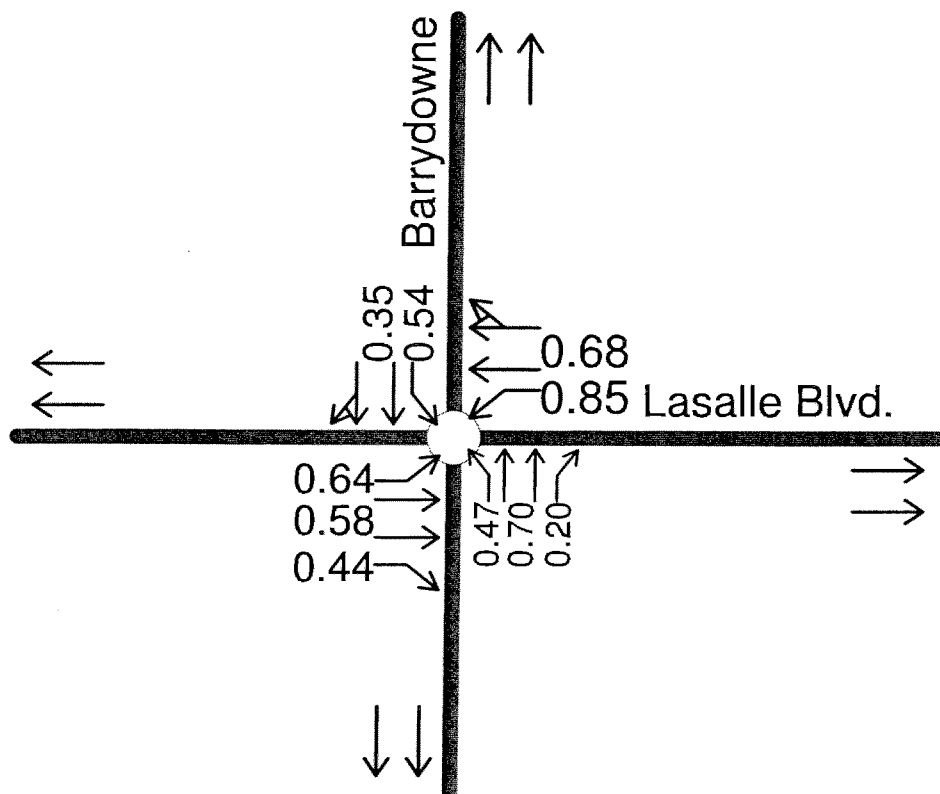




COGS (Protected EB/WB lefts)
3: Lasalle Blvd. & Barrydowne

Existing PM Peak with Maley Drive Extension

7/27/2005

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	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	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1712	3390	1517	1695	3327		1695	3390	1488	1729	3239	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.15	1.00	
Satd. Flow (perm)	1712	3390	1517	1695	3327		704	3390	1488	264	3239	
Volume (vph)	64	259	142	232	500	84	232	920	268	135	325	109
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)	70	282	154	252	543	91	252	1000	291	147	353	118
RTOR Reduction (vph)	0	0	130	0	12	0	0	0	0	0	28	0
Lane Group Flow (vph)	70	282	24	252	622	0	252	1000	291	147	443	0
Heavy Vehicles (%)	1%	2%	2%	2%	2%	0%	2%	2%	4%	0%	2%	5%
Turn Type	Prot		Perm	Prot			pm+pt		Free	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2		Free			
Actuated Green, G (s)	4.0	15.0	15.0	17.4	28.4		55.1	42.9	110.0	52.1	41.4	
Effective Green, g (s)	6.0	17.0	17.0	19.4	30.4		59.1	44.9	110.0	56.1	43.4	
Actuated g/C Ratio	0.05	0.15	0.15	0.18	0.28		0.54	0.41	1.00	0.51	0.39	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	93	524	234	299	919		506	1384	1488	304	1278	
v/s Ratio Prot	0.04	0.08		c0.15	c0.19		c0.06	c0.29		0.06	0.14	
v/s Ratio Perm			0.02				0.20		c0.20	0.19		
v/c Ratio	0.75	0.54	0.10	0.84	0.68		0.50	0.72	0.20	0.48	0.35	
Uniform Delay, d1	51.3	42.9	39.9	43.8	35.4		14.3	27.3	0.0	17.3	23.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	28.6	1.1	0.2	18.9	2.0		0.8	3.3	0.3	1.2	0.7	
Delay (s)	79.9	43.9	40.1	62.8	37.4		15.0	30.6	0.3	18.5	24.1	
Level of Service	E	D	D	E	D		B	C	A	B	C	
Approach Delay (s)		47.8			44.6			22.4			22.8	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay		31.6										
HCM Volume to Capacity ratio		0.68										
Actuated Cycle Length (s)		110.0										
Intersection Capacity Utilization		69.2%							8.0			
Analysis Period (min)		15										
c Critical Lane Group												

COGS (Protected EB/WB lefts)
3: Lasalle Blvd. & Barrydowne

Existing PM Peak with Maley Drive Extension

7/27/2005

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	80.0		70.0	80.0		0.0	80.0		100.0	60.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2	15.2	15.2	15.2		15.2	15.2	15.2	15.2	15.2	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Flt			0.850		0.978				0.850		0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	3390	1517	1695	3325	0	1695	3390	1488	1729	3238	0
Flt Permitted	0.950			0.950			0.431			0.098		
Satd. Flow (perm)	1712	3390	1517	1695	3325	0	769	3390	1488	178	3238	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			154		17				256		47	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48		48		48
Link Distance (m)		342.9			381.1			280.0			332.0	
Travel Time (s)		25.7			28.6			21.0			24.9	
Volume (vph)	64	259	142	232	500	84	232	920	268	135	325	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	2%	2%	2%	0%	2%	2%	4%	0%	2%	5%
Adj. Flow (vph)	70	282	154	252	543	91	252	1000	291	147	353	118
Lane Group Flow (vph)	70	282	154	252	634	0	252	1000	291	147	471	0
Turn Type	Prot		Perm	Prot			pm+pt		Free	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2		Free	6		
Detector Phases	7	4	4	3	8		5	2		1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	11.0	22.0	22.0	24.0	35.0	0.0	19.0	42.0	0.0	22.0	45.0	0.0
Total Split (%)	10.0%	20.0%	20.0%	21.8%	31.8%	0.0%	17.3%	38.2%	0.0%	20.0%	40.9%	0.0%
Maximum Green (s)	5.0	16.0	16.0	18.0	29.0		13.0	36.0		16.0	39.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	7.0	15.8	15.8	19.4	30.4		60.3	46.1	110.0	57.4	44.7	
Actuated g/C Ratio	0.06	0.14	0.14	0.18	0.28		0.55	0.42	1.00	0.52	0.41	
v/c Ratio	0.64	0.58	0.44	0.85	0.68		0.47	0.70	0.20	0.54	0.35	
Control Delay	76.9	47.1	10.0	65.5	38.5		15.5	31.0	0.3	19.9	21.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	76.9	47.1	10.0	65.5	38.5		15.5	31.0	0.3	19.9	21.9	
LOS	E	D	B	E	D		B	C	A	B	C	
Approach Delay		39.9			46.2			22.7			21.4	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	14.9	30.0	0.0	52.5	63.2		26.4	91.9	0.0	14.3	33.8	
Queue Length 95th (m)	#35.6	42.8	17.4	#92.7	81.3		42.7	130.3	0.0	31.7	48.0	
Internal Link Dist (m)		318.9			357.1			256.0			308.0	
Turn Bay Length (m)	80.0		70.0	80.0			80.0		100.0	60.0		
Base Capacity (vph)	109	555	377	308	962		553	1421	1488	354	1343	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.64	0.51	0.41	0.82	0.66		0.46	0.70	0.20	0.42	0.35	

COGS (Protected EB/WB lefts)
3: Lasalle Blvd. & Barrydowne

Existing PM Peak with Maley Drive Extension
7/27/2005

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 100 (91%) Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 30.8

