Stage 1	1008	-	0	-	-	0
Stage 2	1023	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	996	1064	-	-	-	-
Mov Cap-2 Maneuver	996	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	1023	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	996	1064	-
HCM Lane V/C Ratio	-	0.007	0.001	-
HCM Ctrl Dly (s/v)	-	8.6	8.4	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q (veh)	-	0	0	-

Lanes, Volumes, Timings
5: Frontage Rd Entrance & Wakeman Dr

Manassas HEF EA
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	0	12	130	65	19
Future Volume (vph)	7	0	12	130	65	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			165
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t						0.850
Fl _t Protected	0.950			0.996		
Satd. Flow (prot)	1399	0	0	1846	1845	1538
Fl _t Permitted	0.950			0.996		
Satd. Flow (perm)	1399	0	0	1846	1845	1538
Link Speed (mph)	20			35	35	
Link Distance (ft)	189			332	652	
Travel Time (s)	6.4			6.5	12.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.94	0.92
Heavy Vehicles (%)	29%	0%	8%	2%	3%	5%
Adj. Flow (vph)	8	0	13	141	69	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	154	69	21
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 5: Frontage Rd Entrance & Wakeman Dr

Manassas HEF EA
 02/07/2026



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	0	12	130	65	19
Future Volume (Veh/h)	7	0	12	130	65	19
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.94	0.92
Hourly flow rate (vph)	8	0	13	141	69	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	236	69	90			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236	69	90			
tC, single (s)	6.7	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.3	2.3			
p0 queue free %	99	100	99			
cM capacity (veh/h)	690	1000	1468			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	8	154	69	21		
Volume Left	8	13	0	0		
Volume Right	0	0	0	21		
cSH	690	1468	1700	1700		
Volume to Capacity	0.01	0.00*	0.04	0.01		
Queue Length 95th (ft)	1	1	0	0		
Control Delay (s/veh)	10.3	0.7	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s/veh)	10.3	0.7	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.8					
Intersection Capacity Utilization	24.2%			ICU Level of Service	A	
Analysis Period (min)	15					

* Value less than 0.01.

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	0	12	130	65	19
Future Vol, veh/h	7	0	12	130	65	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	165
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	94	92
Heavy Vehicles, %	29	0	8	2	3	5
Mvmt Flow	8	0	13	141	69	21

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	236	69	90	0	0
Stage 1	69	-	-	-	-
Stage 2	167	-	-	-	-
Critical Hdwy	6.69	6.2	4.18	-	-
Critical Hdwy Stg 1	5.69	-	-	-	-
Critical Hdwy Stg 2	5.69	-	-	-	-
Follow-up Hdwy	3.761	3.3	2.272	-	-
Pot Cap-1 Maneuver	697	1000	1468	-	-
Stage 1	890	-	-	-	-
Stage 2	801	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	690	1000	1468	-	-
Mov Cap-2 Maneuver	690	-	-	-	-
Stage 1	881	-	-	-	-
Stage 2	801	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.3	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1468	-	690	-	-
HCM Lane V/C Ratio	0.009	-	0.011	-	-
HCM Ctrl Dly (s/v)	7.5	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Lanes, Volumes, Timings
6: Wakeman Dr & Observation Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	64	38	51	54	33
Future Volume (vph)	35	64	38	51	54	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	105	0	145			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.949	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1612	1615	1752	1827	1740	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1612	1615	1752	1827	1740	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	671			989	700	
Travel Time (s)	13.1			19.3	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	12%	0%	3%	4%	4%	3%
Adj. Flow (vph)	38	70	41	55	59	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	70	41	55	95	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Wakeman Dr & Observation Rd

Manassas HEF EA
02/07/2026



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	64	38	51	54	33
Future Volume (Veh/h)	35	64	38	51	54	33
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	70	41	55	59	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	214	77	95			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	214	77	95			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	95	93	97			
cM capacity (veh/h)	732	990	1493			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	38	70	41	55	95	
Volume Left	38	0	41	0	0	
Volume Right	0	70	0	0	36	
cSH	732	990	1493	1700	1700	
Volume to Capacity	0.05	0.07	0.03	0.03	0.06	
Queue Length 95th (ft)	4	6	2	0	0	
Control Delay (s/veh)	10.2	8.9	7.5	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s/veh)	9.4		3.2		0.0	
Approach LOS	A					
Intersection Summary						
Average Delay			4.4			
Intersection Capacity Utilization			18.8%	ICU Level of Service	A	
Analysis Period (min)			15			










Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑	↗	
Traffic Vol, veh/h	35	64	38	51	54	33
Future Vol, veh/h	35	64	38	51	54	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	105	0	145	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	0	3	4	4	3
Mvmt Flow	38	70	41	55	59	36

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	214	77	95	0	0
Stage 1	77	-	-	-	-
Stage 2	137	-	-	-	-
Critical Hdwy	6.52	6.2	4.13	-	-
Critical Hdwy Stg 1	5.52	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-
Follow-up Hdwy	3.608	3.3	2.227	-	-
Pot Cap-1 Maneuver	752	990	1493	-	-
Stage 1	921	-	-	-	-
Stage 2	866	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	732	990	1493	-	-
Mov Cap-2 Maneuver	732	-	-	-	-
Stage 1	896	-	-	-	-
Stage 2	866	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.4	3.2	0
HCM LOS	A		










Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1493	-	732	990	-	-
HCM Lane V/C Ratio	0.028	-	0.052	0.07	-	-
HCM Ctrl Dly (s/v)	7.5	-	10.2	8.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q (veh)	0.1	-	0.2	0.2	-	-

Lanes, Volumes, Timings
8: Observation Rd & Piper Ln

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	39	21	21	79	21
Future Volume (vph)	11	39	21	21	79	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.895		0.932			
Flt Protected	0.989					0.962
Satd. Flow (prot)	1682	0	1771	0	0	1732
Flt Permitted	0.989					0.962
Satd. Flow (perm)	1682	0	1771	0	0	1732
Link Speed (mph)	35		25			25
Link Distance (ft)	2530		410			1111
Travel Time (s)	49.3		11.2			30.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	7%	0%
Adj. Flow (vph)	12	42	23	23	86	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	46	0	0	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.1%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 8: Observation Rd & Piper Ln

Manassas HEF EA
 02/07/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	39	21	21	79	21
Future Volume (Veh/h)	11	39	21	21	79	21
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	42	23	23	86	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	230	35			46	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	230	35			46	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	98	96			94	
cM capacity (veh/h)	720	1044			1530	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	54	46	109			
Volume Left	12	0	86			
Volume Right	42	23	0			
cSH	949	1700	1530			
Volume to Capacity	0.06	0.03	0.06			
Queue Length 95th (ft)	5	0	4			
Control Delay (s/veh)	9.0	0.0	6.0			
Lane LOS	A		A			
Approach Delay (s/veh)	9.0	0.0	6.0			
Approach LOS	A					
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization			22.1%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	11	39	21	21	79	21
Future Vol, veh/h	11	39	21	21	79	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	7	0
Mvmt Flow	12	42	23	23	86	23

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	230	35	0	0	46
Stage 1	35	-	-	-	-
Stage 2	195	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.17
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.263
Pot Cap-1 Maneuver	763	1044	-	-	1530
Stage 1	993	-	-	-	-
Stage 2	843	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	720	1044	-	-	1530
Mov Cap-2 Maneuver	720	-	-	-	-
Stage 1	993	-	-	-	-
Stage 2	795	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9	0	5.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	950	1530
HCM Lane V/C Ratio	-	-	0.057	0.056
HCM Ctrl Dly (s/v)	-	-	9	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q (veh)	-	-	0.2	0.2



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	53	67	83	55	16	8
Future Volume (vph)	53	67	83	55	16	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.946		0.953	
Flt Protected		0.978			0.968	
Satd. Flow (prot)	0	1828	1732	0	1687	0
Flt Permitted		0.978			0.968	
Satd. Flow (perm)	0	1828	1732	0	1687	0
Link Speed (mph)		35	35		20	
Link Distance (ft)		989	681		412	
Travel Time (s)		19.3	13.3		14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	5%	2%	6%	0%
Adj. Flow (vph)	58	73	90	60	17	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	131	150	0	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.5%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 14: Wakeman Dr & Employee Lot

Manassas HEF EA
 02/07/2026



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	53	67	83	55	16	8
Future Volume (Veh/h)	53	67	83	55	16	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	73	90	60	17	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	150				309	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	150				309	120
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	96				97	99
cM capacity (veh/h)	1444				648	937
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	131	150	26			
Volume Left	58	0	17			
Volume Right	0	60	9			
cSH	1444	1700	725			
Volume to Capacity	0.04	0.09	0.04			
Queue Length 95th (ft)	3	0	3			
Control Delay (s/veh)	3.5	0.0	10.1			
Lane LOS	A		B			
Approach Delay (s/veh)	3.5	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			27.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	2.3					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	53	67	83	55	16	8
Future Vol, veh/h	53	67	83	55	16	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	5	2	6	0
Mvmt Flow	58	73	90	60	17	9




















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	150	0	-	0	309
Stage 1	-	-	-	-	120
Stage 2	-	-	-	-	189
Critical Hdwy	4.1	-	-	-	6.46
Critical Hdwy Stg 1	-	-	-	-	5.46
Critical Hdwy Stg 2	-	-	-	-	5.46
Follow-up Hdwy	2.2	-	-	-	3.554
Pot Cap-1 Maneuver	1444	-	-	-	675
Stage 1	-	-	-	-	895
Stage 2	-	-	-	-	834
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1444	-	-	-	647
Mov Cap-2 Maneuver	-	-	-	-	647
Stage 1	-	-	-	-	857
Stage 2	-	-	-	-	834

Approach	SE	NW	SW
HCM Ctrl Dly, s/v	3.4	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1444	-	721
HCM Lane V/C Ratio	-	-	0.04	-	0.036
HCM Ctrl Dly (s/v)	-	-	7.6	0	10.2
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q (veh)	-	-	0.1	-	0.1




















