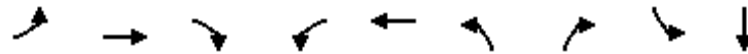


Queues

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	128	924	629	454	885	107	134	83	63
v/c Ratio	0.35	1.00	0.65	0.93	0.70	0.67	0.26	0.49	0.26
Control Delay	10.0	58.6	13.4	53.3	10.8	67.9	1.3	56.7	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	10.0	58.6	13.4	53.3	10.9	67.9	1.3	56.7	14.3
Queue Length 50th (ft)	20	~751	165	295	262	76	0	58	1
Queue Length 95th (ft)	36	#998	299	m#413	m376	134	0	107	41
Internal Link Dist (ft)		336			900				507
Turn Bay Length (ft)	175		175	250				75	
Base Capacity (vph)	369	927	973	503	1256	201	543	210	292
Starvation Cap Reductn	0	0	0	0	30	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	1.00	0.65	0.90	0.72	0.53	0.25	0.40	0.22

Intersection Summary

- ~ 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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	878	598	431	701	140	102	0	127	79	2	58
Future Volume (vph)	122	878	598	431	701	140	102	0	127	79	2	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		6.0		6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00		0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)	1787	1827	1599	1805	1822		1805		1538	1787	1624	
Flt Permitted	0.28	1.00	1.00	0.06	1.00		0.72		1.00	0.76	1.00	
Satd. Flow (perm)	530	1827	1599	120	1822		1360		1538	1424	1624	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	128	924	629	454	738	147	107	0	134	83	2	61
RTOR Reduction (vph)	0	0	161	0	6	0	0	0	118	0	54	0
Lane Group Flow (vph)	128	924	468	454	879	0	107	0	16	83	9	0
Heavy Vehicles (%)	1%	4%	1%	0%	2%	0%	0%	0%	5%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm		Perm	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		4	8		
Actuated Green, G (s)	64.9	58.4	58.4	90.4	78.9		13.6		13.6	13.6	13.6	
Effective Green, g (s)	64.9	58.4	58.4	90.4	78.9		13.6		13.6	13.6	13.6	
Actuated g/C Ratio	0.56	0.51	0.51	0.79	0.69		0.12		0.12	0.12	0.12	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		6.0		6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	370	927	812	489	1250		160		181	168	192	
v/s Ratio Prot	0.02	c0.51		c0.22	0.48							0.01
v/s Ratio Perm	0.18		0.29	0.51			c0.08		0.01	0.06		
v/c Ratio	0.35	1.00	0.58	0.93	0.70		0.67		0.09	0.49	0.05	
Uniform Delay, d1	19.3	28.2	19.7	37.2	11.0		48.5		45.2	47.5	45.0	
Progression Factor	1.00	1.00	1.00	1.09	0.75		1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6	28.8	3.0	15.5	1.9		10.1		0.2	2.3	0.1	
Delay (s)	19.9	57.0	22.7	56.1	10.1		58.7		45.4	49.8	45.1	
Level of Service	B	E	C	E	B		E		D	D	D	
Approach Delay (s)		41.3			25.7			51.3			47.7	
Approach LOS		D			C			D			D	

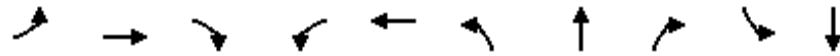
Intersection Summary

HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	59	761	262	247	738	736	4	545	114	99
v/c Ratio	0.39	1.08	0.38	1.02	0.90	1.43	0.01	0.72	0.20	0.14
Control Delay	23.0	93.8	14.8	94.2	44.0	234.6	22.2	24.5	25.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	93.8	14.8	94.2	44.0	234.6	22.2	24.5	25.4	5.3
Queue Length 50th (ft)	22	~658	68	~136	575	~771	2	222	58	1
Queue Length 95th (ft)	44	#897	139	#323	#779	#1006	9	363	101	36
Internal Link Dist (ft)		336			900		460			507
Turn Bay Length (ft)	175		175	250					75	
Base Capacity (vph)	153	705	688	243	824	515	744	760	561	693
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	0.39	1.08	0.38	1.02	0.90	1.43	0.01	0.72	0.20	0.14