Intersection LOS: C

Intersection Capacity Utilization 69.2%

ICU Level of Service C

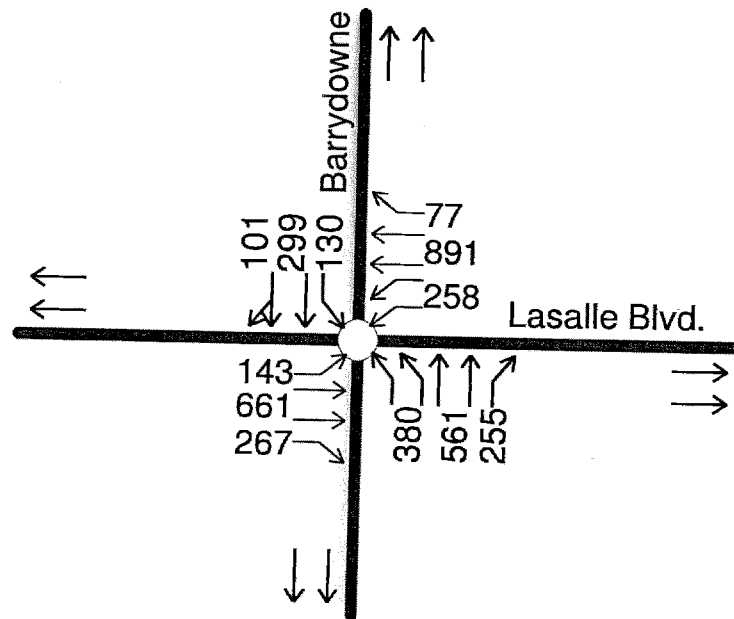
Analysis Period (min) 15

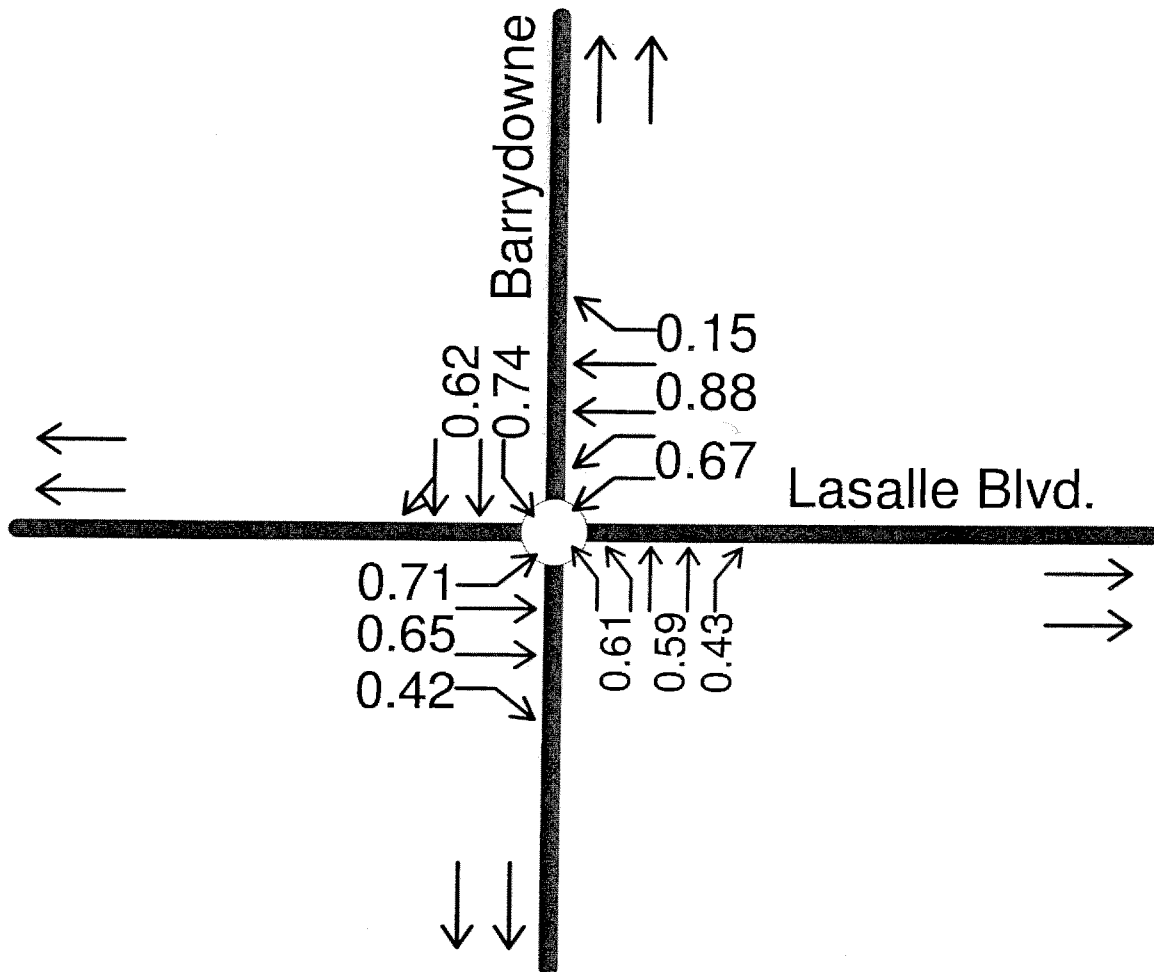
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Lasalle Blvd. & Barrydowne

 ø1	 ø2	 ø3	 ø4
22 s	42 s	24 s	22 s
 ø5	 ø6	 ø7	 ø8
19 s	45 s	11 s	35 s





2021 PM Peak-No Maley (4 Lane Lasalle)

7/27/2005

3: Lasalle Blvd. & Barrydowne

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	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	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3238	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3238	
Volume (vph)	143	661	267	258	891	77	380	561	255	130	299	101
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)	155	718	290	280	968	84	413	610	277	141	325	110
RTOR Reduction (vph)	0	0	196	0	0	56	0	0	193	0	28	0
Lane Group Flow (vph)	155	718	94	280	968	28	413	610	84	141	407	0
Heavy Vehicles (%)	1%	2%	2%	2%	2%	0%	2%	2%	4%	0%	2%	5%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	13.2	37.0	37.0	13.4	37.2	37.2	22.7	34.4	34.4	11.2	22.9	
Effective Green, g (s)	15.2	39.0	39.0	15.4	39.2	39.2	24.7	36.4	36.4	13.2	24.9	
Actuated g/C Ratio	0.13	0.32	0.32	0.13	0.33	0.33	0.21	0.30	0.30	0.11	0.21	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	217	1102	493	422	1107	505	677	1028	451	190	672	
v/s Ratio Prot	c0.09	0.21		0.09	c0.29		c0.13	c0.18		c0.08	0.13	
v/s Ratio Perm			0.06			0.02			0.06			
v/c Ratio	0.71	0.65	0.19	0.66	0.87	0.06	0.61	0.59	0.19	0.74	0.61	
Uniform Delay, d1	50.3	34.7	29.1	49.8	38.1	27.7	43.3	35.5	30.9	51.8	43.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.6	1.4	0.2	3.9	7.9	0.0	4.1	2.5	0.9	14.4	1.6	
Delay (s)	60.9	36.1	29.3	53.7	46.0	27.8	47.3	38.0	31.8	66.2	44.7	
Level of Service	E	D	C	D	D	C	D	D	C	E	D	
Approach Delay (s)		37.7			46.4			39.7			49.9	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			42.6				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			71.7%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

3: Lasalle Blvd. & Barrydowne

2021 PM Peak-No Maley (4 Lane Lasalle)

7/27/2005

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	80.0		70.0	80.0		0.0	80.0		100.0	60.0		0.0
Storage Lanes	1		1	2		1	2		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3237	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3237	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290			83			277		35	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		342.9			381.1			280.0			332.0	
Travel Time (s)		25.7			28.6			21.0			24.9	
Volume (vph)	143	661	267	258	891	77	380	561	255	130	299	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	2%	2%	2%	0%	2%	2%	4%	0%	2%	5%
Adj. Flow (vph)	155	718	290	280	968	84	413	610	277	141	325	110
Lane Group Flow (vph)	155	718	290	280	968	84	413	610	277	141	435	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0	45.0	26.0	38.0	38.0	17.0	29.0	0.0
Total Split (%)	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	21.7%	31.7%	31.7%	14.2%	24.2%	0.0%
Maximum Green (s)	14.0	39.0	39.0	14.0	39.0	39.0	20.0	32.0	32.0	11.0	23.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	
Act Effct Green (s)	15.2	39.0	39.0	15.4	39.1	39.1	24.7	36.4	36.4	13.2	25.0	
Actuated g/C Ratio	0.13	0.32	0.32	0.13	0.33	0.33	0.21	0.30	0.30	0.11	0.21	
v/c Ratio	0.71	0.65	0.42	0.67	0.88	0.15	0.61	0.59	0.43	0.74	0.62	
Control Delay	65.8	37.1	5.0	57.0	45.4	6.5	48.7	39.1	6.1	73.7	44.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.8	37.1	5.0	57.0	45.4	6.5	48.7	39.1	6.1	73.7	44.0	
LOS	E	D	A	E	D	A	D	D	A	E	D	
Approach Delay		32.9			45.4			35.1			51.3	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	35.3	73.8	0.0	32.6	109.8	0.2	47.3	66.1	0.0	32.8	45.4	
Queue Length 95th (m)	#61.7	93.9	18.1	46.9	136.3	10.8	64.0	85.6	19.6	#63.4	62.6	

