Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	10	328	5	430	72	198	220
v/c Ratio	0.02	0.14	0.01	0.19	0.26	0.46	0.91
Control Delay	9.9	9.6	0.2	0.3	37.8	35.4	69.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	9.6	0.2	0.3	37.8	35.4	69.5
Queue Length 50th (ft)	3	58	0	0	46	112	135
Queue Length 95th (ft)	11	75	0	0	39	69	214
Internal Link Dist (ft)		1193		1497		739	871
Turn Bay Length (ft)	100		100		125		
Base Capacity (vph)	612	2292	676	2247	616	929	547
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.14	0.01	0.19	0.12	0.21	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	276	26	4	275	90	34	62	31	130	55	8
Future Volume (vph)	9	276	26	4	275	90	34	62	31	130	55	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	3494		1770	3408		1770	1770			1792	
Flt Permitted	0.50	1.00		0.55	1.00		0.64	1.00			0.57	
Satd. Flow (perm)	934	3494		1031	3408		1194	1770			1058	
Peak-hour factor, PHF	0.92	0.92	0.92	0.85	0.85	0.85	0.47	0.47	0.47	0.88	0.88	0.88
Adj. Flow (vph)	10	300	28	5	324	106	72	132	66	148	62	9
RTOR Reduction (vph)	0	3	0	0	14	0	0	24	0	0	2	0
Lane Group Flow (vph)	10	325	0	5	416	0	72	174	0	0	218	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	78.6	78.6		78.6	78.6		27.4	27.4			27.4	
Effective Green, g (s)	78.6	78.6		78.6	78.6		27.4	27.4			27.4	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.23	0.23			0.23	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	611	2288		675	2232		272	404			241	
v/s Ratio Prot		0.09			c0.12			0.10				
v/s Ratio Perm	0.01			0.00			0.06				c0.21	
v/c Ratio	0.02	0.14		0.01	0.19		0.26	0.43			0.90	
Uniform Delay, d1	7.2	7.9		7.2	8.1		38.0	39.6			45.0	
Progression Factor	0.97	1.08		0.03	0.01		1.00	1.00			0.78	
Incremental Delay, d2	0.0	0.0		0.0	0.2		0.5	0.7			31.6	
Delay (s)	7.0	8.5		0.2	0.3		38.5	40.4			66.6	
Level of Service	A	A		A	A		D	D			E	
Approach Delay (s)		8.5			0.3			39.9			66.6	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NBT	NBR	SBT	SBR	SEL	SET	NWL	NWT	NWR
Lane Group Flow (vph)	34	9	391	15	16	497	16	399	441
v/c Ratio	0.06	0.01	0.84	0.02	0.03	0.29	0.03	0.23	0.44
Control Delay	21.9	0.0	49.6	0.9	10.0	12.5	16.8	21.4	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	0.0	49.6	0.9	10.0	12.5	16.8	21.4	4.2
Queue Length 50th (ft)	17	0	289	0	3	60	6	83	0
Queue Length 95th (ft)	30	0	401	m0	m10	144	19	157	53
Internal Link Dist (ft)	56		1373			1497		1102	
Turn Bay Length (ft)				150	100		100		175
Base Capacity (vph)	726	793	618	787	526	1725	481	1725	997
Starvation Cap Reductn	0	0	0	0	0	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	0.05	0.01	0.63	0.02	0.03	0.29	0.03	0.23	0.44

Intersection Summary

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

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	11	16	7	338	18	14	14	431	12	14	339	375
Future Volume (vph)	11	16	7	338	18	14	14	431	12	14	339	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98	1.00		0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1825	1583		1778	1583	1770	3525		1770	3539	1583
Flt Permitted		0.83	1.00		0.71	1.00	0.50	1.00		0.44	1.00	1.00
Satd. Flow (perm)		1543	1583		1326	1583	926	3525		820	3539	1583
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	14	20	9	371	20	15	16	484	13	16	399	441
RTOR Reduction (vph)	0	0	6	0	0	10	0	1	0	0	0	239
Lane Group Flow (vph)	0	34	3	0	391	5	16	496	0	16	399	202
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		2
Actuated Green, G (s)		42.9	42.9		42.4	42.4	58.1	55.4		57.6	54.9	54.9
Effective Green, g (s)		42.9	42.9		42.4	42.4	58.1	55.4		57.6	54.9	54.9
Actuated g/C Ratio		0.36	0.36		0.35	0.35	0.48	0.46		0.48	0.46	0.46
Clearance Time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
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)		551	565		468	559	467	1627		414	1619	724
v/s Ratio Prot							0.00	c0.14		c0.00	0.11	
v/s Ratio Perm		0.02	0.00		c0.29	0.00	0.02			0.02		0.13
v/c Ratio		0.06	0.01		0.84	0.01	0.03	0.30		0.04	0.25	0.28
Uniform Delay, d1		25.3	24.8		35.6	25.2	16.1	20.2		16.4	19.9	20.2
Progression Factor		1.00	1.00		1.05	1.00	0.58	0.57		1.00	1.00	1.00
Incremental Delay, d2		0.0	0.0		9.9	0.0	0.0	0.5		0.0	0.4	1.0
Delay (s)		25.4	24.8		47.4	25.2	9.5	12.0		16.5	20.3	21.2
Level of Service		C	C		D	C	A	B		B	C	C
Approach Delay (s)		25.3			46.6			11.9			20.7	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX H: SYNCHRO REPORTS

PART 9 OPTIMIZED W/ IMPROVEMENTS 2022 AM PEAK

Queues
1: Odell Avenue & E Broadway Blvd (AJ Hwy, US 11E)

02/21/2023

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	12	873	8	882	52	40
v/c Ratio	0.03	0.39	0.02	0.40	0.14	0.10
Control Delay	2.5	3.7	6.1	15.7	14.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.5	3.7	6.1	15.7	14.6	0.5
Queue Length 50th (ft)	1	36	3	209	6	0
Queue Length 95th (ft)	m3	70	m6	329	15	0
Internal Link Dist (ft)		986		1578	842	607
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	449	2233	455	2221	363	402
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.39	0.02	0.40	0.14	0.10

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	723	2	5	2	763	22	4	2	23	11	0
Future Volume (vph)	10	723	2	5	2	763	22	4	2	23	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	7.5			6.0	7.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.89			0.92
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.98
Satd. Flow (prot)	1770	3538			1770	3524			1653			1682
Flt Permitted	0.28	1.00			0.29	1.00			0.97			0.88
Satd. Flow (perm)	521	3538			540	3524			1611			1515
Peak-hour factor, PHF	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.56	0.56	0.56	0.65	0.65
Adj. Flow (vph)	12	871	2	6	2	857	25	7	4	41	17	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	33	0	0	32
Lane Group Flow (vph)	12	873	0	0	8	880	0	0	19	0	0	8
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA		Perm	NA
Protected Phases	1	6		5	5	2			4			8
Permitted Phases	6			2	2			4			8	
Actuated Green, G (s)	59.5	58.3			59.0	57.8			20.5			20.5
Effective Green, g (s)	59.5	58.3			59.0	57.8			20.5			20.5
Actuated g/C Ratio	0.60	0.58			0.59	0.58			0.20			0.20
Clearance Time (s)	6.5	7.5			6.0	7.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	324	2062			333	2036			330			310
v/s Ratio Prot	c0.00	0.25			0.00	c0.25						
v/s Ratio Perm	0.02				0.01				c0.01			0.01
v/c Ratio	0.04	0.42			0.02	0.43			0.06			0.03
Uniform Delay, d1	8.6	11.5			8.6	11.9			32.0			31.8
Progression Factor	0.42	0.33			1.08	1.53			1.00			1.00
Incremental Delay, d2	0.0	0.6			0.0	0.6			0.3			0.2
Delay (s)	3.6	4.4			9.4	18.9			32.3			31.9
Level of Service	A	A			A	B			C			C
Approach Delay (s)		4.4				18.8			32.3			31.9
Approach LOS		A				B			C			C

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.65
Adj. Flow (vph)	23
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	SET	SER	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	47	41	20	49	803	16	731	36
v/c Ratio	0.36	0.16	0.07	0.09	0.30	0.03	0.29	0.03
Control Delay	62.6	1.3	0.4	3.9	5.3	6.2	10.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.6	1.3	0.4	3.9	5.3	6.2	10.5	0.1
Queue Length 50th (ft)	37	0	0	5	51	2	103	0
Queue Length 95th (ft)	76	0	0	15	104	12	208	0
Internal Link Dist (ft)	741		83		1762		6121	
Turn Bay Length (ft)				125		75		250
Base Capacity (vph)	206	325	308	620	2641	572	2502	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.13	0.06	0.08	0.30	0.03	0.29	0.03

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Traffic Volume (vph)	42	2	39	3	0	4	2	41	690	9	2	12
Future Volume (vph)	42	2	39	3	0	4	2	41	690	9	2	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5		6.0			6.5	8.0			7.5
Lane Util. Factor		1.00	1.00		1.00			1.00	0.95			1.00
Frt		1.00	0.85		0.93			1.00	1.00			1.00
Flt Protected		0.95	1.00		0.98			0.95	1.00			0.95
Satd. Flow (prot)		1778	1583		1686			1770	3533			1770
Flt Permitted		0.95	1.00		0.98			0.35	1.00			0.33
Satd. Flow (perm)		1778	1583		1686			646	3533			623
Peak-hour factor, PHF	0.94	0.94	0.94	0.35	0.35	0.35	0.87	0.87	0.87	0.87	0.88	0.88
Adj. Flow (vph)	45	2	41	9	0	11	2	47	793	10	2	14
RTOR Reduction (vph)	0	0	39	0	19	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	47	2	0	1	0	0	49	803	0	0	16
Turn Type	Split	NA	Perm	Split	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	4	4		3	3		1	1	6		5	5
Permitted Phases			4				6	6			2	2
Actuated Green, G (s)		7.6	7.6		3.6			87.7	82.3			82.9
Effective Green, g (s)		7.6	7.6		3.6			87.7	82.3			82.9
Actuated g/C Ratio		0.06	0.06		0.03			0.70	0.66			0.66
Clearance Time (s)		7.5	7.5		6.0			6.5	8.0			7.5
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0			3.0
Lane Grp Cap (vph)		108	96		48			501	2326			436
v/s Ratio Prot		c0.03			c0.00			c0.00	c0.23			0.00
v/s Ratio Perm			0.00					0.06				0.02
v/c Ratio		0.44	0.03		0.01			0.10	0.35			0.04
Uniform Delay, d1		56.6	55.2		59.0			5.9	9.4			7.2
Progression Factor		1.00	1.00		1.00			0.67	0.56			1.00
Incremental Delay, d2		2.8	0.1		0.1			0.1	0.4			0.0
Delay (s)		59.4	55.3		59.1			4.0	5.7			7.2
Level of Service		E	E		E			A	A			A
Approach Delay (s)		57.5			59.1				5.6			
Approach LOS		E			E				A			

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	643	32
Future Volume (vph)	643	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	8.0
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3539	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3539	1583
Peak-hour factor, PHF	0.88	0.88
Adj. Flow (vph)	731	36
RTOR Reduction (vph)	0	13
Lane Group Flow (vph)	731	23
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	80.4	80.4
Effective Green, g (s)	80.4	80.4
Actuated g/C Ratio	0.64	0.64
Clearance Time (s)	8.0	8.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2276	1018
v/s Ratio Prot	0.21	
v/s Ratio Perm		0.01
v/c Ratio	0.32	0.02
Uniform Delay, d1	10.0	8.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.4	0.0
Delay (s)	10.4	8.1
Level of Service	B	A
Approach Delay (s)	10.2	
Approach LOS	B	

Intersection Summary

Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	101	130	114	48	86	145	686	53	40	684	48
v/c Ratio	0.55	0.60	0.59	0.24	0.23	0.33	0.38	0.06	0.09	0.41	0.06
Control Delay	64.1	47.1	64.9	52.4	1.5	13.7	20.7	0.1	10.4	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	47.1	64.9	52.4	1.5	13.7	20.7	0.1	10.4	16.6	0.1
Queue Length 50th (ft)	79	68	89	36	0	46	173	0	9	91	0
Queue Length 95th (ft)	126	122	143	71	0	91	258	0	21	113	0
Internal Link Dist (ft)		1277		993			4500			1762	
Turn Bay Length (ft)	150		150		150	250		50	75		150
Base Capacity (vph)	254	282	290	305	446	487	1826	897	426	1663	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.46	0.39	0.16	0.19	0.30	0.38	0.06	0.09	0.41	0.06

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	87	49	63	100	42	76	41	86	604	47	36	616
Future Volume (vph)	87	49	63	100	42	76	41	86	604	47	36	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.5	7.5	7.5		6.5	7.5	7.5	6.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.92		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1706		1770	1863	1583		1770	3539	1583	1770	3539
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.31	1.00	1.00	0.37	1.00
Satd. Flow (perm)	1770	1706		1770	1863	1583		573	3539	1583	684	3539
Peak-hour factor, PHF	0.86	0.86	0.86	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.90	0.90
Adj. Flow (vph)	101	57	73	114	48	86	47	98	686	53	40	684
RTOR Reduction (vph)	0	39	0	0	0	77	0	0	0	26	0	0
Lane Group Flow (vph)	101	91	0	114	48	9	0	145	686	27	40	684
Turn Type	Split	NA		Split	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3	3		4	4		1	1	6		5	2
Permitted Phases						4	6	6		6	2	
Actuated Green, G (s)	13.0	13.0		13.7	13.7	13.7		73.3	63.2	63.2	64.3	58.7
Effective Green, g (s)	13.0	13.0		13.7	13.7	13.7		73.3	63.2	63.2	64.3	58.7
Actuated g/C Ratio	0.10	0.10		0.11	0.11	0.11		0.59	0.51	0.51	0.51	0.47
Clearance Time (s)	8.0	8.0		7.5	7.5	7.5		6.5	7.5	7.5	6.5	7.5
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)	184	177		193	204	173		432	1789	800	400	1661
v/s Ratio Prot	c0.06	0.05		c0.06	0.03			c0.03	c0.19		0.00	c0.19
v/s Ratio Perm						0.01		0.17		0.02	0.05	
v/c Ratio	0.55	0.52		0.59	0.24	0.05		0.34	0.38	0.03	0.10	0.41
Uniform Delay, d1	53.2	53.0		53.0	50.9	49.8		12.6	19.0	15.5	15.1	21.8
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	0.82	0.67
Incremental Delay, d2	3.3	2.5		4.8	0.6	0.1		0.5	0.1	0.0	0.1	0.7
Delay (s)	56.5	55.6		57.8	51.5	50.0		13.0	19.1	15.6	12.6	15.4
Level of Service	E	E		E	D	D		B	B	B	B	B
Approach Delay (s)		56.0			53.8				17.9			15.4
Approach LOS		E			D				B			B

