



HIGHBURY AVENUE NORTH/HAMILTON ROAD INTERSECTION IMPROVEMENTS MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Environmental Study Report (Final)

Appendices

Project No. 14-1203

June 2018



Appendix A

Traffic Analysis Memo

Appendix A-1

LEVEL OF SERVICE¹

Level of Service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. This concept was introduced in the 1965 *Highway Capacity Manual* as a criteria for interrupted flow conditions. The 2000 *Highway Capacity Manual* changed the basis for measuring Level of Service at intersections to control delay².

Six Levels of Service are defined with LOS A representing the best operating conditions, and LOS F the worst (briefly described below). It should be noted that there is often significant variability in the amount of delay experienced by individual drivers.

- LOS A:** This Level of Service describes the highest quality of traffic flow and is referred to as free flow. The approach appears open, turning movements are easily made and drivers have freedom of operation. Control delay is less than 10 seconds/vehicle.
- LOS B:** This Level of Service is referred to as a stable flow. Drivers feel somewhat restricted and occasionally may have to wait to complete the minor movement. Control delay is 10-15 seconds/vehicle for unsignalized intersections and 10-20 seconds/vehicle for signalized intersections.
- LOS C:** At this level, the operation is stable. Drivers feel more restricted and may have to wait, with queues developing for short periods. Control delay is 15-25 seconds/vehicle at unsignalized intersections and 20-35 seconds/vehicle at signalized intersections.
- LOS D:** At this level, traffic is approaching unstable flow. The motorist experiences increasing restriction and instability of flow. There are substantial delays to approaching vehicles during short peaks within the peak period, but there are enough gaps to lower demand to permit occasional clearance of developing queues and prevent excessive back-ups. Control delay is 25-35 seconds/vehicle at unsignalized intersections and 35-55 seconds/vehicle at signalized intersections.
- LOS E:** At this level capacity occurs. Long queues of vehicles exist and delays to vehicles may extend. Control delay is 35-50 seconds/vehicle at unsignalized intersections and 55-80 seconds/vehicle at signalized intersections.
- LOS F:** At this Level of Service, the intersection has failed. Capacity of the intersection has been exceeded. Control delay exceeds 50 seconds/vehicle at unsignalized intersections and exceeds 80 seconds/vehicle at signalized intersections.

¹

Transportation Research Board: Highway Capacity Manual 1965, 2000

²

Control delay is defined as the component of delay that results when a control signal causes a lane group to reduce speed or to stop; it is measured by comparison with the uncontrolled condition.

Appendix A-2

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		20.0	22.0		0.0	87.0		79.0	48.0		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
Ped Bike Factor	0.99		0.98	1.00	1.00				0.96			
Frt			0.850		0.989				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3411	1471	1722	3437	0	1772	3444	1555	1690	3405	0
Flt Permitted	0.426			0.327			0.071			0.100		
Satd. Flow (perm)	807	3411	1449	592	3437	0	132	3444	1498	178	3405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81		7				252		1	
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)		50			50			60			50	
Link Distance (m)		393.7			265.6			700.0			475.1	
Travel Time (s)		28.3			19.1			42.0			34.2	
Volume (vph)	58	328	120	225	508	41	381	1345	287	54	1081	18
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	63	357	130	245	552	45	414	1462	312	59	1175	20
Lane Group Flow (vph)	63	357	130	245	597	0	414	1462	312	59	1195	0
Turn Type	Perm		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phases	8	8	8	7	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	31.9	31.9	31.9	9.0	31.9		9.0	26.4	26.4	9.0	26.4	
Total Split (s)	33.0	33.0	33.0	19.0	52.0	0.0	32.0	78.0	78.0	10.0	56.0	0.0
Total Split (%)	23.6%	23.6%	23.6%	13.6%	37.1%	0.0%	22.9%	55.7%	55.7%	7.1%	40.0%	0.0%
Maximum Green (s)	26.1	26.1	26.1	15.0	45.1		28.0	71.6	71.6	6.0	49.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.6	3.6	3.6	1.0	3.6		1.0	2.7	2.7	1.0	2.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max	Max	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	18.0	18.0	18.0		18.0			13.0	13.0		13.0	
Pedestrian Calls (#/hr)	10	10	10		10			6	6		6	
Act Effct Green (s)	29.0	29.0	29.0	48.0	48.0		84.0	76.0	76.0	57.9	52.0	
Actuated g/C Ratio	0.21	0.21	0.21	0.34	0.34		0.60	0.54	0.54	0.41	0.37	
v/c Ratio	0.38	0.50	0.36	0.76	0.50		1.02	0.78	0.34	0.43	0.94	
Control Delay	52.5	49.9	20.0	58.0	45.7		91.4	29.7	4.9	25.8	57.8	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	52.5	49.9	20.0	58.0	45.7		91.4	29.7	4.9	25.8	57.8	
LOS	D	D	C	E	D		F	C	A	C	E	
Approach Delay		43.1			49.2			37.9			56.3	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	15.4	46.7	11.3	62.7	81.7		~105.3	169.3	7.9	6.5	167.6	
Queue Length 95th (m)	24.5	51.6	25.3	#99.8	107.5		#170.6	199.9	23.7	12.6	#212.5	
Internal Link Dist (m)		369.7			241.6			676.0			451.1	
Turn Bay Length (m)	33.0		20.0	22.0			87.0		79.0	48.0		
Base Capacity (vph)	167	707	364	324	1183		407	1869	929	139	1265	
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	0.38	0.50	0.36	0.76	0.50		1.02	0.78	0.34	0.42	0.94	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 118 (84%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 45.2

Intersection LOS: D

Intersection Capacity Utilization 98.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 ø1	 ø2	 ø4	
10 s	78 s	52 s	
 ø5	 ø6	 ø7	 ø8
32 s	56 s	19 s	33 s

Lanes, Volumes, Timings
16: Hamilton Road & East Street

AM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
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	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	
Trailing Detector (m)	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	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.999			0.997			0.914			0.921	
Flt Protected		0.999						0.993			0.980	
Satd. Flow (prot)	0	3440	0	0	3533	0	0	1521	0	0	1521	0
Flt Permitted		0.945			0.954			0.982			0.938	
Satd. Flow (perm)	0	3253	0	0	3370	0	0	1503	0	0	1456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			4			14			10	
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)		50			50			50			50	
Link Distance (m)		258.2			393.7			104.2			150.5	
Travel Time (s)		18.6			28.3			7.5			10.8	
Volume (vph)	6	503	3	2	729	14	3	5	13	6	0	9
Confl. Peds. (#/hr)	9		5	5		9	4					4
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 (%)	0%	6%	0%	0%	3%	0%	0%	0%	23%	0%	0%	22%
Adj. Flow (vph)	7	547	3	2	792	15	3	5	14	7	0	10
Lane Group Flow (vph)	0	557	0	0	809	0	0	22	0	0	17	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phases	2	2		2	2		4	4		4	4	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	37.0	37.0		37.0	37.0		30.2	30.2		30.2	30.2	
Total Split (s)	38.8	38.8	0.0	38.8	38.8	0.0	31.2	31.2	0.0	31.2	31.2	0.0
Total Split (%)	55.4%	55.4%	0.0%	55.4%	55.4%	0.0%	44.6%	44.6%	0.0%	44.6%	44.6%	0.0%
Maximum Green (s)	33.4	33.4		33.4	33.4		25.0	25.0		25.0	25.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.1	2.1		2.1	2.1		2.7	2.7		2.7	2.7	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		10	10		10	10	
Act Effect Green (s)		59.7			59.7			12.6			12.6	
Actuated g/C Ratio		0.85			0.85			0.18			0.18	
v/c Ratio		0.20			0.28			0.08			0.06	
Control Delay		3.8			3.2			13.0			14.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		3.8			3.2			13.0			14.0	

Lanes, Volumes, Timings
16: Hamilton Road & East Street

AM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		3.8			3.2			13.0			14.0	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		0.0			0.0			0.9			0.8	
Queue Length 95th (m)		30.5			40.5			4.6			4.1	
Internal Link Dist (m)		234.2			369.7			80.2			126.5	
Turn Bay Length (m)												
Base Capacity (vph)		2775			2876			593			572	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.20			0.28			0.04			0.03	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 45 (64%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 3.7

Intersection LOS: A

Intersection Capacity Utilization 36.3%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 16: Hamilton Road & East Street

  ø2	  ø4
38.8 s	31.2 s

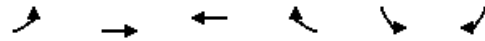
Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

AM Peak Hour
Existing Conditions

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	27.0			30.0	37.0	0.0
Storage Lanes	1			0	1	1
Total Lost Time (s)	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
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Turning Speed (k/h)	24			14	24	14
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.97
Frt			0.989			0.850
Flt Protected	0.950	*0.559	*0.584		0.950	
Satd. Flow (prot)	1772	1943	2008	0	1755	1526
Flt Permitted	0.212				0.950	
Satd. Flow (perm)	395	3476	3438	0	1753	1478
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			154
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50	50		50	
Link Distance (m)		265.6	530.3		387.2	
Travel Time (s)		19.1	38.2		27.9	
Volume (vph)	241	460	662	52	55	142
Confl. Peds. (#/hr)	4			4	1	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	5%	5%	2%	4%	7%
Adj. Flow (vph)	262	500	720	57	60	154
Lane Group Flow (vph)	262	500	777	0	60	154
Turn Type	pm+pt			custom		
Protected Phases	1	6	2			
Permitted Phases	6				4	4
Detector Phases	1	6	2		4	4
Minimum Initial (s)	5.0	7.0	7.0		7.0	7.0
Minimum Split (s)	9.0	23.1	23.1		22.5	22.5
Total Split (s)	15.0	46.0	31.0	0.0	24.0	24.0
Total Split (%)	21.4%	65.7%	44.3%	0.0%	34.3%	34.3%
Maximum Green (s)	11.0	40.9	25.9		18.5	18.5
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	1.0	1.8	1.8		2.2	2.2
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		6.0	6.0		10.0	10.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	54.8	55.6	41.6		9.7	9.7
Actuated g/C Ratio	0.78	0.79	0.59		0.14	0.14
v/c Ratio	0.54	0.32	0.65		0.25	0.46
Control Delay	17.1	3.1	15.7		28.9	9.8

Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

AM Peak Hour
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	17.1	3.1	15.7		28.9	9.8
LOS	B	A	B		C	A
Approach Delay		7.9	15.7		15.2	
Approach LOS		A	B		B	
Queue Length 50th (m)	28.3	6.0	32.3		7.2	0.0
Queue Length 95th (m)	52.4	14.1	#79.5		16.1	13.7
Internal Link Dist (m)		241.6	506.3		363.2	
Turn Bay Length (m)	27.0				37.0	
Base Capacity (vph)	539	1543	1200		501	532
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.49	0.32	0.65		0.12	0.29

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 22 (31%), Referenced to phase 2:WBT and 6:EBTL, Start of FDW or yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 52.6%

ICU Level of Service A

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

Splits and Phases: 30: Hamilton Road & Hale Street

ø1	ø2	ø4
15 s	31 s	24 s
ø6		
46 s		

Lanes, Volumes, Timings
7: Hamilton Road & East Street

PM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	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	
Trailing Detector (m)	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	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.99	
Frt		0.999			0.998			0.886			0.962	
Flt Protected		0.999			0.999			0.996			0.967	
Satd. Flow (prot)	0	3571	0	0	3557	0	0	1531	0	0	1705	0
Flt Permitted		0.945			0.940			0.991			0.863	
Satd. Flow (perm)	0	3378	0	0	3347	0	0	1523	0	0	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2			11			14	
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)		50			50			50			50	
Link Distance (m)		406.3			393.7			104.2			150.5	
Travel Time (s)		29.3			28.3			7.5			10.8	
Volume (vph)	10	838	6	9	647	9	1	1	10	31	2	13
Confl. Peds. (#/hr)	12		16	16		12	7		14	14		7
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 (%)	0%	2%	0%	11%	2%	11%	0%	0%	10%	3%	0%	8%
Adj. Flow (vph)	11	911	7	10	703	10	1	1	11	34	2	14
Lane Group Flow (vph)	0	929	0	0	723	0	0	13	0	0	50	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phases	2	2		2	2		4	4		4	4	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		30.2	30.2		30.2	30.2	
Total Split (s)	34.8	34.8	0.0	34.8	34.8	0.0	35.2	35.2	0.0	35.2	35.2	0.0
Total Split (%)	49.7%	49.7%	0.0%	49.7%	49.7%	0.0%	50.3%	50.3%	0.0%	50.3%	50.3%	0.0%
Maximum Green (s)	29.4	29.4		29.4	29.4		29.0	29.0		29.0	29.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.1	2.1		2.1	2.1		2.7	2.7		2.7	2.7	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		10	10		10	10	
Act Effct Green (s)		56.1			56.1			12.8			12.8	
Actuated g/C Ratio		0.80			0.80			0.18			0.18	
v/c Ratio		0.34			0.27			0.05			0.17	
Control Delay		5.1			4.8			11.5			17.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.1			4.8			11.5			17.9	

Lanes, Volumes, Timings
7: Hamilton Road & East Street

PM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		5.1			4.8			11.5			17.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		16.0			20.8			0.3			4.3	
Queue Length 95th (m)		55.3			42.7			3.2			9.1	
Internal Link Dist (m)		382.3			369.7			80.2			126.5	
Turn Bay Length (m)												
Base Capacity (vph)		2708			2684			685			680	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.34			0.27			0.02			0.07	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 55 (79%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 5.4

Intersection LOS: A

Intersection Capacity Utilization 48.8%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 7: Hamilton Road & East Street

 ø2	 ø4
34.8 s	35.2 s

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		20.0	22.0		0.0	87.0		79.0	48.0		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
Ped Bike Factor	0.97		0.98		0.99				0.97			
Frt			0.850		0.987				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3510	1601	1772	3465	0	1573	3579	1617	1807	3502	0
Flt Permitted	0.436			0.121			0.055			0.058		
Satd. Flow (perm)	800	3510	1576	226	3465	0	91	3579	1574	110	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97		8				331		2	
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)		50			50			60			50	
Link Distance (m)		393.7			265.1			868.8			474.0	
Travel Time (s)		28.3			19.1			52.1			34.1	
Volume (vph)	53	828	361	246	481	46	356	1697	540	78	1457	31
Confl. Peds. (#/hr)	34		2	2		34			7	7		
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 (%)	2%	4%	2%	3%	3%	7%	16%	2%	1%	1%	4%	0%
Adj. Flow (vph)	58	900	392	267	523	50	387	1845	587	85	1584	34
Lane Group Flow (vph)	58	900	392	267	573	0	387	1845	587	85	1618	0
Turn Type	Perm		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phases	8	8	8	7	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	31.9	31.9	31.9	9.0	31.9		9.0	26.4	26.4	9.0	26.4	
Total Split (s)	33.0	33.0	33.0	16.0	49.0	0.0	18.0	81.0	81.0	10.0	73.0	0.0
Total Split (%)	23.6%	23.6%	23.6%	11.4%	35.0%	0.0%	12.9%	57.9%	57.9%	7.1%	52.1%	0.0%
Maximum Green (s)	26.1	26.1	26.1	12.0	42.1		14.0	74.6	74.6	6.0	66.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.6	3.6	3.6	1.0	3.6		1.0	2.7	2.7	1.0	2.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max	Max	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	18.0	18.0	18.0		18.0			13.0	13.0		13.0	
Pedestrian Calls (#/hr)	10	10	10		10			3	3		3	
Act Effct Green (s)	29.0	29.0	29.0	45.0	45.0		87.0	77.0	77.0	75.0	69.0	
Actuated g/C Ratio	0.21	0.21	0.21	0.32	0.32		0.62	0.55	0.55	0.54	0.49	
v/c Ratio	0.35	1.24	0.97	1.30	0.51		1.89	0.94	0.58	0.64	0.94	
Control Delay	50.8	162.6	77.1	198.5	35.2		443.7	39.8	10.6	43.3	44.9	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	50.8	162.6	77.1	198.5	35.2		443.7	39.8	10.6	43.3	44.9	
LOS	D	F	E	F	D		F	D	B	D	D	
Approach Delay	133.0			87.1			89.2			44.8		
Approach LOS	F			F			F			D		
Queue Length 50th (m)	13.7	~163.1	85.6	~80.9	53.4		~151.0	241.3	42.4	8.9	217.1	
Queue Length 95th (m)	26.9	#204.1	#149.9	#122.1	78.5		#214.5	#286.4	75.5	#30.2	#270.7	
Internal Link Dist (m)	369.7			241.1			844.8			450.0		
Turn Bay Length (m)	33.0		20.0	22.0			87.0		79.0	48.0		
Base Capacity (vph)	166	727	403	205	1119		205	1968	1015	132	1727	
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	0.35	1.24	0.97	1.30	0.51		1.89	0.94	0.58	0.64	0.94	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 64 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.89

Intersection Signal Delay: 86.4

Intersection LOS: F

Intersection Capacity Utilization 110.8%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 Ø1		 Ø2		 Ø4	
10 s		81 s		49 s	
 Ø5		 Ø6		 Ø7	
18 s		73 s		33 s	

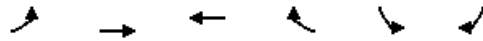
Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

PM Peak Hour
Existing Conditions

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	27.0			30.0	37.0	0.0
Storage Lanes	1			0	1	1
Total Lost Time (s)	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
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Turning Speed (k/h)	24			14	24	14
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.988			0.850
Flt Protected	0.950	*0.562	*0.583		0.950	
Satd. Flow (prot)	1789	2011	2061	0	1789	1601
Flt Permitted	0.190				0.950	
Satd. Flow (perm)	358	3579	3536	0	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			147
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50	50		50	
Link Distance (m)		265.1	528.4		394.2	
Travel Time (s)		19.1	38.0		28.4	
Volume (vph)	261	1124	667	56	146	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	1222	725	61	159	147
Lane Group Flow (vph)	284	1222	786	0	159	147
Turn Type	pm+pt			custom		
Protected Phases	1	6	2			
Permitted Phases	6				4	4
Detector Phases	1	6	2		4	4
Minimum Initial (s)	5.0	7.0	7.0		7.0	7.0
Minimum Split (s)	9.0	23.1	23.1		22.5	22.5
Total Split (s)	17.0	46.0	29.0	0.0	24.0	24.0
Total Split (%)	24.3%	65.7%	41.4%	0.0%	34.3%	34.3%
Maximum Green (s)	13.0	40.9	23.9		18.5	18.5
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	1.0	1.8	1.8		2.2	2.2
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		6.0	6.0		10.0	10.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	49.4	49.4	32.8		12.6	12.6
Actuated g/C Ratio	0.71	0.71	0.47		0.18	0.18
v/c Ratio	0.56	0.86	0.81		0.49	0.36
Control Delay	13.2	37.0	27.1		30.4	7.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.2	37.0	27.1		30.4	7.2
LOS	B	D	C		C	A

Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

PM Peak Hour
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		32.5	27.1		19.2	
Approach LOS		C	C		B	
Queue Length 50th (m)	51.0	164.1	43.8		18.9	0.0
Queue Length 95th (m)	m53.1	m155.8	#93.2		32.7	12.2
Internal Link Dist (m)		241.1	504.4		370.2	
Turn Bay Length (m)	27.0				37.0	
Base Capacity (vph)	540	1418	974		511	562
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.53	0.86	0.81		0.31	0.26

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 32 (46%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 29.3 Intersection LOS: C
Intersection Capacity Utilization 52.8% ICU Level of Service A
Analysis Period (min) 15
* User Entered Value
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Hamilton Road & Hale Street

 ø1 17 s	 ø2 29 s	 ø4 24 s
 ø6 46 s		

Appendix A-3

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		20.0	22.0		0.0	87.0		79.0	48.0		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
Ped Bike Factor	0.99		0.98	1.00	1.00				0.96			
Frt			0.850		0.989				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3411	1471	1722	3438	0	1772	3444	1555	1690	3408	0
Flt Permitted	0.383			0.278			0.071			0.077		
Satd. Flow (perm)	727	3411	1449	503	3438	0	132	3444	1498	137	3408	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			83		7				252		1	
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)		50			50			60			50	
Link Distance (m)		393.7			265.6			700.0			475.1	
Travel Time (s)		28.3			19.1			42.0			34.2	
Volume (vph)	72	376	139	261	590	48	442	1561	333	73	1255	21
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	78	409	151	284	641	52	480	1697	362	79	1364	23
Lane Group Flow (vph)	78	409	151	284	693	0	480	1697	362	79	1387	0
Turn Type	Perm		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phases	8	8	8	7	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	31.9	31.9	31.9	9.0	31.9		9.0	26.4	26.4	9.0	26.4	
Total Split (s)	33.0	33.0	33.0	19.0	52.0	0.0	32.0	78.0	78.0	10.0	56.0	0.0
Total Split (%)	23.6%	23.6%	23.6%	13.6%	37.1%	0.0%	22.9%	55.7%	55.7%	7.1%	40.0%	0.0%
Maximum Green (s)	26.1	26.1	26.1	15.0	45.1		28.0	71.6	71.6	6.0	49.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.6	3.6	3.6	1.0	3.6		1.0	2.7	2.7	1.0	2.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max	Max	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	18.0	18.0	18.0		18.0			13.0	13.0		13.0	
Pedestrian Calls (#/hr)	10	10	10		10			6	6		6	
Act Effct Green (s)	29.0	29.0	29.0	48.0	48.0		84.0	74.0	74.0	58.0	52.0	
Actuated g/C Ratio	0.21	0.21	0.21	0.34	0.34		0.60	0.53	0.53	0.41	0.37	
v/c Ratio	0.52	0.58	0.41	0.94	0.59		1.18	0.93	0.40	0.64	1.10	
Control Delay	58.5	50.4	22.4	75.3	47.0		142.1	41.3	6.9	47.8	96.9	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	58.5	50.4	22.4	75.3	47.0		142.1	41.3	6.9	47.8	96.9	
LOS	E	D	C	E	D		F	D	A	D	F	
Approach Delay		44.8			55.2			55.4			94.3	
Approach LOS		D			E			E			F	
Queue Length 50th (m)	19.4	54.3	16.0	73.7	92.8		~143.8	223.3	15.1	8.8	~228.3	
Queue Length 95th (m)	26.3	52.6	27.5	#114.6	125.0		#212.0	#267.6	35.4	#28.9	#271.5	
Internal Link Dist (m)		369.7			241.6			676.0			451.1	
Turn Bay Length (m)	33.0		20.0	22.0			87.0		79.0	48.0		
Base Capacity (vph)	151	707	366	303	1183		407	1820	911	123	1266	
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	0.52	0.58	0.41	0.94	0.59		1.18	0.93	0.40	0.64	1.10	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 118 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 64.3

Intersection LOS: E

Intersection Capacity Utilization 108.5%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 ø1	 ø2	 ø4	
10 s	78 s	52 s	
 ø5	 ø6	 ø7	 ø8
32 s	56 s	19 s	33 s