3: Lasalle Blvd. & Barrydowne

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	318.9			357.1			256.0			308.0		
Turn Bay Length (m)	80.0		70.0	80.0			80.0		100.0	60.0		
Base Capacity (vph)	228	1158	709	438	1158	583	676	1029	644	193	702	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.41	0.64	0.84	0.14	0.61	0.59	0.43	0.73	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 39.8

Intersection LOS: D

Intersection Capacity Utilization 71.7%

ICU Level of Service C

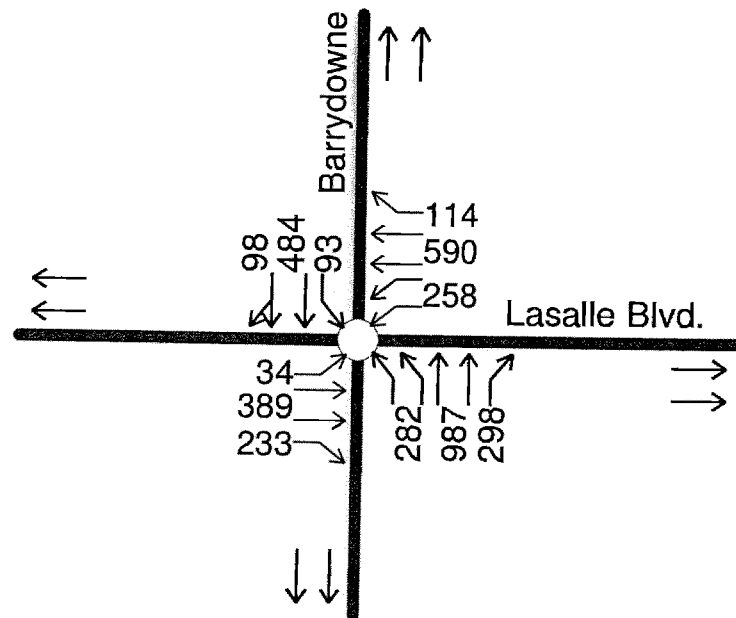
Analysis Period (min) 15

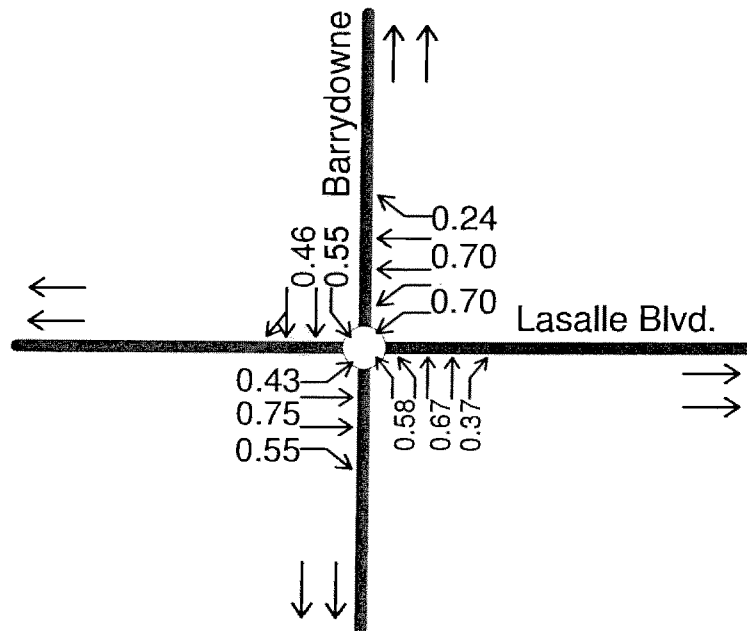
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Lasalle Blvd. & Barrydowne

 ø1	 ø2	 ø3	 ø4
17 s	38 s	20 s	45 s
 ø5	 ø6	 ø7	 ø8
26 s	29 s	20 s	45 s





3: Lasalle Blvd. & Barrydowne

2021 PM Peak With Maley (4 Lane Lasalle, dual lefts NB/WB)

7/27/2005

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	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	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	0.97
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3288	3288
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3288	3288
Volume (vph)	34	389	233	258	590	114	282	987	298	93	484	98
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)	37	423	253	280	641	124	307	1073	324	101	526	107
RTOR Reduction (vph)	0	0	206	0	0	90	0	0	177	0	14	0
Lane Group Flow (vph)	37	423	47	280	641	34	307	1073	147	101	619	0
Heavy Vehicles (%)	1%	2%	2%	2%	2%	0%	2%	2%	4%	0%	2%	5%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.4	20.4	20.4	12.6	30.6	30.6	17.4	52.3	52.3	10.7	45.6	
Effective Green, g (s)	4.4	22.4	22.4	14.6	32.6	32.6	19.4	54.3	54.3	12.7	47.6	
Actuated g/C Ratio	0.04	0.19	0.19	0.12	0.27	0.27	0.16	0.45	0.45	0.11	0.40	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	63	633	283	400	921	420	532	1534	673	183	1304	
v/s Ratio Prot	0.02	0.12		c0.09	c0.19		c0.09	c0.32		0.06	0.19	
v/s Ratio Perm			0.03			0.02			0.10			
v/c Ratio	0.59	0.67	0.17	0.70	0.70	0.08	0.58	0.70	0.22	0.55	0.47	
Uniform Delay, d1	56.9	45.3	41.0	50.6	39.2	32.5	46.5	26.3	20.0	50.9	26.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.2	2.7	0.3	5.3	2.3	0.1	4.5	2.7	0.7	3.6	0.3	
Delay (s)	70.1	48.0	41.2	55.9	41.6	32.6	51.0	29.0	20.7	54.5	27.2	
Level of Service	E	D	D	E	D	C	D	C	C	D	C	
Approach Delay (s)		46.8			44.3			31.4			30.9	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay		37.1										
HCM Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		120.0										
Intersection Capacity Utilization		68.1%										
Analysis Period (min)		15										
c Critical Lane Group												

3: Lasalle Blvd. & Barrydowne

2021 PM Peak With Maley (4 Lane Lasalle, dual lefts NB/WB)

7/27/2005

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	80.0		70.0	80.0		0.0	80.0		100.0	60.0		0.0
Storage Lanes	1		1	2		1	2		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.975	
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3289	0
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1712	3390	1517	3288	3390	1547	3288	3390	1488	1729	3289	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			253			124			324		24	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		342.9			381.1			280.0			332.0	
Travel Time (s)		25.7			28.6			21.0			24.9	
Volume (vph)	34	389	233	258	590	114	282	987	298	93	484	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	2%	2%	2%	0%	2%	2%	4%	0%	2%	5%
Adj. Flow (vph)	37	423	253	280	641	124	307	1073	324	101	526	107
Lane Group Flow (vph)	37	423	253	280	641	124	307	1073	324	101	633	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	10.0	25.0	25.0	19.0	34.0	34.0	22.0	58.0	58.0	18.0	54.0	0.0
Total Split (%)	8.3%	20.8%	20.8%	15.8%	28.3%	28.3%	18.3%	48.3%	48.3%	15.0%	45.0%	0.0%
Maximum Green (s)	4.0	19.0	19.0	13.0	28.0	28.0	16.0	52.0	52.0	12.0	48.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	
Act Effect Green (s)	6.0	20.0	20.0	14.6	32.6	32.6	19.4	56.7	56.7	12.7	50.0	
Actuated g/C Ratio	0.05	0.17	0.17	0.12	0.27	0.27	0.16	0.47	0.47	0.11	0.42	
v/c Ratio	0.43	0.75	0.55	0.70	0.70	0.24	0.58	0.67	0.37	0.55	0.46	
Control Delay	71.0	54.9	9.8	59.6	44.5	7.4	51.9	27.7	3.4	59.5	25.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	71.0	54.9	9.8	59.6	44.5	7.4	51.9	27.7	3.4	59.5	25.5	
LOS	E	D	A	E	D	A	D	C	A	E	C	
Approach Delay		39.7			44.2			27.4			30.2	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	8.6	50.0	0.0	32.9	73.7	0.0	35.4	104.7	0.0	22.6	53.4	
Queue Length 95th (m)	19.9	67.4	22.3	47.4	94.8	14.6	50.1	128.9	15.5	40.6	69.5	

2021 PM Peak With Maley (4 Lane Lasalle, dual lefts NB/WB)

3: Lasalle Blvd. & Barrydowne

7/27/2005



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	318.9			357.1			256.0			308.0		
Turn Bay Length (m)	80.0		70.0	80.0			80.0		100.0	60.0		
Base Capacity (vph)	86	593	474	411	921	511	531	1601	874	202	1384	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.71	0.53	0.68	0.70	0.24	0.58	0.67	0.37	0.50	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2 NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 34.2

