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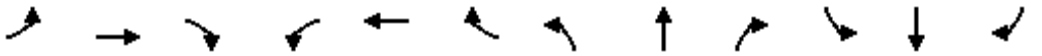
Skyway Corridor Study

Technical Appendix

November 10, 2008

Appendix A

Existing Level of Service Calculations

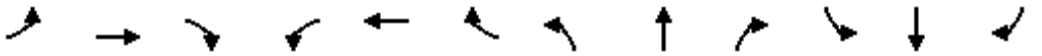


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	362	13	71	1268	12	90	1	137	21	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3534			1775	1583		1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3534			1775	1583		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	393	14	77	1378	13	98	1	149	23	0	11
RTOR Reduction (vph)	0	0	5	0	1	0	0	0	133	0	0	11
Lane Group Flow (vph)	1	393	9	77	1390	0	0	99	16	0	23	0
Turn Type	Prot		Perm	Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		8	8		7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	0.7	59.0	59.0	7.3	65.6			10.4	10.4		2.9	2.9
Effective Green, g (s)	0.7	59.0	59.0	7.3	65.6			10.4	10.4		2.9	2.9
Actuated g/C Ratio	0.01	0.62	0.62	0.08	0.69			0.11	0.11		0.03	0.03
Clearance Time (s)	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
Lane Grp Cap (vph)	13	2184	977	135	2425			193	172		54	48
v/s Ratio Prot	0.00	0.11		c0.04	c0.39			c0.06			c0.01	
v/s Ratio Perm			0.01						0.01			0.00
v/c Ratio	0.08	0.18	0.01	0.57	0.57			0.51	0.09		0.43	0.01
Uniform Delay, d1	47.1	7.9	7.0	42.6	7.8			40.2	38.4		45.5	45.0
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.5	0.2	0.0	5.7	1.0			2.3	0.2		5.3	0.1
Delay (s)	49.7	8.1	7.1	48.3	8.8			42.5	38.6		50.9	45.0
Level of Service	D	A	A	D	A			D	D		D	D
Approach Delay (s)		8.1			10.8			40.2			49.0	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	95.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

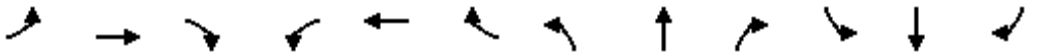
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	417	79	393	128	119	838
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3409		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3409		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	453	86	427	139	129	911
RTOR Reduction (vph)	0	58	35	0	0	0
Lane Group Flow (vph)	453	28	531	0	129	911
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	21.9	21.9	25.1		7.9	37.0
Effective Green, g (s)	21.9	21.9	25.1		7.9	37.0
Actuated g/C Ratio	0.33	0.33	0.38		0.12	0.55
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)	579	518	1279		209	1957
v/s Ratio Prot	c0.26		0.16		c0.07	c0.26
v/s Ratio Perm		0.02				
v/c Ratio	0.78	0.05	0.42		0.62	0.47
Uniform Delay, d1	20.3	15.4	15.5		28.1	9.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.8	0.0	1.0		5.3	0.2
Delay (s)	27.2	15.5	16.5		33.4	9.2
Level of Service	C	B	B		C	A
Approach Delay (s)	25.3		16.5			12.2
Approach LOS	C		B			B

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	66.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	49	29	168	8	68	12	404	111	191	836	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.95			0.96		1.00	0.97		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1769			1733		1770	3425		1770	3536	
Flt Permitted		0.96			0.74		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1712			1331		1770	3425		1770	3536	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	53	32	183	9	74	13	439	121	208	909	5
RTOR Reduction (vph)	0	20	0	0	16	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	76	0	0	250	0	13	539	0	208	914	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								
Actuated Green, G (s)		20.4			20.4		0.7	37.5		14.7	51.5	
Effective Green, g (s)		20.4			20.4		0.7	37.5		14.7	51.5	
Actuated g/C Ratio		0.24			0.24		0.01	0.44		0.17	0.61	
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)		413			321		15	1518		308	2153	
v/s Ratio Prot							0.01	c0.16		c0.12	c0.26	
v/s Ratio Perm		0.04			c0.19							
v/c Ratio		0.18			0.78		0.87	0.36		0.68	0.42	
Uniform Delay, d1		25.5			30.0		41.9	15.6		32.7	8.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			11.3		162.9	0.7		5.8	0.6	
Delay (s)		25.7			41.3		204.8	16.2		38.5	9.3	
Level of Service		C			D		F	B		D	A	
Approach Delay (s)		25.7			41.3			20.5			14.7	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

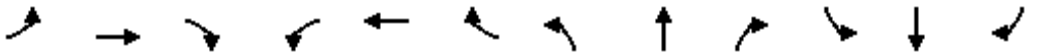


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	0	189	14	2	2	93	361	15	3	836	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85			0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583			1767		1770	3518		1770	3508	
Flt Permitted	0.75	1.00			0.58		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1388	1583			1073		1770	3518		1770	3508	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	0	205	15	2	2	101	392	16	3	909	57
RTOR Reduction (vph)	0	179	0	0	2	0	0	3	0	0	7	0
Lane Group Flow (vph)	68	26	0	0	17	0	101	405	0	3	959	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	8.6	8.6			8.6		23.0	46.6		0.7	24.3	
Effective Green, g (s)	8.6	8.6			8.6		23.0	46.6		0.7	24.3	
Actuated g/C Ratio	0.13	0.13			0.13		0.34	0.69		0.01	0.36	
Clearance Time (s)	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	
Lane Grp Cap (vph)	176	200			136		600	2414		18	1255	
v/s Ratio Prot		0.02					0.06	c0.12		0.00	c0.27	
v/s Ratio Perm	c0.05				0.02							
v/c Ratio	0.39	0.13			0.13		0.17	0.17		0.17	0.76	
Uniform Delay, d1	27.2	26.3			26.3		15.7	3.8		33.3	19.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.3			0.4		0.6	0.2		4.3	2.8	
Delay (s)	28.6	26.6			26.7		16.3	3.9		37.7	22.1	
Level of Service	C	C			C		B	A		D	C	
Approach Delay (s)		27.1			26.7			6.4			22.1	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

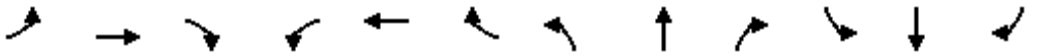
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	428	62	175	840	79	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.95	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3472		1770	3539	1710	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3472		1770	3539	1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	465	67	190	913	86	59
RTOR Reduction (vph)	16	0	0	0	35	0
Lane Group Flow (vph)	516	0	190	913	110	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	15.9		32.2	52.1	9.6	
Effective Green, g (s)	15.9		32.2	52.1	9.6	
Actuated g/C Ratio	0.23		0.46	0.75	0.14	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	792		818	2645	236	
v/s Ratio Prot	c0.15		0.11	c0.26		
v/s Ratio Perm					c0.06	
v/c Ratio	0.65		0.23	0.35	0.46	
Uniform Delay, d1	24.4		11.3	3.0	27.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.9		0.7	0.4	1.4	
Delay (s)	26.3		12.0	3.4	29.1	
Level of Service	C		B	A	C	
Approach Delay (s)	26.3			4.8	29.1	
Approach LOS	C			A	C	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	86	100	278	64	22	30	258	183	11	640	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.92		1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1712		1770	1791		1770	1863	1583	1770	3520	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1712		1770	1791		1770	1863	1583	1770	3520	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	93	109	302	70	24	33	280	199	12	696	26
RTOR Reduction (vph)	0	42	0	0	15	0	0	0	113	0	2	0
Lane Group Flow (vph)	29	160	0	302	79	0	33	280	86	12	720	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	10.5	15.4		19.2	24.1		3.2	38.9	38.9	0.7	36.4	
Effective Green, g (s)	10.5	15.4		19.2	24.1		3.2	38.9	38.9	0.7	36.4	
Actuated g/C Ratio	0.12	0.17		0.21	0.27		0.04	0.43	0.43	0.01	0.40	
Clearance Time (s)	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	
Lane Grp Cap (vph)	206	292		377	479		63	803	683	14	1420	
v/s Ratio Prot	0.02	c0.09		c0.17	0.04		c0.02	0.15		0.01	c0.20	
v/s Ratio Perm									0.05			
v/c Ratio	0.14	0.55		0.80	0.17		0.52	0.35	0.13	0.86	0.51	
Uniform Delay, d1	35.8	34.2		33.7	25.3		42.8	17.2	15.4	44.7	20.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	2.1		11.6	0.2		7.6	1.2	0.4	164.6	1.3	
Delay (s)	36.1	36.3		45.3	25.5		50.4	18.4	15.8	209.3	21.5	
Level of Service	D	D		D	C		D	B	B	F	C	
Approach Delay (s)		36.3			40.6			19.4			24.5	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	28.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

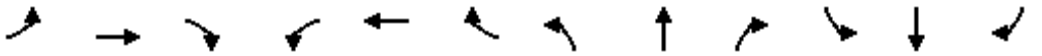


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1136	75	137	719	40	58	3	138	40	5	3
Ideal Flow (vphpl)	1900	1900	1900	1700	1700	1700	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1583	3142			1778	1583		1783	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	1583	1583	3142			1778	1583		1783	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1235	82	149	782	43	63	3	150	43	5	3
RTOR Reduction (vph)	0	0	25	0	3	0	0	0	136	0	0	3
Lane Group Flow (vph)	11	1235	57	149	822	0	0	66	14	0	48	0
Turn Type	Prot		Perm	Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		8	8		7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	0.8	56.4	56.4	10.0	65.6			8.7	8.7		3.9	3.9
Effective Green, g (s)	0.8	56.4	56.4	10.0	65.6			8.7	8.7		3.9	3.9
Actuated g/C Ratio	0.01	0.59	0.59	0.11	0.69			0.09	0.09		0.04	0.04
Clearance Time (s)	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
Lane Grp Cap (vph)	15	2101	940	167	2170			163	145		73	65
v/s Ratio Prot	0.01	c0.35		c0.09	0.26			c0.04			c0.03	
v/s Ratio Perm			0.04						0.01			0.00
v/c Ratio	0.73	0.59	0.06	0.89	0.38			0.40	0.09		0.66	0.00
Uniform Delay, d1	47.0	12.0	8.1	42.0	6.2			40.7	39.5		44.9	43.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	103.2	1.2	0.1	40.2	0.5			1.6	0.3		19.3	0.0
Delay (s)	150.2	13.3	8.3	82.2	6.7			42.4	39.8		64.2	43.7
Level of Service	F	B	A	F	A			D	D		E	D
Approach Delay (s)		14.1			18.2			40.6			63.0	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

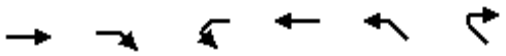
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	259	113	1012	283	116	603
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3423		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3423		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	282	123	1100	308	126	655
RTOR Reduction (vph)	0	93	26	0	0	0
Lane Group Flow (vph)	282	30	1382	0	126	655
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	14.8	14.8	25.5		7.6	37.1
Effective Green, g (s)	14.8	14.8	25.5		7.6	37.1
Actuated g/C Ratio	0.25	0.25	0.43		0.13	0.62
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)	437	391	1457		225	2192
v/s Ratio Prot	c0.16		c0.40		c0.07	0.19
v/s Ratio Perm		0.02				
v/c Ratio	0.65	0.08	0.95		0.56	0.30
Uniform Delay, d1	20.2	17.3	16.6		24.6	5.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.3	0.1	14.1		3.2	0.1
Delay (s)	23.5	17.4	30.7		27.7	5.4
Level of Service	C	B	C		C	A
Approach Delay (s)	21.6		30.7			9.0
Approach LOS	C		C			A

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



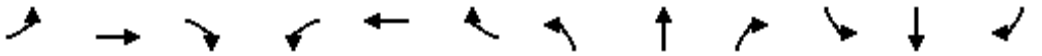
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	17	11	162	17	178	40	1008	210	189	620	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.93		1.00	0.97		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1765			1699		1770	3448		1770	3538	
Flt Permitted		0.92			0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1645			1450		1770	3448		1770	3538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	18	12	176	18	193	43	1096	228	205	674	2
RTOR Reduction (vph)	0	9	0	0	39	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	31	0	0	348	0	43	1309	0	205	676	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								
Actuated Green, G (s)		25.6			25.6		2.2	37.5		15.5	50.8	
Effective Green, g (s)		25.6			25.6		2.2	37.5		15.5	50.8	
Actuated g/C Ratio		0.28			0.28		0.02	0.41		0.17	0.56	
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)		465			410		43	1427		303	1984	
v/s Ratio Prot							0.02	c0.38		c0.12	0.19	
v/s Ratio Perm		0.02			c0.24							
v/c Ratio		0.07			0.85		1.00	0.92		0.68	0.34	
Uniform Delay, d1		23.8			30.7		44.2	25.1		35.2	10.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			15.1		137.2	10.8		5.9	0.5	
Delay (s)		23.8			45.8		181.4	35.9		41.1	11.3	
Level of Service		C			D		F	D		D	B	
Approach Delay (s)		23.8			45.8			40.5			18.2	
Approach LOS		C			D			D			B	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



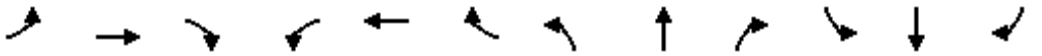
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	975	100	61	641	55	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3490		1770	3539	1700	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3490		1770	3539	1700	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1060	109	66	697	60	52
RTOR Reduction (vph)	9	0	0	0	47	0
Lane Group Flow (vph)	1160	0	66	697	65	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	26.2		22.2	52.4	6.8	
Effective Green, g (s)	26.2		22.2	52.4	6.8	
Actuated g/C Ratio	0.39		0.33	0.78	0.10	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1361		585	2760	172	
v/s Ratio Prot	c0.33		0.04	c0.20		
v/s Ratio Perm					c0.04	
v/c Ratio	0.85		0.11	0.25	0.38	
Uniform Delay, d1	18.7		15.7	2.0	28.2	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	5.4		0.4	0.2	1.4	
Delay (s)	24.1		16.0	2.2	29.6	
Level of Service	C		B	A	C	
Approach Delay (s)	24.1			3.4	29.6	
Approach LOS	C			A	C	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	67.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	75	68	217	117	57	96	594	330	44	383	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1730		1770	1771		1770	1863	1583	1770	3504	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1730		1770	1771		1770	1863	1583	1770	3504	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	82	74	236	127	62	104	646	359	48	416	30
RTOR Reduction (vph)	0	34	0	0	22	0	0	0	191	0	5	0
Lane Group Flow (vph)	40	122	0	236	167	0	104	646	168	48	441	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	9.6	12.9		16.2	19.5		6.1	37.2	37.2	3.1	34.2	
Effective Green, g (s)	9.6	12.9		16.2	19.5		6.1	37.2	37.2	3.1	34.2	
Actuated g/C Ratio	0.11	0.15		0.19	0.23		0.07	0.44	0.44	0.04	0.40	
Clearance Time (s)	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	
Lane Grp Cap (vph)	199	261		336	404		126	812	690	64	1403	
v/s Ratio Prot	0.02	c0.07		c0.13	0.09		0.06	c0.35		c0.03	0.13	
v/s Ratio Perm									0.11			
v/c Ratio	0.20	0.47		0.70	0.41		0.83	0.80	0.24	0.75	0.31	
Uniform Delay, d1	34.4	33.1		32.3	28.1		39.1	20.8	15.2	40.8	17.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	1.3		6.5	0.7		33.7	7.9	0.8	38.4	0.6	
Delay (s)	34.9	34.4		38.9	28.8		72.8	28.8	16.0	79.1	18.1	
Level of Service	C	C		D	C		E	C	B	E	B	
Approach Delay (s)		34.5			34.4			28.8			24.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	85.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	10	138	63	28	7	177	999	35	11	610	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.86			0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1602			1786		1770	3521		1770	3501	
Flt Permitted	0.72	1.00			0.59		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1346	1602			1080		1770	3521		1770	3501	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	11	150	68	30	8	192	1086	38	12	663	52
RTOR Reduction (vph)	0	128	0	0	4	0	0	2	0	0	10	0
Lane Group Flow (vph)	55	33	0	0	102	0	192	1122	0	12	705	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	10.2	10.2			10.2		27.4	46.4		0.7	19.7	
Effective Green, g (s)	10.2	10.2			10.2		27.4	46.4		0.7	19.7	
Actuated g/C Ratio	0.15	0.15			0.15		0.40	0.67		0.01	0.28	
Clearance Time (s)	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	
Lane Grp Cap (vph)	198	236			159		700	2357		18	995	
v/s Ratio Prot		0.02					0.11	c0.32		0.01	c0.20	
v/s Ratio Perm	0.04				c0.09							
v/c Ratio	0.28	0.14			0.64		0.27	0.48		0.67	0.71	
Uniform Delay, d1	26.3	25.7			27.8		14.2	5.6		34.2	22.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3			8.2		1.0	0.7		66.1	2.3	
Delay (s)	27.0	26.0			36.0		15.2	6.2		100.3	24.6	
Level of Service	C	C			D		B	A		F	C	
Approach Delay (s)		26.3			36.0			7.5			25.8	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	69.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix B

Collision Rate Calculations

Intersection Collision Rate Calculation
for the
Skyway Corridor Study

Study Intersection # 1: Skyway & Neal-Schmale Lane

Date of Count: Thursday, April 10, 2008

Number of Collisions: 12
ADT: 21600
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: FOUR-LEGGED
Control Type: SIGNALS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{12 \times 1{,}000{,}000}{21{,}600 \times 365 \times 9}$$

collision rate = 0.17 c/mve

statewide average collision rate* = 0.43 c/mve

Study Intersection # 2: Skyway & Pearson

Date of Count: Thursday, April 10, 2008

Number of Collisions: 13
ADT: 24000
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: TEE
Control Type: SIGNALS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{13 \times 1{,}000{,}000}{24{,}000 \times 365 \times 9}$$

collision rate = 0.16 c/mve

statewide average collision rate* = 0.28 c/mve

ADT = average daily total vehicles entering intersection (adjusted for seasonal & weekday changes)

c/mve = collisions per million vehicles entering intersection

* *2002 Collision Data on California State Highways*, Caltrans

Intersection Collision Rate Calculation
for the
Skyway Corridor Study

Study Intersection # 3: Skyway & Honey Run-Birch

Date of Count: Thursday, April 10, 2008

Number of Collisions: 21
ADT: 18100
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: OFFSET
Control Type: STOP & YEILD SIGNS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{21 \times 1{,}000{,}000}{18{,}100 \times 365 \times 9}$$

collision rate = 0.35 c/mve

statewide average collision rate* = 0.22 c/mve

Study Intersection # 4: Skyway & Foster

Date of Count: Thursday, April 10, 2008

Number of Collisions: 16
ADT: 21400
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: TEE
Control Type: STOP & YEILD SIGNS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{16 \times 1{,}000{,}000}{21{,}400 \times 365 \times 9}$$

collision rate = 0.23 c/mve

statewide average collision rate* = 0.14 c/mve

ADT = average daily total vehicles entering intersection (adjusted for seasonal & weekday changes)

c/mve = collisions per million vehicles entering intersection

* *2002 Collision Data on California State Highways*, Caltrans

Intersection Collision Rate Calculation
for the
Skyway Corridor Study

Study Intersection # 5: Skyway & Fir

Date of Count: Thursday, April 10, 2008

Number of Collisions: 15
ADT: 19500
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: TEE
Control Type: STOP & YEILD SIGNS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{15 \times 1{,}000{,}000}{19{,}500 \times 365 \times 9}$$

collision rate = 0.23 c/mve

statewide average collision rate* = 0.14 c/mve

Study Intersection # 6: Skyway & Elliott

Date of Count: Thursday, April 10, 2008

Number of Collisions: 32
ADT: 24100
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: FOUR-LEGGED
Control Type: SIGNALS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{32 \times 1{,}000{,}000}{24{,}100 \times 365 \times 9}$$

collision rate = 0.40 c/mve

statewide average collision rate* = 0.43 c/mve

ADT = average daily total vehicles entering intersection (adjusted for seasonal & weekday changes)

c/mve = collisions per million vehicles entering intersection

* *2002 Collision Data on California State Highways*, Caltrans

Intersection Collision Rate Calculation
for the
Skyway Corridor Study

Study Intersection # 7: Skyway & Oliver

Date of Count: Thursday, April 10, 2008

Number of Collisions: 18
ADT: 21600
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: TEE
Control Type: SIGNALS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{18 \times 1{,}000{,}000}{21{,}600 \times 365 \times 9}$$

collision rate = 0.25 c/mve

statewide average collision rate* = 0.28 c/mve

Study Intersection # 8: Skyway & Maxwell

Date of Count: Thursday, April 10, 2008

Number of Collisions: 0
ADT: 19400
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: TEE
Control Type: SIGNALS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{0 \times 1{,}000{,}000}{19{,}400 \times 365 \times 9}$$

collision rate = 0.00 c/mve

statewide average collision rate* = 0.28 c/mve

ADT = average daily total vehicles entering intersection (adjusted for seasonal & weekday changes)

c/mve = collisions per million vehicles entering intersection

* *2002 Collision Data on California State Highways*, Caltrans

Intersection Collision Rate Calculation
for the
Skyway Corridor Study

Study Intersection # 9: Skyway & Bille

Date of Count: Thursday, April 10, 2008

Number of Collisions: 30
ADT: 20300
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: FOUR-LEGGED
Control Type: SIGNALS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{30 \times 1{,}000{,}000}{20{,}300 \times 365 \times 9}$$

collision rate = 0.45 c/mve

statewide average collision rate* = 0.43 c/mve

Study Intersection # 10: Skyway & Wagstaff

Date of Count: Thursday, April 10, 2008

Number of Collisions: 9
ADT: 13500
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: FOUR-LEGGED
Control Type: 4 WAY STOP
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{9 \times 1{,}000{,}000}{13{,}500 \times 365 \times 9}$$

collision rate = 0.20 c/mve

statewide average collision rate* = 0.41 c/mve

ADT = average daily total vehicles entering intersection (adjusted for seasonal & weekday changes)

c/mve = collisions per million vehicles entering intersection

* *2002 Collision Data on California State Highways*, Caltrans

Intersection Collision Rate Calculation
for the
Skyway Corridor Study

Study Intersection # 11: Skyway & Black Olive

Date of Count: Wednesday, April 9, 2008

Number of Collisions: 29
ADT: 22900
Start Date: January 1, 1998
End Date: December 31, 2006
Number of Years: 9

Intersection Type: TEE
Control Type: STOP & YEILD SIGNS
Area: URBAN

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS x 1 MILLION}}{\text{ADT x 365 DAYS PER YEAR x NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{29 \times 1{,}000{,}000}{22{,}900 \times 365 \times 9}$$

collision rate = 0.39 c/mve

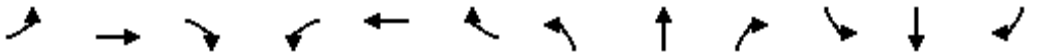
statewide average collision rate* = 0.14 c/mve

Appendix C

Pedestrian Crosswalk Improvements

Appendix D

Collision Rate Calculations

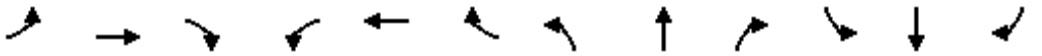


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	55	31	186	9	74	16	532	190	229	952	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00	1.00	0.97	1.00	
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1595			1600	1425	1593	1676	1425	3090	1675	
Flt Permitted		0.96			0.62	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1544			1036	1425	1593	1676	1425	3090	1675	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	58	33	196	9	78	17	560	200	241	1002	6
RTOR Reduction (vph)	0	16	0	0	0	44	0	0	110	0	0	0
Lane Group Flow (vph)	0	86	0	0	205	34	17	560	90	241	1008	0
Turn Type	Perm			Perm		pm+ov	Prot		Perm	Prot		
Protected Phases		4			8	5	1	6		5	2	
Permitted Phases	4			8		8			6			
Actuated Green, G (s)		23.5			23.5	47.3	1.6	48.7	48.7	23.8	70.9	
Effective Green, g (s)		23.5			23.5	47.3	1.6	48.7	48.7	23.8	70.9	
Actuated g/C Ratio		0.22			0.22	0.44	0.01	0.45	0.45	0.22	0.66	
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)		336			225	677	24	756	643	681	1100	
v/s Ratio Prot						0.01	0.01	c0.33		0.08	c0.60	
v/s Ratio Perm		0.06			c0.20	0.01			0.06			
v/c Ratio		0.26			0.91	0.05	0.71	0.74	0.14	0.35	0.92	
Uniform Delay, d1		35.0			41.2	17.4	53.0	24.4	17.4	35.6	16.0	
Progression Factor		1.00			1.00	1.00	1.19	0.51	0.67	0.71	0.33	
Incremental Delay, d2		0.4			36.6	0.0	54.9	5.2	0.4	0.2	9.2	
Delay (s)		35.4			77.9	17.5	117.8	17.6	12.0	25.6	14.5	
Level of Service		D			E	B	F	B	B	C	B	
Approach Delay (s)		35.4			61.2			18.3			16.6	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	506	63	175	940	90	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.95	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3481		1770	3539	1710	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3481		1770	3539	1710	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	533	66	184	989	95	65
RTOR Reduction (vph)	18	0	0	0	33	0
Lane Group Flow (vph)	581	0	184	989	127	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	18.7		32.4	55.1	10.6	
Effective Green, g (s)	18.7		32.4	55.1	10.6	
Actuated g/C Ratio	0.25		0.44	0.75	0.14	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	883		778	2646	246	
v/s Ratio Prot	c0.17		0.10	c0.28		
v/s Ratio Perm					c0.07	
v/c Ratio	0.66		0.24	0.37	0.51	
Uniform Delay, d1	24.6		12.9	3.3	29.2	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.8		0.7	0.4	1.8	
Delay (s)	26.4		13.6	3.7	31.0	
Level of Service	C		B	A	C	
Approach Delay (s)	26.4			5.2	31.0	
Approach LOS	C			A	C	