Lanes, Volumes, Timings
16: Hamilton Road & East Street

AM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
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	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	
Trailing Detector (m)	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	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.999			0.997			0.917			0.922	
Flt Protected		0.999						0.994			0.979	
Satd. Flow (prot)	0	3439	0	0	3533	0	0	1534	0	0	1524	0
Flt Permitted		0.942			0.954			0.986			0.940	
Satd. Flow (perm)	0	3243	0	0	3370	0	0	1521	0	0	1464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			3			16			11	
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)		50			50			50			50	
Link Distance (m)		258.2			393.7			104.2			150.5	
Travel Time (s)		18.6			28.3			7.5			10.8	
Volume (vph)	7	584	3	2	846	16	3	6	15	7	0	10
Confl. Peds. (#/hr)	9		5	5		9	4					4
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 (%)	0%	6%	0%	0%	3%	0%	0%	0%	23%	0%	0%	22%
Adj. Flow (vph)	8	635	3	2	920	17	3	7	16	8	0	11
Lane Group Flow (vph)	0	646	0	0	939	0	0	26	0	0	19	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phases	2	2		2	2		4	4		4	4	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		30.2	30.2		30.2	30.2	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	45.7%	45.7%	0.0%	45.7%	45.7%	0.0%	54.3%	54.3%	0.0%	54.3%	54.3%	0.0%
Maximum Green (s)	26.6	26.6		26.6	26.6		31.8	31.8		31.8	31.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.1	2.1		2.1	2.1		2.7	2.7		2.7	2.7	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		10	10		10	10	
Act Effect Green (s)		59.7			59.7			12.6			12.6	
Actuated g/C Ratio		0.85			0.85			0.18			0.18	
v/c Ratio		0.23			0.33			0.09			0.07	
Control Delay		3.9			4.9			12.9			13.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		3.9			4.9			12.9			13.7	

Lanes, Volumes, Timings
16: Hamilton Road & East Street

AM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		3.9			4.9			12.9			13.7	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		0.0			0.0			1.2			0.9	
Queue Length 95th (m)		36.1			66.4			5.1			4.3	
Internal Link Dist (m)		234.2			369.7			80.2			126.5	
Turn Bay Length (m)												
Base Capacity (vph)		2767			2876			747			717	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.23			0.33			0.03			0.03	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 45 (64%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 4.8

Intersection LOS: A

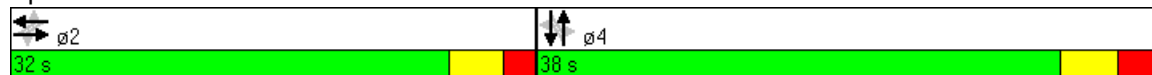
Intersection Capacity Utilization 39.6%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 16: Hamilton Road & East Street



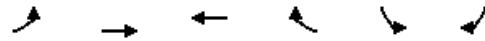
Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

AM Peak Hour
Future 'Do Nothing'

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	27.0			30.0	37.0	0.0
Storage Lanes	1			0	1	1
Total Lost Time (s)	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
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Turning Speed (k/h)	24			14	24	14
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		1.00	0.97
Frt			0.989			0.850
Flt Protected	0.950	*0.559	*0.584		0.950	
Satd. Flow (prot)	1772	1943	2008	0	1755	1526
Flt Permitted	0.176				0.950	
Satd. Flow (perm)	328	3476	3438	0	1753	1478
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			179
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50	50		50	
Link Distance (m)		265.6	530.3		387.2	
Travel Time (s)		19.1	38.2		27.9	
Volume (vph)	280	485	731	60	64	165
Confl. Peds. (#/hr)	4			4	1	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	5%	5%	2%	4%	7%
Adj. Flow (vph)	304	527	795	65	70	179
Lane Group Flow (vph)	304	527	860	0	70	179
Turn Type	pm+pt			custom		
Protected Phases	1	6	2			
Permitted Phases	6				4	4
Detector Phases	1	6	2		4	4
Minimum Initial (s)	5.0	7.0	7.0		7.0	7.0
Minimum Split (s)	9.0	23.1	23.1		22.5	22.5
Total Split (s)	15.0	46.0	31.0	0.0	24.0	24.0
Total Split (%)	21.4%	65.7%	44.3%	0.0%	34.3%	34.3%
Maximum Green (s)	11.0	40.9	25.9		18.5	18.5
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	1.0	1.8	1.8		2.2	2.2
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		6.0	6.0		10.0	10.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	52.0	52.0	35.9		10.0	10.0
Actuated g/C Ratio	0.74	0.74	0.51		0.14	0.14
v/c Ratio	0.62	0.37	0.83		0.28	0.49
Control Delay	21.3	3.7	26.1		29.1	9.6

Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

AM Peak Hour
Future 'Do Nothing'



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	21.3	3.7	26.1		29.1	9.6
LOS	C	A	C		C	A
Approach Delay		10.2	26.1		15.1	
Approach LOS		B	C		B	
Queue Length 50th (m)	41.1	8.1	44.5		8.4	0.0
Queue Length 95th (m)	71.0	15.6	#102.4		17.9	14.6
Internal Link Dist (m)		241.6	506.3		363.2	
Turn Bay Length (m)	27.0				37.0	
Base Capacity (vph)	517	1443	1036		501	550
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.59	0.37	0.83		0.14	0.33

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 22 (31%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 17.9

Intersection LOS: B

Intersection Capacity Utilization 56.9%

ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

Splits and Phases: 30: Hamilton Road & Hale Street

ø1 15 s	ø2 31 s	ø4 24 s
ø6 46 s		

Lanes, Volumes, Timings
7: Hamilton Road & East Street

PM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
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	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	
Trailing Detector (m)	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	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.99	
Frt		0.999			0.998			0.883			0.962	
Flt Protected		0.999			0.999			0.997			0.967	
Satd. Flow (prot)	0	3571	0	0	3558	0	0	1524	0	0	1705	0
Flt Permitted		0.942			0.936			0.993			0.858	
Satd. Flow (perm)	0	3367	0	0	3333	0	0	1517	0	0	1500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2			13			16	
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)		50			50			50			50	
Link Distance (m)		406.3			393.7			104.2			150.5	
Travel Time (s)		29.3			28.3			7.5			10.8	
Volume (vph)	12	973	7	10	751	10	1	1	12	36	2	15
Confl. Peds. (#/hr)	12		16	16		12	7		14	14		7
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 (%)	0%	2%	0%	11%	2%	11%	0%	0%	10%	3%	0%	8%
Adj. Flow (vph)	13	1058	8	11	816	11	1	1	13	39	2	16
Lane Group Flow (vph)	0	1079	0	0	838	0	0	15	0	0	57	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phases	2	2		2	2		4	4		4	4	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		30.2	30.2		30.2	30.2	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	45.7%	45.7%	0.0%	45.7%	45.7%	0.0%	54.3%	54.3%	0.0%	54.3%	54.3%	0.0%
Maximum Green (s)	26.6	26.6		26.6	26.6		31.8	31.8		31.8	31.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.1	2.1		2.1	2.1		2.7	2.7		2.7	2.7	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		10	10		10	10	
Act Effect Green (s)		56.1			56.1			12.8			12.8	
Actuated g/C Ratio		0.80			0.80			0.18			0.18	
v/c Ratio		0.40			0.31			0.05			0.20	
Control Delay		5.5			5.1			11.0			18.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.5			5.1			11.0			18.2	

Lanes, Volumes, Timings
7: Hamilton Road & East Street

PM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		5.5			5.1			11.0			18.2	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		19.8			17.8			0.3			4.9	
Queue Length 95th (m)		67.9			47.6			3.5			10.0	
Internal Link Dist (m)		382.3			369.7			80.2			126.5	
Turn Bay Length (m)												
Base Capacity (vph)		2698			2671			744			737	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.40			0.31			0.02			0.08	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 55 (79%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 5.7

Intersection LOS: A

Intersection Capacity Utilization 54.3%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 7: Hamilton Road & East Street



Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		20.0	22.0		0.0	87.0		79.0	48.0		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
Ped Bike Factor	0.98		0.98		0.99				0.97			
Frt			0.850		0.987				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3510	1601	1772	3465	0	1573	3579	1617	1807	3502	0
Flt Permitted	0.359			0.121			0.055			0.058		
Satd. Flow (perm)	662	3510	1576	226	3465	0	91	3579	1574	110	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98		8				318		2	
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)		50			50			60			50	
Link Distance (m)		393.7			265.1			868.8			474.0	
Travel Time (s)		28.3			19.1			52.1			34.1	
Volume (vph)	64	959	419	285	558	53	413	1969	627	101	1691	36
Confl. Peds. (#/hr)	34		2	2		34			7	7		
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 (%)	2%	4%	2%	3%	3%	7%	16%	2%	1%	1%	4%	0%
Adj. Flow (vph)	70	1042	455	310	607	58	449	2140	682	110	1838	39
Lane Group Flow (vph)	70	1042	455	310	665	0	449	2140	682	110	1877	0
Turn Type	Perm		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phases	8	8	8	7	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	31.9	31.9	31.9	9.0	31.9		9.0	26.4	26.4	9.0	26.4	
Total Split (s)	33.0	33.0	33.0	16.0	49.0	0.0	18.0	81.0	81.0	10.0	73.0	0.0
Total Split (%)	23.6%	23.6%	23.6%	11.4%	35.0%	0.0%	12.9%	57.9%	57.9%	7.1%	52.1%	0.0%
Maximum Green (s)	26.1	26.1	26.1	12.0	42.1		14.0	74.6	74.6	6.0	66.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.6	3.6	3.6	1.0	3.6		1.0	2.7	2.7	1.0	2.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max	Max	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	18.0	18.0	18.0		18.0			13.0	13.0		13.0	
Pedestrian Calls (#/hr)	10	10	10		10			3	3		3	
Act Effct Green (s)	29.0	29.0	29.0	45.0	45.0		87.0	77.0	77.0	75.0	69.0	
Actuated g/C Ratio	0.21	0.21	0.21	0.32	0.32		0.62	0.55	0.55	0.54	0.49	
v/c Ratio	0.51	1.43	1.13	1.51	0.59		2.19	1.09	0.68	0.83	1.09	
Control Delay	60.3	241.3	120.5	278.4	37.3		574.7	79.6	14.9	70.4	83.8	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Future 'Do Nothing'

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	60.3	241.3	120.5	278.4	37.3		574.7	79.6	14.9	70.4	83.8	
LOS	E	F	F	F	D		F	E	B	E	F	
Approach Delay	198.2			114.0			134.0			83.0		
Approach LOS	F			F			F			F		
Queue Length 50th (m)	17.3	~207.3	~123.4	~106.3	70.4		~187.1	~349.4	70.4	14.6	~306.8	
Queue Length 95th (m)	34.7	#249.7	#190.8	#122.7	m79.8		#253.6	#389.6	113.7	#48.2	#348.9	
Internal Link Dist (m)	369.7			241.1			844.8			450.0		
Turn Bay Length (m)	33.0		20.0	22.0			87.0		79.0	48.0		
Base Capacity (vph)	137	727	404	205	1119		205	1968	1009	132	1727	
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	0.51	1.43	1.13	1.51	0.59		2.19	1.09	0.68	0.83	1.09	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 64 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.19

Intersection Signal Delay: 131.4

Intersection LOS: F

Intersection Capacity Utilization 126.4%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 ø1	 ø2	 ø4
10 s	81 s	49 s
 ø5	 ø6	 ø7
18 s	73 s	16 s
		 ø8
		33 s

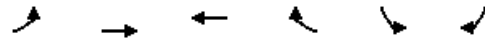
Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

PM Peak Hour
Future 'Do Nothing'

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	27.0			30.0	37.0	0.0
Storage Lanes	1			0	1	1
Total Lost Time (s)	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
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Turning Speed (k/h)	24			14	24	14
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.988			0.850
Flt Protected	0.950	*0.562	*0.583		0.950	
Satd. Flow (prot)	1789	2011	2061	0	1789	1601
Flt Permitted	0.149				0.950	
Satd. Flow (perm)	281	3579	3536	0	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			171
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50	50		50	
Link Distance (m)		265.1	528.4		394.2	
Travel Time (s)		19.1	38.0		28.4	
Volume (vph)	303	1295	744	65	169	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	329	1408	809	71	184	171
Lane Group Flow (vph)	329	1408	880	0	184	171
Turn Type	pm+pt			custom		
Protected Phases	1	6	2			
Permitted Phases	6				4	4
Detector Phases	1	6	2		4	4
Minimum Initial (s)	5.0	7.0	7.0		7.0	7.0
Minimum Split (s)	9.0	23.1	23.1		22.5	22.5
Total Split (s)	17.0	46.0	29.0	0.0	24.0	24.0
Total Split (%)	24.3%	65.7%	41.4%	0.0%	34.3%	34.3%
Maximum Green (s)	13.0	40.9	23.9		18.5	18.5
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	1.0	1.8	1.8		2.2	2.2
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		6.0	6.0		10.0	10.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	48.4	48.4	30.7		13.6	13.6
Actuated g/C Ratio	0.69	0.69	0.44		0.19	0.19
v/c Ratio	0.67	1.01	0.97		0.53	0.38
Control Delay	17.2	50.3	46.7		30.4	6.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	17.2	50.3	46.7		30.4	6.6
LOS	B	D	D		C	A

Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

PM Peak Hour
Future 'Do Nothing'



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		44.0	46.7		19.0	
Approach LOS		D	D		B	
Queue Length 50th (m)	58.5	~202.7	57.5		21.9	0.0
Queue Length 95th (m)	m57.6	m172.3	#108.6		36.3	12.8
Internal Link Dist (m)		241.1	504.4		370.2	
Turn Bay Length (m)	27.0				37.0	
Base Capacity (vph)	510	1392	911		511	580
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.65	1.01	0.97		0.36	0.29

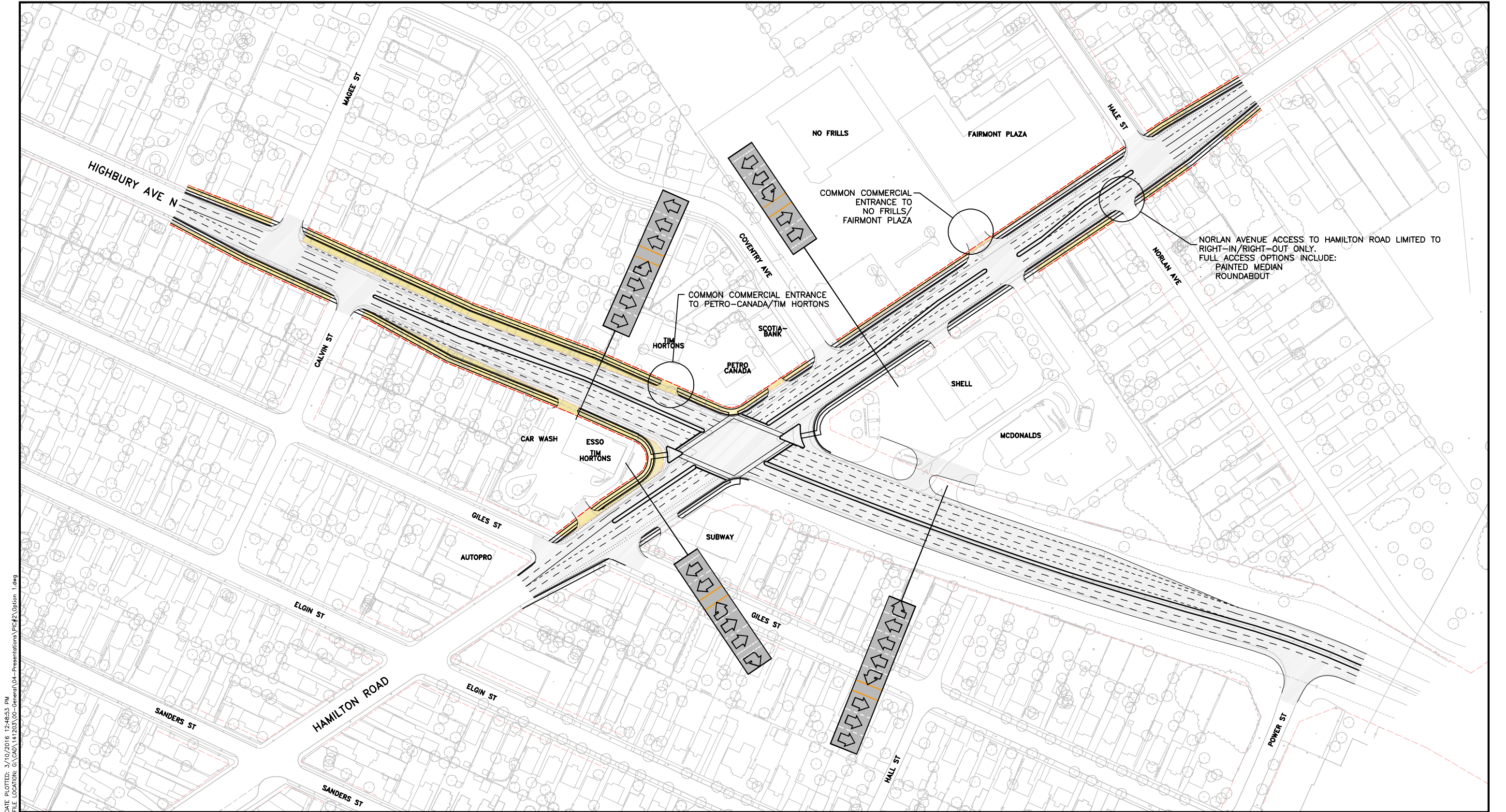
Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 32 (46%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 41.8 Intersection LOS: D
Intersection Capacity Utilization 58.8% ICU Level of Service B
Analysis Period (min) 15
* User Entered Value
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Hamilton Road & Hale Street