Intersection LOS: C

Intersection Capacity Utilization 68.1%

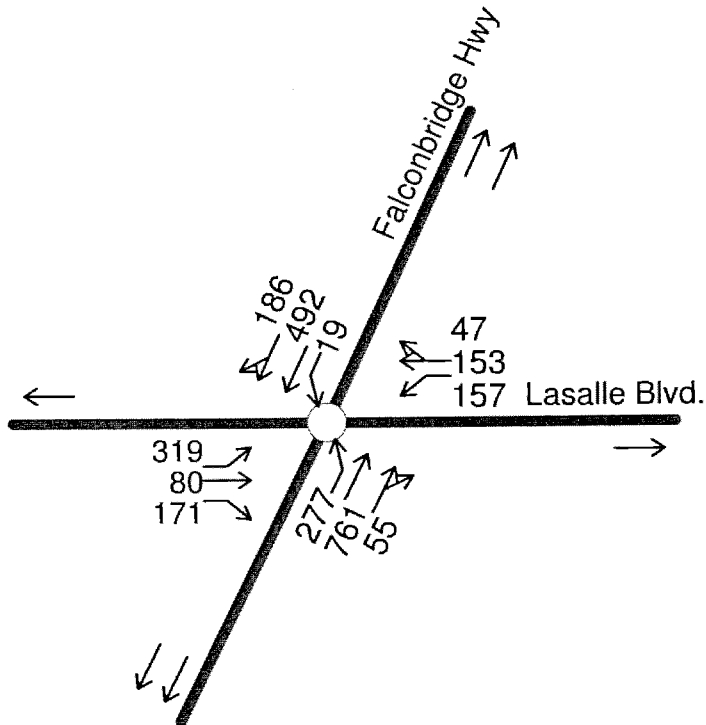
ICU Level of Service C

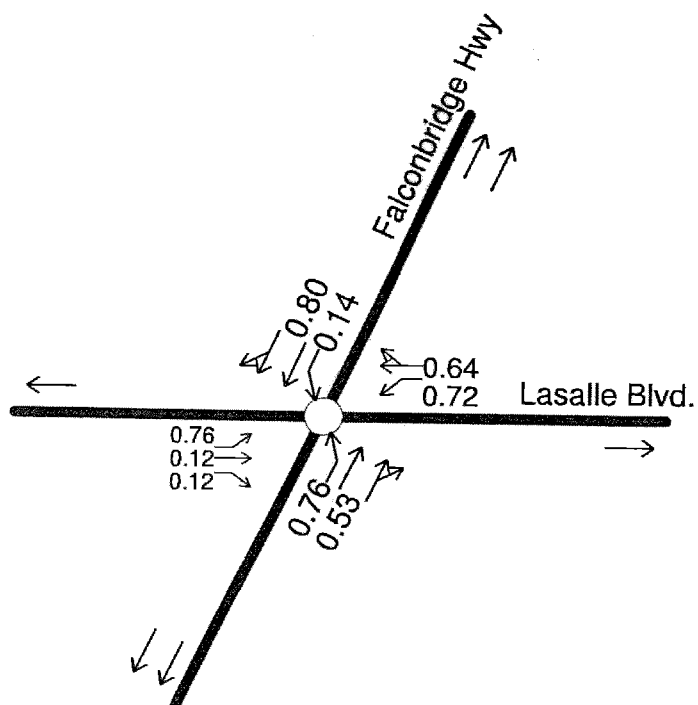
Analysis Period (min) 15

Splits and Phases: 3: Lasalle Blvd. & Barrydowne

01	02	03	04
18 s	58 s	19 s	25 s
05	06	07	08
22 s	54 s	10 s	34 s

Lasalle Boulevard at Falconbridge Highway





COGS TP Lasalle/Falconbridge

3: Lasalle Blvd. & Falconbridge Hwy

May 2003 PM Peak

7/27/2005

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
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	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1695	1784	1517	1695	1721		1695	3356		1695	3251	
Flt Permitted	0.32	1.00	1.00	0.70	1.00		0.13	1.00		0.32	1.00	
Satd. Flow (perm)	574	1784	1517	1250	1721		234	3356		572	3251	
Volume (vph)	319	80	171	157	153	47	277	761	55	19	492	186
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)	347	87	186	171	166	51	301	827	60	21	535	202
RTOR Reduction (vph)	0	0	0	0	11	0	0	6	0	0	39	0
Lane Group Flow (vph)	347	87	186	171	206	0	301	882	0	21	698	0
Turn Type	pm+pt		Free		Perm		pm+pt		Perm			
Protected Phases	7		4		8		5		2		6	
Permitted Phases	4		Free		8		2				6	
Actuated Green, G (s)	40.0		40.0		100.0		48.0		48.0		25.0	
Effective Green, g (s)	42.0		42.0		100.0		50.0		50.0		27.0	
Actuated g/C Ratio	0.42		0.42		1.00		0.50		0.50		0.27	
Clearance Time (s)	6.0		6.0		6.0		6.0		6.0		6.0	
Lane Grp Cap (vph)	454		749		1517		395		1678		154	
v/s Ratio Prot	c0.15		0.05		0.12		c0.14		0.26		0.21	
v/s Ratio Perm	c0.18		0.12		0.14		c0.24				0.04	
v/c Ratio	0.76		0.12		0.12		0.76		0.53		0.14	
Uniform Delay, d1	22.0		17.7		0.0		22.9		17.0		27.7	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.00	
Incremental Delay, d2	11.6		0.3		0.2		13.0		1.2		1.8	
Delay (s)	33.6		18.0		0.2		35.9		18.1		29.5	
Level of Service	C		B		A		D		B		C	
Approach Delay (s)			21.4						22.6			
Approach LOS			C						C			
Intersection Summary												
HCM Average Control Delay			30.7		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			80.3%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

COGS TP Lasalle/Falconbridge

3: Lasalle Blvd. & Falconbridge Hwy

May 2003 PM Peak

7/27/2005

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	80.0		80.0	80.0		25.0	80.0		60.0	80.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.965			0.990			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1722	0	1695	3356	0	1695	3251	0
Flt Permitted	0.322			0.701			0.131			0.321		
Satd. Flow (perm)	575	1784	1517	1251	1722	0	234	3356	0	573	3251	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			186		14			11			54	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		342.9			381.1			364.5			376.6	
Travel Time (s)		25.7			28.6			27.3			28.2	
Volume (vph)	319	80	171	157	153	47	277	761	55	19	492	186
Peak Hour Factor	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)	347	87	186	171	166	51	301	827	60	21	535	202
Lane Group Flow (vph)	347	87	186	171	217	0	301	887	0	21	737	0
Turn Type	pm+pt		Free	Perm			pm+pt			Perm		
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4		Free	8			2			6		
Minimum Split (s)	10.0	22.0		22.0	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	23.0	46.0	0.0	23.0	23.0	0.0	23.0	54.0	0.0	31.0	31.0	0.0
Total Split (%)	23.0%	46.0%	0.0%	23.0%	23.0%	0.0%	23.0%	54.0%	0.0%	31.0%	31.0%	0.0%
Maximum Green (s)	17.0	40.0		17.0	17.0		17.0	48.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Walk Time (s)		5.0		5.0	5.0			5.0		5.0	5.0	
Flash Dont-Walk (s)		11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0			0		0	0	
Act Effect Green (s)	42.0	42.0	100.0	19.0	19.0		50.0	50.0		27.0	27.0	
Actuated g/C Ratio	0.42	0.42	1.00	0.19	0.19		0.50	0.50		0.27	0.27	
v/c Ratio	0.76	0.12	0.12	0.72	0.64		0.76	0.53		0.14	0.80	
Control Delay	34.0	18.3	0.2	56.5	44.5		35.6	18.2		30.5	39.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.0	18.3	0.2	56.5	44.5		35.6	18.2		30.5	39.4	
LOS	C	B	A	E	D		D	B		C	D	
Approach Delay		21.7			49.8			22.6			39.1	
Approach LOS		C			D			C			D	
Queue Length 50th (m)	48.0	10.0	0.0	31.4	36.6		39.3	58.2		3.1	65.3	
Queue Length 95th (m)	#74.0	19.4	0.0	#61.3	60.8		#77.3	75.2		9.3	87.2	
Internal Link Dist (m)		318.9			357.1			340.5			352.6	
Turn Bay Length (m)	80.0		80.0	80.0			80.0			80.0		
Base Capacity (vph)	454	749	1517	238	339		395	1684		155	917	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.76	0.12	0.12	0.72	0.64		0.76	0.53		0.14	0.80	

P:\PROJECTS\2003\69286_Sudbury\report\Final June 2005 calcs\Lasalle Falconbridge\Lasalle FalconBridge May 2003 PM.sy7