Lanes, Volumes, Timings
15: Gateway Blvd

Manassas HEF EA
02/07/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	17	2	1	67	31	0	0	2	12	0	49
Future Volume (vph)	18	17	2	1	67	31	0	0	2	12	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	305		0	0		0	0		105
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	95			105			0			0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.952			0.865				0.850
Flt Protected	0.950			0.950							0.950	
Satd. Flow (prot)	1703	3209	0	1805	3318	0	0	1644	0	0	1656	1524
Flt Permitted	0.950			0.950							0.950	
Satd. Flow (perm)	1703	3209	0	1805	3318	0	0	1644	0	0	1656	1524
Link Speed (mph)		35			35			25				25
Link Distance (ft)		1357			2771			405				407
Travel Time (s)		26.4			54.0			11.0				11.1
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
Heavy Vehicles (%)	6%	12%	0%	0%	2%	7%	0%	0%	0%	9%	0%	6%
Adj. Flow (vph)	20	18	2	1	73	34	0	0	2	13	0	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	20	0	1	107	0	0	2	0	0	13	53
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	21.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 15: Gateway Blvd

Manassas HEF EA
 02/07/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	17	2	1	67	31	0	0	2	12	0	49
Future Volume (Veh/h)	18	17	2	1	67	31	0	0	2	12	0	49
Sign Control		Free			Free			Stop			Stop	
Grade		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)	20	18	2	1	73	34	0	0	2	13	0	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
4												
Median type												
None None												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	107			20			124	168	10	143	152	54
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	107			20			124	168	10	143	152	54
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.7	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	99			100			100	100	100	98	100	95
cM capacity (veh/h)	1453			1609			789	718	1075	783	733	990
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	20	12	8	1	49	58	2	66				
Volume Left	20	0	0	1	0	0	0	13				
Volume Right	0	0	2	0	0	34	2	53				
cSH	1453	1700	1700	1609	1700	1700	1075	1232				
Volume to Capacity	0.01	0.00*	0.00*	0.00*	0.03	0.03	0.00*	0.05				
Queue Length 95th (ft)	1	0	0	0	0	0	0	4				
Control Delay (s/veh)	7.5	0.0	0.0	7.2	0.0	0.0	8.4	9.0				
Lane LOS	A			A			A	A				
Approach Delay (s/veh)	3.8			0.1			8.4	9.0				
Approach LOS							A	A				
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			21.7%		ICU Level of Service			A				
Analysis Period (min)			15									

* Value less than 0.01.

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕		↙	↕			↕			↕	↗
Traffic Vol, veh/h	18	17	2	1	67	31	0	0	2	12	0	49
Future Vol, veh/h	18	17	2	1	67	31	0	0	2	12	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	305	-	-	-	-	-	-	-	105
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	6	12	0	0	2	7	0	0	0	9	0	6
Mvmt Flow	20	18	2	1	73	34	0	0	2	13	0	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	107	0	0	20	0	0	98	168	10	141	152	54
Stage 1	-	-	-	-	-	-	59	59	-	92	92	-
Stage 2	-	-	-	-	-	-	39	109	-	49	60	-
Critical Hdwy	4.22	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.26	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.36
Pot Cap-1 Maneuver	1453	-	-	1609	-	-	879	728	1075	796	743	989
Stage 1	-	-	-	-	-	-	951	850	-	885	823	-
Stage 2	-	-	-	-	-	-	977	809	-	938	849	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1453	-	-	1609	-	-	823	717	1075	786	732	989
Mov Cap-2 Maneuver	-	-	-	-	-	-	823	717	-	786	732	-
Stage 1	-	-	-	-	-	-	938	838	-	873	822	-
Stage 2	-	-	-	-	-	-	924	808	-	923	837	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	3.7			0.1			8.4			9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1075	1453	-	-	1609	-	-	786	989
HCM Lane V/C Ratio	0.002	0.013	-	-	0.001	-	-	0.017	0.054
HCM Ctrl Dly (s/v)	8.4	7.5	-	-	7.2	-	-	9.7	8.8
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	118	39	212	52	15	122	72	1502	53	164	2033	37
Future Volume (vph)	118	39	212	52	15	122	72	1502	53	164	2033	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			-4%			-2%			0%	
Storage Length (ft)	0		0	0		0	470		280	470		355
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850				0.850			0.850		0.850
Fl _t Protected		0.964			0.962		0.950			0.950		
Satd. Flow (prot)	0	1814	1615	0	1808	1599	1805	3227	1382	1787	3374	1380
Fl _t Permitted		0.732			0.467		0.950			0.950		
Satd. Flow (perm)	0	1377	1615	0	878	1599	1805	3227	1382	1787	3374	1380
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			230			133			113			113
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		1253			1187			3553			2951	
Travel Time (s)		34.2			32.4			44.0			36.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.95	0.92	0.92
Heavy Vehicles (%)	4%	0%	2%	2%	7%	3%	1%	13%	18%	1%	7%	17%
Adj. Flow (vph)	128	42	230	57	16	133	78	1565	58	173	2210	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	230	0	73	133	78	1565	58	173	2210	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1		1	1	1	4	1	1	4	1
Detector Template		Thru	Right		Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)		35	35		35	35	35	406	46	35	406	46
Trailing Detector (ft)		-5	-5		-5	-5	-5	94	40	-5	94	40
Detector 1 Position(ft)		-5	-5		-5	-5	-5	94	40	-5	94	40
Detector 1 Size(ft)		40	40		40	40	40	6	6	40	6	6
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								196			196	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								298			298	









Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								400			400	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			Free			Free
Detector Phase	8	8	8	4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	7.0	20.0		7.0	20.0	
Minimum Split (s)	43.2	43.2	43.2	43.2	43.2	43.2	14.5	34.6		14.9	34.9	
Total Split (s)	43.2	43.2	43.2	43.2	43.2	43.2	37.5	107.6		37.9	108.0	
Total Split (%)	22.9%	22.9%	22.9%	22.9%	22.9%	22.9%	19.9%	57.0%		20.1%	57.2%	
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	30.0	100.0		30.0	100.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.7	5.6		4.9	5.9	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	2.8	2.0		3.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.2	7.2		7.2	7.2	7.5	7.6		7.9	7.9	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0		4.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0		7.0			7.0	
Flash Don't Walk (s)	28.0	28.0	28.0	28.0	28.0	28.0		20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		25.9	25.9		25.9	25.9	13.9	97.9	169.1	22.4	106.5	169.1
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.08	0.58	1.00	0.13	0.63	1.00
v/c Ratio		0.81	0.52		0.54	0.37	0.53	0.84	0.04	0.73	1.04	0.03
Control Delay (s/veh)		97.6	11.3		82.9	12.0	89.9	36.0	0.1	90.1	62.0	0.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		97.6	11.3		82.9	12.0	89.9	36.0	0.1	90.1	62.0	0.0
LOS		F	B		F	B	F	D	A	F	E	A
Approach Delay (s/veh)		47.9			37.1			37.3			62.9	
Approach LOS		D			D			D			E	
Queue Length 50th (ft)		188	0		77	0	86	734	0	190	~1402	0
Queue Length 95th (ft)		293	82		143	65	155	1038	0	295	#1762	0
Internal Link Dist (ft)		1173			1107			3473			2871	
Turn Bay Length (ft)							470		280	470		355
Base Capacity (vph)		295	527		188	447	322	1924	1382	319	2125	1380
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.58	0.44		0.39	0.30	0.24	0.81	0.04	0.54	1.04	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	188.7
Actuated Cycle Length:	169.1
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.04
Intersection Signal Delay (s/veh):	51.3
Intersection LOS:	D
Intersection Capacity Utilization:	96.2%
ICU Level of Service:	F
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1: PW Pkwy (234 By-Pass)way/PW Pkwy (234 By-Pass) & Clover Hill Rd

 Ø1 37.5 s	 Ø2 108 s	 Ø4 43.2 s
 Ø5 37.9 s	 Ø6 107.6 s	 Ø8 43.2 s

HCM Signalized Intersection Capacity Analysis

Manassas HEF EA

1: PW Pkwy (234 By-Pass)way/PW Pkwy (234 By-Pass) & Clover Hill Rd

02/07/2026



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	118	39	212	52	15	122	72	1502	53	164	2033	37
Future Volume (vph)	118	39	212	52	15	122	72	1502	53	164	2033	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			-4%			-2%				0%
Total Lost time (s)		7.2	7.2		7.2	7.2	7.5	7.6	4.0	7.9	7.9	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1813	1615		1809	1599	1805	3227	1382	1787	3374	1380
Flt Permitted		0.73	1.00		0.47	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1377	1615		877	1599	1805	3227	1382	1787	3374	1380
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.95	0.92	0.92
Adj. Flow (vph)	128	42	230	57	16	133	78	1565	58	173	2210	40
RTOR Reduction (vph)	0	0	195	0	0	113	0	0	0	0	0	0
Lane Group Flow (vph)	0	170	35	0	73	20	78	1565	58	173	2210	40
Heavy Vehicles (%)	4%	0%	2%	2%	7%	3%	1%	13%	18%	1%	7%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases		8			4		1	6		5		2
Permitted Phases	8		8	4		4			Free			Free
Actuated Green, G (s)		25.9	25.9		25.9	25.9	13.9	97.9	168.9	22.4	106.5	168.9
Effective Green, g (s)		25.9	25.9		25.9	25.9	13.9	97.9	168.9	22.4	106.5	168.9
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.08	0.58	1.00	0.13	0.63	1.00
Clearance Time (s)		7.2	7.2		7.2	7.2	7.5	7.6		7.9	7.9	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	4.0	3.0		4.0	3.0	
Lane Grp Cap (vph)		211	247		134	245	148	1870	1382	236	2127	1380
v/s Ratio Prot							0.04	0.49		c0.10	c0.66	
v/s Ratio Perm		c0.12	0.02		0.08	0.01			0.04			0.03
v/c Ratio		0.81	0.14		0.54	0.08	0.53	0.84	0.04	0.73	1.04	0.03
Uniform Delay, d1		69.1	61.9		66.1	61.3	74.3	29.0	0.0	70.4	31.2	0.0
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		19.6	0.3		4.5	0.1	4.4	3.4	0.1	11.9	30.5	0.0
Delay (s)		88.7	62.2		70.5	61.5	78.7	32.4	0.1	82.2	61.7	0.0
Level of Service		F	E		E	E	E	C	A	F	E	A
Approach Delay (s/veh)		73.4			64.7			33.4			62.2	
Approach LOS		E			E			C			E	