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR
Lane Configurations	
Traffic Volume (vph)	43
Future Volume (vph)	43
Ideal Flow (vphpl)	1900
Total Lost time (s)	7.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	48
RTOR Reduction (vph)	25
Lane Group Flow (vph)	23
Turn Type	Perm
Protected Phases	
Permitted Phases	2
Actuated Green, G (s)	58.7
Effective Green, g (s)	58.7
Actuated g/C Ratio	0.47
Clearance Time (s)	7.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	743
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.03
Uniform Delay, d1	17.8
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	17.9
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	17	787	29	864	76	52
v/c Ratio	0.03	0.31	0.05	0.33	0.36	0.31
Control Delay	2.2	5.7	3.9	7.3	21.1	36.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	5.7	3.9	7.3	21.1	36.8
Queue Length 50th (ft)	2	61	4	81	11	22
Queue Length 95th (ft)	m0	83	11	188	42	51
Internal Link Dist (ft)		1578		4500	607	440
Turn Bay Length (ft)	125		100			
Base Capacity (vph)	557	2509	584	2601	302	257
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.31	0.05	0.33	0.25	0.20

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	702	6	27	772	23	11	4	45	25	5	12
Future Volume (vph)	15	702	6	27	772	23	11	4	45	25	5	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	8.0		7.5	8.0			7.5			7.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	
Satd. Flow (prot)	1770	3534		1770	3524			1659			1738	
Flt Permitted	0.32	1.00		0.33	1.00			0.92			0.83	
Satd. Flow (perm)	591	3534		621	3524			1545			1486	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.79	0.79	0.79	0.81	0.81	0.81
Adj. Flow (vph)	17	780	7	29	839	25	14	5	57	31	6	15
RTOR Reduction (vph)	0	0	0	0	1	0	0	52	0	0	14	0
Lane Group Flow (vph)	17	787	0	29	863	0	0	24	0	0	38	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	67.3	64.9		69.9	66.2			8.4			8.4	
Effective Green, g (s)	67.3	64.9		69.9	66.2			8.4			8.4	
Actuated g/C Ratio	0.67	0.65		0.70	0.66			0.08			0.08	
Clearance Time (s)	7.5	8.0		7.5	8.0			7.5			7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	426	2293		476	2332			129			124	
v/s Ratio Prot	0.00	0.22		c0.00	c0.24							
v/s Ratio Perm	0.03			0.04				0.02			c0.03	
v/c Ratio	0.04	0.34		0.06	0.37			0.18			0.31	
Uniform Delay, d1	5.4	7.9		4.7	7.6			42.6			43.1	
Progression Factor	0.56	0.67		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.0	0.4		0.1	0.5			0.7			1.4	
Delay (s)	3.1	5.7		4.7	8.0			43.3			44.5	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		5.7			7.9			43.3			44.5	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	62	658	187	684	109	232	28	93
v/c Ratio	0.15	0.44	0.41	0.40	0.22	0.39	0.08	0.19
Control Delay	7.5	25.6	11.5	3.1	29.8	6.0	28.2	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	25.6	11.5	3.1	29.8	6.0	28.2	21.9
Queue Length 50th (ft)	9	227	14	10	54	0	13	33
Queue Length 95th (ft)	16	263	71	14	80	25	30	61
Internal Link Dist (ft)		967		986	362			831
Turn Bay Length (ft)	100		175			200	200	
Base Capacity (vph)	465	1509	537	1691	491	596	345	496
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.44	0.35	0.40	0.22	0.39	0.08	0.19

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	47	532	7	1	167	594	22	7	74	172	22
Future Volume (vph)	4	47	532	7	1	167	594	22	7	74	172	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	7.0			6.0	7.0			7.0	7.0	7.0
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00	1.00	1.00
Frt		1.00	1.00			1.00	0.99			1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00			1.00	1.00	0.95
Satd. Flow (prot)		1770	3532			1770	3521			1855	1583	1770
Flt Permitted		0.37	1.00			0.31	1.00			0.98	1.00	0.69
Satd. Flow (perm)		690	3532			578	3521			1820	1583	1279
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.90	0.90	0.90	0.90	0.74	0.74	0.74	0.78
Adj. Flow (vph)	5	57	649	9	1	186	660	24	9	100	232	28
RTOR Reduction (vph)	0	0	1	0	0	0	3	0	0	0	169	0
Lane Group Flow (vph)	0	62	657	0	0	187	681	0	0	109	63	28
Turn Type	pm+pt	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm
Protected Phases	1	1	6		5	5	2			4		
Permitted Phases	6	6			2	2			4		4	8
Actuated Green, G (s)		48.5	42.7			57.0	46.7			27.0	27.0	27.0
Effective Green, g (s)		48.5	42.7			57.0	46.7			27.0	27.0	27.0
Actuated g/C Ratio		0.48	0.43			0.57	0.47			0.27	0.27	0.27
Clearance Time (s)		6.5	7.0			6.0	7.0			7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)		397	1508			452	1644			491	427	345
v/s Ratio Prot		0.01	0.19			c0.04	c0.19					
v/s Ratio Perm		0.07				0.19				c0.06	0.04	0.02
v/c Ratio		0.16	0.44			0.41	0.41			0.22	0.15	0.08
Uniform Delay, d1		13.8	20.2			11.1	17.6			28.3	27.7	27.2
Progression Factor		0.73	1.19			0.98	0.13			1.00	1.00	1.00
Incremental Delay, d2		0.2	0.9			0.6	0.7			1.0	0.7	0.5
Delay (s)		10.3	25.0			11.4	3.1			29.4	28.5	27.7
Level of Service		B	C			B	A			C	C	C
Approach Delay (s)			23.7				4.9			28.8		
Approach LOS			C				A			C		

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	48	24
Future Volume (vph)	48	24
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	1770	
Flt Permitted	1.00	
Satd. Flow (perm)	1770	
Peak-hour factor, PHF	0.78	0.78
Adj. Flow (vph)	62	31
RTOR Reduction (vph)	18	0
Lane Group Flow (vph)	75	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	27.0	
Effective Green, g (s)	27.0	
Actuated g/C Ratio	0.27	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	477	
v/s Ratio Prot	0.04	
v/s Ratio Perm		
v/c Ratio	0.16	
Uniform Delay, d1	27.8	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	28.5	
Level of Service	C	
Approach Delay (s)	28.3	
Approach LOS	C	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	707	59	637	87	34	26	133
v/c Ratio	0.13	0.32	0.11	0.29	0.42	0.11	0.16	0.56
Control Delay	1.1	1.7	2.3	8.8	46.0	0.7	40.1	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.1	1.7	2.3	8.8	46.0	0.7	40.1	43.2
Queue Length 50th (ft)	2	12	2	175	52	0	15	68
Queue Length 95th (ft)	4	19	5	127	71	0	36	112
Internal Link Dist (ft)		802		967	77			752
Turn Bay Length (ft)	100		150				200	
Base Capacity (vph)	676	2228	606	2208	427	501	333	469
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.32	0.10	0.29	0.20	0.07	0.08	0.28

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	56	531	13	5	47	529	38	13	46	23	22
Future Volume (vph)	2	56	531	13	5	47	529	38	13	46	23	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	8.0			7.0	8.0			5.5	5.5	5.5
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00	1.00	1.00
Frt		1.00	1.00			1.00	0.99			1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00			0.99	1.00	0.95
Satd. Flow (prot)		1770	3526			1770	3503			1843	1583	1770
Flt Permitted		0.40	1.00			0.37	1.00			0.90	1.00	0.70
Satd. Flow (perm)		752	3526			693	3503			1675	1583	1305
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.89	0.89	0.89	0.89	0.68	0.68	0.68	0.84
Adj. Flow (vph)	3	73	690	17	6	53	594	43	19	68	34	26
RTOR Reduction (vph)	0	0	1	0	0	0	3	0	0	0	30	0
Lane Group Flow (vph)	0	76	706	0	0	59	634	0	0	87	4	26
Turn Type	pm+pt	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm
Protected Phases	1	1	6		5	5	2			4		
Permitted Phases	6	6			2	2			4		4	8
Actuated Green, G (s)		67.3	61.8			66.9	61.6			12.4	12.4	12.4
Effective Green, g (s)		67.3	61.8			66.9	61.6			12.4	12.4	12.4
Actuated g/C Ratio		0.67	0.62			0.67	0.62			0.12	0.12	0.12
Clearance Time (s)		7.0	8.0			7.0	8.0			5.5	5.5	5.5
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)		562	2179			520	2157			207	196	161
v/s Ratio Prot		c0.01	c0.20			0.01	0.18					
v/s Ratio Perm		0.08				0.07				0.05	0.00	0.02
v/c Ratio		0.14	0.32			0.11	0.29			0.42	0.02	0.16
Uniform Delay, d1		5.6	9.1			5.7	9.0			40.5	38.5	39.2
Progression Factor		0.19	0.14			0.48	0.91			1.00	1.00	1.00
Incremental Delay, d2		0.1	0.3			0.1	0.3			1.4	0.0	0.5
Delay (s)		1.1	1.6			2.8	8.5			41.9	38.5	39.6
Level of Service		A	A			A	A			D	D	D
Approach Delay (s)			1.6				8.0			40.9		
Approach LOS			A				A			D		

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	78	34
Future Volume (vph)	78	34
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	
Lane Util. Factor	1.00	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	1779	
Flt Permitted	1.00	
Satd. Flow (perm)	1779	
Peak-hour factor, PHF	0.84	0.84
Adj. Flow (vph)	93	40
RTOR Reduction (vph)	18	0
Lane Group Flow (vph)	115	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	12.4	
Effective Green, g (s)	12.4	
Actuated g/C Ratio	0.12	
Clearance Time (s)	5.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	220	
v/s Ratio Prot	c0.06	
v/s Ratio Perm		
v/c Ratio	0.52	
Uniform Delay, d1	41.0	
Progression Factor	1.00	
Incremental Delay, d2	2.2	
Delay (s)	43.2	
Level of Service	D	
Approach Delay (s)	42.6	
Approach LOS	D	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	11	700	419	77	583	453	71	113	23
v/c Ratio	0.03	0.56	0.37	0.25	0.37	0.72	0.21	0.51	0.06
Control Delay	16.0	30.4	2.1	6.3	5.3	39.5	7.8	49.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	30.4	2.1	6.3	5.3	39.5	7.8	49.0	0.3
Queue Length 50th (ft)	4	198	0	7	30	142	14	69	0
Queue Length 95th (ft)	12	233	19	14	40	124	4	79	0
Internal Link Dist (ft)		4665			802		1193	625	
Turn Bay Length (ft)	75		175	100		250			
Base Capacity (vph)	390	1245	1148	314	1572	669	365	332	468
Starvation Cap Reductn	0	0	0	0	0	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	0.03	0.56	0.36	0.25	0.37	0.68	0.19	0.34	0.05

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	8	546	327	3	67	530	1	344	7	47	13
Future Volume (vph)	1	8	546	327	3	67	530	1	344	7	47	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	8.0	8.5		7.0	8.0		8.5	8.5		
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.97	1.00		
Frt		1.00	1.00	0.85		1.00	1.00		1.00	0.87		
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1770	3539	1583		1770	3538		3433	1619		
Flt Permitted		0.43	1.00	1.00		0.24	1.00		0.95	1.00		
Satd. Flow (perm)		805	3539	1583		456	3538		3433	1619		
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.91	0.91	0.91	0.91	0.76	0.76	0.76	0.62
Adj. Flow (vph)	1	10	700	419	3	74	582	1	453	9	62	21
RTOR Reduction (vph)	0	0	0	201	0	0	0	0	0	51	0	0
Lane Group Flow (vph)	0	11	700	218	0	77	583	0	453	20	0	0
Turn Type	pm+pt	pm+pt	NA	pm+ov	pm+pt	pm+pt	NA		Split	NA		Split
Protected Phases	1	1	6	3	5	5	2		3	3		4
Permitted Phases	6	6		6	2	2				3		
Actuated Green, G (s)		35.0	33.7	52.0		45.2	38.8		18.3	18.3		
Effective Green, g (s)		35.0	33.7	52.0		45.2	38.8		18.3	18.3		
Actuated g/C Ratio		0.35	0.34	0.52		0.45	0.39		0.18	0.18		
Clearance Time (s)		7.0	8.0	8.5		7.0	8.0		8.5	8.5		
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)		294	1192	823		290	1372		628	296		
v/s Ratio Prot		0.00	c0.20	0.05		c0.02	c0.16		c0.13	0.01		
v/s Ratio Perm		0.01		0.09		0.10						
v/c Ratio		0.04	0.59	0.26		0.27	0.42		0.72	0.07		
Uniform Delay, d1		21.3	27.4	13.4		16.8	22.4		38.5	33.8		
Progression Factor		1.00	1.00	1.00		0.29	0.23		0.84	0.57		
Incremental Delay, d2		0.1	2.1	0.2		0.5	0.9		4.1	0.1		
Delay (s)		21.3	29.5	13.5		5.4	6.0		36.4	19.4		
Level of Service		C	C	B		A	A		D	B		
Approach Delay (s)			23.5				5.9			34.1		
Approach LOS			C				A			C		

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	57	14
Future Volume (vph)	57	14
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.99	1.00
Satd. Flow (prot)	1846	1583
Flt Permitted	0.99	1.00
Satd. Flow (perm)	1846	1583
Peak-hour factor, PHF	0.62	0.62
Adj. Flow (vph)	92	23
RTOR Reduction (vph)	0	20
Lane Group Flow (vph)	113	3
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	12.1	12.1
Effective Green, g (s)	12.1	12.1
Actuated g/C Ratio	0.12	0.12
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	223	191
v/s Ratio Prot	c0.06	
v/s Ratio Perm		0.00
v/c Ratio	0.51	0.01
Uniform Delay, d1	41.2	38.7
Progression Factor	1.00	1.00
Incremental Delay, d2	1.8	0.0
Delay (s)	43.0	38.7
Level of Service	D	D
Approach Delay (s)	42.2	
Approach LOS	D	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	7	570	11	480	47	45	163
v/c Ratio	0.01	0.23	0.02	0.20	0.22	0.14	0.68
Control Delay	5.4	5.4	0.3	0.2	36.1	29.1	51.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	5.4	0.3	0.2	36.1	29.1	51.1
Queue Length 50th (ft)	1	50	0	0	26	20	96
Queue Length 95th (ft)	m4	85	0	0	45	38	129
Internal Link Dist (ft)		1193		1497		739	871
Turn Bay Length (ft)	100		100		125		
Base Capacity (vph)	615	2427	564	2396	506	729	564
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.23	0.02	0.20	0.09	0.06	0.29