COGS TP Lasalle/Falconbridge
 3: Lasalle Blvd. & Falconbridge Hwy

May 2003 PM Peak
 7/27/2005

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 30.2

Intersection LOS: C

Intersection Capacity Utilization 80.3%

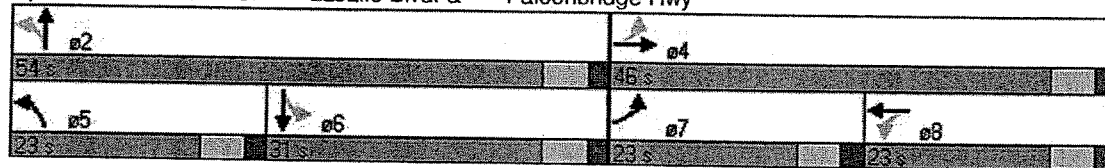
ICU Level of Service D

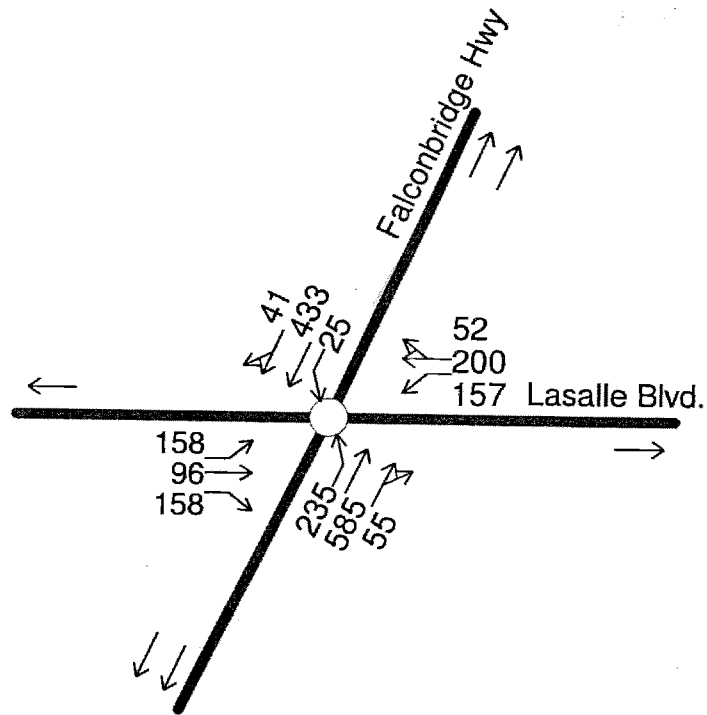
Analysis Period (min) 15

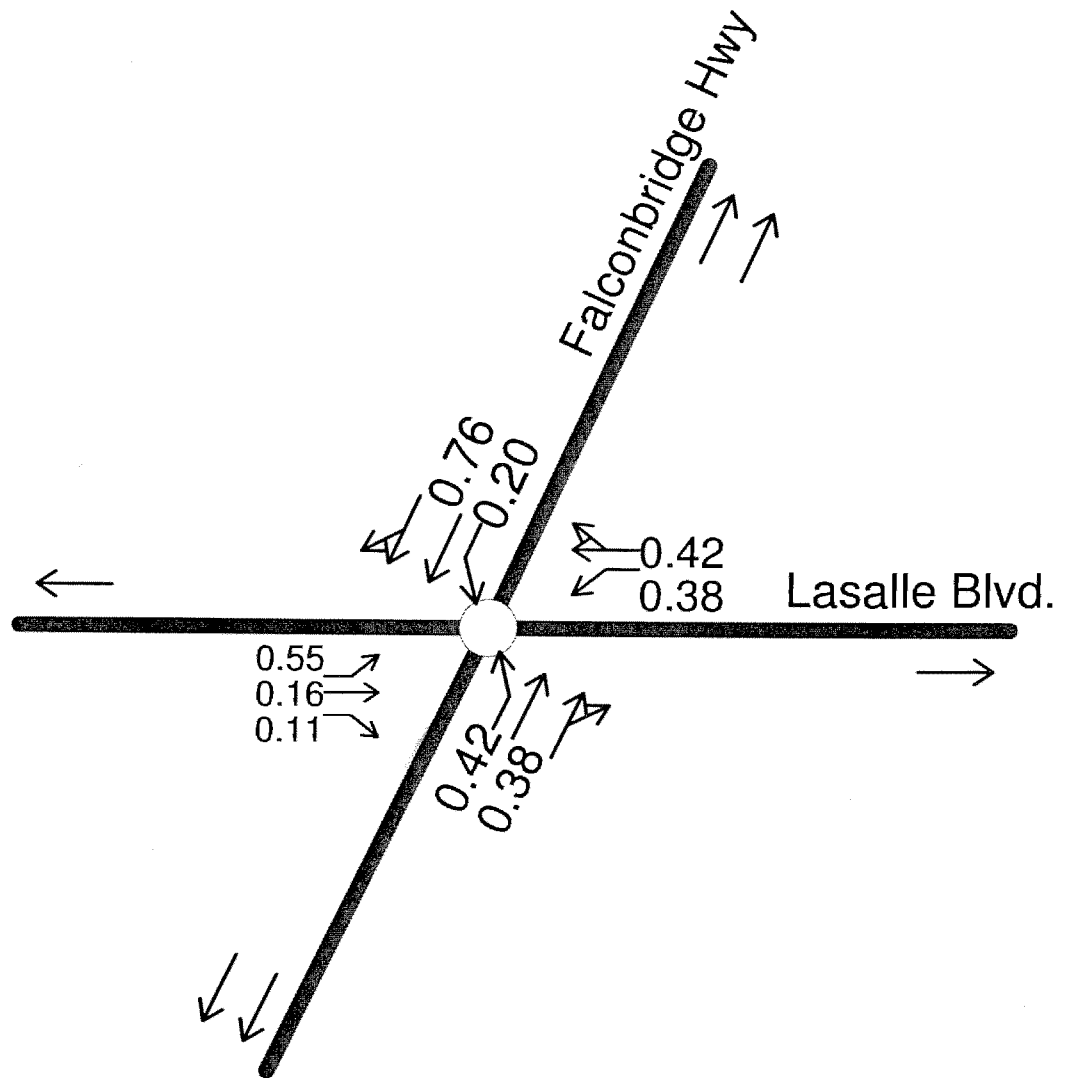
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Lasalle Blvd. & Falconbridge Hwy







COGS TP Lasalle at Falconbridge

3: Lasalle Blvd. & Falconbridge Hwy

Existing PM Peak with Maley Drive

7/27/2005

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	1800	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1695	1784	1517	1695	1729		1695	3346		1695	3346	
Flt Permitted	0.47	1.00	1.00	0.69	1.00		0.19	1.00		0.39	1.00	
Satd. Flow (perm)	846	1784	1517	1231	1729		336	3346		690	3346	
Volume (vph)	158	96	158	157	200	52	235	585	55	25	433	41
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)	172	104	172	171	217	57	255	636	60	27	471	45
RTOR Reduction (vph)	0	0	0	0	9	0	0	7	0	0	7	0
Lane Group Flow (vph)	172	104	172	171	265	0	255	689	0	27	509	0
Turn Type	Perm		Free	Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		Free	8			2					6
Actuated Green, G (s)	35.0	35.0	100.0	35.0	35.0		53.0	53.0		18.0	18.0	
Effective Green, g (s)	37.0	37.0	100.0	37.0	37.0		55.0	55.0		20.0	20.0	
Actuated g/C Ratio	0.37	0.37	1.00	0.37	0.37		0.55	0.55		0.20	0.20	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	313	660	1517	455	640		606	1840		138	669	
v/s Ratio Prot		0.06			0.15		0.13	0.21			0.15	
v/s Ratio Perm	0.20		0.11	0.14			0.10			0.04		
v/c Ratio	0.55	0.16	0.11	0.38	0.41		0.42	0.37		0.20	0.76	
Uniform Delay, d1	24.9	21.1	0.0	23.1	23.4		13.4	12.8		33.3	37.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	0.5	0.2	2.4	2.0		2.1	0.6		3.1	8.0	
Delay (s)	31.7	21.6	0.2	25.4	25.4		15.5	13.3		36.4	45.7	
Level of Service	C	C	A	C	C		B	B		D	D	
Approach Delay (s)		17.2			25.4			13.9			45.2	
Approach LOS		B			C			B			D	
Intersection Summary												
HCM Average Control Delay	23.8			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.55											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	64.8%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

