Existing + 2030 Project AM Mitigated

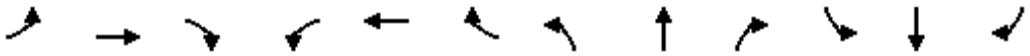
Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Airport/Skylane

Cycle (sec):	100	Critical Vol./Cap.(X):	0.660	
Loss Time (sec):	0	Average Delay (sec/veh):	17.6	
Optimal Cycle:	0	Level Of Service:	C	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	32	90	130	270	134	71	34	105	18	94	245	161
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	90	130	270	134	71	34	105	18	94	245	161
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	36	100	144	300	149	79	38	117	20	104	272	179
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	100	144	300	149	79	38	117	20	104	272	179
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	36	100	144	300	149	79	38	117	20	104	272	179
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.41	0.59	1.00	0.65	0.35	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	417	194	281	454	325	172	365	387	413	420	451	491
Capacity Analysis Module:												
Vol/Sat:	0.09	0.51	0.51	0.66	0.46	0.46	0.10	0.30	0.05	0.25	0.60	0.36
Crit Moves:			****	****				****			****	
Delay/Veh:	11.6	16.9	16.9	23.6	15.2	15.2	12.9	14.7	11.0	13.6	20.9	13.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.6	16.9	16.9	23.6	15.2	15.2	12.9	14.7	11.0	13.6	20.9	13.5
LOS by Move:	B	C	C	C	C	C	B	B	B	B	C	B
ApproachDel:	16.2			20.0			13.9			17.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	16.2			20.0			13.9			17.2		
LOS by Appr:	C			C			B			C		
AllWayAvgQ:	0.1	0.9	0.9	1.7	0.8	0.8	0.1	0.4	0.0	0.3	1.3	0.5

Note: Queue reported is the number of cars per lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	105	18	94	245	161	32	90	130	270	134	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1810	1517	1752	1810	1523	1752	1663		1752	1733	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1810	1517	1752	1810	1523	1752	1663		1752	1733	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	115	20	103	269	177	35	99	143	297	147	78
RTOR Reduction (vph)	0	0	16	0	0	129	0	85	0	0	30	0
Lane Group Flow (vph)	37	115	4	103	269	48	35	157	0	297	195	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	1.4	10.2	10.2	5.7	14.5	14.5	1.4	12.1		12.8	23.5	
Effective Green, g (s)	2.4	11.2	11.2	6.7	15.5	15.5	2.4	13.1		13.8	24.5	
Actuated g/C Ratio	0.04	0.20	0.20	0.12	0.27	0.27	0.04	0.23		0.24	0.43	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	74	357	299	207	494	416	74	384		426	748	
v/s Ratio Prot	0.02	0.06		c0.06	c0.15		0.02	c0.09		c0.17	0.11	
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.50	0.32	0.01	0.50	0.54	0.12	0.47	0.41		0.70	0.26	
Uniform Delay, d1	26.6	19.5	18.4	23.5	17.6	15.5	26.6	18.6		19.6	10.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.2	0.5	0.0	1.9	1.2	0.1	4.7	0.7		4.9	0.2	
Delay (s)	31.8	20.1	18.4	25.4	18.9	15.6	31.3	19.3		24.5	10.5	
Level of Service	C	C	B	C	B	B	C	B		C	B	
Approach Delay (s)		22.4			19.0			20.8			18.5	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing + 2015 Project AM Mitigated