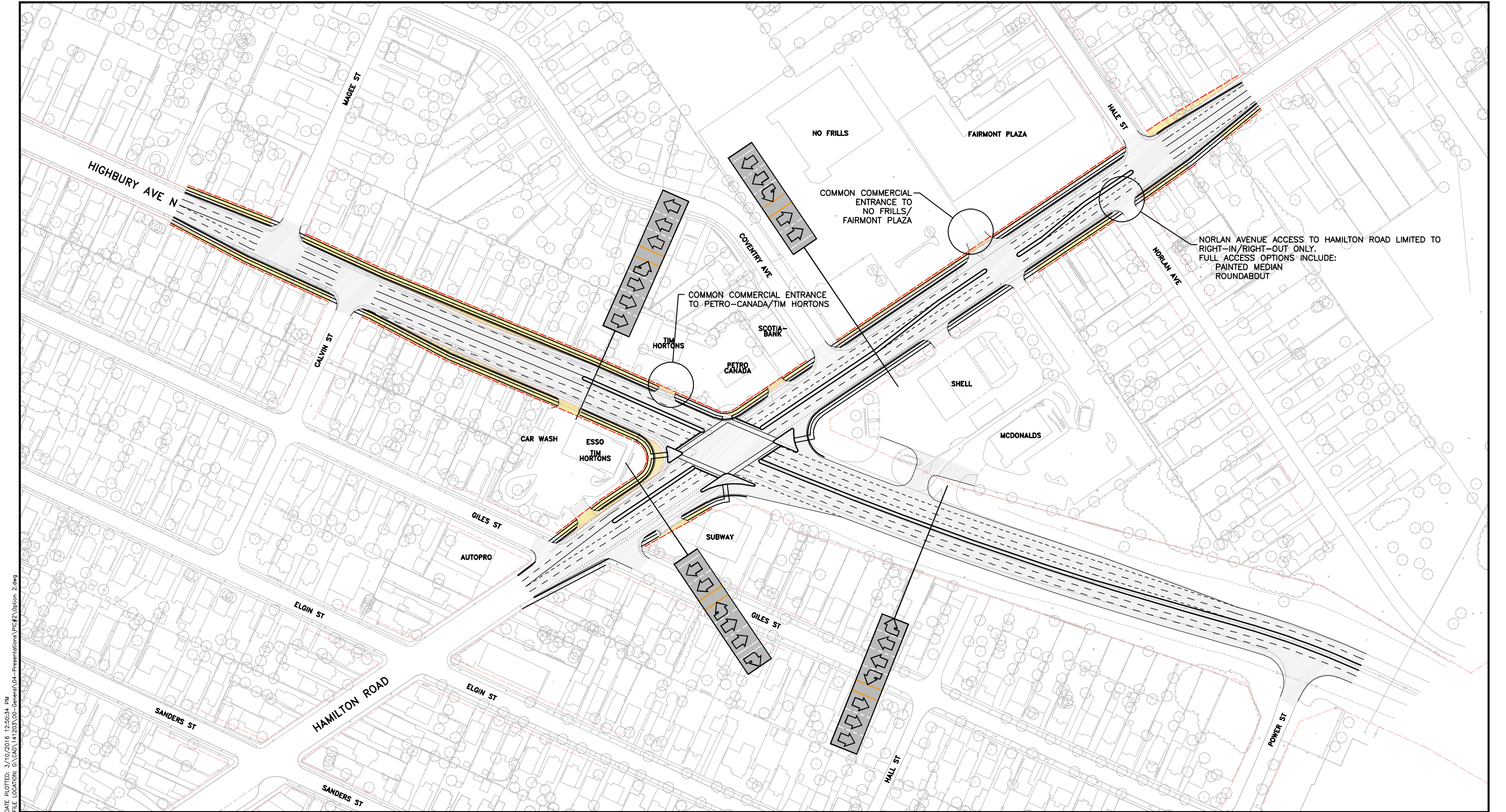
 ø1 17 s	 ø2 29 s	 ø4 24 s
 ø6 46 s		

Appendix A-4

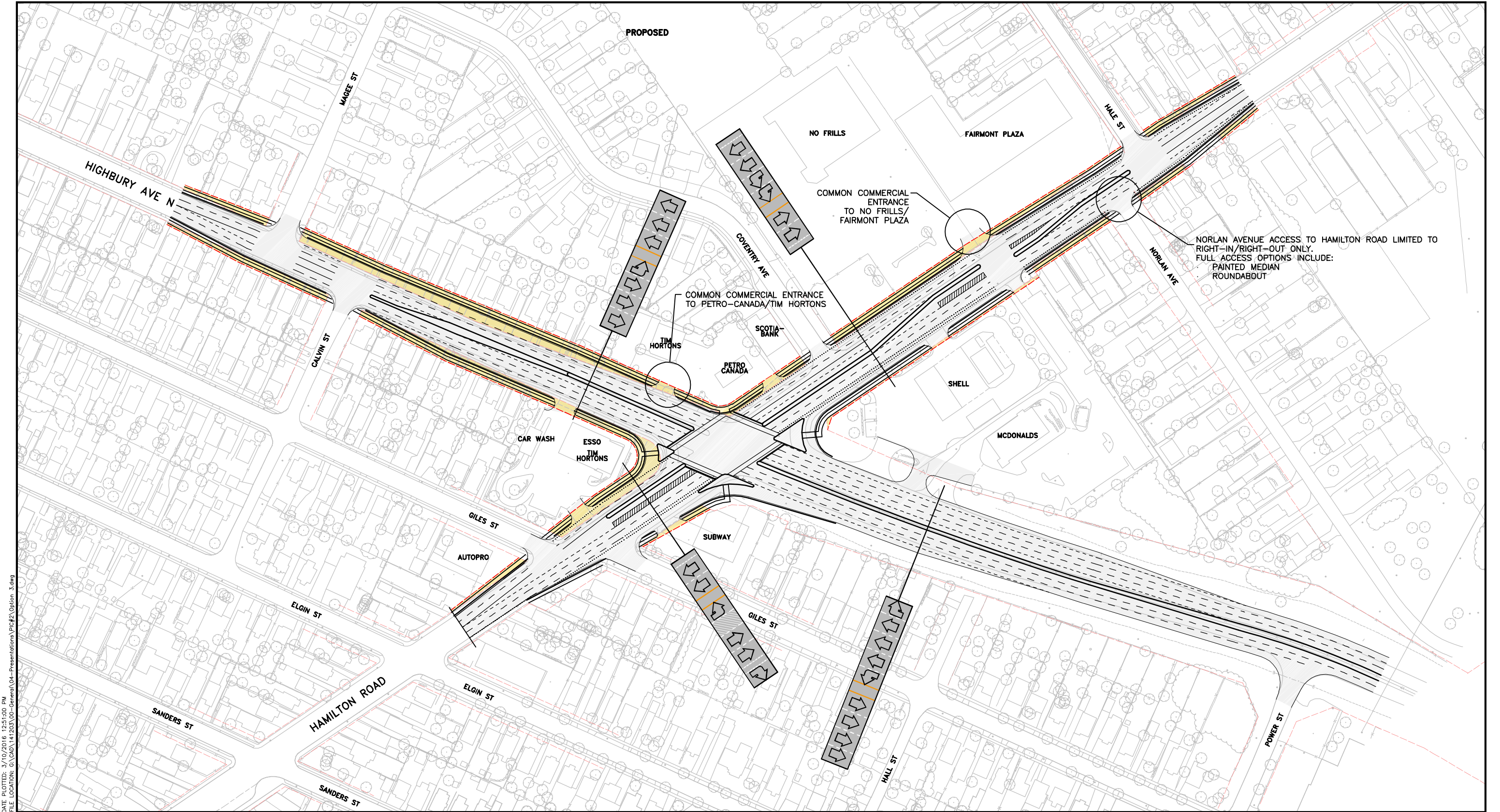


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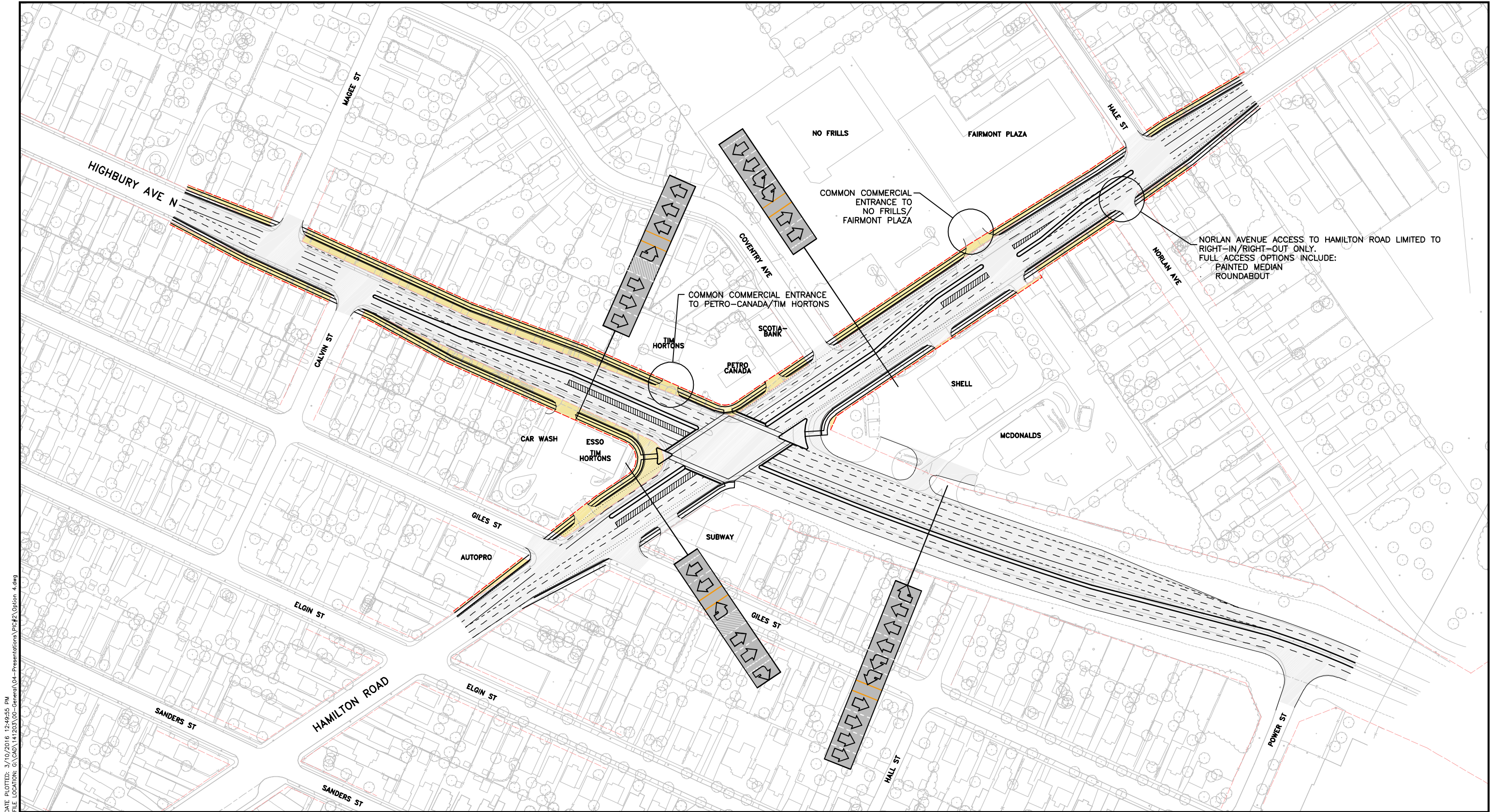




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Appendix A-5

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	60.0		0.0	188.0		180.0	75.0		78.0
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	55		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	0.91
Ped Bike Factor	0.99		0.99	1.00	1.00				0.97	1.00		
Frt			0.850		0.989				0.850		0.998	
Flt Protected	0.950			0.950			0.950	*0.774		0.950	*0.818	
Satd. Flow (prot)	1825	3411	1471	1722	3440	0	1772	3830	1555	1690	4006	0
Flt Permitted	0.321			0.347			0.080			0.111		
Satd. Flow (perm)	612	3411	1450	628	3440	0	149	4948	1511	197	4897	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		7				322		2	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			869.0			472.1	
Travel Time (s)		28.3			19.9			52.1			34.0	
Volume (vph)	72	376	139	261	590	48	442	1561	333	73	1255	21
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	78	409	151	284	641	52	480	1697	362	79	1364	23
Lane Group Flow (vph)	78	409	151	284	693	0	480	1697	362	79	1387	0
Turn Type	Perm		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phases	8	8	8	7 4	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	42.8	42.8	42.8	9.0	42.8		9.0	36.8	36.8	9.0	36.8	
Total Split (s)	42.8	42.8	42.8	12.0	54.8	0.0	35.0	75.2	75.2	10.0	50.2	0.0
Total Split (%)	30.6%	30.6%	30.6%	8.6%	39.1%	0.0%	25.0%	53.7%	53.7%	7.1%	35.9%	0.0%
Maximum Green (s)	36.0	36.0	36.0	8.0	48.0		31.0	68.4	68.4	6.0	43.4	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.5	3.5	3.5	1.0	3.5		1.0	3.1	3.1	1.0	3.1	
Lead/Lag	Lag	Lag	Lag	Lead			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	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	29.0	29.0	29.0		29.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)	10	10	10		10			6	6		6	
Act Effct Green (s)	38.8	38.8	38.8	50.8	50.8		81.2	71.2	71.2	52.2	46.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.36	0.36		0.58	0.51	0.51	0.37	0.33	
v/c Ratio	0.46	0.43	0.30	0.98	0.55		1.08	0.87	0.39	0.58	1.05	
Control Delay	56.4	46.2	11.9	78.1	35.0		105.0	36.5	4.3	37.6	83.5	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	56.4	46.2	11.9	78.1	35.0		105.0	36.5	4.3	37.6	83.5	
LOS	E	D	B	E	D		F	D	A	D	F	
Approach Delay		39.3			47.6			44.9			81.0	
Approach LOS		D			D			D			F	
Queue Length 50th (m)	17.9	48.8	0.3	58.8	84.3		~132.2	147.9	5.5	9.2	~152.6	
Queue Length 95th (m)	40.3	79.7	33.6m#99.7		81.9		#200.4	171.5	22.4	#19.6	#182.7	
Internal Link Dist (m)		369.7			253.0			845.0			448.1	
Turn Bay Length (m)	60.0		60.0	60.0			188.0		180.0	75.0		
Base Capacity (vph)	170	945	511	290	1253		446	1948	927	137	1323	
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	0.46	0.43	0.30	0.98	0.55		1.08	0.87	0.39	0.58	1.05	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 54.1

Intersection LOS: D

Intersection Capacity Utilization 92.0%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 ø1		 ø2		 ø4					
10 s		75.2 s		54.8 s					
 ø5			 ø6			 ø7		 ø8	
35 s			50.2 s			12 s		42.8 s	

Lanes, Volumes, Timings
16: Hamilton Road & East Street

AM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	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	
Trailing Detector (m)	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	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.999			0.997			0.917			0.922	
Flt Protected		0.999						0.994			0.979	
Satd. Flow (prot)	0	3439	0	0	3533	0	0	1534	0	0	1524	0
Flt Permitted		0.942			0.954			0.986			0.940	
Satd. Flow (perm)	0	3243	0	0	3370	0	0	1521	0	0	1464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			3			16			11	
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)		50			50			50			50	
Link Distance (m)		413.1			393.7			104.2			150.5	
Travel Time (s)		29.7			28.3			7.5			10.8	
Volume (vph)	7	584	3	2	846	16	3	6	15	7	0	10
Confl. Peds. (#/hr)	9		5	5		9	4					4
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 (%)	0%	6%	0%	0%	3%	0%	0%	0%	23%	0%	0%	22%
Adj. Flow (vph)	8	635	3	2	920	17	3	7	16	8	0	11
Lane Group Flow (vph)	0	646	0	0	939	0	0	26	0	0	19	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phases	2	2		2	2		4	4		4	4	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		30.2	30.2		30.2	30.2	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	45.7%	45.7%	0.0%	45.7%	45.7%	0.0%	54.3%	54.3%	0.0%	54.3%	54.3%	0.0%
Maximum Green (s)	26.6	26.6		26.6	26.6		31.8	31.8		31.8	31.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.1	2.1		2.1	2.1		2.7	2.7		2.7	2.7	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		10	10		10	10	
Act Effect Green (s)		59.7			59.7			12.6			12.6	
Actuated g/C Ratio		0.85			0.85			0.18			0.18	
v/c Ratio		0.23			0.33			0.09			0.07	
Control Delay		3.9			1.9			12.9			13.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		3.9			1.9			12.9			13.7	

Lanes, Volumes, Timings
16: Hamilton Road & East Street

AM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		3.9			1.9			12.9			13.7	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		0.0			0.0			1.2			0.9	
Queue Length 95th (m)		36.1			47.8			5.1			4.3	
Internal Link Dist (m)		389.1			369.7			80.2			126.5	
Turn Bay Length (m)												
Base Capacity (vph)		2767			2876			747			717	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.23			0.33			0.03			0.03	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 45 (64%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 3.0

Intersection LOS: A

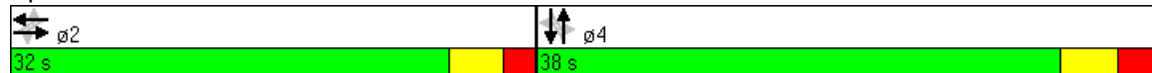
Intersection Capacity Utilization 39.6%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 16: Hamilton Road & East Street



Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

AM Peak Hour
Alternative 1

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	27.0			30.0	37.0	0.0
Storage Lanes	1			0	1	1
Total Lost Time (s)	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
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Turning Speed (k/h)	24			14	24	14
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		1.00	0.97
Frt			0.989			0.850
Flt Protected	0.950	*0.559	*0.584		0.950	
Satd. Flow (prot)	1772	1943	2008	0	1755	1526
Flt Permitted	0.181				0.950	
Satd. Flow (perm)	338	3476	3438	0	1753	1478
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			179
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50	50		50	
Link Distance (m)		277.0	516.5		396.0	
Travel Time (s)		19.9	37.2		28.5	
Volume (vph)	297	483	720	60	64	165
Confl. Peds. (#/hr)	4			4	1	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	5%	5%	2%	4%	7%
Adj. Flow (vph)	323	525	783	65	70	179
Lane Group Flow (vph)	323	525	848	0	70	179
Turn Type	pm+pt				Perm	
Protected Phases	1	6	2		4	
Permitted Phases	6					4
Detector Phases	1	6	2		4	4
Minimum Initial (s)	5.0	7.0	7.0		7.0	7.0
Minimum Split (s)	9.0	23.1	23.1		23.5	23.5
Total Split (s)	15.0	46.0	31.0	0.0	24.0	24.0
Total Split (%)	21.4%	65.7%	44.3%	0.0%	34.3%	34.3%
Maximum Green (s)	11.0	40.9	25.9		18.5	18.5
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	1.0	1.8	1.8		2.2	2.2
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		6.0	6.0		10.0	10.0
Pedestrian Calls (#/hr)		2	2		8	8
Act Effct Green (s)	50.9	50.9	36.9		11.1	11.1
Actuated g/C Ratio	0.73	0.73	0.53		0.16	0.16
v/c Ratio	0.72	0.37	0.80		0.25	0.46
Control Delay	17.0	6.0	23.0		26.6	8.3

Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

AM Peak Hour
Alternative 1

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	17.0	6.0	23.0		26.6	8.3
LOS	B	A	C		C	A
Approach Delay		10.2	23.0		13.5	
Approach LOS		B	C		B	
Queue Length 50th (m)	5.2	3.8	42.2		8.4	0.0
Queue Length 95th (m)	70.4	57.6	#97.3		16.0	13.0
Internal Link Dist (m)		253.0	492.5		372.0	
Turn Bay Length (m)	27.0				37.0	
Base Capacity (vph)	471	1413	1065		501	550
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.69	0.37	0.80		0.14	0.33

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 22 (31%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 16.2

Intersection LOS: B

Intersection Capacity Utilization 57.6%

ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

Splits and Phases: 30: Hamilton Road & Hale Street

 ø1	 ø2	 ø4
15 s	31 s	24 s
 ø6		
46 s		

Lanes, Volumes, Timings
9: Hamilton Road & East Street

PM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	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	
Trailing Detector (m)	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	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.99	
Frt		0.999			0.998			0.883			0.962	
Flt Protected		0.999			0.999			0.997			0.967	
Satd. Flow (prot)	0	3571	0	0	3558	0	0	1524	0	0	1705	0
Flt Permitted		0.942			0.936			0.993			0.858	
Satd. Flow (perm)	0	3367	0	0	3333	0	0	1517	0	0	1500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2			13			16	
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)		50			50			50			50	
Link Distance (m)		407.1			393.7			104.2			150.5	
Travel Time (s)		29.3			28.3			7.5			10.8	
Volume (vph)	12	973	7	10	751	10	1	1	12	36	2	15
Confl. Peds. (#/hr)	12		16	16		12	7		14	14		7
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 (%)	0%	2%	0%	11%	2%	11%	0%	0%	10%	3%	0%	8%
Adj. Flow (vph)	13	1058	8	11	816	11	1	1	13	39	2	16
Lane Group Flow (vph)	0	1079	0	0	838	0	0	15	0	0	57	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phases	2	2		2	2		4	4		4	4	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		30.2	30.2		30.2	30.2	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	45.7%	45.7%	0.0%	45.7%	45.7%	0.0%	54.3%	54.3%	0.0%	54.3%	54.3%	0.0%
Maximum Green (s)	26.6	26.6		26.6	26.6		31.8	31.8		31.8	31.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.1	2.1		2.1	2.1		2.7	2.7		2.7	2.7	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		10	10		10	10	
Act Effect Green (s)		56.1			56.1			12.8			12.8	
Actuated g/C Ratio		0.80			0.80			0.18			0.18	
v/c Ratio		0.40			0.31			0.05			0.20	
Control Delay		5.5			4.2			11.0			18.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.5			4.2			11.0			18.2	

Lanes, Volumes, Timings
9: Hamilton Road & East Street

PM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		5.5			4.2			11.0			18.2	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		19.8			22.6			0.3			4.9	
Queue Length 95th (m)		67.9			m35.5			3.5			10.0	
Internal Link Dist (m)		383.1			369.7			80.2			126.5	
Turn Bay Length (m)												
Base Capacity (vph)		2698			2671			744			737	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.40			0.31			0.02			0.08	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 55 (79%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 5.3

Intersection LOS: A

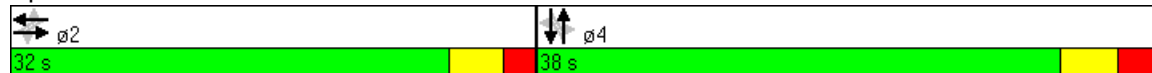
Intersection Capacity Utilization 54.3%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 9: Hamilton Road & East Street



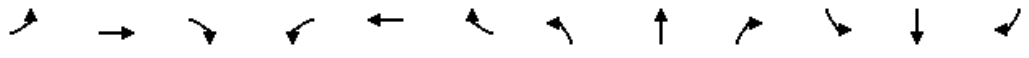
Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	60.0		0.0	188.0		180.0	75.0		78.0
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	55		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	0.91
Ped Bike Factor	0.99		0.99		1.00				0.97			
Frt			0.850		0.987				0.850		0.997	
Flt Protected	0.950			0.950			0.950	*0.786		0.950	*0.810	
Satd. Flow (prot)	1825	3411	1471	1722	3428	0	1772	3889	1555	1690	3964	0
Flt Permitted	0.399			0.093			0.073			0.078		
Satd. Flow (perm)	760	3411	1450	169	3428	0	136	4948	1511	139	4893	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232		9				292		2	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			864.3			461.7	
Travel Time (s)		28.3			19.9			51.9			33.2	
Volume (vph)	64	959	419	285	558	53	413	1969	627	101	1691	36
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	70	1042	455	310	607	58	449	2140	682	110	1838	39
Lane Group Flow (vph)	70	1042	455	310	665	0	449	2140	682	110	1877	0
Turn Type	Perm		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phases	8	8	8	7	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	42.8	42.8	42.8	9.0	42.8		9.0	36.8	36.8	9.0	36.8	
Total Split (s)	43.0	43.0	43.0	18.0	61.0	0.0	24.0	69.0	69.0	10.0	55.0	0.0
Total Split (%)	30.7%	30.7%	30.7%	12.9%	43.6%	0.0%	17.1%	49.3%	49.3%	7.1%	39.3%	0.0%
Maximum Green (s)	36.2	36.2	36.2	14.0	54.2		20.0	62.2	62.2	6.0	48.2	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.5	3.5	3.5	1.0	3.5		1.0	3.1	3.1	1.0	3.1	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	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	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	29.0	29.0	29.0		29.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)	10	10	10		10			6	6		6	
Act Effct Green (s)	39.0	39.0	39.0	57.0	57.0		75.0	65.0	65.0	57.0	51.0	
Actuated g/C Ratio	0.28	0.28	0.28	0.41	0.41		0.54	0.46	0.46	0.41	0.36	
v/c Ratio	0.33	1.10	0.80	1.38	0.47		1.46	1.18	0.79	0.89	1.30	
Control Delay	43.0	104.1	31.3	222.2	39.9		258.0	123.8	25.5	85.8	176.7	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 1

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	43.0	104.1	31.3	222.2	39.9		258.0	123.8	25.5	85.8	176.7	
LOS	D	F	C	F	D		F	F	C	F	F	
Approach Delay	80.2			97.9			121.7			171.7		
Approach LOS	F			F			F			F		
Queue Length 50th (m)	13.7	~172.1	43.6	~98.0	91.4		~155.3	~260.3	96.8	15.7	~244.0	
Queue Length 95th (m)	26.0	#209.3	72.0	#118.6	m109.3		#221.7	#288.3	154.8	#51.8	#273.3	
Internal Link Dist (m)	369.7			253.0			840.3			437.7		
Turn Bay Length (m)	60.0		60.0	60.0			188.0		180.0	75.0		
Base Capacity (vph)	212	950	571	224	1401		307	1806	858	123	1445	
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	0.33	1.10	0.80	1.38	0.47		1.46	1.18	0.79	0.89	1.30	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 101.9 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.46

Intersection Signal Delay: 123.1

Intersection LOS: F

Intersection Capacity Utilization 112.2%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

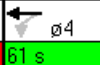
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

			
10 s	69 s	61 s	
			
24 s	55 s	18 s	43 s

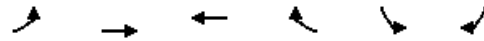
Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

PM Peak Hour
Alternative 1

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	27.0			30.0	37.0	0.0
Storage Lanes	1			0	1	1
Total Lost Time (s)	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
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Turning Speed (k/h)	24			14	24	14
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		1.00	0.97
Frt			0.988			0.850
Flt Protected	0.950	*0.562	*0.583		0.950	
Satd. Flow (prot)	1825	2011	2049	0	1789	1601
Flt Permitted	0.148				0.950	
Satd. Flow (perm)	284	3579	3514	0	1785	1555
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			171
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50	50		50	
Link Distance (m)		277.0	527.1		389.6	
Travel Time (s)		19.9	38.0		28.1	
Volume (vph)	336	1292	748	65	169	157
Confl. Peds. (#/hr)	14			14	2	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	4%	2%	2%
Adj. Flow (vph)	365	1404	813	71	184	171
Lane Group Flow (vph)	365	1404	884	0	184	171
Turn Type	pm+pt				Perm	
Protected Phases	1	6	2		4	
Permitted Phases	6					4
Detector Phases	1	6	2		4	4
Minimum Initial (s)	5.0	7.0	7.0		7.0	7.0
Minimum Split (s)	9.0	23.1	23.1		23.5	23.5
Total Split (s)	17.0	46.0	29.0	0.0	24.0	24.0
Total Split (%)	24.3%	65.7%	41.4%	0.0%	34.3%	34.3%
Maximum Green (s)	13.0	40.9	23.9		18.5	18.5
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	1.0	1.8	1.8		2.2	2.2
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		6.0	6.0		10.0	10.0
Pedestrian Calls (#/hr)		7	7		7	7
Act Effct Green (s)	48.4	48.4	32.6		13.6	13.6
Actuated g/C Ratio	0.69	0.69	0.47		0.19	0.19
v/c Ratio	0.80	1.01	0.92		0.53	0.39
Control Delay	31.3	40.1	36.7		30.2	6.7