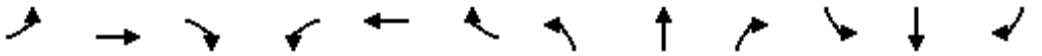
Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	73.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	93	107	372	71	30	30	309	213	11	670	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.92		1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1713		1652	1779		1770	1863	1583	1770	3521	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	1713		1652	1779		1770	1863	1583	1770	3521	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	98	113	392	75	32	32	325	224	12	705	25
RTOR Reduction (vph)	0	61	0	0	19	0	0	0	163	0	4	0
Lane Group Flow (vph)	32	150	0	392	88	0	32	325	61	12	726	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	3.7	13.5		17.5	27.3		1.4	17.7	17.7	0.7	17.0	
Effective Green, g (s)	3.7	13.5		17.5	27.3		1.4	17.7	17.7	0.7	17.0	
Actuated g/C Ratio	0.06	0.21		0.27	0.42		0.02	0.27	0.27	0.01	0.26	
Clearance Time (s)	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	
Lane Grp Cap (vph)	93	354		442	743		38	504	428	19	915	
v/s Ratio Prot	0.02	c0.09		c0.24	0.05		0.02	c0.17		0.01	c0.21	
v/s Ratio Perm									0.04			
v/c Ratio	0.34	0.42		0.89	0.12		0.84	0.64	0.14	0.63	0.79	
Uniform Delay, d1	29.7	22.6		23.0	11.7		31.9	21.1	18.1	32.2	22.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	0.8		18.8	0.1		85.4	6.2	0.7	52.7	7.0	
Delay (s)	31.9	23.4		41.8	11.7		117.3	27.3	18.8	85.0	29.6	
Level of Service	C	C		D	B		F	C	B	F	C	
Approach Delay (s)		24.5			35.4			29.0			30.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	5	199	14	2	2	97	439	15	3	959	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1590			1767		1770	1863	1583	1770	1863	1583
Flt Permitted	0.75	1.00			0.33		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1388	1590			610		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	72	5	209	15	2	2	102	462	16	3	1009	55
RTOR Reduction (vph)	0	188	0	0	2	0	0	0	4	0	0	21
Lane Group Flow (vph)	72	26	0	0	17	0	102	462	12	3	1009	34
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	10.9	10.9			10.9		18.8	84.2	84.2	0.9	66.3	66.3
Effective Green, g (s)	10.9	10.9			10.9		18.8	84.2	84.2	0.9	66.3	66.3
Actuated g/C Ratio	0.10	0.10			0.10		0.17	0.78	0.78	0.01	0.61	0.61
Clearance Time (s)	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
Lane Grp Cap (vph)	140	160			62		308	1452	1234	15	1144	972
v/s Ratio Prot		0.02					0.06	c0.25		0.00	c0.54	
v/s Ratio Perm	c0.05				0.03				0.01			0.02
v/c Ratio	0.51	0.16			0.28		0.33	0.32	0.01	0.20	0.88	0.03
Uniform Delay, d1	46.0	44.4			44.9		39.1	3.5	2.6	53.2	17.6	8.2
Progression Factor	1.00	1.00			1.00		0.55	0.49	0.64	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.5			2.4		2.4	0.5	0.0	6.5	8.2	0.0
Delay (s)	49.2	44.9			47.3		23.9	2.2	1.7	59.7	25.8	8.2
Level of Service	D	D			D		C	A	A	E	C	A
Approach Delay (s)		46.0			47.3			6.0			25.0	
Approach LOS		D			D			A			C	

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	20	60	28	176	12	20	6	240	94	20	524	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.91		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1775		1770	1690		1770	1863	1583	1770	1860	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1775		1770	1690		1770	1863	1583	1770	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	63	29	185	13	21	6	253	99	21	552	5
RTOR Reduction (vph)	0	26	0	0	16	0	0	0	54	0	1	0
Lane Group Flow (vph)	21	66	0	185	18	0	6	253	45	21	556	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	0.7	6.7		8.3	14.3		0.7	26.8	26.8	0.7	26.8	
Effective Green, g (s)	0.7	6.7		8.3	14.3		0.7	26.8	26.8	0.7	26.8	
Actuated g/C Ratio	0.01	0.11		0.14	0.24		0.01	0.46	0.46	0.01	0.46	
Clearance Time (s)	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	
Lane Grp Cap (vph)	21	203		251	413		21	853	725	21	852	
v/s Ratio Prot	0.01	c0.04		c0.10	0.01		0.00	0.14		c0.01	c0.30	
v/s Ratio Perm									0.03			
v/c Ratio	1.00	0.33		0.74	0.04		0.29	0.30	0.06	1.00	0.65	
Uniform Delay, d1	28.9	23.8		24.1	16.9		28.7	9.9	8.8	28.9	12.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	196.4	0.9		10.7	0.0		7.4	0.2	0.0	196.4	1.8	
Delay (s)	225.3	24.8		34.8	16.9		36.0	10.1	8.9	225.3	14.1	
Level of Service	F	C		C	B		D	B	A	F	B	
Approach Delay (s)		62.0			32.0			10.2			21.7	
Approach LOS		E			C			B			C	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

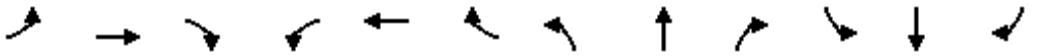
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	25	23	722	23	89	1162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	11	11
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.82	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	1168	1612		1540	1621
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	1168	1612		1540	1621
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	24	760	24	94	1223
RTOR Reduction (vph)	0	23	1	0	0	0
Lane Group Flow (vph)	26	1	783	0	94	1223
Confl. Bikes (#/hr)		20		20		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	5.0	5.0	80.6		10.4	95.0
Effective Green, g (s)	5.0	5.0	80.6		10.4	95.0
Actuated g/C Ratio	0.05	0.05	0.75		0.10	0.88
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)	74	54	1203		148	1426
v/s Ratio Prot	c0.02		0.49		0.06	c0.75
v/s Ratio Perm		0.00				
v/c Ratio	0.35	0.02	0.65		0.64	0.86
Uniform Delay, d1	49.9	49.2	6.8		47.0	3.2
Progression Factor	1.00	1.00	0.50		1.08	0.83
Incremental Delay, d2	2.9	0.2	2.4		4.9	4.0
Delay (s)	52.8	49.3	5.8		55.7	6.6
Level of Service	D	D	A		E	A
Approach Delay (s)	51.1		5.8			10.1
Approach LOS	D		A			B

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	492	83	573	284	144	1019
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.97		1.00	1.00	1.00	0.95
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3052		1676	1425	1486	3185
Flt Permitted	0.96		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3052		1676	1425	1486	3185
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	518	87	603	299	152	1073
RTOR Reduction (vph)	13	0	0	74	0	0
Lane Group Flow (vph)	592	0	603	225	152	1073
Turn Type				pm+ov	Prot	
Protected Phases	8		6	8	5	2
Permitted Phases				6		
Actuated Green, G (s)	24.5		56.7	81.2	14.8	75.5
Effective Green, g (s)	24.5		56.7	81.2	14.8	75.5
Actuated g/C Ratio	0.23		0.53	0.75	0.14	0.70
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)	692		880	1124	204	2227
v/s Ratio Prot	c0.19		c0.36	0.05	c0.10	0.34
v/s Ratio Perm				0.11		
v/c Ratio	0.86		0.69	0.20	0.75	0.48
Uniform Delay, d1	40.0		19.0	3.9	44.8	7.4
Progression Factor	1.00		0.90	6.16	0.93	1.13
Incremental Delay, d2	10.1		4.2	0.1	9.1	0.5
Delay (s)	50.2		21.3	24.2	50.6	8.8
Level of Service	D		C	C	D	A
Approach Delay (s)	50.2		22.2			14.0
Approach LOS	D		C			B

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



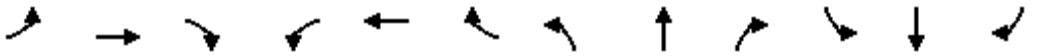
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	591	19	76	1770	12	161	1	211	21	1	10
Ideal Flow (vphpl)	1900	1900	1900	1700	1700	1700	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	1583	3163			1775	1583		1778	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1583	1583	3163			1775	1583		1778	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	622	20	80	1863	13	169	1	222	22	1	11
RTOR Reduction (vph)	0	0	9	0	0	0	0	0	168	0	0	11
Lane Group Flow (vph)	1	622	11	80	1876	0	0	170	54	0	23	0
Turn Type	Prot		Perm	Prot			Split		pm+ov	Split		Perm
Protected Phases	1	6		5	2		8	8	5	7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	0.7	48.0	48.0	8.5	55.8			12.6	21.1		2.2	2.2
Effective Green, g (s)	0.7	48.0	48.0	8.5	55.8			12.6	21.1		2.2	2.2
Actuated g/C Ratio	0.01	0.55	0.55	0.10	0.64			0.14	0.24		0.03	0.03
Clearance Time (s)	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
Lane Grp Cap (vph)	14	1946	870	154	2022			256	455		45	40
v/s Ratio Prot	0.00	0.18		c0.05	c0.59			c0.10	0.01		c0.01	
v/s Ratio Perm			0.01						0.02			0.00
v/c Ratio	0.07	0.32	0.01	0.52	0.93			0.66	0.12		0.51	0.01
Uniform Delay, d1	43.0	10.7	8.9	37.5	14.0			35.3	25.8		42.0	41.5
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	0.4	0.0	2.9	8.9			6.3	0.1		9.5	0.1
Delay (s)	45.1	11.2	8.9	40.4	22.9			41.7	26.0		51.5	41.6
Level of Service	D	B	A	D	C			D	C		D	D
Approach Delay (s)		11.1			23.6			32.8			48.3	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	87.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	155	121	725	59	24	1550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.97	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1539	3493		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1539	3493		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	163	127	763	62	25	1632
RTOR Reduction (vph)	0	84	5	0	0	0
Lane Group Flow (vph)	163	43	820	0	25	1632
Confl. Bikes (#/hr)		10		10		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	15.2	15.2	75.2		5.6	84.8
Effective Green, g (s)	15.2	15.2	75.2		5.6	84.8
Actuated g/C Ratio	0.14	0.14	0.70		0.05	0.79
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)	249	217	2432		92	2779
v/s Ratio Prot	c0.09		0.23		0.01	c0.46
v/s Ratio Perm		0.03				
v/c Ratio	0.65	0.20	0.34		0.27	0.59
Uniform Delay, d1	43.9	41.0	6.5		49.2	4.6
Progression Factor	1.00	1.00	1.00		1.01	0.78
Incremental Delay, d2	6.1	0.4	0.4		1.3	0.3
Delay (s)	50.0	41.5	6.9		50.9	3.9
Level of Service	D	D	A		D	A
Approach Delay (s)	46.2		6.9			4.6
Approach LOS	D		A			A

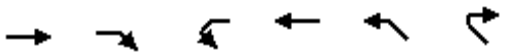
Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



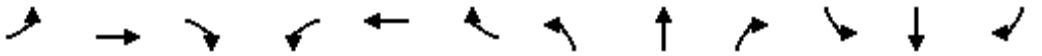
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	19	13	219	22	251	44	1098	210	200	732	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00	1.00	0.97	1.00	
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1587			1604	1425	1593	1676	1425	3090	1676	
Flt Permitted		0.79			0.76	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1271			1279	1425	1593	1676	1425	3090	1676	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	20	14	231	23	264	46	1156	221	211	771	2
RTOR Reduction (vph)	0	12	0	0	0	77	0	0	71	0	0	0
Lane Group Flow (vph)	0	34	0	0	254	187	46	1156	150	211	773	0
Turn Type	Perm			Perm		pm+ov	Prot		Perm	Prot		
Protected Phases		4			8	5	1	6		5	2	
Permitted Phases	4			8		8			6			
Actuated Green, G (s)		19.0			19.0	26.8	5.6	69.2	69.2	7.8	71.4	
Effective Green, g (s)		19.0			19.0	26.8	5.6	69.2	69.2	7.8	71.4	
Actuated g/C Ratio		0.18			0.18	0.25	0.05	0.64	0.64	0.07	0.66	
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)		224			225	406	83	1074	913	223	1108	
v/s Ratio Prot						0.03	0.03	c0.69		c0.07	0.46	
v/s Ratio Perm		0.03			c0.20	0.10			0.10			
v/c Ratio		0.15			1.13	0.46	0.55	1.08	0.16	0.95	0.70	
Uniform Delay, d1		37.7			44.5	34.5	50.0	19.4	7.8	49.9	11.5	
Progression Factor		1.00			1.00	1.00	1.12	0.39	0.19	0.69	0.35	
Incremental Delay, d2		0.3			99.0	0.8	0.7	36.4	0.0	37.0	2.7	
Delay (s)		38.0			143.5	35.3	56.9	44.0	1.5	71.4	6.7	
Level of Service		D			F	D	E	D	A	E	A	
Approach Delay (s)		38.0			88.4			37.8			20.6	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	1079	106	94	734	56	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.99		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3492		1770	3539	1687	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3492		1770	3539	1687	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1136	112	99	773	59	72
RTOR Reduction (vph)	10	0	0	0	63	0
Lane Group Flow (vph)	1238	0	99	773	68	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	32.4		20.9	57.3	7.1	
Effective Green, g (s)	32.4		20.9	57.3	7.1	
Actuated g/C Ratio	0.45		0.29	0.79	0.10	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1563		511	2801	165	
v/s Ratio Prot	c0.35		0.06	c0.22		
v/s Ratio Perm					c0.04	
v/c Ratio	0.79		0.19	0.28	0.41	
Uniform Delay, d1	17.1		19.4	2.0	30.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.8		0.8	0.2	1.7	
Delay (s)	20.0		20.2	2.3	32.4	
Level of Service	B		C	A	C	
Approach Delay (s)	20.0			4.3	32.4	
Approach LOS	B			A	C	

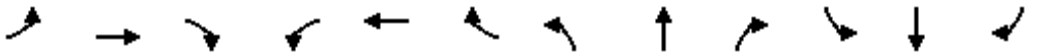
Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	80	68	249	123	59	103	636	421	57	460	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1734		1652	1772		1770	1863	1583	1770	3506	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	1734		1652	1772		1770	1863	1583	1770	3506	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	39	84	72	262	129	62	108	669	443	60	484	32
RTOR Reduction (vph)	0	40	0	0	21	0	0	0	261	0	6	0
Lane Group Flow (vph)	39	116	0	262	170	0	108	669	182	60	510	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	3.9	12.5		13.1	21.7		7.3	31.2	31.2	3.1	27.0	
Effective Green, g (s)	3.9	12.5		13.1	21.7		7.3	31.2	31.2	3.1	27.0	
Actuated g/C Ratio	0.05	0.16		0.17	0.29		0.10	0.41	0.41	0.04	0.36	
Clearance Time (s)	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	
Lane Grp Cap (vph)	85	286		285	507		170	766	651	72	1247	
v/s Ratio Prot	0.02	c0.07		c0.16	0.10		0.06	c0.36		c0.03	0.15	
v/s Ratio Perm									0.12			
v/c Ratio	0.46	0.41		0.92	0.33		0.64	0.87	0.28	0.83	0.41	
Uniform Delay, d1	35.0	28.4		30.9	21.4		33.0	20.5	14.9	36.1	18.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	0.9		32.5	0.4		7.5	13.2	1.1	53.2	1.0	
Delay (s)	38.9	29.3		63.4	21.8		40.6	33.7	15.9	89.4	19.4	
Level of Service	D	C		E	C		D	C	B	F	B	
Approach Delay (s)		31.2			45.8			27.9			26.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

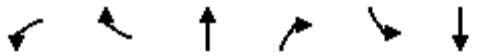


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	10	142	63	28	7	182	1118	35	11	714	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1603			1788		1770	1863	1583	1770	1863	1583
Flt Permitted	0.69	1.00			0.46		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1278	1603			856		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	11	149	66	29	7	192	1177	37	12	752	55
RTOR Reduction (vph)	0	129	0	0	3	0	0	0	4	0	0	30
Lane Group Flow (vph)	55	31	0	0	99	0	192	1177	33	12	752	25
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	14.7	14.7			14.7		31.3	80.5	80.5	0.8	50.0	50.0
Effective Green, g (s)	14.7	14.7			14.7		31.3	80.5	80.5	0.8	50.0	50.0
Actuated g/C Ratio	0.14	0.14			0.14		0.29	0.75	0.75	0.01	0.46	0.46
Clearance Time (s)	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
Lane Grp Cap (vph)	174	218			117		513	1389	1180	13	863	733
v/s Ratio Prot		0.02					0.11	c0.63		0.01	c0.40	
v/s Ratio Perm	0.04				c0.12				0.02			0.02
v/c Ratio	0.32	0.14			0.85		0.37	0.85	0.03	0.92	0.87	0.03
Uniform Delay, d1	42.1	41.1			45.6		30.5	9.5	3.6	53.6	26.1	15.8
Progression Factor	1.00	1.00			1.00		0.73	0.35	0.47	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.3			40.5		0.6	2.1	0.0	207.3	9.6	0.0
Delay (s)	43.2	41.4			86.0		22.9	5.4	1.7	260.9	35.7	15.8
Level of Service	D	D			F		C	A	A	F	D	B
Approach Delay (s)		41.9			86.0			7.7			37.7	
Approach LOS		D			F			A			D	

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	50	16	125	62	50	21	547	147	55	353	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1795		1770	1737		1770	1863	1583	1770	1851	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1795		1770	1737		1770	1863	1583	1770	1851	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	53	17	132	65	53	22	576	155	58	372	17
RTOR Reduction (vph)	0	15	0	0	44	0	0	0	77	0	2	0
Lane Group Flow (vph)	33	55	0	132	74	0	22	576	78	58	387	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	2.3	7.0		6.1	10.8		0.9	32.7	32.7	2.8	34.6	
Effective Green, g (s)	2.3	7.0		6.1	10.8		0.9	32.7	32.7	2.8	34.6	
Actuated g/C Ratio	0.04	0.11		0.09	0.17		0.01	0.51	0.51	0.04	0.54	
Clearance Time (s)	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	
Lane Grp Cap (vph)	63	195		167	290		25	943	801	77	991	
v/s Ratio Prot	0.02	0.03		c0.07	c0.04		0.01	c0.31		c0.03	0.21	
v/s Ratio Perm									0.05			
v/c Ratio	0.52	0.28		0.79	0.25		0.88	0.61	0.10	0.75	0.39	
Uniform Delay, d1	30.6	26.5		28.6	23.4		31.8	11.4	8.3	30.6	8.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.6	0.8		22.0	0.5		127.2	1.2	0.1	33.5	0.3	
Delay (s)	38.3	27.3		50.6	23.9		159.0	12.6	8.3	64.0	9.1	
Level of Service	D	C		D	C		F	B	A	E	A	
Approach Delay (s)		30.8			38.0			16.0			16.2	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	34	89	1233	87	101	963
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	11	11
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.72	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	1027	1586		1540	1621
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	1027	1586		1540	1621
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	94	1298	92	106	1014
RTOR Reduction (vph)	0	88	2	0	0	0
Lane Group Flow (vph)	36	6	1388	0	106	1014
Confl. Peds. (#/hr)	50	50		50	50	
Confl. Bikes (#/hr)		20		20		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	7.1	7.1	83.9		5.0	92.9
Effective Green, g (s)	7.1	7.1	83.9		5.0	92.9
Actuated g/C Ratio	0.07	0.07	0.78		0.05	0.86
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)	105	68	1232		71	1394
v/s Ratio Prot	c0.02		c0.88		c0.07	0.63
v/s Ratio Perm		0.01				
v/c Ratio	0.34	0.09	1.13		1.49	0.73
Uniform Delay, d1	48.2	47.4	12.0		51.5	2.8
Progression Factor	1.00	1.00	0.37		1.07	1.17
Incremental Delay, d2	2.0	0.6	61.6		266.0	2.3
Delay (s)	50.2	48.0	66.1		320.9	5.6
Level of Service	D	D	E		F	A
Approach Delay (s)	48.6		66.1			35.5
Approach LOS	D		E			D

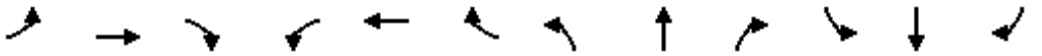
Intersection Summary			
HCM Average Control Delay	52.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	427	113	1108	294	116	790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.97		1.00	1.00	1.00	0.95
Frt	0.97		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3030		1676	1425	1486	3185
Flt Permitted	0.96		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3030		1676	1425	1486	3185
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	449	119	1166	309	122	832
RTOR Reduction (vph)	23	0	0	31	0	0
Lane Group Flow (vph)	545	0	1166	278	122	832
Turn Type				pm+ov	Prot	
Protected Phases	8		6	8	5	2
Permitted Phases				6		
Actuated Green, G (s)	17.0		70.0	87.0	9.0	83.0
Effective Green, g (s)	17.0		70.0	87.0	9.0	83.0
Actuated g/C Ratio	0.16		0.65	0.81	0.08	0.77
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)	477		1086	1201	124	2448
v/s Ratio Prot	c0.18		c0.70	0.04	c0.08	0.26
v/s Ratio Perm				0.16		
v/c Ratio	1.14		1.07	0.23	0.98	0.34
Uniform Delay, d1	45.5		19.0	2.5	49.4	3.9
Progression Factor	1.00		0.77	0.76	0.86	1.26
Incremental Delay, d2	86.8		45.9	0.1	64.3	0.3
Delay (s)	132.3		60.6	2.0	106.8	5.2
Level of Service	F		E	A	F	A
Approach Delay (s)	132.3		48.3			18.2
Approach LOS	F		D			B

Intersection Summary			
HCM Average Control Delay	54.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

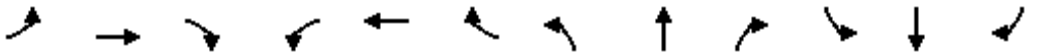


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1488	129	228	1067	40	63	3	138	40	6	3
Ideal Flow (vphpl)	1900	1900	1900	1700	1700	1700	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1583	3150			1778	1583		1785	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	1583	1583	3150			1778	1583		1785	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	1566	136	240	1123	42	66	3	145	42	6	3
RTOR Reduction (vph)	0	0	37	0	2	0	0	0	28	0	0	3
Lane Group Flow (vph)	11	1566	99	240	1163	0	0	69	117	0	48	0
Turn Type	Prot		Perm	Prot			Split		pm+ov	Split		Perm
Protected Phases	1	6		5	2		8	8	5	7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	0.7	44.8	44.8	14.1	58.2			7.2	21.3		3.1	3.1
Effective Green, g (s)	0.7	44.8	44.8	14.1	58.2			7.2	21.3		3.1	3.1
Actuated g/C Ratio	0.01	0.53	0.53	0.17	0.68			0.08	0.25		0.04	0.04
Clearance Time (s)	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
Lane Grp Cap (vph)	15	1861	832	262	2152			150	470		65	58
v/s Ratio Prot	0.01	c0.44		c0.15	0.37			c0.04	0.04		c0.03	
v/s Ratio Perm			0.06						0.03			0.00
v/c Ratio	0.73	0.84	0.12	0.92	0.54			0.46	0.25		0.74	0.00
Uniform Delay, d1	42.2	17.2	10.2	35.0	6.8			37.1	25.6		40.6	39.6
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	103.2	4.8	0.3	33.8	1.0			2.2	0.3		35.1	0.0
Delay (s)	145.4	22.0	10.5	68.8	7.8			39.4	25.8		75.7	39.6
Level of Service	F	C	B	E	A			D	C		E	D
Approach Delay (s)		21.9			18.2			30.2			73.6	
Approach LOS		C			B			C			E	

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	36	20	1301	347	114	1155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.94	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1486	3386		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1486	3386		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	21	1369	365	120	1216
RTOR Reduction (vph)	0	19	17	0	0	0
Lane Group Flow (vph)	38	2	1717	0	120	1216
Confl. Peds. (#/hr)	10	10		10	10	
Confl. Bikes (#/hr)		10		10		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	7.8	7.8	76.3		11.9	92.2
Effective Green, g (s)	7.8	7.8	76.3		11.9	92.2
Actuated g/C Ratio	0.07	0.07	0.71		0.11	0.85
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)	128	107	2392		195	3021
v/s Ratio Prot	c0.02		c0.51		c0.07	0.34
v/s Ratio Perm		0.00				
v/c Ratio	0.30	0.01	0.72		0.62	0.40
Uniform Delay, d1	47.5	46.5	9.4		45.9	1.8
Progression Factor	1.00	1.00	1.00		1.20	1.36
Incremental Delay, d2	1.3	0.1	1.9		4.6	0.1
Delay (s)	48.8	46.6	11.3		59.7	2.5
Level of Service	D	D	B		E	A
Approach Delay (s)	48.0		11.3			7.6
Approach LOS	D		B			A

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	55	29	177	9	73	16	519	192	228	885	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1598			1600	1425	1593	1676	1425	1593	1675	
Flt Permitted		0.96			0.63	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1546			1049	1425	1593	1676	1425	1593	1675	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	58	31	186	9	77	17	546	202	240	932	6
RTOR Reduction (vph)	0	16	0	0	0	48	0	0	89	0	0	0
Lane Group Flow (vph)	0	84	0	0	195	29	17	546	113	240	938	0
Turn Type	Perm			Perm		pm+ov	Prot		Perm	Prot		
Protected Phases		4			8	5	1	6		5	2	
Permitted Phases	4			8		8			6			
Actuated Green, G (s)		20.2			20.2	37.9	1.6	50.1	50.1	17.7	66.2	
Effective Green, g (s)		20.2			20.2	37.9	1.6	50.1	50.1	17.7	66.2	
Actuated g/C Ratio		0.20			0.20	0.38	0.02	0.50	0.50	0.18	0.66	
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)		312			212	597	25	840	714	282	1109	
v/s Ratio Prot						0.01	0.01	c0.33		0.15	c0.56	
v/s Ratio Perm		0.05			c0.19	0.01			0.08			
v/c Ratio		0.27			0.92	0.05	0.68	0.65	0.16	0.85	0.85	
Uniform Delay, d1		33.7			39.1	19.6	48.9	18.5	13.5	39.9	13.0	
Progression Factor		1.00			1.00	1.00	0.91	0.79	1.47	1.26	0.31	
Incremental Delay, d2		0.5			39.7	0.0	49.8	3.4	0.4	14.8	5.4	
Delay (s)		34.1			78.8	19.7	94.2	18.0	20.3	64.9	9.5	
Level of Service		C			E	B	F	B	C	E	A	
Approach Delay (s)		34.1			62.1			20.3			20.8	
Approach LOS		C			E			C			C	

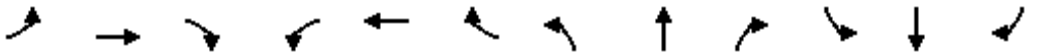
Intersection Summary			
HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	504	61	133	560	85	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3482		1770	3539	1705	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3482		1770	3539	1705	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	531	64	140	589	89	69
RTOR Reduction (vph)	14	0	0	0	40	0
Lane Group Flow (vph)	581	0	140	589	118	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	17.3		29.8	51.1	9.9	
Effective Green, g (s)	17.3		29.8	51.1	9.9	
Actuated g/C Ratio	0.25		0.43	0.74	0.14	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	873		764	2621	245	
v/s Ratio Prot	c0.17		0.08	c0.17		
v/s Ratio Perm					c0.07	
v/c Ratio	0.67		0.18	0.22	0.48	
Uniform Delay, d1	23.2		12.1	2.8	27.2	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.9		0.5	0.2	1.5	
Delay (s)	25.2		12.6	3.0	28.7	
Level of Service	C		B	A	C	
Approach Delay (s)	25.2			4.8	28.7	
Approach LOS	C			A	C	

Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	92	112	327	66	24	34	288	215	10	654	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.92		1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1709		1652	1788		1770	1863	1583	1770	3521	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	1709		1652	1788		1770	1863	1583	1770	3521	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	97	118	344	69	25	36	303	226	11	688	24
RTOR Reduction (vph)	0	43	0	0	17	0	0	0	141	0	2	0
Lane Group Flow (vph)	28	172	0	344	77	0	36	303	85	11	710	0
Confl. Peds. (#/hr)							37					
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	12.0	15.7		22.0	25.7		2.6	33.0	33.0	0.7	31.1	
Effective Green, g (s)	12.0	15.7		22.0	25.7		2.6	33.0	33.0	0.7	31.1	
Actuated g/C Ratio	0.14	0.18		0.25	0.29		0.03	0.38	0.38	0.01	0.36	
Clearance Time (s)	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	
Lane Grp Cap (vph)	227	307		416	526		53	703	598	14	1253	
v/s Ratio Prot	0.02	c0.10		c0.21	0.04		c0.02	0.16		0.01	c0.20	
v/s Ratio Perm									0.05			
v/c Ratio	0.12	0.56		0.83	0.15		0.68	0.43	0.14	0.79	0.57	
Uniform Delay, d1	33.1	32.7		30.9	22.8		42.0	20.2	17.9	43.3	22.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	2.2		12.7	0.1		29.4	1.9	0.5	130.6	1.9	
Delay (s)	33.3	34.9		43.6	22.9		71.4	22.1	18.4	173.8	24.6	
Level of Service	C	C		D	C		E	C	B	F	C	
Approach Delay (s)		34.7			39.1			23.8			26.8	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	29.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	3	193	14	2	2	98	435	15	3	898	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1587			1767		1770	1863	1583	1770	1863	1583
Flt Permitted	0.75	1.00			0.40		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1388	1587			731		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	3	203	15	2	2	103	458	16	3	945	54
RTOR Reduction (vph)	0	182	0	0	2	0	0	0	4	0	0	23
Lane Group Flow (vph)	71	24	0	0	17	0	103	458	12	3	945	31
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	10.4	10.4			10.4		20.9	76.6	76.6	1.0	56.7	56.7
Effective Green, g (s)	10.4	10.4			10.4		20.9	76.6	76.6	1.0	56.7	56.7
Actuated g/C Ratio	0.10	0.10			0.10		0.21	0.77	0.77	0.01	0.57	0.57
Clearance Time (s)	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
Lane Grp Cap (vph)	144	165			76		370	1427	1213	18	1056	898
v/s Ratio Prot		0.02					0.06	c0.25		0.00	c0.51	
v/s Ratio Perm	c0.05				0.02				0.01			0.02
v/c Ratio	0.49	0.15			0.23		0.28	0.32	0.01	0.17	0.89	0.03
Uniform Delay, d1	42.3	40.8			41.1		33.2	3.6	2.8	49.1	19.0	9.6
Progression Factor	1.00	1.00			1.00		1.12	2.14	2.52	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.4			1.5		1.5	0.5	0.0	4.3	9.9	0.0
Delay (s)	45.0	41.2			42.6		38.6	8.3	7.0	53.4	28.9	9.6
Level of Service	D	D			D		D	A	A	D	C	A
Approach Delay (s)		42.1			42.6			13.7			28.0	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	21	60	26	175	13	23	6	237	91	22	527	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.91		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1779		1770	1686		1770	1863	1583	1770	1860	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1779		1770	1686		1770	1863	1583	1770	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	63	27	184	14	24	6	249	96	23	555	5
RTOR Reduction (vph)	0	16	0	0	17	0	0	0	56	0	1	0
Lane Group Flow (vph)	22	74	0	184	21	0	6	249	40	23	559	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	1.6	9.0		12.3	19.7		0.5	27.4	27.4	1.6	28.5	
Effective Green, g (s)	1.6	9.0		12.3	19.7		0.5	27.4	27.4	1.6	28.5	
Actuated g/C Ratio	0.02	0.14		0.19	0.30		0.01	0.41	0.41	0.02	0.43	
Clearance Time (s)	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	
Lane Grp Cap (vph)	43	241		328	501		13	770	654	43	800	
v/s Ratio Prot	0.01	c0.04		c0.10	0.01		0.00	0.13		c0.01	c0.30	
v/s Ratio Perm									0.03			
v/c Ratio	0.51	0.31		0.56	0.04		0.46	0.32	0.06	0.53	0.70	
Uniform Delay, d1	32.0	25.8		24.5	16.6		32.8	13.2	11.7	32.0	15.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.9	0.7		2.2	0.0		23.8	0.2	0.0	12.2	2.7	
Delay (s)	41.9	26.6		26.7	16.6		56.5	13.4	11.7	44.2	18.1	
Level of Service	D	C		C	B		E	B	B	D	B	
Approach Delay (s)		29.6			25.0			13.7			19.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

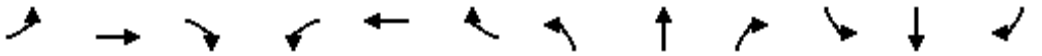
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	15	13	649	33	97	1069
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	11	11
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.68	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	976	1596		1540	1621
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	976	1596		1540	1621
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	14	683	35	102	1125
RTOR Reduction (vph)	0	13	1	0	0	0
Lane Group Flow (vph)	16	1	717	0	102	1125
Confl. Peds. (#/hr)	50	50		50	50	
Confl. Bikes (#/hr)		20		20		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	4.4	4.4	73.6		10.0	87.6
Effective Green, g (s)	4.4	4.4	73.6		10.0	87.6
Actuated g/C Ratio	0.04	0.04	0.74		0.10	0.88
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)	70	43	1175		154	1420
v/s Ratio Prot	c0.01		0.45		0.07	c0.69
v/s Ratio Perm		0.00				
v/c Ratio	0.23	0.01	0.61		0.66	0.79
Uniform Delay, d1	46.2	45.7	6.3		43.4	2.5
Progression Factor	1.00	1.00	0.52		0.87	0.35
Incremental Delay, d2	1.7	0.1	2.1		6.5	2.9
Delay (s)	47.8	45.9	5.5		44.4	3.8
Level of Service	D	D	A		D	A
Approach Delay (s)	46.9		5.5			7.2
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	455	81	493	231	133	914
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.97		1.00	1.00	1.00	0.95
Frpb, ped/bikes	0.99		1.00	0.95	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3012		1676	1356	1486	3185
Flt Permitted	0.96		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3012		1676	1356	1486	3185
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	479	85	519	243	140	962
RTOR Reduction (vph)	16	0	0	118	0	0
Lane Group Flow (vph)	548	0	519	125	140	962
Confl. Peds. (#/hr)	20	20		20	20	
Turn Type				Perm	Prot	
Protected Phases	8		6		5	2
Permitted Phases				6		
Actuated Green, G (s)	22.3		51.6	51.6	14.1	69.7
Effective Green, g (s)	22.3		51.6	51.6	14.1	69.7
Actuated g/C Ratio	0.22		0.52	0.52	0.14	0.70
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)	672		865	700	210	2220
v/s Ratio Prot	c0.18		c0.31		c0.09	0.30
v/s Ratio Perm				0.09		
v/c Ratio	0.82		0.60	0.18	0.67	0.43
Uniform Delay, d1	36.9		17.0	12.9	40.7	6.6
Progression Factor	1.00		0.67	1.08	1.00	0.91
Incremental Delay, d2	7.6		2.9	0.5	5.3	0.4
Delay (s)	44.5		14.2	14.5	46.2	6.4
Level of Service	D		B	B	D	A
Approach Delay (s)	44.5		14.3			11.4
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

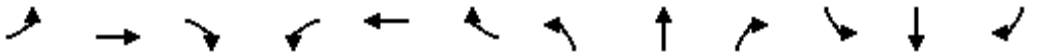


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	993	59	94	1473	23	162	3	199	29	3	8
Ideal Flow (vphpl)	1900	1900	1900	1700	1700	1700	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1662	3323	1487	1487	2967			1776	1583		1782	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	1662	3323	1487	1487	2967			1776	1583		1782	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	1045	62	99	1551	24	171	3	209	31	3	8
RTOR Reduction (vph)	0	0	29	0	1	0	0	0	62	0	0	8
Lane Group Flow (vph)	8	1045	33	99	1574	0	0	174	147	0	34	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		pm+ov	Split		Perm
Protected Phases	1	6		5	2		8	8	5	7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	0.7	37.2	37.2	9.2	45.7			11.9	21.1		2.2	2.2
Effective Green, g (s)	0.7	37.2	37.2	9.2	45.7			11.9	21.1		2.2	2.2
Actuated g/C Ratio	0.01	0.49	0.49	0.12	0.60			0.16	0.28		0.03	0.03
Clearance Time (s)	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
Lane Grp Cap (vph)	15	1616	723	179	1772			276	519		51	46
v/s Ratio Prot	0.00	0.31		0.07	c0.53			c0.10	c0.03		c0.02	
v/s Ratio Perm			0.02						0.06			0.00
v/c Ratio	0.53	0.65	0.05	0.55	0.89			0.63	0.28		0.67	0.01
Uniform Delay, d1	37.7	14.7	10.3	31.7	13.2			30.2	21.8		36.8	36.1
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	31.9	2.0	0.1	3.7	7.1			4.6	0.3		28.3	0.0
Delay (s)	69.6	16.7	10.4	35.4	20.3			34.9	22.1		65.1	36.1
Level of Service	E	B	B	D	C			C	C		E	D
Approach Delay (s)		16.8			21.2			27.9			59.5	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

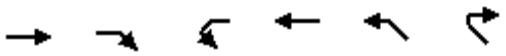
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	210	67	757	58	24	1239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.96	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1516	3488		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1516	3488		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	221	71	797	61	25	1304
RTOR Reduction (vph)	0	39	4	0	0	0
Lane Group Flow (vph)	221	32	854	0	25	1304
Confl. Peds. (#/hr)	10	10		10	10	
Confl. Bikes (#/hr)		10		10		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	17.8	17.8	66.9		3.3	74.2
Effective Green, g (s)	17.8	17.8	66.9		3.3	74.2
Actuated g/C Ratio	0.18	0.18	0.67		0.03	0.74
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)	315	270	2333		58	2626
v/s Ratio Prot	c0.12		0.24		0.01	c0.37
v/s Ratio Perm		0.02				
v/c Ratio	0.70	0.12	0.37		0.43	0.50
Uniform Delay, d1	38.6	34.5	7.3		47.4	5.3
Progression Factor	1.00	1.00	1.00		0.86	0.39
Incremental Delay, d2	6.9	0.2	0.4		4.4	0.1
Delay (s)	45.5	34.7	7.7		45.2	2.2
Level of Service	D	C	A		D	A
Approach Delay (s)	42.9		7.7			3.0
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



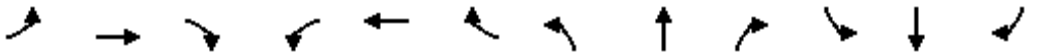
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	18	11	182	21	233	41	1038	195	217	698	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1591			1604	1425	1593	1676	1425	1593	1676	
Flt Permitted		0.85			0.78	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1372			1312	1425	1593	1676	1425	1593	1676	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	19	12	192	22	245	43	1093	205	228	735	2
RTOR Reduction (vph)	0	10	0	0	0	66	0	0	47	0	0	0
Lane Group Flow (vph)	0	33	0	0	214	179	43	1093	158	228	737	0
Turn Type	Perm			Perm		pm+ov	Prot		Perm	Prot		
Protected Phases		4			8	5	1	6		5	2	
Permitted Phases	4			8		8			6			
Actuated Green, G (s)		16.0			16.0	29.0	4.2	59.0	59.0	13.0	67.8	
Effective Green, g (s)		16.0			16.0	29.0	4.2	59.0	59.0	13.0	67.8	
Actuated g/C Ratio		0.16			0.16	0.29	0.04	0.59	0.59	0.13	0.68	
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)		220			210	470	67	989	841	207	1136	
v/s Ratio Prot						0.05	0.03	c0.65		c0.14	0.44	
v/s Ratio Perm		0.02			c0.16	0.08			0.11			
v/c Ratio		0.15			1.02	0.38	0.64	1.11	0.19	1.10	0.65	
Uniform Delay, d1		36.1			42.0	28.3	47.2	20.5	9.5	43.5	9.3	
Progression Factor		1.00			1.00	1.00	0.75	0.47	0.16	0.89	1.48	
Incremental Delay, d2		0.3			67.1	0.5	1.9	49.0	0.0	84.6	2.2	
Delay (s)		36.5			109.1	28.9	37.2	58.5	1.6	123.3	15.9	
Level of Service		D			F	C	D	E	A	F	B	
Approach Delay (s)		36.5			66.3			49.1			41.3	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	49.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	1022	107	92	727	59	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.99		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3489		1770	3539	1689	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3489		1770	3539	1689	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1076	113	97	765	62	71
RTOR Reduction (vph)	12	0	0	0	58	0
Lane Group Flow (vph)	1177	0	97	765	75	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	32.3		21.5	57.8	7.4	
Effective Green, g (s)	32.3		21.5	57.8	7.4	
Actuated g/C Ratio	0.44		0.29	0.79	0.10	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1540		520	2794	171	
v/s Ratio Prot	c0.34		0.05	c0.22		
v/s Ratio Perm					c0.04	
v/c Ratio	0.76		0.19	0.27	0.44	
Uniform Delay, d1	17.2		19.3	2.1	31.0	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.3		0.8	0.2	1.8	
Delay (s)	19.6		20.1	2.3	32.8	
Level of Service	B		C	A	C	
Approach Delay (s)	19.6			4.3	32.8	
Approach LOS	B			A	C	

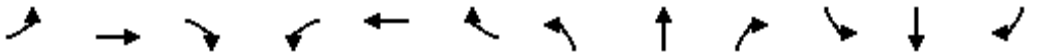
Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	78	69	242	126	62	99	624	370	55	460	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1731		1652	1771		1770	1863	1583	1770	3504	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	1731		1652	1771		1770	1863	1583	1770	3504	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	82	73	255	133	65	104	657	389	58	484	34
RTOR Reduction (vph)	0	33	0	0	18	0	0	0	210	0	5	0
Lane Group Flow (vph)	41	122	0	255	180	0	104	657	179	58	513	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	8.5	13.1		17.3	21.9		8.4	43.5	43.5	4.7	39.8	
Effective Green, g (s)	8.5	13.1		17.3	21.9		8.4	43.5	43.5	4.7	39.8	
Actuated g/C Ratio	0.09	0.14		0.18	0.23		0.09	0.46	0.46	0.05	0.42	
Clearance Time (s)	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	
Lane Grp Cap (vph)	148	240		302	410		157	857	728	88	1474	
v/s Ratio Prot	0.02	c0.07		c0.15	c0.10		0.06	c0.35		c0.03	0.15	
v/s Ratio Perm									0.11			
v/c Ratio	0.28	0.51		0.84	0.44		0.66	0.77	0.25	0.66	0.35	
Uniform Delay, d1	40.2	37.8		37.3	31.1		41.7	21.3	15.6	44.2	18.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	1.7		18.9	0.8		10.0	6.5	0.8	16.4	0.7	
Delay (s)	41.2	39.5		56.3	31.8		51.8	27.8	16.4	60.6	19.2	
Level of Service	D	D		E	C		D	C	B	E	B	
Approach Delay (s)		39.8			45.6			26.1			23.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

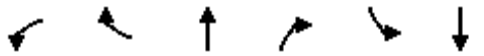


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	10	142	63	28	7	177	1059	35	12	705	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1603			1788		1770	1863	1583	1770	1863	1583
Flt Permitted	0.69	1.00			0.49		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1287	1603			900		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	11	149	66	29	7	186	1115	37	13	742	55
RTOR Reduction (vph)	0	128	0	0	3	0	0	0	4	0	0	29
Lane Group Flow (vph)	55	32	0	0	99	0	186	1115	33	13	742	26
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	14.0	14.0			14.0		26.8	73.2	73.2	0.8	47.2	47.2
Effective Green, g (s)	14.0	14.0			14.0		26.8	73.2	73.2	0.8	47.2	47.2
Actuated g/C Ratio	0.14	0.14			0.14		0.27	0.73	0.73	0.01	0.47	0.47
Clearance Time (s)	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
Lane Grp Cap (vph)	180	224			126		474	1364	1159	14	879	747
v/s Ratio Prot		0.02					0.11	c0.60		0.01	c0.40	
v/s Ratio Perm	0.04				c0.11				0.02			0.02
v/c Ratio	0.31	0.14			0.79		0.39	0.82	0.03	0.93	0.84	0.03
Uniform Delay, d1	38.6	37.7			41.6		29.9	8.9	3.7	49.6	23.2	14.2
Progression Factor	1.00	1.00			1.00		0.67	0.27	0.42	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.3			27.1		0.7	1.6	0.0	201.0	7.5	0.0
Delay (s)	39.6	38.0			68.7		20.8	4.0	1.6	250.5	30.6	14.2
Level of Service	D	D			E		C	A	A	F	C	B
Approach Delay (s)		38.4			68.7			6.3			33.0	
Approach LOS		D			E			A			C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	51	15	126	63	50	20	544	145	54	353	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.93		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1799		1770	1738		1770	1863	1583	1770	1850	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1799		1770	1738		1770	1863	1583	1770	1850	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	54	16	133	66	53	21	573	153	57	372	18
RTOR Reduction (vph)	0	12	0	0	31	0	0	0	77	0	1	0
Lane Group Flow (vph)	33	58	0	133	88	0	21	573	76	57	389	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	1.8	8.2		8.8	15.2		1.5	36.3	36.3	3.9	38.7	
Effective Green, g (s)	1.8	8.2		8.8	15.2		1.5	36.3	36.3	3.9	38.7	
Actuated g/C Ratio	0.02	0.11		0.12	0.21		0.02	0.50	0.50	0.05	0.53	
Clearance Time (s)	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	
Lane Grp Cap (vph)	44	202		213	361		36	924	785	94	978	
v/s Ratio Prot	0.02	0.03		c0.08	c0.05		0.01	c0.31		c0.03	0.21	
v/s Ratio Perm									0.05			
v/c Ratio	0.75	0.29		0.62	0.24		0.58	0.62	0.10	0.61	0.40	
Uniform Delay, d1	35.5	29.8		30.6	24.2		35.5	13.4	9.8	33.9	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	51.4	0.8		5.6	0.4		21.8	1.3	0.1	10.6	0.3	
Delay (s)	86.9	30.6		36.2	24.6		57.4	14.7	9.8	44.5	10.6	
Level of Service	F	C		D	C		E	B	A	D	B	
Approach Delay (s)		48.6			30.7			14.9			14.9	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



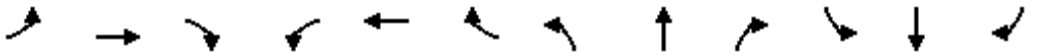
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	66	54	1237	59	72	869
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	11	11
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.75	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	1070	1597		1540	1621
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	1070	1597		1540	1621
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	69	57	1302	62	76	915
RTOR Reduction (vph)	0	52	1	0	0	0
Lane Group Flow (vph)	69	5	1363	0	76	915
Confl. Peds. (#/hr)	50	50		50	50	
Confl. Bikes (#/hr)		20		20		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	8.2	8.2	75.8		4.0	83.8
Effective Green, g (s)	8.2	8.2	75.8		4.0	83.8
Actuated g/C Ratio	0.08	0.08	0.76		0.04	0.84
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)	131	88	1211		62	1358
v/s Ratio Prot	c0.04		c0.85		c0.05	0.56
v/s Ratio Perm		0.00				
v/c Ratio	0.53	0.05	1.13		1.23	0.67
Uniform Delay, d1	44.0	42.3	12.1		48.0	3.0
Progression Factor	1.00	1.00	0.33		0.90	0.70
Incremental Delay, d2	3.8	0.3	61.6		170.6	2.0
Delay (s)	47.8	42.6	65.5		213.7	4.1
Level of Service	D	D	E		F	A
Approach Delay (s)	45.4		65.5			20.2
Approach LOS	D		E			C

Intersection Summary			
HCM Average Control Delay	46.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	423	114	1052	289	138	738
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.97		1.00	1.00	1.00	0.95
Frpb, ped/bikes	0.98		1.00	0.95	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	2977		1676	1356	1486	3185
Flt Permitted	0.96		1.00	1.00	0.95	1.00
Satd. Flow (perm)	2977		1676	1356	1486	3185
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	445	120	1107	304	145	777
RTOR Reduction (vph)	25	0	0	109	0	0
Lane Group Flow (vph)	540	0	1107	195	145	777
Confl. Peds. (#/hr)	20	20		20	20	
Turn Type				Perm	Prot	
Protected Phases	8		6		5	2
Permitted Phases				6		
Actuated Green, G (s)	16.0		63.0	63.0	9.0	76.0
Effective Green, g (s)	16.0		63.0	63.0	9.0	76.0
Actuated g/C Ratio	0.16		0.63	0.63	0.09	0.76
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)	476		1056	854	134	2421
v/s Ratio Prot	c0.18		c0.66		c0.10	0.24
v/s Ratio Perm				0.14		
v/c Ratio	1.13		1.05	0.23	1.08	0.32
Uniform Delay, d1	42.0		18.5	8.0	45.5	3.8
Progression Factor	1.00		0.63	0.49	0.98	1.03
Incremental Delay, d2	83.4		37.1	0.4	93.0	0.3
Delay (s)	125.4		48.7	4.3	137.5	4.2
Level of Service	F		D	A	F	A
Approach Delay (s)	125.4		39.2			25.2
Approach LOS	F		D			C

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

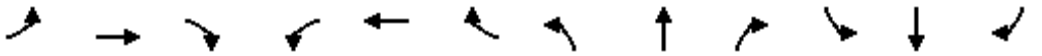


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	1495	161	196	1046	36	79	3	120	37	7	4
Ideal Flow (vphpl)	1900	1900	1900	1700	1700	1700	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1583	3151			1777	1583		1787	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	1583	1583	3151			1777	1583		1787	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	1574	169	206	1101	38	83	3	126	39	7	4
RTOR Reduction (vph)	0	0	41	0	2	0	0	0	27	0	0	4
Lane Group Flow (vph)	15	1574	128	206	1137	0	0	86	99	0	46	0
Turn Type	Prot		Perm	Prot			Split		pm+ov	Split		Perm
Protected Phases	1	6		5	2		8	8	5	7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	0.7	53.2	53.2	14.9	67.4			8.2	23.1		3.1	3.1
Effective Green, g (s)	0.7	53.2	53.2	14.9	67.4			8.2	23.1		3.1	3.1
Actuated g/C Ratio	0.01	0.56	0.56	0.16	0.71			0.09	0.24		0.03	0.03
Clearance Time (s)	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
Lane Grp Cap (vph)	13	1974	883	247	2226			153	450		58	51
v/s Ratio Prot	0.01	c0.44		c0.13	0.36			c0.05	0.03		c0.03	
v/s Ratio Perm			0.08						0.03			0.00
v/c Ratio	1.15	0.80	0.14	0.83	0.51			0.56	0.22		0.79	0.00
Uniform Delay, d1	47.4	16.8	10.2	39.1	6.4			41.9	28.9		45.8	44.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	305.0	3.5	0.3	20.8	0.8			4.7	0.2		51.1	0.0
Delay (s)	352.3	20.3	10.5	59.9	7.3			46.5	29.2		97.0	44.7
Level of Service	F	C	B	E	A			D	C		F	D
Approach Delay (s)		22.2			15.3			36.2			92.8	
Approach LOS		C			B			D			F	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	41	16	1322	331	88	1133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.94	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1492	3395		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1492	3395		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	43	17	1392	348	93	1193
RTOR Reduction (vph)	0	16	16	0	0	0
Lane Group Flow (vph)	43	1	1724	0	93	1193
Confl. Peds. (#/hr)	10	10		10	10	
Confl. Bikes (#/hr)		10		10		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	7.9	7.9	71.7		8.4	84.1
Effective Green, g (s)	7.9	7.9	71.7		8.4	84.1
Actuated g/C Ratio	0.08	0.08	0.72		0.08	0.84
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)	140	118	2434		149	2976
v/s Ratio Prot	c0.02		c0.51		c0.05	0.34
v/s Ratio Perm		0.00				
v/c Ratio	0.31	0.01	0.71		0.62	0.40
Uniform Delay, d1	43.5	42.5	8.1		44.3	1.9
Progression Factor	1.00	1.00	1.00		1.12	0.94
Incremental Delay, d2	1.2	0.0	1.8		6.5	0.1
Delay (s)	44.7	42.5	9.9		56.3	1.9
Level of Service	D	D	A		E	A
Approach Delay (s)	44.1		9.9			5.8
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

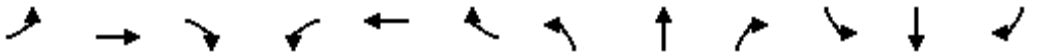


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	54	26	167	9	71	16	505	194	226	818	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1603			1600	1425	1593	1676	1425	1593	1675	
Flt Permitted		0.97			0.64	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1561			1073	1425	1593	1676	1425	1593	1675	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	57	27	176	9	75	17	532	204	238	861	6
RTOR Reduction (vph)	0	15	0	0	0	47	0	0	92	0	0	0
Lane Group Flow (vph)	0	78	0	0	185	28	17	532	112	238	867	0
Turn Type	Perm			Perm		pm+ov	Prot		Perm	Prot		
Protected Phases		4			8	5	1	6		5	2	
Permitted Phases	4			8		8			6			
Actuated Green, G (s)		19.6			19.6	37.3	1.6	50.7	50.7	17.7	66.8	
Effective Green, g (s)		19.6			19.6	37.3	1.6	50.7	50.7	17.7	66.8	
Actuated g/C Ratio		0.20			0.20	0.37	0.02	0.51	0.51	0.18	0.67	
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)		306			210	589	25	850	722	282	1119	
v/s Ratio Prot						0.01	0.01	c0.32		c0.15	c0.52	
v/s Ratio Perm		0.05			c0.17	0.01			0.08			
v/c Ratio		0.25			0.88	0.05	0.68	0.63	0.16	0.84	0.77	
Uniform Delay, d1		34.0			39.1	20.0	48.9	17.8	13.2	39.8	11.4	
Progression Factor		1.00			1.00	1.00	0.86	0.74	1.13	1.08	1.06	
Incremental Delay, d2		0.4			32.1	0.0	53.1	3.2	0.4	15.1	3.8	
Delay (s)		34.5			71.1	20.0	95.4	16.3	15.4	58.0	15.9	
Level of Service		C			E	C	F	B	B	E	B	
Approach Delay (s)		34.5			56.4			17.9			25.0	
Approach LOS		C			E			B			C	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