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Airport/Skylane

Cycle (sec):	100	Critical Vol./Cap.(X):	0.601	
Loss Time (sec):	0	Average Delay (sec/veh):	14.2	
Optimal Cycle:	0	Level Of Service:	B	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	23	92	127	271	128	32	24	80	15	67	122	161
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	92	127	271	128	32	24	80	15	67	122	161
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	26	102	141	301	142	36	27	89	17	74	136	179
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	102	141	301	142	36	27	89	17	74	136	179
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	102	141	301	142	36	27	89	17	74	136	179
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.42	0.58	1.00	0.80	0.20	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	465	224	310	501	436	109	399	424	459	442	473	521
Capacity Analysis Module:												
Vol/Sat:	0.05	0.46	0.46	0.60	0.33	0.33	0.07	0.21	0.04	0.17	0.29	0.34
Crit Moves:		****		****				****				****
Delay/Veh:	10.5	14.0	14.0	19.2	12.0	12.0	11.6	12.4	10.1	11.9	12.6	12.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.5	14.0	14.0	19.2	12.0	12.0	11.6	12.4	10.1	11.9	12.6	12.4
LOS by Move:	B	B	B	C	B	B	B	B	B	B	B	B
ApproachDel:	13.7			16.5			11.9			12.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	13.7			16.5			11.9			12.4		
LOS by Appr:	B			C			B			B		
AllWayAvgQ:	0.1	0.7	0.7	1.3	0.4	0.4	0.1	0.2	0.0	0.2	0.4	0.5

Note: Queue reported is the number of cars per lane.

Existing + 2030 Project PM Mitigated

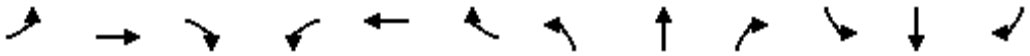
Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Airport/Skylane

Cycle (sec):	100	Critical Vol./Cap.(X):	0.828	
Loss Time (sec):	0	Average Delay (sec/veh):	22.2	
Optimal Cycle:	0	Level Of Service:	C	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	18	94	78	171	174	43	18	308	49	115	200	235
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	94	78	171	174	43	18	308	49	115	200	235
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	20	104	87	190	193	48	20	342	54	128	222	261
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	104	87	190	193	48	20	342	54	128	222	261
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	104	87	190	193	48	20	342	54	128	222	261
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.55	0.45	1.00	0.80	0.20	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	374	228	189	409	355	88	379	413	436	398	424	464
Capacity Analysis Module:												
Vol/Sat:	0.05	0.46	0.46	0.46	0.54	0.54	0.05	0.83	0.12	0.32	0.52	0.56
Crit Moves:		****				****		****				****
Delay/Veh:	12.2	17.0	17.0	18.0	19.0	19.0	12.3	39.5	11.6	15.4	19.2	19.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.2	17.0	17.0	18.0	19.0	19.0	12.3	39.5	11.6	15.4	19.2	19.1
LOS by Move:	B	C	C	C	C	C	B	E	B	C	C	C
ApproachDel:	16.5			18.6			34.6			18.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	16.5			18.6			34.6			18.4		
LOS by Appr:	C			C			D			C		
AllWayAvgQ:	0.0	0.7	0.7	0.8	1.0	1.0	0.1	3.2	0.1	0.4	1.0	1.1

Note: Queue reported is the number of cars per lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	308	49	115	200	235	18	94	78	115	200	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.92		1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3361		1752	3142		1752	1705		1752	1681	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3361		1752	3142		1752	1705		1752	1681	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	78	338	54	126	220	258	20	103	86	126	220	258
RTOR Reduction (vph)	0	20	0	0	189	0	0	55	0	0	75	0
Lane Group Flow (vph)	78	372	0	126	289	0	20	134	0	126	403	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.1	9.4		5.0	12.3		0.6	13.0		6.1	18.5	
Effective Green, g (s)	3.1	10.4		6.0	13.3		1.6	14.0		7.1	19.5	
Actuated g/C Ratio	0.06	0.21		0.12	0.27		0.03	0.28		0.14	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	706		212	844		57	482		251	662	
v/s Ratio Prot	c0.04	c0.11		0.07	c0.09		0.01	0.08		c0.07	c0.24	
v/s Ratio Perm												
v/c Ratio	0.71	0.53		0.59	0.34		0.35	0.28		0.50	0.61	
Uniform Delay, d1	22.8	17.4		20.6	14.6		23.4	13.8		19.6	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.8	0.7		4.4	0.2		3.7	0.3		1.6	1.6	
Delay (s)	41.6	18.1		25.0	14.8		27.1	14.1		21.1	13.5	
Level of Service	D	B		C	B		C	B		C	B	
Approach Delay (s)		22.0			17.0			15.4			15.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing + 2015 Project PM Mitigated