Lanes, Volumes, Timings
30: Hamilton Road & Hale Street

PM Peak Hour
Alternative 1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.3	40.1	36.7		30.2	6.7
LOS	C	D	D		C	A
Approach Delay		38.3	36.7		18.9	
Approach LOS		D	D		B	
Queue Length 50th (m)	57.9	~148.6	55.1		21.9	0.0
Queue Length 95th (m)	m63.8	#134.6	#106.4		36.0	12.7
Internal Link Dist (m)		253.0	503.1		365.6	
Turn Bay Length (m)	27.0				37.0	
Base Capacity (vph)	483	1390	962		511	566
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.76	1.01	0.92		0.36	0.30

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 32 (46%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 35.5

Intersection LOS: D

Intersection Capacity Utilization 62.6%

ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 30: Hamilton Road & Hale Street

 ø1 17 s	 ø2 29 s	 ø4 24 s
 ø6 46 s		

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 2

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		72.0	65.0		0.0	188.0		180.0	70.0		100.0
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	55		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	0.91	0.91
Ped Bike Factor	0.99		0.99	1.00	1.00				0.97			
Frt			0.850		0.989				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950	*0.860	
Satd. Flow (prot)	1825	3411	1471	1722	3439	0	1772	3444	1555	1690	4211	0
Flt Permitted	0.339			0.314			0.079			0.086		
Satd. Flow (perm)	645	3411	1453	568	3439	0	147	3444	1508	153	4897	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		7				355		2	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			869.3			461.7	
Travel Time (s)		28.3			19.9			52.2			33.2	
Volume (vph)	72	376	139	261	590	48	442	1561	333	73	1255	21
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	78	409	151	284	641	52	480	1697	362	79	1364	23
Lane Group Flow (vph)	78	409	151	284	693	0	480	1697	362	79	1387	0
Turn Type	Perm		Free	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		Free	4			2		2	6		
Detector Phases	8	8		7 4	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0		5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	37.5	37.5		9.0	37.5		9.0	34.7	34.7	9.0	34.7	
Total Split (s)	37.5	37.5	0.0	15.0	52.5	0.0	37.0	77.5	77.5	10.0	50.5	0.0
Total Split (%)	26.8%	26.8%	0.0%	10.7%	37.5%	0.0%	26.4%	55.4%	55.4%	7.1%	36.1%	0.0%
Maximum Green (s)	31.0	31.0		11.0	46.0		33.0	70.9	70.9	6.0	43.9	
Yellow Time (s)	3.3	3.3		3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.2	3.2		1.0	3.2		1.0	2.9	2.9	1.0	2.9	
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
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	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	24.0	24.0			24.0			20.0	20.0		20.0	
Pedestrian Calls (#/hr)	10	10			10			6	6		6	
Act Effct Green (s)	33.5	33.5	140.0	48.5	48.5		83.5	73.5	73.5	52.5	46.5	
Actuated g/C Ratio	0.24	0.24	1.00	0.35	0.35		0.60	0.52	0.52	0.38	0.33	
v/c Ratio	0.51	0.50	0.10	0.99	0.58		1.02	0.94	0.38	0.64	0.99	
Control Delay	62.5	51.0	0.1	80.1	36.0		88.0	42.4	3.0	49.1	68.2	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 2

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	62.5	51.0	0.1	80.1	36.0		88.0	42.4	3.0	49.1	68.2	
LOS	E	D	A	F	D		F	D	A	D	E	
Approach Delay		40.4			48.8			45.4			67.2	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	18.7	51.5	0.0	63.2	90.4		~125.0	225.0	0.9	8.8	139.7	
Queue Length 95th (m)	40.3	80.5	0.0	#105.2	82.2		#193.1	#282.0	15.8	#28.2	#174.4	
Internal Link Dist (m)		369.7			253.0			845.3			437.7	
Turn Bay Length (m)	60.0		72.0	65.0			188.0		180.0	70.0		
Base Capacity (vph)	154	816	1453	287	1196		471	1808	960	123	1400	
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	0.51	0.50	0.10	0.99	0.58		1.02	0.94	0.38	0.64	0.99	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 51.1

Intersection LOS: D

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 ø1		 ø2		 ø4	
10 s		77.5 s		52.5 s	
 ø5		 ø6		 ø7	
37 s		50.5 s		37.5 s	

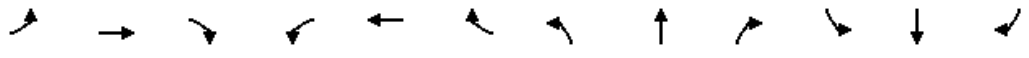
Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 2

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		72.0	65.0		0.0	188.0		180.0	70.0		120.0
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	55		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	0.91	0.91
Ped Bike Factor	0.99		0.99		1.00				0.97			
Frt			0.850		0.987				0.850		*0.847	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3411	1471	1722	3427	0	1772	3444	1555	1690	4157	0
Flt Permitted	0.399			0.093			0.074			0.080		
Satd. Flow (perm)	759	3411	1453	169	3427	0	138	3444	1508	142	4157	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			224		9				290		2	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			865.7			461.7	
Travel Time (s)		28.3			19.9			51.9			33.2	
Volume (vph)	64	959	419	285	558	53	413	1969	627	101	1691	36
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	70	1042	455	310	607	58	449	2140	682	110	1838	39
Lane Group Flow (vph)	70	1042	455	310	665	0	449	2140	682	110	1877	0
Turn Type	Perm		Free	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		Free	4			2		2	6		
Detector Phases	8	8		7	4		5	2	2	1	6	
Minimum Initial (s)	7.0	7.0		5.0	7.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	37.5	37.5		9.0	37.5		9.0	34.7	34.7	9.0	34.7	
Total Split (s)	43.0	43.0	0.0	18.0	61.0	0.0	25.0	69.0	69.0	10.0	54.0	0.0
Total Split (%)	30.7%	30.7%	0.0%	12.9%	43.6%	0.0%	17.9%	49.3%	49.3%	7.1%	38.6%	0.0%
Maximum Green (s)	36.5	36.5		14.0	54.5		21.0	62.4	62.4	6.0	47.4	
Yellow Time (s)	3.3	3.3		3.0	3.3		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.2	3.2		1.0	3.2		1.0	2.9	2.9	1.0	2.9	
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
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	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	24.0	24.0			24.0			20.0	20.0		20.0	
Pedestrian Calls (#/hr)	10	10			10			6	6		6	
Act Effct Green (s)	39.0	39.0	140.0	57.0	57.0		75.0	65.0	65.0	56.0	50.0	
Actuated g/C Ratio	0.28	0.28	1.00	0.41	0.41		0.54	0.46	0.46	0.40	0.36	
v/c Ratio	0.33	1.10	0.31	1.38	0.47		1.41	1.34	0.80	0.89	1.26	
Control Delay	41.9	103.6	0.5	222.9	35.5		234.9	188.9	25.7	85.9	162.0	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 2

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	41.9	103.6	0.5	222.9	35.5		234.9	188.9	25.7	85.9	162.0	
LOS	D	F	A	F	D		F	F	C	F	F	
Approach Delay	70.9			95.1			161.2			157.8		
Approach LOS	E			F			F			F		
Queue Length 50th (m)	15.4	~172.1	0.0	~101.2	81.3		~151.6	~405.2	97.6	15.7	~239.6	
Queue Length 95th (m)	23.8	#213.7	0.0	#121.6	m97.9		#218.1	#445.4	155.8	#51.8	#268.9	
Internal Link Dist (m)	369.7			253.0			841.7			437.7		
Turn Bay Length (m)	60.0		72.0	65.0			188.0		180.0	70.0		
Base Capacity (vph)	211	950	1453	224	1401		319	1599	856	123	1486	
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	0.33	1.10	0.31	1.38	0.47		1.41	1.34	0.80	0.89	1.26	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 39 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.41

Intersection Signal Delay: 133.9

Intersection LOS: F

Intersection Capacity Utilization 115.7%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 Ø1		 Ø2		 Ø4	
10 s		69 s		61 s	
 Ø5		 Ø6		 Ø7	
25 s		54 s		18 s	
				 Ø8	
				43 s	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 3

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	52.0		60.0	72.0		0.0	190.0		185.0	75.0		80.0
Storage Lanes	1		1	2		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	55		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.91	0.91
Ped Bike Factor	0.99		0.99	1.00	1.00				0.98	1.00		
Frt			0.850		0.989			*0.757	0.850		*0.795	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3411	1471	3340	3440	0	1772	3745	1555	1690	3901	0
Flt Permitted	0.356			0.950			0.082			0.104		
Satd. Flow (perm)	678	3411	1453	3336	3440	0	153	3745	1531	185	3901	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		7				362		2	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			875.1			461.7	
Travel Time (s)		28.3			19.9			52.5			33.2	
Volume (vph)	72	376	139	261	590	48	442	1561	333	73	1255	21
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	78	409	151	284	641	52	480	1697	362	79	1364	23
Lane Group Flow (vph)	78	409	151	284	693	0	480	1697	362	79	1387	0
Turn Type	Perm		Free	Prot			pm+pt		Free	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		Free				2		Free	6		
Detector Phases	8	8		7	4		5	2		1	6	
Minimum Initial (s)	7.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	42.0	42.0		10.0	42.0		10.0	37.0		10.0	37.0	
Total Split (s)	42.0	42.0	0.0	15.0	57.0	0.0	34.0	73.0	0.0	10.0	49.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	10.7%	40.7%	0.0%	24.3%	52.1%	0.0%	7.1%	35.0%	0.0%
Maximum Green (s)	35.0	35.0		11.0	50.0		30.0	66.0		6.0	42.0	
Yellow Time (s)	3.3	3.3		3.0	3.3		3.0	3.7		3.0	3.7	
All-Red Time (s)	3.7	3.7		1.0	3.7		1.0	3.3		1.0	3.3	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0			7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0			28.0			23.0			23.0	
Pedestrian Calls (#/hr)	10	10			10			6			6	
Act Effct Green (s)	26.3	26.3	140.0	11.0	41.3		90.7	80.7	140.0	62.7	56.7	
Actuated g/C Ratio	0.19	0.19	1.00	0.08	0.30		0.65	0.58	1.00	0.45	0.40	
v/c Ratio	0.61	0.64	0.10	1.08	0.68		1.08	0.79	0.24	0.54	0.88	
Control Delay	77.2	61.3	0.1	129.8	38.6		103.5	27.5	0.4	32.4	46.2	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 3

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	77.2	61.3	0.1	129.8	38.6		103.5	27.5	0.4	32.4	46.2	
LOS	E	E	A	F	D		F	C	A	C	D	
Approach Delay		48.8			65.1			38.0			45.5	
Approach LOS		D			E			D			D	
Queue Length 50th (m)	20.5	56.8	0.0	~43.9	93.1		~126.2	120.2	0.0	7.0	123.1	
Queue Length 95th (m)	40.3	80.4	0.0	m#68.0	81.8		#204.1	181.3	0.0	#23.6	#190.1	
Internal Link Dist (m)		369.7			253.0			851.1			437.7	
Turn Bay Length (m)	52.0		60.0	72.0			190.0		185.0	75.0		
Base Capacity (vph)	184	926	1453	262	1307		446	2160	1531	147	1582	
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	0.42	0.44	0.10	1.08	0.53		1.08	0.79	0.24	0.54	0.88	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 45.9

Intersection LOS: D

Intersection Capacity Utilization 91.6%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue



Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 3

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	52.0		60.0	72.0		0.0	190.0		185.0	75.0		80.0
Storage Lanes	1		1	2		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	55		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.91	0.91
Ped Bike Factor	0.99		0.99	1.00	1.00				0.98			
Frt			0.850		0.987			*0.771	0.850		*0.800	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3411	1471	3340	3428	0	1772	3815	1555	1690	3927	0
Flt Permitted	0.365			0.950			0.068			0.073		
Satd. Flow (perm)	695	3411	1453	3338	3428	0	127	3815	1531	130	3927	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190		8				567		3	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			869.0			461.7	
Travel Time (s)		28.3			19.9			52.1			33.2	
Volume (vph)	64	959	419	285	558	53	413	1969	627	101	1691	36
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	70	1042	455	310	607	58	449	2140	682	110	1838	39
Lane Group Flow (vph)	70	1042	455	310	665	0	449	2140	682	110	1877	0
Turn Type	Perm		Free	Prot			pm+pt		Free	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		Free				2		Free	6		
Detector Phases	8	8		7	4		5	2		1	6	
Minimum Initial (s)	7.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	42.0	42.0		10.0	42.0		10.0	37.0		10.0	37.0	
Total Split (s)	42.0	42.0	0.0	14.0	56.0	0.0	25.0	74.0	0.0	10.0	59.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	10.0%	40.0%	0.0%	17.9%	52.9%	0.0%	7.1%	42.1%	0.0%
Maximum Green (s)	35.0	35.0		10.0	49.0		21.0	67.0		6.0	52.0	
Yellow Time (s)	3.3	3.3		3.0	3.3		3.0	3.7		3.0	3.7	
All-Red Time (s)	3.7	3.7		1.0	3.7		1.0	3.3		1.0	3.3	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0			7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0			28.0			23.0			23.0	
Pedestrian Calls (#/hr)	10	10			10			6			6	
Act Effct Green (s)	38.0	38.0	140.0	10.0	52.0		80.0	70.0	140.0	61.0	55.0	
Actuated g/C Ratio	0.27	0.27	1.00	0.07	0.37		0.57	0.50	1.00	0.44	0.39	
v/c Ratio	0.37	1.13	0.31	1.30	0.52		1.41	1.12	0.45	0.89	1.21	
Control Delay	51.1	117.5	0.5	205.1	29.5		235.0	95.9	0.9	84.3	140.4	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 3

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	51.1	117.5	0.5	205.1	29.5		235.0	95.9	0.9	84.3	140.4	
LOS	D	F	A	F	C		F	F	A	F	F	
Approach Delay	80.6			85.3			95.2			137.3		
Approach LOS	F			F			F			F		
Queue Length 50th (m)	15.9	~169.3	0.0	~57.0	54.6		~151.5	~249.5	0.0	15.4	~233.2	
Queue Length 95th (m)	35.1	#221.5	0.0m	#72.5	m61.2		#217.9	#277.5	0.0	#51.6	#262.5	
Internal Link Dist (m)	369.7			253.0			845.0			437.7		
Turn Bay Length (m)	52.0		60.0	72.0			190.0		185.0	75.0		
Base Capacity (vph)	189	926	1453	239	1278		319	1908	1531	124	1545	
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	0.37	1.13	0.31	1.30	0.52		1.41	1.12	0.45	0.89	1.21	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 75.9 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.41

Intersection Signal Delay: 101.8

Intersection LOS: F

Intersection Capacity Utilization 104.5%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue



Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	65.0		0.0	188.0		180.0	70.0		120.0
Storage Lanes	1		1	2		0	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	
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	55		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.91	1.00	1.00	0.91	0.91
Ped Bike Factor	0.99		0.99	1.00	1.00				0.98	1.00		
Frt			0.850		0.989				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3411	1471	3340	3440	0	3437	4948	1555	1690	4897	0
Flt Permitted	0.388			0.950			0.950			0.091		
Satd. Flow (perm)	740	3411	1450	3336	3440	0	3437	4948	1531	162	4897	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		8				362		2	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			865.7			461.7	
Travel Time (s)		28.3			19.9			51.9			33.2	
Volume (vph)	72	376	139	261	590	48	442	1561	333	73	1255	21
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	78	409	151	284	641	52	480	1697	362	79	1364	23
Lane Group Flow (vph)	78	409	151	284	693	0	480	1697	362	79	1387	0
Turn Type	Perm		Perm	Prot			Prot		Free	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8						Free	6		
Detector Phases	8	8	8	7	4		5	2		1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	45.9	45.9	45.9	9.0	45.9		9.0	39.0		9.0	39.0	
Total Split (s)	45.9	45.9	45.9	19.0	64.9	0.0	27.0	65.1	0.0	10.0	48.1	0.0
Total Split (%)	32.8%	32.8%	32.8%	13.6%	46.4%	0.0%	19.3%	46.5%	0.0%	7.1%	34.4%	0.0%
Maximum Green (s)	39.0	39.0	39.0	15.0	58.0		23.0	58.1		6.0	41.1	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7		3.0	3.7	
All-Red Time (s)	3.6	3.6	3.6	1.0	3.6		1.0	3.3		1.0	3.3	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
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)	7.0	7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)	32.0	32.0	32.0		32.0			25.0			25.0	
Pedestrian Calls (#/hr)	10	10	10		10			6			6	
Act Effct Green (s)	26.6	26.6	26.6	14.6	45.2		22.2	76.8	140.0	66.6	60.6	
Actuated g/C Ratio	0.19	0.19	0.19	0.10	0.32		0.16	0.55	1.00	0.48	0.43	
v/c Ratio	0.56	0.63	0.38	0.82	0.62		0.88	0.63	0.24	0.56	0.65	
Control Delay	68.8	59.1	12.9	74.4	36.9		75.8	24.4	0.4	34.1	34.7	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

AM Peak Hour
Alternative 4

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	68.8	59.1	12.9	74.4	36.9		75.8	24.4	0.4	34.1	34.7	
LOS	E	E	B	E	D		E	C	A	C	C	
Approach Delay		49.3			47.8			30.7			34.7	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	20.2	56.6	0.3	36.1	90.6		67.3	108.8	0.0	7.8	106.8	
Queue Length 95th (m)	37.8	75.5	31.0m#50.6		78.9		#93.1	164.7	0.0	#28.4	154.2	
Internal Link Dist (m)		369.7			253.0			841.7			437.7	
Turn Bay Length (m)	60.0		60.0	65.0			188.0		180.0	70.0		
Base Capacity (vph)	221	1021	540	358	1501		565	2714	1531	142	2121	
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	0.35	0.40	0.28	0.79	0.46		0.85	0.63	0.24	0.56	0.65	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 36.8

Intersection LOS: D

Intersection Capacity Utilization 81.3%

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.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 ø1	 ø2	 ø4	
10 s	65.1 s	64.9 s	
 ø5	 ø6	 ø7	 ø8
27 s	48.1 s	19 s	45.9 s

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 4

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	65.0		0.0	188.0		180.0	70.0		120.0
Storage Lanes	1		1	2		0	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	
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	55		14	24		14	24		14
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.91	1.00	1.00	0.91	0.91
Ped Bike Factor	0.99		0.99	1.00	1.00				0.98			
Frt			0.850		0.987				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3411	1471	3340	3429	0	3437	4948	1555	1690	4893	0
Flt Permitted	0.399			0.950			0.950			0.075		
Satd. Flow (perm)	760	3411	1450	3339	3429	0	3437	4948	1531	133	4893	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191		9				552		2	
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)		50			50			60			50	
Link Distance (m)		393.7			277.0			872.9			461.7	
Travel Time (s)		28.3			19.9			52.4			33.2	
Volume (vph)	64	959	419	285	558	53	413	1969	627	101	1691	36
Confl. Peds. (#/hr)	19		2	2		19			12	12		
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 (%)	0%	7%	11%	6%	4%	13%	3%	6%	5%	8%	7%	0%
Adj. Flow (vph)	70	1042	455	310	607	58	449	2140	682	110	1838	39
Lane Group Flow (vph)	70	1042	455	310	665	0	449	2140	682	110	1877	0
Turn Type	Perm		Perm	Prot			Prot		Free	pm+pt		
Protected Phases		8		7	4		5	2		1	6	
Permitted Phases	8		8						Free	6		
Detector Phases	8	8	8	7	4		5	2		1	6	
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	45.9	45.9	45.9	9.0	45.9		9.0	39.0		9.0	39.0	
Total Split (s)	45.9	45.9	45.9	16.0	61.9	0.0	21.0	68.1	0.0	10.0	57.1	0.0
Total Split (%)	32.8%	32.8%	32.8%	11.4%	44.2%	0.0%	15.0%	48.6%	0.0%	7.1%	40.8%	0.0%
Maximum Green (s)	39.0	39.0	39.0	12.0	55.0		17.0	61.1		6.0	50.1	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3		3.0	3.7		3.0	3.7	
All-Red Time (s)	3.6	3.6	3.6	1.0	3.6		1.0	3.3		1.0	3.3	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
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)	7.0	7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)	32.0	32.0	32.0		32.0			25.0			25.0	
Pedestrian Calls (#/hr)	10	10	10		10			6			6	
Act Effct Green (s)	41.9	41.9	41.9	12.0	57.9		17.0	64.1	140.0	59.1	53.1	
Actuated g/C Ratio	0.30	0.30	0.30	0.09	0.41		0.12	0.46	1.00	0.42	0.38	
v/c Ratio	0.31	1.02	0.80	1.08	0.47		1.08	0.94	0.45	0.89	1.01	
Control Delay	45.0	82.0	38.9	130.4	28.4		122.7	46.2	0.9	85.3	66.4	

Lanes, Volumes, Timings
14: Hamilton Road & Highbury Avenue

PM Peak Hour
Alternative 4

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	45.0	82.0	38.9	130.4	28.4		122.7	46.2	0.9	85.3	66.4	
LOS	D	F	D	F	C		F	D	A	F	E	
Approach Delay	67.9			60.8			47.3			67.5		
Approach LOS	E			E			D			E		
Queue Length 50th (m)	14.7	~161.1	67.0	~48.4	53.7		~71.1	203.9	0.0	15.8	~193.9	
Queue Length 95th (m)	34.6	#206.7	#126.9	m#65.3	m60.2		#104.9	#228.8	0.0	#51.9	#228.7	
Internal Link Dist (m)	369.7			253.0			848.9			437.7		
Turn Bay Length (m)	60.0		60.0	65.0			188.0		180.0	70.0		
Base Capacity (vph)	227	1021	568	286	1423		417	2265	1531	123	1857	
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	0.31	1.02	0.80	1.08	0.47		1.08	0.94	0.45	0.89	1.01	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 75.9 (54%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 58.3

Intersection LOS: E

Intersection Capacity Utilization 93.6%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Hamilton Road & Highbury Avenue

 ø1		 ø2		 ø4	
10 s		68.1 s		61.9 s	
 ø5		 ø6		 ø7	
21 s		57.1 s		16 s	
				 ø8	
				45.9 s	

Appendix B

Tree Inventory



October 28, 2015

City of London
Transportation Planning and Design
300 Dufferin Avenue, P.O. Box 5035
London, Ontario
N6A 4L9

Attention: Mr. Maxim Kireev, C.E.T.
Project Manager

***Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Tree Inventory***

Dear Mr. Kireev:

The City of London has retained Dillon Consulting Limited to complete a Schedule C Municipal Class Environmental Assessment (EA) study for improvements to the Highbury Avenue/Hamilton Road intersection. The Class EA requires an inventory and assessment of established trees that may be impacted by the project. The purpose of this letter is to provide information regarding the impact to trees in the immediate area, including trees that are within the City's right-of-way (ROW) and those that are located on private property but may be impacted by construction. The area where the tree inventory and assessment was conducted is shown on **Figure 1**.