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	403	25	10	351	71	35	28	6	91	28	10
Future Volume (vph)	5	403	25	10	351	71	35	28	6	91	28	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.97			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	3508		1770	3450		1770	1813			1780	
Flt Permitted	0.48	1.00		0.44	1.00		0.68	1.00			0.76	
Satd. Flow (perm)	890	3508		815	3450		1265	1813			1404	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.75	0.75	0.75	0.79	0.79	0.79
Adj. Flow (vph)	7	537	33	11	399	81	47	37	8	115	35	13
RTOR Reduction (vph)	0	2	0	0	10	0	0	7	0	0	4	0
Lane Group Flow (vph)	7	568	0	11	470	0	47	38	0	0	159	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	69.2	69.2		69.2	69.2		16.8	16.8			16.8	
Effective Green, g (s)	69.2	69.2		69.2	69.2		16.8	16.8			16.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.17	0.17			0.17	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	615	2427		563	2387		212	304			235	
v/s Ratio Prot		c0.16			0.14			0.02				
v/s Ratio Perm	0.01			0.01			0.04				c0.11	
v/c Ratio	0.01	0.23		0.02	0.20		0.22	0.13			0.68	
Uniform Delay, d1	4.8	5.7		4.8	5.5		36.0	35.4			39.0	
Progression Factor	0.81	0.83		0.03	0.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	0.0		0.1	0.2		0.5	0.2			7.5	
Delay (s)	3.9	4.7		0.2	0.2		36.5	35.5			46.5	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		4.7			0.2			36.0			46.5	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NBT	NBR	SBT	SBR	SEL	SET	NWL	NWT	NWR
Lane Group Flow (vph)	7	4	233	15	4	665	6	489	338
v/c Ratio	0.02	0.01	0.76	0.03	0.01	0.31	0.01	0.23	0.31
Control Delay	25.6	0.0	51.4	0.1	8.7	9.8	8.8	11.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	0.0	51.4	0.1	8.7	9.8	8.8	11.1	2.6
Queue Length 50th (ft)	3	0	139	0	1	74	1	64	0
Queue Length 95th (ft)	10	0	203	0	m4	121	7	139	44
Internal Link Dist (ft)	56		1373			1497		1102	
Turn Bay Length (ft)				150	100		100		175
Base Capacity (vph)	605	647	484	639	603	2154	529	2154	1095
Starvation Cap Reductn	0	0	0	0	0	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	0.01	0.01	0.48	0.02	0.01	0.31	0.01	0.23	0.31

Intersection Summary

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

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	2	3	3	223	1	14	3	490	2	5	425	294
Future Volume (vph)	2	3	3	223	1	14	3	490	2	5	425	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98	1.00		0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1824	1583		1774	1583	1770	3537		1770	3539	1583
Flt Permitted		0.89	1.00		0.72	1.00	0.47	1.00		0.38	1.00	1.00
Satd. Flow (perm)		1660	1583		1346	1583	869	3537		704	3539	1583
Peak-hour factor, PHF	0.67	0.67	0.67	0.96	0.96	0.96	0.74	0.74	0.74	0.87	0.87	0.87
Adj. Flow (vph)	3	4	4	232	1	15	4	662	3	6	489	338
RTOR Reduction (vph)	0	0	3	0	0	12	0	0	0	0	0	148
Lane Group Flow (vph)	0	7	1	0	233	3	4	665	0	6	489	190
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		2
Actuated Green, G (s)		23.2	23.2		22.7	22.7	57.8	56.6		57.3	56.1	56.1
Effective Green, g (s)		23.2	23.2		22.7	22.7	57.8	56.6		57.3	56.1	56.1
Actuated g/C Ratio		0.23	0.23		0.23	0.23	0.58	0.57		0.57	0.56	0.56
Clearance Time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
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)		385	367		305	359	513	2001		416	1985	888
v/s Ratio Prot							0.00	c0.19		c0.00	0.14	
v/s Ratio Perm		0.00	0.00		c0.17	0.00	0.00			0.01		0.12
v/c Ratio		0.02	0.00		0.76	0.01	0.01	0.33		0.01	0.25	0.21
Uniform Delay, d1		29.6	29.5		36.1	29.9	8.9	11.6		9.2	11.2	10.9
Progression Factor		1.00	1.00		1.00	1.00	0.98	0.84		1.00	1.00	1.00
Incremental Delay, d2		0.0	0.0		10.8	0.0	0.0	0.4		0.0	0.3	0.5
Delay (s)		29.6	29.5		47.0	30.0	8.8	10.1		9.2	11.5	11.5
Level of Service		C	C		D	C	A	B		A	B	B
Approach Delay (s)		29.6			45.9			10.1			11.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	84	787	19	86	633	18	54	128	165
v/c Ratio	0.15	0.40	0.02	0.18	0.32	0.07	0.10	0.59	0.43
Control Delay	5.9	13.0	0.1	6.2	12.0	31.9	6.6	46.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	13.0	0.1	6.2	12.0	31.9	6.6	46.1	9.4
Queue Length 50th (ft)	13	126	0	13	95	9	0	67	0
Queue Length 95th (ft)	30	184	0	33	156	25	21	104	31
Internal Link Dist (ft)		4815			1019	1334		2564	
Turn Bay Length (ft)	300		400	300			150		
Base Capacity (vph)	571	1981	936	550	1978	475	582	409	570
Starvation Cap Reductn	0	0	0	0	0	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	0.15	0.40	0.02	0.16	0.32	0.04	0.09	0.31	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	70	653	16	4	74	545	24	4	11	44	74	25
Future Volume (vph)	70	653	16	4	74	545	24	4	11	44	74	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0		6.0	7.0			7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95			1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.99			1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.99	1.00		0.96
Satd. Flow (prot)	1770	3539	1583		1770	3517			1837	1583		1795
Flt Permitted	0.40	1.00	1.00		0.32	1.00			0.89	1.00		0.77
Satd. Flow (perm)	738	3539	1583		594	3517			1663	1583		1431
Peak-hour factor, PHF	0.83	0.83	0.83	0.90	0.90	0.90	0.90	0.82	0.82	0.82	0.77	0.77
Adj. Flow (vph)	84	787	19	4	82	606	27	5	13	54	96	32
RTOR Reduction (vph)	0	0	9	0	0	3	0	0	0	38	0	0
Lane Group Flow (vph)	84	787	10	0	86	630	0	0	18	16	0	128
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA		Perm	NA	pt+ov	Perm	NA
Protected Phases	1	6		5!	5	2			4	4 5!		8
Permitted Phases	6		6	2!	2			4			8	
Actuated Green, G (s)	53.8	48.3	48.3		54.0	48.4			13.1	26.2		13.1
Effective Green, g (s)	53.8	48.3	48.3		54.0	48.4			13.1	26.2		13.1
Actuated g/C Ratio	0.61	0.55	0.55		0.62	0.55			0.15	0.30		0.15
Clearance Time (s)	6.0	7.0	7.0		6.0	7.0			7.5			7.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	518	1953	873		441	1945			248	473		214
v/s Ratio Prot	0.01	c0.22			c0.01	0.18				0.01		
v/s Ratio Perm	0.09		0.01		0.11				0.01			c0.09
v/c Ratio	0.16	0.40	0.01		0.20	0.32			0.07	0.03		0.60
Uniform Delay, d1	6.8	11.3	8.8		6.9	10.6			32.0	21.7		34.7
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	0.1	0.6	0.0		0.2	0.4			0.1	0.0		4.4
Delay (s)	7.0	11.9	8.9		7.1	11.1			32.1	21.7		39.2
Level of Service	A	B	A		A	B			C	C		D
Approach Delay (s)		11.4				10.6			24.3			35.3
Approach LOS		B				B			C			D

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	87.5	Sum of lost time (s)	20.5
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	127
Future Volume (vph)	127
Ideal Flow (vphpl)	1900
Total Lost time (s)	7.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.77
Adj. Flow (vph)	165
RTOR Reduction (vph)	140
Lane Group Flow (vph)	25
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	13.1
Effective Green, g (s)	13.1
Actuated g/C Ratio	0.15
Clearance Time (s)	7.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	236
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.10
Uniform Delay, d1	32.1
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	32.3
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

APPENDIX H: SYNCHRO REPORTS

PART 10 OPTIMIZED W/ IMPROVEMENTS 2022 OFF PEAK

Queues
1: Odell Avenue & E Broadway Blvd (AJ Hwy, US 11E)

02/21/2023

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	17	853	32	937	96	141
v/c Ratio	0.05	0.44	0.08	0.47	0.23	0.40
Control Delay	5.4	9.4	7.0	14.0	15.3	30.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	9.4	7.0	14.0	15.3	30.9
Queue Length 50th (ft)	3	87	4	77	18	64
Queue Length 95th (ft)	m7	117	28	379	50	95
Internal Link Dist (ft)		986		1578	842	607
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	373	1918	382	1978	424	354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.44	0.08	0.47	0.23	0.40

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	16	817	11	8	23	826	65	19	11	48	67
Future Volume (vph)	1	16	817	11	8	23	826	65	19	11	48	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	7.5			6.0	7.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	0.99			0.92		
Flt Protected		0.95	1.00			0.95	1.00			0.99		
Satd. Flow (prot)		1770	3532			1770	3501			1688		
Flt Permitted		0.25	1.00			0.27	1.00			0.91		
Satd. Flow (perm)		461	3532			511	3501			1549		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.81	0.81	0.81	0.74
Adj. Flow (vph)	1	16	842	11	8	24	869	68	23	14	59	91
RTOR Reduction (vph)	0	0	1	0	0	0	5	0	0	45	0	0
Lane Group Flow (vph)	0	17	852	0	0	32	932	0	0	51	0	0
Turn Type	pm+pt	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA		Perm
Protected Phases	1	1	6		5	5	2			4		
Permitted Phases	6	6			2	2			4			8
Actuated Green, G (s)		54.4	51.9			56.1	52.5			24.5		
Effective Green, g (s)		54.4	51.9			56.1	52.5			24.5		
Actuated g/C Ratio		0.54	0.52			0.56	0.52			0.24		
Clearance Time (s)		6.5	7.5			6.0	7.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		283	1833			331	1838			379		
v/s Ratio Prot		0.00	0.24			c0.00	c0.27					
v/s Ratio Perm		0.03				0.05				0.03		
v/c Ratio		0.06	0.46			0.10	0.51			0.14		
Uniform Delay, d1		11.0	15.2			10.2	15.4			29.5		
Progression Factor		0.71	0.59			0.90	0.94			1.00		
Incremental Delay, d2		0.1	0.8			0.1	0.9			0.7		
Delay (s)		7.9	9.7			9.4	15.4			30.2		
Level of Service		A	A			A	B			C		
Approach Delay (s)			9.7				15.2			30.2		
Approach LOS			A				B			C		

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	7	30
Future Volume (vph)	7	30
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.96	
Flt Protected	0.97	
Satd. Flow (prot)	1734	
Flt Permitted	0.77	
Satd. Flow (perm)	1387	
Peak-hour factor, PHF	0.74	0.74
Adj. Flow (vph)	9	41
RTOR Reduction (vph)	15	0
Lane Group Flow (vph)	126	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	24.5	
Effective Green, g (s)	24.5	
Actuated g/C Ratio	0.24	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	339	
v/s Ratio Prot		
v/s Ratio Perm	c0.09	
v/c Ratio	0.37	
Uniform Delay, d1	31.4	
Progression Factor	1.00	
Incremental Delay, d2	3.1	
Delay (s)	34.5	
Level of Service	C	
Approach Delay (s)	34.5	
Approach LOS	C	

Intersection Summary

Lane Group	SET	SER	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	54	133	40	100	683	16	570	40
v/c Ratio	0.34	0.41	0.24	0.18	0.32	0.03	0.29	0.04
Control Delay	48.2	5.0	39.2	3.5	10.6	8.9	15.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	5.0	39.2	3.5	10.6	8.9	15.6	0.1
Queue Length 50th (ft)	33	0	19	18	110	4	116	0
Queue Length 95th (ft)	65	3	47	m29	271	13	178	0
Internal Link Dist (ft)	741		83		1762		6121	
Turn Bay Length (ft)				125		75		250
Base Capacity (vph)	257	402	199	602	2147	552	1934	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.33	0.20	0.17	0.32	0.03	0.29	0.04

Intersection Summary

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Traffic Volume (vph)	44	2	112	23	3	7	3	93	641	14	3	13
Future Volume (vph)	44	2	112	23	3	7	3	93	641	14	3	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5		6.0			6.5	8.0			7.5
Lane Util. Factor		1.00	1.00		1.00			1.00	0.95			1.00
Frt		1.00	0.85		0.97			1.00	1.00			1.00
Flt Protected		0.95	1.00		0.97			0.95	1.00			0.95
Satd. Flow (prot)		1777	1583		1751			1770	3528			1770
Flt Permitted		0.95	1.00		0.97			0.40	1.00			0.39
Satd. Flow (perm)		1777	1583		1751			743	3528			723
Peak-hour factor, PHF	0.84	0.84	0.84	0.83	0.83	0.83	0.96	0.96	0.96	0.96	0.98	0.98
Adj. Flow (vph)	52	2	133	28	4	8	3	97	668	15	3	13
RTOR Reduction (vph)	0	0	121	0	8	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	54	12	0	32	0	0	100	682	0	0	16
Turn Type	Split	NA	Perm	Split	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	4	4		3	3		1	1	6		5	5
Permitted Phases			4				6	6			2	2
Actuated Green, G (s)		8.9	8.9		5.6			60.5	54.0			53.5
Effective Green, g (s)		8.9	8.9		5.6			60.5	54.0			53.5
Actuated g/C Ratio		0.09	0.09		0.06			0.60	0.54			0.54
Clearance Time (s)		7.5	7.5		6.0			6.5	8.0			7.5
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0			3.0
Lane Grp Cap (vph)		158	140		98			516	1905			412
v/s Ratio Prot		c0.03			c0.02			c0.01	c0.19			0.00
v/s Ratio Perm			0.01					0.10				0.02
v/c Ratio		0.34	0.08		0.33			0.19	0.36			0.04
Uniform Delay, d1		42.8	41.8		45.4			8.4	13.1			10.9
Progression Factor		1.00	1.00		1.00			0.39	0.81			1.00
Incremental Delay, d2		1.3	0.3		2.0			0.2	0.5			0.0
Delay (s)		44.1	42.1		47.4			3.5	11.1			10.9
Level of Service		D	D		D			A	B			B
Approach Delay (s)		42.7			47.4				10.2			
Approach LOS		D			D				B			