COGS TP Lasalle at Falconbridge

3: Lasalle Blvd. & Falconbridge Hwy

Existing PM Peak with Maley Drive

7/27/2005

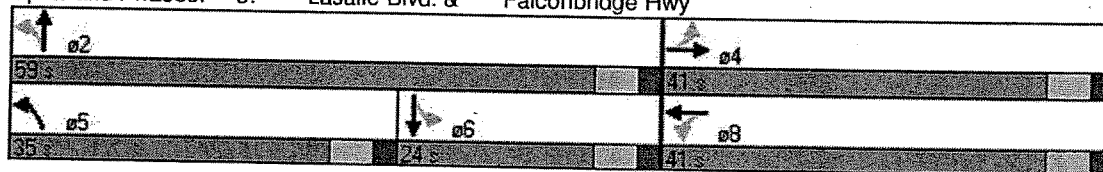
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↱	↱	↰	↱	↱
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	80.0		80.0	80.0		25.0	80.0		60.0	80.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.969			0.987			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1729	0	1695	3346	0	1695	3346	0
Flt Permitted	0.474			0.690			0.188			0.387		
Satd. Flow (perm)	846	1784	1517	1231	1729	0	335	3346	0	691	3346	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172		15			16			9	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		342.9			381.1			364.5			376.6	
Travel Time (s)		25.7			28.6			27.3			28.2	
Volume (vph)	158	96	158	157	200	52	235	585	55	25	433	41
Peak Hour Factor	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)	172	104	172	171	217	57	255	636	60	27	471	45
Lane Group Flow (vph)	172	104	172	171	274	0	255	696	0	27	516	0
Turn Type	Perm		Free	Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		Free	8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	41.0	41.0	0.0	41.0	41.0	0.0	35.0	59.0	0.0	24.0	24.0	0.0
Total Split (%)	41.0%	41.0%	0.0%	41.0%	41.0%	0.0%	35.0%	59.0%	0.0%	24.0%	24.0%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0		29.0	53.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0			5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0			0	0	
Act Effect Green (s)	37.0	37.0	100.0	37.0	37.0		55.0	55.0		20.0	20.0	
Actuated g/C Ratio	0.37	0.37	1.00	0.37	0.37		0.55	0.55		0.20	0.20	
v/c Ratio	0.55	0.16	0.11	0.38	0.42		0.42	0.38		0.20	0.76	
Control Delay	33.0	21.9	0.2	26.1	24.6		14.9	13.2		37.6	45.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.0	21.9	0.2	26.1	24.6		14.9	13.2		37.6	45.5	
LOS	C	C	A	C	C		B	B		D	D	
Approach Delay		17.8			25.2			13.6			45.1	
Approach LOS		B			C			B			D	
Queue Length 50th (m)	26.0	13.3	0.0	23.9	36.8		24.7	37.1		4.4	49.2	
Queue Length 95th (m)	48.0	24.8	0.0	41.7	58.7		41.7	49.1		12.2	67.3	
Internal Link Dist (m)		318.9			357.1			340.5			352.6	
Turn Bay Length (m)	80.0		80.0	80.0			80.0			80.0		
Base Capacity (vph)	313	660	1517	455	649		606	1848		138	676	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.55	0.16	0.11	0.38	0.42		0.42	0.38		0.20	0.76	

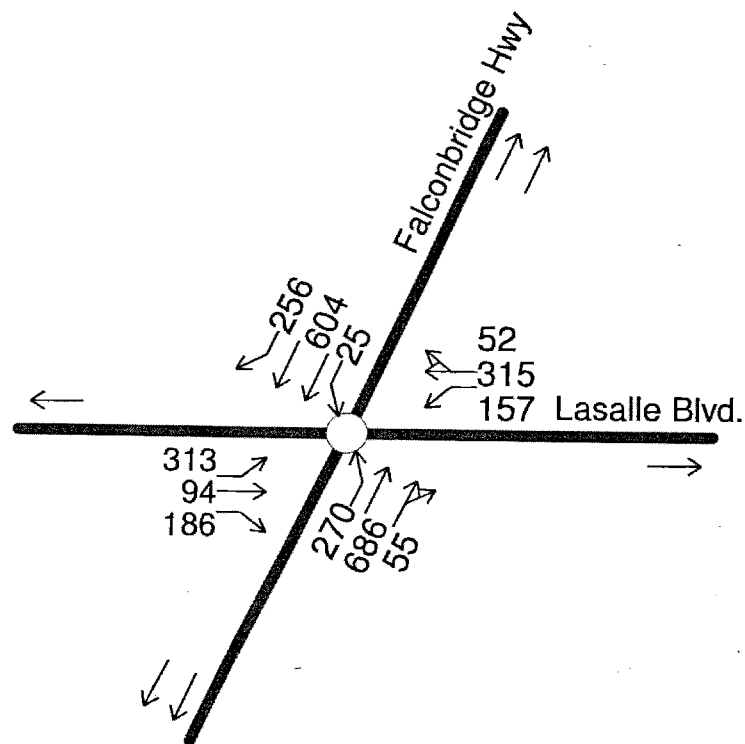
COGS TP Lasalle at Falconbridge
 3: Lasalle Blvd. & Falconbridge Hwy

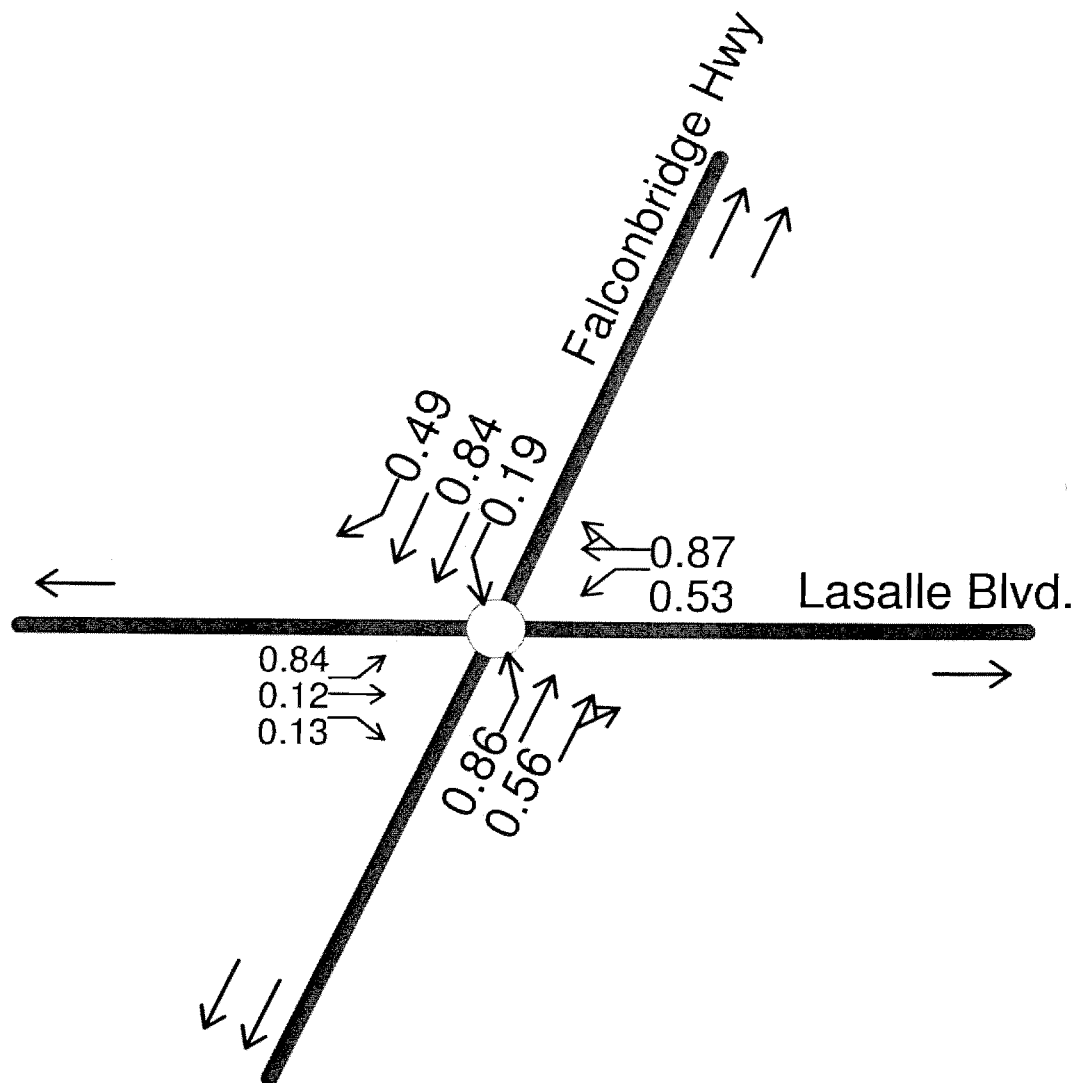
Existing PM Peak with Maley Drive
 7/27/2005

Intersection Summary:	
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle:	55
Control Type:	Pretimed
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	23.7
Intersection Capacity Utilization	64.8%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	C