Intersection Summary

HCM 2000 Control Delay (s/veh)	52.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	168.9	Sum of lost time (s)	22.7
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group














Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕	↖	↗	↖	↗
Traffic Volume (vph)	317	1	4	52	0	123
Future Volume (vph)	317	1	4	52	0	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t				0.850		0.850
Fl _t Protected		0.953				
Satd. Flow (prot)	0	1775	1900	1524	1900	1509
Fl _t Permitted		0.953				
Satd. Flow (perm)	0	1775	1900	1524	1900	1509
Link Speed (mph)		35	35		25	
Link Distance (ft)		4575	551		1253	
Travel Time (s)		89.1	10.7		34.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	6%	0%	7%
Adj. Flow (vph)	345	1	4	57	0	134
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	346	4	57	0	134
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.6%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 2: Harry J. Parrish Blvd & Clover Hill Rd

















Manassas HEF EA
 02/07/2026

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	317	1	4	52	0	123
Future Volume (Veh/h)	317	1	4	52	0	123
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	345	1	4	57	0	134
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1253					
pX, platoon unblocked						
vC, conflicting volume	2	0	0	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2	0	0	0	0	
tC, single (s)	7.1	6.5	6.5	6.3	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.4	2.2	
p0 queue free %	64	100	100	95	100	
cM capacity (veh/h)	963	900	900	1073	1636	
Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2	
Volume Total	346	4	57	0	134	
Volume Left	345	0	0	0	0	
Volume Right	0	0	57	0	134	
cSH	963	900	1073	1700	1700	
Volume to Capacity	0.36	0.00*	0.05	0.00	0.08	
Queue Length 95th (ft)	41	0	4	0	0	
Control Delay (s/veh)	10.8	9.0	8.5	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s/veh)	10.8	8.6		0.0		
Approach LOS	B	A				
Intersection Summary						
Average Delay			7.9			
Intersection Capacity Utilization			27.6%	ICU Level of Service	A	
Analysis Period (min)			15			

* Value less than 0.01.

















Lanes, Volumes, Timings
 3: Parking Lot/Harry J. Parrish Blvd

Manassas HEF EA
 02/07/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	4	3	68	2	8	13	107	7	0
Future Volume (vph)	7	4	4	4	3	68	2	8	13	107	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.966			0.877			0.924				
Fl _t Protected		0.976			0.998			0.996			0.955	
Satd. Flow (prot)	0	1791	0	0	1577	0	0	1674	0	0	1766	0
Fl _t Permitted		0.976			0.998			0.996			0.955	
Satd. Flow (perm)	0	1791	0	0	1577	0	0	1674	0	0	1766	0
Link Speed (mph)		20			35			35			35	
Link Distance (ft)		296			4575			313			332	
Travel Time (s)		10.1			89.1			6.1			6.5	
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	6%	0%	0%	8%	2%	14%	0%
Adj. Flow (vph)	8	4	4	4	3	74	2	9	14	116	8	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	81	0	0	25	0	0	124	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	24.2%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 3: Parking Lot/Harry J. Parrish Blvd

Manassas HEF EA
 02/07/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	4	4	4	3	68	2	8	13	107	7	0
Future Volume (Veh/h)	7	4	4	4	3	68	2	8	13	107	7	0
Sign Control		Stop			Stop			Free			Free	
Grade		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)	8	4	4	4	3	74	2	9	14	116	8	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	262	267	8	266	260	16	8			23		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262	267	8	266	260	16	8			23		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	100	93	100			93		
cM capacity (veh/h)	608	595	1080	646	600	1052	1625			1592		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	16	81	25	124								
Volume Left	8	4	2	116								
Volume Right	4	74	14	0								
cSH	678	993	1625	1592								
Volume to Capacity	0.02	0.08	0.00*	0.07								
Queue Length 95th (ft)	2	7	0	6								
Control Delay (s/veh)	10.4	8.9	0.6	7.0								
Lane LOS	B	A	A	A								
Approach Delay (s/veh)	10.4	8.9	0.6	7.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization			24.2%		ICU Level of Service				A			
Analysis Period (min)			15									

* Value less than 0.01.

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	4	4	4	3	68	2	8	13	107	7	0
Future Vol, veh/h	7	4	4	4	3	68	2	8	13	107	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	6	0	0	8	2	14	0
Mvmt Flow	8	4	4	4	3	74	2	9	14	116	8	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	262	267	8	264	260	16	8	0	0	23	0	0
Stage 1	240	240	-	20	20	-	-	-	-	-	-	-
Stage 2	22	27	-	244	240	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.26	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.354	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	695	642	1080	693	648	1052	1625	-	-	1592	-	-
Stage 1	768	711	-	1004	883	-	-	-	-	-	-	-
Stage 2	1002	877	-	764	711	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	607	594	1080	647	600	1052	1625	-	-	1592	-	-
Mov Cap-2 Maneuver	607	594	-	647	600	-	-	-	-	-	-	-
Stage 1	767	659	-	1003	882	-	-	-	-	-	-	-
Stage 2	927	876	-	701	659	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	10.4		8.3		0.6		7	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1625	-	-	683	1160	1592	-	-
HCM Lane V/C Ratio	0.001	-	-	0.024	0.07	0.073	-	-
HCM Ctrl Dly (s/v)	7.2	0	-	10.4	8.3	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.1	0.2	0.2	-	-