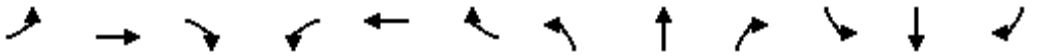
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	502	59	90	179	79	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3483		1770	3539	1700	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3483		1770	3539	1700	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	528	62	95	188	83	73
RTOR Reduction (vph)	17	0	0	0	63	0
Lane Group Flow (vph)	573	0	95	188	93	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	14.1		19.0	37.1	6.9	
Effective Green, g (s)	14.1		19.0	37.1	6.9	
Actuated g/C Ratio	0.27		0.37	0.71	0.13	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	944		647	2525	226	
v/s Ratio Prot	c0.16		c0.05	0.05		
v/s Ratio Perm					c0.05	
v/c Ratio	0.61		0.15	0.07	0.41	
Uniform Delay, d1	16.5		11.1	2.3	20.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.1		0.5	0.1	1.2	
Delay (s)	17.6		11.5	2.3	21.9	
Level of Service	B		B	A	C	
Approach Delay (s)	17.6			5.4	21.9	
Approach LOS	B			A	C	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	90	116	282	61	17	37	266	217	9	638	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.92		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1706		1652	1801		1770	1863	1583	1770	3522	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	1706		1652	1801		1770	1863	1583	1770	3522	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	95	122	297	64	18	39	280	228	9	672	23
RTOR Reduction (vph)	0	72	0	0	11	0	0	0	161	0	4	0
Lane Group Flow (vph)	25	145	0	297	71	0	39	280	67	9	691	0
Confl. Peds. (#/hr)							37					
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	3.1	13.1		13.3	23.3		1.4	17.8	17.8	0.7	17.1	
Effective Green, g (s)	3.1	13.1		13.3	23.3		1.4	17.8	17.8	0.7	17.1	
Actuated g/C Ratio	0.05	0.22		0.22	0.38		0.02	0.29	0.29	0.01	0.28	
Clearance Time (s)	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	
Lane Grp Cap (vph)	84	367		361	689		41	545	463	20	989	
v/s Ratio Prot	0.02	c0.08		c0.18	0.04		0.02	c0.15		0.01	c0.20	
v/s Ratio Perm									0.04			
v/c Ratio	0.30	0.39		0.82	0.10		0.95	0.51	0.14	0.45	0.70	
Uniform Delay, d1	27.9	20.5		22.7	12.1		29.7	17.9	15.9	29.9	19.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	0.7		14.0	0.1		121.0	3.4	0.7	15.3	4.1	
Delay (s)	29.8	21.2		36.7	12.1		150.7	21.4	16.6	45.2	23.7	
Level of Service	C	C		D	B		F	C	B	D	C	
Approach Delay (s)		22.1			31.4			28.6			24.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	1	186	14	1	2	99	431	15	2	837	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85			0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1585			1761		1770	1863	1583	1770	1863	1583
Flt Permitted	0.75	1.00			0.41		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1389	1585			759		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	1	196	15	1	2	104	454	16	2	881	52
RTOR Reduction (vph)	0	176	0	0	2	0	0	0	4	0	0	23
Lane Group Flow (vph)	68	21	0	0	16	0	104	454	12	2	881	29
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	10.2	10.2			10.2		22.1	76.7	76.7	1.1	55.7	55.7
Effective Green, g (s)	10.2	10.2			10.2		22.1	76.7	76.7	1.1	55.7	55.7
Actuated g/C Ratio	0.10	0.10			0.10		0.22	0.77	0.77	0.01	0.56	0.56
Clearance Time (s)	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
Lane Grp Cap (vph)	142	162			77		391	1429	1214	19	1038	882
v/s Ratio Prot		0.01					0.06	c0.24		0.00	c0.47	
v/s Ratio Perm	c0.05				0.02				0.01			0.02
v/c Ratio	0.48	0.13			0.21		0.27	0.32	0.01	0.11	0.85	0.03
Uniform Delay, d1	42.4	40.9			41.2		32.2	3.6	2.7	49.0	18.6	10.0
Progression Factor	1.00	1.00			1.00		0.57	0.36	0.30	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.4			1.4		1.4	0.5	0.0	2.4	6.6	0.0
Delay (s)	44.9	41.2			42.6		19.6	1.8	0.8	51.4	25.2	10.0
Level of Service	D	D			D		B	A	A	D	C	B
Approach Delay (s)		42.2			42.6			5.0			24.4	
Approach LOS		D			D			A			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	22	60	24	173	13	25	5	233	87	24	530	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.90		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1783		1770	1681		1770	1863	1583	1770	1860	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1783		1770	1681		1770	1863	1583	1770	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	23	63	25	182	14	26	5	245	92	25	558	5
RTOR Reduction (vph)	0	15	0	0	18	0	0	0	54	0	1	0
Lane Group Flow (vph)	23	73	0	182	22	0	5	245	38	25	562	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	1.6	9.0		12.2	19.6		0.5	27.6	27.6	1.6	28.7	
Effective Green, g (s)	1.6	9.0		12.2	19.6		0.5	27.6	27.6	1.6	28.7	
Actuated g/C Ratio	0.02	0.14		0.18	0.30		0.01	0.42	0.42	0.02	0.43	
Clearance Time (s)	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	
Lane Grp Cap (vph)	43	242		325	496		13	774	658	43	804	
v/s Ratio Prot	0.01	c0.04		c0.10	0.01		0.00	0.13		c0.01	c0.30	
v/s Ratio Perm									0.02			
v/c Ratio	0.53	0.30		0.56	0.04		0.38	0.32	0.06	0.58	0.70	
Uniform Delay, d1	32.0	25.9		24.7	16.7		32.8	13.1	11.6	32.1	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.2	0.7		2.2	0.0		17.9	0.2	0.0	18.4	2.7	
Delay (s)	44.2	26.6		26.9	16.7		50.7	13.3	11.7	50.5	18.0	
Level of Service	D	C		C	B		D	B	B	D	B	
Approach Delay (s)		30.2			25.0			13.4			19.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

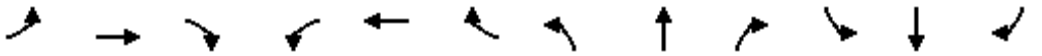
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	5	2	575	43	71	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	11	11
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.38	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	542	1585		1540	1621
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	542	1585		1540	1621
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	2	605	45	75	1026
RTOR Reduction (vph)	0	2	2	0	0	0
Lane Group Flow (vph)	5	0	648	0	75	1026
Confl. Peds. (#/hr)	50	50		50	50	
Confl. Bikes (#/hr)		20		20		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	1.4	1.4	78.0		8.6	90.6
Effective Green, g (s)	1.4	1.4	78.0		8.6	90.6
Actuated g/C Ratio	0.01	0.01	0.78		0.09	0.91
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)	22	8	1236		132	1469
v/s Ratio Prot	c0.00		0.41		0.05	c0.63
v/s Ratio Perm		0.00				
v/c Ratio	0.23	0.00	0.52		0.57	0.70
Uniform Delay, d1	48.8	48.6	4.1		43.9	1.2
Progression Factor	1.00	1.00	0.55		0.86	0.08
Incremental Delay, d2	5.2	0.2	1.5		3.8	1.9
Delay (s)	54.0	48.8	3.8		41.7	2.0
Level of Service	D	D	A		D	A
Approach Delay (s)	52.5		3.8			4.7
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	4.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	417	79	413	178	121	809
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.97		1.00	1.00	1.00	0.95
Frpb, ped/bikes	0.99		1.00	0.95	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3007		1676	1356	1486	3185
Flt Permitted	0.96		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3007		1676	1356	1486	3185
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	439	83	435	187	127	852
RTOR Reduction (vph)	17	0	0	88	0	0
Lane Group Flow (vph)	505	0	435	99	127	852
Confl. Peds. (#/hr)	20	20		20	20	
Turn Type				Perm	Prot	
Protected Phases	8		6		5	2
Permitted Phases				6		
Actuated Green, G (s)	21.5		53.2	53.2	13.3	70.5
Effective Green, g (s)	21.5		53.2	53.2	13.3	70.5
Actuated g/C Ratio	0.22		0.53	0.53	0.13	0.70
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)	647		892	721	198	2245
v/s Ratio Prot	c0.17		c0.26		c0.09	0.27
v/s Ratio Perm				0.07		
v/c Ratio	0.78		0.49	0.14	0.64	0.38
Uniform Delay, d1	37.0		14.8	11.8	41.1	5.9
Progression Factor	1.00		0.49	0.67	0.97	0.75
Incremental Delay, d2	6.1		1.8	0.4	5.4	0.4
Delay (s)	43.1		9.1	8.3	45.2	4.8
Level of Service	D		A	A	D	A
Approach Delay (s)	43.1		8.8			10.1
Approach LOS	D		A			B

Intersection Summary			
HCM Average Control Delay	17.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

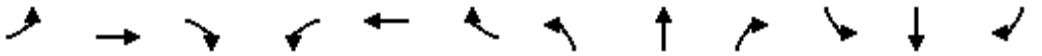


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	1394	99	112	1176	34	163	4	186	36	5	6
Ideal Flow (vphpl)	1900	1900	1900	1700	1700	1700	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1583	3153			1776	1583		1784	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	1583	1583	3153			1776	1583		1784	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	1467	104	118	1238	36	172	4	196	38	5	6
RTOR Reduction (vph)	0	0	37	0	2	0	0	0	43	0	0	6
Lane Group Flow (vph)	15	1467	67	118	1272	0	0	176	153	0	43	0
Turn Type	Prot		Perm	Prot			Split		pm+ov	Split		Perm
Protected Phases	1	6		5	2		8	8	5	7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	0.7	37.1	37.1	6.1	42.5			11.7	17.8		2.2	2.2
Effective Green, g (s)	0.7	37.1	37.1	6.1	42.5			11.7	17.8		2.2	2.2
Actuated g/C Ratio	0.01	0.51	0.51	0.08	0.58			0.16	0.24		0.03	0.03
Clearance Time (s)	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
Lane Grp Cap (vph)	17	1796	803	132	1833			284	472		54	48
v/s Ratio Prot	0.01	c0.41		c0.07	0.40			c0.10	0.03		c0.02	
v/s Ratio Perm			0.04						0.07			0.00
v/c Ratio	0.88	0.82	0.08	0.89	0.69			0.62	0.32		0.80	0.00
Uniform Delay, d1	36.2	15.1	9.3	33.2	10.7			28.6	22.7		35.2	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	159.7	4.2	0.2	47.5	2.2			4.0	0.4		54.4	0.0
Delay (s)	195.9	19.4	9.5	80.7	12.9			32.6	23.1		89.7	34.4
Level of Service	F	B	A	F	B			C	C		F	C
Approach Delay (s)		20.4			18.7			27.6			82.9	
Approach LOS		C			B			C			F	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

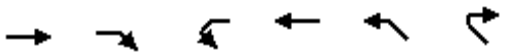
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	265	12	789	57	24	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.96	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1519	3490		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1519	3490		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	279	13	831	60	25	977
RTOR Reduction (vph)	0	6	4	0	0	0
Lane Group Flow (vph)	279	7	887	0	25	977
Confl. Peds. (#/hr)	10	10		10	10	
Confl. Bikes (#/hr)		10		10		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	21.2	21.2	63.5		3.3	70.8
Effective Green, g (s)	21.2	21.2	63.5		3.3	70.8
Actuated g/C Ratio	0.21	0.21	0.64		0.03	0.71
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)	375	322	2216		58	2506
v/s Ratio Prot	c0.16		0.25		0.01	c0.28
v/s Ratio Perm		0.00				
v/c Ratio	0.74	0.02	0.40		0.43	0.39
Uniform Delay, d1	36.9	31.2	8.9		47.4	5.9
Progression Factor	1.00	1.00	1.00		1.10	0.72
Incremental Delay, d2	7.8	0.0	0.5		4.6	0.1
Delay (s)	44.6	31.2	9.5		56.9	4.3
Level of Service	D	C	A		E	A
Approach Delay (s)	44.1		9.5			5.6
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



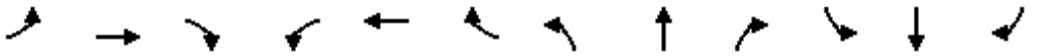
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	16	9	145	19	215	38	977	179	233	663	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1598			1605	1425	1593	1676	1425	1593	1676	
Flt Permitted		0.90			0.78	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1465			1304	1425	1593	1676	1425	1593	1676	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	17	9	153	20	226	40	1028	188	245	698	2
RTOR Reduction (vph)	0	8	0	0	0	73	0	0	46	0	0	0
Lane Group Flow (vph)	0	29	0	0	173	153	40	1028	142	245	700	0
Turn Type	Perm			Perm		pm+ov	Prot		Perm	Prot		
Protected Phases		4			8	5	1	6		5	2	
Permitted Phases	4			8		8			6			
Actuated Green, G (s)		15.3			15.3	30.0	4.2	58.0	58.0	14.7	68.5	
Effective Green, g (s)		15.3			15.3	30.0	4.2	58.0	58.0	14.7	68.5	
Actuated g/C Ratio		0.15			0.15	0.30	0.04	0.58	0.58	0.15	0.68	
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)		224			200	485	67	972	827	234	1148	
v/s Ratio Prot						0.05	0.03	c0.61		c0.15	0.42	
v/s Ratio Perm		0.02			c0.13	0.06			0.10			
v/c Ratio		0.13			0.86	0.32	0.60	1.06	0.17	1.05	0.61	
Uniform Delay, d1		36.6			41.3	27.1	47.1	21.0	9.8	42.6	8.5	
Progression Factor		1.00			1.00	1.00	0.70	0.38	0.22	0.91	1.53	
Incremental Delay, d2		0.3			30.0	0.4	1.3	28.7	0.0	64.1	1.8	
Delay (s)		36.9			71.3	27.4	34.4	36.7	2.2	103.1	14.9	
Level of Service		D			E	C	C	D	A	F	B	
Approach Delay (s)		36.9			46.5			31.4			37.8	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	36.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	964	108	90	720	62	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3486		1770	3539	1693	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3486		1770	3539	1693	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1015	114	95	758	65	68
RTOR Reduction (vph)	12	0	0	0	54	0
Lane Group Flow (vph)	1117	0	95	758	79	0
Turn Type			Prot			
Protected Phases	2		1	6		
Permitted Phases					8	
Actuated Green, G (s)	30.2		22.3	56.5	7.5	
Effective Green, g (s)	30.2		22.3	56.5	7.5	
Actuated g/C Ratio	0.42		0.31	0.78	0.10	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1462		548	2777	176	
v/s Ratio Prot	c0.32		0.05	c0.21		
v/s Ratio Perm					c0.05	
v/c Ratio	0.76		0.17	0.27	0.45	
Uniform Delay, d1	17.9		18.1	2.1	30.3	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.4		0.7	0.2	1.8	
Delay (s)	20.3		18.8	2.4	32.1	
Level of Service	C		B	A	C	
Approach Delay (s)	20.3			4.2	32.1	
Approach LOS	C			A	C	

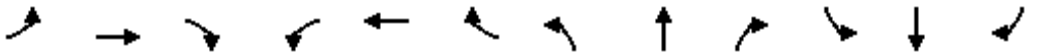
Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	76	70	235	129	64	95	612	319	52	459	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1728		1652	1771		1770	1863	1583	1770	3502	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1652	1728		1652	1771		1770	1863	1583	1770	3502	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	80	74	247	136	67	100	644	336	55	483	36
RTOR Reduction (vph)	0	34	0	0	19	0	0	0	180	0	5	0
Lane Group Flow (vph)	42	120	0	247	184	0	100	644	156	55	514	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	8.8	13.1		17.3	21.6		8.3	43.6	43.6	3.8	39.1	
Effective Green, g (s)	8.8	13.1		17.3	21.6		8.3	43.6	43.6	3.8	39.1	
Actuated g/C Ratio	0.09	0.14		0.18	0.23		0.09	0.46	0.46	0.04	0.42	
Clearance Time (s)	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	
Lane Grp Cap (vph)	155	241		305	408		157	866	736	72	1460	
v/s Ratio Prot	0.03	c0.07		c0.15	c0.10		0.06	c0.35		c0.03	0.15	
v/s Ratio Perm									0.10			
v/c Ratio	0.27	0.50		0.81	0.45		0.64	0.74	0.21	0.76	0.35	
Uniform Delay, d1	39.5	37.3		36.7	31.0		41.3	20.5	14.9	44.6	18.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	1.6		14.6	0.8		8.2	5.7	0.7	37.3	0.7	
Delay (s)	40.5	38.9		51.3	31.8		49.5	26.3	15.6	81.9	19.4	
Level of Service	D	D		D	C		D	C	B	F	B	
Approach Delay (s)		39.2			42.5			25.1			25.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

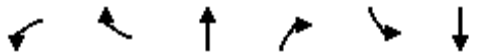


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	9	141	63	27	7	172	999	34	12	695	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1599			1787		1770	1863	1583	1770	1863	1583
Flt Permitted	0.69	1.00			0.49		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1292	1599			912		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	9	148	66	28	7	181	1052	36	13	732	55
RTOR Reduction (vph)	0	127	0	0	3	0	0	0	4	0	0	29
Lane Group Flow (vph)	54	30	0	0	98	0	181	1052	32	13	732	26
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	13.9	13.9			13.9		27.7	73.3	73.3	0.8	46.4	46.4
Effective Green, g (s)	13.9	13.9			13.9		27.7	73.3	73.3	0.8	46.4	46.4
Actuated g/C Ratio	0.14	0.14			0.14		0.28	0.73	0.73	0.01	0.46	0.46
Clearance Time (s)	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
Lane Grp Cap (vph)	180	222			127		490	1366	1160	14	864	735
v/s Ratio Prot		0.02					0.10	c0.56		0.01	c0.39	
v/s Ratio Perm	0.04				c0.11				0.02			0.02
v/c Ratio	0.30	0.13			0.77		0.37	0.77	0.03	0.93	0.85	0.03
Uniform Delay, d1	38.7	37.8			41.5		29.1	8.2	3.6	49.6	23.7	14.6
Progression Factor	1.00	1.00			1.00		0.64	0.24	0.39	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.3			25.0		0.8	1.6	0.0	201.0	7.7	0.0
Delay (s)	39.6	38.0			66.5		19.5	3.6	1.4	250.5	31.4	14.6
Level of Service	D	D			E		B	A	A	F	C	B
Approach Delay (s)		38.4			66.5			5.8			33.8	
Approach LOS		D			E			A			C	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	51	14	126	63	49	19	540	143	52	353	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.93		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1802		1770	1740		1770	1863	1583	1770	1850	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1802		1770	1740		1770	1863	1583	1770	1850	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	54	15	133	66	52	20	568	151	55	372	18
RTOR Reduction (vph)	0	11	0	0	30	0	0	0	76	0	1	0
Lane Group Flow (vph)	33	58	0	133	88	0	20	568	75	55	389	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	1.8	8.3		8.8	15.3		1.5	36.2	36.2	3.9	38.6	
Effective Green, g (s)	1.8	8.3		8.8	15.3		1.5	36.2	36.2	3.9	38.6	
Actuated g/C Ratio	0.02	0.11		0.12	0.21		0.02	0.49	0.49	0.05	0.53	
Clearance Time (s)	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	
Lane Grp Cap (vph)	44	204		213	364		36	921	783	94	976	
v/s Ratio Prot	0.02	0.03		c0.08	c0.05		0.01	c0.30		c0.03	0.21	
v/s Ratio Perm									0.05			
v/c Ratio	0.75	0.29		0.62	0.24		0.56	0.62	0.10	0.59	0.40	
Uniform Delay, d1	35.5	29.7		30.6	24.1		35.5	13.5	9.8	33.9	10.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	51.4	0.8		5.6	0.3		17.3	1.2	0.1	9.0	0.3	
Delay (s)	86.9	30.5		36.2	24.5		52.8	14.7	9.9	42.8	10.6	
Level of Service	F	C		D	C		D	B	A	D	B	
Approach Delay (s)		48.7			30.7			14.7			14.6	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



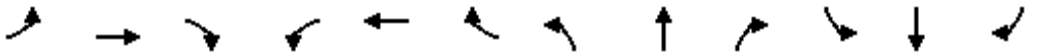
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	97	18	1241	31	42	775
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	11	11
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.76	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	1080	1608		1540	1621
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	1080	1608		1540	1621
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	19	1306	33	44	816
RTOR Reduction (vph)	0	17	1	0	0	0
Lane Group Flow (vph)	102	2	1338	0	44	816
Confl. Peds. (#/hr)	50	50		50	50	
Confl. Bikes (#/hr)		20		20		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	9.1	9.1	75.7		3.2	82.9
Effective Green, g (s)	9.1	9.1	75.7		3.2	82.9
Actuated g/C Ratio	0.09	0.09	0.76		0.03	0.83
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)	145	98	1217		49	1344
v/s Ratio Prot	c0.06		c0.83		0.03	c0.50
v/s Ratio Perm		0.00				
v/c Ratio	0.70	0.02	1.10		0.90	0.61
Uniform Delay, d1	44.1	41.4	12.2		48.2	2.9
Progression Factor	1.00	1.00	0.36		0.87	0.81
Incremental Delay, d2	14.4	0.1	51.3		76.9	1.6
Delay (s)	58.5	41.5	55.7		119.1	4.0
Level of Service	E	D	E		F	A
Approach Delay (s)	55.8		55.7			9.8
Approach LOS	E		E			A

Intersection Summary			
HCM Average Control Delay	38.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	419	115	996	283	160	686
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.97		1.00	1.00	1.00	0.95
Frpb, ped/bikes	0.98		1.00	0.95	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	2976		1676	1356	1486	3185
Flt Permitted	0.96		1.00	1.00	0.95	1.00
Satd. Flow (perm)	2976		1676	1356	1486	3185
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	441	121	1048	298	168	722
RTOR Reduction (vph)	26	0	0	113	0	0
Lane Group Flow (vph)	536	0	1048	185	168	722
Confl. Peds. (#/hr)	20	20		20	20	
Turn Type				Perm	Prot	
Protected Phases	8		6		5	2
Permitted Phases				6		
Actuated Green, G (s)	17.0		60.0	60.0	11.0	75.0
Effective Green, g (s)	17.0		60.0	60.0	11.0	75.0
Actuated g/C Ratio	0.17		0.60	0.60	0.11	0.75
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)	506		1006	814	163	2389
v/s Ratio Prot	c0.18		c0.63		c0.11	0.23
v/s Ratio Perm				0.14		
v/c Ratio	1.06		1.04	0.23	1.03	0.30
Uniform Delay, d1	41.5		20.0	9.3	44.5	4.0
Progression Factor	1.00		0.67	0.59	1.01	1.10
Incremental Delay, d2	56.8		35.6	0.5	72.8	0.3
Delay (s)	98.3		49.0	5.9	117.8	4.7
Level of Service	F		D	A	F	A
Approach Delay (s)	98.3		39.5			26.1
Approach LOS	F		D			C

Intersection Summary			
HCM Average Control Delay	47.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	1502	192	163	1025	32	95	2	101	33	8	5
Ideal Flow (vphpl)	1900	1900	1900	1700	1700	1700	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1583	3152			1776	1583		1790	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	1583	1583	3152			1776	1583		1790	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	18	1581	202	172	1079	34	100	2	106	35	8	5
RTOR Reduction (vph)	0	0	49	0	2	0	0	0	31	0	0	5
Lane Group Flow (vph)	18	1581	153	172	1111	0	0	102	75	0	43	0
Turn Type	Prot		Perm	Prot			Split		pm+ov	Split		Perm
Protected Phases	1	6		5	2		8	8	5	7	7	
Permitted Phases			6						8			7
Actuated Green, G (s)	1.9	55.1	55.1	13.0	66.2			9.1	22.1		3.1	3.1
Effective Green, g (s)	1.9	55.1	55.1	13.0	66.2			9.1	22.1		3.1	3.1
Actuated g/C Ratio	0.02	0.57	0.57	0.13	0.69			0.09	0.23		0.03	0.03
Clearance Time (s)	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
Lane Grp Cap (vph)	35	2025	906	214	2167			168	429		58	51
v/s Ratio Prot	0.01	c0.45		c0.11	0.35			c0.06	0.02		c0.02	
v/s Ratio Perm			0.10						0.02			0.00
v/c Ratio	0.51	0.78	0.17	0.80	0.51			0.61	0.18		0.74	0.00
Uniform Delay, d1	46.7	15.9	9.8	40.4	7.3			41.9	29.8		46.2	45.1
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	12.2	3.1	0.4	19.2	0.9			6.1	0.2		39.6	0.0
Delay (s)	58.9	19.0	10.2	59.6	8.1			48.0	30.0		85.8	45.1
Level of Service	E	B	B	E	A			D	C		F	D
Approach Delay (s)		18.4			15.0			38.8			81.5	
Approach LOS		B			B			D			F	

Intersection Summary			
HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	46	12	1343	315	61	1110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.94	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1494	3402		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1494	3402		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	48	13	1414	332	64	1168
RTOR Reduction (vph)	0	12	15	0	0	0
Lane Group Flow (vph)	48	1	1731	0	64	1168
Confl. Peds. (#/hr)	10	10		10	10	
Confl. Bikes (#/hr)		10		10		
Turn Type		Perm			Prot	
Protected Phases	8		6		5	2
Permitted Phases		8				
Actuated Green, G (s)	8.2	8.2	72.6		7.2	83.8
Effective Green, g (s)	8.2	8.2	72.6		7.2	83.8
Actuated g/C Ratio	0.08	0.08	0.73		0.07	0.84
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)	145	123	2470		127	2966
v/s Ratio Prot	c0.03		c0.51		0.04	c0.33
v/s Ratio Perm		0.00				
v/c Ratio	0.33	0.01	0.70		0.50	0.39
Uniform Delay, d1	43.3	42.2	7.6		44.7	2.0
Progression Factor	1.00	1.00	1.00		1.12	1.00
Incremental Delay, d2	1.3	0.0	1.7		2.6	0.1
Delay (s)	44.7	42.2	9.3		52.7	2.0
Level of Service	D	D	A		D	A
Approach Delay (s)	44.1		9.3			4.7
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E

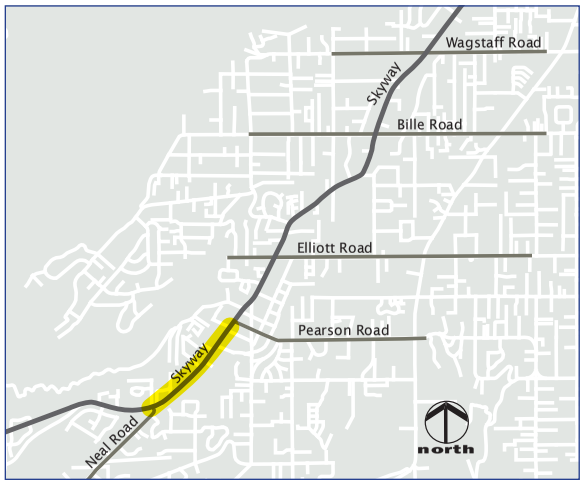
Alternative Street Section Cross Sections