Splits and Phases: 3: Lasalle Blvd. & Falconbridge Hwy







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	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	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1746		1695	3352		1695	3390	1517
Flt Permitted	0.16	1.00	1.00	0.69	1.00		0.15	1.00		0.35	1.00	1.00
Satd. Flow (perm)	280	1784	1517	1233	1746		264	3352		620	3390	1517
Volume (vph)	313	94	186	157	315	52	270	686	55	25	604	256
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)	340	102	202	171	342	57	293	746	60	27	657	278
RTOR Reduction (vph)	0	0	0	0	6	0	0	6	0	0	0	214
Lane Group Flow (vph)	340	102	202	171	393	0	293	800	0	27	657	64
Turn Type	pm+pt		Free		Perm		pm+pt		Perm		Perm	
Protected Phases	7	4			8		5	2		6		6
Permitted Phases	4		Free	8			2			6		6
Actuated Green, G (s)	47.0	47.0	100.0	24.0	24.0		41.0	41.0		21.0	21.0	21.0
Effective Green, g (s)	49.0	49.0	100.0	26.0	26.0		43.0	43.0		23.0	23.0	23.0
Actuated g/C Ratio	0.49	0.49	1.00	0.26	0.26		0.43	0.43		0.23	0.23	0.23
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Grp Cap (vph)	406	874	1517	321	454		342	1441		143	780	349
v/s Ratio Prot	c0.16	0.06			0.23		c0.14	0.24			0.19	
v/s Ratio Perm	c0.25		0.13	0.14			c0.23			0.04		0.04
v/c Ratio	0.84	0.12	0.13	0.53	0.87		0.86	0.56		0.19	0.84	0.18
Uniform Delay, d1	23.1	13.8	0.0	31.8	35.3		24.1	21.3		31.0	36.8	30.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.3	0.3	0.2	6.2	19.4		23.2	1.5		2.9	10.7	1.2
Delay (s)	41.4	14.1	0.2	38.0	54.7		47.2	22.9		33.9	47.5	32.1
Level of Service	D	B	A	D	D		D	C		C	D	C
Approach Delay (s)	24.1				49.7		29.4				42.7	
Approach LOS	C				D		C				D	
Intersection Summary												
HCM Average Control Delay	35.8		HCM Level of Service		D							
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)		8.0							
Intersection Capacity Utilization	85.9%		ICU Level of Service		E							
Analysis Period (min)	15											
c Critical Lane Group												

COGS TP

3: Lasalle Blvd. & Falconbridge Hwy

2021 PM Peak-No Maley Dr. W

7/27/2005

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	80.0		80.0	80.0		25.0	80.0		60.0	80.0		100.0
Storage Lanes	1		1	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Flt Protected	0.950		0.850	0.950		0.979	0.950		0.989	0.950		0.850
Satd. Flow (prot)	1695	1784	1517	1695	1747	0	1695	3353	0	1695	3390	1517
Flt Permitted	0.157			0.691			0.148			0.347		
Satd. Flow (perm)	280	1784	1517	1233	1747	0	264	3353	0	619	3390	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202			8			10			278
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		342.9			381.1			364.5			376.6	
Travel Time (s)		25.7			28.6			27.3			28.2	
Volume (vph)	313	94	186	157	315	52	270	686	55	25	604	256
Peak Hour Factor	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)	340	102	202	171	342	57	293	746	60	27	657	278
Lane Group Flow (vph)	340	102	202	171	399	0	293	806	0	27	657	278
Turn Type	pm+pt		Free	Perm			pm+pt			Perm		Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4		Free	8			2			6		6
Minimum Split (s)	10.0	22.0		22.0	22.0		10.0	22.0		22.0	22.0	22.0
Total Split (s)	23.0	53.0	0.0	30.0	30.0	0.0	20.0	47.0	0.0	27.0	27.0	27.0
Total Split (%)	23.0%	53.0%	0.0%	30.0%	30.0%	0.0%	20.0%	47.0%	0.0%	27.0%	27.0%	27.0%
Maximum Green (s)	17.0	47.0		24.0	24.0		14.0	41.0		21.0	21.0	21.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		5.0		5.0	5.0			5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0		11.0	11.0			11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0		0	0	0
Act Effct Green (s)	49.0	49.0	100.0	26.0	26.0		43.0	43.0		23.0	23.0	23.0
Actuated g/C Ratio	0.49	0.49	1.00	0.26	0.26		0.43	0.43		0.23	0.23	0.23
v/c Ratio	0.84	0.12	0.13	0.53	0.87		0.86	0.56		0.19	0.84	0.49
Control Delay	41.0	14.3	0.2	39.0	55.2		48.1	22.9		35.2	48.1	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	41.0	14.3	0.2	39.0	55.2		48.1	22.9		35.2	48.1	7.3
LOS	D	B	A	D	E		D	C		D	D	A
Approach Delay		24.0			50.3			29.6			36.0	
Approach LOS		C			D			C			D	
Queue Length 50th (m)	45.2	10.3	0.0	28.5	72.7		40.2	59.3		4.2	64.3	0.0
Queue Length 95th (m)	#91.1	19.2	0.0	49.6	#123.5		#84.8	77.2		11.8	#91.5	19.9
Internal Link Dist (m)		318.9			357.1			340.5			352.6	
Turn Bay Length (m)	80.0		80.0	80.0			80.0			80.0		100.0
Base Capacity (vph)	406	874	1517	321	460		342	1447		142	780	563
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.84	0.12	0.13	0.53	0.87		0.86	0.56		0.19	0.84	0.49

P:\PROJECTS\2003\69286_Sudbury\report\Final June 2005 calcs\Lasalle Falconbridge\Lasalle FalconBridge 2021 PM-No Maley Dr. W.sy7