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	723	249	235	624	77	699	4	518	108	2	92
Future Volume (vph)	56	723	249	235	624	77	699	4	518	108	2	92
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1881	1615	1805	1850		1805	1900	1615	1805	1621	
Flt Permitted	0.09	1.00	1.00	0.08	1.00		0.69	1.00	1.00	0.76	1.00	
Satd. Flow (perm)	169	1881	1615	152	1850		1317	1900	1615	1435	1621	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	761	262	247	657	81	736	4	545	114	2	97
RTOR Reduction (vph)	0	0	83	0	3	0	0	0	128	0	59	0
Lane Group Flow (vph)	59	761	180	247	735	0	736	4	417	114	40	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		4	8		
Actuated Green, G (s)	49.8	45.0	45.0	62.0	52.2		47.0	47.0	47.0	47.0	47.0	
Effective Green, g (s)	49.8	45.0	45.0	62.0	52.2		47.0	47.0	47.0	47.0	47.0	
Actuated g/C Ratio	0.41	0.38	0.38	0.52	0.44		0.39	0.39	0.39	0.39	0.39	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	135	705	605	243	804		515	744	632	562	634	
v/s Ratio Prot	0.02	c0.40		c0.10	0.40			0.00			0.02	
v/s Ratio Perm	0.16		0.11	0.42			c0.56		0.26	0.08		
v/c Ratio	0.44	1.08	0.30	1.02	0.91		1.43	0.01	0.66	0.20	0.06	
Uniform Delay, d1	26.7	37.5	26.4	36.8	31.8		36.5	22.3	29.9	24.1	22.8	
Progression Factor	1.00	1.00	1.00	1.21	0.97		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	57.4	1.3	57.6	14.7		204.1	0.0	2.6	0.2	0.0	
Delay (s)	29.0	94.9	27.6	102.3	45.5		240.6	22.3	32.5	24.3	22.8	
Level of Service	C	F	C	F	D		F	C	C	C	C	
Approach Delay (s)		75.0			59.8			151.7			23.6	
Approach LOS		E			E			F			C	

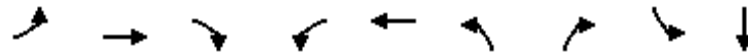
Intersection Summary

HCM 2000 Control Delay	95.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	129	924	629	454	886	107	134	85	65
v/c Ratio	0.35	1.00	0.65	0.93	0.71	0.67	0.26	0.51	0.26
Control Delay	10.1	58.6	13.4	53.3	10.8	68.0	1.3	57.3	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	10.1	58.6	13.4	53.3	10.9	68.0	1.3	57.3	14.3
Queue Length 50th (ft)	21	~751	165	295	262	76	0	59	1
Queue Length 95th (ft)	37	#998	299	m#413	m376	134	0	110	41
Internal Link Dist (ft)		336			900				507
Turn Bay Length (ft)	175		175	250				75	
Base Capacity (vph)	369	927	973	503	1256	200	543	210	293
Starvation Cap Reductn	0	0	0	0	30	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	1.00	0.65	0.90	0.72	0.54	0.25	0.40	0.22

Intersection Summary

- ~ 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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	878	598	431	701	141	102	0	127	81	2	60
Future Volume (vph)	123	878	598	431	701	141	102	0	127	81	2	60
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		6.0		6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00		0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)	1787	1827	1599	1805	1822		1805		1538	1787	1624	
Flt Permitted	0.28	1.00	1.00	0.06	1.00		0.71		1.00	0.76	1.00	
Satd. Flow (perm)	528	1827	1599	120	1822		1358		1538	1424	1624	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	129	924	629	454	738	148	107	0	134	85	2	63
RTOR Reduction (vph)	0	0	161	0	6	0	0	0	118	0	56	0
Lane Group Flow (vph)	129	924	468	454	880	0	107	0	16	85	9	0
Heavy Vehicles (%)	1%	4%	1%	0%	2%	0%	0%	0%	5%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm		Perm	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		4	8		
Actuated Green, G (s)	64.9	58.4	58.4	90.4	78.9		13.6		13.6	13.6	13.6	
Effective Green, g (s)	64.9	58.4	58.4	90.4	78.9		13.6		13.6	13.6	13.6	
Actuated g/C Ratio	0.56	0.51	0.51	0.79	0.69		0.12		0.12	0.12	0.12	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		6.0		6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	369	927	812	489	1250		160		181	168	192	
v/s Ratio Prot	0.02	c0.51		c0.22	0.48							0.01
v/s Ratio Perm	0.18		0.29	0.51			c0.08		0.01	0.06		
v/c Ratio	0.35	1.00	0.58	0.93	0.70		0.67		0.09	0.51	0.05	
Uniform Delay, d1	19.4	28.2	19.7	37.2	11.0		48.5		45.2	47.5	45.0	
Progression Factor	1.00	1.00	1.00	1.09	0.75		1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6	28.8	3.0	15.5	1.9		10.1		0.2	2.4	0.1	
Delay (s)	20.0	57.0	22.7	56.1	10.1		58.7		45.4	49.9	45.1	
Level of Service	B	E	C	E	B		E		D	D	D	
Approach Delay (s)		41.3			25.7			51.3			47.8	
Approach LOS		D			C			D			D	