September 2008

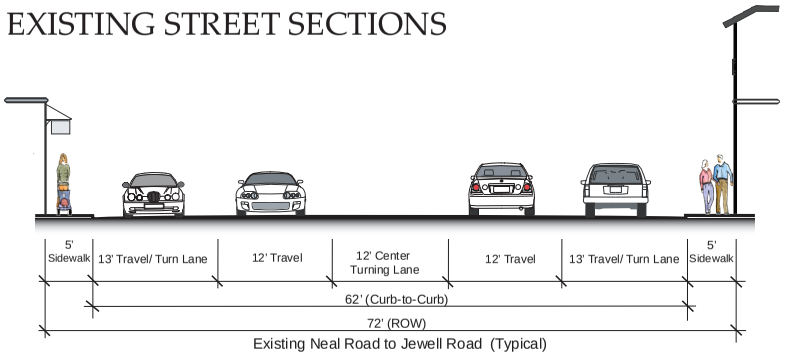
Segment A - Neal Road to Pearson Road

rrmdesigngroup
creating environments people enjoy

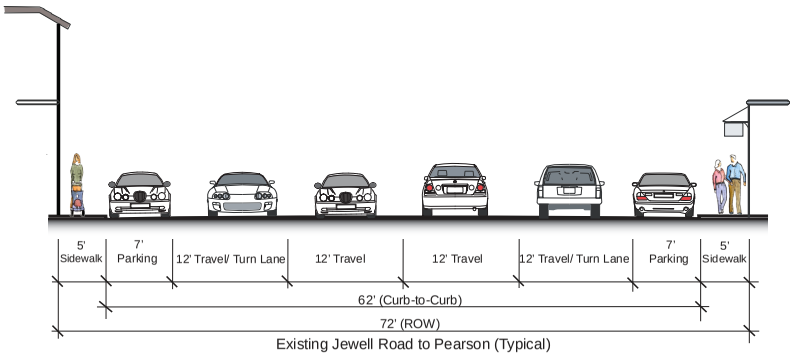
KEY MAP



EXISTING STREET SECTIONS

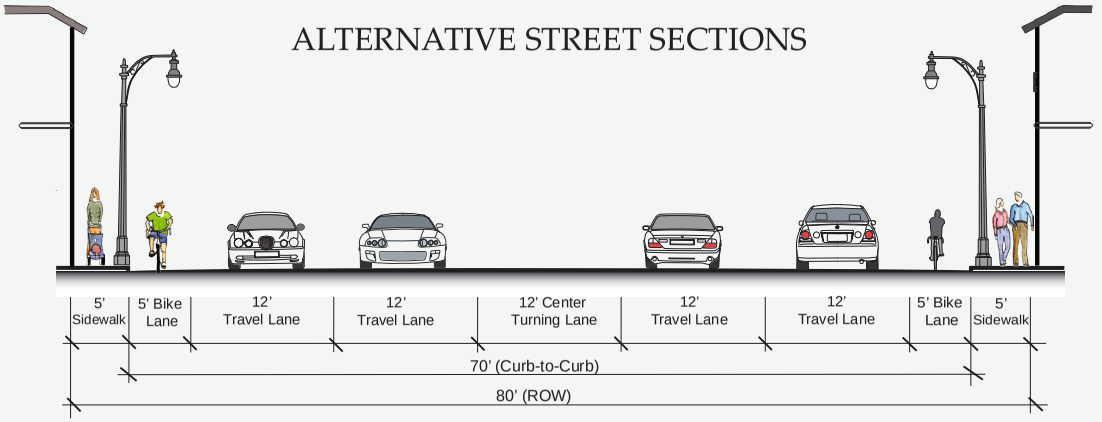


Existing Neal Road to Jewell Road (Typical)
72' Street Section

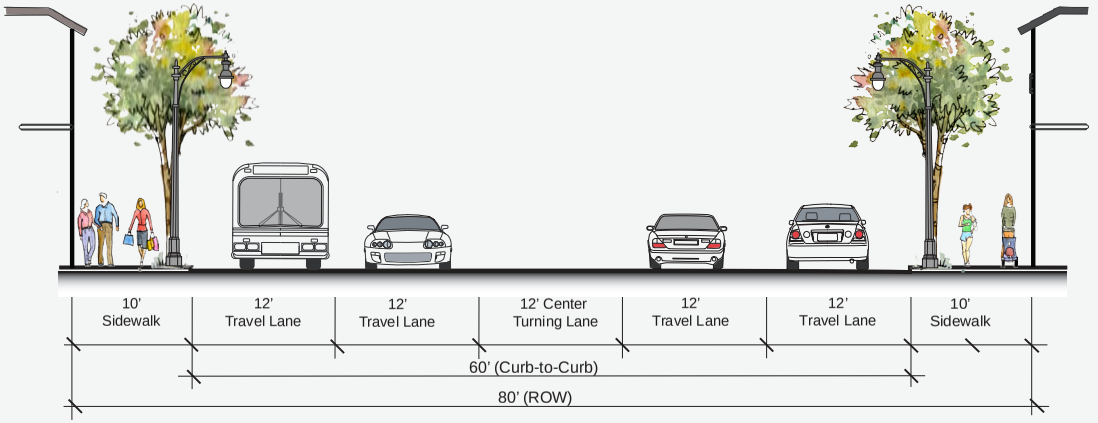


Existing Jewell Road to Pearson (Typical)
72' Street Section

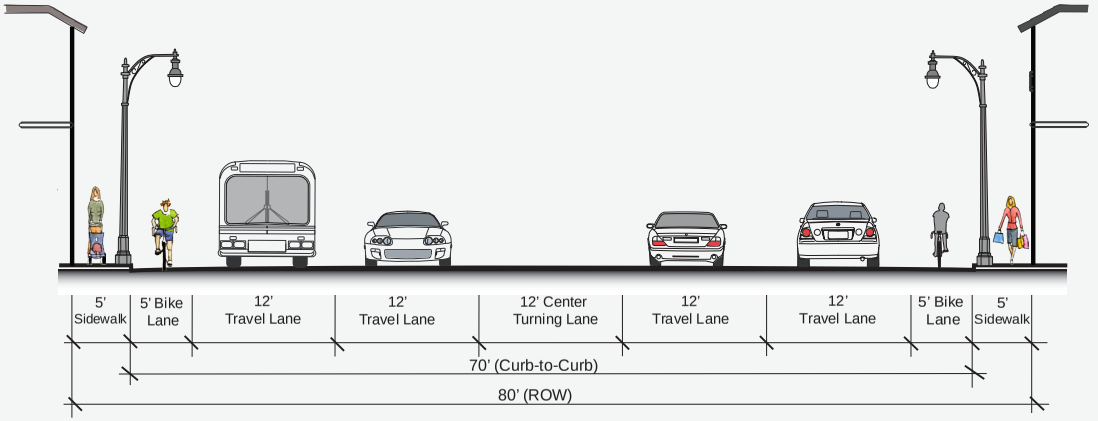
ALTERNATIVE STREET SECTIONS



Alternative A.1 - 80' Street Section



Alternative A.2 - 80' Street Section



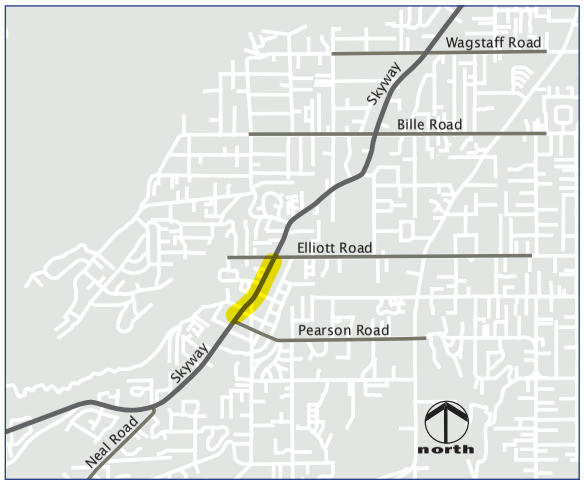
Alternative A.3 - 80' Street Section

September 2008

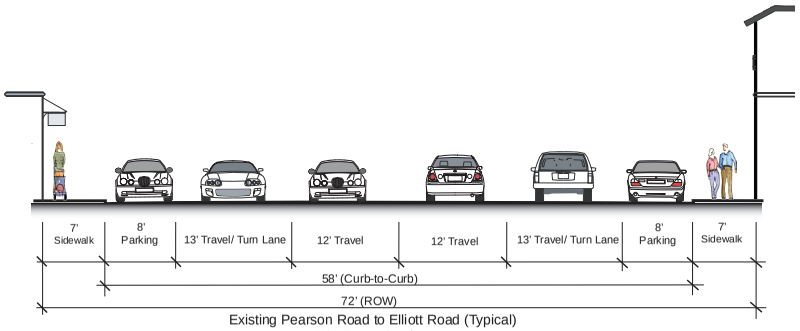
Segment B - Pearson Road to Elliott Road

rrmdesigngroup
creating environments people enjoy

KEY MAP

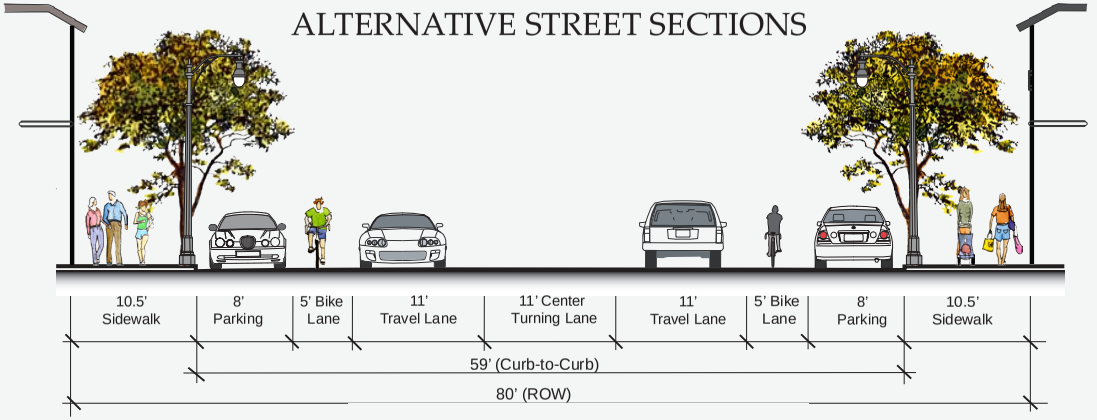


EXISTING STREET SECTION

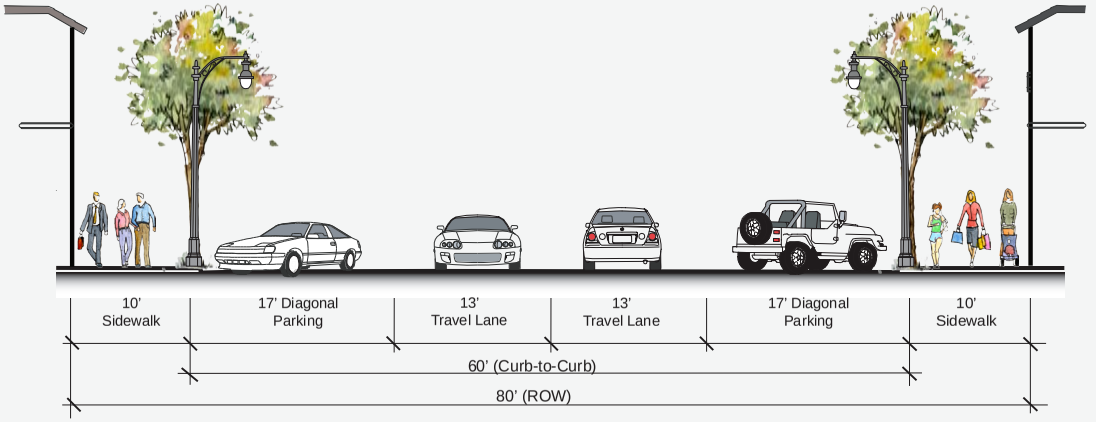


Existing Pearson Road to Elliott Road (Typical)
72' Street Section

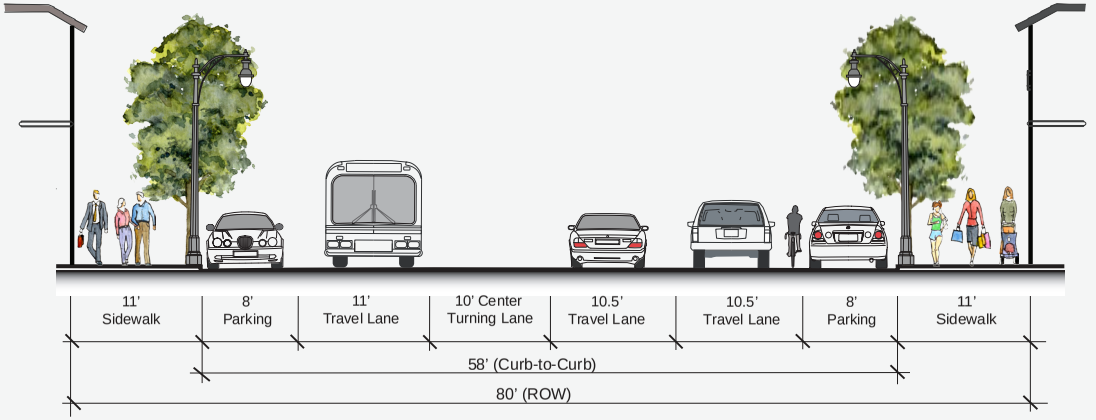
ALTERNATIVE STREET SECTIONS



Alternative B.1 - 80' Street Section



Alternative B.2 - 80' Street Section

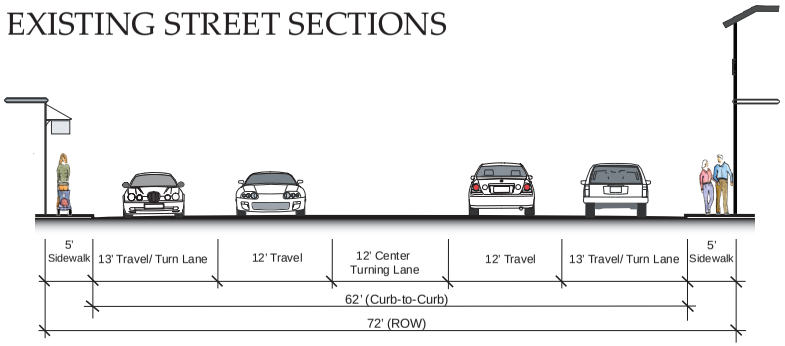


Alternative B.3 - 80' Street Section

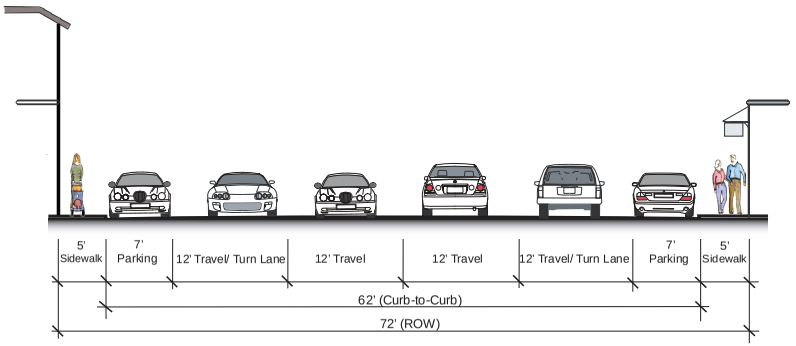
Segment C - Elliott Road to Bille Road

KEY MAP

EXISTING STREET SECTIONS

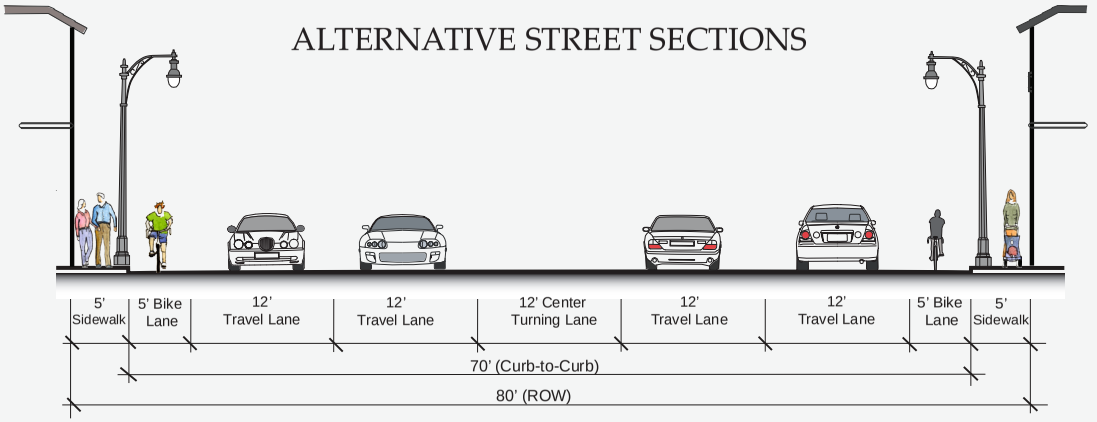


Existing Elliott Road to Maxwell Road (Typical)
72' Street Section

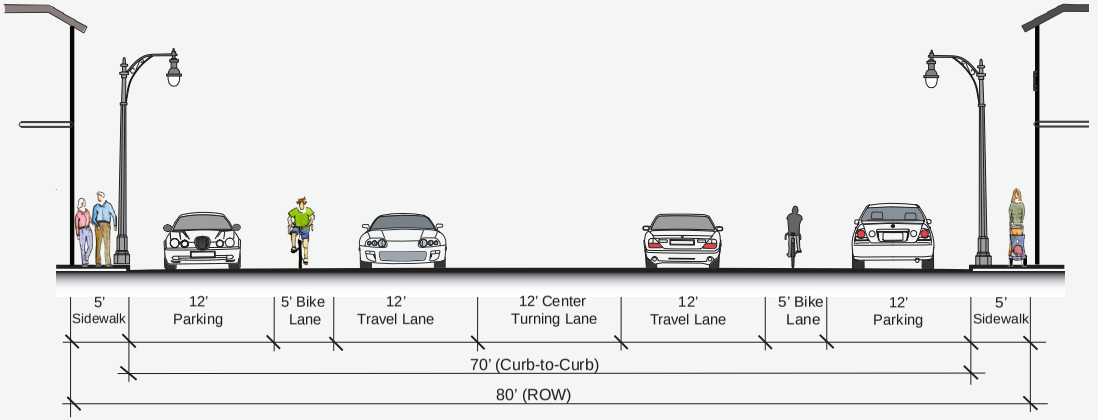


Existing Maxwell Road to Bille Road (Typical)
72' Street Section

ALTERNATIVE STREET SECTIONS



Alternative C.1 - 80' Street Section



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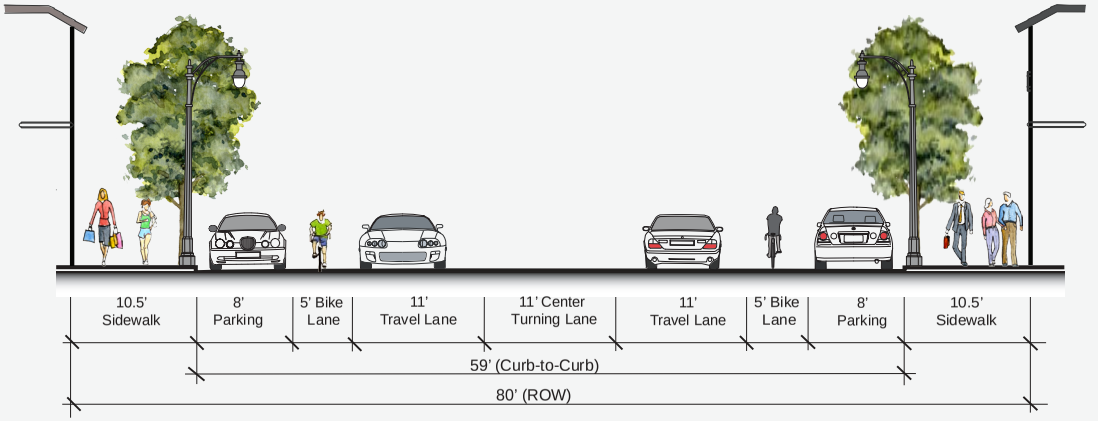
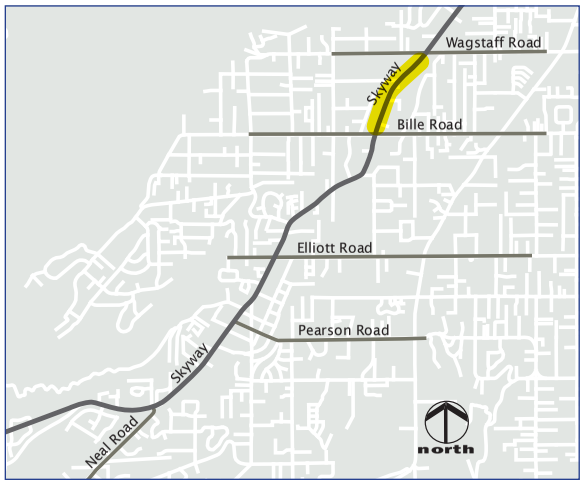


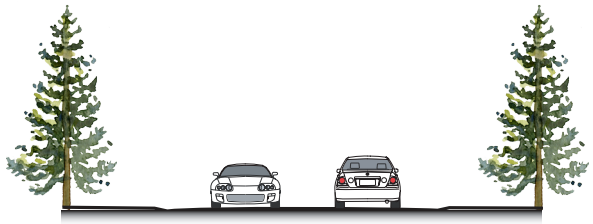
Alternative C.3 - 80' Street Section

Segment D - Bille Road to Wagstaff Road

KEY MAP

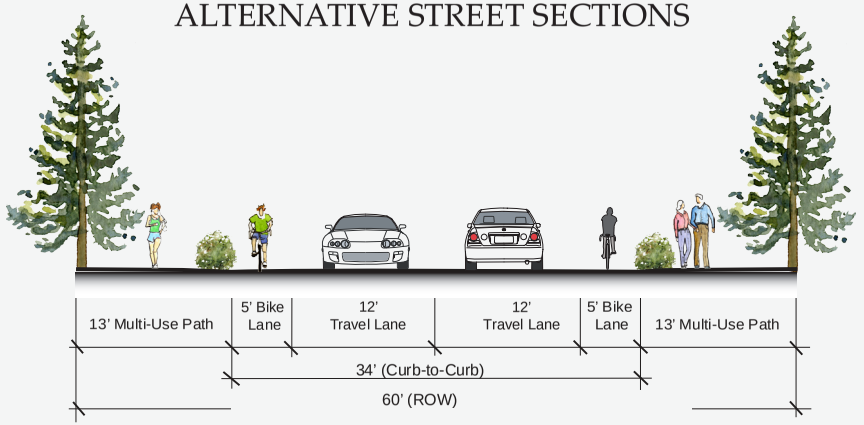


EXISTING STREET SECTION

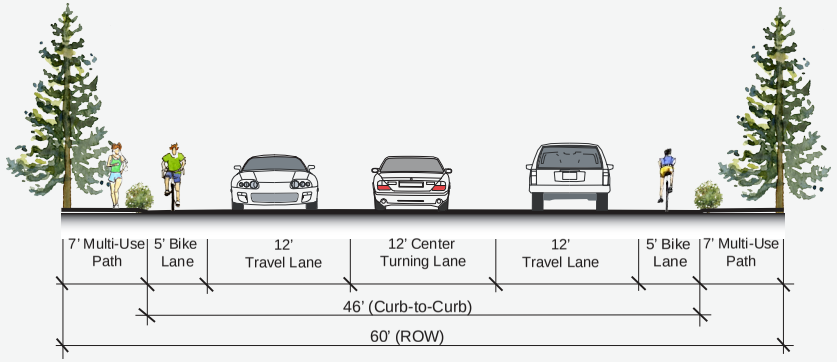


Existing Bille Road to Wagstaff Road
(Varies Significantly)
28' Street Section

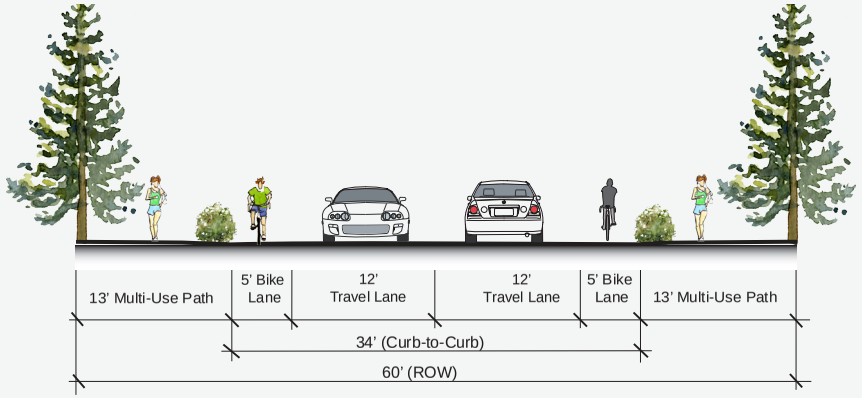
ALTERNATIVE STREET SECTIONS



Alternative D.1 - 60' Street Section



Alternative D.2 - 60' Street Section



Alternative D.3 - 60' Street Section

ALTERNATIVE 1 & 3

ALTERNATIVE 2

LEGEND:

Existing Sidewalk

Proposed Extended Sidwalk

SCALE: 1"=100'

0 25 50 100

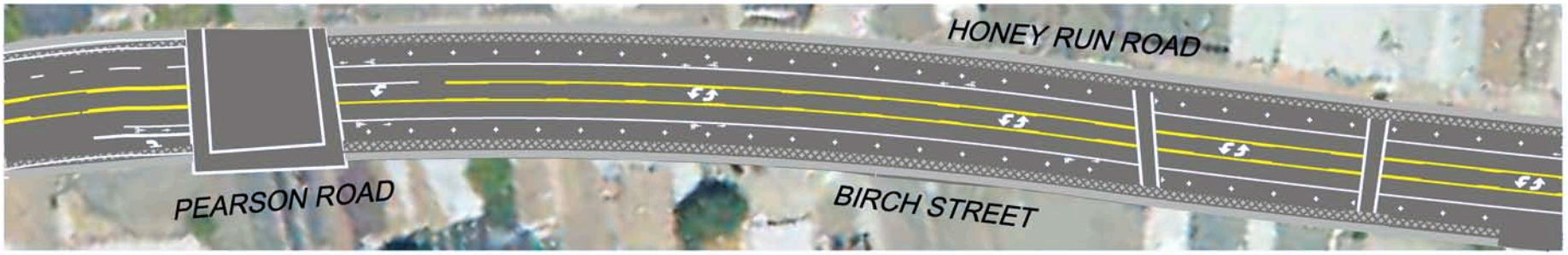
N

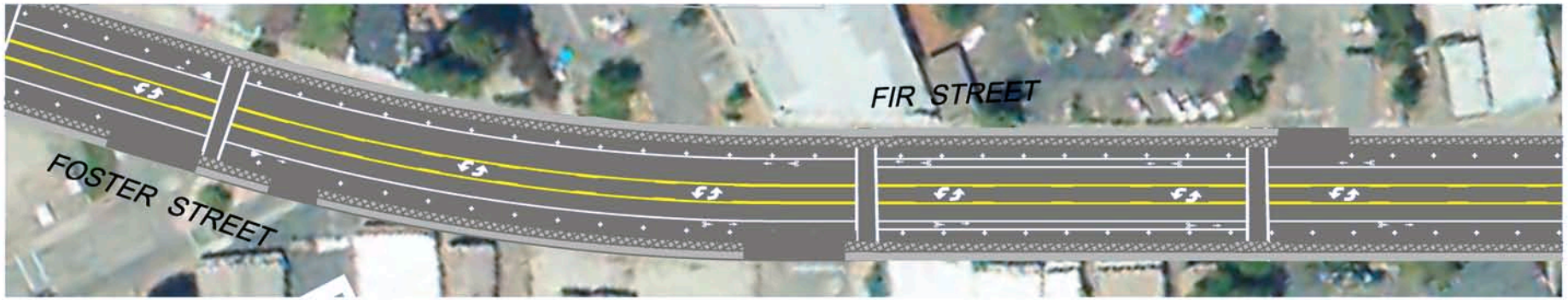
DRAWN: VCA	DESIGN: SW	CHECKED: SW
JOB NO. PAR001		DATE: 8/20/2008
SHEET 1 Of 6 SHEETS		REVISIONS:

SKYWAY CORRIDOR STUDY for BCAG/TOWN OF PARADISE
Town of Paradise

Skyway Reconfiguration Concept
Pearson Street to Neal Road

w-trans
Whitlock & Weinberger Transportation, Inc.
490 Mendocino Avenue, Suite 201
Santa Rosa, CA 95401
(707) 542-9500 Fax: (707) 542-9590





LEGEND:

Existing Sidewalk

Proposed Extended Sidwalk

SCALE: 1"=100'

0 25 50 100

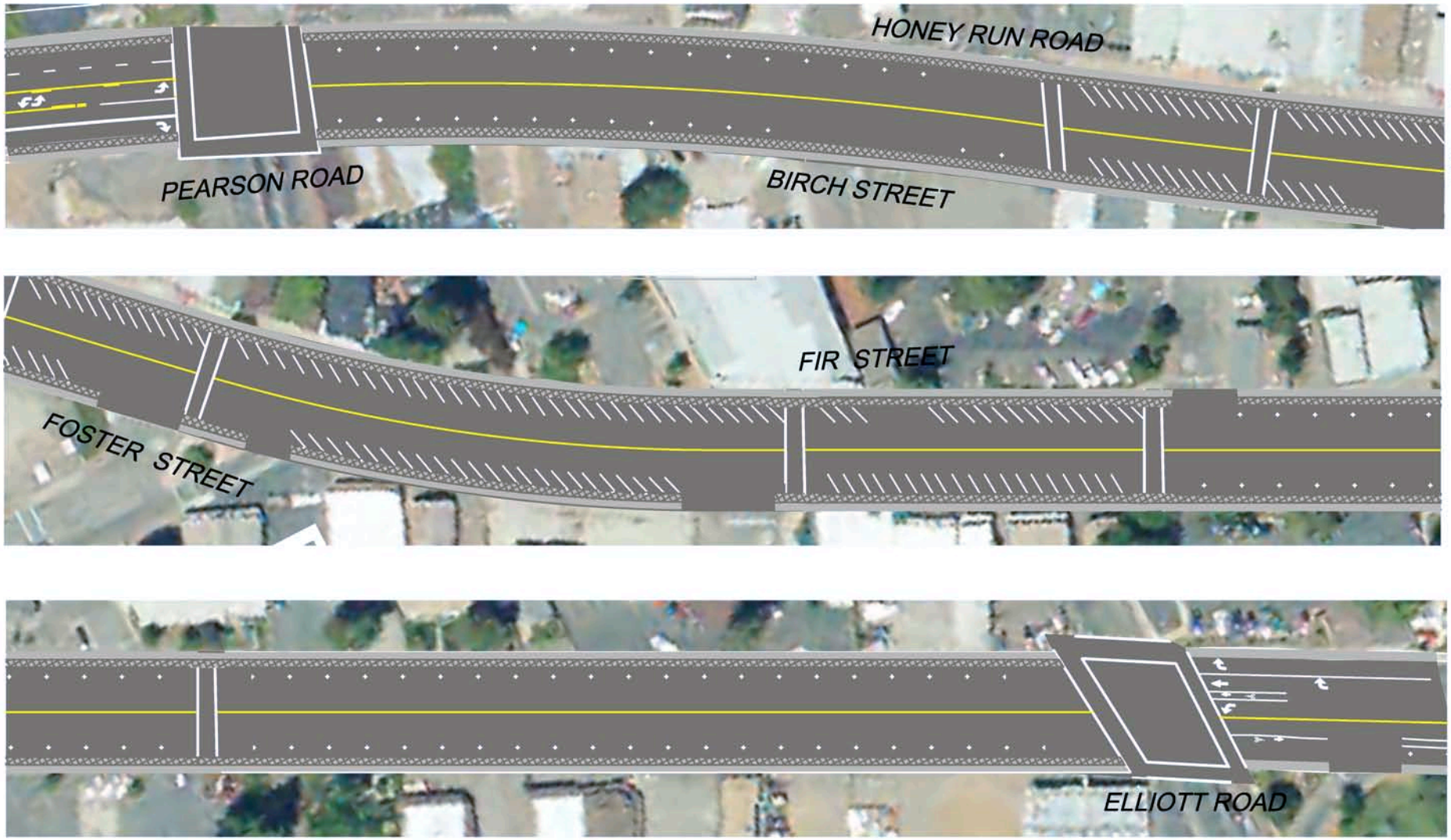
N

DRAWN: VCA	DESIGN: SW	CHECKED: SW
JOB NO. PAR001		DATE: AUG2008
SHEET 1 Of 1 SHEETS		REVISIONS:

SKYWAY CORRIDOR STUDY for BCAG/TOWN OF PARADISE
Town of Paradise

Skyway Reconfiguration Concept-Alternative 1
Pearson Road to Elliott Avenue

w-trans
Whitlock & Weinberger Transportation, Inc.
490 Mendocino Avenue, Suite 201
Santa Rosa, CA 95401
(707) 542-9500 Fax: (707) 542-9590



LEGEND:

Existing Sidewalk

Proposed Extended Sidwalk

SCALE: 1"=100'

0 25 50 100

N

DRAWN: VCA	DESIGN: SW	CHECKED: SW
JOB NO. PAR001		DATE: AUG2008
SHEET 1 Of 2 SHEETS		REVISIONS:

SKYWAY CORRIDOR STUDY for BCAG/TOWN OF PARADISE
Town of Paradise

Skyway Reconfiguration Concept Concept-Alternative 2
Pearson Road to Elliott Avenue

w-trans
Whitlock & Weinberger Transportation, Inc.
490 Mendocino Avenue, Suite 201
Santa Rosa, CA 95401
(707) 542-9500 Fax: (707) 542-9590

LEGEND:

Existing Sidewalk

Proposed Extended Sidwalk

SCALE: 1"=100'

0 25 50 100

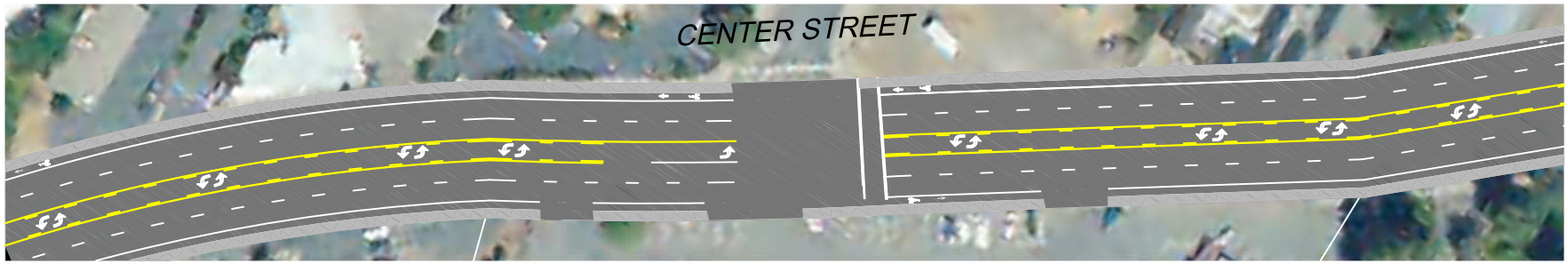
N

DRAWN: VCA	DESIGN: SW	CHECKED: SW
JOB NO. PAR001		DATE: AUG2008
SHEET 1 Of 3 SHEETS		REVISIONS:

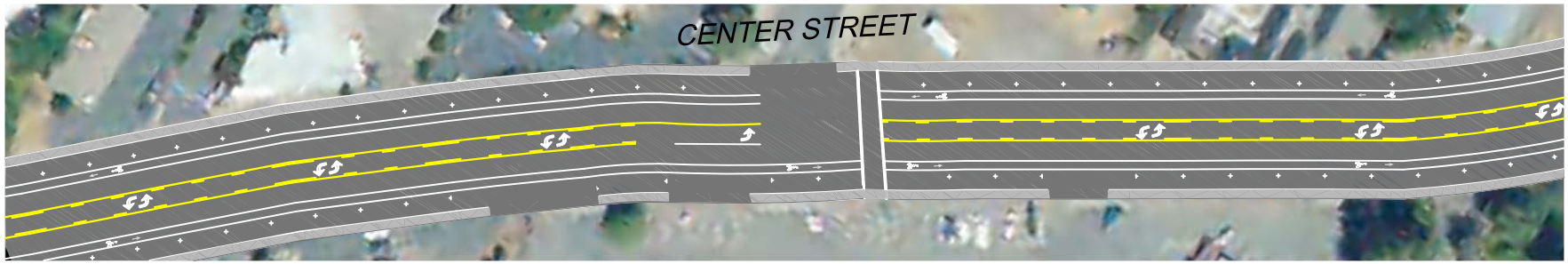
SKYWAY CORRIDOR STUDY for BCAG/TOWN OF PARADISE
Town of Paradise

Skwyway Reconfiguration Concept-Alternative 3
Pearson Road to Elliott Avenue

w-trans
Whitlock & Weinberger Transportation, Inc.
490 Mendocino Avenue, Suite 201
Santa Rosa, CA 95401
(707) 542-9500 Fax: (707) 542-9590



ALTERNATIVE 1



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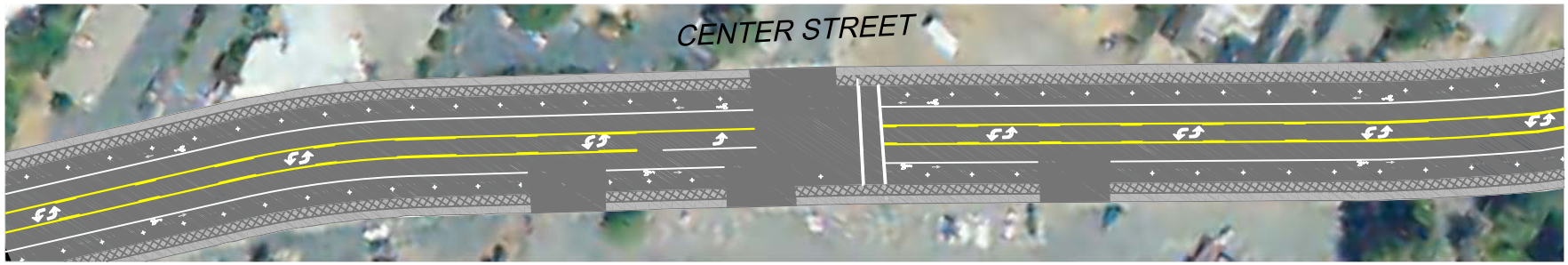


ALTERNATIVE 3

LEGEND:

Existing Sidewalk

Proposed Extended Sidwalk

SCALE: 1"=100'

0 25 50 100

DRAWN: VCA	DESIGN: SW	CHECKED: SW
JOB NO. PAR001		DATE: 8/20/2008
SHEET 2 Of 6 SHEETS		REVISIONS:

SKYWAY CORRIDOR STUDY for BCAG/TOWN OF PARADISE
Town of Paradise

Skyway Reconfiguration Concept
Billie Road to Elliott Road

w-trans
Whitlock & Weinberger Transportation, Inc.
490 Mendocino Avenue, Suite 201
Santa Rosa, CA 95401
(707) 542-9500 Fax: (707) 542-9590

ALTERNATIVE 1 & 3

ALTERNATIVE 2

SCALE: 1"=100'

0 25 50 100

N

DRAWN: VCA	DESIGN: SW	CHECKED: SW
JOB NO. PAR001		DATE: 8/20/2008
SHEET 6 Of 6 SHEETS		REVISIONS:

SKYWAY CORRIDOR STUDY for BCAG/TOWN OF PARADISE
Town of Paradise

Skyway Reconfiguration Concept
Bille Road to Wagstaff Road

w-trans
Whitlock & Weinberger Transportation, Inc.
490 Mendocino Avenue, Suite 201
Santa Rosa, CA 95401
(707) 542-9500 Fax: (707) 542-9590

Appendix F

Alternatives Operational Analysis

Operational Conditions with Alternatives

Each of the alternatives was tested to determine potential impacts to vehicle travel speeds on Skyway using the SIMTRAFFIC software application. SIMTRAFFIC is an extension of SYNCHRO that creates simulations representing the traffic network including interactions among numerous signalized and unsignalized intersections. SIMTRAFFIC has the capability to simulate the time required for drivers to travel along a corridor, taking factors such as signal timing, distances between intersections, turn lane storage lengths, and queue blockages between intersections into account. The application also includes adjustment factors for lane widths and the presence of adjacent parking activity. Because each SIMTRAFFIC run randomly "seeds" the roadway network with different vehicle positions and driver types, five separate runs were conducted when determining travel times for each corridor to obtain an average running speed. All scenarios assume that the traffic signal at Wagstaff Road is operational.

It is important to distinguish that the average "running speeds" produced by the program include the delays experienced while drivers are stopped at traffic signals; therefore, while examination of midblock speeds may suggest that drivers are proceeding at 35 to 40 miles per hour, the average speed on the segment including delays may in actuality be closer to 20 mph. The *Highway Capacity Manual* includes criteria for establishing a Level of Service (LOS) based on average travel speeds. Applying the "Class III Arterial" criteria to Skyway would be appropriate given the Town's desire to achieve typical free-flow travel speeds of approximately 35 mph. A summary of the LOS thresholds by speed is shown in Table B-1.

Table F-1
Arterial Class III Level of Service Criteria

Level of Service	Average Travel Speed (mph)
A	≥ 30
B	≥ 24
C	≥ 18
D	≥ 14
E	≥ 10
F	< 10

Reference: *Highway Capacity Manual,* Transportation Research Board, 2000

Many communities including Paradise strive for LOS D or better operation on the vehicle travel network. Some communities have begun to reconsider their vehicular LOS criteria in their downtown areas, recognizing that vehicle throughput and higher speeds can actually be detrimental to a downtown's vitality and higher emphasis on pedestrian circulation. The many competing circulation needs in a downtown can often be balanced with LOS D operation, but can sometimes still work effectively with vehicle circulation operating at LOS E. LOS F operation is generally undesirable given the potential for "gridlock" to develop and side impacts to other transportation modes as well as emergency response providers.

All four segments of Skyway are currently operating with average speeds in the 20 to 30 mph range, which translates to LOS C or better operation. With future traffic volumes and no changes to the roadway network, average travel speeds are shown to generally drop slightly, but still remain in the LOS C or better

range. The projected average vehicle speeds by corridor segment are summarized in Table B-2 for existing and future conditions with no changes to the corridor.

Table F-2
Skyway Corridor Average Vehicle Speeds with No Project

	Existing Conditions		Future 2035 (No Project)	
	NB	**SB**	**NB**	**SB**
Segment 1 – Neal to Pearson				
AM Peak Hour	28	31	27	30
PM Peak Hour	26	31	24	30
Segment 2 – Pearson to Elliott				
AM Peak Hour	23	24	23	24
PM Peak Hour	21	26	20	24
Segment 3 – Elliott to Bille				
AM Peak Hour	25	26	24	26
PM Peak Hour	22	25	22	24
Segment 4 – Bille to Wagstaff				
AM Peak Hour	29	26	28	25
PM Peak Hour	28	27	28	27

Notes: NB = Northbound, SB = Southbound, Results are expressed in miles per hour (mph)

Each of the three alternatives would result in notable drops to average travel speeds, with Alternatives 1 and 2 operating near the LOS D/E threshold in various segments of the corridor. With Alternative 1, the northbound corridor segment between Neal and Pearson is projected to have a 15 mph average speed during the p.m. peak hour. With the addition of traffic signals at Black Olive Drive and Fir Street to Alternative 1 (referred to as Alternative 1A), the 15 mph average speed on segment 1 would improve to 18 mph, and all segments would operate at LOS D or better. The two new signals would be coordinated with existing signals at Pearson and Elliott, and would help regulate traffic progression through downtown. As with many coordinated signal systems, however, delays would increase over "no project" levels where drivers encounter the first signal in the coordinated series.

In Alternative 2, the northbound segment of Skyway between Neal and Pearson is projected to have a 15 mph average speed during the p.m. peak hour. Southbound traffic on the downtown segment between Pearson and Elliott would also be expected to operate at an average speed of 15 mph during the p.m. peak hour. Average travel speeds on segments 3 and 4 between Elliott and Wagstaff are also expected to decrease somewhat though would remain within the LOS C range.

As would be expected, Alternative 3, which reconfigured the downtown Skyway segment to include one travel lane in the southbound direction and two travel lanes in the northbound direction, would result in lower southbound speeds through downtown. Average southbound speeds would drop by approximately 3

mph during the a.m. peak hour and 8 mph during the p.m. peak hour, though would still remain in the LOS D range. Changes to average speeds on the remaining three segments are projected to drop modestly by 1 to 3 mph during both peak hours.

The projected year 2035 average vehicle speeds for each alternative are summarized in Table B-3, with copies of the calculations provided in the technical appendix.

Table F-3
Skyway Corridor Average Vehicle Speeds

	Future (No change)		Future + Alt 1		Future + Alt 1A		Future + Alt 2		Future + Alt 3	
	NB	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
Segment 1 – Neal to Pearson										
AM Peak Hour	27	30	23	30	24	28	24	30	26	30
PM Peak Hour	24	30	15	31	18	30	15	32	24	31
Segment 2 – Pearson to Elliott										
AM Peak Hour	23	24	21	20	19	20	22	18	21	21
PM Peak Hour	20	24	19	23	17	18	17	15	17	16
Segment 3 – Elliott to Bille										
AM Peak Hour	24	26	24	24	25	24	23	22	23	22
PM Peak Hour	22	24	22	25	23	25	22	24	21	22
Segment 4 – Bille to Wagstaff										
AM Peak Hour	28	25	28	25	30	25	31	24	29	22
PM Peak Hour	28	27	28	26	27	26	28	26	28	25

Notes: NB = Northbound, SB = Southbound, Results are expressed in miles per hour (mph)
Shaded results represent operation near the LOS D/E threshold

In order to gauge the differences to average travel times among alternatives, the relative changes between Future "no change" conditions were compared to each of the alternatives. The results are summarized in Table B-4.

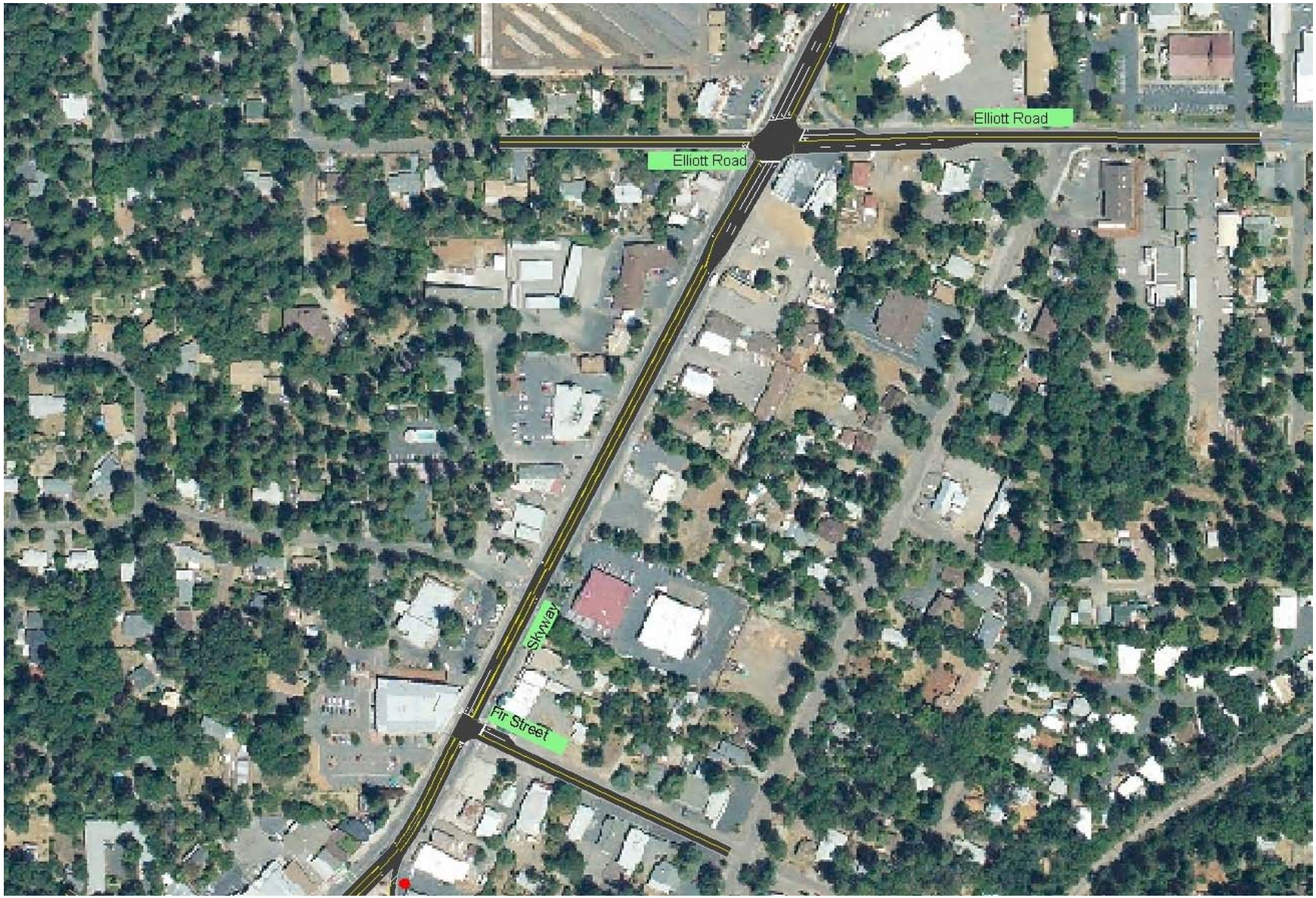
Table F-4
Changes to Average Vehicle Speeds by Alternative

	Future + Alt 1		Future + Alt 1A		Future + Alt 2		Future + Alt 3	
	NB	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
Segment 1 – Neal to Pearson								
AM Peak Hour	-4	0	-3	-2	-3	0	-1	0
PM Peak Hour	-9	1	-6	0	-9	2	0	1
Segment 2 – Pearson to Elliott								
AM Peak Hour	-2	-4	-4	-4	-1	-6	-2	-3
PM Peak Hour	-1	-1	-3	-6	-3	-9	-3	-8
Segment 3 – Elliott to Bille								
AM Peak Hour	0	-2	1	-2	-1	-4	-1	-4
PM Peak Hour	0	1	1	1	0	-1	-1	-2
Segment 4 – Bille to Wagstaff								
AM Peak Hour	0	0	2	0	3	-1	1	-3
PM Peak Hour	0	-1	-1	-1	0	-1	0	-2

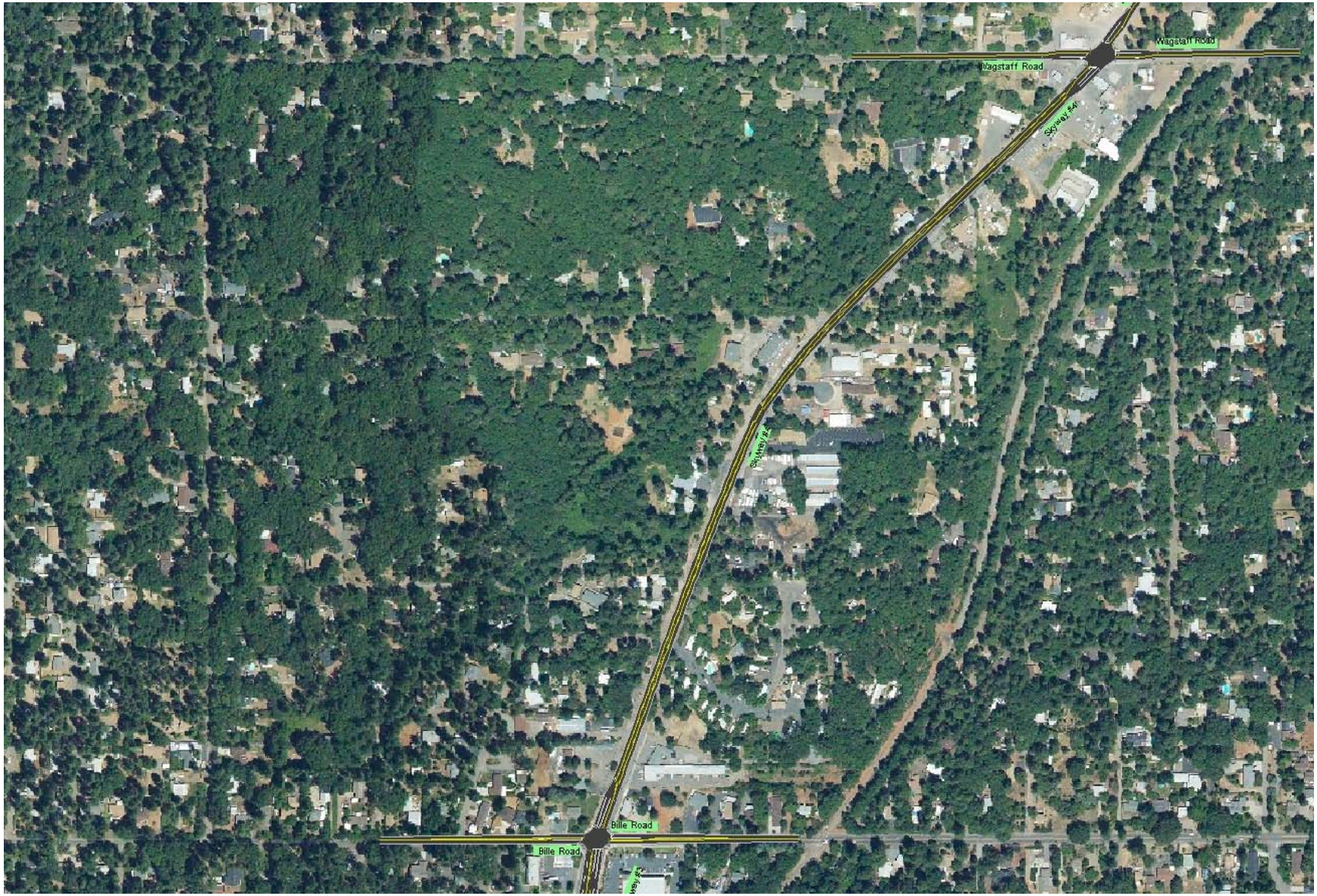
Notes: NB = Northbound, SB = Southbound, Results are expressed in miles per hour (mph)