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Airport/Skylane

Cycle (sec):	100	Critical Vol./Cap.(X):	0.491	
Loss Time (sec):	0	Average Delay (sec/veh):	13.9	
Optimal Cycle:	0	Level Of Service:	B	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	13	88	53	171	174	28	35	151	34	109	115	236
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	88	53	171	174	28	35	151	34	109	115	236
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	14	98	59	190	193	31	39	168	38	121	128	262
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	98	59	190	193	31	39	168	38	121	128	262
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	98	59	190	193	31	39	168	38	121	128	262
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.62	0.38	1.00	0.86	0.14	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	427	296	179	467	436	70	412	441	478	451	481	535
Capacity Analysis Module:												
Vol/Sat:	0.03	0.33	0.33	0.41	0.44	0.44	0.09	0.38	0.08	0.27	0.27	0.49
Crit Moves:			****			****		****				****
Delay/Veh:	10.9	13.0	13.0	14.9	14.6	14.6	11.7	14.7	10.3	13.1	12.4	14.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.9	13.0	13.0	14.9	14.6	14.6	11.7	14.7	10.3	13.1	12.4	14.9
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
ApproachDel:	12.8			14.7			13.6			13.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	12.8			14.7			13.6			13.8		
LOS by Appr:	B			B			B			B		
AllWayAvgQ:	0.0	0.4	0.4	0.6	0.7	0.7	0.1	0.5	0.1	0.3	0.3	0.8

Note: Queue reported is the number of cars per lane.

Existing + 2030 Project AM Mitigated

Level Of Service Computation Report
FHWA Roundabout Method (Base Volume Alternative)

****

Intersection #2 River/Woolsy

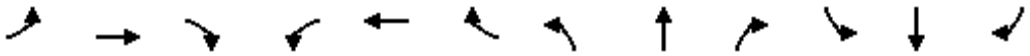
****

Average Delay (sec/veh): 5.8 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Yield Sign			Yield Sign			Yield Sign			Yield Sign		
Lanes:	1			2			1			1		
Volume Module:												
Base Vol:	1	10	35	47	5	25	135	335	1	18	275	225
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	10	35	47	5	25	135	335	1	18	275	225
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	1	11	39	52	6	28	150	372	1	20	306	250
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	11	39	52	6	28	150	372	1	20	306	250
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	11	39	52	6	28	150	372	1	20	306	250
PCE Module:												
AutoPCE:	1	11	39	52	6	28	150	372	1	20	306	250
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	1	11	39	52	6	28	150	372	1	20	306	250

Delay Module: >> Time Period: 0.25 hours <<				
CircVolume:	574	327	78	162
MaxVolume:	890	2189	1158	1112
PedVolume:	0	0	0	0
AdjMaxVol:	890	2189	1158	1112
ApproachVol:	51	86	523	576
ApproachV/C:	0.06	0.04	0.45	0.52
ApproachDel:	4.3	1.7	5.6	6.7
ApproachLOS:	A	A	A	A
Queue:	0.2	0.1	2.4	3.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	335	1	18	275	225	1	10	35	47	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.93			0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (prot)	1719	1809		1719	1687			1622			1679	
Flt Permitted	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (perm)	1719	1809		1719	1687			1622			1679	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	148	368	1	20	302	247	1	11	38	52	5	27
RTOR Reduction (vph)	0	0	0	0	42	0	0	35	0	0	25	0
Lane Group Flow (vph)	148	369	0	20	507	0	0	15	0	0	59	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	5.4	31.3		0.6	26.5			2.8			2.9	
Effective Green, g (s)	6.4	32.3		1.6	27.5			3.8			3.9	
Actuated g/C Ratio	0.12	0.60		0.03	0.51			0.07			0.07	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	205	1090		51	866			115			122	
v/s Ratio Prot	c0.09	0.20		0.01	c0.30			c0.01			c0.04	
v/s Ratio Perm												
v/c Ratio	0.72	0.34		0.39	0.59			0.13			0.48	
Uniform Delay, d1	22.7	5.3		25.5	9.1			23.3			23.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	11.8	0.2		4.9	1.0			0.5			3.0	
Delay (s)	34.6	5.5		30.4	10.1			23.8			26.9	
Level of Service	C	A		C	B			C			C	
Approach Delay (s)		13.8			10.8			23.8			26.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Existing + 2015 Project AM Mitigated

