



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
Future Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
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 <sub>t</sub>			0.850				0.850			0.850		0.850
Fl <sub>t</sub> Protected		0.960			0.982			0.950			0.950	
Satd. Flow (prot)	0	1506	1569	0	1830	1584	1770	3408	1470	1570	3167	1568
Fl <sub>t</sub> Permitted		0.587			0.658			0.950			0.950	
Satd. Flow (perm)	0	921	1569	0	1226	1584	1770	3408	1470	1570	3167	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173			210			113			134
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 (%)	28%	0%	5%	11%	0%	4%	3%	7%	11%	15%	14%	3%
Adj. Flow (vph)	149	28	173	51	89	210	359	1972	41	46	1237	301
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	177	173	0	140	210	359	1972	41	46	1237	301
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	

Lanes, Volumes, Timings

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









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)		36.2	36.2		36.2	36.2	30.2	103.7	170.8	11.5	81.7	170.8
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.18	0.61	1.00	0.07	0.48	1.00
v/c Ratio		0.91	0.37		0.54	0.42	1.15	0.95	0.03	0.44	0.82	0.19
Control Delay (s/veh)		110.2	9.9		71.3	9.6	157.1	43.7	0.0	91.8	42.8	0.3
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)		110.2	9.9		71.3	9.6	157.1	43.7	0.0	91.8	42.8	0.3
LOS		F	A		E	A	F	D	A	F	D	A
Approach Delay (s/veh)		60.6			34.3			60.1			36.2	
Approach LOS		E			C			E			D	
Queue Length 50th (ft)		195	0		141	0	~468	1096	0	50	612	0
Queue Length 95th (ft)		#406	73		248	80	#783	#1341	0	105	702	0
Internal Link Dist (ft)		1173			1107			3473			2871	
Turn Bay Length (ft)							470		280	470		355
Base Capacity (vph)		194	468		259	501	312	2069	1470	277	1866	1568
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		0.91	0.37		0.54	0.42	1.15	0.95	0.03	0.17	0.66	0.19

Intersection Summary

Area Type:	Other
Cycle Length:	188.7
Actuated Cycle Length:	170.8
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.15
Intersection Signal Delay (s/veh):	50.1
Intersection LOS:	D
Intersection Capacity Utilization:	90.5%
ICU Level of Service:	E
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

11/11/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕↕	↗	↘	↕↕	↗
Traffic Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
Future Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
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
Fr <sub>t</sub>		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl <sub>t</sub> Protected		0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1505	1569		1830	1584	1770	3408	1470	1570	3167	1568
Fl <sub>t</sub> Permitted		0.59	1.00		0.66	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		921	1569		1227	1584	1770	3408	1470	1570	3167	1568
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)	149	28	173	51	89	210	359	1972	41	46	1237	301
RTOR Reduction (vph)	0	0	137	0	0	166	0	0	0	0	0	0
Lane Group Flow (vph)	0	177	36	0	140	44	359	1972	41	46	1237	301
Heavy Vehicles (%)	28%	0%	5%	11%	0%	4%	3%	7%	11%	15%	14%	3%
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)		36.2	36.2		36.2	36.2	30.2	103.7	172.4	9.8	83.4	172.4
Effective Green, g (s)		36.2	36.2		36.2	36.2	30.2	103.7	172.4	9.8	83.4	172.4
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.18	0.60	1.00	0.06	0.48	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)		193	329		257	332	310	2049	1470	89	1532	1568
v/s Ratio Prot							c0.20	c0.58		0.03	0.39	
v/s Ratio Perm		c0.19	0.02		0.11	0.03			0.03			0.19
v/c Ratio		0.92	0.11		0.54	0.13	1.16	0.96	0.03	0.52	0.81	0.19
Uniform Delay, d <sub>1</sub>		66.6	55.1		60.7	55.3	71.1	32.5	0.0	79.0	37.7	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, d <sub>2</sub>		41.7	0.1		2.4	0.2	101.1	12.2	0.0	6.6	3.2	0.3
Delay (s)		108.3	55.2		63.1	55.5	172.2	44.7	0.0	85.6	40.9	0.3
Level of Service		F	E		E	E	F	D	A	F	D	A
Approach Delay (s/veh)		82.1			58.6			63.2			34.5	
Approach LOS		F			E			E			C	

Intersection Summary

HCM 2000 Control Delay (s/veh)	54.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	172.4	Sum of lost time (s)	22.7
Intersection Capacity Utilization	90.5%	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)	300	3	0	22	53	636
Future Volume (vph)	300	3	0	22	53	636
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 <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected		0.953			0.950	
Satd. Flow (prot)	0	1576	1900	1615	1805	1568
Fl <sub>t</sub> Permitted		0.953			0.950	
Satd. Flow (perm)	0	1576	1900	1615	1805	1568
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 (%)	15%	0%	0%	0%	0%	3%
Adj. Flow (vph)	326	3	0	24	58	691
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	329	0	24	58	691
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	42.7%
	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  
 11/11/2025

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	300	3	0	22	53	636
Future Volume (Veh/h)	300	3	0	22	53	636
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)	326	3	0	24	58	691
<b>Pedestrians</b>						
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)	7.2	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.6	4.0	4.0	3.3	2.2	
p0 queue free %	59	100	100	98	96	
cM capacity (veh/h)	791	750	750	1091	1636	
<b>Direction, Lane #</b>	<b>SE 1</b>	<b>NW 1</b>	<b>NW 2</b>	<b>SW 1</b>	<b>SW 2</b>	
Volume Total	329	0	24	58	691	
Volume Left	326	0	0	58	0	
Volume Right	0	0	24	0	691	
cSH	790	1700	1091	1636	1700	
Volume to Capacity	0.42	0.00	0.02	0.04	0.41	
Queue Length 95th (ft)	52	0	2	3	0	
Control Delay (s/veh)	12.8	0.0	8.4	7.3	0.0	
Lane LOS	B	A	A	A		
Approach Delay (s/veh)	12.8	8.4		0.6		
Approach LOS	B	A				
<b>Intersection Summary</b>						
Average Delay			4.4			
Intersection Capacity Utilization			42.7%	ICU Level of Service	A	
Analysis Period (min)			15			

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

Manassas HEF EA  
11/11/2025

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	12	28	377	3	22	64	106	5	1
Future Volume (vph)	1	0	1	12	28	377	3	22	64	106	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			0.878			0.903			0.999	
Flt Protected		0.976			0.999			0.998			0.955	
Satd. Flow (prot)	0	1728	0	0	1637	0	0	1605	0	0	1798	0
Flt Permitted		0.976			0.999			0.998			0.955	
Satd. Flow (perm)	0	1728	0	0	1637	0	0	1605	0	0	1798	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%	2%	0%	27%	0%	0%	20%	0%
Adj. Flow (vph)	1	0	1	13	30	410	3	24	70	115	5	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	453	0	0	97	0	0	121	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	44.9%
ICU Level of Service	A
Analysis Period (min)	15

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

Manassas HEF EA  
 11/11/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	12	28	377	3	22	64	106	5	1
Future Volume (Veh/h)	1	0	1	12	28	377	3	22	64	106	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	30	410	3	24	70	115	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	316	336	6	302	301	59	6			94		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	316	336	6	302	301	59	6			94		
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	95	59	100			92		
cM capacity (veh/h)	343	543	1083	615	567	1007	1628			1513		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	2	453	97	121								
Volume Left	1	13	3	115								
Volume Right	1	410	70	1								
cSH	521	941	1628	1513								
Volume to Capacity	0.00*	0.48	0.00*	0.08								
Queue Length 95th (ft)	0	67	0	6								
Control Delay (s/veh)	11.9	12.3	0.2	7.2								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	11.9	12.3	0.2	7.2								
Approach LOS	B	B										
Intersection Summary												
Average Delay			9.7									
Intersection Capacity Utilization			44.9%		ICU Level of Service				A			
Analysis Period (min)			15									

\* Value less than 0.01.