EXISTING VEGETATION CONDITIONS AND IMPACTS

A field visit was conducted by Dillon's ISA Certified arborist on August 28, 2015, to confirm and examine trees that are in or near the road allowance. Trees on public land are included in the City's tree inventory. Dillon's arborist confirmed and updated the existing City of London tree inventory information, provided in **Table 1** and **Figures 1-5**. Potentially impacted trees that are on private were also inventoried. In some instances, private lands were not entered during the inventory, and therefore, an estimate of the type, condition and size of trees on private lands is provided in **Table 1**.

130
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METHODOLOGY

During the field visit, both trees and shrubs were inspected by Dillon. Specimens were identified/confirmed and their location was collected using a GPS tablet (accuracy is within 3 m to 5 m). Using data collected on the tablet, a GIS map was created and is included as **Figures 1-5**.

The attached table show the results of Dillon's inventory, including the inventory identifier (where applicable), the City's six-digit unique inventory number (where applicable), species, diameter at breast height (DBH) and a health rating. The health rating includes the following five categories:

- *Hazard Tree* – the specimen tree is considered dead or has no living tissue. The specimen tree could pose a hazard to people or property. These trees have the potential for splitting, breaking and/or falling over during inclement weather, and because of their proximity to residential neighbourhoods, could cause personal injury and/or severe damage to municipal infrastructure and/or private property.
- *Poor Condition* – the specimen tree shows major symptoms of decline. At least 50% of main scaffold branches are dead, missing or in diseased state. The trunk shows evidence of advanced rot or is hollow throughout. New growth on main branches or through sucker development is limited or absent. Callus growth around wounds is minimal. A tree in poor condition is typically considered a safety hazard in a residential street situation, and should be removed prior to construction activities.
- *Fair Condition* – the specimen tree shows moderate symptoms of decline in lower canopy or scaffold branches, but at least 75% of scaffold branches are present and viable. Trunk shows limited evidence of rot or insect damage. Callus growth is present near wound areas. Trees that have scaffold branches that are healthy but are in a "Y" formation are also included in this category, due to the risk of splitting or breakage as the tree matures. Removal or preservation of these trees depends on each situation and the species, its tolerance to grading and survival in an urban environment. Some major arboricultural maintenance would be required in the future and may include branch removal, bracing and/or cabling.

- **Good Condition** – the specimen tree shows no symptoms of decline in trunk, all scaffold branches are present and are in good condition. Most scaffold branches are at right angles to the trunk and show good vigor. Small amounts of dead wood are present in secondary branches, but account for less than 10% of the canopy. Depending on the grading in the immediate area, a tree in good condition would be recommended for preservation. Such a tree should survive to maturity without major arboricultural maintenance.
- **Excellent Condition** – the specimen tree shows no symptoms of decline in trunk, scaffold or secondary branches. Such a tree has an excellent habit and should survive to maturity without major arboriculture maintenance.

In some cases, the City's inventory information regarding species identification was mislabeled. This information appears in **Table 1**, followed by the correct identification. DBH is provided for City trees in brackets and updated DBH is also provided.

RESULTS - PUBLIC LANDS

As shown on **Table 1**, a fairly diverse community of tree species that ranged from juvenile trees to established specimens was observed during the field visit. Common species included: ash species (*Fraxinus*), apple species (*Malus*), hackberry (*Celtis occidentalis*), honey locust (*Gleditsia triacanthos*), maple species (*Acer*), oak species (*Quercus*), Austrian pine (*Pinus nigra*), blue spruce (*Picea pungens*), Norway spruce (*Picea abies*) and white mulberry species (*Morus alba*). Many other species were identified in the remaining inventory, including basswood linden (*Tilia Americana*), purple leaf birch (*Bitula* 'Crimson Frost'), Eastern white cedar (*Thuja occidentalis*), false cypress (*Chamaecyparis*), Manitoba maple (*Acer negundo*), northern catalpa (*Catalpa speciosa*), serviceberry (*Amelanchier*) and smoke tree (*Cotinus*). Common shrubs included red cedar (*Juniperus virginiana*), elm species (*Ulmus*), lilac species (*Syringa*), boxwood (*Buxus*), burning bush (*Euonymus alatus*), staghorn sumac (*Rhus typhona*), rose of Sharon (*Hibiscus syriacus*) and yew (*Taxus baccata*).

Most of the trees inventoried on public lands were in fair to good condition, although some trees were identified as being in poor condition. Several honey locust (*Gleditsia triacanthos*) trees along Highbury Avenue are in decline and the presence of insects or eggs on the trunk and branches was noted. There are also several Austrian pine (*Pinus nigra*) trees located on the eastern side of Giles Street that are in decline and show signs of needle blight and oozing sap. The Austrian pine trees have a significant amount of mulch at the base of the tree that may be causing stress and also contributing to the decline of the trees. Lastly, several ash species, an amure maple and

City of London
Page 4
October 28, 2015

a gingko tree were inventoried as hazard trees. These trees are indicated as D12, D18 on **Figure 1** and D45, D47 and D62 on **Figure 2**. Hazard trees are a risk for causing personal injury or property damage and should be removed immediately.

Vegetation communities on the south side of the intersection on Highbury Avenue were inventoried at a landscape level. Private or fenced lands within the Study Area along Highbury Avenue were not entered, and therefore were not captured during this inventory. There were no regionally, provincially or nationally significant species noted.

MITIGATION

If you have any questions or comments, please contact Janet Smolders at 519-438-1288 ext. 1268 or jsmolders@dillon.ca.

Yours sincerely,

DILLON CONSULTING LIMITED



Mary Sunstrum, M.E.S.
ISA Certified Arborist, ON-1785A
for Brian Huston, P.Eng.
Project Manager

MMS:amw
Encls.

cc: Mr. Maged Elmadhoon, Manager Transportation Engineering, City of London

Our file: 14-1203

Table 1: Inventory of Trees – Highbury Avenue/Hamilton Road Intersection Improvements – London, Ontario

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
C10		Spruce, blue (<i>Picea pungens</i>)	30 (est)	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour.	
C11		Spruce, Norway (<i>Picea abies</i>)	50	Good condition. Specimen shows no sign of decline in trunk. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
C12		Spruce, blue (<i>Picea pungens</i>)	60 (est)	Good condition. Specimen shows no sign of decline in trunk. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
C13		Pine, Austrian (<i>Pinus nigra</i>)	15 (est)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Presence of oozing on trunk/limbs of tree. Significant lean.
C14		Spruce, blue (<i>Picea pungens</i>)	30 (est)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Most scaffold branches are at right angles to trunk and show good vigour.	
C15		Birch, purple leaf (<i>Bitula</i> 'Crimson Frost')	6+3+6	Fair condition. Co-dominant stems are present below breast height.	
C16		Spruce, blue (<i>Picea pungens</i>)	35 (est)	Excellent condition. The specimen tree shows no symptoms of decline in trunk, scaffold or secondary branches. Tree has excellent habit and should survive to maturity without major arboricultural maintenance.	Shrub planting at base (boxwood, white cedar, lilac and mugo pine).
C17		False cypress (<i>Chamaecyparis</i>)	5 (est)	Good condition. Juvenile.	
C18		Spruce, blue (<i>Picea pungens</i>)	25 (est)	Good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy	
C19		Spruce, blue (<i>Picea pungens</i>)	30 (est)	Excellent condition. The specimen tree shows no symptoms of decline in trunk, scaffold or secondary branches. Tree has excellent habit and should survive to maturity without major arboricultural maintenance.	
C20	Pine, Austrian (<i>Pinus nigra</i>), 79078	Pine, Austrian (<i>Pinus nigra</i>)	46	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Excessive mulch around base of tree may be impacting health.
C21	Pine, Austrian (<i>Pinus nigra</i>), 790879	Pine, Austrian (<i>Pinus nigra</i>)	35 [27]	Poor condition. The specimen tree shows major symptoms of decline. At least 50% of main scaffold branches are dead, missing or in diseased state.	Excessive mulch around base of tree may be impacting health.
C22	Pine, Austrian (<i>Pinus nigra</i>), 79080	Pine, Austrian (<i>Pinus nigra</i>)	29 [27]	Poor condition. The specimen tree shows major symptoms of decline. At least 50% of main scaffold branches are dead, missing or in diseased state.	Presence of oozing on trunk/limbs of tree. Excessive mulch around base of tree may be impacting health.
C23	Pine, Austrian (<i>Pinus nigra</i>), 79084	Pine, Austrian (<i>Pinus nigra</i>)	27+33 [43]	Fair condition. Co-dominant stems below breast height are present. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	Presence of insects or insect eggs on trunk or foliage. Oozing.

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
C24		Pine, Austrian (<i>Pinus nigra</i>)	65 (est)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable	
C25		Spruce, blue (<i>Picea pungens</i>)	60 (est)	Good condition. Specimen shows no sign of decline in trunk. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy. Most scaffold branches are at right angles to trunk and show good vigour.	
C26		Spruce, blue (<i>Picea pungens</i>)	40	Good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy. All scaffold branches are present and are in good condition.	
C27		Spruce, blue (<i>Picea pungens</i>)	40	Good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy. All scaffold branches are present and are in good condition.	
C28		Spruce, blue (<i>Picea pungens</i>)	40	Good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy. All scaffold branches are present and are in good condition.	
C3		Pine, Austrian (<i>Pinus nigra</i>)	34	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Presence of insects or insect eggs on trunk or foliage.
C4		Pine, Austrian (<i>Pinus nigra</i>)	28	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state. Callus growth around wounds is minimal.	
C5	Spruce, white (<i>Picea glauca</i>), 78047	Spruce, blue (<i>Picea pungens</i>)	30 (est)[20]	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour.	
C6	Spruce, white (<i>Picea glauca</i>), 78048	Spruce, blue (<i>Picea pungens</i>)	30 (est)[20]	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour.	
C7	Spruce, white (<i>Picea glauca</i>), 78049	Spruce, blue (<i>Picea pungens</i>)	30 (est)[20]	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour.	
C8	Spruce, white (<i>Picea glauca</i>), 78050	Spruce, blue (<i>Picea pungens</i>)	30 (est) [20]	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour.	
C9	Spruce, white (<i>Picea glauca</i>), 78051	Spruce, blue (<i>Picea pungens</i>)	30 (est) [19]	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour.	
D10		Locust, Honey (<i>Gleditsia triacanthos</i>)	31	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state.	Presence of insects or insect eggs on trunk or foliage. Pruning is required.
D11		Locust, Honey (<i>Gleditsia triacanthos</i>)	37	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state.	Presence of insects or insect eggs on trunk or foliage. Pruning is required.
D12		Ash species (<i>Fraxinus</i>)	-	Hazard tree. Tree is showing no or little growth. Tree is a hazard and should be removed.	Shows signs of EAB.
D13		Crab apple (<i>Malus</i>)	Multi-stemmed	Fair to good condition. Co-dominant stems below breast height are present. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
D14		Crab apple (<i>Malus</i>)	Multi-stemmed	Fair to good condition. Co-dominant stems below breast height are present. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
D15		Weeping mulberry (<i>Morus alba</i> 'Pendula')	20 est	Good condition. Specimen shows no sign of decline in trunk.	
D16		Weeping mulberry (<i>Morus alba</i> 'Pendula')	20 est	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Presence of oozing on trunk/limbs of tree.
D17		Weeping mulberry (<i>Morus alba</i> 'Pendula')	20 est	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Presence of oozing on trunk/limbs of tree.
D18		Ash species (<i>Fraxinus</i>)	35	Hazard tree. Tree is showing no or little growth. Tree is a hazard and should be removed.	
D19		Maple, Norway (<i>Acer platanoides</i>)	34	Good condition. Specimen shows no sign of decline in trunk.	Trunk taper is not evident.
D20		Hackberry (<i>Celtis occidentalis</i>)	15	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Growing through fence; hedge has mulberry buckthorn and hackthorn growing throughout.
D21	Oak, pin (<i>Quercus palustris</i>), 78087	Oak, pin (<i>Quercus palustris</i>)	113 [101]	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
D22		Hackberry (<i>Celtis occidentalis</i>)	10	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
D23		Northern catalpa (<i>Catalpa speciosa</i>)	-	Good condition.	
D24		Maple, Norway (<i>Acer platanoides</i>)	45 (est)	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
D25		Apple (<i>Malus</i>)	-	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition.	
D26		Hackberry (<i>Celtis occidentalis</i>)	30 (est)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Crowded by neighbouring trees.
D27		Hackberry (<i>Celtis occidentalis</i>)	15 (est)	Fair condition.	Crowded by neighbouring trees.
D28		Maple, Norway - Crimson King (<i>Acer platanoides</i> 'Crimson King')	13+21	Fair condition. Co-dominant stems below breast height are present.	Girdling roots are present at base of tree.
D29		Hackberry (<i>Celtis occidentalis</i>)	25+15	Fair condition. Co-dominant stems below breast height are present.	Girdled by fence.

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
D3		Locust, Honey (<i>Gleditsia triacanthos</i>)	5+23+12+17	Fair to good condition. Co-dominant stems below breast height are present. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
D30		Hackberry (<i>Celtis occidentalis</i>)	25+25+15	Fair condition. Co-dominant stems below breast height are present.	Girdled by fence.
D31		Hackberry (<i>Celtis occidentalis</i>)	25 (est)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Girdled by fence. Grapevine taking over. Yew and mulberry shrubs beneath.
D32		Maple, Norway - Crimson King (<i>Acer platanoides</i> 'Crimson King')	35	Fair condition.	Evidence of girdling roots.
D33	Locust, Honey Shademaster (<i>Gleditsia triacanthos</i> var. <i>inermis</i> ShadeMaster) 215198	Locust, Honey (<i>Gleditsia triacanthos</i>)	16 (5)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Sucker growth.
D34	Locust, Honey Shademaster (<i>Gleditsia triacanthos</i> var. <i>inermis</i> ShadeMaster) 215197	Locust, Honey (<i>Gleditsia triacanthos</i>)	8	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Callus growth is present near wound areas.	Mower/browsing damage at base of tree. Large wound in trunk below breast height; tree has significant lean.
D35	Locust, Honey Shademaster (<i>Gleditsia triacanthos</i> var. <i>inermis</i> ShadeMaster) 215196	Locust, Honey (<i>Gleditsia triacanthos</i>)	15	Fair to good condition. Callus growth is present near wound areas. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
D36	Locust, Honey Shademaster (<i>Gleditsia triacanthos</i> var. <i>inermis</i> ShadeMaster) 215195	Locust, Honey (<i>Gleditsia triacanthos</i>)	14	Fair to good condition. Callus growth is present near wound areas. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
D37	Locust, Honey Shademaster (<i>Gleditsia triacanthos</i> var. <i>inermis</i> ShadeMaster) 215194	Locust, Honey (<i>Gleditsia triacanthos</i>)	13	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state. New growth on main branches or through suckers is limited.	
D38		Locust, Honey (<i>Gleditsia triacanthos</i>)	10	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state. New growth on main branches or through suckers is limited. Callus growth around wounds is minimal.	Mower/browsing damage at base of tree.
D39		Locust, Honey (<i>Gleditsia triacanthos</i>)	8	Good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	Mower/browsing damage at base of tree.
D4		Locust, Honey (<i>Gleditsia triacanthos</i>)	30 (est)	Fair to good condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour.	
D40		Locust, Honey (<i>Gleditsia triacanthos</i>)	8	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state. New growth on main branches or through suckers is limited. Callus growth around wounds is minimal.	Mower/browsing damage at base of tree.
D41		Locust, Honey (<i>Gleditsia triacanthos</i>)	9	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Callus growth is present near wound areas.	
D42		Locust, Honey (<i>Gleditsia triacanthos</i>)	13	Fair to good condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Callus growth is present near wound areas. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	Mower/browsing damage at base of tree.
D43		Locust, Honey (<i>Gleditsia triacanthos</i>)	12	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Callus growth is present near wound areas. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	Mower/browsing damage at base of tree.
D44		Black ash (<i>Fraxinus nigra</i>)	26	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	Calluses have not formed over wounds.
D45		Ash species (<i>Fraxinus</i>)	25	Hazard tree. Tree is showing no or little growth. Tree is a hazard and should be removed.	
D46		Maple, Manitoba (<i>Acer negundo</i>)	-	Fair condition. Co-dominant stems below breast height are present.	Growing through fence.
D47		Ash species (<i>Fraxinus</i>)	15 (est)	Hazard tree. Tree is showing no or little growth. Tree is a hazard and should be removed.	Tree is presenting signs of EAB and should be removed immediately.
D48		Vegetation community	-		Vegetation community including Chinese elm, birch, Manitoba maple, ash and poplar trees. Generally in fair to good condition.

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
D49		Vegetation community	-		Vegetation community including hackberry, Norway maple, and elm shrubs. Generally in fair to good condition.
D5		Locust, Honey (<i>Gleditsia triacanthos</i>)	19+21+9+16+12+7	Poor to fair condition. Callus growth around wounds is minimal. Co-dominant stems below breast height are present.	Pruning is required.
D50		Vegetation community	-		Vegetation community including Manitoba maple, hackberry, buckthorn, ash, sumac, Norway maple, yew, white cedar and lilac. Generally in fair to good condition.
D51		Vegetation community	-		Vegetation community including lilac, Siberian elm, Manitoba maple, buckthorn, Austrian pine, and hackberry.
D52	Linden, basswood (<i>Tilia americana</i>), 79083	Basswood linden (<i>Tilia americana</i>)	21 [18]	Poor condition. The specimen tree shows major symptoms of decline. At least 50% of main scaffold branches are dead, missing or in diseased state.	
D53	Serviceberry (<i>Amelanchier</i>), 191063	Serviceberry (<i>Amelanchier</i>)	7 [5]	Fair condition. Co-dominant stems below breast height are present.	Calluses have not formed over wounds. Pruning of one leader recommended.
D54	Smoke tree (<i>Cotinus coggygria</i>), 79116	Smoke tree (<i>Cotinus</i>)	8+8 [10]	Good condition. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy. Specimen shows no sign of decline in trunk.	
D55		Maple, Norway 'Crimson King' (<i>Acer platanoides</i> 'Crimson King')	45 (est)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	
D56		Oak, white (<i>Quercus alba</i>)	78	Fair to good condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Specimen shows no sign of decline in trunk.	One side has been heavily pruned for utilities.
D57	Oak, pin (<i>Quercus palustris</i>), 81471	Oak, pin (<i>Quercus palustris</i>)	93 [98]	Good condition. Specimen shows no sign of decline in trunk. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	One side has been heavily pruned for utilities.
D58		Oak, white (<i>Quercus alba</i>)	63	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	One side has been heavily pruned for utilities.
D59		Maple, Manitoba (<i>Acer negundo</i>)	Multi-stemmed	Fair condition.	Presence of insects or insect eggs on trunk or foliage.
D6		Locust, Honey (<i>Gleditsia triacanthos</i>)	28	Fair to good condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Most scaffold branches are at right angles to trunk and show good vigour. Specimen shows no sign of decline in trunk.	Pruning is required.
D60		Maple, Manitoba (<i>Acer negundo</i>)	Multi-stemmed	Fair condition.	Presence of insects or insect eggs on trunk or foliage.

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
D7		Locust, Honey (<i>Gleditsia triacanthos</i>)	23	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	Presence of insects or insect eggs on trunk or foliage.
D8		Locust, Honey (<i>Gleditsia triacanthos</i>)	20	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Trunk shows limited evidence of rot or insect damage.	Girdling roots are present at base of tree. Pruning is required. Presence of insect eggs.
D9		Locust, Honey (<i>Gleditsia triacanthos</i>)	23	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state.	Presence of insects or insect eggs on trunk or foliage. Sucker growth at base of tree. Tree is being girdled by neighbouring magazine box.
D61	Maple, Amure (<i>Acer ginnala</i>) 196006	Maple, amure (<i>Acer ginnala</i>)	(5)	Hazard tree. Tree is showing no or little growth. Tree is a hazard and should be removed.	
D62	Maple, Amure (<i>Acer ginnala</i>) 196005	Maple, amure (<i>Acer ginnala</i>)	7 (5)	Good condition.	
S10		Cedar, red (<i>Juniperus virginiana</i>)	-	Good condition.	Shrub planting; perennial planting around base of shrubs.
S11		Cedar, red (<i>Juniperus virginiana</i>)	-	Good condition.	Good condition
S12		Ribes species (<i>Ribes</i>)	Multi-stemmed	Good condition. Buckthorn growing throughout.	
S13		Sumac, staghorn (<i>Rhus typhina</i>)	Multi-stemmed	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
S14		Sumac, staghorn (<i>Rhus typhina</i>)	Multi-stemmed	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branch.	
S15		Sumac, staghorn (<i>Rhus typhina</i>)	Multi-stemmed	Good condition. Specimen shows no sign of decline in trunk. All scaffold branches are present and are in good condition. Most scaffold branches are at right angles to trunk and show good vigour. Small amounts of deadwood are present in secondary branches, but account for less than 10% of canopy.	
S16		Cedar, red (<i>Juniperus virginiana</i>)	Multi-stemmed	Good condition.	
S17		Boxwood (<i>Buxus</i>)	Multi-stemmed	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state.	
S18		Boxwood (<i>Buxus</i>)	Multi-stemmed	Poor condition. At least 50% of main scaffold branches are dead, missing or in diseased state.	
S19		Spirea (<i>Spiraea</i>)	Multi-stemmed	Good condition.	