Level Of Service Computation Report
FHWA Roundabout Method (Base Volume Alternative)

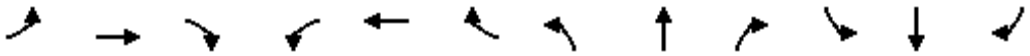
Intersection #2 River/Woolsy

Average Delay (sec/veh): 5.6 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Yield Sign			Yield Sign			Yield Sign			Yield Sign		
Lanes:	1			2			1			1		
Volume Module:												
Base Vol:	1	10	35	45	5	21	124	339	1	18	277	203
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	10	35	45	5	21	124	339	1	18	277	203
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	1	11	39	50	6	23	138	377	1	20	308	226
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	11	39	50	6	23	138	377	1	20	308	226
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	11	39	50	6	23	138	377	1	20	308	226
PCE Module:												
AutoPCE:	1	11	39	50	6	23	138	377	1	20	308	226
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	1	11	39	50	6	23	138	377	1	20	308	226

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	564	329	76	150
MaxVolume:	895	2187	1159	1119
PedVolume:	0	0	0	0
AdjMaxVol:	895	2187	1159	1119
ApproachVol:	51	79	516	553
ApproachV/C:	0.06	0.04	0.44	0.49
ApproachDel:	4.3	1.7	5.6	6.3
ApproachLOS:	A	A	A	A
Queue:	0.2	0.1	2.3	2.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	339	1	18	277	203	1	10	35	45	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.94			0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (prot)	1719	1809		1719	1695			1622			1683	
Flt Permitted	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (perm)	1719	1809		1719	1695			1622			1683	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	136	373	1	20	304	223	1	11	38	49	5	23
RTOR Reduction (vph)	0	0	0	0	38	0	0	35	0	0	21	0
Lane Group Flow (vph)	136	374	0	20	489	0	0	15	0	0	56	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	5.5	30.9		0.6	26.0			2.8			2.8	
Effective Green, g (s)	6.5	31.9		1.6	27.0			3.8			3.8	
Actuated g/C Ratio	0.12	0.60		0.03	0.51			0.07			0.07	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	210	1087		52	862			116			120	
v/s Ratio Prot	c0.08	0.21		0.01	c0.29			c0.01			c0.03	
v/s Ratio Perm												
v/c Ratio	0.65	0.34		0.38	0.57			0.13			0.46	
Uniform Delay, d1	22.2	5.3		25.3	9.0			23.1			23.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	6.7	0.2		4.7	0.9			0.5			2.8	
Delay (s)	28.9	5.5		29.9	9.9			23.6			26.5	
Level of Service	C	A		C	A			C			C	
Approach Delay (s)		11.8			10.6			23.6			26.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Existing + 2030 Project PM Mitigated

Level Of Service Computation Report
FHWA Roundabout Method (Base Volume Alternative)

Intersection #2 River/Woolsy

Average Delay (sec/veh): 5.6 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Yield Sign			Yield Sign			Yield Sign			Yield Sign		
Lanes:	1			2			1			1		
Volume Module:												
Base Vol:	0	4	10	270	13	113	31	472	0	23	461	42
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	4	10	270	13	113	31	472	0	23	461	42
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	0	4	11	300	14	126	34	524	0	26	512	47
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	4	11	300	14	126	34	524	0	26	512	47
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	4	11	300	14	126	34	524	0	26	512	47
PCE Module:												
AutoPCE:	0	4	11	300	14	126	34	524	0	26	512	47
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	0	4	11	300	14	126	34	524	0	26	512	47

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	859	538	340	39
MaxVolume:	736	2037	1016	1179
PedVolume:	0	0	0	0
AdjMaxVol:	736	2037	1016	1179
ApproachVol:	16	440	559	584
ApproachV/C:	0.02	0.22	0.55	0.50
ApproachDel:	5.0	2.3	7.8	6.0
ApproachLOS:	A	A	A	A
Queue:	0.1	0.8	3.5	2.8