Foster
Skyway
Pearson Road
Black Olive
Skyway

Foster
Foster
Birch
Honey Run
Skyway


Elliott Road
Elliott Road
Skyway
Fir Street


Center
Skyway #3
Oliver Street
Oliver Street
Skyway #3
Skyway #3
Elliott Road
Elliott Road


Wagstaff Road
Wagstaff Road
Bille Road
Bille Road

Arterial Level of Service: NB Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	36	2.2	12.0	0.1	24	23	2.4
Honey Run	35	0.3	2.1	0.0	28	27	0.4
Foster Street	26	0.4	8.5	0.1	33	32	0.5
Fir Street	18	0.4	8.3	0.1	27	26	0.6
	2	0.2	7.8	0.1	29	28	0.3
	3	0.8	16.0	0.1	28	28	0.9
Elliott Road	1	13.9	21.3	0.1	10	7	22.2
Total		18.4	76.0	0.5	23	21	27.3

Arterial Level of Service: NB Skyway #2

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	24	1.9	24	2.0	23	2.3	24
Honey Run	27	0.2	29	0.2	28	0.4	28
Foster Street	33	0.3	34	0.3	34	0.4	33
Fir Street	27	0.4	28	0.3	27	0.2	27
	29	0.3	29	0.2	29	0.2	29
	28	1.0	29	0.5	29	0.5	28
Elliott Road	14	8.9	10	14.1	12	10.5	9
Total	25	13.0	23	17.7	24	14.6	22

Arterial Level of Service: NB Skyway #2

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.9	23	2.7
Honey Run	0.2	28	0.5
Foster Street	0.5	32	0.6
Fir Street	0.4	27	0.5
	0.2	29	0.3
	0.9	28	0.9
Elliott Road	15.7	11	12.1
Total	19.8	23	17.5

Arterial Level of Service: SB Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	3	1.3	8.6	0.1	26	25	1.5
	2	1.0	16.4	0.1	28	27	1.2
Fir Street	18	1.1	8.8	0.1	25	26	1.2
Foster Street	26	2.0	9.4	0.1	24	25	1.6
Honey Run	35	0.8	9.6	0.1	29	30	0.8
	36	0.3	2.1	0.0	25	26	0.2
Pearson Road	20	10.2	19.1	0.1	15	14	11.8
Total		16.6	74.0	0.5	24	23	18.1

Arterial Level of Service: SB Skyway #2

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	25	1.6	26	1.3	26	1.2	27
	27	1.0	28	0.9	27	1.1	28
Fir Street	25	1.0	25	1.4	25	1.2	26
Foster Street	23	2.1	22	2.7	23	2.0	25
Honey Run	30	0.7	29	0.9	30	0.8	29
	26	0.2	26	0.3	25	0.3	25
Pearson Road	20	5.0	17	7.9	15	9.7	13
Total	25	11.6	24	15.3	24	16.4	23

Arterial Level of Service: SB Skyway #2

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.1	26	1.3
	0.9	28	0.9
Fir Street	0.8	25	1.0
Foster Street	1.3	23	2.1
Honey Run	0.9	30	0.7
	0.3	25	0.3
Pearson Road	12.9	12	13.8
Total	18.2	22	20.1

Arterial Level of Service: NB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	41	2.1	11.3	0.1	28	26	2.6
Oliver Street	15	2.3	16.5	0.1	32	34	1.3
	42	1.0	12.5	0.1	32	33	0.6
	14	0.5	18.8	0.2	34	33	0.5
Maxwell Drive	7	20.4	45.3	0.3	21	22	18.6
	47	2.4	13.7	0.1	24	25	2.2
Bille Road	10	18.7	39.8	0.2	16	20	10.7
Total		47.3	157.9	1.0	24	26	36.5

Arterial Level of Service: NB Skyway #3

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	28	1.9	27	2.5	29	1.5	28
Oliver Street	33	1.5	32	2.6	36	1.7	30
	33	0.7	32	0.9	33	1.1	32
	34	0.3	34	0.3	34	0.2	33
Maxwell Drive	21	18.1	20	20.8	21	21.0	21
	24	2.4	25	1.9	26	2.0	23
Bille Road	14	22.6	16	19.5	19	11.0	14
Total	24	47.6	24	48.5	26	38.5	23

Arterial Level of Service: NB Skyway #3

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.9	27	2.2
Oliver Street	2.6	29	3.8
	1.0	31	1.5
	0.4	33	0.9
Maxwell Drive	19.1	18	25.3
	3.0	24	2.9
Bille Road	23.4	15	19.8
Total	51.4	22	56.4

Arterial Level of Service: SB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	47	3.1	21.9	0.2	29	29	2.9
Maxwell Drive	7	2.8	12.3	0.1	27	30	1.6
	14	2.2	29.3	0.3	32	31	1.6
Center	42	1.3	18.9	0.2	33	34	1.1
Oliver Street	15	13.5	25.1	0.1	16	16	13.3
	41	4.0	19.4	0.1	27	28	3.6
Elliott Road	1	9.2	19.8	0.1	16	15	10.1
Total		36.2	146.6	1.0	26	26	34.1

Arterial Level of Service: SB Skyway #3

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	29	3.0	29	3.2	28	3.4	29
Maxwell Drive	28	2.4	26	3.3	26	3.5	26
	31	2.2	32	2.2	32	2.5	32
Center	33	1.4	34	1.2	33	1.6	33
Oliver Street	16	13.1	18	10.5	16	13.3	14
	28	3.5	28	3.0	27	4.5	27
Elliott Road	17	7.5	19	6.1	18	7.1	11
Total	26	33.2	27	29.6	26	35.8	24

Arterial Level of Service: SB Skyway #3

Cross Street	Run 5 Delay	Run Speed	Run Delay
	3.0	29	3.2
Maxwell Drive	3.1	26	3.1
	2.5	32	2.1
Center	1.4	33	1.3
Oliver Street	17.3	16	13.2
	5.1	27	4.3
Elliott Road	17.2	17	7.9
Total	49.6	26	35.1

Arterial Level of Service: NE Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	40	1.6	5.5	0.0	23	25	1.1
	11	1.6	28.9	0.3	33	33	1.4
	48	3.5	34.9	0.3	31	32	2.8
Wagstaff Road	17	9.4	12.1	0.0	8	8	9.8
Total		16.1	81.4	0.6	28	28	15.1

Arterial Level of Service: NE Skyway #4

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	23	1.6	22	1.8	26	1.0	22
	33	1.3	33	2.0	32	1.7	34
	32	3.0	31	4.0	31	3.6	31
Wagstaff Road	11	6.1	8	10.4	6	15.0	9
Total	29	12.1	27	18.1	26	21.3	28

Arterial Level of Service: NE Skyway #4

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.8	21	2.0
	1.4	33	2.2
	2.7	30	4.9
Wagstaff Road	8.5	8	9.4
Total	14.4	27	18.6

Arterial Level of Service: SB Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	48	1.4	5.0	0.0	21	21	1.2
	11	2.0	33.9	0.3	32	32	1.8
	40	5.0	32.7	0.3	29	30	3.5
Bille Road	10	15.9	19.3	0.0	7	7	14.0
Total		24.2	91.0	0.6	25	26	20.4

Arterial Level of Service: SB Skyway #4

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	19	1.7	20	1.4	20	1.4	22
	32	2.1	32	1.7	32	2.3	32
	25	9.7	31	3.9	30	4.7	30
Bille Road	5	23.2	6	16.2	6	16.3	7
Total	22	36.8	25	23.2	25	24.6	26

Arterial Level of Service: SB Skyway #4

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.0	20	1.5
	1.7	32	2.0
	3.8	30	3.8
Bille Road	15.3	9	10.4
Total	21.7	27	17.7

Arterial Level of Service: NE Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	38	2.5	45.4	0.4	33	32	3.2
Black Olive	31	1.2	16.1	0.1	33	33	1.4
Pearson Road	20	19.2	38.5	0.2	18	16	22.3
Total		22.9	100.0	0.7	27	26	26.8

Arterial Level of Service: NE Skyway #1

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	32	3.1	32	1.8	35	2.4	33
Black Olive	32	1.5	33	1.1	34	0.9	33
Pearson Road	20	14.4	16	21.2	16	21.1	18
Total	28	19.0	26	24.2	27	24.4	27

Arterial Level of Service: NE Skyway #1

Cross Street	Run 5 Delay	Run Speed	Run Delay
	2.0	32	2.6
Black Olive	1.1	33	1.2
Pearson Road	17.5	17	20.2
Total	20.7	27	23.9

Arterial Level of Service: WB Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
Black Olive	31	3.1	22.7	0.2	30	31	2.8
	38	1.1	16.0	0.1	33	33	1.1
Schmale Lane	22	10.0	51.2	0.4	29	30	9.7
Total		14.2	89.8	0.7	30	31	13.6

Arterial Level of Service: WB Skyway #1

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
Black Olive	32	2.1	31	2.7	30	3.2	29
	33	1.1	33	1.1	32	1.4	34
Schmale Lane	29	10.1	30	9.2	29	10.4	29
Total	30	13.2	31	13.0	30	14.9	30

Arterial Level of Service: WB Skyway #1

Cross Street	Run 5 Delay	Run Speed	Run Delay
Black Olive	4.8	30	3.1
	0.9	34	0.8
Schmale Lane	9.2	28	11.6
Total	14.9	30	15.5

Arterial Level of Service: NB Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	36	3.0	12.9	0.1	22	22	2.8
Honey Run	35	0.3	2.1	0.0	26	25	0.3
Foster Street	26	1.0	9.3	0.1	30	31	0.9
Fir Street	18	1.2	9.1	0.1	24	25	1.1
	2	0.4	7.9	0.1	28	28	0.5
	3	1.5	16.8	0.1	27	27	1.8
Elliott Road	1	19.7	27.2	0.1	8	7	22.4
Total		27.2	85.3	0.5	20	20	29.7

Arterial Level of Service: NB Skyway #2

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	22	2.8	20	4.4	22	2.9	24
Honey Run	25	0.3	24	0.5	27	0.2	26
Foster Street	31	0.9	30	1.2	30	1.1	31
Fir Street	25	1.1	24	1.3	25	1.2	24
	28	0.4	28	0.5	29	0.3	28
	26	1.9	27	1.7	28	1.1	27
Elliott Road	7	23.3	8	20.6	8	19.2	8
Total	20	30.8	20	30.1	21	26.0	21

Arterial Level of Service: NB Skyway #2

Cross Street	Run 5 Delay	Run Speed	Run Delay
	2.1	22	2.7
Honey Run	0.3	26	0.2
Foster Street	0.9	30	1.1
Fir Street	1.2	23	1.5
	0.5	29	0.3
	1.6	28	1.1
Elliott Road	19.3	11	13.0
Total	25.8	22	20.0

Arterial Level of Service: SB Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	3	1.2	8.4	0.1	26	25	1.5
	2	0.8	16.0	0.1	28	28	0.8
Fir Street	18	1.4	8.9	0.1	25	26	1.3
Foster Street	26	2.5	9.9	0.1	22	22	2.5
Honey Run	35	1.3	10.2	0.1	28	29	0.8
	36	0.5	2.3	0.0	23	26	0.2
Pearson Road	20	7.8	16.9	0.1	17	17	7.2
Total		15.5	72.6	0.5	24	24	14.2

Arterial Level of Service: SB Skyway #2

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	26	1.2	27	1.2	26	1.3	27
	28	0.7	29	0.6	28	0.9	29
Fir Street	28	0.5	22	2.3	26	1.2	24
Foster Street	23	2.3	22	2.4	18	4.7	25
Honey Run	26	1.8	27	1.6	26	1.9	30
	24	0.5	18	1.1	20	0.9	26
Pearson Road	16	8.7	15	9.6	19	5.4	15
Total	24	15.7	23	18.8	24	16.3	24

Arterial Level of Service: SB Skyway #2

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.0	26	1.3
	0.9	29	0.8
Fir Street	2.1	27	0.9
Foster Street	1.5	25	1.4
Honey Run	0.7	29	0.9
	0.2	25	0.3
Pearson Road	9.6	18	6.3
Total	16.1	25	11.9

Arterial Level of Service: NB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	41	3.9	13.2	0.1	24	24	3.9
	32	5.2	16.8	0.1	24	23	5.6
Oliver Street	15	3.3	6.9	0.0	19	15	4.9
	42	2.1	13.7	0.1	29	29	2.3
	14	1.0	19.7	0.2	32	32	1.0
Maxwell Drive	7	17.9	43.7	0.3	21	23	15.1
	47	1.8	5.9	0.0	21	21	1.7
Bille Road	10	23.7	51.6	0.2	16	17	21.2
Total		58.9	171.5	1.0	22	22	55.8

Arterial Level of Service: NB Skyway #3

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	24	3.7	23	4.1	24	3.8	24
	24	4.9	24	5.1	24	4.8	25
Oliver Street	19	3.4	20	2.9	22	2.4	21
	29	2.0	29	1.8	31	1.4	29
	32	0.9	33	0.7	32	0.9	32
Maxwell Drive	20	21.0	22	16.6	23	15.1	20
	21	1.8	21	1.7	21	1.9	21
Bille Road	16	24.8	17	22.8	18	17.8	19
Total	22	62.4	23	55.7	24	48.2	23

Arterial Level of Service: NB Skyway #3

Cross Street	Run 5 Delay	Run Speed	Run Delay
	3.5	23	4.1
	4.8	23	5.9
Oliver Street	2.7	18	3.5
	2.2	28	2.6
	0.9	31	1.5
Maxwell Drive	19.4	20	20.0
	1.8	21	1.9
Bille Road	16.7	13	37.9
Total	52.0	20	77.4

Arterial Level of Service: SB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	47	5.2	28.9	0.2	29	29	5.6
Maxwell Drive	7	1.8	5.1	0.0	25	24	1.8
	14	1.5	28.9	0.3	32	32	1.6
Center	42	0.9	18.5	0.2	34	34	0.8
Oliver Street	15	21.0	33.1	0.1	12	12	21.4
	32	2.2	6.3	0.0	21	21	2.1
	41	1.3	12.9	0.1	31	31	0.9
Elliott Road	1	14.8	25.4	0.1	12	12	14.9
Total		48.5	159.1	1.0	24	24	49.1

Arterial Level of Service: SB Skyway #3

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	29	5.4	29	4.5	28	6.0	29
Maxwell Drive	25	1.6	27	1.3	24	2.0	21
	32	1.4	32	1.3	33	1.6	32
Center	34	0.9	34	0.7	35	0.9	35
Oliver Street	12	21.7	12	21.8	11	24.0	13
	20	2.4	20	2.2	21	2.2	21
	31	1.3	30	1.5	30	1.4	31
Elliott Road	11	17.2	10	20.2	14	11.8	12
Total	23	51.8	23	53.6	24	49.9	24

Arterial Level of Service: SB Skyway #3

Cross Street	Run 5 Delay	Run Speed	Run Delay
	4.2	29	5.4
Maxwell Drive	2.7	27	1.5
	1.6	32	1.8
Center	0.8	35	1.0
Oliver Street	17.9	13	18.6
	2.2	21	2.0
	1.4	32	1.2
Elliott Road	15.6	15	10.4
Total	46.4	25	41.9

Arterial Level of Service: NE Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	40	1.7	5.6	0.0	23	22	1.7
	11	2.2	29.5	0.3	32	33	2.0
	48	6.1	37.2	0.3	29	28	5.7
Wagstaff Road	17	6.8	9.5	0.0	11	11	6.4
Total		16.7	81.8	0.6	28	28	15.8

Arterial Level of Service: NE Skyway #4

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	22	1.8	23	1.6	22	1.9	25
	32	2.1	32	2.2	31	2.4	32
	26	9.0	29	7.1	30	4.7	31
Wagstaff Road	9	8.1	10	7.3	12	5.8	11
Total	26	21.0	27	18.1	28	14.7	29

Arterial Level of Service: NE Skyway #4

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.1	22	1.9
	1.9	32	2.5
	4.1	29	5.7
Wagstaff Road	6.4	11	6.5
Total	13.5	28	16.6

Arterial Level of Service: SB Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	48	1.0	4.7	0.0	22	23	0.9
	11	1.2	32.4	0.3	33	33	1.6
	40	2.6	30.3	0.3	31	30	3.7
Bille Road	10	14.5	17.9	0.0	7	7	14.4
Total		19.4	85.3	0.6	27	26	20.6

Arterial Level of Service: SB Skyway #4

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	19	1.6	23	0.9	24	0.7	21
	33	1.4	33	0.9	34	0.9	34
	32	2.4	32	1.9	32	2.3	32
Bille Road	7	14.9	7	15.1	7	14.5	8
Total	26	20.3	27	18.9	27	18.5	28

Arterial Level of Service: SB Skyway #4

Cross Street	Run 5 Delay	Run Speed	Run Delay
	1.2	23	1.0
	0.8	33	1.5
	1.9	32	3.2
Bille Road	12.3	7	15.9
Total	16.2	26	21.6

Arterial Level of Service: NE Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
	38	7.0	49.9	0.4	30	30	6.5
Black Olive	31	4.5	19.6	0.1	27	27	4.4
Pearson Road	20	22.3	41.3	0.2	17	16	24.0
Total		33.8	110.7	0.7	24	24	34.9

Arterial Level of Service: NE Skyway #1

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
	30	6.6	28	9.3	30	7.2	30
Black Olive	27	4.8	26	4.9	27	4.6	27
Pearson Road	17	20.4	14	31.3	17	21.7	19
Total	25	31.9	22	45.5	25	33.4	25

Arterial Level of Service: NE Skyway #1

Cross Street	Run 5 Delay	Run Speed	Run Delay
	6.8	31	5.7
Black Olive	4.2	28	3.8
Pearson Road	16.9	18	18.1
Total	27.9	26	27.6

Arterial Level of Service: WB Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
Black Olive	31	7.3	26.7	0.2	26	28	5.0
	38	1.0	15.9	0.1	33	33	1.2
Schmale Lane	22	8.7	49.1	0.4	30	30	9.5
Total		17.0	91.7	0.7	29	30	15.7

Arterial Level of Service: WB Skyway #1

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay	Run 5 Speed
Black Olive	22	11.4	23	9.3	28	4.2	26
	33	1.1	33	1.1	33	0.9	34
Schmale Lane	31	8.4	29	9.9	30	9.0	31
Total	28	21.0	28	20.3	30	14.2	30

Arterial Level of Service: WB Skyway #1

Cross Street	Run 5 Delay	Run Speed	Run Delay
Black Olive	8.1	27	6.0
	0.9	34	0.8
Schmale Lane	7.0	31	8.4
Total	16.1	30	15.1

Arterial Level of Service: NE Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	33	1.0	6.0	0.0	23
	36	1.3	6.3	0.0	24
Honey Run	35	0.7	2.4	0.0	26
Foster St.	26	2.1	11.3	0.1	27
Total		5.1	26.0	0.2	25

Arterial Level of Service: SW Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Honey Run	35	5.3	15.1	0.1	20
	36	0.8	2.5	0.0	22
	33	1.8	6.8	0.0	21
Pearson Road	20	7.0	11.4	0.0	12
Total		15.0	35.8	0.2	18

Arterial Level of Service: NB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	39	1.4	7.1	0.0	25
	3	0.3	5.1	0.0	33
Oliver Street	15	2.8	15.9	0.1	31
	42	0.7	12.4	0.1	32
	14	0.4	19.0	0.2	33
Maxwell Drive	7	24.2	49.5	0.3	19
Bille Road	10	17.7	48.7	0.3	20
Total		47.5	157.8	1.0	24

Arterial Level of Service: WB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Maxwell Drive	7	7.1	34.5	0.3	28
	14	3.0	30.2	0.3	31
Center	42	5.0	22.6	0.2	28
Oliver Street	15	25.9	37.4	0.1	11
	3	5.3	22.4	0.1	22
	39	3.3	8.9	0.0	19
Elliott Road	1	8.6	14.4	0.0	13
Total		58.3	170.4	1.0	22

Arterial Level of Service: NE Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	40	1.5	5.4	0.0	24
	11	1.2	29.2	0.3	33
	48	2.7	33.8	0.3	32
Wagstaff Road	17	6.8	9.5	0.0	11
Total		12.2	77.8	0.6	29

Arterial Level of Service: SB Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	48	1.2	4.8	0.0	21
	11	2.0	33.5	0.3	32
	40	6.4	34.3	0.3	28
Bille Road	10	17.6	21.0	0.0	6
Total		27.2	93.7	0.6	24

Arterial Level of Service: NE Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	2.5	45.2	0.4	33
Black Olive	31	6.2	21.1	0.1	25
Pearson Road	20	20.7	40.4	0.2	17
Total		29.4	106.7	0.7	25

Arterial Level of Service: WB Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Black Olive	31	6.3	25.2	0.2	27
	38	2.6	17.9	0.1	30
Schmale Lane	22	12.9	54.2	0.4	27
Total		21.9	97.2	0.7	28

Arterial Level of Service: NE Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Pearson Road	20	38.5	58.0	0.2	12
	33	2.3	7.4	0.0	19
	36	2.9	8.1	0.0	18
Honey Run	35	1.0	2.8	0.0	19
Foster St.	26	11.6	21.2	0.1	14
Fir Street	18	12.5	19.5	0.1	10
	2	2.0	9.5	0.1	23
	32	14.4	31.2	0.1	16
Total		85.3	157.7	0.6	14

Arterial Level of Service: SW Skyway #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	2	7.5	24.3	0.1	21
Fir Street	18	19.5	26.7	0.1	11
Foster St.	26	5.5	12.4	0.1	16
Honey Run	35	13.7	23.6	0.1	13
	36	1.3	2.9	0.0	18
	33	2.3	7.3	0.0	19
Pearson Road	20	3.5	8.0	0.0	17
Black Olive	31	4.3	22.6	0.2	30
Total		57.6	127.8	0.6	19

Arterial Level of Service: NB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	39	1.5	7.2	0.0	25
	3	0.6	5.4	0.0	31
Oliver Street	15	7.7	21.8	0.1	23
	42	1.2	12.8	0.1	31
	14	0.7	19.2	0.2	33
Maxwell Drive	7	15.6	41.7	0.3	22
Bille Road	10	26.7	59.4	0.3	16
Total		53.9	167.6	1.0	22

Arterial Level of Service: WB Skyway #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Maxwell Drive	7	5.5	30.9	0.3	31
	14	2.5	30.2	0.3	31
Center	42	4.0	22.1	0.2	29
Oliver Street	15	34.3	46.0	0.1	9
	3	5.0	21.9	0.1	23
	39	4.0	9.6	0.0	17
Elliott Road	1	11.3	17.1	0.0	11
Total		66.6	177.8	1.0	21

Arterial Level of Service: NE Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	40	1.6	5.5	0.0	23
	11	2.0	29.3	0.3	33
	48	4.1	35.3	0.3	31
Wagstaff Road	17	5.9	8.7	0.0	12
Total		13.6	78.8	0.6	29

Arterial Level of Service: SB Skyway #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	48	1.1	4.7	0.0	22
	11	1.5	33.5	0.3	32
	40	2.8	30.5	0.3	31
Bille Road	10	13.2	16.7	0.0	8
Total		18.6	85.4	0.6	27

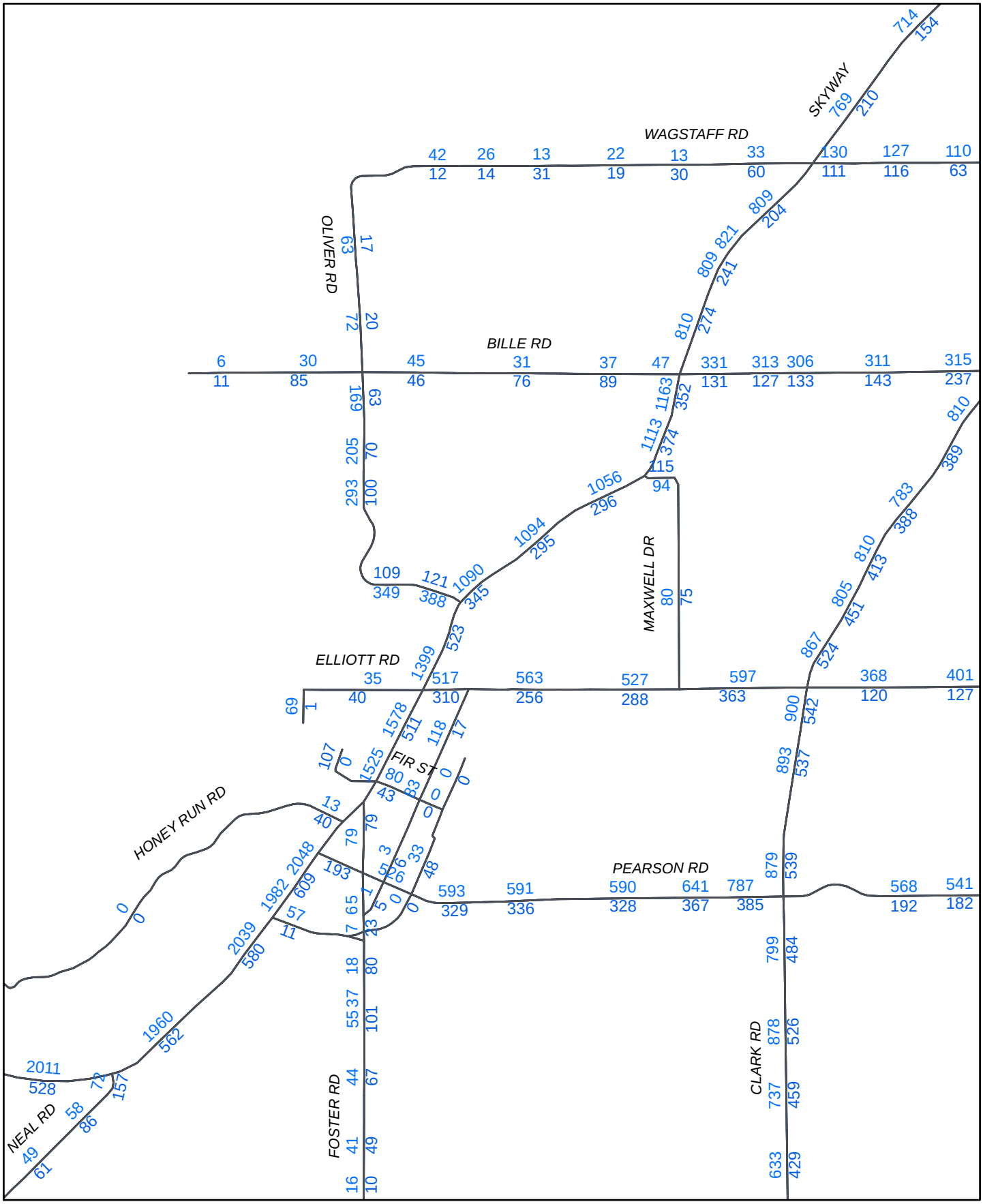
Arterial Level of Service: NE Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	7.5	50.2	0.4	30
Black Olive	31	16.0	31.5	0.1	17
Total		23.5	81.7	0.6	25