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	559	39
Future Volume (vph)	559	39
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	8.0
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3539	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3539	1583
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	570	40
RTOR Reduction (vph)	0	20
Lane Group Flow (vph)	570	20
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	51.0	51.0
Effective Green, g (s)	51.0	51.0
Actuated g/C Ratio	0.51	0.51
Clearance Time (s)	8.0	8.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1804	807
v/s Ratio Prot	0.16	
v/s Ratio Perm		0.01
v/c Ratio	0.32	0.03
Uniform Delay, d1	14.3	12.2
Progression Factor	1.00	1.00
Incremental Delay, d2	0.5	0.1
Delay (s)	14.8	12.2
Level of Service	B	B
Approach Delay (s)	14.5	
Approach LOS	B	

Intersection Summary

Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	112	139	112	69	246	261	795	76	72	624	66
v/c Ratio	0.60	0.66	0.50	0.29	0.55	0.59	0.53	0.10	0.22	0.51	0.09
Control Delay	56.5	48.6	47.6	41.6	8.1	24.2	12.5	0.2	7.9	25.1	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	48.6	47.6	41.6	8.1	24.2	12.5	0.2	7.9	25.1	2.3
Queue Length 50th (ft)	69	66	68	41	0	54	83	0	5	182	1
Queue Length 95th (ft)	120	122	109	73	35	155	115	0	25	273	17
Internal Link Dist (ft)		1277		993			4500			1762	
Turn Bay Length (ft)	150		150		150	250		50	75		150
Base Capacity (vph)	194	219	327	344	519	467	1509	794	333	1214	725
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.63	0.34	0.20	0.47	0.56	0.53	0.10	0.22	0.51	0.09

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Traffic Volume (vph)	96	68	52	95	59	209	67	163	700	67	2	65
Future Volume (vph)	96	68	52	95	59	209	67	163	700	67	2	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.5	7.5	7.5		6.5	7.5	7.5		6.5
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	0.95	1.00		1.00
Frt	1.00	0.94		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	1742		1770	1863	1583		1770	3539	1583		1770
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.28	1.00	1.00		0.32
Satd. Flow (perm)	1770	1742		1770	1863	1583		514	3539	1583		591
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.88	0.88	0.88	0.88	0.93	0.93
Adj. Flow (vph)	112	79	60	112	69	246	76	185	795	76	2	70
RTOR Reduction (vph)	0	28	0	0	0	215	0	0	0	45	0	0
Lane Group Flow (vph)	112	111	0	112	69	31	0	261	795	31	0	72
Turn Type	Split	NA		Split	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt
Protected Phases	3	3		4	4		1	1	6		5	5
Permitted Phases						4	6	6		6	2	2
Actuated Green, G (s)	10.6	10.6		12.8	12.8	12.8		53.6	41.3	41.3		40.1
Effective Green, g (s)	10.6	10.6		12.8	12.8	12.8		53.6	41.3	41.3		40.1
Actuated g/C Ratio	0.11	0.11		0.13	0.13	0.13		0.54	0.41	0.41		0.40
Clearance Time (s)	8.0	8.0		7.5	7.5	7.5		6.5	7.5	7.5		6.5
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)	187	184		226	238	202		436	1461	653		305
v/s Ratio Prot	0.06	c0.06		c0.06	0.04			c0.08	0.22			0.01
v/s Ratio Perm						0.02		c0.24		0.02		0.08
v/c Ratio	0.60	0.60		0.50	0.29	0.16		0.60	0.54	0.05		0.24
Uniform Delay, d1	42.7	42.7		40.6	39.5	38.8		14.0	22.2	17.6		18.8
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.43	0.49	1.00		0.49
Incremental Delay, d2	5.1	5.5		1.7	0.7	0.4		2.1	0.4	0.0		0.4
Delay (s)	47.8	48.2		42.3	40.2	39.2		22.2	11.2	17.6		9.6
Level of Service	D	D		D	D	D		C	B	B		A
Approach Delay (s)		48.0			40.1				14.2			
Approach LOS		D			D				B			

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWT	SWR
Lane Configurations	↑↑	↱
Traffic Volume (vph)	580	61
Future Volume (vph)	580	61
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.5	7.5
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3539	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3539	1583
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	624	66
RTOR Reduction (vph)	0	43
Lane Group Flow (vph)	624	23
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	34.3	34.3
Effective Green, g (s)	34.3	34.3
Actuated g/C Ratio	0.34	0.34
Clearance Time (s)	7.5	7.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1213	542
v/s Ratio Prot	0.18	
v/s Ratio Perm		0.01
v/c Ratio	0.51	0.04
Uniform Delay, d1	26.2	21.9
Progression Factor	0.85	1.00
Incremental Delay, d2	1.5	0.1
Delay (s)	23.7	22.0
Level of Service	C	C
Approach Delay (s)	22.2	
Approach LOS	C	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	23	908	50	914	133	112
v/c Ratio	0.05	0.43	0.12	0.40	0.52	0.61
Control Delay	1.6	5.5	6.9	9.9	28.8	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.6	5.5	6.9	9.9	28.8	49.5
Queue Length 50th (ft)	1	97	5	77	42	61
Queue Length 95th (ft)	m2	135	m27	217	73	92
Internal Link Dist (ft)		1578		4500	607	440
Turn Bay Length (ft)	125		100			
Base Capacity (vph)	488	2113	465	2307	374	292
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.43	0.11	0.40	0.36	0.38

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	5	18	844	19	1	47	830	38	30	13	59	52
Future Volume (vph)	5	18	844	19	1	47	830	38	30	13	59	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	8.0			7.5	8.0			7.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	0.99			0.92		
Flt Protected		0.95	1.00			0.95	1.00			0.99		
Satd. Flow (prot)		1770	3528			1770	3516			1692		
Flt Permitted		0.29	1.00			0.26	1.00			0.88		
Satd. Flow (perm)		548	3528			491	3516			1511		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.77	0.77	0.77	0.77
Growth Factor (vph)	71%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	4	19	888	20	1	49	874	40	39	17	77	68
RTOR Reduction (vph)	0	0	1	0	0	0	2	0	0	55	0	0
Lane Group Flow (vph)	0	23	907	0	0	50	912	0	0	78	0	0
Turn Type	pm+pt	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA		Perm
Protected Phases	1	1	6		5	5	2			4		
Permitted Phases	6	6			2	2			4			8
Actuated Green, G (s)		60.9	58.4			66.5	61.2			13.3		
Effective Green, g (s)		60.9	58.4			66.5	61.2			13.3		
Actuated g/C Ratio		0.61	0.58			0.66	0.61			0.13		
Clearance Time (s)		7.5	8.0			7.5	8.0			7.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		364	2060			394	2151			200		
v/s Ratio Prot		0.00	0.26			c0.01	c0.26					
v/s Ratio Perm		0.04				0.08				0.05		
v/c Ratio		0.06	0.44			0.13	0.42			0.39		
Uniform Delay, d1		7.8	11.6			6.3	10.2			39.7		
Progression Factor		0.26	0.40			1.25	0.97			1.00		
Incremental Delay, d2		0.1	0.6			0.1	0.5			1.3		
Delay (s)		2.1	5.3			8.0	10.4			40.9		
Level of Service		A	A			A	B			D		
Approach Delay (s)			5.2				10.3			40.9		
Approach LOS			A				B			D		

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	16	18
Future Volume (vph)	16	18
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.5	
Lane Util. Factor	1.00	
Frt	0.97	
Flt Protected	0.97	
Satd. Flow (prot)	1758	
Flt Permitted	0.73	
Satd. Flow (perm)	1316	
Peak-hour factor, PHF	0.77	0.77
Growth Factor (vph)	100%	100%
Adj. Flow (vph)	21	23
RTOR Reduction (vph)	10	0
Lane Group Flow (vph)	102	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	13.3	
Effective Green, g (s)	13.3	
Actuated g/C Ratio	0.13	
Clearance Time (s)	7.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	175	
v/s Ratio Prot		
v/s Ratio Perm	c0.08	
v/c Ratio	0.58	
Uniform Delay, d1	40.7	
Progression Factor	1.00	
Incremental Delay, d2	4.8	
Delay (s)	45.6	
Level of Service	D	
Approach Delay (s)	45.6	
Approach LOS	D	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	676	270	648	119	231	44	108
v/c Ratio	0.16	0.42	0.53	0.35	0.31	0.44	0.16	0.26
Control Delay	4.0	8.6	19.5	5.0	35.3	7.3	33.4	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	8.6	19.5	5.0	35.3	7.3	33.4	24.2
Queue Length 50th (ft)	8	44	30	38	64	0	23	39
Queue Length 95th (ft)	19	68	126	22	107	47	50	79
Internal Link Dist (ft)		967		986	362			831
Turn Bay Length (ft)	100		175			200	200	
Base Capacity (vph)	502	1627	633	1855	386	528	279	410
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.42	0.43	0.35	0.31	0.44	0.16	0.26

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	5	70	627	15	8	259	594	48	15	85	194	37
Future Volume (vph)	5	70	627	15	8	259	594	48	15	85	194	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	7.0			6.0	7.0			7.0	7.0	7.0
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00	1.00	1.00
Frt		1.00	1.00			1.00	0.99			1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00			0.99	1.00	0.95
Satd. Flow (prot)		1770	3527			1770	3500			1849	1583	1770
Flt Permitted		0.41	1.00			0.31	1.00			0.94	1.00	0.68
Satd. Flow (perm)		756	3527			568	3500			1757	1583	1268
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.99	0.99	0.99	0.99	0.84	0.84	0.84	0.85
Adj. Flow (vph)	5	74	660	16	8	262	600	48	18	101	231	44
RTOR Reduction (vph)	0	0	2	0	0	0	6	0	0	0	180	0
Lane Group Flow (vph)	0	79	674	0	0	270	642	0	0	119	51	44
Turn Type	pm+pt	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm
Protected Phases	1	1	6		5	5	2			4		
Permitted Phases	6	6			2	2			4		4	8
Actuated Green, G (s)		52.1	46.1			63.4	51.5			22.0	22.0	22.0
Effective Green, g (s)		52.1	46.1			63.4	51.5			22.0	22.0	22.0
Actuated g/C Ratio		0.52	0.46			0.63	0.52			0.22	0.22	0.22
Clearance Time (s)		6.5	7.0			6.0	7.0			7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)		454	1625			503	1802			386	348	278
v/s Ratio Prot		0.01	0.19			c0.06	0.18					
v/s Ratio Perm		0.08				c0.28				c0.07	0.03	0.03
v/c Ratio		0.17	0.42			0.54	0.36			0.31	0.15	0.16
Uniform Delay, d1		12.0	18.0			9.0	14.4			32.6	31.4	31.5
Progression Factor		0.44	0.42			2.15	0.32			1.00	1.00	1.00
Incremental Delay, d2		0.2	0.8			1.0	0.5			2.1	0.9	1.2
Delay (s)		5.5	8.4			20.3	5.0			34.7	32.3	32.7
Level of Service		A	A			C	A			C	C	C
Approach Delay (s)			8.1				9.5			33.1		
Approach LOS			A				A			C		

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	53	39
Future Volume (vph)	53	39
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.94	
Flt Protected	1.00	
Satd. Flow (prot)	1744	
Flt Permitted	1.00	
Satd. Flow (perm)	1744	
Peak-hour factor, PHF	0.85	0.85
Adj. Flow (vph)	62	46
RTOR Reduction (vph)	27	0
Lane Group Flow (vph)	81	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	22.0	
Effective Green, g (s)	22.0	
Actuated g/C Ratio	0.22	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	383	
v/s Ratio Prot	0.05	
v/s Ratio Perm		
v/c Ratio	0.21	
Uniform Delay, d1	31.9	
Progression Factor	1.00	
Incremental Delay, d2	1.3	
Delay (s)	33.2	
Level of Service	C	
Approach Delay (s)	33.0	
Approach LOS	C	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	61	600	103	616	110	93	46	102
v/c Ratio	0.10	0.27	0.17	0.28	0.54	0.30	0.29	0.43
Control Delay	1.3	3.6	5.4	8.5	50.8	5.2	43.7	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.3	3.6	5.4	8.5	50.8	5.2	43.7	38.6
Queue Length 50th (ft)	2	13	4	30	67	0	27	51
Queue Length 95th (ft)	4	16	47	124	91	2	60	98
Internal Link Dist (ft)		802		967	77			752
Turn Bay Length (ft)	100		150				200	
Base Capacity (vph)	705	2205	692	2207	414	501	320	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.27	0.15	0.28	0.27	0.19	0.14	0.22