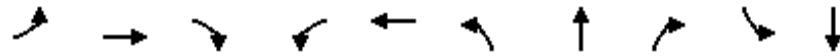
Intersection Summary

HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	61	761	262	247	740	736	4	545	116	101
v/c Ratio	0.40	1.08	0.38	1.02	0.90	1.43	0.01	0.72	0.21	0.15
Control Delay	23.4	93.8	14.8	94.3	44.4	234.6	22.2	24.5	25.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	93.8	14.8	94.3	44.4	234.6	22.2	24.5	25.4	5.3
Queue Length 50th (ft)	23	~658	68	~136	577	~771	2	222	59	1
Queue Length 95th (ft)	46	#897	139	#324	#782	#1007	9	363	103	36
Internal Link Dist (ft)		336			900		460			507
Turn Bay Length (ft)	175		175	250					75	
Base Capacity (vph)	153	705	688	243	823	515	744	760	561	695
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	0.40	1.08	0.38	1.02	0.90	1.43	0.01	0.72	0.21	0.15

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis

1: Wells Ave/Driveway & Nahanton St

05/02/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	723	249	235	624	79	699	4	518	110	2	94
Future Volume (vph)	58	723	249	235	624	79	699	4	518	110	2	94
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1881	1615	1805	1850		1805	1900	1615	1805	1621	
Flt Permitted	0.09	1.00	1.00	0.08	1.00		0.69	1.00	1.00	0.76	1.00	
Satd. Flow (perm)	169	1881	1615	152	1850		1314	1900	1615	1435	1621	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	761	262	247	657	83	736	4	545	116	2	99
RTOR Reduction (vph)	0	0	83	0	4	0	0	0	128	0	60	0
Lane Group Flow (vph)	61	761	180	247	736	0	736	4	417	116	41	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		4	8		
Actuated Green, G (s)	49.8	45.0	45.0	62.0	52.2		47.0	47.0	47.0	47.0	47.0	
Effective Green, g (s)	49.8	45.0	45.0	62.0	52.2		47.0	47.0	47.0	47.0	47.0	
Actuated g/C Ratio	0.41	0.38	0.38	0.52	0.44		0.39	0.39	0.39	0.39	0.39	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	135	705	605	243	804		514	744	632	562	634	
v/s Ratio Prot	0.02	c0.40		c0.10	0.40			0.00			0.03	
v/s Ratio Perm	0.17		0.11	0.42			c0.56		0.26	0.08		
v/c Ratio	0.45	1.08	0.30	1.02	0.92		1.43	0.01	0.66	0.21	0.06	
Uniform Delay, d1	26.8	37.5	26.4	36.8	31.8		36.5	22.3	29.9	24.2	22.8	
Progression Factor	1.00	1.00	1.00	1.22	0.97		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	57.4	1.3	57.7	14.9		205.3	0.0	2.6	0.2	0.0	
Delay (s)	29.2	94.9	27.6	102.4	45.8		241.8	22.3	32.5	24.3	22.8	
Level of Service	C	F	C	F	D		F	C	C	C	C	
Approach Delay (s)		74.9			60.0			152.4			23.6	
Approach LOS		E			E			F			C	

Intersection Summary

HCM 2000 Control Delay	95.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			