Existing + 2015 Project PM Mitigated

Level Of Service Computation Report
FHWA Roundabout Method (Base Volume Alternative)

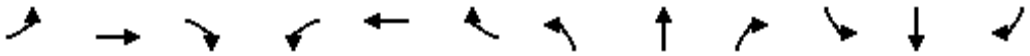
Intersection #2 River/Woolsy

Average Delay (sec/veh): 5.6 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Yield Sign			Yield Sign			Yield Sign			Yield Sign		
Lanes:	1			2			1			1		
Volume Module:												
Base Vol:	0	4	10	252	13	93	26	477	0	23	468	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	4	10	252	13	93	26	477	0	23	468	32
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	0	4	11	280	14	103	29	530	0	26	520	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	4	11	280	14	103	29	530	0	26	520	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	4	11	280	14	103	29	530	0	26	520	36
PCE Module:												
AutoPCE:	0	4	11	280	14	103	29	530	0	26	520	36
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	0	4	11	280	14	103	29	530	0	26	520	36

Delay Module: >> Time Period: 0.25 hours <<

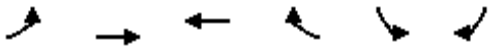
CircVolume:	839	546	320	33
MaxVolume:	747	2031	1027	1182
PedVolume:	0	0	0	0
AdjMaxVol:	747	2031	1027	1182
ApproachVol:	16	398	559	581
ApproachV/C:	0.02	0.20	0.54	0.49
ApproachDel:	4.9	2.2	7.6	6.0
ApproachLOS:	A	A	A	A
Queue:	0.1	0.7	3.4	2.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	477	0	23	468	32	0	4	10	252	13	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (prot)	1719	1810		1719	1792			1630			1687	
Flt Permitted	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (perm)	1719	1810		1719	1792			1630			1687	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	29	524	0	25	514	35	0	4	11	277	14	102
RTOR Reduction (vph)	0	0	0	0	4	0	0	11	0	0	19	0
Lane Group Flow (vph)	29	524	0	25	545	0	0	4	0	0	374	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	0.6	18.1		0.6	18.1			0.8			13.5	
Effective Green, g (s)	1.6	19.1		1.6	19.1			1.8			14.5	
Actuated g/C Ratio	0.03	0.39		0.03	0.39			0.04			0.30	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	56	706		56	699			60			499	
v/s Ratio Prot	c0.02	0.29		0.01	c0.30			c0.00			c0.22	
v/s Ratio Perm												
v/c Ratio	0.52	0.74		0.45	0.78			0.07			0.75	
Uniform Delay, d1	23.3	12.8		23.3	13.1			22.8			15.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	7.9	4.2		5.6	5.6			0.5			6.1	
Delay (s)	31.2	17.1		28.8	18.7			23.3			21.7	
Level of Service	C	B		C	B			C			C	
Approach Delay (s)		17.8			19.2			23.3			21.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	49.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	33	632	711	162	96	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1810	1770		1752	1568
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	1810	1770		1752	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	37	702	790	180	107	41
RTOR Reduction (vph)	0	0	13	0	0	36
Lane Group Flow (vph)	37	702	957	0	107	5
Heavy Vehicles (%)	3%	5%	5%	3%	3%	3%
Turn Type	Prot					Perm
Protected Phases	7	4	8		1	
Permitted Phases						1
Actuated Green, G (s)	1.2	34.6	29.4		5.0	5.0
Effective Green, g (s)	2.2	35.6	30.4		6.0	6.0
Actuated g/C Ratio	0.05	0.75	0.64		0.13	0.13
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	81	1354	1130		221	198
v/s Ratio Prot	0.02	c0.39	c0.54		c0.06	
v/s Ratio Perm						0.00
v/c Ratio	0.46	0.52	0.85		0.48	0.03
Uniform Delay, d1	22.1	2.5	6.8		19.4	18.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.0	0.3	6.0		1.7	0.1
Delay (s)	26.2	2.8	12.8		21.0	18.3
Level of Service	C	A	B		C	B
Approach Delay (s)		4.0	12.8		20.3	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group