Intersection												
Int Delay, s/veh	8.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	12	28	377	3	22	64	106	5	1
Future Vol, veh/h	1	0	1	12	28	377	3	22	64	106	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	2	0	27	0	0	20	0
Mvmt Flow	1	0	1	13	30	410	3	24	70	115	5	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	316	336	6	301	301	59	6	0	0	94	0	0
Stage 1	236	236	-	65	65	-	-	-	-	-	-	-
Stage 2	80	100	-	236	236	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	4.1	-	-	4.1	-	-
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	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	641	588	1083	655	615	1007	1628	-	-	1513	-	-
Stage 1	772	713	-	951	845	-	-	-	-	-	-	-
Stage 2	934	816	-	772	713	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	343	542	1083	616	567	1007	1628	-	-	1513	-	-
Mov Cap-2 Maneuver	343	542	-	616	567	-	-	-	-	-	-	-
Stage 1	770	659	-	949	843	-	-	-	-	-	-	-
Stage 2	533	814	-	713	659	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	11.9		10.4		0.2		7.2	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	521	1114	1513	-	-
HCM Lane V/C Ratio	0.002	-	-	0.004	0.407	0.076	-	-
HCM Ctrl Dly (s/v)	7.2	0	-	11.9	10.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0	2	0.2	-	-

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

Manassas HEF EA  
11/11/2025



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	84	1	0	5	18	0
Future Volume (vph)	84	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 <sub>t</sub>	0.850					
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1687	1615	0	1900	1792	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1687	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 (%)	7%	0%	0%	0%	6%	0%
Adj. Flow (vph)	91	1	0	5	20	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	91	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	14.7%
Analysis Period (min)	15
	ICU Level of Service A

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

Manassas HEF EA  
 11/11/2025



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	1	0	5	18	0
Future Volume (Veh/h)	84	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)	91	1	0	5	20	0
<b>Pedestrians</b>						
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)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	91	100	100			
cM capacity (veh/h)	978	1064	1609			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>NB 1</b>	<b>SB 1</b>		
Volume Total	91	1	5	20		
Volume Left	91	0	0	0		
Volume Right	0	1	0	0		
cSH	978	1064	1700	1700		
Volume to Capacity	0.09	0.00*	0.00*	0.01		
Queue Length 95th (ft)	8	0	0	0		
Control Delay (s/veh)	9.1	8.4	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s/veh)	9.1		0.0	0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			7.1			
Intersection Capacity Utilization			14.7%	ICU Level of Service	A	
Analysis Period (min)			15			

\* Value less than 0.01.

Intersection						
Int Delay, s/veh	7.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗		↑	↑	
Traffic Vol, veh/h	84	1	0	5	18	0
Future Vol, veh/h	84	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, %	7	0	0	0	6	0
Mvmt Flow	91	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	6.47	6.2	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.3	-	-	-	-
Pot Cap-1 Maneuver	978	1064	0	-	-	0
Stage 1	990	-	0	-	-	0
Stage 2	1005	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	978	1064	-	-	-	-
Mov Cap-2 Maneuver	978	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	1005	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	978	1064	-
HCM Lane V/C Ratio	-	0.093	0.001	-
HCM Ctrl Dly (s/v)	-	9.1	8.4	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q (veh)	-	0.3	0	-

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

Manassas HEF EA  
11/11/2025



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	↕
Traffic Volume (vph)	0	0	105	296	113	30
Future Volume (vph)	0	0	105	296	113	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			165
Storage Lanes	0	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.987		
Satd. Flow (prot)	0	0	0	1817	1881	1380
Flt Permitted				0.987		
Satd. Flow (perm)	0	0	0	1817	1881	1380
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 (%)	0%	0%	1%	4%	1%	17%
Adj. Flow (vph)	0	0	114	322	120	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	436	120	33
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.4%			ICU Level of Service A		
Analysis Period (min)	15					

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

Manassas HEF EA  
 11/11/2025



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↑	↗
Traffic Volume (veh/h)	0	0	105	296	113	30
Future Volume (Veh/h)	0	0	105	296	113	30
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)	0	0	114	322	120	33
<b>Pedestrians</b>						
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	670	120	153			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670	120	153			
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	92			
cM capacity (veh/h)	392	937	1434			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>			
Volume Total	436	120	33			
Volume Left	114	0	0			
Volume Right	0	0	33			
cSH	1434	1700	1700			
Volume to Capacity	0.08	0.07	0.02			
Queue Length 95th (ft)	6	0	0			
Control Delay (s/veh)	2.6	0.0	0.0			
Lane LOS	A					
Approach Delay (s/veh)	2.6	0.0				
Approach LOS						
<b>Intersection Summary</b>						
Average Delay			1.9			
Intersection Capacity Utilization			31.4%	ICU Level of Service	A	
Analysis Period (min)			15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	137	62	58	71	33
Future Volume (vph)	35	137	62	58	71	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			0.957	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1612	1615	1770	1827	1765	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1612	1615	1770	1827	1765	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%	2%	4%	3%	3%
Adj. Flow (vph)	38	149	67	63	77	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	149	67	63	113	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	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	20.9%			ICU Level of Service A		
Analysis Period (min)	15					

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

Manassas HEF EA  
11/11/2025



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	137	62	58	71	33
Future Volume (Veh/h)	35	137	62	58	71	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	149	67	63	77	36
<b>Pedestrians</b>						
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	292	95	113			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	292	95	113			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	94	85	95			
cM capacity (veh/h)	647	967	1476			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	
Volume Total	38	149	67	63	113	
Volume Left	38	0	67	0	0	
Volume Right	0	149	0	0	36	
cSH	647	967	1476	1700	1700	
Volume to Capacity	0.06	0.15	0.05	0.04	0.07	
Queue Length 95th (ft)	5	14	4	0	0	
Control Delay (s/veh)	10.9	9.4	7.6	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s/veh)	9.7		3.9		0.0	
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			5.4			
Intersection Capacity Utilization			20.9%	ICU Level of Service	A	
Analysis Period (min)			15			










Intersection						
Int Delay, s/veh	5.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	137	62	58	71	33
Future Vol, veh/h	35	137	62	58	71	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	2	4	3	3
Mvmt Flow	38	149	67	63	77	36

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	292	95	113	0	0
Stage 1	95	-	-	-	-
Stage 2	197	-	-	-	-
Critical Hdwy	6.52	6.2	4.12	-	-
Critical Hdwy Stg 1	5.52	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-
Follow-up Hdwy	3.608	3.3	2.218	-	-
Pot Cap-1 Maneuver	678	967	1476	-	-
Stage 1	904	-	-	-	-
Stage 2	813	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	647	967	1476	-	-
Mov Cap-2 Maneuver	647	-	-	-	-
Stage 1	863	-	-	-	-
Stage 2	813	-	-	-	-

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)	1476	-	647	967	-	-
HCM Lane V/C Ratio	0.046	-	0.059	0.154	-	-
HCM Ctrl Dly (s/v)	7.6	-	10.9	9.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q (veh)	0.1	-	0.2	0.5	-	-

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










						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	63	21	21	152	21
Future Volume (vph)	11	63	21	21	152	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	0.885		0.932			
Flt Protected	0.993					0.958
Satd. Flow (prot)	1670	0	1771	0	0	1774
Flt Permitted	0.993					0.958
Satd. Flow (perm)	1670	0	1771	0	0	1774
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%	3%	0%
Adj. Flow (vph)	12	68	23	23	165	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	46	0	0	188
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	27.4%
Analysis Period (min)	15
	ICU Level of Service A

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

Manassas HEF EA  
 11/11/2025










						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	63	21	21	152	21
Future Volume (Veh/h)	11	63	21	21	152	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	68	23	23	165	23
<b>Pedestrians</b>						
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	388	35			46	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388	35			46	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	93			89	
cM capacity (veh/h)	554	1044			1555	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	80	46	188			
Volume Left	12	0	165			
Volume Right	68	23	0			
cSH	922	1700	1555			
Volume to Capacity	0.09	0.03	0.11			
Queue Length 95th (ft)	7	0	9			
Control Delay (s/veh)	9.3	0.0	6.8			
Lane LOS	A		A			
Approach Delay (s/veh)	9.3	0.0	6.8			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			6.4			
Intersection Capacity Utilization			27.4%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	6.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	63	21	21	152	21
Future Vol, veh/h	11	63	21	21	152	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	3	0
Mvmt Flow	12	68	23	23	165	23