Lanes, Volumes, Timings
4: Wakeman Dr & Frontage Rd Exit

Manassas HEF EA
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	0	0	19	16	0
Future Volume (vph)	4	0	0	19	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	0	1810	1792	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	0	1810	1792	0
Link Speed (mph)	20			35	35	
Link Distance (ft)	393			735	313	
Travel Time (s)	13.4			14.3	6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	6%	0%
Adj. Flow (vph)	4	0	0	21	17	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	21	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
4: Wakeman Dr & Frontage Rd Exit

Manassas HEF EA
02/07/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	0	0	19	16	0
Future Volume (Veh/h)	4	0	0	19	16	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	0	21	17	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	38	17	17			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	38	17	17			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	979	1068	1613			
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	4	0	21	17		
Volume Left	4	0	0	0		
Volume Right	0	0	0	0		
cSH	979	1700	1700	1700		
Volume to Capacity	0.00*	0.00	0.01	0.01		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s/veh)	8.7	0.0	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s/veh)	8.7		0.0	0.0		
Approach LOS	A					
Intersection Summary						
Average Delay	0.8					
Intersection Capacity Utilization	13.3%			ICU Level of Service	A	
Analysis Period (min)	15					

* Value less than 0.01.

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗		↑	↑	
Traffic Vol, veh/h	4	0	0	19	16	0
Future Vol, veh/h	4	0	0	19	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	6	0
Mvmt Flow	4	0	0	21	17	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	38	17	-	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	21	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	979	1068	0	-	-	0
Stage 1	1011	-	0	-	-	0
Stage 2	1007	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	979	1068	-	-	-	-
Mov Cap-2 Maneuver	979	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1007	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	979	-	-
HCM Lane V/C Ratio	-	0.004	-	-
HCM Ctrl Dly (s/v)	-	8.7	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q (veh)	-	0	-	-

Lanes, Volumes, Timings
5: Frontage Rd Entrance & Wakeman Dr

Manassas HEF EA
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	5	5	79	109	12
Future Volume (vph)	14	5	5	79	109	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			165
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966					0.850
Flt Protected	0.964			0.997		
Satd. Flow (prot)	1769	0	0	1806	1845	1615
Flt Permitted	0.964			0.997		
Satd. Flow (perm)	1769	0	0	1806	1845	1615
Link Speed (mph)	20			35	35	
Link Distance (ft)	189			332	652	
Travel Time (s)	6.4			6.5	12.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	20%	4%	3%	0%
Adj. Flow (vph)	15	5	5	86	118	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	91	118	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 5: Frontage Rd Entrance & Wakeman Dr

Manassas HEF EA
 02/07/2026



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	5	5	79	109	12
Future Volume (Veh/h)	14	5	5	79	109	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	5	5	86	118	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	214	118	131			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	214	118	131			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	98	99	100			
cM capacity (veh/h)	776	939	1350			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	20	91	118	13		
Volume Left	15	5	0	0		
Volume Right	5	0	0	13		
cSH	811	1350	1700	1700		
Volume to Capacity	0.02	0.00*	0.07	0.00*		
Queue Length 95th (ft)	2	0	0	0		
Control Delay (s/veh)	9.6	0.5	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s/veh)	9.6	0.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay	1.0					
Intersection Capacity Utilization	18.3%		ICU Level of Service	A		
Analysis Period (min)	15					

* Value less than 0.01.

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	5	5	79	109	12
Future Vol, veh/h	14	5	5	79	109	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	165
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	20	4	3	0
Mvmt Flow	15	5	5	86	118	13

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	214	118	131	0	0
Stage 1	118	-	-	-	-
Stage 2	96	-	-	-	-
Critical Hdwy	6.4	6.2	4.3	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.38	-	-
Pot Cap-1 Maneuver	779	939	1350	-	-
Stage 1	912	-	-	-	-
Stage 2	933	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	776	939	1350	-	-
Mov Cap-2 Maneuver	776	-	-	-	-
Stage 1	908	-	-	-	-
Stage 2	933	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.5	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1350	-	813	-	-
HCM Lane V/C Ratio	0.004	-	0.025	-	-
HCM Ctrl Dly (s/v)	7.7	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Lanes, Volumes, Timings
6: Wakeman Dr & Observation Rd

Manassas HEF EA
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	32	87	78	33	28
Future Volume (vph)	21	32	87	78	33	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	105	0	145			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.939	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1583	1524	1787	1845	1625	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1583	1524	1787	1845	1625	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	671			989	700	
Travel Time (s)	13.1			19.3	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	14%	6%	1%	3%	3%	18%
Adj. Flow (vph)	23	35	95	85	36	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	35	95	85	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 6: Wakeman Dr & Observation Rd