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
S20		Rose of sharon (<i>Hibiscus syriacus</i>)	Multi-stemmed	Good condition.	
S21		Cedar, eastern white (<i>Thuja occidentalis</i>)	Multi-stemmed	Good condition.	
S22		Mulberry (<i>Morus alba</i>)	15 (est)	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable.	
S23		Yew (<i>Taxus baccata</i>)	Multi-stemmed	Fair condition.	Needs to be pruned.
S24		Yew (<i>Taxus baccata</i>)	Multi-stemmed	Fair condition.	Needs to be pruned.
S25		Boxwood (<i>Buxus</i>)	Multi-stemmed	Good condition.	
S26		White cedar (<i>Thuja occidentalis</i>)	Shrub planting	Good condition.	Juvenile shrubs.
S27		Mulberry (<i>Morus alba</i>)	11	Good condition.	
S28		Boxwood (<i>Buxus</i>)	Hedge	Good condition.	
S29		Boxwood (<i>Buxus</i>)	Hedge	Good condition.	
S30		Burning bush (<i>Euonymus alatus</i>)	Hedge	Good condition.	
S31		Boxwood (<i>Buxus</i>)	Hedge	Good condition.	
S32		Yew (<i>Taxus baccata</i>)	Hedge	Good condition.	Perennial planting at base.
S33		Elm, Siberian (<i>Ulmus pumila</i>)	Multi stemmed		Predominant species along fence; sumac and grape vine also present.
S34		Vegetation community	-		Vegetation community including Siberian elm, sumac, dogwood and poplars.
S35		Vegetation community	-		Vegetation community predominantly of staghorn sumac.
S36		Lilac, tinkerbelle (<i>Syringa x 'Bailbelle'</i>)	Multi stemmed	Good condition.	
S37		Lilac, tinkerbelle (<i>Syringa x 'Bailbelle'</i>)	Multi stemmed	Good condition.	
S38		Lilac, tinkerbelle (<i>Syringa x 'Bailbelle'</i>)	Multi stemmed	Good condition.	
S39		Lilac, tinkerbelle (<i>Syringa x 'Bailbelle'</i>)	Multi stemmed	Good condition.	
S4		Rose of sharon (<i>Hibiscus syriacus</i>)	Multi stemmed	Good condition. Specimen shows no sign of decline in trunk.	
S40		Lilac, tinkerbelle (<i>Syringa x 'Bailbelle'</i>)	Multi stemmed	Good condition.	
S41		Yew (<i>Taxus baccata</i>)	Multi stemmed	Good condition.	
S42		Lilac, tinkerbelle (<i>Syringa x 'Bailbelle'</i>)	Multi stemmed	Good condition.	

Dillon ID	City ID and Inventory Number	Common Name (Scientific Name)	DBH ⁽²⁾ (cm)	Condition	Comments
S43		Boxwood (<i>Buxus</i>)	Multi stemmed	Good condition.	
S44					Perennial planting.
S45		Common lilac (<i>Syringa vulgaris</i>)	Multi stemmed	Good condition.	
S46		Shrub planting	-	Good condition.	White cedar, boxwood and yucca.
S47		Planting	-	Good condition.	Lilac and white cedar.
S48		Elm, Siberian (<i>Ulmus pumila</i>)	Multi stemmed	Fair condition.	Manitoba maple and mulberry growing throughout shrub.
S49		Cedar, eastern white (<i>Thuja occidentalis</i>)	-	Good condition.	
S5		Mulberry (<i>Morus alba</i>)	Multi stemmed	Good condition.	
S50		Vegetation community	-		Plantation including ginko (hazard), white cedar and rose of Sharon.
S51		Vegetation community	-		Plantation including red cedar, rose of Sharon, mugo pine.
S6		Common buckthorn (<i>Rhamnus cathartica</i>)	Multi-stemmed	Fair condition. The specimen tree shows moderate symptom of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Co-dominant stems below breast height are present.	
S7		Elm, chinese (<i>Ulmus parvifolia</i>)	Hedge	Good condition. Specimen shows no sign of decline in trunk.	
S8		Elm, chinese (<i>Ulmus parvifolia</i>)	Hedge	Good condition. Specimen shows no sign of decline in trunk.	
S9		Hackberry (<i>Celtis occidentalis</i>)	5 (est)	Fair doncition. Tree is growing up through hedge. No inspection of trunk possible.	

Notes: (1) Species refer to name in the City of London inventory – the correct species identification is shown below in brackets
(2) DBH = Diameter at breast height. Values in brackets are from the City of London Tree Inventory.
(3) DBH as per Dillon field dates (August 28, 2015).

Definitions:

Hazard Tree – The specimen tree is considered dead or has no living tissue. The specimen tree could pose a hazard to people or property. These trees have the potential for splitting, breaking and/or falling over during inclement weather, and because of their proximity to residential neighbourhoods, could cause personal injury and/or severe damage to municipal infrastructure and/or private property.

Poor condition – The specimen tree shows major symptoms of decline. At least 50% of main scaffold branches are dead, missing or in diseased state. Trunk shows evidence of advanced rot or is hollow throughout. New growth on main branches or through sucker development is limited. Callus growth around wounds is minimal. A tree in poor condition is considered a safety hazard in a residential situation and should be removed prior to lot development.

Fair Condition – The specimen tree shows moderate symptoms of decline in lower canopy of scaffold branches, but at least 75% of scaffold branches are present and viable. Trunk shows limited evidence of rot or insect damage. Callus growth is present near wound areas. Trees that have scaffold branches that are healthy but are in a “Y” formation are also included in this category due to the risk of splitting or breakage as the tree matures. Removal of preservation of these trees depends on each situation and would depend on the species and its tolerance to grading and surviving in an urban environment. Some major arboricultural maintenance would be required in the future and may include major scaffold or secondary branch removal, bracing and/cabling.

Good Condition – The specimen tree shows no symptoms of decline in trunk, and all scaffold branches are present and are in good condition. Most scaffold branches are at right angles to the trunk, and show good vigour. Small amounts of dead wood are present in secondary branches, but account for less than 10% of the canopy. Depending on the grading in the immediate area, a tree in good condition would be recommended for preservation. Such a tree would survive to maturity without major arboricultural maintenance.

Excellent Condition – The specimen tree shows no symptoms of decline in trunk, scaffold or secondary branches. Tree has excellent habit and should survive to maturity without major arboriculture maintenance.



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

CITY OF LONDON
HIGBURY AVE/HAMILTON ROAD
INTERSECTION IMPROVEMENTS

TREE INVENTORY
Figure 1: Overview

-  Conifers
-  Deciduous
-  Shrubs



SCALE 1:4,000



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: EAR
MAP CHECKED BY: MMS
MAP PROJECTION: NAD 1983 UTM Zone 17N

Document Path: G:\GIS\141203 Hamilton_Highbury Intersection\mxd\
HH_Tree Inventory 10262015.mxd



PROJECT: 14-1203
STATUS: DRAFT
DATE: 10/26/2015

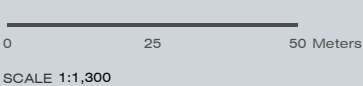


Source: Esri, DigitalGlobe, GeoEye, i-Found, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

CITY OF LONDON
Highbury Ave/Hamilton Road
Intersection Improvements

TREE INVENTORY
Figure 2: Northwest Quadrant

-  Conifers
-  Deciduous
-  Shrubs



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: EAR
MAP CHECKED BY: MMS
MAP PROJECTION: NAD 1983 UTM Zone 17N

Document Path: G:\GIS\141203 Hamilton_Highbury Intersection\mxd\
HH_Tree Inventory 10262015.mxd



PROJECT: 14-1203
STATUS: DRAFT
DATE: 10/26/2015



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

CITY OF LONDON
Highbury Ave/Hamilton Road
Intersection Improvements

TREE INVENTORY
Figure 3: Southwest Quadrant

-  Conifers
-  Deciduous
-  Shrubs

0 25 50 Meters

SCALE 1:2,300

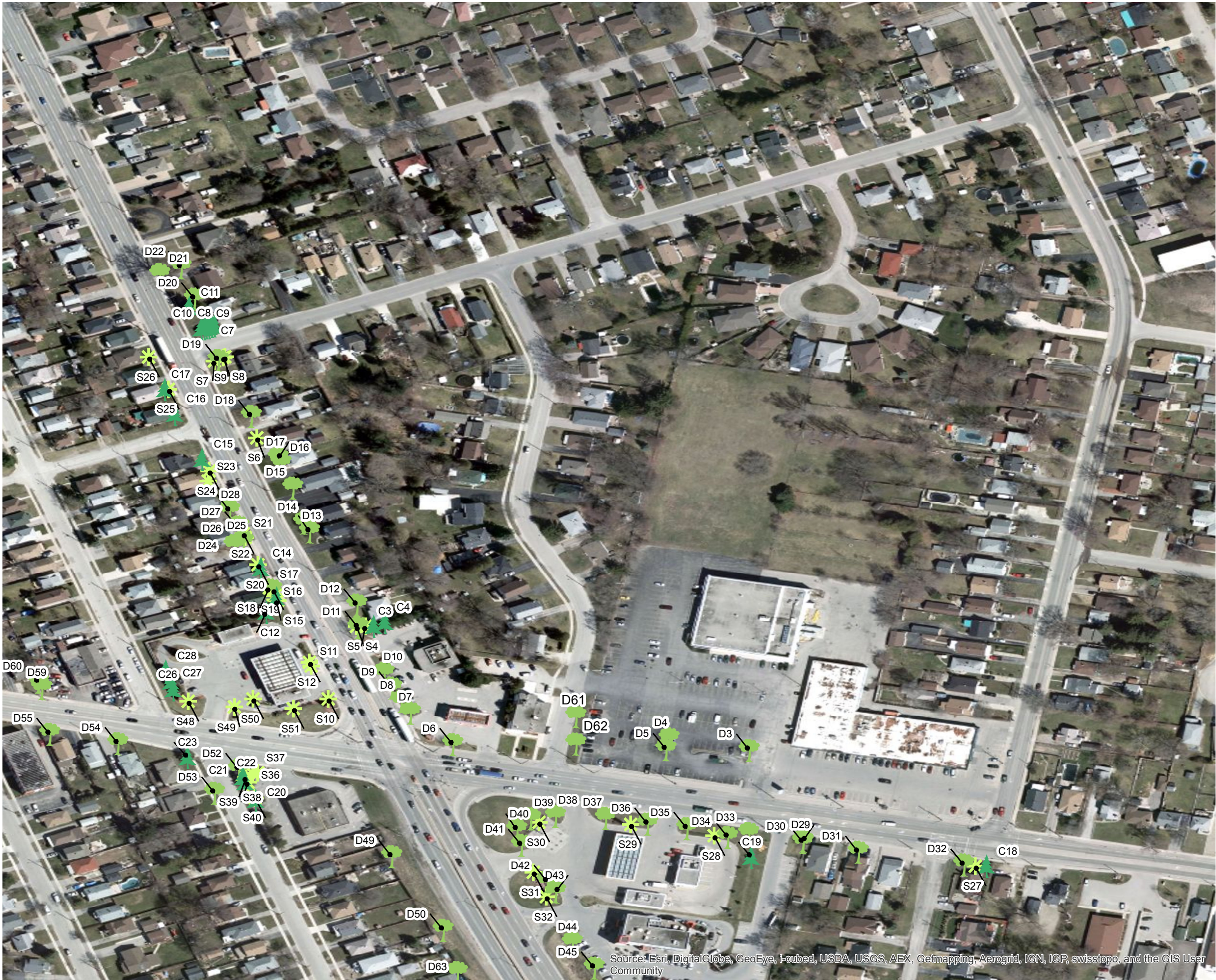
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DATA PROVIDED BY MNR

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HH_Tree Inventory 10262015.mxd



PROJECT: 14-1203
STATUS: DRAFT
DATE: 10/26/2015

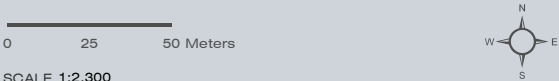


Source: Esri, DigitalGlobe, GeoEye, i-Found, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

CITY OF LONDON
Highbury Ave/Hamilton Road
Intersection Improvements

TREE INVENTORY
Figure 4: Northeast Quadrant

-  Conifers
-  Deciduous
-  Shrubs



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: EAR
MAP CHECKED BY: MMS
MAP PROJECTION: NAD 1983 UTM Zone 17N

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HH_Tree Inventory 10262015.mxd



PROJECT: 14-1203
STATUS: DRAFT
DATE: 10/26/2015

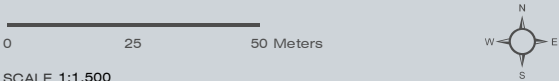


Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

CITY OF LONDON
Highbury Ave/Hamilton Road
Intersection Improvements

TREE INVENTORY
Figure 5: Southeast Quadrant

-  Conifers
-  Deciduous
-  Shrubs



SCALE 1:1,500

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: EAR
MAP CHECKED BY: MMS
MAP PROJECTION: NAD 1983 UTM Zone 17N

Document Path: G:\GIS\141203 Hamilton_Highbury Intersection\mxd\
HH_Tree Inventory 10262015.mxd



PROJECT: 14-1203
STATUS: DRAFT
DATE: 10/26/2015

Appendix C

Public and Agency Consultation



City of London

Highbury Avenue/Hamilton Road Intersection Improvements

Environmental Assessment Study

Master Contact List

Salutation	Surname	First Name	Organization	Department	Title	Address	City, Prov	Postal Code	Tel.	Tel. Extension	Fax	Contact by Email Only?	E-Mail
Local Representatives													
Mr.	Van Holst	Michael	City of London	Ward 1 Councillor		P.O. Box 5035	London, ON	N6A 4L9	(519)-661-2500	370	(519)-661-5933		
Provincial Ministries & Agencies													
Mr.	Curtis	Bruce	Ministry of Municipal Affairs and Housing	Community Planning and Development	Manager	659 Exeter Road, 2nd Floor	London, ON	N6E 1L3	(519)-873-4026		(519)-873-4018		Bruce.curtis@ontario.ca
Ms.	Fleischhauer	Andrea	Ministry of Natural Resources & Forestry	Aylmer District	District Planner	615 John Street North	Aylmer, ON	N5H 2S8					Andrea.Fleischhauer@ontario.ca
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City of London - (Contacts in green for minutes by e-mail)													
Mr.	Elmadhoon	Maged	City of London		Manager, Transportation Planning		London, ON		(519)-661-2500	5806	519-661-4734		jkoza@london.ca
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Mr.	Winston	John	Tourism London		General Manager	P.O. Box 5035	London, ON	N6A 4L9	(519)-661-6396				jwinston@londontourism.ca
Emergency Services													
Mr.	Christie	Jim	Thames Emergency Medical Services		Operations Manager	340 Waterloo Street	London, ON	N6B2N6	(519)-679-5466		(519)-679-9509		jchristie@thamesems.com
Mr.	Oldridge	Dan	London Fire Department		Deputy Chief	400 Horton Street East	London, ON	N6B1L7	(519)-661-5279		(519)-661-8419		
Sgt.	Scrivens	Ryan	London Police Department	Traffic and Community Services		601 Dundas Street	London, ON	N6B 1X1	(519)-661-5670		(519)-661-6495		tscrivens@police.london.ca
First Nations (to be contacted by City of London only)													
Chief	Abram	Joel	Oneida Nation of the Thames			2212 Elm Avenue	Southwold, ON	N0L 2G0	(519)-652-3244				
Chief	Bressette	Tom	Kettle and Stony Point First Nation			6247 Indian Lane	Lambton Shores, ON	N0N 1J2	(519)-786-2125				
Ms.	Burch	Fallon	Chippewas of the Thames First Nation		Consultation Officer	320 Chippewa Road, RR1	Muncey, ON	N0L 1Y0					fburch@live.ca
Mr.	Deleary	Raymond	Chippewas of the Thames First Nation		Policy Analyst	2212 Elm Avenue	Southwold, ON	N0L 2G0					
Chief	Miskokomon	Richard	Chippewas of the Thames First Nation			320 Chippewa Road, RR1	Muncey, ON	N0L 1Y0	(519) 289-5555		(519)-289-2230		rdeleary@cotfn.com
Mr.	Stonefish	Geoff	Association of Iroquois & Allied Indians		Office Manager	387 Princess Avenue	London, ON	N6B 2A7					
Chief	Hill	Ava	Six Nations of the Grand River Territory			1695 Cheifswood Road, P.O. Box 5000	Oshweken, ON	N0A 1M0					
Chief	Hillier	Louise	Caldwell First Nation			P.O. Box 388	Leamington, ON	N8H 3W3					
Ms.	Johnston	Sharilyn	Chippewas of Aamjiwnaang		Environmental Coordinator	978 Tashmoo Avenue	Sarnia, ON	N7T 7H5	(519)-336-8410				
Chief	Plain	Chris	Chippewas of Aamjiwnaang			978 Tashmoo Avenue	Sarnia, ON	N7T 7H5					
Chief	Kewayosh Jr.	Burton	Walpole Island First Nation			RR3	Wallaceburg, ON	N8A 4K9					
	Jacobs	Dean	Walpole Island First Nation			RR3	Wallaceburg, ON	N8A 4K9					
Chief	LaForme	Bryan	Mississaugas of New Credit First Nation			8545 Townline Road, RR 1	Hagersville, ON	N0A 1H0					
Grand Chief	Madabee	Patrick	Union of Ontario Indians			P.O. Box 711	North Bay, ON	P1B 8J8					
Chief	Miskokomon	Joe	Chippewas of the Thames First Nation			320 Chippewa Road, RR1	Muncey, ON	N0L 1Y0	519-298-5555				
Chief	Peters	Gregory	Moravian of the Thames			14760 School House Line, RR 3	Thamesville, ON	N0P 2K0					
Ms.	Phillips	Stacey	Oneida Nation of the Thames		CEO	2212 Elm Avenue	Southwold, ON	N0L 2G0					
Chief	Thomas	Roger	Munsee-Delaware Nation			289 Jubilee Road, RR 1	Muncey, ON	N0L 1Y0					
	Forest	Glen	Munsee-Delaware Nation		Band Asministrator	289 Jubilee Road, RR 1	Muncey, ON	N0L 1Y0					
			Haudenosaunee Six Nations Confederacy Council			16 Sunrise Crt., Suite 407, P.O. Box 777	Oshweken, ON	N0A 1M0					
			London District Cheifs Council			22361 Austin Line	Bothwell, ON	N0P 1C0					
Conservation Authority Contacts													
Mr.	Helsten	Mark	Upper Thames River Conservation Authority		Senior Water Resources Engineer	1424 Clarke Road	London, ON	N5V 5B9	(519)-451-2800		(519)-451-1188		helstern@thamesriver.on.ca
Mr.	Snowsell	Mark	Upper Thames River Conservation Authority		Land Use Regulation Officer	1424 Clarke Road	London, ON	N5V 5B9	(519)-451-2800		(519)-451-1188		snowsellm@thamesriver.ca
Local Agencies & Interest Groups													
Ms.	Arnott	Anne	Thames River Ecological Association		President	1017 Western Road	London, ON	N6G 1G5	(519)-645-2845				info@trea.ca
Mrs.	Atkinson	Leslie	Fairmont Public School		Principal	1040 Hamilton Road	London, ON	N5W 1A6	(519)-452-8200				
Ms.	Dale	Marlene	Hamilton Road Community Association			550 Hamilton Road	London, ON	N5Z 1S4	(519)-661-5505				hrca@golden.net
Mrs.	Fleet	L.	Ealing Public School		Principal	840 Hamilton Road	London, ON	N5Z 1V5	(519)-452-8150				
Mr.	Ford	John	London Transit Commission		Director of Transportation & Planning	450 Highbury Avenue North	London, ON	N6A 4L9	(519)-451-1347				
Mrs.	Haven	Marv	London District Christian Secondary School		Principal	24 Braesyde Avenue	London, ON	N5W 1V3	(519)-455-4360	(519)-455-4364	Yes		principle@ldcss.ca
Mr.	Kennedy	Jim	London Development Institute		President	562 Wellington Street, Suite 203	London, ON	N6A 3R5	(519)-642-4331				gcambel@aubundev.com
Mr.	Levin	Sandy	McIlwraith Field Naturalists of London			Box 24008	London, ON	N6H 5C4	(519)-457-4593			Yes	s.levin@gmail.com
Ms.	McCall	Bernadette	Middlesex-London Health Unit			50 King Street	London, ON	N6A 5L7				Yes	bernie.mccall@mlhu.on.ca
Ms.	Nelson	Andrea	YMCA	Bob Hayward Branch	General Manager	1050 Hamilton Road	London, ON	N5W 1A6	(519)-451-2395	(519)-451-2396			anelson@ymcawo.ca
Mr.	Pinheiro	Rick	Hamilton Road Business Association		President				(519)-451-2696			yes	rick@pinheirorealty.ca
Mr.	Thompson	Greg	Urban League of London		Chair	Grosvenor Lodge, 1017 Western Road	London, ON	N6G 1G5	(519)-857-8800				president@hamroad.ca
Mr.	Weaver	Mark	London District Catholic School Board		Manager of Transportation	5200 Wellington Road South P.O. Box 5474	London, ON	N6A 4X5	519-663-2088				mwqang@gmail.com
			East Park Golf Gardens		Manager	1275 Hamilton Road	London, ON	N5W 1B1	(519)-451-2950		(519)-451-5047		info@eastparkgolf.com
			London Cycle Link									Yes	londoncyclingroup@gmail.com
			Southwestern Ontario Student Transportation Services			557 Southdale Road East, Suite 201	London, ON	N6E 1A2	(519)-649-1160	(519)-649-1180			
			Thames Valley District School Board		Manager of Transportation	1250 Dundas Street, P.O. Box 4888	London, ON	N6A 5L1	519-542-2000	519-452-2395			
Utilities													
Mr.	Elliott	Rob	Union Gas Limited		Construction Project Manager	109 Commissioners Road West	London, ON	N6A 4P1	(519)-667-4212	515-3512	(519)-667-4115		roelliot@uniongas.com
Mr.	Halbouni	Ahlem	Rogers Communications		London Planning Coordinator	800 York Street	London, ON	N5W 2S9	519-660-7527				ahleam.halbouni@rci.rogers.com
Ms.	Kendrick	Jenny	Bell Canada		Project Coordinator	100 Dundas Street, 4th Floor	London, ON		519-663-6140				jenny.kendrick@bell.ca
Ms.	Kuipers	Sally	Bell Canada	Access Network Facilities	Project Coordinator	100 Dundas Street, Floor 4Y	London, ON	N6H 4L6	(519)-663-6112	(519)-663-1188			sally.kuipers@bell.ca
Mr.	Levaïr	Bobbie	Bell Canada		Specialist- Network Provisioning	F-4, 100 Dundas Street	London, ON	N6A 5B6	(519)-663-6130				
Mr.	Gill	Chris	Bell Canada	Access Network	Structures Manager								chris.gill@bell.ca
Mr.	Lane	Paul	Sun Canadian Pipeline		Senior Property and Construction Technologist	Box 470	Waterdown, ON	L0R 2H1	905-689-6641	136			plane@sun-canadian.com
Mr.	MacPherson	James	London Hydro		Engineering Technologist	P.O. Box 2700	London, ON	N6A 4H6	(519)-661-5800	5364			macpherj@londonhydro.com
Mr.	Meaker	Gavin	Rogers Communications		System Planner	800 York Street	London, ON	N5W 2S9	(519)-660-7556	(519)-660-0199			Gavin.Meaker@rci.rogers.com
Ms.	Mitchell	Colleen	Imperial Oil - Sarnia Products Pipeline		Community Awareness and Land Specialist	10 5th Concession	Waterdown, ON	L0R 2H1	1-888-242-6600	242			colleen.mitchell@esso.ca



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Master Contact List



Salutation	Surname	First Name	Organization	Department	Title	Address	City, Prov	Postal Code	Tel.	Tel. Extension	Fax	Contact by Email Only?	E-Mail
Mr.	Moffatt	Dana	Telus Communications			25 York Street, 22nd Floor	Toronto ON	M5J 2V5	(416)-883-6619				dana.moffatt@telus.com
Mr.	Rutkowska	Peter	Allstream		PLCC Mark-up Contact	50 Worcester Road	Eobicoke, ON	M9W 5X2	(416)-649-7531				peter.rutkowski@msisallstream.com
Mr.	Soetemans	Joe	Execulink Telecom		Operations Supervisor	619 Main Street North	Burressville, ON	N0J 1C0	(519)-456-1094	(519)-456-7803			jeff.soetemans@execulink.com
Mr.	Stewart	Brett	London Hydro			111 Horton Street, P.O. Box 2700	London, ON	N6A 4H6	NSW 259				corrinne.vanderwyse@londonhydro.com
Ms.	Vanderwyse	Corrinne	Rogers Communications			800 York Street	London, ON		519-660-7580				corrinne.vanderwyse@rci.rogers.com
Ms.	Zhao	Joan	Hydro One		Real Estate Management	185 Clegg Road	Markham, ON	L6G 1B7	(905) 946-6230				joan.zhao@hydroone.com
Public Requesting to be Kept Informed													
Names and Addresses removed to comply with the Freedom of Information and Protection of Privacy Act													
Property Owners (Provided by City of London)													
Names and Addresses removed to comply with the Freedom of Information and Protection of Privacy Act													
Names and Addresses removed to comply with the Freedom of Information and Protection of Privacy Act													



Highbury Avenue/Hamilton Road Intersection Improvements Environmental Assessment Study



Notice of Study Commencement

The City of London is undertaking a Municipal Class Environmental Assessment (EA) study for improvements to the Highbury Avenue/Hamilton Road intersection. The City's *2030 Smart Moves Transportation Master Plan* identified several improvements to the intersection, including additional through and turning lanes on Highbury Avenue, improvements to the median on Hamilton Road and pedestrian and cyclist friendly design features. A preferred design of the improvements will be recommended and developed in more detail as part of this Class EA study.