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	388	35	0	0	46
Stage 1	35	-	-	-	-
Stage 2	353	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227
Pot Cap-1 Maneuver	619	1044	-	-	1555
Stage 1	993	-	-	-	-
Stage 2	716	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	553	1044	-	-	1555
Mov Cap-2 Maneuver	553	-	-	-	-
Stage 1	993	-	-	-	-
Stage 2	639	-	-	-	-










Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.3	0	6.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	922	1555
HCM Lane V/C Ratio	-	-	0.087	0.106
HCM Ctrl Dly (s/v)	-	-	9.3	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q (veh)	-	-	0.3	0.4

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	0	102	194	0	75
Future Volume (vph)	68	0	102	194	0	75
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	0.912					
Flt Protected	0.950					
Satd. Flow (prot)	1612	0	1666	0	0	1845
Flt Permitted	0.950					
Satd. Flow (perm)	1612	0	1666	0	0	1845
Link Speed (mph)	20	35		35		
Link Distance (ft)	455	652		568		
Travel Time (s)	15.5	12.7		11.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	12%	0%	4%	4%	0%	3%
Adj. Flow (vph)	74	0	111	211	0	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	322	0	0	82
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	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		15	
Sign Control	Stop	Free		Free		
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 12: Wakeman Dr & S Satellite Driveway

Manassas HEF EA  
 11/11/2025

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	68	0	102	194	0	75
Future Volume (Veh/h)	68	0	102	194	0	75
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)	74	0	111	211	0	82
<b>Pedestrians</b>						
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	299	217			322	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299	217			322	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	89	100			100	
cM capacity (veh/h)	672	828			1249	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	74	322	82			
Volume Left	74	0	0			
Volume Right	0	211	0			
cSH	672	1700	1249			
Volume to Capacity	0.11	0.19	0.00			
Queue Length 95th (ft)	9	0	0			
Control Delay (s/veh)	11.0	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	11.0	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			27.7%		ICU Level of Service	A
Analysis Period (min)			15			










Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	0	102	194	0	75
Future Vol, veh/h	68	0	102	194	0	75
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, %	12	0	4	4	0	3
Mvmt Flow	74	0	111	211	0	82

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	299	217	0	0	322
Stage 1	217	-	-	-	-
Stage 2	82	-	-	-	-
Critical Hdwy	6.52	6.2	-	-	4.1
Critical Hdwy Stg 1	5.52	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-
Follow-up Hdwy	3.608	3.3	-	-	2.2
Pot Cap-1 Maneuver	672	828	-	-	1249
Stage 1	796	-	-	-	-
Stage 2	917	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	672	828	-	-	1249
Mov Cap-2 Maneuver	672	-	-	-	-
Stage 1	796	-	-	-	-
Stage 2	917	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	11	0	0
HCM LOS	B		










Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	672	1249
HCM Lane V/C Ratio	-	-	0.11	-
HCM Ctrl Dly (s/v)	-	-	11	0
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q (veh)	-	-	0.4	0

Lanes, Volumes, Timings  
 13: Wakeman Dr & N Satellite Driveway

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	33	102	0	101	75
Future Volume (vph)	0	33	102	0	101	75
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 <sub>t</sub>	0.865					
Fl <sub>t</sub> Protected						0.972
Satd. Flow (prot)	1644	0	1827	0	0	1823
Fl <sub>t</sub> Permitted						0.972
Satd. Flow (perm)	1644	0	1827	0	0	1823
Link Speed (mph)	20		35		35	
Link Distance (ft)	404		568		681	
Travel Time (s)	13.8		11.1		13.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	4%	0%	0%	3%
Adj. Flow (vph)	0	36	111	0	110	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	0	111	0	0	192
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	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 13: Wakeman Dr & N Satellite Driveway

Manassas HEF EA  
 11/11/2025

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	33	102	0	101	75
Future Volume (Veh/h)	0	33	102	0	101	75
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)	0	36	111	0	110	82
<b>Pedestrians</b>						
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	413	111			111	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	413	111			111	
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	96			93	
cM capacity (veh/h)	555	948			1492	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	36	111	192			
Volume Left	0	0	110			
Volume Right	36	0	0			
cSH	948	1700	1492			
Volume to Capacity	0.04	0.07	0.07			
Queue Length 95th (ft)	3	0	6			
Control Delay (s/veh)	8.9	0.0	4.6			
Lane LOS	A		A			
Approach Delay (s/veh)	8.9	0.0	4.6			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			3.6			
Intersection Capacity Utilization			26.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	33	102	0	101	75
Future Vol, veh/h	0	33	102	0	101	75
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	4	0	0	3
Mvmt Flow	0	36	111	0	110	82

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	413	111	0	0	111	0
Stage 1	111	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	599	948	-	-	1492	-
Stage 1	919	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	553	948	-	-	1492	-
Mov Cap-2 Maneuver	553	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	697	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.9	0	4.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	948	1492
HCM Lane V/C Ratio	-	-	0.038	0.074
HCM Ctrl Dly (s/v)	-	-	8.9	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q (veh)	-	-	0.1	0.2



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	32	176	120	16	0	0
Future Volume (vph)	32	176	120	16	0	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 <sub>t</sub>			0.984			
Fl <sub>t</sub> Protected		0.992				
Satd. Flow (prot)	0	1869	1806	0	1900	0
Fl <sub>t</sub> Permitted		0.992				
Satd. Flow (perm)	0	1869	1806	0	1900	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%	1%	4%	0%	0%	0%
Adj. Flow (vph)	35	191	130	17	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	226	147	0	0	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	25.0%
Analysis Period (min)	15
	ICU Level of Service A

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

Manassas HEF EA  
 11/11/2025



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷		↶	↷
Traffic Volume (veh/h)	32	176	120	16	0	0
Future Volume (Veh/h)	32	176	120	16	0	0
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)	35	191	130	17	0	0
<b>Pedestrians</b>						
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	147				400	139
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147				400	139
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	100
cM capacity (veh/h)	1447				595	915
<b>Direction, Lane #</b>	<b>SE 1</b>	<b>NW 1</b>	<b>SW 1</b>			
Volume Total	226	147	0			
Volume Left	35	0	0			
Volume Right	0	17	0			
cSH	1447	1700	1700			
Volume to Capacity	0.02	0.09	0.00			
Queue Length 95th (ft)	2	0	0			
Control Delay (s/veh)	1.3	0.0	0.0			
Lane LOS	A		A			
Approach Delay (s/veh)	1.3	0.0	0.0			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			25.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	0.7					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	32	176	120	16	0	0
Future Vol, veh/h	32	176	120	16	0	0
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	1	4	0	0	0
Mvmt Flow	35	191	130	17	0	0




















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	147	0	-	0	400 139
Stage 1	-	-	-	-	139 -
Stage 2	-	-	-	-	261 -
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	1447	-	-	-	610 915
Stage 1	-	-	-	-	893 -
Stage 2	-	-	-	-	787 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1447	-	-	-	594 915
Mov Cap-2 Maneuver	-	-	-	-	594 -
Stage 1	-	-	-	-	869 -
Stage 2	-	-	-	-	787 -

Approach	SE	NW	SW
HCM Ctrl Dly, s/v	1.2	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1
Capacity (veh/h)	-	-	1447	-
HCM Lane V/C Ratio	-	-	0.024	-
HCM Ctrl Dly (s/v)	-	-	7.5	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q (veh)	-	-	0.1	-




