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	531	9	14	84	535	50	22	57	67	42	68
Future Volume (vph)	55	531	9	14	84	535	50	22	57	67	42	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	8.0			7.0	8.0			5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00	1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.99			1.00	0.85	1.00	0.96
Flt Protected	0.95	1.00			0.95	1.00			0.99	1.00	0.95	1.00
Satd. Flow (prot)	1770	3530			1770	3494			1837	1583	1770	1789
Flt Permitted	0.42	1.00			0.42	1.00			0.87	1.00	0.68	1.00
Satd. Flow (perm)	780	3530			779	3494			1624	1583	1258	1789
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.72	0.72	0.72	0.91	0.91
Adj. Flow (vph)	61	590	10	15	88	563	53	31	79	93	46	75
RTOR Reduction (vph)	0	1	0	0	0	5	0	0	0	81	0	15
Lane Group Flow (vph)	61	599	0	0	103	611	0	0	110	12	46	87
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	5	2			4			8
Permitted Phases	6			2	2			4		4	8	
Actuated Green, G (s)	66.3	61.0			67.7	61.7			12.5	12.5	12.5	12.5
Effective Green, g (s)	66.3	61.0			67.7	61.7			12.5	12.5	12.5	12.5
Actuated g/C Ratio	0.66	0.61			0.68	0.62			0.12	0.12	0.12	0.12
Clearance Time (s)	7.0	8.0			7.0	8.0			5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	569	2153			586	2155			203	197	157	223
v/s Ratio Prot	0.01	0.17			c0.01	c0.18						0.05
v/s Ratio Perm	0.07				0.11				c0.07	0.01	0.04	
v/c Ratio	0.11	0.28			0.18	0.28			0.54	0.06	0.29	0.39
Uniform Delay, d1	5.9	9.2			5.5	8.9			41.1	38.6	39.7	40.2
Progression Factor	0.24	0.35			1.21	0.89			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3			0.1	0.3			2.9	0.1	1.0	1.1
Delay (s)	1.5	3.5			6.9	8.3			44.0	38.7	40.8	41.4
Level of Service	A	A			A	A			D	D	D	D
Approach Delay (s)		3.3				8.1			41.6			41.2
Approach LOS		A				A			D			D

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	25
Future Volume (vph)	25
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	27
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	5	559	141	72	477	165	103	76	19
v/c Ratio	0.01	0.34	0.13	0.15	0.24	0.44	0.41	0.38	0.05
Control Delay	11.2	20.2	2.0	11.7	16.2	35.7	11.8	47.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	20.2	2.0	11.7	16.2	35.7	11.8	47.2	0.2
Queue Length 50th (ft)	1	123	0	36	132	53	24	46	0
Queue Length 95th (ft)	7	194	26	51	147	37	8	65	0
Internal Link Dist (ft)		4665			802		1193	625	
Turn Bay Length (ft)	75		175	100		250			
Base Capacity (vph)	524	1666	1129	499	1988	463	291	366	495
Starvation Cap Reductn	0	0	0	0	0	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	0.01	0.34	0.12	0.14	0.24	0.36	0.35	0.21	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	542	137	1	66	438	6	155	21	76	16	35
Future Volume (vph)	5	542	137	1	66	438	6	155	21	76	16	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	8.0	8.5		7.0	8.0		8.5	8.5			6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95		0.97	1.00			1.00
Frt	1.00	1.00	0.85		1.00	1.00		1.00	0.88			1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)	1770	3539	1583		1770	3533		3433	1643			1834
Flt Permitted	0.48	1.00	1.00		0.37	1.00		0.95	1.00			0.98
Satd. Flow (perm)	893	3539	1583		694	3533		3433	1643			1834
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.67	0.67
Adj. Flow (vph)	5	559	141	1	71	471	6	165	22	81	24	52
RTOR Reduction (vph)	0	0	63	0	0	1	0	0	72	0	0	0
Lane Group Flow (vph)	5	559	78	0	72	476	0	165	31	0	0	76
Turn Type	pm+pt	NA	pm+ov	pm+pt	pm+pt	NA		Split	NA		Split	NA
Protected Phases	1	6	3	5	5	2		3	3		4	4
Permitted Phases	6		6	2	2				3			
Actuated Green, G (s)	45.7	44.5	55.5		55.7	49.5		11.0	11.0			8.8
Effective Green, g (s)	45.7	44.5	55.5		55.7	49.5		11.0	11.0			8.8
Actuated g/C Ratio	0.46	0.44	0.56		0.56	0.50		0.11	0.11			0.09
Clearance Time (s)	7.0	8.0	8.5		7.0	8.0		8.5	8.5			6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)	418	1574	878		453	1748		377	180			161
v/s Ratio Prot	0.00	c0.16	0.01		c0.01	c0.13		c0.05	0.02			c0.04
v/s Ratio Perm	0.01		0.04		0.08							
v/c Ratio	0.01	0.36	0.09		0.16	0.27		0.44	0.17			0.47
Uniform Delay, d1	14.8	18.3	10.4		10.6	14.7		41.6	40.4			43.4
Progression Factor	1.00	1.00	1.00		1.05	1.19		0.77	0.51			1.00
Incremental Delay, d2	0.0	0.6	0.0		0.2	0.4		0.8	0.5			2.2
Delay (s)	14.8	18.9	10.5		11.3	17.9		32.9	21.0			45.6
Level of Service	B	B	B		B	B		C	C			D
Approach Delay (s)		17.2				17.0			28.3			44.8
Approach LOS		B				B			C			D

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	13
Future Volume (vph)	13
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.67
Adj. Flow (vph)	19
RTOR Reduction (vph)	17
Lane Group Flow (vph)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	8.8
Effective Green, g (s)	8.8
Actuated g/C Ratio	0.09
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	139
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.01
Uniform Delay, d1	41.6
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	41.7
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1	273	15	336	26	97	176
v/c Ratio	0.00	0.12	0.02	0.15	0.12	0.28	0.69
Control Delay	7.0	5.2	1.8	0.6	32.2	26.3	51.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	5.2	1.8	0.6	32.2	26.3	51.2
Queue Length 50th (ft)	0	32	1	1	14	39	105
Queue Length 95th (ft)	m2	42	3	4	26	55	161
Internal Link Dist (ft)		1193		1497		739	871
Turn Bay Length (ft)	100		100		125		
Base Capacity (vph)	692	2347	736	2315	576	853	648
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.12	0.02	0.15	0.05	0.11	0.27

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	188	33	13	204	78	18	49	18	109	51	6
Future Volume (vph)	1	188	33	13	204	78	18	49	18	109	51	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.96			1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	3459		1770	3392		1770	1788			1795	
Flt Permitted	0.55	1.00		0.58	1.00		0.66	1.00			0.74	
Satd. Flow (perm)	1023	3459		1087	3392		1226	1788			1378	
Peak-hour factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84	0.69	0.69	0.69	0.94	0.94	0.94
Adj. Flow (vph)	1	232	41	15	243	93	26	71	26	116	54	6
RTOR Reduction (vph)	0	7	0	0	21	0	0	20	0	0	2	0
Lane Group Flow (vph)	1	266	0	15	315	0	26	77	0	0	174	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	67.7	67.7		67.7	67.7		18.3	18.3			18.3	
Effective Green, g (s)	67.7	67.7		67.7	67.7		18.3	18.3			18.3	
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.18	0.18			0.18	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	692	2341		735	2296		224	327			252	
v/s Ratio Prot		0.08			c0.09			0.04				
v/s Ratio Perm	0.00			0.01			0.02				c0.13	
v/c Ratio	0.00	0.11		0.02	0.14		0.12	0.23			0.69	
Uniform Delay, d1	5.2	5.7		5.3	5.8		34.1	34.9			38.2	
Progression Factor	0.96	0.85		0.24	0.08		1.00	1.00			1.00	
Incremental Delay, d2	0.0	0.0		0.1	0.1		0.2	0.4			8.0	
Delay (s)	5.0	4.8		1.3	0.6		34.3	35.2			46.2	
Level of Service	A	A		A	A		C	D			D	
Approach Delay (s)		4.8			0.6			35.0			46.2	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NBT	NBR	SBT	SBR	SEL	SET	NWL	NWT	NWR
Lane Group Flow (vph)	7	5	330	14	13	385	1	279	386
v/c Ratio	0.01	0.01	0.80	0.03	0.02	0.21	0.00	0.15	0.38
Control Delay	19.6	0.0	46.2	0.1	7.2	8.2	13.0	15.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	0.0	46.2	0.1	7.2	8.2	13.0	15.0	3.5
Queue Length 50th (ft)	3	0	192	0	2	30	0	43	0
Queue Length 95th (ft)	9	0	256	0	8	80	3	97	55
Internal Link Dist (ft)	56		1373			1497		1102	
Turn Bay Length (ft)				150	100		100		175
Base Capacity (vph)	696	750	579	742	635	1878	595	1873	1019
Starvation Cap Reductn	0	0	0	0	0	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	0.01	0.01	0.57	0.02	0.02	0.21	0.00	0.15	0.38

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	3	2	4	302	2	13	11	315	4	1	243	336
Future Volume (vph)	3	2	4	302	2	13	11	315	4	1	243	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected		0.97	1.00		0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1811	1583		1775	1583	1770	3532		1770	3539	1583
Flt Permitted		0.86	1.00		0.72	1.00	0.57	1.00		0.52	1.00	1.00
Satd. Flow (perm)		1600	1583		1347	1583	1068	3532		976	3539	1583
Peak-hour factor, PHF	0.75	0.75	0.75	0.92	0.92	0.92	0.83	0.83	0.83	0.87	0.87	0.87
Adj. Flow (vph)	4	3	5	328	2	14	13	380	5	1	279	386
RTOR Reduction (vph)	0	0	3	0	0	10	0	1	0	0	0	200
Lane Group Flow (vph)	0	7	2	0	330	4	13	384	0	1	279	186
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		2
Actuated Green, G (s)		31.0	31.0		30.5	30.5	50.1	48.8		49.4	48.2	48.2
Effective Green, g (s)		31.0	31.0		30.5	30.5	50.1	48.8		49.4	48.2	48.2
Actuated g/C Ratio		0.31	0.31		0.30	0.30	0.50	0.49		0.49	0.48	0.48
Clearance Time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
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)		496	490		410	482	544	1723		491	1705	763
v/s Ratio Prot							c0.00	0.11		0.00	0.08	
v/s Ratio Perm		0.00	0.00		c0.25	0.00	0.01			0.00		c0.12
v/c Ratio		0.01	0.00		0.80	0.01	0.02	0.22		0.00	0.16	0.24
Uniform Delay, d1		23.9	23.8		32.0	24.2	12.5	14.7		12.8	14.6	15.2
Progression Factor		1.00	1.00		1.00	1.00	0.55	0.54		1.00	1.00	1.00
Incremental Delay, d2		0.0	0.0		10.9	0.0	0.0	0.3		0.0	0.2	0.8
Delay (s)		23.9	23.8		43.0	24.2	7.0	8.2		12.8	14.8	16.0
Level of Service		C	C		D	C	A	A		B	B	B
Approach Delay (s)		23.9			42.2			8.1			15.5	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

27: Old AJ Hwy/Old AJ Hwy (SR 92) & W Broadway Blvd (AJ Hwy, US 11E)

02/21/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	73	492	12	113	952	19	89	39	98
v/c Ratio	0.16	0.23	0.01	0.16	0.41	0.12	0.21	0.26	0.38
Control Delay	4.2	8.9	0.0	3.8	9.8	36.5	7.0	39.8	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	8.9	0.0	3.8	9.8	36.5	7.0	39.8	11.0
Queue Length 50th (ft)	8	61	0	13	136	9	0	20	0
Queue Length 95th (ft)	20	96	0	19	121	23	18	49	37
Internal Link Dist (ft)		4815			1019	1334		2564	
Turn Bay Length (ft)	300		400	300			150		
Base Capacity (vph)	491	2154	1008	748	2326	421	519	399	503
Starvation Cap Reductn	0	0	0	0	0	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	0.15	0.23	0.01	0.15	0.41	0.05	0.17	0.10	0.19

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	68	458	11	1	70	567	33	6	8	63	21	13
Future Volume (vph)	68	458	11	1	70	567	33	6	8	63	21	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0		6.0	7.0			7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95			1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.99			1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.98	1.00		0.97
Satd. Flow (prot)	1770	3539	1583		1770	3510			1824	1583		1807
Flt Permitted	0.28	1.00	1.00		0.46	1.00			0.85	1.00		0.80
Satd. Flow (perm)	519	3539	1583		851	3510			1575	1583		1492
Peak-hour factor, PHF	0.93	0.93	0.93	0.63	0.63	0.63	0.63	0.71	0.71	0.71	0.89	0.89
Adj. Flow (vph)	73	492	12	2	111	900	52	8	11	89	24	15
RTOR Reduction (vph)	0	0	5	0	0	3	0	0	0	67	0	0
Lane Group Flow (vph)	73	492	7	0	113	949	0	0	19	22	0	39
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA		Perm	NA	pt+ov	Perm	NA
Protected Phases	1	6		5!	5	2			4	4 5!		8
Permitted Phases	6		6	2!	2			4			8	
Actuated Green, G (s)	57.7	52.4	52.4		61.3	54.2			6.9	21.5		6.9
Effective Green, g (s)	57.7	52.4	52.4		61.3	54.2			6.9	21.5		6.9
Actuated g/C Ratio	0.66	0.60	0.60		0.71	0.62			0.08	0.25		0.08
Clearance Time (s)	6.0	7.0	7.0		6.0	7.0			7.5			7.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	420	2133	954		675	2189			125	391		118
v/s Ratio Prot	0.01	0.14			c0.01	c0.27				0.01		
v/s Ratio Perm	0.10		0.00		0.10				0.01			c0.03
v/c Ratio	0.17	0.23	0.01		0.17	0.43			0.15	0.06		0.33
Uniform Delay, d1	5.2	8.0	6.9		4.0	8.4			37.3	25.0		37.8
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	0.2	0.3	0.0		0.1	0.6			0.6	0.1		1.6
Delay (s)	5.4	8.2	6.9		4.2	9.1			37.8	25.0		39.5
Level of Service	A	A	A		A	A			D	C		D
Approach Delay (s)		7.8				8.5			27.3			37.9
Approach LOS		A				A			C			D

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	20.5
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	87
Future Volume (vph)	87
Ideal Flow (vphpl)	1900
Total Lost time (s)	7.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	98
RTOR Reduction (vph)	90
Lane Group Flow (vph)	8
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	6.9
Effective Green, g (s)	6.9
Actuated g/C Ratio	0.08
Clearance Time (s)	7.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	125
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.06
Uniform Delay, d1	37.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	37.2
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

APPENDIX H: SYNCHRO REPORTS

PART 11 OPTIMIZED W/ IMPROVEMENTS 2022 PM PEAK

Queues

1: Odell Avenue & E Broadway Blvd (AJ Hwy, US 11E)

07/10/2023

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	28	1116	68	1065	101	139
v/c Ratio	0.09	0.56	0.23	0.51	0.25	0.44
Control Delay	2.9	8.2	12.9	19.2	19.4	40.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.9	8.2	12.9	19.2	19.4	40.2
Queue Length 50th (ft)	2	268	18	186	26	82
Queue Length 95th (ft)	m4	86	51	298	61	147
Internal Link Dist (ft)		986		1578	842	607
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	330	1998	311	2069	400	319
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.56	0.22	0.51	0.25	0.44