Proponent: City of London

Location: Highbury Avenue/Hamilton Road Intersection (as shown on the Study Area map on the reverse)

Purpose of Study: The *Municipal Class Environmental Assessment* (October 2000, as amended) categorizes the intersection improvements as a Schedule 'C' project. Considered to be a major project under the Class EA, Schedule 'C' projects follow all phases of the Class EA process, include extensive public and agency consultation and require the completion of an Environmental Study Report (ESR). The Class EA process involves:

- Review of the Transportation Master Plan to confirm the need for improvements at the Highbury Avenue/Hamilton Road intersection
- Prepare an inventory covering all engineering and environmental conditions potentially affected by the improvements
- Develop and evaluate design options to implement the improvements proposed in the Transportation Master Plan
- Comparative evaluation of the impacts of the design options and identification of a preferred design
- Documentation of the EA process in an ESR. The report will be available for a 30-day public and agency review period.

Public Meeting: Public input is welcome throughout the study. Two Public Information Centres will be held during 2015 to present the design options and preferred design. A subsequent notice will include the date, time and location of the meeting.

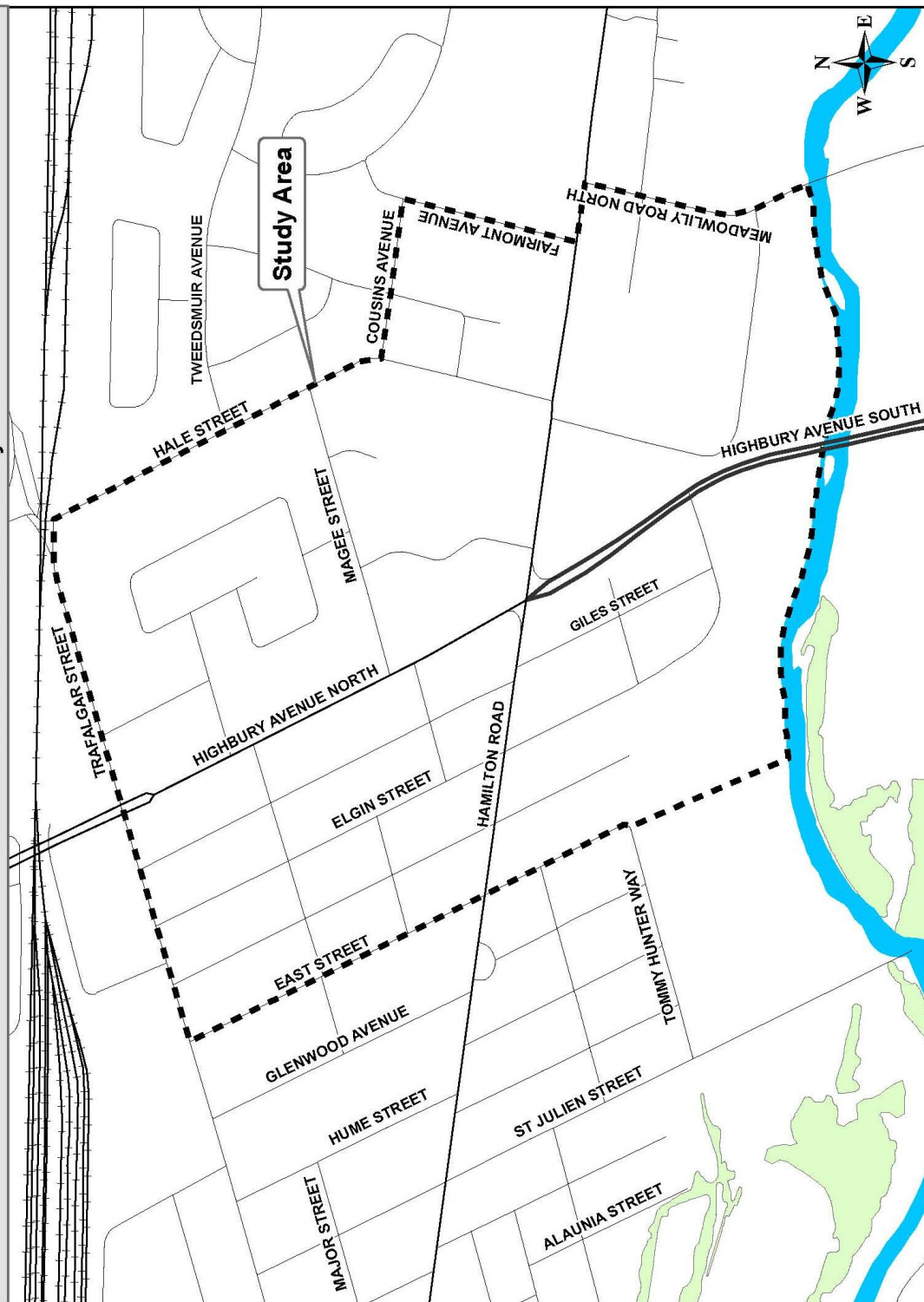
Information collected for the study will be used in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. Except for personal information, including your name, address and property location, all comments received throughout the study will become part of the public record and included in project documentation.

For More Information: For more information, to provide comments or to be added to the mailing list, please visit www.london.ca or contact:

Kevin Welker, P.Eng.
Project Manager
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 4W7
Tel: 519-438-6192 Ext. 1283
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
300 Dufferin Avenue, P.O. Box 5035
London, Ontario, N6A 4L9
Tel : 519-661-2500 Ext. 4934
Fax : 519-661-4734
Email: melmadho@london.ca

**Highbury Avenue/ Hamilton Road Intersection Improvements
Environmental Assessment Study**





City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Except for personal information, all comments will become part of the public record and included in project documentation.

☐ I/we would like to be kept informed regarding this project.

☐ Please remove me from the mailing list for this project.

Agency:
(If applicable) _____

Name: _____

Mailing Address: _____

Email: _____

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

Please return this form by **February 9, 2015**, to:

Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext.1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Public Notices & Bidding Opportunities

Notice of Commencement and Public Information Centre #1 – Shift – Rapid Transit Corridors Environmental Assessment Study

Background
The City of London is entering a new chapter in its history – one that is focused on improving mobility options for residents. **Shift** is a bold and important initiative for transportation for London. It focuses on Rapid Transit as part – along with cars, buses, bikes and pedestrians – of the transportation system that will help our city grow and prosper. **Shift** will define where Rapid Transit will go, what it will look like, and how it will be implemented. The foundations for Rapid Transit were set through the Smart Moves Transportation Master Plan and transportation mobility is a pillar of The London Plan draft. **Shift** is about finding environmentally sustainable ways to move people in London faster and create great places to live and work. And, it's about developing the foundations to make London attractive for investment. The Rapid Transit Corridors Study will be conducted in accordance with the requirements of the Municipal Class Environmental Assessment (EA) process, which is an approved process under the Ontario Environmental Assessment Act. The first stage of the study will prepare a Master Plan for Rapid Transit in accordance with Phases 1 and 2 of the Municipal Class EA process. The second stage will involve the completion of a Schedule 'C' EA for the preferred initial corridor or corridors.

Be Part of the Shift

The public are encouraged to participate in our community engagement by attending the first Public Information Centre (PIC) to start the conversation on rapid transit. This event will feature a panel of distinguished guests presenting ideas and inspiration for London's Rapid Transit initiative.

Panel Discussion and Public Information Centre #1 Wednesday, February 4, 2015

London Public Library, Central Branch (Wolf Performance Hall and Stevenson & Hunt Meeting Room), 251 Dundas Street, London.
Open House 5:00 p.m. – 7:00 p.m.
Panel Discussion starts at 7 p.m.

Panelists will include:

Hazel McCallion – Former Mayor of Mississauga
Michael Roshlau – President & CEO, Canadian Urban Transit Association
Dr. Jeff Casello – Associate Professor, University of Waterloo

Register at www.shiftlondon.ca

Also look for our study booth at the London Lifestyle Home Show, Agriplex, Western Fair District, January 30 – February 1, 2015.

Information on this project will be made publicly available on the City of London's web site at www.shiftlondon.ca or through contacting either of the following project representatives:

Edward Soldo, P. Eng.

Director of Roads and Transportation
City of London
Tel: 519-661-2500 ext. 4936
esoldo@london.ca
OR

Brian Hollingworth, P. Eng.

Director
IBI Group
Tel: 519-472-7328
bhollingworth@IBIGroup.com
Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

Notice of Study Commencement - Highbury Avenue/Hamilton Road Intersection Improvements - Environmental Assessment Study - The City of London is completing a Class Environmental Assessment (EA) for improvements to the Highbury Avenue/Hamilton Road intersection. The City's 2030 Smart Moves Transportation Master Plan identified several improvements to the intersection, including additional through and turning lanes on Highbury Avenue, improvements to the median on Hamilton Road and pedestrian and cyclist friendly design features. A preferred design of the improvements will be recommended and developed in more detail as part of this Class EA study. The Municipal Class Environmental Assessment (EA) (October 2000, as amended) categorizes the improvements as a Schedule 'C' project. Additional information on the study is available on the City's website at www.london.ca. To provide comments or to be added to the mailing list, please contact:

Kevin Welker, P.Eng.

Project Manager
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
Tel: 519-438-6192, Ext. 1283
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Or:

Maged Elmadhoon, M.Eng., P.Eng.

Manager, Transportation Planning
City of London
P.O. Box 5035, London, Ontario, N6A 4L9
Tel: 519-661-2500, Ext. 4934
Fax: 519-661-4734
Email: melmadho@london.ca

Notice of Public Information Centre – Ridout Street, Upper Queen, Street and Nixon Avenue – Bike Lanes Belhaven Road to Southdale Road

The purpose of this PIC is to present the bike lane design and information regarding construction related issues and scheduling. The PIC will be held in an open house, drop-in format. City staff will be available to discuss the project. This bike lane construction project will be completed in conjunction with a planned 2015 road rehabilitation project to realize cost efficiencies and to be the least disruptive.

A Public Open House has been scheduled as follows:

Date: Wednesday, February 4, 2015

Time: 4:00 p.m. – 7:00 p.m.

Location: Hillside Church, 250 Commissioners Road East, London

Information will be gathered in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments received will become part of the public record.

TENDER AND PROPOSALS

TENDER: 15-10 – Hyde Park Road Widening – Phase II North of CP Rail to North of Fanshawe Park Road

Closing Date: 2:00 p.m., Wednesday, February 18, 2015

PROPOSAL 15-03 – Supply & Delivery of a Fire Services Driver Simulator
Closing Date: 2:00 p.m., Thursday, February 19, 2015

Any additional information regarding the above tender or Proposals is available to view on the Bidding's website: www.bidding.com/london

519 661-4500 | www.london.ca

Health unit enters new age of tobacco enforcement

Gerard Creces

Smoke 'em if you got 'em, just keep well enough away.

Regulatory changes under the Smoke Free Ontario Act have brought about some significant changes for restaurants and recreation facilities with the New Year.

As of January 1, 2015 smoking is no longer allowed on bar and restaurant patios, providing cleaner air for workers and patrons, and protecting them from the dangers of second-hand smoke. Couple with this regulation is a province-wide ban on smoking within 20 metres of public playgrounds and sports fields.

The regulation speaks to, though it doesn't directly include mandatory setbacks from entrances at other public facilities such as arenas. Rather, that is generally dictated by a patchwork of municipal bylaws.

"It's a question we receive a lot," said program manager for chronic disease prevention and tobacco control for the Middlesex-London Health Unit, Linda Stobo. "That's something that isn't dictated."

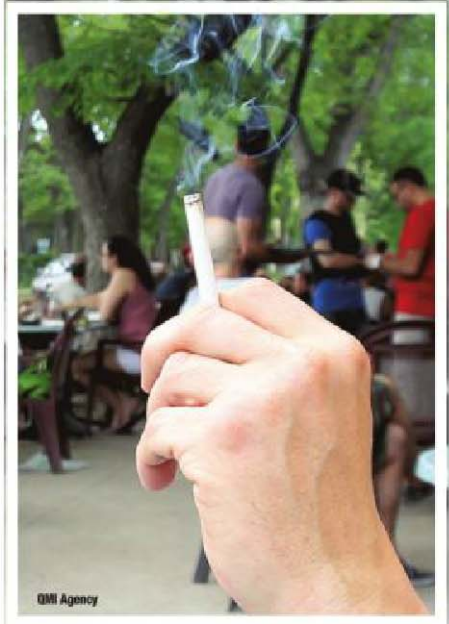
While there are some restrictions for smoking in entrance ways at provincially-run facilities, such as the 9 metre prohibited zone outside hospitals and long-term care facilities, other workplace and public entrances are at the call of the host municipality.

In the case of businesses, sometimes restrictions are made because of customer or employee complaints, though Stobo said many have chosen to implement their own policies and signage.

"A good rule of thumb is to look for a sign," Stobo said. "If there is a setback, you are not supposed to smoke in that doorway."

Timing has been a challenge with the new regulations. The announcement about patios, for instance, was made very late last year, leaving little time for the health unit to reach out to bar and restaurant operators. However, many owner/operators had already converted to smoke free places after previous regulatory changes that banned smoking from covered patios.

"If anything, this legislation provides a consistent business playing field across the



QMI Agency

province," Stobo noted. "It is a lot cleaner and easier to understand if there are consistent rules around smoking restrictions."

There has been much more research on the effects of second-hand smoke since Middlesex County enacted its indoor smoking ban on bars and restaurants back in 2003. Back then, the risks of second-hand smoke exposure were known, but fast forward a dozen years and the prevailing attitude is there simply is no safe level of exposure to second-hand smoke.

With sports fields, the benefits of being smoke-free are two-fold. It keeps the smoke away from other spectators enjoying the game and reduces visible exposure to smoking from impressionable youth.

"These types of changes really align with the types of activities we do in our parks and playgrounds," Stobo said. "Tobacco isn't a part of healthy active play."

Enforcing the new regulations falls on tobacco enforcement officers through the health unit, and they respond to all inquiries and complaints made. Stobo explained the preferred method is progressive enforcement, first

working with owner operators and lower tier municipalities and supporting them with meeting the new compliance standards and providing any information needed to go smoke-free.

If that fails to work, however, there are heavy fines for both businesses and individuals.

Any person lighting up in a prohibited place could face a fine ranging anywhere from \$250 to \$5,000. Non-complaint businesses could pay anywhere from \$300-\$300,000.

If past regulations are any indicator for the health unit, tightening up the rules will directly correlate to fewer people reaching for their butts.

"What we actually find is as you restrict the places where people can smoke, overall people will smoke less," Stobo said. "For those who are addicted, these (regulations) are very supportive in helping them cut down on the amount they smoke."

Ultimately, reducing exposure reduces temptation.

The health unit's smoke-free reporting hotline is 519-663-5317 ext. 2673, or complaints or concerns can be sent to smokefreeinfo@mlhu.on.ca.



Smolders, Janet <jsmolders@dillon.ca>

Notice of Study Commencement Highbury Avenue - Hamilton Road Intersection Improvements EA Study City of London

1 message

Newton, Craig (MOECC) <Craig.Newton@ontario.ca>

Tue, Jan 27, 2015 at 2:49 PM

To: "highburyhamilton@dillon.ca" <highburyhamilton@dillon.ca>, "melmadho@cityoflondon.ca" <melmadho@cityoflondon.ca>

Good Afternoon:

Please find attached the MOECC's comments on the Notice of Study Commencement for the above noted project. The original of the electronic attachment to this e-mail will follow by Canada Post.

Yours truly,

Craig Newton

Regional Environmental Planner / EA Coordinator

Ministry of the Environment & Climate Change

Southwestern Region

(519) 873-5014



Notice of Study Commencement Highbury Avenue - Hamilton Road Intersection Improvements EA Study City of London.pdf
328K

Ministry of the Environment
733 Exeter Road
London, Ontario
N6E 1L3



January 27th, 2015

Dillon Consulting Limited
130 Dufferin Avenue
Suite 1400
London, Ontario
N6A 4W7

Attention: Mr. Kevin Welker, P. Eng.

**Re: Notice of Study Commencement, Highbury Avenue / Hamilton Road Intersection
Improvements Environmental Assessment Study
City of London**

Kevin:

This letter is this ministry's response to the Notice of Study Commencement for the above noted project. This response acknowledges that this study is being completed following the Municipal Class EA.

Thank you for the opportunity to comment on this project.

As you know, the Class Environmental Assessment planning process includes consultation with interested stakeholders, evaluation of alternatives, assessment of the effects of the proposed works and identification of measures to mitigate any adverse impacts. In addition to public agencies, and the general public, consultation with First Nations and Metis is required.

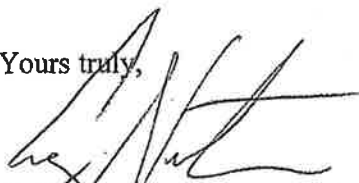
Consultation with First Nation and Métis Communities

The Crown has a duty to consult First Nation and Métis communities if there is a potential impact to Aboriginal or treaty rights. As the proponent of this project, the City of London has a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the environmental assessment process. The Crown is therefore, delegating the procedural aspects of consultation to the City of London, as outlined in the attached document.

The City of London must contact the Director, Environmental Approvals Branch if this project may adversely affect an Aboriginal or treaty right, or if a Part II Order request is anticipated; the Ministry will then determine whether the Crown has a duty to consult. Information and resources to assist the City of London and Dillon Consulting in fulfilling this requirement are provided as an attachment.

Please keep this office fully informed of the status of this project as it proceeds through the Class EA process. Thank you in advance.

Yours truly,

A handwritten signature in black ink, appearing to read 'Craig Newton', written over the 'Yours truly,' text.

Craig Newton
Regional Environmental Planner / EA
Ministry of the Environment
Southwestern Region
(519) 873-5014

cc. Mr. Maged Elmadhoon, M. Eng., P. Eng., Manager, Transportation Planning, City of
London.

Attachment (1)

ABORIGINAL CONSULTATION INFORMATION

Interest-based consultation with First Nation and Métis Communities

Proponents subject to the *Environmental Assessment Act* are required to consult with interested First Nation and Métis communities in addition to consultation with interested persons. Special effort may be required to ensure that First Nation and Métis communities are made aware of the project and are afforded an opportunity to provide comments.

Proponents are required to contact the Ministry of Aboriginal Affairs (MAA) and Aboriginal Affairs and Northern Development Canada (AANDC) to help identify which First Nation and Métis communities may be impacted by your project. **It is important to ensure that MAA and AANDC are advised of any communities identified for consultation during previous stages of the project when making this request.** For more information in this regard, refer to the Aboriginal Information Resources web page of the Ministry of the Environment's internet site at:

<http://www.ene.gov.on.ca/en/eaab/aboriginal-resources.php>

You are advised to provide notification directly to all of the First Nation and Métis communities who may be interested in the project.

Rights-based consultation with First Nation and Métis Communities

Proponents should also be aware that certain projects may affect the ability of a First Nation or Métis community to exercise their confirmed or asserted Aboriginal or treaty rights. In such cases, Ontario may have a duty to consult to ensure the protection of the potentially affected right. Activities which may restrict access to unoccupied Crown lands, or could result in a potential to impact to land or water resources, generally have the potential to impact Aboriginal or treaty rights. For assistance in determining whether your project could affect these rights, refer to the attached "Preliminary Assessment Checklist: First Nation and Métis Community Interest."

If there is an impact to Aboriginal or treaty rights, accommodation may be required to avoid or minimize the adverse impacts. Accommodation is an outcome of consultation and includes any mechanism used to avoid or minimize adverse impacts to Aboriginal or treaty rights and traditional uses. Solutions could include adjustments in the timing or geographic location of the proposed activity; accommodation does not necessarily require the provision of financial compensation.

The proponent must contact the Director, Environmental Approvals Branch if a project may **adversely affect an Aboriginal or treaty right**, or if a **Part II Order is anticipated**; the Ministry will then determine whether the Crown has a duty to consult.

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBgen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 12A Flr 2 St Clair Ave W Toronto ON M4V1L5

Delegation of Procedural Aspects of Consultation

Proponents, by virtue of their knowledge and participation in project activities, have an important and direct role in the consultation process to ensure both success and certainty. Where the Crown's duty to consult is triggered, **Ontario is delegating these procedural aspects of this rights-based consultation to you as the proponent of the project.**

Ontario will have an oversight role as the consultation process unfolds but will be relying on the steps undertaken and information you obtain to ensure adequate consultation has taken place. To ensure that First Nation and Métis communities have the ability to assess a project for its potential to impact on an Aboriginal or treaty right, there are certain procedural aspects of consultation that Ontario requires proponents to undertake.