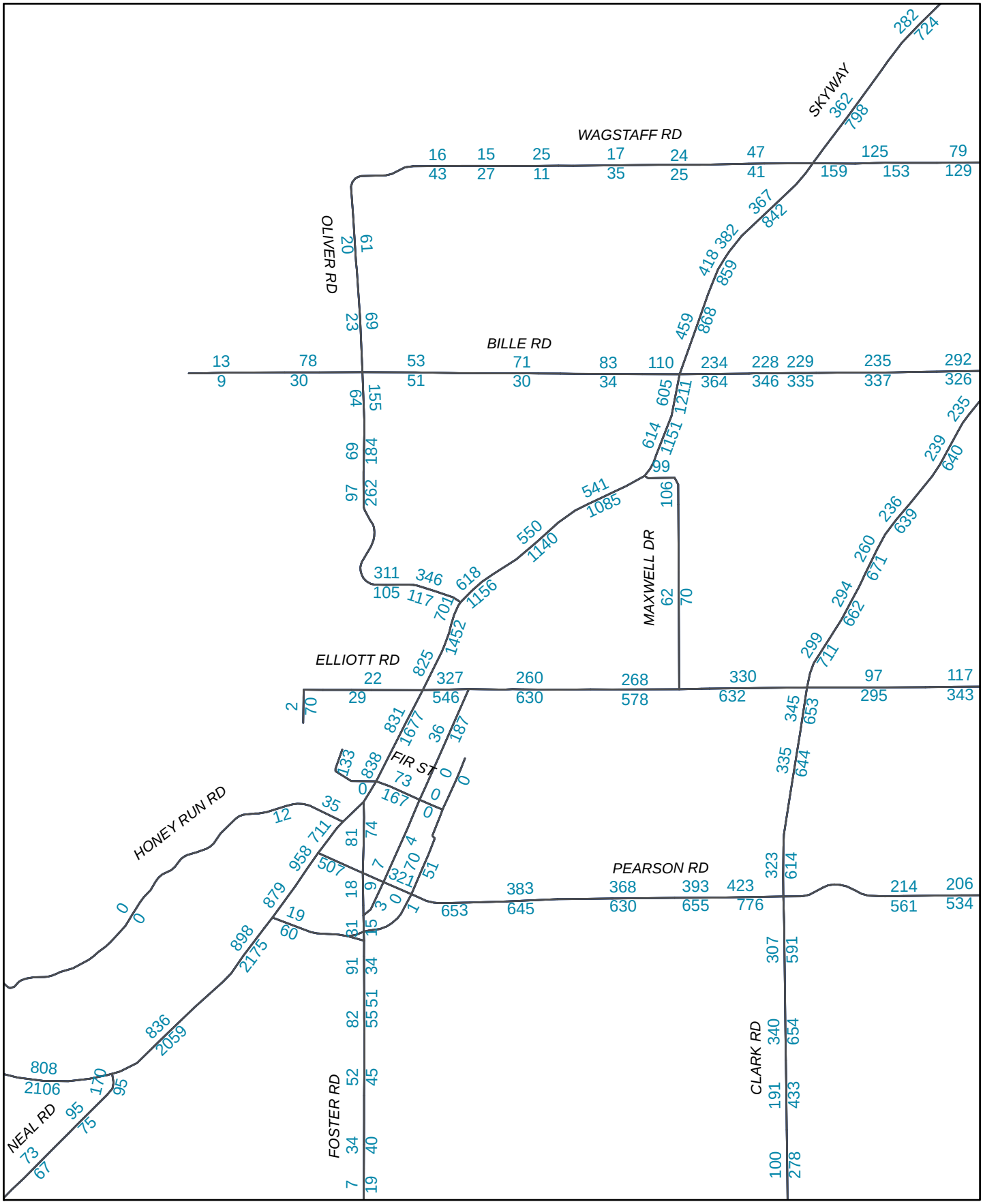
Arterial Level of Service: WB Skyway #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	1.4	16.6	0.1	32
Schmale Lane	22	7.5	47.6	0.4	31
Total		8.9	64.2	0.6	31

BCAG Traffic Model Output



BCAG TRAFFIC MODEL OUTPUT
2006 BASE
AM PEAK HOUR



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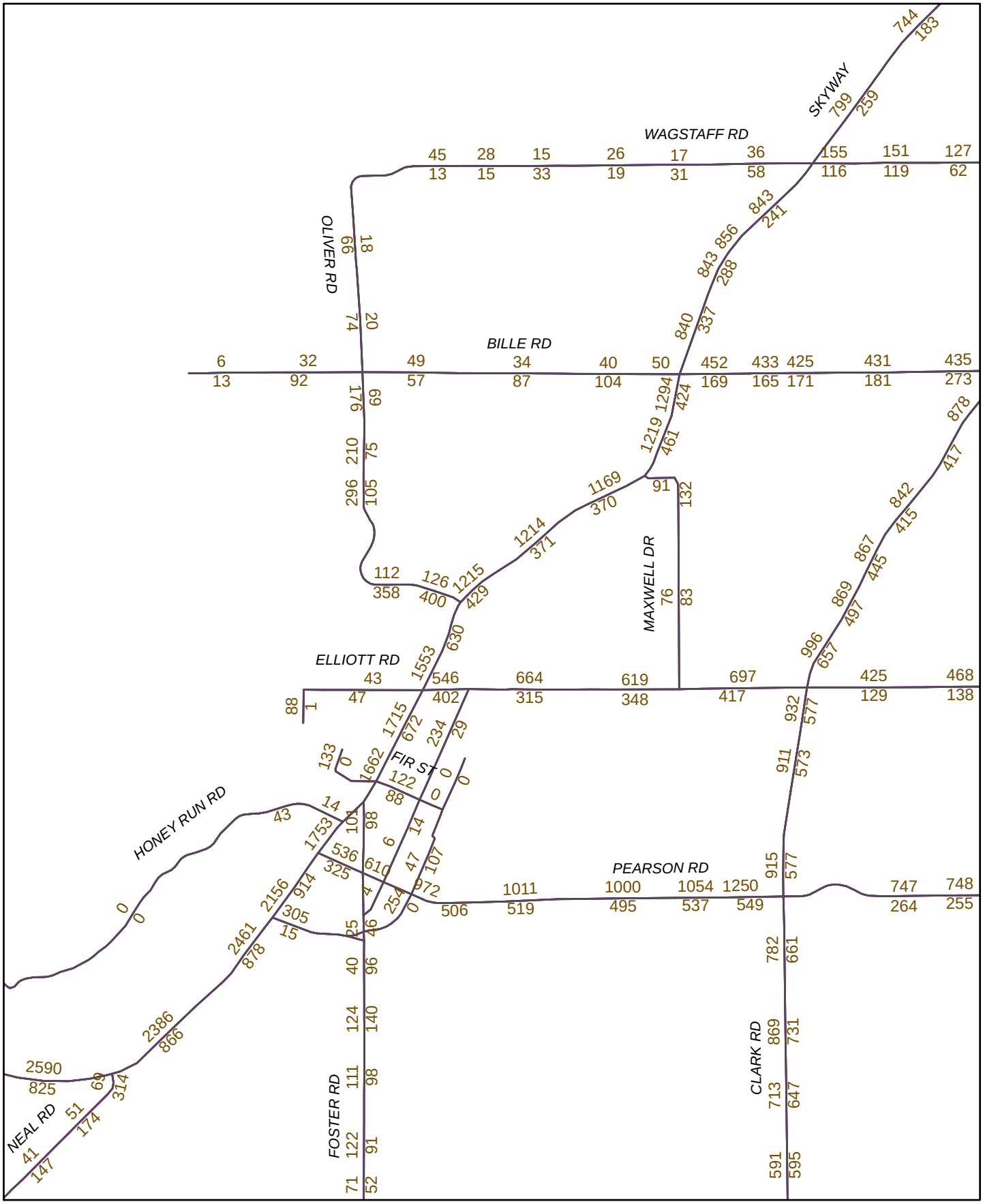
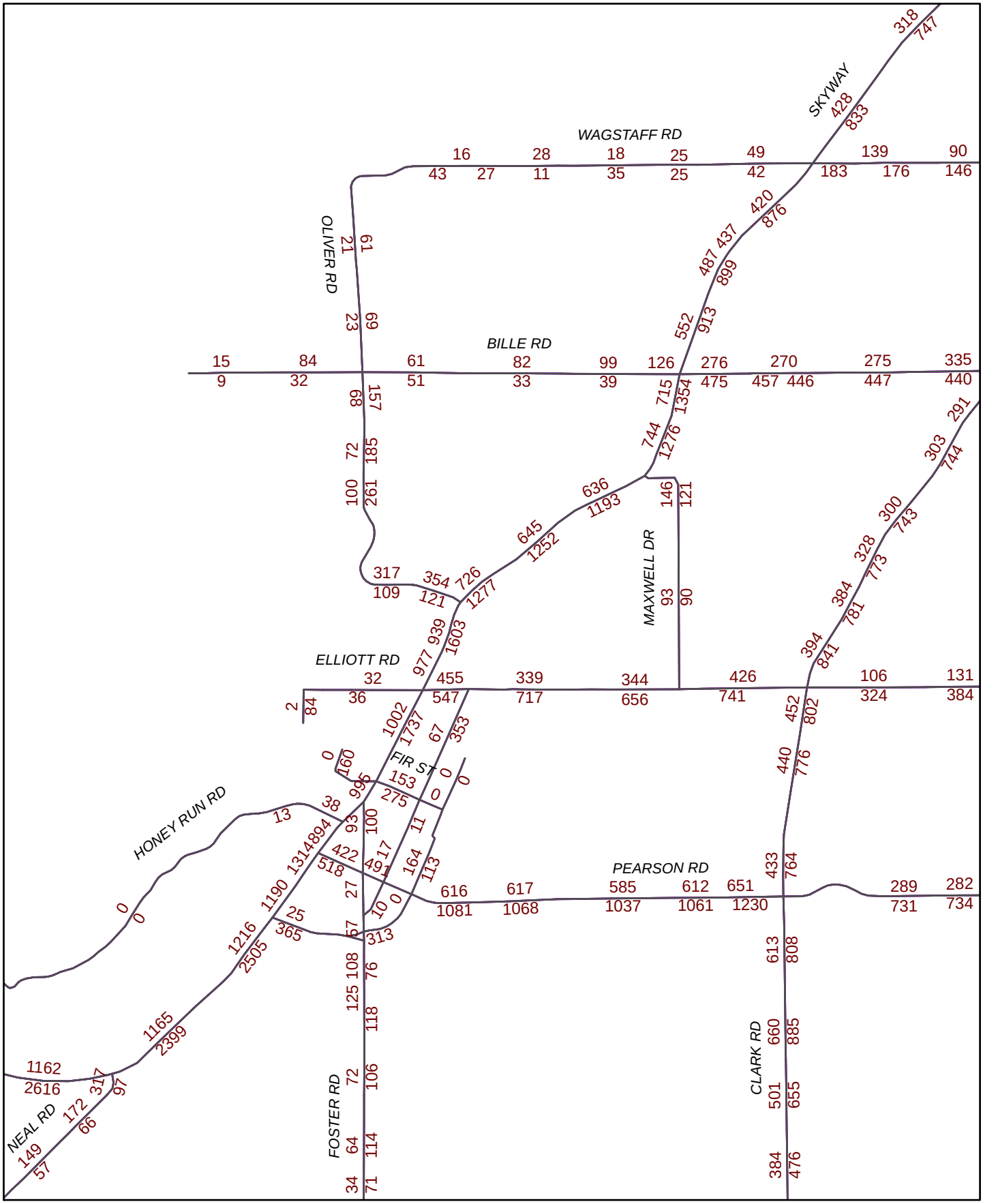


BCAG TRAFFIC MODEL OUTPUT
2035 UNCONSTRAINED
AM PEAK HOUR



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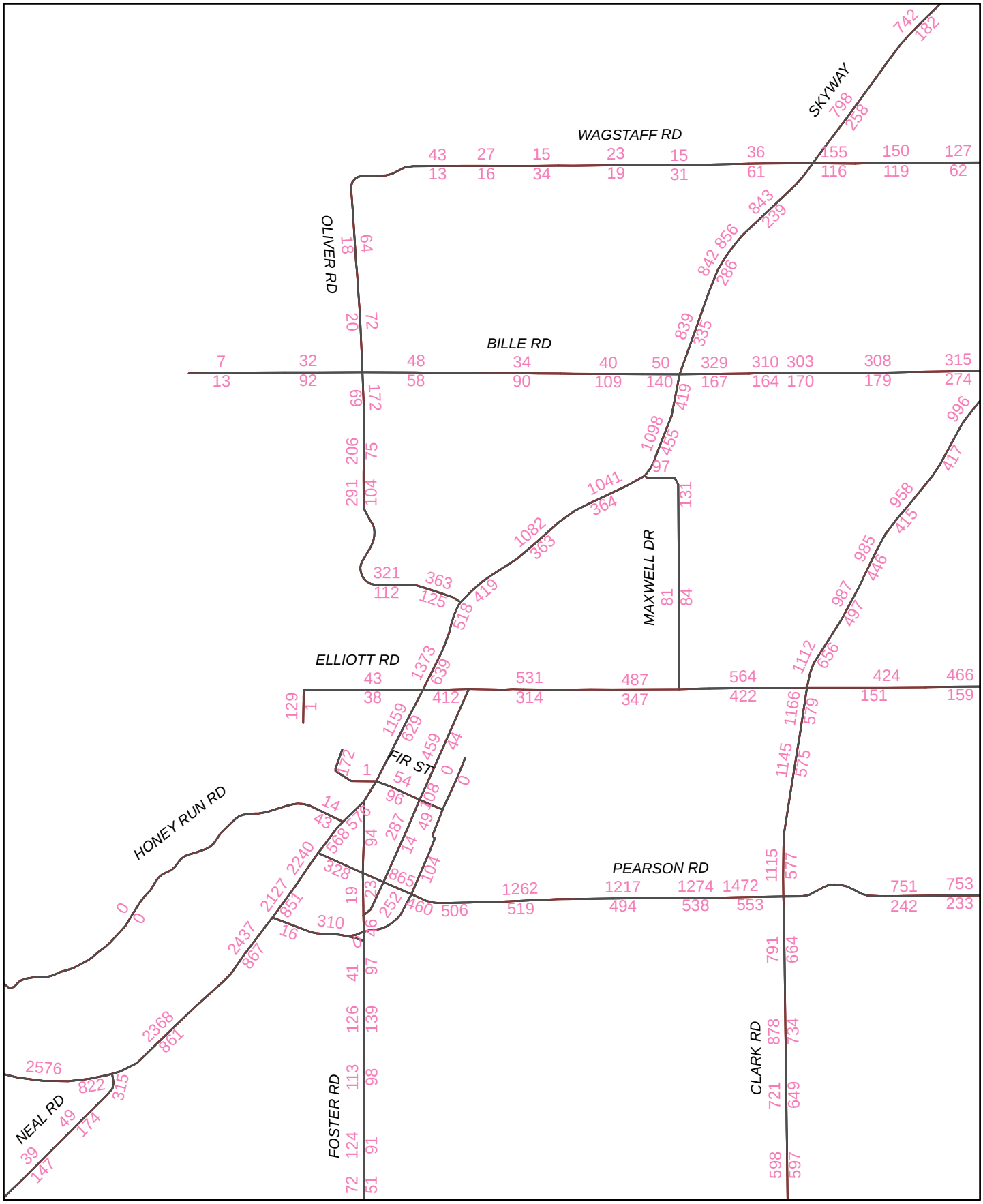
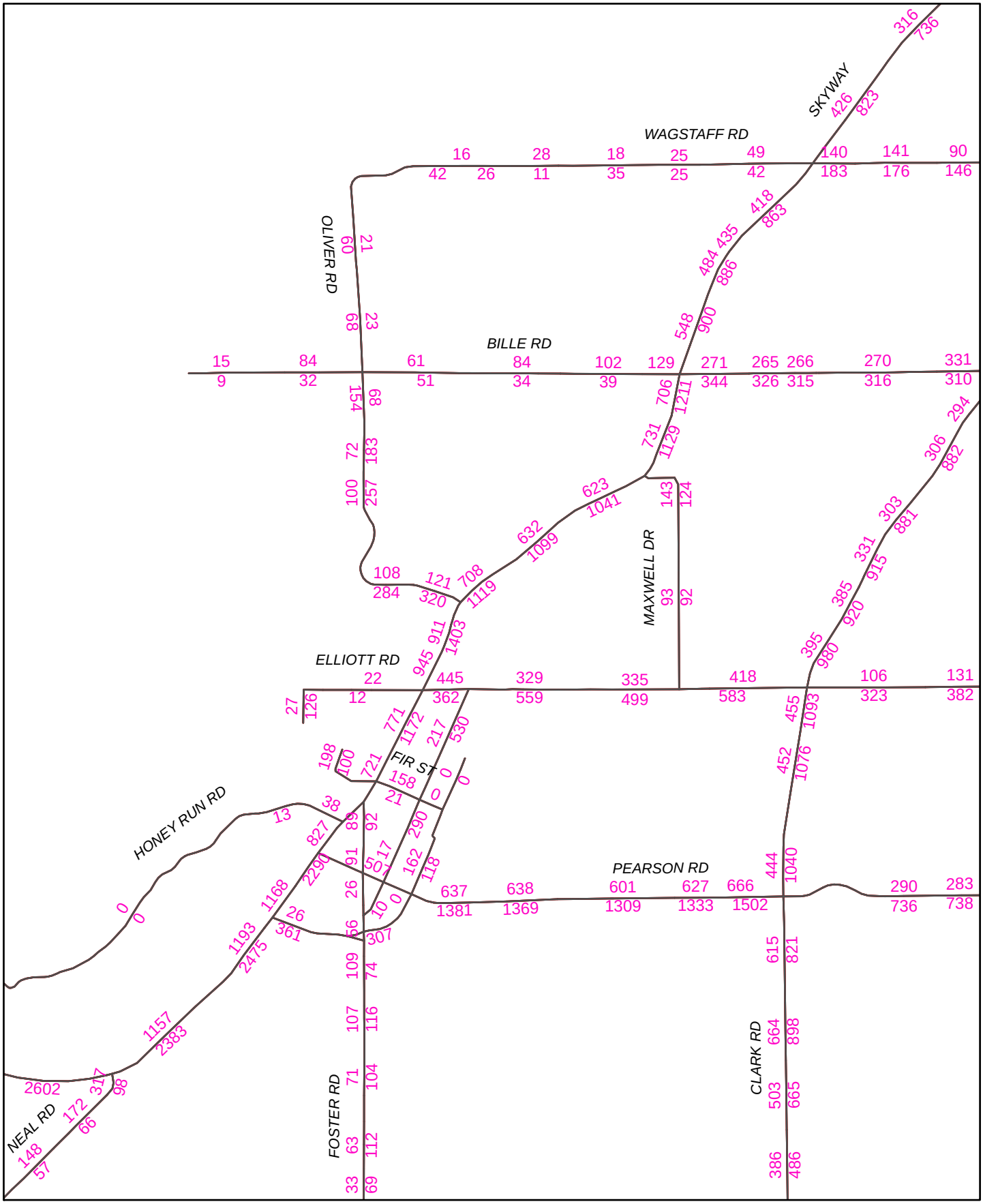
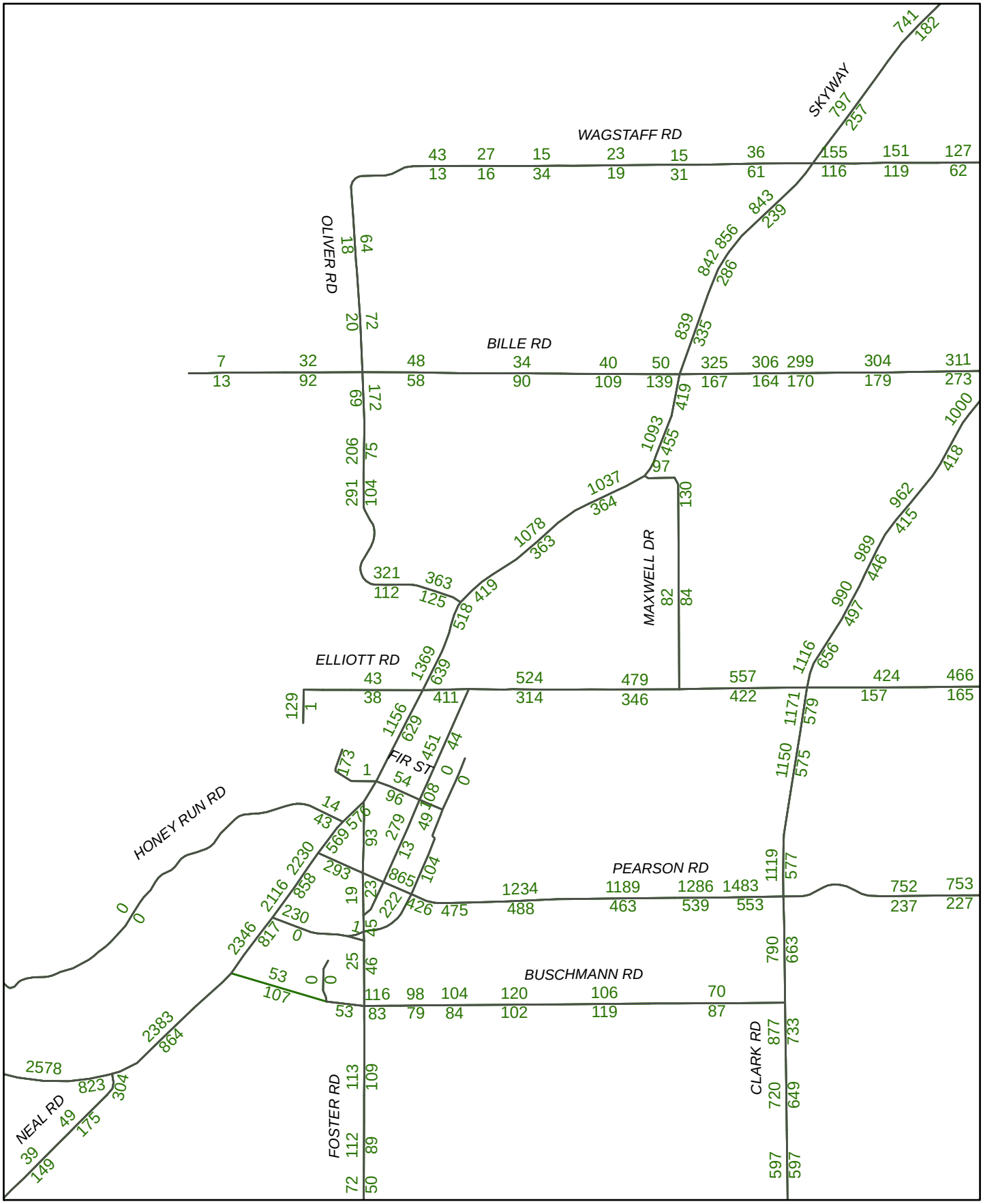


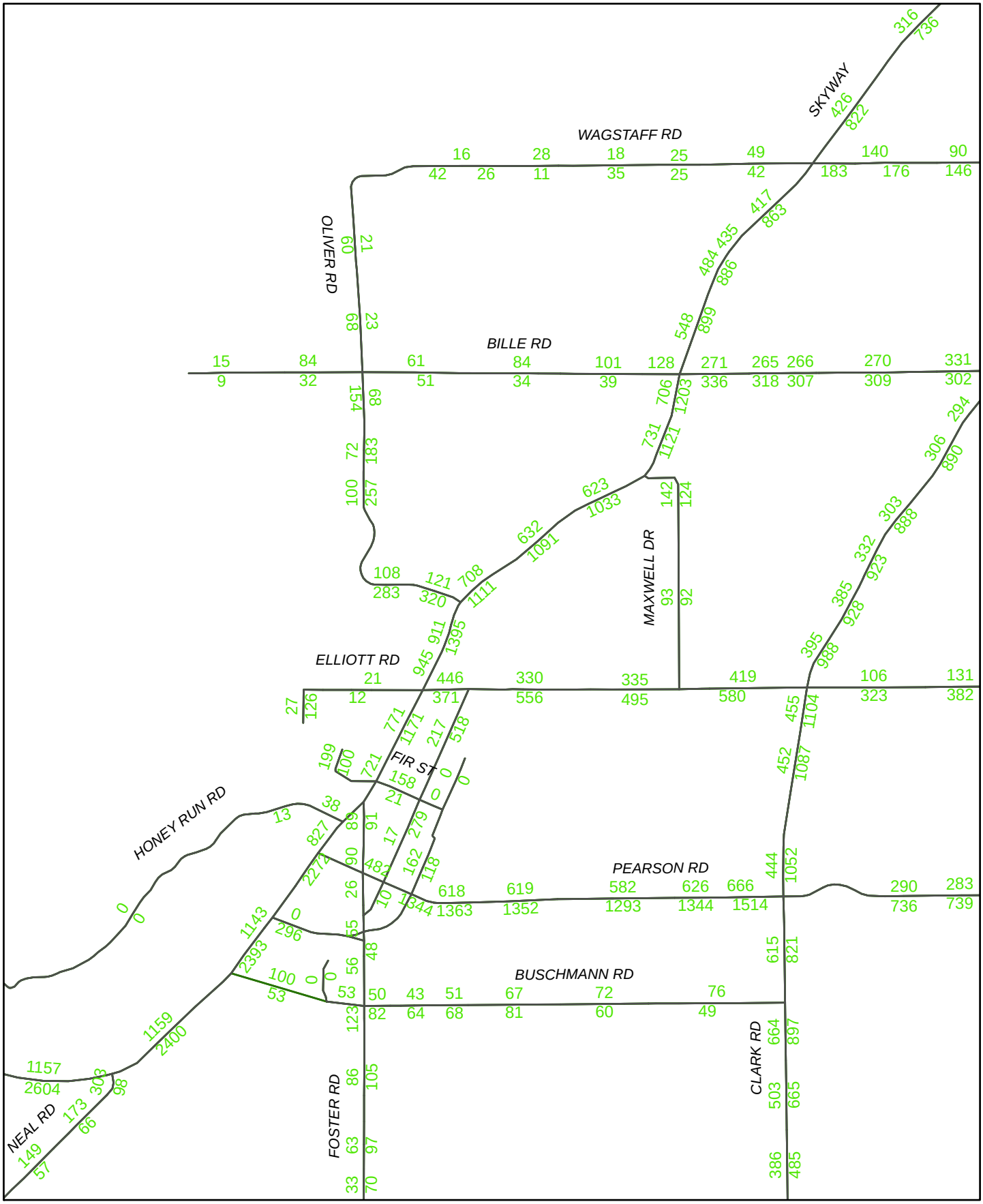
BCAG TRAFFIC MODEL OUTPUT
2035 CONSTRAINED (reduced lanes Pearson to Elliott)
AM PEAK HOUR



BCAG TRAFFIC MODEL OUTPUT
2035 CONSTRAINED (reduced lanes Pearson to Elliott)
PM PEAK HOUR



BCAG TRAFFIC MODEL OUTPUT
2035 CONSTRAINED (reduced lanes Pearson to Elliott)
WITH BUSCHMANN ROAD EXTENSION
AM PEAK HOUR



BCAG TRAFFIC MODEL OUTPUT
2035 CONSTRAINED (reduced lanes Pearson to Elliott)
WITH BUSCHMANN ROAD EXTENSION
PM PEAK HOUR