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	983	11	13	50	919	61	19	13	49	82	9
Future Volume (vph)	25	983	11	13	50	919	61	19	13	49	82	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	7.5			6.0	7.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	0.99			0.92			0.96
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.97
Satd. Flow (prot)	1770	3534			1770	3506			1691			1737
Flt Permitted	0.21	1.00			0.18	1.00			0.91			0.75
Satd. Flow (perm)	391	3534			338	3506			1549			1341
Peak-hour factor, PHF	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	28	1104	12	14	54	999	66	24	16	61	91	10
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	45	0	0	12
Lane Group Flow (vph)	28	1116	0	0	68	1061	0	0	56	0	0	127
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA		Perm	NA
Protected Phases	1	6		5	5	2			4			8
Permitted Phases	6			2	2			4			8	
Actuated Green, G (s)	70.6	66.7			73.9	68.1			27.5			27.5
Effective Green, g (s)	70.6	66.7			73.9	68.1			27.5			27.5
Actuated g/C Ratio	0.59	0.56			0.62	0.57			0.23			0.23
Clearance Time (s)	6.5	7.5			6.0	7.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	274	1964			277	1989			354			307
v/s Ratio Prot	0.00	c0.32			c0.01	0.30						
v/s Ratio Perm	0.06				0.14				0.04			c0.10
v/c Ratio	0.10	0.57			0.25	0.53			0.16			0.42
Uniform Delay, d1	11.3	17.3			11.1	16.1			37.0			39.4
Progression Factor	0.33	0.41			1.57	1.18			1.00			1.00
Incremental Delay, d2	0.1	1.1			0.4	0.9			0.9			4.1
Delay (s)	3.9	8.2			17.8	20.0			37.9			43.5
Level of Service	A	A			B	B			D			D
Approach Delay (s)		8.1				19.9			37.9			43.5
Approach LOS		A				B			D			D

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	34
Future Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	SET	SER	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	170	204	57	97	943	5	909	48
v/c Ratio	0.69	0.52	0.39	0.28	0.44	0.01	0.51	0.05
Control Delay	63.3	10.7	48.4	18.3	23.5	11.8	23.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	10.7	48.4	18.3	23.5	11.8	23.0	0.1
Queue Length 50th (ft)	127	0	31	40	223	1	249	0
Queue Length 95th (ft)	106	0	42	m87	383	7	333	0
Internal Link Dist (ft)	741		83		1762		6121	
Turn Bay Length (ft)				125		75		250
Base Capacity (vph)	332	462	157	377	2144	366	1792	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.44	0.36	0.26	0.44	0.01	0.51	0.05

Intersection Summary

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	88	2	108	20	2	10	10	80	869	8	4	773
Future Volume (vph)	88	2	108	20	2	10	10	80	869	8	4	773
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5		6.0			6.5	8.0		7.5	8.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.95		1.00	0.95
Frt		1.00	0.85		0.96			1.00	1.00		1.00	1.00
Flt Protected		0.95	1.00		0.97			0.95	1.00		0.95	1.00
Satd. Flow (prot)		1776	1583		1730			1770	3534		1770	3539
Flt Permitted		0.95	1.00		0.97			0.22	1.00		0.27	1.00
Satd. Flow (perm)		1776	1583		1730			407	3534		501	3539
Peak-hour factor, PHF	0.53	0.53	0.53	0.57	0.57	0.57	0.93	0.93	0.93	0.93	0.85	0.85
Adj. Flow (vph)	166	4	204	35	4	18	11	86	934	9	5	909
RTOR Reduction (vph)	0	0	176	0	14	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	170	28	0	43	0	0	97	943	0	5	909
Turn Type	Split	NA	Perm	Split	NA		pm+pt	pm+pt	NA		pm+pt	NA
Protected Phases	4	4		3	3		1	1	6		5	2
Permitted Phases			4				6	6			2	
Actuated Green, G (s)		16.7	16.7		7.6			73.7	65.5		60.7	59.5
Effective Green, g (s)		16.7	16.7		7.6			73.7	65.5		60.7	59.5
Actuated g/C Ratio		0.14	0.14		0.06			0.61	0.55		0.51	0.50
Clearance Time (s)		7.5	7.5		6.0			6.5	8.0		7.5	8.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		247	220		109			343	1928		266	1754
v/s Ratio Prot		c0.10			c0.02			c0.02	c0.27		0.00	c0.26
v/s Ratio Perm			0.02					0.15			0.01	
v/c Ratio		0.69	0.13		0.39			0.28	0.49		0.02	0.52
Uniform Delay, d1		49.2	45.3		54.0			11.4	16.9		14.9	20.5
Progression Factor		1.00	1.00		1.00			1.63	1.50		1.00	1.00
Incremental Delay, d2		7.7	0.3		2.3			0.4	0.7		0.0	1.1
Delay (s)		56.9	45.5		56.3			19.0	26.1		14.9	21.6
Level of Service		E	D		E			B	C		B	C
Approach Delay (s)		50.7			56.3				25.4			21.3
Approach LOS		D			E				C			C

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR
Lane Configurations	
Traffic Volume (vph)	41
Future Volume (vph)	41
Ideal Flow (vphpl)	1900
Total Lost time (s)	8.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	48
RTOR Reduction (vph)	24
Lane Group Flow (vph)	24
Turn Type	Perm
Protected Phases	
Permitted Phases	2
Actuated Green, G (s)	59.5
Effective Green, g (s)	59.5
Actuated g/C Ratio	0.50
Clearance Time (s)	8.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	784
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.03
Uniform Delay, d1	15.5
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	15.6
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Queues

7: E Broadway Blvd (AJ Hwy, US 11E) & N Chucky Pike

07/10/2023

Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	95	141	125	77	262	240	962	120	102	873	74
v/c Ratio	0.54	0.71	0.60	0.35	0.67	0.64	0.58	0.14	0.34	0.58	0.09
Control Delay	62.9	60.3	61.9	52.2	18.0	31.4	17.0	1.2	10.4	14.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	60.3	61.9	52.2	18.0	31.4	17.0	1.2	10.4	14.4	0.2
Queue Length 50th (ft)	70	83	94	56	21	91	113	0	16	90	0
Queue Length 95th (ft)	128	#165	152	100	104	169	208	9	34	121	0
Internal Link Dist (ft)		1277		993			4500			1762	
Turn Bay Length (ft)	150		150		150	250		50	75		150
Base Capacity (vph)	191	214	272	287	440	427	1660	834	316	1504	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.66	0.46	0.27	0.60	0.56	0.58	0.14	0.32	0.58	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Traffic Volume (vph)	87	69	61	115	71	241	46	172	875	109	2	88
Future Volume (vph)	87	69	61	115	71	241	46	172	875	109	2	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.5	7.5	7.5		6.5	7.5	7.5		6.5
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	0.95	1.00		1.00
Frt	1.00	0.93		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	1732		1770	1863	1583		1770	3539	1583		1770
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.20	1.00	1.00		0.23
Satd. Flow (perm)	1770	1732		1770	1863	1583		375	3539	1583		423
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.88	0.88
Adj. Flow (vph)	95	75	66	125	77	262	51	189	962	120	2	100
RTOR Reduction (vph)	0	27	0	0	0	205	0	0	0	64	0	0
Lane Group Flow (vph)	95	114	0	125	77	57	0	240	962	56	0	102
Turn Type	Split	NA		Split	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt
Protected Phases	3	3		4	4		1	1	6		5	5
Permitted Phases						4	6	6		6	2	2
Actuated Green, G (s)	12.0	12.0		14.1	14.1	14.1		69.7	56.3	56.3		59.1
Effective Green, g (s)	12.0	12.0		14.1	14.1	14.1		69.7	56.3	56.3		59.1
Actuated g/C Ratio	0.10	0.10		0.12	0.12	0.12		0.58	0.47	0.47		0.49
Clearance Time (s)	8.0	8.0		7.5	7.5	7.5		6.5	7.5	7.5		6.5
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)	177	173		207	218	186		373	1660	742		299
v/s Ratio Prot	0.05	c0.07		c0.07	0.04			c0.07	c0.27			0.02
v/s Ratio Perm						0.04		c0.30		0.04		0.15
v/c Ratio	0.54	0.66		0.60	0.35	0.31		0.64	0.58	0.08		0.34
Uniform Delay, d1	51.4	52.0		50.3	48.8	48.5		15.4	23.2	17.5		17.1
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.98	0.64	1.04		0.62
Incremental Delay, d2	3.1	8.7		4.9	1.0	0.9		3.4	0.4	0.0		0.6
Delay (s)	54.5	60.8		55.2	49.7	49.4		33.8	15.3	18.2		11.3
Level of Service	D	E		E	D	D		C	B	B		B
Approach Delay (s)		58.2			51.0				18.9			
Approach LOS		E			D				B			

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	768	65
Future Volume (vph)	768	65
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.5	7.5
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3539	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3539	1583
Peak-hour factor, PHF	0.88	0.88
Adj. Flow (vph)	873	74
RTOR Reduction (vph)	0	43
Lane Group Flow (vph)	873	31
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	51.0	51.0
Effective Green, g (s)	51.0	51.0
Actuated g/C Ratio	0.42	0.42
Clearance Time (s)	7.5	7.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1504	672
v/s Ratio Prot	0.25	
v/s Ratio Perm		0.02
v/c Ratio	0.58	0.05
Uniform Delay, d1	26.3	20.2
Progression Factor	0.46	1.00
Incremental Delay, d2	1.5	0.1
Delay (s)	13.6	20.4
Level of Service	B	C
Approach Delay (s)	13.9	
Approach LOS	B	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	1159	73	1106	36	73	115	42
v/c Ratio	0.06	0.51	0.22	0.45	0.20	0.24	0.65	0.17
Control Delay	3.0	5.7	4.3	5.1	47.3	4.0	65.8	31.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	5.7	4.3	5.1	47.3	4.0	65.8	31.3
Queue Length 50th (ft)	2	81	8	68	25	0	86	17
Queue Length 95th (ft)	m5	108	m17	120	54	12	109	36
Internal Link Dist (ft)		1578		4500	607			440
Turn Bay Length (ft)	125		100			50	100	
Base Capacity (vph)	381	2269	369	2441	278	413	279	370
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.51	0.20	0.45	0.13	0.18	0.41	0.11

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	15	1065	24	67	964	53	26	5	64	82	18
Future Volume (vph)	7	15	1065	24	67	964	53	26	5	64	82	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	8.0		7.5	8.0			7.5	7.5	7.5	7.5
Lane Util. Factor		1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00
Frt		1.00	1.00		1.00	0.99			1.00	0.85	1.00	0.94
Flt Protected		0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00
Satd. Flow (prot)		1770	3527		1770	3511			1788	1583	1770	1750
Flt Permitted		0.23	1.00		0.19	1.00			0.73	1.00	0.73	1.00
Satd. Flow (perm)		427	3527		351	3511			1364	1583	1367	1750
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.88	0.88	0.88	0.71	0.71
Growth Factor (vph)	71%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	5	16	1133	26	73	1048	58	30	6	73	115	25
RTOR Reduction (vph)	0	0	1	0	0	2	0	0	0	64	0	15
Lane Group Flow (vph)	0	21	1158	0	73	1104	0	0	36	9	115	27
Turn Type	pm+pt	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA
Protected Phases	1	1	6		5	2			4			8
Permitted Phases	6	6			2			4		4	8	
Actuated Green, G (s)		78.1	75.6		84.7	78.9			15.6	15.6	15.6	15.6
Effective Green, g (s)		78.1	75.6		84.7	78.9			15.6	15.6	15.6	15.6
Actuated g/C Ratio		0.65	0.63		0.71	0.66			0.13	0.13	0.13	0.13
Clearance Time (s)		7.5	8.0		7.5	8.0			7.5	7.5	7.5	7.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		305	2222		316	2308			177	205	177	227
v/s Ratio Prot		0.00	c0.33		c0.01	c0.31						0.02
v/s Ratio Perm		0.04			0.15				0.03	0.01	c0.08	
v/c Ratio		0.07	0.52		0.23	0.48			0.20	0.05	0.65	0.12
Uniform Delay, d1		7.7	12.2		7.0	10.3			46.6	45.7	49.6	46.1
Progression Factor		0.52	0.38		0.63	0.47			1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1	0.8		0.3	0.6			0.6	0.1	8.0	0.2
Delay (s)		4.1	5.4		4.8	5.4			47.2	45.8	57.6	46.4
Level of Service		A	A		A	A			D	D	E	D
Approach Delay (s)			5.4			5.4			46.3			54.6
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	14
Future Volume (vph)	14
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.81
Growth Factor (vph)	100%
Adj. Flow (vph)	17
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

14: George Avenue & E Broadway Blvd (AJ Hwy, US 11E)

07/10/2023

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	63	892	330	772	110	265	60	143
v/c Ratio	0.14	0.50	0.70	0.36	0.34	0.51	0.25	0.41
Control Delay	4.7	10.0	27.9	14.2	43.7	7.0	44.3	41.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	10.0	27.9	14.2	43.7	7.0	44.3	41.0
Queue Length 50th (ft)	6	101	195	151	76	1	40	85
Queue Length 95th (ft)	15	135	284	221	132	76	69	126
Internal Link Dist (ft)		967		986	362			831
Turn Bay Length (ft)	100		175			200	200	
Base Capacity (vph)	441	1793	630	2121	321	517	244	353
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.50	0.52	0.36	0.34	0.51	0.25	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	770	15	2	292	640	47	24	81	252	47	75
Future Volume (vph)	55	770	15	2	292	640	47	24	81	252	47	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	7.0			6.0	7.0			7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00	1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.99			1.00	0.85	1.00	0.95
Flt Protected	0.95	1.00			0.95	1.00			0.99	1.00	0.95	1.00
Satd. Flow (prot)	1770	3529			1770	3503			1842	1583	1770	1771
Flt Permitted	0.36	1.00			0.22	1.00			0.90	1.00	0.69	1.00
Satd. Flow (perm)	669	3529			418	3503			1675	1583	1278	1771
Peak-hour factor, PHF	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.95	0.95	0.95	0.78	0.78
Adj. Flow (vph)	62	875	17	2	328	719	53	25	85	265	60	96
RTOR Reduction (vph)	0	1	0	0	0	4	0	0	0	214	0	15
Lane Group Flow (vph)	63	891	0	0	330	768	0	0	110	51	60	128
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	5	2			4			8
Permitted Phases	6			2	2			4		4	8	
Actuated Green, G (s)	66.2	60.9			83.0	71.2			23.0	23.0	23.0	23.0
Effective Green, g (s)	66.2	60.9			83.0	71.2			23.0	23.0	23.0	23.0
Actuated g/C Ratio	0.55	0.51			0.69	0.59			0.19	0.19	0.19	0.19
Clearance Time (s)	6.5	7.0			6.0	7.0			7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	417	1790			470	2078			321	303	244	339
v/s Ratio Prot	0.01	0.25			c0.09	0.22						c0.07
v/s Ratio Perm	0.08				c0.39				0.07	0.03	0.05	
v/c Ratio	0.15	0.50			0.70	0.37			0.34	0.17	0.25	0.38
Uniform Delay, d1	12.5	19.5			10.7	12.7			42.0	40.5	41.1	42.3
Progression Factor	0.53	0.44			2.64	1.10			0.96	0.71	1.00	1.00
Incremental Delay, d2	0.2	0.9			4.2	0.4			2.7	1.1	2.4	3.2
Delay (s)	6.8	9.5			32.5	14.4			43.1	29.7	43.5	45.5
Level of Service	A	A			C	B			D	C	D	D
Approach Delay (s)		9.3				19.8			33.6			44.9
Approach LOS		A				B			C			D