Lanes, Volumes, Timings  
15: Gateway Blvd

Manassas HEF EA  
11/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	24	2	1	84	31	0	0	2	12	0	49
Future Volume (vph)	18	24	2	1	84	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		0.989			0.959			0.865				0.850
Flt Protected	0.950			0.950							0.950	
Satd. Flow (prot)	1703	3295	0	1805	3373	0	0	1644	0	0	1656	1524
Flt Permitted	0.950			0.950							0.950	
Satd. Flow (perm)	1703	3295	0	1805	3373	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%	9%	0%	0%	1%	7%	0%	0%	0%	9%	0%	6%
Adj. Flow (vph)	20	26	2	1	91	34	0	0	2	13	0	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	28	0	1	125	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
<b>Intersection Summary</b>												
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  
 11/11/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	24	2	1	84	31	0	0	2	12	0	49
Future Volume (Veh/h)	18	24	2	1	84	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	26	2	1	91	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	125			28			141	194	14	165	178	63
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125			28			141	194	14	165	178	63
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)	1430			1599			767	695	1069	755	709	976
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	20	17	11	1	61	64	2	66				
Volume Left	20	0	0	1	0	0	0	13				
Volume Right	0	0	2	0	0	34	2	53				
cSH	1430	1700	1700	1599	1700	1700	1069	1216				
Volume to Capacity	0.01	0.01	0.00*	0.00*	0.04	0.04	0.00*	0.05				
Queue Length 95th (ft)	1	0	0	0	0	0	0	4				
Control Delay (s/veh)	7.6	0.0	0.0	7.3	0.0	0.0	8.4	9.1				
Lane LOS	A			A			A	A				
Approach Delay (s/veh)	3.1			0.1			8.4	9.1				
Approach LOS							A	A				
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization		21.7%		ICU Level of Service	A							
Analysis Period (min)		15										

\* Value less than 0.01.

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕		↙	↕			↕			↕	↗
Traffic Vol, veh/h	18	24	2	1	84	31	0	0	2	12	0	49
Future Vol, veh/h	18	24	2	1	84	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	9	0	0	1	7	0	0	0	9	0	6
Mvmt Flow	20	26	2	1	91	34	0	0	2	13	0	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	125	0	0	28	0	0	115	194	14	163	178	63
Stage 1	-	-	-	-	-	-	67	67	-	110	110	-
Stage 2	-	-	-	-	-	-	48	127	-	53	68	-
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	1430	-	-	1599	-	-	856	705	1069	767	719	976
Stage 1	-	-	-	-	-	-	941	843	-	863	808	-
Stage 2	-	-	-	-	-	-	965	795	-	933	842	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1430	-	-	1599	-	-	800	694	1069	757	708	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	800	694	-	757	708	-
Stage 1	-	-	-	-	-	-	928	831	-	851	807	-
Stage 2	-	-	-	-	-	-	912	794	-	918	830	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	3.1			0.1			8.4			9.1		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1069	1430	-	-	1599	-	-	757	976
HCM Lane V/C Ratio	0.002	0.014	-	-	0.001	-	-	0.017	0.055
HCM Ctrl Dly (s/v)	8.4	7.6	-	-	7.3	-	-	9.8	8.9
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)	295	74	356	52	18	122	184	1502	53	164	2033	196
Future Volume (vph)	295	74	356	52	18	122	184	1502	53	164	2033	196
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 <sub>t</sub>			0.850				0.850			0.850		0.850
Fl <sub>t</sub> Protected		0.962			0.964		0.950			0.950		
Satd. Flow (prot)	0	1835	1631	0	1813	1599	1805	3227	1382	1787	3374	1568
Fl <sub>t</sub> Permitted		0.717			0.097		0.950			0.950		
Satd. Flow (perm)	0	1368	1631	0	182	1599	1805	3227	1382	1787	3374	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			250			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 (%)	2%	0%	1%	2%	6%	3%	1%	13%	18%	1%	7%	3%
Adj. Flow (vph)	321	80	387	57	20	133	200	1565	58	173	2210	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	401	387	0	77	133	200	1565	58	173	2210	213
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)		36.0	36.0		36.0	36.0	25.5	101.9	184.3	23.6	100.2	184.3
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.14	0.55	1.00	0.13	0.54	1.00
v/c Ratio		1.50	0.74		2.20	0.32	0.80	0.88	0.04	0.76	1.21	0.14
Control Delay (s/veh)		291.6	34.1		646.1	10.8	100.5	43.1	0.1	98.1	135.3	0.2
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)		291.6	34.1		646.1	10.8	100.5	43.1	0.1	98.1	135.3	0.2
LOS		F	C		F	B	F	D	A	F	F	A
Approach Delay (s/veh)		165.1			243.8			48.1			121.7	
Approach LOS		F			F			D			F	
Queue Length 50th (ft)		~675	165		~149	0	239	853	0	206	~1721	0
Queue Length 95th (ft)		#925	309		#279	65	340	1038	0	295	#1888	0
Internal Link Dist (ft)		1173			1107			3473			2871	
Turn Bay Length (ft)							470		280	470		355
Base Capacity (vph)		267	520		35	419	293	1784	1382	291	1833	1568
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		1.50	0.74		2.20	0.32	0.68	0.88	0.04	0.59	1.21	0.14

Intersection Summary

Area Type:	Other
Cycle Length:	188.7
Actuated Cycle Length:	184.3
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	2.20
Intersection Signal Delay (s/veh):	108.0
Intersection LOS:	F
Intersection Capacity Utilization:	112.1%
ICU Level of Service:	H
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	 Ø2	 Ø4
37.5 s	108 s	43.2 s
 Ø5	 Ø6	 Ø8
37.9 s	107.6 s	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

11/11/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕	↗	↘	↕	↗
Traffic Volume (vph)	295	74	356	52	18	122	184	1502	53	164	2033	196
Future Volume (vph)	295	74	356	52	18	122	184	1502	53	164	2033	196
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
Fr <sub>t</sub>		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl <sub>t</sub> Protected		0.96	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1834	1631		1814	1599	1805	3227	1382	1787	3374	1568
Fl <sub>t</sub> Permitted		0.72	1.00		0.10	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1368	1631		182	1599	1805	3227	1382	1787	3374	1568
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)	321	80	387	57	20	133	200	1565	58	173	2210	213
RTOR Reduction (vph)	0	0	201	0	0	107	0	0	0	0	0	0
Lane Group Flow (vph)	0	401	186	0	77	26	200	1565	58	173	2210	213
Heavy Vehicles (%)	2%	0%	1%	2%	6%	3%	1%	13%	18%	1%	7%	3%
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)		36.0	36.0		36.0	36.0	25.5	102.0	184.3	23.6	100.2	184.3
Effective Green, g (s)		36.0	36.0		36.0	36.0	25.5	102.0	184.3	23.6	100.2	184.3
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.14	0.55	1.00	0.13	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)		267	318		35	312	249	1785	1382	228	1834	1568
v/s Ratio Prot							c0.11	0.49		0.10	c0.66	
v/s Ratio Perm		0.29	0.11		c0.42	0.02			0.04			c0.14
v/c Ratio		1.50	0.58		2.20	0.08	0.80	0.88	0.04	0.76	1.21	0.14
Uniform Delay, d <sub>1</sub>		74.2	67.4		74.2	60.7	77.0	35.7	0.0	77.6	42.1	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, d <sub>2</sub>		244.5	2.7		621.9	0.1	17.7	5.2	0.1	14.3	97.7	0.2
Delay (s)		318.6	70.1		696.0	60.8	94.7	40.9	0.1	91.9	139.8	0.2
Level of Service		F	E		F	E	F	D	A	F	F	A
Approach Delay (s/veh)		196.6			293.7			45.5			125.1	
Approach LOS		F			F			D			F	

Intersection Summary

HCM 2000 Control Delay (s/veh)	115.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	184.3	Sum of lost time (s)	22.7
Intersection Capacity Utilization	112.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕	↖	↗	↕	↗
Traffic Volume (vph)	673	1	4	52	0	398
Future Volume (vph)	673	1	4	52	0	398
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 <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected		0.952				
Satd. Flow (prot)	0	1791	1900	1524	1900	1583
Fl <sub>t</sub> Permitted		0.952				
Satd. Flow (perm)	0	1791	1900	1524	1900	1583
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 (%)	1%	0%	0%	6%	0%	2%
Adj. Flow (vph)	732	1	4	57	0	433
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	733	4	57	0	433
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	47.3%
Analysis Period (min)	15
	ICU Level of Service A