Manassas HEF EA
 02/07/2026



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	32	87	78	33	28
Future Volume (Veh/h)	21	32	87	78	33	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	35	95	85	36	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	326	51	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326	51	66			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	96	97	94			
cM capacity (veh/h)	605	1006	1542			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	23	35	95	85	66	
Volume Left	23	0	95	0	0	
Volume Right	0	35	0	0	30	
cSH	605	1006	1542	1700	1700	
Volume to Capacity	0.04	0.03	0.06	0.05	0.04	
Queue Length 95th (ft)	3	3	5	0	0	
Control Delay (s/veh)	11.2	8.7	7.5	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s/veh)	9.7		4.0		0.0	
Approach LOS	A					
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			21.5%	ICU Level of Service	A	
Analysis Period (min)			15			










Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	
Traffic Vol, veh/h	21	32	87	78	33	28
Future Vol, veh/h	21	32	87	78	33	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	105	0	145	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	14	6	1	3	3	18
Mvmt Flow	23	35	95	85	36	30

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	326	51	66	0	-	0
Stage 1	51	-	-	-	-	-
Stage 2	275	-	-	-	-	-
Critical Hdwy	6.54	6.26	4.11	-	-	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	3.354	2.209	-	-	-
Pot Cap-1 Maneuver	644	1006	1542	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	604	1006	1542	-	-	-
Mov Cap-2 Maneuver	604	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	744	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.7	3.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1542	-	604	1006	-	-
HCM Lane V/C Ratio	0.061	-	0.038	0.035	-	-
HCM Ctrl Dly (s/v)	7.5	-	11.2	8.7	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q (veh)	0.2	-	0.1	0.1	-	-










Lanes, Volumes, Timings
8: Observation Rd & Piper Ln

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	92	30	8	28	30
Future Volume (vph)	30	92	30	8	28	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.898		0.971			
Flt Protected	0.988					0.977
Satd. Flow (prot)	1649	0	1845	0	0	1764
Flt Permitted	0.988					0.977
Satd. Flow (perm)	1649	0	1845	0	0	1764
Link Speed (mph)	35		25			25
Link Distance (ft)	2530		410			1111
Travel Time (s)	49.3		11.2			30.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	0%	0%	11%	0%
Adj. Flow (vph)	33	100	33	9	30	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	0	42	0	0	63
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 8: Observation Rd & Piper Ln

Manassas HEF EA
 02/07/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	92	30	8	28	30
Future Volume (Veh/h)	30	92	30	8	28	30
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	100	33	9	30	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	131	38			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	131	38			42	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	96	90			98	
cM capacity (veh/h)	851	1032			1511	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	133	42	63			
Volume Left	33	0	30			
Volume Right	100	9	0			
cSH	980	1700	1511			
Volume to Capacity	0.14	0.02	0.02			
Queue Length 95th (ft)	12	0	2			
Control Delay (s/veh)	9.2	0.0	3.6			
Lane LOS	A		A			
Approach Delay (s/veh)	9.2	0.0	3.6			
Approach LOS	A					
Intersection Summary						
Average Delay			6.1			
Intersection Capacity Utilization			23.8%	ICU Level of Service		A
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	6.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	92	30	8	28	30
Future Vol, veh/h	30	92	30	8	28	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	0	0	11	0
Mvmt Flow	33	100	33	9	30	33

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	131	38	0	0	42	0
Stage 1	38	-	-	-	-	-
Stage 2	93	-	-	-	-	-
Critical Hdwy	6.4	6.23	-	-	4.21	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.299	-
Pot Cap-1 Maneuver	868	1031	-	-	1511	-
Stage 1	990	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	851	1031	-	-	1511	-
Mov Cap-2 Maneuver	851	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	917	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.2	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	980	1511
HCM Lane V/C Ratio	-	-	0.135	0.02
HCM Ctrl Dly (s/v)	-	-	9.2	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q (veh)	-	-	0.5	0.1

Lanes, Volumes, Timings
 14: Wakeman Dr & Employee Lot



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	65	92	0	56	72
Future Volume (vph)	0	65	92	0	56	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.924	
Fl _t Protected					0.979	
Satd. Flow (prot)	0	1810	1845	0	1719	0
Fl _t Permitted					0.979	
Satd. Flow (perm)	0	1810	1845	0	1719	0
Link Speed (mph)		35	35		20	
Link Distance (ft)		989	681		412	
Travel Time (s)		19.3	13.3		14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	3%	0%	0%	0%
Adj. Flow (vph)	0	71	100	0	61	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	71	100	0	139	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 14: Wakeman Dr & Employee Lot

Manassas HEF EA
 02/07/2026



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕	↔		↕	
Traffic Volume (veh/h)	0	65	92	0	56	72
Future Volume (Veh/h)	0	65	92	0	56	72
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	71	100	0	61	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	100				171	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				171	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	92
cM capacity (veh/h)	1505				824	961
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	71	100	139			
Volume Left	0	0	61			
Volume Right	0	0	78			
cSH	1505	1700	896			
Volume to Capacity	0.00	0.06	0.16			
Queue Length 95th (ft)	0	0	14			
Control Delay (s/veh)	0.0	0.0	9.8			
Lane LOS			A			
Approach Delay (s/veh)	0.0	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			4.4			
Intersection Capacity Utilization			19.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	4.4					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	65	92	0	56	72
Future Vol, veh/h	0	65	92	0	56	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	5	3	0	0	0
Mvmt Flow	0	71	100	0	61	78




