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	37
Future Volume (vph)	37
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.78
Adj. Flow (vph)	47
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	39	775	139	682	201	145	67	144
v/c Ratio	0.07	0.37	0.28	0.30	0.78	0.38	0.55	0.48
Control Delay	2.9	5.1	8.8	12.7	67.8	12.0	62.1	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.9	5.1	8.8	12.7	67.8	12.0	62.1	44.8
Queue Length 50th (ft)	3	44	47	145	157	10	48	92
Queue Length 95th (ft)	8	58	72	166	111	11	89	140
Internal Link Dist (ft)		802		967	77			752
Turn Bay Length (ft)	100		150				200	
Base Capacity (vph)	589	2107	590	2300	429	534	202	494
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.37	0.24	0.30	0.47	0.27	0.33	0.29

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	34	689	8	11	118	587	47	20	91	80	58
Future Volume (vph)	1	34	689	8	11	118	587	47	20	91	80	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	8.0			7.0	8.0			5.5	5.5	5.5
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00	1.00	1.00
Frt		1.00	1.00			1.00	0.99			1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00			0.99	1.00	0.95
Satd. Flow (prot)		1770	3533			1770	3500			1846	1583	1770
Flt Permitted		0.39	1.00			0.31	1.00			0.85	1.00	0.40
Satd. Flow (perm)		731	3533			574	3500			1587	1583	746
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.93	0.55	0.55	0.55	0.87
Adj. Flow (vph)	1	38	766	9	12	127	631	51	36	165	145	67
RTOR Reduction (vph)	0	0	0	0	0	0	3	0	0	0	121	0
Lane Group Flow (vph)	0	39	775	0	0	139	679	0	0	201	24	67
Turn Type	pm+pt	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm
Protected Phases	1	1	6		5	5	2			4		
Permitted Phases	6	6			2	2			4		4	8
Actuated Green, G (s)		75.6	71.6			84.4	76.0			19.5	19.5	19.5
Effective Green, g (s)		75.6	71.6			84.4	76.0			19.5	19.5	19.5
Actuated g/C Ratio		0.63	0.60			0.70	0.63			0.16	0.16	0.16
Clearance Time (s)		7.0	8.0			7.0	8.0			5.5	5.5	5.5
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)		495	2108			487	2216			257	257	121
v/s Ratio Prot		0.00	c0.22			c0.02	c0.19					
v/s Ratio Perm		0.05				0.18				c0.13	0.01	0.09
v/c Ratio		0.08	0.37			0.29	0.31			0.78	0.09	0.55
Uniform Delay, d1		8.4	12.5			6.3	10.0			48.2	42.7	46.2
Progression Factor		0.44	0.34			1.34	1.18			1.00	1.40	1.00
Incremental Delay, d2		0.1	0.5			0.3	0.3			14.3	0.2	5.4
Delay (s)		3.8	4.8			8.8	12.2			62.3	60.2	51.6
Level of Service		A	A			A	B			E	E	D
Approach Delay (s)			4.7				11.6			61.4		
Approach LOS			A				B			E		

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	91	34
Future Volume (vph)	91	34
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	
Lane Util. Factor	1.00	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	1787	
Flt Permitted	1.00	
Satd. Flow (perm)	1787	
Peak-hour factor, PHF	0.87	0.87
Adj. Flow (vph)	105	39
RTOR Reduction (vph)	13	0
Lane Group Flow (vph)	131	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	19.5	
Effective Green, g (s)	19.5	
Actuated g/C Ratio	0.16	
Clearance Time (s)	5.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	290	
v/s Ratio Prot	0.07	
v/s Ratio Perm		
v/c Ratio	0.45	
Uniform Delay, d1	45.4	
Progression Factor	1.00	
Incremental Delay, d2	1.1	
Delay (s)	46.6	
Level of Service	D	
Approach Delay (s)	48.2	
Approach LOS	D	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	5	752	253	83	589	312	105	58	22
v/c Ratio	0.01	0.42	0.21	0.21	0.28	0.65	0.36	0.36	0.07
Control Delay	12.5	22.6	1.4	4.5	4.5	42.9	11.2	57.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	22.6	1.4	4.5	4.5	42.9	11.2	57.7	0.5
Queue Length 50th (ft)	2	203	0	8	31	122	31	43	0
Queue Length 95th (ft)	7	269	21	19	56	64	8	85	0
Internal Link Dist (ft)		4665			802		1193	625	
Turn Bay Length (ft)	75		175	100		250			
Base Capacity (vph)	492	1791	1250	410	2077	615	357	289	407
Starvation Cap Reductn	0	0	0	0	0	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	0.01	0.42	0.20	0.20	0.28	0.51	0.29	0.20	0.05

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	4	624	210	1	73	519	5	259	29	58	19	33
Future Volume (vph)	4	624	210	1	73	519	5	259	29	58	19	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	8.0	8.5		7.0	8.0		8.5	8.5			6.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95		0.97	1.00			1.00
Frt	1.00	1.00	0.85		1.00	1.00		1.00	0.90			1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)	1770	3539	1583		1770	3534		3433	1676			1830
Flt Permitted	0.43	1.00	1.00		0.28	1.00		0.95	1.00			0.98
Satd. Flow (perm)	800	3539	1583		522	3534		3433	1676			1830
Peak-hour factor, PHF	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.83	0.83	0.83	0.89	0.89
Adj. Flow (vph)	5	752	253	1	82	583	6	312	35	70	21	37
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	60	0	0	0
Lane Group Flow (vph)	5	752	158	0	83	589	0	312	45	0	0	58
Turn Type	pm+pt	NA	pm+ov	pm+pt	pm+pt	NA		Split	NA		Split	NA
Protected Phases	1	6	3	5	5	2		3	3		4	4
Permitted Phases	6		6	2	2				3			
Actuated Green, G (s)	59.4	58.2	75.1		70.6	63.8		16.9	16.9			8.6
Effective Green, g (s)	59.4	58.2	75.1		70.6	63.8		16.9	16.9			8.6
Actuated g/C Ratio	0.49	0.49	0.63		0.59	0.53		0.14	0.14			0.07
Clearance Time (s)	7.0	8.0	8.5		7.0	8.0		8.5	8.5			6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)	405	1716	990		377	1878		483	236			131
v/s Ratio Prot	0.00	c0.21	0.02		c0.01	c0.17		c0.09	0.03			c0.03
v/s Ratio Perm	0.01		0.08		0.12							
v/c Ratio	0.01	0.44	0.16		0.22	0.31		0.65	0.19			0.44
Uniform Delay, d1	15.3	20.2	9.3		11.7	15.8		48.7	45.5			53.4
Progression Factor	1.00	1.00	1.00		0.29	0.28		0.75	0.45			1.00
Incremental Delay, d2	0.0	0.8	0.1		0.3	0.4		2.9	0.4			2.4
Delay (s)	15.4	21.0	9.4		3.7	4.9		39.7	20.7			55.8
Level of Service	B	C	A		A	A		D	C			E
Approach Delay (s)		18.1				4.8			34.9			54.7
Approach LOS		B				A			C			D

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	20
Future Volume (vph)	20
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	22
RTOR Reduction (vph)	20
Lane Group Flow (vph)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	8.6
Effective Green, g (s)	8.6
Actuated g/C Ratio	0.07
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	113
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.01
Uniform Delay, d1	51.8
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	51.8
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	10	328	5	430	72	198	220
v/c Ratio	0.02	0.14	0.01	0.19	0.26	0.46	0.91
Control Delay	9.0	8.5	1.2	0.6	37.8	35.4	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	8.5	1.2	0.6	37.8	35.4	63.7
Queue Length 50th (ft)	3	48	0	0	46	112	137
Queue Length 95th (ft)	9	66	1	3	39	69	208
Internal Link Dist (ft)		1193		1497		739	871
Turn Bay Length (ft)	100		100		125		
Base Capacity (vph)	612	2292	676	2247	616	929	547
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.14	0.01	0.19	0.12	0.21	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	276	26	4	275	90	34	62	31	130	55	8
Future Volume (vph)	9	276	26	4	275	90	34	62	31	130	55	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	3494		1770	3408		1770	1770			1792	
Flt Permitted	0.50	1.00		0.55	1.00		0.64	1.00			0.57	
Satd. Flow (perm)	934	3494		1031	3408		1194	1770			1058	
Peak-hour factor, PHF	0.92	0.92	0.92	0.85	0.85	0.85	0.47	0.47	0.47	0.88	0.88	0.88
Adj. Flow (vph)	10	300	28	5	324	106	72	132	66	148	62	9
RTOR Reduction (vph)	0	3	0	0	14	0	0	24	0	0	2	0
Lane Group Flow (vph)	10	325	0	5	416	0	72	174	0	0	218	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	78.6	78.6		78.6	78.6		27.4	27.4			27.4	
Effective Green, g (s)	78.6	78.6		78.6	78.6		27.4	27.4			27.4	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.23	0.23			0.23	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	611	2288		675	2232		272	404			241	
v/s Ratio Prot		0.09			c0.12			0.10				
v/s Ratio Perm	0.01			0.00			0.06				c0.21	
v/c Ratio	0.02	0.14		0.01	0.19		0.26	0.43			0.90	
Uniform Delay, d1	7.2	7.9		7.2	8.1		38.0	39.6			45.0	
Progression Factor	0.89	0.96		0.11	0.05		1.00	1.00			0.61	
Incremental Delay, d2	0.0	0.1		0.0	0.2		0.5	0.7			32.8	
Delay (s)	6.5	7.7		0.8	0.6		38.5	40.4			60.4	
Level of Service	A	A		A	A		D	D			E	
Approach Delay (s)		7.6			0.6			39.9			60.4	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NBT	NBR	SBT	SBR	SEL	SET	NWL	NWT	NWR
Lane Group Flow (vph)	34	9	391	15	16	497	16	399	441
v/c Ratio	0.06	0.01	0.84	0.02	0.03	0.29	0.03	0.23	0.44
Control Delay	21.9	0.0	56.3	1.2	9.6	12.5	16.8	21.4	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	0.0	56.3	1.2	9.6	12.5	16.8	21.4	4.2
Queue Length 50th (ft)	17	0	294	0	3	55	6	83	0
Queue Length 95th (ft)	30	0	379	m0	m10	150	19	157	53
Internal Link Dist (ft)	56		1373			1497		1102	
Turn Bay Length (ft)				150	100		100		175
Base Capacity (vph)	726	793	618	787	526	1725	481	1725	997
Starvation Cap Reductn	0	0	0	0	0	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	0.05	0.01	0.63	0.02	0.03	0.29	0.03	0.23	0.44

Intersection Summary

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

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	11	16	7	338	18	14	14	431	12	14	339	375
Future Volume (vph)	11	16	7	338	18	14	14	431	12	14	339	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98	1.00		0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1825	1583		1778	1583	1770	3525		1770	3539	1583
Flt Permitted		0.83	1.00		0.71	1.00	0.50	1.00		0.44	1.00	1.00
Satd. Flow (perm)		1543	1583		1326	1583	926	3525		820	3539	1583
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	14	20	9	371	20	15	16	484	13	16	399	441
RTOR Reduction (vph)	0	0	6	0	0	10	0	1	0	0	0	239
Lane Group Flow (vph)	0	34	3	0	391	5	16	496	0	16	399	202
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		2
Actuated Green, G (s)		42.9	42.9		42.4	42.4	58.1	55.4		57.6	54.9	54.9
Effective Green, g (s)		42.9	42.9		42.4	42.4	58.1	55.4		57.6	54.9	54.9
Actuated g/C Ratio		0.36	0.36		0.35	0.35	0.48	0.46		0.48	0.46	0.46
Clearance Time (s)		6.5	6.5		7.0	7.0	6.0	7.0		5.5	7.0	7.0
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)		551	565		468	559	467	1627		414	1619	724
v/s Ratio Prot							0.00	c0.14		c0.00	0.11	
v/s Ratio Perm		0.02	0.00		c0.29	0.00	0.02			0.02		0.13
v/c Ratio		0.06	0.01		0.84	0.01	0.03	0.30		0.04	0.25	0.28
Uniform Delay, d1		25.3	24.8		35.6	25.2	16.1	20.2		16.4	19.9	20.2
Progression Factor		1.00	1.00		1.21	1.00	0.56	0.56		1.00	1.00	1.00
Incremental Delay, d2		0.0	0.0		11.0	0.0	0.0	0.5		0.0	0.4	1.0
Delay (s)		25.4	24.8		54.1	25.2	9.1	11.9		16.5	20.3	21.2
Level of Service		C	C		D	C	A	B		B	C	C
Approach Delay (s)		25.3			53.0			11.8			20.7	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	112	720	8	50	777	31	84	41	162
v/c Ratio	0.22	0.31	0.01	0.09	0.36	0.19	0.20	0.30	0.55
Control Delay	4.1	8.5	0.0	3.5	9.8	42.6	8.1	46.1	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	8.5	0.0	3.5	9.8	42.6	8.1	46.1	14.2
Queue Length 50th (ft)	13	94	0	6	106	18	0	23	0
Queue Length 95th (ft)	29	143	0	14	148	45	34	51	44
Internal Link Dist (ft)		4815			1019	1334		2564	
Turn Bay Length (ft)	300		400	300			150		
Base Capacity (vph)	646	2289	1057	662	2162	513	540	437	592
Starvation Cap Reductn	0	0	0	0	0	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	0.17	0.31	0.01	0.08	0.36	0.06	0.16	0.09	0.27