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

Manassas HEF EA  
 11/11/2025



















Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷	↷	↶	↷
Traffic Volume (veh/h)	673	1	4	52	0	398
Future Volume (Veh/h)	673	1	4	52	0	398
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)	732	1	4	57	0	433
<b>Pedestrians</b>						
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 %	24	100	100	95	100	
cM capacity (veh/h)	965	900	900	1073	1636	
<b>Direction, Lane #</b>	<b>SE 1</b>	<b>NW 1</b>	<b>NW 2</b>	<b>SW 1</b>	<b>SW 2</b>	
Volume Total	733	4	57	0	433	
Volume Left	732	0	0	0	0	
Volume Right	0	0	57	0	433	
cSH	965	900	1073	1700	1700	
Volume to Capacity	0.76	0.00*	0.05	0.00	0.25	
Queue Length 95th (ft)	188	0	4	0	0	
Control Delay (s/veh)	19.4	9.0	8.5	0.0	0.0	
Lane LOS	C	A	A			
Approach Delay (s/veh)	19.4	8.6		0.0		
Approach LOS	C	A				
<b>Intersection Summary</b>						
Average Delay			12.0			
Intersection Capacity Utilization			47.3%	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  
 11/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	17	4	4	37	309	2	41	215	248	7	0
Future Volume (vph)	8	17	4	4	37	309	2	41	215	248	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 <sub>t</sub>		0.983			0.881			0.888				
Fl <sub>t</sub> Protected		0.986			0.999						0.954	
Satd. Flow (prot)	0	1842	0	0	1658	0	0	1661	0	0	1788	0
Fl <sub>t</sub> Permitted		0.986			0.999						0.954	
Satd. Flow (perm)	0	1842	0	0	1658	0	0	1661	0	0	1788	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%	1%	0%	10%	0%	1%	14%	0%
Adj. Flow (vph)	9	18	4	4	40	336	2	45	234	270	8	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	380	0	0	281	0	0	278	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	61.0%
	ICU Level of Service B
Analysis Period (min)	15

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

Manassas HEF EA  
 11/11/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	17	4	4	37	309	2	41	215	248	7	0
Future Volume (Veh/h)	8	17	4	4	37	309	2	41	215	248	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)	9	18	4	4	40	336	2	45	234	270	8	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	734	831	8	727	714	162	8			279		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	734	831	8	727	714	162	8			279		
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 %	94	93	100	99	86	62	100			79		
cM capacity (veh/h)	158	243	1080	270	284	885	1625			1289		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	31	380	281	278								
Volume Left	9	4	2	270								
Volume Right	4	336	234	0								
cSH	230	710	1625	1289								
Volume to Capacity	0.13	0.54	0.00*	0.21								
Queue Length 95th (ft)	11	80	0	20								
Control Delay (s/veh)	23.1	15.8	0.1	8.3								
Lane LOS	C	C	A	A								
Approach Delay (s/veh)	23.1	15.8	0.1	8.3								
Approach LOS	C	C										
Intersection Summary												
Average Delay			9.3									
Intersection Capacity Utilization			61.0%	ICU Level of Service		B						
Analysis Period (min)			15									

\* Value less than 0.01.

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	17	4	4	37	309	2	41	215	248	7	0
Future Vol, veh/h	8	17	4	4	37	309	2	41	215	248	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	1	0	10	0	1	14	0
Mvmt Flow	9	18	4	4	40	336	2	45	234	270	8	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	734	831	8	725	714	162	8	0	0	279	0	0
Stage 1	548	548	-	166	166	-	-	-	-	-	-	-
Stage 2	186	283	-	559	548	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.21	4.1	-	-	4.11	-	-
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	3.309	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	338	307	1080	343	359	885	1625	-	-	1289	-	-
Stage 1	524	520	-	841	765	-	-	-	-	-	-	-
Stage 2	820	681	-	517	520	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	157	242	1080	270	283	885	1625	-	-	1289	-	-
Mov Cap-2 Maneuver	157	242	-	270	283	-	-	-	-	-	-	-
Stage 1	523	411	-	839	763	-	-	-	-	-	-	-
Stage 2	481	680	-	388	411	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	22.9		10.8		0.1		8.3	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1625	-	-	232	1002	1289	-	-
HCM Lane V/C Ratio	0.001	-	-	0.136	0.38	0.209	-	-
HCM Ctrl Dly (s/v)	7.2	0	-	22.9	10.8	8.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.5	1.8	0.8	-	-

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

Manassas HEF EA  
11/11/2025













Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	239	0	0	19	16	0
Future Volume (vph)	239	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
<b>Fr</b>						
Flt Protected	0.950					
Satd. Flow (prot)	1770	1900	0	1810	1792	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	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 (%)	2%	0%	0%	5%	6%	0%
Adj. Flow (vph)	260	0	0	21	17	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	260	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	
<b>Two way Left Turn Lane</b>						
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	23.2%
ICU Level of Service	A
Analysis Period (min)	15

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

Manassas HEF EA  
 11/11/2025

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	239	0	0	19	16	0
Future Volume (Veh/h)	239	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)	260	0	0	21	17	0
<b>Pedestrians</b>						
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 %	73	100	100			
cM capacity (veh/h)	974	1068	1613			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>NB 1</b>	<b>SB 1</b>		
Volume Total	260	0	21	17		
Volume Left	260	0	0	0		
Volume Right	0	0	0	0		
cSH	974	1700	1700	1700		
Volume to Capacity	0.27	0.00	0.01	0.01		
Queue Length 95th (ft)	27	0	0	0		
Control Delay (s/veh)	10.0	0.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s/veh)	10.0	0.0		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	8.8					
Intersection Capacity Utilization	23.2%		ICU Level of Service	A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	8.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	239	0	0	19	16	0
Future Vol, veh/h	239	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, %	2	0	0	5	6	0
Mvmt Flow	260	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	6.42	6.2	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	-	-
Pot Cap-1 Maneuver	974	1068	0	-	-	0
Stage 1	1006	-	0	-	-	0
Stage 2	1002	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	974	1068	-	-	-	-
Mov Cap-2 Maneuver	974	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	974	-	-
HCM Lane V/C Ratio	-	0.267	-	-
HCM Ctrl Dly (s/v)	-	10	0	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q (veh)	-	1.1	-	-

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

Manassas HEF EA  
11/11/2025



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	↗
Traffic Volume (vph)	0	0	235	124	255	35
Future Volume (vph)	0	0	235	124	255	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			165
Storage Lanes	0	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.968		
Satd. Flow (prot)	0	0	0	1802	1881	1455
Flt Permitted				0.968		
Satd. Flow (perm)	0	0	0	1802	1881	1455
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%	0%	6%	1%	11%
Adj. Flow (vph)	0	0	255	135	277	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	390	277	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	39.6%			ICU Level of Service A		
Analysis Period (min)	15					

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

Manassas HEF EA  
 11/11/2025



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	↗
Traffic Volume (veh/h)	0	0	235	124	255	35
Future Volume (Veh/h)	0	0	235	124	255	35
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)	0	0	255	135	277	38
<b>Pedestrians</b>						
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	922	277	315			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	922	277	315			
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	80			
cM capacity (veh/h)	241	767	1257			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>			
Volume Total	390	277	38			
Volume Left	255	0	0			
Volume Right	0	0	38			
cSH	1257	1700	1700			
Volume to Capacity	0.20	0.16	0.02			
Queue Length 95th (ft)	19	0	0			
Control Delay (s/veh)	6.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s/veh)	6.3	0.0				
Approach LOS						
<b>Intersection Summary</b>						
Average Delay			3.5			
Intersection Capacity Utilization			39.6%	ICU Level of Service	A	
Analysis Period (min)			15			