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	100	0	-	0	171 100
Stage 1	-	-	-	-	100 -
Stage 2	-	-	-	-	71 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1505	-	-	-	824 961
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	957 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1505	-	-	-	824 961
Mov Cap-2 Maneuver	-	-	-	-	824 -
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	957 -

Approach	SE	NW	SW
HCM Ctrl Dly, s/v	0	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1
Capacity (veh/h)	-	-	1505	- 896
HCM Lane V/C Ratio	-	-	-	- 0.155
HCM Ctrl Dly (s/v)	-	-	0	- 9.8
HCM Lane LOS	-	-	A	- A
HCM 95th %tile Q (veh)	-	-	0	- 0.5




















Lanes, Volumes, Timings
15: Gateway Blvd

Manassas HEF EA
02/07/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	58	1	12	17	34	2	3	10	38	4	35
Future Volume (vph)	63	58	1	12	17	34	2	3	10	38	4	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	305		0	0		0	0		105
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	95			105			0			0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.899			0.907				0.850
Flt Protected	0.950			0.950				0.994			0.956	
Satd. Flow (prot)	1805	3371	0	1530	3123	0	0	1593	0	0	1722	1524
Flt Permitted	0.950			0.950				0.994			0.956	
Satd. Flow (perm)	1805	3371	0	1530	3123	0	0	1593	0	0	1722	1524
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1357			2771			405			407	
Travel Time (s)		26.4			54.0			11.0			11.1	
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
Heavy Vehicles (%)	0%	7%	0%	18%	12%	0%	0%	0%	11%	6%	0%	6%
Adj. Flow (vph)	68	63	1	13	18	37	2	3	11	41	4	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	64	0	13	55	0	0	16	0	0	45	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.8%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
15: Gateway Blvd

Manassas HEF EA
02/07/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	58	1	12	17	34	2	3	10	38	4	35
Future Volume (Veh/h)	63	58	1	12	17	34	2	3	10	38	4	35
Sign Control		Free			Free			Stop			Stop	
Grade		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)	68	63	1	13	18	37	2	3	11	41	4	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												4
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	55			64			256	281	32	243	263	28
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	55			64			256	281	32	243	263	28
tC, single (s)	4.1			4.5			7.5	6.5	7.1	7.6	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.4	3.6	4.0	3.4
p0 queue free %	96			99			100	99	99	94	99	96
cM capacity (veh/h)	1563			1427			628	598	1006	644	612	1029
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	68	42	22	13	12	43	16	83				
Volume Left	68	0	0	13	0	0	2	41				
Volume Right	0	0	1	0	0	37	11	38				
cSH	1563	1700	1700	1427	1700	1700	836	1183				
Volume to Capacity	0.04	0.02	0.01	0.00*	0.00*	0.03	0.02	0.07				
Queue Length 95th (ft)	3	0	0	1	0	0	1	6				
Control Delay (s/veh)	7.4	0.0	0.0	7.5	0.0	0.0	9.4	9.9				
Lane LOS	A			A			A	A				
Approach Delay (s/veh)	3.8			1.4			9.4	9.9				
Approach LOS							A	A				
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			25.8%		ICU Level of Service			A				
Analysis Period (min)			15									

* Value less than 0.01.

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕		↙	↕			↕			↕	↗
Traffic Vol, veh/h	63	58	1	12	17	34	2	3	10	38	4	35
Future Vol, veh/h	63	58	1	12	17	34	2	3	10	38	4	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	305	-	-	-	-	-	-	-	105
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	7	0	18	12	0	0	0	11	6	0	6
Mvmt Flow	68	63	1	13	18	37	2	3	11	41	4	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	64	0	0	237	281	32	232	263	28
Stage 1	-	-	-	-	-	-	200	200	-	63	63	-
Stage 2	-	-	-	-	-	-	37	81	-	169	200	-
Critical Hdwy	4.1	-	-	4.46	-	-	7.5	6.5	7.12	7.62	6.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.62	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.62	5.5	-
Follow-up Hdwy	2.2	-	-	2.38	-	-	3.5	4	3.41	3.56	4	3.36
Pot Cap-1 Maneuver	1563	-	-	1427	-	-	703	631	1006	693	646	1028
Stage 1	-	-	-	-	-	-	789	739	-	929	846	-
Stage 2	-	-	-	-	-	-	980	832	-	805	739	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1563	-	-	1427	-	-	647	598	1006	656	612	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	647	598	-	656	612	-
Stage 1	-	-	-	-	-	-	754	706	-	888	838	-
Stage 2	-	-	-	-	-	-	930	825	-	758	706	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	3.8			1.4			9.4			9.9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	831	1563	-	-	1427	-	-	652	1028
HCM Lane V/C Ratio	0.02	0.044	-	-	0.009	-	-	0.07	0.037
HCM Ctrl Dly (s/v)	9.4	7.4	-	-	7.5	-	-	10.9	8.6
HCM Lane LOS	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0.1	0.1	-	-	0	-	-	0.2	0.1