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 34.0

Intersection LOS: C

Intersection Capacity Utilization 85.9%

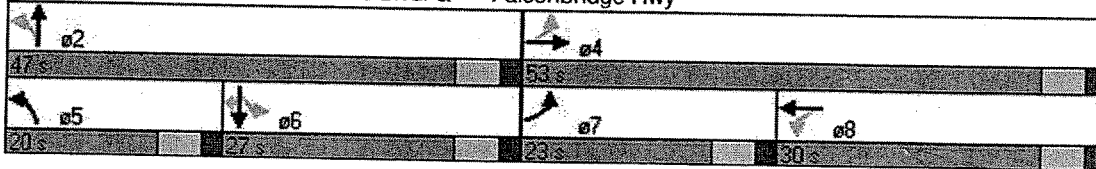
ICU Level of Service E

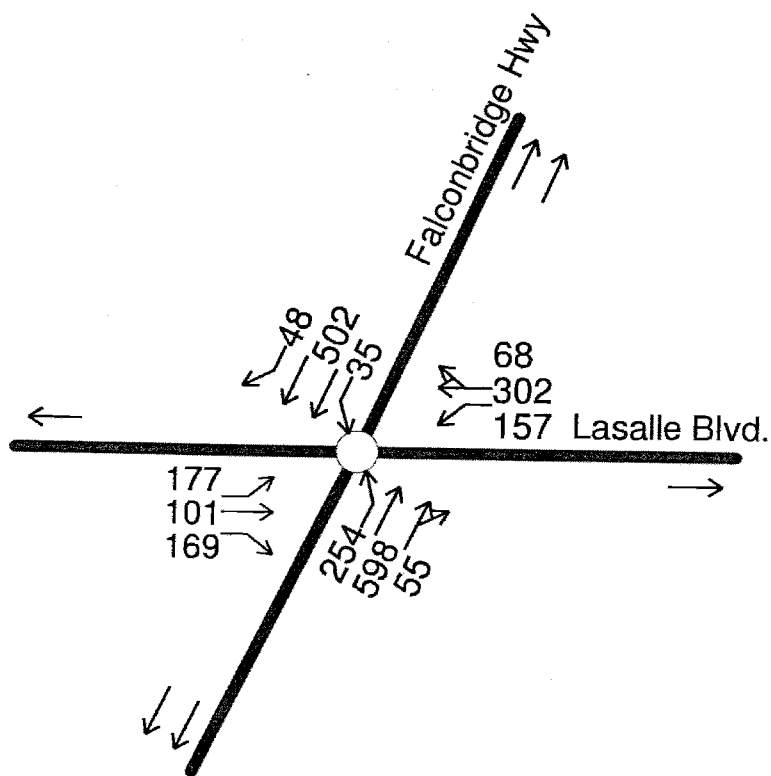
Analysis Period (min) 15

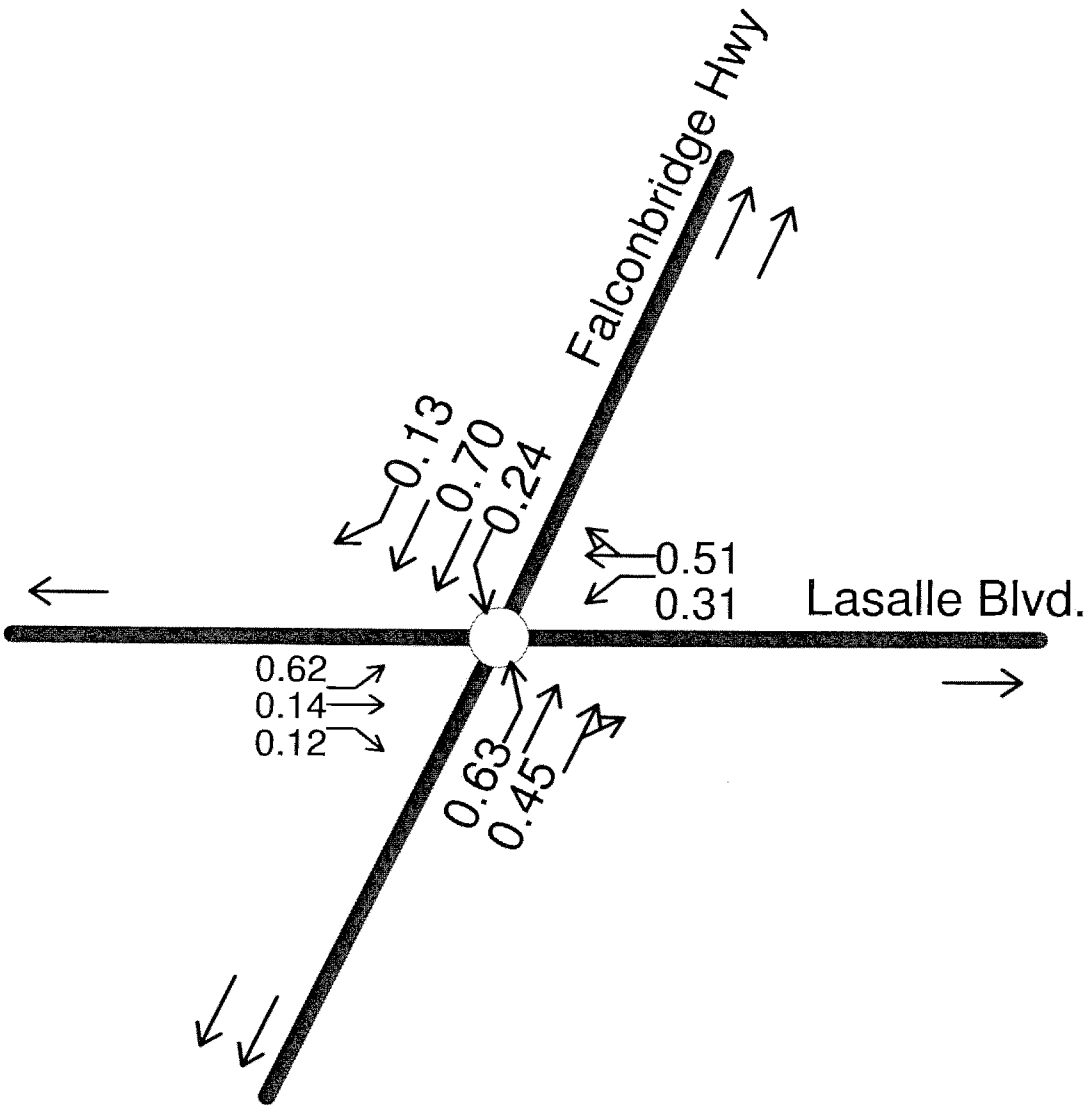
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Lasalle Blvd. & Falconbridge Hwy







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	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	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1735		1695	3347		1695	3390	1517
Flt Permitted	0.39	1.00	1.00	0.69	1.00		0.21	1.00		0.38	1.00	1.00
Satd. Flow (perm)	691	1784	1517	1224	1735		366	3347		681	3390	1517
Volume (vph)	177	101	169	157	302	68	254	598	55	35	502	48
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)	192	110	184	171	328	74	276	650	60	38	546	52
RTOR Reduction (vph)	0	0	0	0	8	0	0	7	0	0	0	40
Lane Group Flow (vph)	192	110	184	171	394	0	276	703	0	38	546	12
Turn Type	Perm		Free	Perm			pm+pt			Perm		Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		Free	8			2			6		6
Actuated Green, G (s)	43.0	43.0	100.0	43.0	43.0		45.0	45.0		21.0	21.0	21.0
Effective Green, g (s)	45.0	45.0	100.0	45.0	45.0		47.0	47.0		23.0	23.0	23.0
Actuated g/C Ratio	0.45	0.45	1.00	0.45	0.45		0.47	0.47		0.23	0.23	0.23
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Grp Cap (vph)	311	803	1517	551	781		438	1573		157	780	349
v/s Ratio Prot		0.06			0.23		c0.13	0.21			c0.16	
v/s Ratio Perm	c0.28		0.12	0.14			0.17			0.06		0.01
v/c Ratio	0.62	0.14	0.12	0.31	0.50		0.63	0.45		0.24	0.70	0.03
Uniform Delay, d1	20.9	16.1	0.0	17.6	19.6		18.4	17.8		31.4	35.3	29.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.9	0.4	0.2	1.5	2.3		6.7	0.9		3.6	5.2	0.2
Delay (s)	29.8	16.5	0.2	19.0	21.9		25.1	18.7		35.0	40.5	30.1
Level of Service	C	B	A	B	C		C	B		D	D	C
Approach Delay (s)		15.6			21.0			20.5			39.3	
Approach LOS		B			C			C			D	
Intersection Summary												
HCM Average Control Delay		24.2					HCM Level of Service			C		
HCM Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		100.0					Sum of lost time (s)		12.0			
Intersection Capacity Utilization		74.3%					ICU Level of Service		D			
Analysis Period (min)		15										
c Critical Lane Group												

COGS TP

3: Lasalle Blvd. & Falconbridge Hwy

2021 PM Peak With Maley Drive Extension

7/27/2005

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	80.0		80.0	80.0		25.0	80.0		60.0	80.0		100.0
Storage Lanes	1		1	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr			0.850			0.972			0.987			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1734	0	1695	3346	0	1695	3390	1517
Flt Permitted	0.388			0.686			0.205			0.382		
Satd. Flow (perm)	692	1784	1517	1224	1734	0	366	3346	0	682	3390	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184			15			13			52
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		342.9			381.1			364.5			376.6	
Travel Time (s)		25.7			28.6			27.3			28.2	
Volume (vph)	177	101	169	157	302	68	254	598	55	35	502	48
Peak Hour Factor	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)	192	110	184	171	328	74	276	650	60	38	546	52
Lane Group Flow (vph)	192	110	184	171	402	0	276	710	0	38	546	52
Turn Type	Perm		Free	Perm			pm+pt			Perm		Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		Free	8			2			6		6
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		22.0	22.0	22.0
Total Split (s)	49.0	49.0	0.0	49.0	49.0	0.0	24.0	51.0	0.0	27.0	27.0	27.0
Total Split (%)	49.0%	49.0%	0.0%	49.0%	49.0%	0.0%	24.0%	51.0%	0.0%	27.0%	27.0%	27.0%
Maximum Green (s)	43.0	43.0		43.0	43.0		18.0	45.0		21.0	21.0	21.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	0
Act Effct Green (s)	45.0	45.0	100.0	45.0	45.0		47.0	47.0		23.0	23.0	23.0
Actuated g/C Ratio	0.45	0.45	1.00	0.45	0.45		0.47	0.47		0.23	0.23	0.23
v/c Ratio	0.62	0.14	0.12	0.31	0.51		0.63	0.45		0.24	0.70	0.13
Control Delay	31.5	16.7	0.2	19.6	21.7		24.5	18.6		36.2	40.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	31.5	16.7	0.2	19.6	21.7		24.5	18.6		36.2	40.9	9.8
LOS	C	B	A	B	C		C	B		D	D	A
Approach Delay		16.3			21.0			20.2			38.1	
Approach LOS		B			C			C			D	
Queue Length 50th (m)	27.5	12.2	0.0	20.6	51.9		32.8	46.1		6.1	51.3	0.0
Queue Length 95th (m)	53.6	22.4	0.0	35.8	78.6		53.5	61.0		15.4	69.5	9.2
Internal Link Dist (m)		318.9			357.1			340.5			352.6	
Turn Bay Length (m)	80.0		80.0	80.0			80.0			80.0		100.0
Base Capacity (vph)	311	803	1517	551	789		438	1580		157	780	389
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.62	0.14	0.12	0.31	0.51		0.63	0.45		0.24	0.70	0.13

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Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 74.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Lasalle Blvd. & Falconbridge Hwy