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

Manassas HEF EA  
11/11/2025



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	46	163	96	39	28
Future Volume (vph)	21	46	163	96	39	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			0.944	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1583	1553	1787	1863	1642	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1583	1553	1787	1863	1642	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%	4%	1%	2%	3%	18%
Adj. Flow (vph)	23	50	177	104	42	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	50	177	104	72	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	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.7%			ICU Level of Service A		
Analysis Period (min)	15					

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

Manassas HEF EA  
 11/11/2025



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	46	163	96	39	28
Future Volume (Veh/h)	21	46	163	96	39	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	50	177	104	42	30
<b>Pedestrians</b>						
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	515	57	72			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	515	57	72			
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	95	88			
cM capacity (veh/h)	442	1004	1534			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	
Volume Total	23	50	177	104	72	
Volume Left	23	0	177	0	0	
Volume Right	0	50	0	0	30	
cSH	442	1004	1534	1700	1700	
Volume to Capacity	0.05	0.05	0.12	0.06	0.04	
Queue Length 95th (ft)	4	4	10	0	0	
Control Delay (s/veh)	13.6	8.8	7.7	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s/veh)	10.3		4.8		0.0	
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			4.9			
Intersection Capacity Utilization			25.7%	ICU Level of Service	A	
Analysis Period (min)			15			










Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑	↗	
Traffic Vol, veh/h	21	46	163	96	39	28
Future Vol, veh/h	21	46	163	96	39	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	4	1	2	3	18
Mvmt Flow	23	50	177	104	42	30

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	515	57	72	0	0
Stage 1	57	-	-	-	-
Stage 2	458	-	-	-	-
Critical Hdwy	6.54	6.24	4.11	-	-
Critical Hdwy Stg 1	5.54	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-
Follow-up Hdwy	3.626	3.336	2.209	-	-
Pot Cap-1 Maneuver	499	1004	1534	-	-
Stage 1	936	-	-	-	-
Stage 2	613	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	442	1004	1534	-	-
Mov Cap-2 Maneuver	442	-	-	-	-
Stage 1	828	-	-	-	-
Stage 2	613	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.3	4.8	0
HCM LOS	B		










Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1534	-	442	1004	-	-
HCM Lane V/C Ratio	0.115	-	0.052	0.05	-	-
HCM Ctrl Dly (s/v)	7.7	-	13.6	8.8	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q (veh)	0.4	-	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)	30	168	30	8	42	30
Future Volume (vph)	30	168	30	8	42	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	0.886		0.971			
Flt Protected	0.992					0.972
Satd. Flow (prot)	1642	0	1845	0	0	1765
Flt Permitted	0.992					0.972
Satd. Flow (perm)	1642	0	1845	0	0	1765
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%	2%	0%	0%	8%	0%
Adj. Flow (vph)	33	183	33	9	46	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	216	0	42	0	0	79
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
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.3%		ICU Level of Service A			
Analysis Period (min)	15					

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

Manassas HEF EA  
 11/11/2025

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	168	30	8	42	30
Future Volume (Veh/h)	30	168	30	8	42	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	183	33	9	46	33
<b>Pedestrians</b>						
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	163	38			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	163	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	82			97	
cM capacity (veh/h)	808	1035			1529	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	216	42	79			
Volume Left	33	0	46			
Volume Right	183	9	0			
cSH	992	1700	1529			
Volume to Capacity	0.22	0.02	0.03			
Queue Length 95th (ft)	21	0	2			
Control Delay (s/veh)	9.6	0.0	4.4			
Lane LOS	A		A			
Approach Delay (s/veh)	9.6	0.0	4.4			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			7.2			
Intersection Capacity Utilization			29.3%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	7.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	30	168	30	8	42	30
Future Vol, veh/h	30	168	30	8	42	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	2	0	0	8	0
Mvmt Flow	33	183	33	9	46	33

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	163	38	0	0	42	0
Stage 1	38	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.4	6.22	-	-	4.18	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.318	-	-	2.272	-
Pot Cap-1 Maneuver	832	1034	-	-	1529	-
Stage 1	990	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	806	1034	-	-	1529	-
Mov Cap-2 Maneuver	806	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.6	0	4.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	992	1529
HCM Lane V/C Ratio	-	-	0.217	0.03
HCM Ctrl Dly (s/v)	-	-	9.6	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q (veh)	-	-	0.8	0.1












Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	189	0	108	15	0	100
Future Volume (vph)	189	0	108	15	0	100
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	0.984					
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	1766	0	0	1845
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	1766	0	0	1845
Link Speed (mph)	20	35		35		
Link Distance (ft)	455	652		568		
Travel Time (s)	15.5	12.7		11.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	3%	27%	0%	3%
Adj. Flow (vph)	205	0	117	16	0	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	205	0	133	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	1.00	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	23.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 12: Wakeman Dr & S Satellite Driveway

Manassas HEF EA  
 11/11/2025

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	189	0	108	15	0	100
Future Volume (Veh/h)	189	0	108	15	0	100
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)	205	0	117	16	0	109
<b>Pedestrians</b>						
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	234	125			133	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234	125			133	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	73	100			100	
cM capacity (veh/h)	754	931			1464	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	205	133	109			
Volume Left	205	0	0			
Volume Right	0	16	0			
cSH	754	1700	1464			
Volume to Capacity	0.27	0.08	0.00			
Queue Length 95th (ft)	28	0	0			
Control Delay (s/veh)	11.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	11.5	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			5.3			
Intersection Capacity Utilization			23.7%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	189	0	108	15	0	100
Future Vol, veh/h	189	0	108	15	0	100
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, %	2	0	3	27	0	3
Mvmt Flow	205	0	117	16	0	109

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	234	125	0	0	133
Stage 1	125	-	-	-	-
Stage 2	109	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2
Pot Cap-1 Maneuver	754	931	-	-	1464
Stage 1	901	-	-	-	-
Stage 2	916	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	754	931	-	-	1464
Mov Cap-2 Maneuver	754	-	-	-	-
Stage 1	901	-	-	-	-
Stage 2	916	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	754	1464
HCM Lane V/C Ratio	-	-	0.272	-
HCM Ctrl Dly (s/v)	-	-	11.6	0
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q (veh)	-	-	1.1	0












Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	101	108	0	1	100
Future Volume (vph)	0	101	108	0	1	100
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 <sub>t</sub>	0.865					
Fl <sub>t</sub> Protected						
Satd. Flow (prot)	1644	0	1845	0	0	1845
Fl <sub>t</sub> Permitted						
Satd. Flow (perm)	1644	0	1845	0	0	1845
Link Speed (mph)	20		35		35	
Link Distance (ft)	404		568		681	
Travel Time (s)	13.8		11.1		13.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	3%	0%	0%	3%
Adj. Flow (vph)	0	110	117	0	1	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	0	117	0	0	110
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	1.00	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	19.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 13: Wakeman Dr & N Satellite Driveway

Manassas HEF EA  
 11/11/2025

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	101	108	0	1	100
Future Volume (Veh/h)	0	101	108	0	1	100
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)	0	110	117	0	1	109
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	228	117			117	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	228	117			117	
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	88			100	
cM capacity (veh/h)	764	941			1484	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	110	117	110			
Volume Left	0	0	1			
Volume Right	110	0	0			
cSH	941	1700	1484			
Volume to Capacity	0.12	0.07	0.00*			
Queue Length 95th (ft)	10	0	0			
Control Delay (s/veh)	9.3	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s/veh)	9.3	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization			19.0%	ICU Level of Service	A	
Analysis Period (min)			15			

\* Value less than 0.01.