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	101	648	7	1	41	635	18	6	21	74	23	11
Future Volume (vph)	101	648	7	1	41	635	18	6	21	74	23	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0		6.0	7.0			7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95			1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00			1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.99	1.00		0.97
Satd. Flow (prot)	1770	3539	1583		1770	3525			1842	1583		1801
Flt Permitted	0.32	1.00	1.00		0.38	1.00			0.91	1.00		0.78
Satd. Flow (perm)	604	3539	1583		700	3525			1695	1583		1446
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.84	0.88	0.88	0.88	0.82	0.82
Adj. Flow (vph)	112	720	8	1	49	756	21	7	24	84	28	13
RTOR Reduction (vph)	0	0	3	0	0	1	0	0	0	65	0	0
Lane Group Flow (vph)	112	720	5	0	50	776	0	0	31	19	0	41
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA		Perm	NA	pt+ov	Perm	NA
Protected Phases	1	6		5!	5	2			4	4 5!		8
Permitted Phases	6		6	2!	2			4			8	
Actuated Green, G (s)	67.9	60.9	60.9		64.1	59.0			8.9	21.5		8.9
Effective Green, g (s)	67.9	60.9	60.9		64.1	59.0			8.9	21.5		8.9
Actuated g/C Ratio	0.71	0.64	0.64		0.67	0.62			0.09	0.23		0.09
Clearance Time (s)	6.0	7.0	7.0		6.0	7.0			7.5			7.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	515	2259	1010		527	2180			158	356		134
v/s Ratio Prot	c0.02	0.20			0.01	c0.22				0.01		
v/s Ratio Perm	0.14		0.00		0.06				0.02			c0.03
v/c Ratio	0.22	0.32	0.01		0.09	0.36			0.20	0.05		0.31
Uniform Delay, d1	4.4	7.8	6.3		5.3	8.9			39.9	29.0		40.4
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	0.2	0.4	0.0		0.1	0.5			0.6	0.1		1.3
Delay (s)	4.6	8.2	6.3		5.4	9.4			40.6	29.0		41.7
Level of Service	A	A	A		A	A			D	C		D
Approach Delay (s)		7.7				9.1			32.1			40.3
Approach LOS		A				A			C			D

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	20.5
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	133
Future Volume (vph)	133
Ideal Flow (vphpl)	1900
Total Lost time (s)	7.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	162
RTOR Reduction (vph)	147
Lane Group Flow (vph)	15
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	8.9
Effective Green, g (s)	8.9
Actuated g/C Ratio	0.09
Clearance Time (s)	7.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	147
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.10
Uniform Delay, d1	39.6
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	39.9
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

APPENDIX H: SYNCHRO REPORTS

PART 12 OPTIMIZED 2047 AM PEAK

Queues
1: Odell Avenue & E Broadway Blvd (AJ Hwy, US 11E)

03/23/2023

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	15	1092	10	1103	64	50
v/c Ratio	0.05	0.48	0.03	0.50	0.18	0.13
Control Delay	1.5	4.2	1.3	2.9	14.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.5	4.2	1.3	2.9	14.8	0.7
Queue Length 50th (ft)	0	15	0	25	7	0
Queue Length 95th (ft)	m1	250	m1	35	16	0
Internal Link Dist (ft)		992		1578	842	607
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	347	2295	346	2198	353	379
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.48	0.03	0.50	0.18	0.13

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	723	2	5	2	763	22	4	2	23	11	0
Future Volume (vph)	10	723	2	5	2	763	22	4	2	23	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	7.5			6.0	7.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.89			0.92
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.98
Satd. Flow (prot)	1770	3538			1770	3524			1651			1682
Flt Permitted	0.20	1.00			0.22	1.00			0.96			0.87
Satd. Flow (perm)	368	3538			406	3524			1600			1494
Peak-hour factor, PHF	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.56	0.56	0.56	0.65	0.65
Growth Factor (vph)	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%
Adj. Flow (vph)	15	1089	3	7	3	1072	31	9	4	51	21	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	41	0	0	40
Lane Group Flow (vph)	15	1092	0	0	10	1101	0	0	23	0	0	10
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA		Perm	NA
Protected Phases	1	6		5	5	2			4			8
Permitted Phases	6			2	2			4			8	
Actuated Green, G (s)	65.8	63.3			62.7	61.5			20.5			20.5
Effective Green, g (s)	65.8	63.3			62.7	61.5			20.5			20.5
Actuated g/C Ratio	0.63	0.60			0.60	0.59			0.20			0.20
Clearance Time (s)	6.5	7.5			6.0	7.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	263	2132			258	2064			312			291
v/s Ratio Prot	c0.00	0.31			0.00	c0.31						
v/s Ratio Perm	0.03				0.02				c0.01			0.01
v/c Ratio	0.06	0.51			0.04	0.53			0.07			0.03
Uniform Delay, d1	8.5	12.0			9.1	13.1			34.5			34.2
Progression Factor	0.24	0.37			0.23	0.18			1.00			1.00
Incremental Delay, d2	0.1	0.7			0.1	0.9			0.5			0.2
Delay (s)	2.1	5.1			2.1	3.3			35.0			34.4
Level of Service	A	A			A	A			C			C
Approach Delay (s)		5.0				3.3			35.0			34.4
Approach LOS		A				A			C			C

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.65
Growth Factor (vph)	125%
Adj. Flow (vph)	29
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

4: Old AJ Hwy/Old AJ Hwy (SR 92) & W Broadway Blvd (AJ Hwy, US 11E) 03/23/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	105	983	24	109	790	23	67	161	206
v/c Ratio	0.23	0.52	0.03	0.29	0.40	0.08	0.12	0.67	0.47
Control Delay	7.4	16.6	0.1	8.1	13.8	32.9	7.3	50.5	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	16.6	0.1	8.1	13.8	32.9	7.3	50.5	8.6
Queue Length 50th (ft)	18	187	0	19	139	12	3	92	0
Queue Length 95th (ft)	42	272	0	47	223	30	25	132	32
Internal Link Dist (ft)		4815			1019	1334		2564	
Turn Bay Length (ft)	300		400	300			150		
Base Capacity (vph)	479	1881	892	435	1989	455	573	387	579
Starvation Cap Reductn	0	0	0	0	0	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	0.22	0.52	0.03	0.25	0.40	0.05	0.12	0.42	0.36

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	70	653	16	4	74	545	24	4	11	44	74	25
Future Volume (vph)	70	653	16	4	74	545	24	4	11	44	74	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0		6.0	7.0			7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95			1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.99			1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.99	1.00		0.96
Satd. Flow (prot)	1770	3539	1583		1770	3517			1839	1583		1796
Flt Permitted	0.33	1.00	1.00		0.22	1.00			0.90	1.00		0.77
Satd. Flow (perm)	607	3539	1583		415	3517			1677	1583		1427
Peak-hour factor, PHF	0.83	0.83	0.83	0.90	0.90	0.90	0.90	0.82	0.82	0.82	0.77	0.77
Growth Factor (vph)	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%
Adj. Flow (vph)	105	983	24	6	103	757	33	6	17	67	120	41
RTOR Reduction (vph)	0	0	11	0	0	3	0	0	0	41	0	0
Lane Group Flow (vph)	105	983	13	0	109	787	0	0	23	26	0	161
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA		Perm	NA	pt+ov	Perm	NA
Protected Phases	1	6		5!	5	2			4	4 5!		8
Permitted Phases	6		6	2!	2			4			8	
Actuated Green, G (s)	57.3	51.5	51.5		60.9	53.3			16.0	31.1		16.0
Effective Green, g (s)	57.3	51.5	51.5		60.9	53.3			16.0	31.1		16.0
Actuated g/C Ratio	0.60	0.54	0.54		0.64	0.56			0.17	0.33		0.17
Clearance Time (s)	6.0	7.0	7.0		6.0	7.0			7.5			7.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	434	1906	852		372	1960			280	514		238
v/s Ratio Prot	0.01	c0.28			c0.02	0.22				0.02		
v/s Ratio Perm	0.13		0.01		0.16				0.01			c0.11
v/c Ratio	0.24	0.52	0.02		0.29	0.40			0.08	0.05		0.68
Uniform Delay, d1	8.3	14.1	10.3		7.7	12.1			33.6	22.1		37.4
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00		1.00
Incremental Delay, d2	0.3	1.0	0.0		0.4	0.6			0.1	0.0		7.4
Delay (s)	8.5	15.1	10.3		8.2	12.7			33.7	22.2		44.8
Level of Service	A	B	B		A	B			C	C		D
Approach Delay (s)		14.4				12.1			25.1			38.8
Approach LOS		B				B			C			D

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	95.6	Sum of lost time (s)	20.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	127
Future Volume (vph)	127
Ideal Flow (vphpl)	1900
Total Lost time (s)	7.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.77
Growth Factor (vph)	125%
Adj. Flow (vph)	206
RTOR Reduction (vph)	172
Lane Group Flow (vph)	34
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	16.0
Effective Green, g (s)	16.0
Actuated g/C Ratio	0.17
Clearance Time (s)	7.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	264
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.13
Uniform Delay, d1	33.9
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	34.1
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	SET	SER	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	59	52	25	62	1004	20	913	45
v/c Ratio	0.39	0.17	0.07	0.14	0.41	0.05	0.40	0.04
Control Delay	52.9	1.2	0.4	4.5	13.3	7.3	13.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	1.2	0.4	4.5	13.3	7.3	13.5	0.1
Queue Length 50th (ft)	38	0	0	0	0	3	139	0
Queue Length 95th (ft)	79	0	0	m24	m379	14	275	0
Internal Link Dist (ft)	741		83		1762		6121	
Turn Bay Length (ft)				125		75		250
Base Capacity (vph)	177	331	334	459	2477	417	2304	1096
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.16	0.07	0.14	0.41	0.05	0.40	0.04

Intersection Summary

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Traffic Volume (vph)	42	2	39	3	0	4	2	41	690	9	2	12
Future Volume (vph)	42	2	39	3	0	4	2	41	690	9	2	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5		6.0			6.5	8.0			7.5
Lane Util. Factor		1.00	1.00		1.00			1.00	0.95			1.00
Frt		1.00	0.85		0.92			1.00	1.00			1.00
Flt Protected		0.95	1.00		0.98			0.95	1.00			0.95
Satd. Flow (prot)		1778	1583		1685			1770	3532			1770
Flt Permitted		0.95	1.00		0.98			0.26	1.00			0.25
Satd. Flow (perm)		1778	1583		1685			486	3532			464
Peak-hour factor, PHF	0.94	0.94	0.94	0.35	0.35	0.35	0.87	0.87	0.87	0.87	0.88	0.88
Growth Factor (vph)	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%
Adj. Flow (vph)	56	3	52	11	0	14	3	59	991	13	3	17
RTOR Reduction (vph)	0	0	48	0	24	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	59	4	0	1	0	0	62	1003	0	0	20
Turn Type	Split	NA	Perm	Split	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	4	4		3	3		1	1	6		5	5
Permitted Phases			4				6	6			2	2
Actuated Green, G (s)		7.4	7.4		3.6			68.0	62.4			63.0
Effective Green, g (s)		7.4	7.4		3.6			68.0	62.4			63.0
Actuated g/C Ratio		0.07	0.07		0.03			0.65	0.59			0.60
Clearance Time (s)		7.5	7.5		6.0			6.5	8.0			7.5
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0			3.0
Lane Grp Cap (vph)		125	111		57			383	2099			310
v/s Ratio Prot		c0.03			c0.00			c0.01	c0.28			0.00
v/s Ratio Perm			0.00					0.10				0.04
v/c Ratio		0.47	0.03		0.02			0.16	0.48			0.06
Uniform Delay, d1		46.9	45.5		49.0			7.3	12.1			8.8
Progression Factor		1.00	1.00		1.00			0.66	1.14			1.00
Incremental Delay, d2		2.8	0.1		0.1			0.1	0.6			0.1
Delay (s)		49.7	45.6		49.1			4.9	14.3			8.9
Level of Service		D	D		D			A	B			A
Approach Delay (s)		47.8			49.1				13.8			
Approach LOS		D			D				B			

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations	↑↑	↱
Traffic Volume (vph)	643	32
Future Volume (vph)	643	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	8.0
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3539	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3539	1583
Peak-hour factor, PHF	0.88	0.88
Growth Factor (vph)	125%	125%
Adj. Flow (vph)	913	45
RTOR Reduction (vph)	0	19
Lane Group Flow (vph)	913	26
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	60.4	60.4
Effective Green, g (s)	60.4	60.4
Actuated g/C Ratio	0.58	0.58
Clearance Time (s)	8.0	8.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2035	910
v/s Ratio Prot	0.26	
v/s Ratio Perm		0.02
v/c Ratio	0.45	0.03
Uniform Delay, d1	12.8	9.6
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.1
Delay (s)	13.5	9.7
Level of Service	B	A
Approach Delay (s)	13.2	
Approach LOS	B	

Intersection Summary

Queues

7: E Broadway Blvd (AJ Hwy, US 11E) & N Chucky Pike

03/23/2023

Lane Group	NBT	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	289	202	108	180	858	67	50	856	60
v/c Ratio	0.93	0.75	0.27	0.71	0.67	0.10	0.21	0.79	0.10
Control Delay	77.2	59.3	1.6	45.6	36.6	1.3	7.6	27.7	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	59.3	1.6	45.6	36.6	1.3	7.6	27.7	1.8
Queue Length 50th (ft)	181	130	0	93	253	0	19	282	1
Queue Length 95th (ft)	#317	200	0	#168	221	9	8	360	15
Internal Link Dist (ft)	1277	993			4500			1762	
Turn Bay Length (ft)			150	250		50	75		150
Base Capacity (vph)	314	316	441	252	1282	699	234	1090	624
Starvation Cap Reductn	0	0	0	0	0	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	0.92	0.64	0.24	0.71	0.67	0.10	0.21	0.79	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.