






















HCM 7th Signalized Intersection Capacity Analysis

1: Park Avenue & NC 96 Hwy W/NC 96 Bypass

06/10/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	354	451	398	266	199	221	165	262	155	197	0
Future Volume (veh/h)	0	354	451	398	266	199	221	165	262	155	197	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	0	393	0	442	296	221	246	183	291	172	219	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	0
Opposing Right Turn Influence	No			Yes			Yes			Yes		
Cap, veh/h	0	416		451	894	757	456	166	264	258	416	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.22	0.00	0.20	0.48	0.48	0.13	0.26	0.23	0.10	0.22	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	65.1	0.0	59.9	14.8	14.5	23.6	0.0	107.8	31.5	35.6	0.0
Ln Grp LOS		E		E	B	B	C		F	C	D	
Approach Vol, veh/h		393			959			720			391	
Approach Delay, s/veh		65.1			35.5			79.0			33.8	
Approach LOS		E			D			E			C	
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Case No	1.1	4.0	1.2	7.0	1.1	4.0		3.0				
Phs Duration (G+Y+Rc), s	14.0	28.0	23.0	25.0	17.0	25.0		48.0				
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0		7.0				
Max Green (Gmax), s	7.0	21.0	16.0	18.0	10.0	18.0		41.0				
Max Allow Headway (MAH), s	3.7	5.1	3.7	4.9	3.7	4.9		4.5				
Max Q Clear (g_c+I1), s	8.5	25.0	19.4	20.6	11.3	11.3		10.8				
Green Ext Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.5		2.4				
Prob of Phs Call (p_c)	0.99	1.00	1.00	1.00	1.00	1.00		1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	1.00	1.00	0.00		0.00				
Left-Turn Movement Data												
Assigned Mvmt	1		3	7	5							
Mvmt Sat Flow, veh/h	1781		1781	0	1781							
Through Movement Data												
Assigned Mvmt		2		4		6		8				
Mvmt Sat Flow, veh/h		650		1870		1870		1870				
Right-Turn Movement Data												
Assigned Mvmt		12		14		16		18				
Mvmt Sat Flow, veh/h		1034		1585		0		1585				
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				

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Lane Assignment	L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)			
Lanes in Grp	1	0	1	0	1	0	0	0
Grp Vol (v), veh/h	172	0	442	0	246	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	1781	0	0	0
Q Serve Time (g_s), s	6.5	0.0	17.4	0.0	9.3	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	6.5	0.0	17.4	0.0	9.3	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	920	0	991	0	1162	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	20.0	0.0	22.0	0.0	20.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	1.4	0.0	10.7	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	1.4	0.0	2.5	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	258	0	451	0	456	0	0	0
V/C Ratio (X)	0.67	0.00	0.98	0.00	0.54	0.00	0.00	0.00
Avail Cap (c_a), veh/h	258	0	451	0	456	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	25.1	0.0	23.1	0.0	22.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.4	0.0	36.8	0.0	1.3	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	31.5	0.0	59.9	0.0	23.6	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	2.5	0.0	6.5	0.0	3.6	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.5	0.0	4.6	0.0	0.2	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	3.0	0.0	11.1	0.0	3.7	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.61	0.00	2.26	0.00	0.76	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment			T		T		T	
Lanes in Grp	0	0	0	1	0	1	0	1
Grp Vol (v), veh/h	0	0	0	393	0	219	0	296
Grp Sat Flow (s), veh/h/ln	0	0	0	1870	0	1870	0	1870
Q Serve Time (g_s), s	0.0	0.0	0.0	18.6	0.0	9.3	0.0	8.8
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	18.6	0.0	9.3	0.0	8.8
Lane Grp Cap (c), veh/h	0	0	0	416	0	416	0	894
V/C Ratio (X)	0.00	0.00	0.00	0.95	0.00	0.53	0.00	0.33
Avail Cap (c_a), veh/h	0	0	0	416	0	416	0	894
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	34.5	0.0	30.8	0.0	14.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	30.6	0.0	4.7	0.0	0.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	65.1	0.0	35.6	0.0	14.8
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	7.9	0.0	3.9	0.0	3.3

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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	3.5	0.0	0.5	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	11.4	0.0	4.5	0.0	3.4
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	1.25	0.00	0.45	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R			R			R	
Lanes in Grp	0	1	0	1	0	0	0	1
Grp Vol (v), veh/h	0	474	0	0	0	0	0	221
Grp Sat Flow (s), veh/h/ln	0	1684	0	1585	0	0	0	1585
Q Serve Time (g_s), s	0.0	23.0	0.0	0.0	0.0	0.0	0.0	7.6
Cycle Q Clear Time (g_c), s	0.0	23.0	0.0	0.0	0.0	0.0	0.0	7.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.61	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	430	0	352	0	0	0	757
V/C Ratio (X)	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.29
Avail Cap (c_a), veh/h	0	430	0	352	0	0	0	757
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	34.1	0.0	0.0	0.0	0.0	0.0	14.3
Incr Delay (d2), s/veh	0.0	73.7	0.0	0.0	0.0	0.0	0.0	0.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	107.8	0.0	0.0	0.0	0.0	0.0	14.5
1st-Term Q (Q1), veh/ln	0.0	8.8	0.0	0.0	0.0	0.0	0.0	2.4
2nd-Term Q (Q2), veh/ln	0.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	17.7	0.0	0.0	0.0	0.0	0.0	2.5
%ile Storage Ratio (RQ%)	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.50
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	10.9	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 7th Control Delay, s/veh	52.7
HCM 7th LOS	D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.