Intersection						
Int Delay, s/veh	3.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	0	101	108	0	1	100
Future Vol, veh/h	0	101	108	0	1	100
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	3	0	0	3
Mvmt Flow	0	110	117	0	1	109

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	228	117	0	0	117	0
Stage 1	117	-	-	-	-	-
Stage 2	111	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	765	941	-	-	1484	-
Stage 1	913	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	764	941	-	-	1484	-
Mov Cap-2 Maneuver	764	-	-	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	918	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.3	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	941	1484
HCM Lane V/C Ratio	-	-	0.117	0.001
HCM Ctrl Dly (s/v)	-	-	9.3	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q (veh)	-	-	0.4	0



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	85	209	0	17	50
Future Volume (vph)	0	85	209	0	17	50
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 <sub>t</sub>					0.899	
Fl <sub>t</sub> Protected					0.988	
Satd. Flow (prot)	0	1827	1863	0	1688	0
Fl <sub>t</sub> Permitted					0.988	
Satd. Flow (perm)	0	1827	1863	0	1688	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%	4%	2%	0%	0%	0%
Adj. Flow (vph)	0	92	227	0	18	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	92	227	0	72	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	21.7%
	ICU Level of Service A
Analysis Period (min)	15

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

Manassas HEF EA  
 11/11/2025



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	0	85	209	0	17	50
Future Volume (Veh/h)	0	85	209	0	17	50
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	92	227	0	18	54
<b>Pedestrians</b>						
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	227				319	227
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	227				319	227
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				97	93
cM capacity (veh/h)	1353				678	817
<b>Direction, Lane #</b>	<b>SE 1</b>	<b>NW 1</b>	<b>SW 1</b>			
Volume Total	92	227	72			
Volume Left	0	0	18			
Volume Right	0	0	54			
cSH	1353	1700	778			
Volume to Capacity	0.00	0.13	0.09			
Queue Length 95th (ft)	0	0	8			
Control Delay (s/veh)	0.0	0.0	10.1			
Lane LOS				B		
Approach Delay (s/veh)	0.0	0.0	10.1			
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay				1.9		
Intersection Capacity Utilization	21.7%			ICU Level of Service		A
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.9					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	85	209	0	17	50
Future Vol, veh/h	0	85	209	0	17	50
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	4	2	0	0	0
Mvmt Flow	0	92	227	0	18	54




















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	227	0	-	0	319 227
Stage 1	-	-	-	-	227 -
Stage 2	-	-	-	-	92 -
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	1353	-	-	-	678 817
Stage 1	-	-	-	-	815 -
Stage 2	-	-	-	-	937 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1353	-	-	-	678 817
Mov Cap-2 Maneuver	-	-	-	-	678 -
Stage 1	-	-	-	-	815 -
Stage 2	-	-	-	-	937 -

Approach	SE	NW	SW
HCM Ctrl Dly, s/v	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1
Capacity (veh/h)	-	-	1353	- 777
HCM Lane V/C Ratio	-	-	-	- 0.094
HCM Ctrl Dly (s/v)	-	-	0	- 10.1
HCM Lane LOS	-	-	A	- B
HCM 95th %tile Q (veh)	-	-	0	- 0.3




















Lanes, Volumes, Timings  
15: Gateway Blvd

Manassas HEF EA  
11/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	76	1	12	23	34	2	3	10	38	4	35
Future Volume (vph)	63	76	1	12	23	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			0.910			0.907				0.850
Flt Protected	0.950			0.950				0.994			0.956	
Satd. Flow (prot)	1805	3401	0	1530	3170	0	0	1593	0	0	1722	1524
Flt Permitted	0.950			0.950				0.994			0.956	
Satd. Flow (perm)	1805	3401	0	1530	3170	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%	6%	0%	18%	9%	0%	0%	0%	11%	6%	0%	6%
Adj. Flow (vph)	68	83	1	13	25	37	2	3	11	41	4	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	84	0	13	62	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	
<b>Intersection Summary</b>												
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  
11/11/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	76	1	12	23	34	2	3	10	38	4	35
Future Volume (Veh/h)	63	76	1	12	23	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	83	1	13	25	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	62			84			279	308	42	260	290	31
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62			84			279	308	42	260	290	31
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	93	99	96
cM capacity (veh/h)	1554			1401			604	578	991	626	591	1023
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	68	55	29	13	17	45	16	83				
Volume Left	68	0	0	13	0	0	2	41				
Volume Right	0	0	1	0	0	37	11	38				
cSH	1554	1700	1700	1401	1700	1700	816	1149				
Volume to Capacity	0.04	0.03	0.02	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	7.6	0.0	0.0	9.5	10.1				
Lane LOS	A			A			A	B				
Approach Delay (s/veh)	3.3			1.3			9.5	10.1				
Approach LOS							A	B				
<b>Intersection Summary</b>												
Average Delay			4.9									
Intersection Capacity Utilization			25.8%		ICU Level of Service			A				
Analysis Period (min)			15									

\* Value less than 0.01.

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕		↙	↕			↕			↕	↗
Traffic Vol, veh/h	63	76	1	12	23	34	2	3	10	38	4	35
Future Vol, veh/h	63	76	1	12	23	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	6	0	18	9	0	0	0	11	6	0	6
Mvmt Flow	68	83	1	13	25	37	2	3	11	41	4	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	62	0	0	84	0	0	261	308	42	249	290	31
Stage 1	-	-	-	-	-	-	220	220	-	70	70	-
Stage 2	-	-	-	-	-	-	41	88	-	179	220	-
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	1554	-	-	1401	-	-	676	609	991	673	624	1023
Stage 1	-	-	-	-	-	-	768	725	-	920	841	-
Stage 2	-	-	-	-	-	-	974	826	-	794	725	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1554	-	-	1401	-	-	621	577	991	636	591	1023
Mov Cap-2 Maneuver	-	-	-	-	-	-	621	577	-	636	591	-
Stage 1	-	-	-	-	-	-	734	693	-	880	833	-
Stage 2	-	-	-	-	-	-	924	819	-	747	693	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	3.3			1.3			9.5			10.1		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	810	1554	-	-	1401	-	-	631	1023
HCM Lane V/C Ratio	0.02	0.044	-	-	0.009	-	-	0.072	0.037
HCM Ctrl Dly (s/v)	9.5	7.4	-	-	7.6	-	-	11.2	8.7
HCM Lane LOS	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0.1	0.1	-	-	0	-	-	0.2	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
Future Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
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 <sub>t</sub>			0.850				0.850			0.850		0.850
Fl <sub>t</sub> Protected		0.960			0.982			0.950			0.950	
Satd. Flow (prot)	0	1506	1569	0	1830	1584	1770	3408	1470	1570	3167	1568
Fl <sub>t</sub> Permitted		0.608			0.676			0.950			0.950	
Satd. Flow (perm)	0	954	1569	0	1260	1584	1770	3408	1470	1570	3167	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173			145			196			196
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 (%)	28%	0%	5%	11%	0%	4%	3%	7%	11%	15%	14%	3%
Adj. Flow (vph)	149	28	173	51	89	210	359	1972	41	46	1237	301
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	177	173	0	140	210	359	1972	41	46	1237	301
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	47.0	95.0		14.9	62.0	
Total Split (%)	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	30.7%	62.1%		9.7%	40.5%	
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	39.5	87.4		7.0	54.1	
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)		30.0	30.0		30.0	30.0	33.7	88.1	144.5	7.1	58.0	144.5
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.23	0.61	1.00	0.05	0.40	1.00
v/c Ratio		0.89	0.37		0.54	0.47	0.87	0.95	0.03	0.61	0.97	0.19
Control Delay (s/veh)		97.6	8.6		59.4	20.1	75.2	39.3	0.0	101.6	62.9	0.3
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	8.6		59.4	20.1	75.2	39.3	0.0	101.6	62.9	0.3
LOS		F	A		E	C	E	D	A	F	E	A
Approach Delay (s/veh)		53.6			35.8			44.0			52.1	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)		168	0		122	52	338	985	0	45	~679	0
Queue Length 95th (ft)		#296	63		196	133	#467	#1221	0	#112	#868	0
Internal Link Dist (ft)		1173			1107			3473			2871	
Turn Bay Length (ft)							470		280	470		355
Base Capacity (vph)		239	523		316	506	487	2078	1470	76	1270	1568
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		0.74	0.33		0.44	0.42	0.74	0.95	0.03	0.61	0.97	0.19

Intersection Summary

Area Type: Other

Cycle Length: 153.1

Actuated Cycle Length: 144.5

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 46.9

Intersection LOS: D

Intersection Capacity Utilization 90.5%

ICU Level of Service E

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



HCM Signalized Intersection Capacity Analysis

Manassas HEF EA

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

11/11/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕	↗	↘	↕	↗
Traffic Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
Future Volume (vph)	137	26	159	47	82	193	330	1814	38	42	1138	277
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)		1505	1569		1830	1584	1770	3408	1470	1570	3167	1568
Flt Permitted		0.61	1.00		0.68	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		954	1569		1260	1584	1770	3408	1470	1570	3167	1568
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)	149	28	173	51	89	210	359	1972	41	46	1237	301
RTOR Reduction (vph)	0	0	138	0	0	115	0	0	0	0	0	0
Lane Group Flow (vph)	0	177	35	0	140	95	359	1972	41	46	1237	301
Heavy Vehicles (%)	28%	0%	5%	11%	0%	4%	3%	7%	11%	15%	14%	3%
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)		30.0	30.0		30.0	30.0	33.7	88.1	146.2	5.4	59.9	146.2
Effective Green, g (s)		30.0	30.0		30.0	30.0	33.7	88.1	146.2	5.4	59.9	146.2
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.23	0.60	1.00	0.04	0.41	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)		195	321		258	325	407	2053	1470	57	1297	1568
v/s Ratio Prot							c0.20	c0.58		0.03	0.39	
v/s Ratio Perm		c0.19	0.02		0.11	0.06			0.03			0.19
v/c Ratio		0.91	0.11		0.54	0.29	0.88	0.96	0.03	0.81	0.95	0.19
Uniform Delay, d1		56.7	47.3		52.0	49.1	54.3	27.4	0.0	69.9	41.8	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		39.2	0.2		2.3	0.5	20.0	11.9	0.0	57.3	15.2	0.3
Delay (s)		96.0	47.4		54.3	49.6	74.3	39.4	0.0	127.2	57.0	0.3
Level of Service		F	D		D	D	E	D	A	F	E	A
Approach Delay (s/veh)		72.0			51.5			44.0			48.3	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay (s/veh)	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	146.2	Sum of lost time (s)	22.7
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	295	74	356	52	18	122	184	1502	53	164	2033	196
Future Volume (vph)	295	74	356	52	18	122	184	1502	53	164	2033	196
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 <sub>t</sub>			0.850				0.850			0.850		0.850
Fl <sub>t</sub> Protected		0.962			0.964		0.950			0.950		
Satd. Flow (prot)	0	1835	1631	0	1813	1599	1805	3227	1382	1787	3374	1568
Fl <sub>t</sub> Permitted		0.717			0.235		0.950			0.950		
Satd. Flow (perm)	0	1368	1631	0	442	1599	1805	3227	1382	1787	3374	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			133			147			147
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 (%)	2%	0%	1%	2%	6%	3%	1%	13%	18%	1%	7%	3%
Adj. Flow (vph)	321	80	387	57	20	133	200	1565	58	173	2210	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	401	387	0	77	133	200	1565	58	173	2210	213
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	

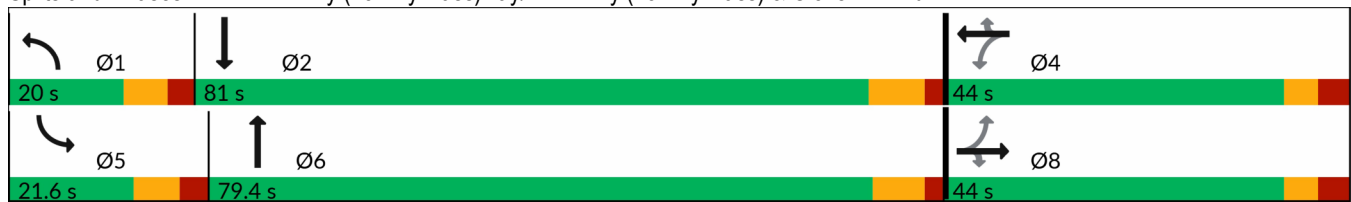


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								400			400	
Detector 4 Size(ft)								6			6	
Detector 4 Type								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)	44.0	44.0	44.0	44.0	44.0	44.0	20.0	79.4		21.6	81.0	
Total Split (%)	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	13.8%	54.8%		14.9%	55.9%	
Maximum Green (s)	36.8	36.8	36.8	36.8	36.8	36.8	12.5	71.8		13.7	73.1	
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)		36.8	36.8		36.8	36.8	12.5	71.8	145.0	13.7	73.1	145.0
Actuated g/C Ratio		0.25	0.25		0.25	0.25	0.09	0.50	1.00	0.09	0.50	1.00
v/c Ratio		1.16	0.72		0.69	0.26	1.29	0.98	0.04	1.03	1.30	0.14
Control Delay (s/veh)		144.9	36.5		80.3	7.9	220.1	54.1	0.1	139.9	171.4	0.2
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)		144.9	36.5		80.3	7.9	220.1	54.1	0.1	139.9	171.4	0.2
LOS		F	D		F	A	F	D	A	F	F	A
Approach Delay (s/veh)		91.6			34.4			70.6			155.2	
Approach LOS		F			C			E			F	
Queue Length 50th (ft)		~446	199		66	0	~239	746	0	~174	~1401	0
Queue Length 95th (ft)		#657	325		#153	54	#404	#928	0	#330	#1531	0
Internal Link Dist (ft)		1173			1107			3473			2871	
Turn Bay Length (ft)							470		280	470		355
Base Capacity (vph)		347	536		112	505	155	1597	1382	168	1700	1568
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		1.16	0.72		0.69	0.26	1.29	0.98	0.04	1.03	1.30	0.14

Intersection Summary

Area Type:	Other
Cycle Length:	145
Actuated Cycle Length:	145
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.30
Intersection Signal Delay (s/veh):	112.8
Intersection LOS:	F
Intersection Capacity Utilization	112.1%
ICU Level of Service	H
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



HCM Signalized Intersection Capacity Analysis

Manassas HEF EA

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

04/13/2026



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕	↗	↘	↕	↗
Traffic Volume (vph)	295	74	356	52	18	122	184	1502	53	164	2033	196
Future Volume (vph)	295	74	356	52	18	122	184	1502	53	164	2033	196
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)		1834	1631		1814	1599	1805	3227	1382	1787	3374	1568
Flt Permitted		0.72	1.00		0.23	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1368	1631		441	1599	1805	3227	1382	1787	3374	1568
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)	321	80	387	57	20	133	200	1565	58	173	2210	213
RTOR Reduction (vph)	0	0	122	0	0	99	0	0	0	0	0	0
Lane Group Flow (vph)	0	401	265	0	77	34	200	1565	58	173	2210	213
Heavy Vehicles (%)	2%	0%	1%	2%	6%	3%	1%	13%	18%	1%	7%	3%
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)		36.8	36.8		36.8	36.8	12.5	71.8	145.0	13.7	73.1	145.0
Effective Green, g (s)		36.8	36.8		36.8	36.8	12.5	71.8	145.0	13.7	73.1	145.0
Actuated g/C Ratio		0.25	0.25		0.25	0.25	0.09	0.50	1.00	0.09	0.50	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)		347	413		111	405	155	1597	1382	168	1700	1568
v/s Ratio Prot							c0.11	0.49		0.10	c0.66	
v/s Ratio Perm		c0.29	0.16		0.17	0.02			0.04			c0.14
v/c Ratio		1.16	0.64		0.69	0.08	1.29	0.98	0.04	1.03	1.30	0.14
Uniform Delay, d1		54.1	48.2		49.0	41.2	66.3	35.9	0.0	65.7	36.0	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		97.7	3.4		17.1	0.1	170.3	17.7	0.1	77.5	139.4	0.2
Delay (s)		151.8	51.6		66.1	41.3	236.5	53.6	0.1	143.1	175.4	0.2
Level of Service		F	D		E	D	F	D	A	F	F	A
Approach Delay (s/veh)		102.6			50.4			72.0			158.9	
Approach LOS		F			D			E			F	

Intersection Summary

HCM 2000 Control Delay (s/veh)	117.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	112.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