The responsibilities of the proponent for procedural aspects of consultation include:

- Providing notice to the elected leadership of the First Nation and/or Métis communities (e.g., First Nation Chief) as early as possible regarding the project;
- Providing First Nation and/or Métis communities with information about the proposed project including anticipated impacts, information on timelines and your environmental assessment process;
- Following up with First Nation and/or Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project; **if you are unable to make the appropriate contacts (e.g. are unable to contact the Chief) please contact the Ministry of the Environment for further direction.**
- Providing First Nation and/or Métis communities with opportunities to meet with appropriate representatives to discuss the project;

- Gathering information about how the project may adversely impact the Aboriginal and/or Treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns provided by First Nation and/or Métis communities and providing responses;
- Where appropriate, discussing potential mitigation strategies with First Nation and/or Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation.
- Maintaining a Consultation Record and upon request, providing copies of the Consultation Record to Ontario. The Consultation Record should:
 - summarize the nature of any comments and questions received from First Nation and/or Métis communities
 - describe the response to comments and how concerns were considered
 - include a communications log indicating the dates and times of all communications; and
 - document activities in relation to consultation.

Successful consultation depends, in part, on early engagement by proponents with First Nation and Métis communities. Information shared with communities must be clear, accurate and complete, and in plain language where possible. The consultation process must maintain sufficient flexibility to respond to new information, and we trust you will make all reasonable efforts to build positive relationships with all First Nation and Métis communities contacted.

Preliminary Assessment Checklist: First Nation and Métis Community Interest

Some main concerns of First Nation and Métis communities deal with/address rights for hunting, gathering, trapping, and fishing – these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to them, may be of concern.

Where you have identified that your project may trigger rights-based consultation through the following questions, a pre-consultation meeting with the ministry and proponent will provide an early opportunity to confirm whether Ontario's duty to consult is triggered and to discuss roles and responsibilities in that event.

Please answer the following questions. A "yes" response will indicate a potential impact on Aboriginal or treaty rights.

	YES	NO
1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area? The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.		
2. Is your project occurring on Crown land, or is it close to a water body, or might it change access to either?		
3. Is the project located in an open or forested area where hunting or trapping could take place?		
4. Does the project involve the clearing of forested land?		
5. Is the project located away from developed, urban areas?		
6. Is your project close to, or adjacent to, an existing reserve? Projects in areas near reserves may be of interest to your First Nation and Métis community neighbours.		
7. Will the project affect First Nations and/or Métis right of access?		
8. Is the area subject to a land claim? Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.		
9. Does the project have potential to cause cumulative effects at the present time or over a long period of time (e.g. several small expansions of an urban area)?		
10. Does the project have the potential to impact any archaeological sites?		



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



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☐ I/we would like to be kept informed regarding this project.

☒ Please remove me from the mailing list for this project.

Agency:
(If applicable) Chippewa of the Thames First Nation

Name: Fallon Burch

Mailing Address: 320 Chippewa Road
Muncy, ON N0L 1Y0

Email: fburch@live.ca

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

- No concerns, please see attached letter.

Please return this form by **February 9, 2015**, to:

Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext.1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca



CHIPPEWAS OF THE THAMES FIRST NATION

February 5, 2015

Kevin Welker, P.Eng
Project Manager
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario N6A 4W7

Subject: Highway Avenue and Hamilton Road Intersection Improvements- EA

Dear Kevin,

We are in receipt of correspondence of the aforementioned project.

In our screening of your correspondence we have identified no concerns with your project or the information that you have presented to us at this time.

We ask that if there are any changes to your project that are of a substantive nature that you keep us informed.

Thank you for notifying Chippewa of the Thames First Nation.

Sincerely,

Fallon Burch
Chippewa of the Thames
Consultation Coordinator

c: Maged Elmadhoon, M.Eng., P.Eng., Manager, Transportation Planning, City of London



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



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Agency:
(If applicable)

Name:

Mailing Address:

Email:

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

WE WOULD LIKE TO SEE WHITE "X" PAINTED ON THE
SOUTH SIDE OF HAMILTON RD at the CORNER of
GILES ST OR ELGIN ST. WE HAVE NO ACCESS
TO OUR STREET AT THE BUSY TIME OF DAY

Please return this form by **February 9, 2015**, to:

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Dillon Consulting Limited
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14-1203



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



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Agency:
(If applicable)

Name:

Mailing Address:

Email:

☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

I WOULD LIKE NO LEFT TURN ON TO
MONTGOMERY BY THE BANK OF NOVA SCOTIA

Please return this form by **February 9, 2015**, to:

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☐ Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:

☒ I/we prefer to receive information by email. *Both*

Comments/Questions/Concerns:

Too much traffic on Hble Street!

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I/we would like to be kept informed regarding this project.



Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

YOUR STUDY AREA MAP INCLUDES MY
STREET, WILL YOU BE DOING ROAD & SEWER
UP DATES IN THIS AREA, THIS CORNER BY
MY ADDRESS FLOODS & THE ROAD IS QUITE
CORRODED.

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(If applicable)

Name:

Mailing Address:

Email:

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Comments/Questions/Concerns:

I would like to make a request in regards to your planning for this project. I would like to ask that an indented bus stop is put in on Hamilton Rd just east of Highbury in the south lane going east. I understand bus drivers need to take a break but this causes traffic issues behind it. If indented it would open that lane up again. Thank you.

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City of London
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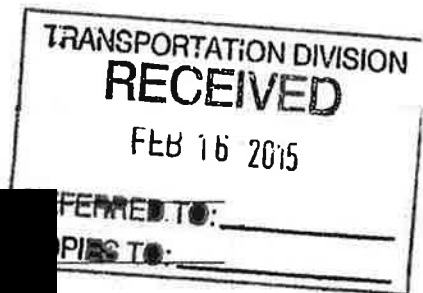
- ☐ I/we would like to be kept informed regarding this project.
- ☐ Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:



- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

leave Magee St and Hale as is - no
need for change
Hamilton Rd and Highbury have extra lane
for buses to pull over and stop for their coffee at
Tim's Hortons and pick people up
advance turn on intersection

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Agency:
(If applicable)

Name:

Mailing Address:

Email:



- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

- Bike Friendly design
- Fix road on Meadowlily Road North
New Asphalt

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

*It would be nice to have no parking on both sides of
Highway from Calver to Highbury with lots of no parking signs
as it seems as if people can't read these days. Also
speed signs posted*

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

I know it's not in the project zone, but
we need a, advanced green at
Highbury & Brydges St.

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(If applicable)

Name:

Mailing Address:

Email:

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

I will be moving from London during 2015 and therefore the decisions made will have little or no impact on me. The next residents at this address may wish to be included in the process but that is unknown at this time.

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London
CANADA

City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study

RECEIVED

FEB 03 2015

DILLON CONSULTING

DILLON
CONSULTING

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

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Comments/Questions/Concerns:

IS THIS PROJECT TO COMMENCE ON 2013
OR TO BE CONCLUDED BY 2013?

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City of London
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- ☐ Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:

[Redacted contact information]

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

We are in our 80's and likely won't be here in the year 2030

Thank You for the information

Please return this form by **February 9, 2015**, to:

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City of London
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Agency:
(If applicable)

Name:

Mailing Address:

Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

We are concerned about the traffic going down Giles St at this time, as there are several children who play street hockey. Whenever work is being done around Highbury Giles Street becomes the 401. Always speeding cars.

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City of London
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Agency:
(If applicable)

Name:

Mailing Address:

Email:

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

my concern is the size of the zone, when proposed work ~~is~~ is HighBury & Hamilton, work zone comes all the way to HALE & TRAFALGAR ST. I don't want anymore construction work around here we just went through enough.

Please return this form by **February 9, 2015**, to:

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City of London
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Agency:
(If applicable)

Name:

Mailing Address:

Email:

[Redacted contact information]

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

ESTIMATED DATE AND DURATION OF CONSTRUCTION?

ARE THERE PLANS TO ROUTE TRAFFIC AROUND THE AREA AS OPPOSED TO FUNNELING MORE PEOPLE THROUGH IT? TRAFALGAR, HAMILTON AND Highbury ARE TOO BUSY AS IT IS.

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

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Comments/Questions/Concerns:

- Have advance light at intersection for traffic going east (making left onto Highbury from Hamilton)
- ***• Have Coventry Ave speed Bumps
(speed is nuts with traffic) they are making it a shortcut from Highbury
- Longer green from Hamilton onto Highbury going Southwest

Please return this form by February 9, 2015, to:

towards
Commissioners.

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Dillon Consulting Limited
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Comments/Questions/Concerns:

A few pointers have with regard to Traffic Control are. ① Traffic going east on Hamilton Rd. making left turn onto Coventry are back up traffic, especially in peak Traffic Time. Doing something about this could help with traffic flow! ② Traffic going west on Hamilton Rd merging into lane to turn left onto Highbury block. traffic going east to merge into lane to turn left onto Fairmont Place. They also block entrance going into place. If some solution could be had I'm sure traffic would move a lot better!

Please return this form by February 9, 2015, to:

Thank you.

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Dillon Consulting Limited
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Record of Phone Conversation [REDACTED]

1 post by 1 author



bfox

Feb 11



★ Other recipients: 141...@dillon.ca

I spoke with [REDACTED] on February 11, 2015. [REDACTED] left a voicemail with Kevin Welker earlier in the day and I returned his call.

[REDACTED] was unclear on the project study area. I clarified the study area with him, highlighting the boundary line on the map we had previously mailed to him as part of the Notice of Study Commencement.

During our discussion [REDACTED] raised several concerns regarding traffic on Hale Street and McGee Street. Specifically, he noted that excessive speeding, drug dealing and "late night traffic" are routine problems in the area. He is hoping to see McGee Street closed off to Highbury Avenue or made into a one-way street (McGee to become westbound only).

He would like to see traffic calming measures installed in the area.

I noted that the current project is looking at the Hamilton Road/ Highbury Avenue intersection and that improvements along Hale Street and McGee Street are outside the scope of this project. I noted we would pass his comments onto the City of London.

Brandon



Brandon Fox
Dillon Consulting Limited
130 Dufferin Avenue Suite 1400
London, Ontario, N6A 5R2
T - 519-438-1288 ext. 1307
F - 519 - 672-8209



Please consider the environment before printing this email
www.dillon.ca

[Click here to Reply](#)



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



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- ☐ Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

Should be a turning lane on Highbury.
for cars going North/South.

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City of London
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Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

I would like to see
an improvement on Hamilton Rd
& Highbury Ave intersection
and also Highbury & Jayfarrow

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London
CANADA

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Please remove me from the mailing list for this project.

Agency:
(if applicable)

Name:

Mailing Address:

Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

NOT AT THIS MOMENT, BUT PEDESTRIAN
SAFETY IS A CONCERN.

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Name:

Mailing Address:

Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

SELLING MY HOUSE. LOCATION DOESNT
MEET MY NEEDS!

Please return this form by **February 9, 2015**, to:

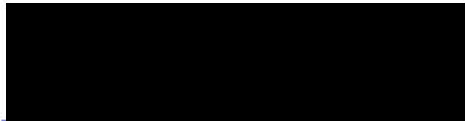
Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext.1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Telephone Discussion Record



Call FROM



Date

Jan. 26/15

Organization



No.

Call TO

SMS

Project

H/H Intersection

File No.

14-1203

Subject

Notice of

Copies to

File

Study Commencement

[Redacted] commented that there is lots of traffic in this area. She is in favour of any improvements that improve traffic flow.

Signed

SMS

Dillon Consulting
Limited



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
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Agency:
(if applicable)

Name:

Mailing Address:

Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

Advance signal on both
East & west travel
would help to eliminate
congestion

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

[Redacted contact information]

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

It is already difficult to back out of our driveway at certain times during the day. Most times it is necessary to go south regardless of which way you want to go. Our major concern will be what effect there will be on traffic patterns while construction is underway.

Please return this form by February 9, 2015, to:

Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext.1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



Notice of Study Commencement – Comment Form

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- ☐ Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

- SPEED LIMITS NOT ENFORCED
- LARGE NUMBER OF BIG TRUCKS - REDIRECT TO VETERANS PARKWAY
- TRAFFIC USES MAGEE ST TO BY PASS HAMILTON/HIGHBURY INTERSECTION
WHICH IS DANGEROUS BECAUSE NO SIDEWALKS ON MAGEE
- DANGEROUS FOR PEDESTRIANS TO CROSS HAMILTON/HIGHBURY INTERSECTION

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Smolders, Janet <jsmolders@dillon.ca>

Public Comment

1 message

Welker, Kevin <kwelker@dillon.ca>

Fri, Feb 13, 2015 at 3:05 PM

To: Highbury & Hamilton Intersection Improvements Public Comments <highburyhamilton@dillon.ca>

On February 4, 2015 I received a phone call from [REDACTED] regarding the Hamilton/Highbury intersection project. He would like to be kept informed on this project. He provided his address as:



[REDACTED] provided the following comments:

- he is not in favour of dual southbound left turn lanes
- he feels the biggest issue is related to the signal timing, not providing enough southbound green time.
- he said that he has previously discussed the issues with Shane McGuire (City), suggesting that changes were made to increase the NB advanced left timing that "made the situation worse"
- the worst times for traffic back ups occur Thursday and Friday afternoons from 3 to 5pm
- he also indicated that the signal timing on Hamilton is too long, and often the light is green but there is no traffic
- exhaust fumes from idling vehicles, in particular trucks, is bad.



Kevin Welker, P.Eng.

Partner

Dillon Consulting Limited

130 Dufferin Avenue Suite 1400

London, Ontario, N6A 5R2

T - 519.438.1288 ext. 1283

F - 519.672.8209

M - 519.521.5691

KWelker@dillon.ca

www.dillon.ca



Please consider the environment before printing this email



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
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Email:

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Comments/Questions/Concerns:

Please include bus stop lanes
when adding extra ^{turn} lane improvements.
This is a popular "coffee stop" intersection
with Tim Horton's & McDonald's

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(If applicable)

Name:

Mailing Address:

Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

TURNING LANES FROM HAMILTON RD ONTO
HIGHBURY IS DEFINITELY NEEDED
ALSO THE WALK SIGNS NEED TO BE
ADJUSTED TO ALLOW MORE TIME TO CROSS.

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

[Redacted contact information]

☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

Please keep hand-capped pedestrians
individuals in mind in the
planning stages please. 😊

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London
CANADA

City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study

DILLON
CONSULTING

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

TRANSPORTATION DIVISION
RECEIVED

FEB 18 2015

REFERRED TO: _____

COPIES TO: _____

☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

My spouse and I are both 401 commuters.

Our main concern therefore being how this might impact our route?

Otherwise, we agree this project is needed.

Thanks

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Highbury Avenue/Hamilton Road Intersection Improvements
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RECEIVED

FEB 11 2015

DILLON
CONSULTING**Notice of Study Commencement – Comment Form**

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Agency:
(If applicable)

Name:

Mailing Address:

Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

Safety is my biggest concern.
Too many accidents.

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14-1203



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



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Agency:
(If applicable)

Name:

Mailing Address:

Email:

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

Cars tend to speed down Elgin Street south.
As this leads to the playing fields and there
are a number of children that live on this
part of street it is only a short time before
someone is injured. Would it be possible to have
speed bumps at intervals. Also it would be helpful

if the crossing sign on Highbury could be a little longer or
Please return this form by February 9, 2015, to: Present, at a regular pace a person

Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext.1268 does not even reach
Fax: 519-672-8209 the centre of road
Email: highburyhamilton@dillon.ca before it change

14-1203

to the flashing sign and motorists are
so impatient it is a wonder there
are not more accidents, especially when
cars make a left turn !!
Thankyou



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
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Agency:
(If applicable)

Name:

Mailing Address:

Email:

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

① If the plan has the possibility of the increase of lanes to 6 between Hamilton Rd + Trafalgar what provisions would be done for people living on side streets to make left hand turns

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City of London
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☒ I/we would like to be kept informed regarding this project. *Thank you.*

☒ ~~Remove me from the mailing list for this project.~~ [Redacted]

Agency:
(If applicable) _____

Name: [Redacted]

Mailing Address: [Redacted]

Email: [Redacted]

☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

HOPEING THAT YOUR IMPROVEMENTS WILL SAVE MANY LIVES.

GOOD LUCK IN 2015!

THANKS FOR THE SELF-ADDRESSED POST-PAID ENVELOPE.

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Agency:
(If applicable)

Name:

Mailing Address:

VB
Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

IT Need to be improve about ten year ago.

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(If applicable)

Name:

Mailing Address:

Email:

[Redacted contact information]

☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

We just endured two years of construction on Highbury and Trubelgar St.s. now being asked to endure more, accessarily? Would like a period of peace, also worried about encouraging more traffic when there is enough, and pedestrian safety.

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(If applicable)

Name:

Mailing Address:

Email:

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Comments/Questions/Concerns:

Will temporary speed humps be placed on side streets that run between Hamilton Rd + Trafalgar St? I don't want to see cars speeding down side streets to avoid the construction like they did when Trafalgar St was recently under construction.

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Agency:
(If applicable)

Name:

Mailing Address:

Email:



☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

*I don't think there is anything wrong
with this intersection the way it is.
It's just another waste of Taxpayers Money.*

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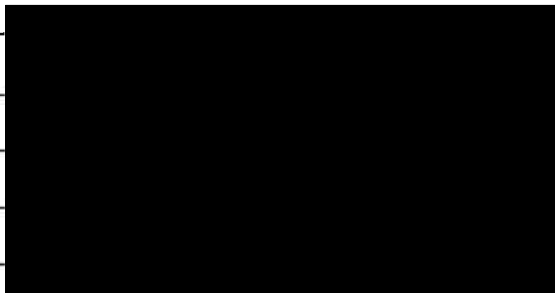
☐ Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:



☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

I hope this study also includes
possible impact on the Trafalgar/
Highbury intersection

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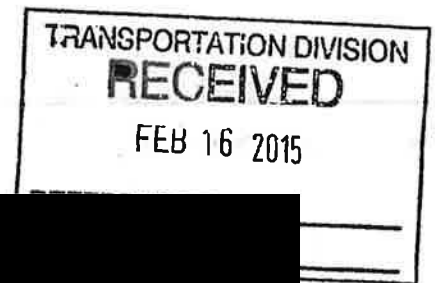
Agency:
(If applicable)

Name:

Mailing Address:

Email:

- ☒ I/we prefer to



Comments/Questions/Concerns:

Although this intersection is congested at times, additional lane and expansion would severely be detrimental to the businesses located at this intersection. Enhancement of alternate routes would be many better spent

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

[Redacted contact information]

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Comments/Questions/Concerns:

Better signage at Ham & Highbury in all directions
"Count down" light until yellow - may help w going
through yellow light
so much.

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Agency:
(If applicable)

Name:

Mailing Address:

Email:

[Redacted contact information]



I/we prefer to receive information by email.

Comments/Questions/Concerns:

will our house be affected?

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(If applicable)

Name:

Mailing Address:

Email:

☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

What steps are being taken to mitigate the increased volume & speed of traffic on Hate Street due to the construction of the roundabout. Frequency of traffic has doubled, and speeds are averaging 60-65 kph of cars travelling south off the roundabout.

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(If applicable)

Name:

Mailing Address:

Email:

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Comments/Questions/Concerns:

My husband, [REDACTED] passed away in May, 2013,

Could you please have his name removed from the property? Thank you.

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Email:

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Comments/Questions/Concerns:

During the summer, especially since construction of the Rail Substation (trains were a deterrent) former from the increase in traffic, keeps us from enjoying our front yard. It is therefore our hope that the proposed improvements will, for a change, not be focused on creating more traffic flow, but rather, bring improvements to benefit the residents.

Thank you.

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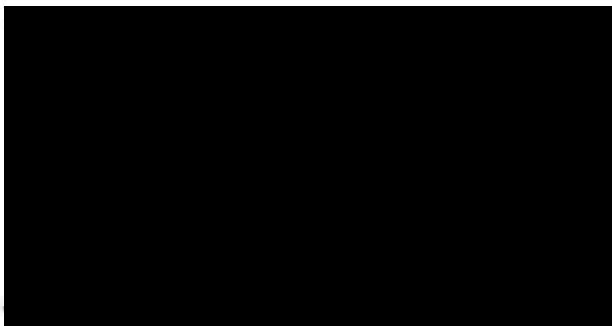
Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

AS A PROPERTY OWNER ON HIGHBURY AVE I AM CONCERNED
ABOUT ANY CHANGES THAT MAY HAPPEN TO MY
PROPERTY AND THE ACCESS TO THE HOUSE.
DURING CONSTRUCTION. ALSO HOW THE TRAFFIC
CHANGES WILL AFFECT THE ACCESS TO THE DRIVEWAY
OR LEAVING THE DRIVEWAY.

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RECEIVED

JAN 29 2015

DILLON, LONDON

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CONSULTING

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Name:

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Email:

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Comments/Questions/Concerns:

I AM ALL FOR IMPROVING THE TRAFFIC AT
HIGHBURY/HAMILTON RD'S. THE ONLY THING I
WOULD LIKE TO SEE IS STOP SIGNS PUT UP ON
GILES ST AND THE STREETS THAT CROSS IT. ANY
CONSTRUCTION IN THE AREA TURNS OUR STREET INTO
A RACE TRACK NOT GREAT WITH SO MANY YOUNG FAMILIES
IN AREA. THANK YOU

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14-1203



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Name:

Mailing Address:

Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

As person that has resided in the highbury & Ham RD area for 37 yrs, I would advise you do something about the extremely heavy traffic in this area. You ~~also~~ really can't do anything about stupid or careless drivers because that is our major problem out here. you can put all the signs, improvements you want up →

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Environmental Assessment (EA) Study



Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Except for personal information, all comments will become part of the public record and included in project documentation.



I/we would like to be kept informed regarding this project.



Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

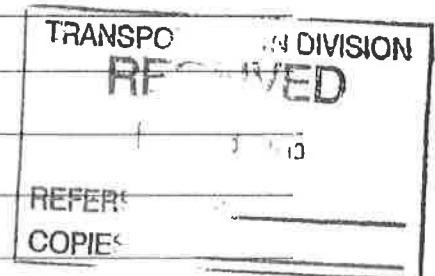
Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

*We are particularly interested in the
Giles/Trafalgar intersection.*



Please return this form by **February 9, 2015**, to:

Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext.1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



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☐ I/we would like to be kept informed regarding this project.

☒ Please remove me from the mailing list for this project. **TRANSPORTATION DIVISION**

Agency:
(If applicable)

Name:

Mailing Address:

Email:

☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

Limit the parking on the east side of Giles Street north of Hamilton Road. to further north on the street. A lot of congestion at that intersection lends this entire area at risk for MVA's. Reducing parking to further north on the east side of Giles will allow traffic to move more freely eliminating risk.

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Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:



I/we prefer to receive information by email.

Comments/Questions/Concerns:

- Cars turning left ^{off} Hamilton to Highbury
(Double Turning Lane)

- People turning left off Highbury
to smaller streets - (Turning Lane)

- Merge for cars turning right off Hamilton
to Highbury

Please return this form by February 9, 2015, to:

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Fax: 519-672-8209
Email: highburyhamilton@dillon.ca



Highbury Avenue/Hamilton Road Intersection Improvements Environmental Assessment Study



Notice of Public Information Centre

The City of London has retained Dillon Consulting Limited to complete an Environmental Assessment (EA) Study for improvements to the Highbury Avenue/Hamilton Road intersection. The project is following the planning and design process for a Schedule C project under the *Municipal Class Environmental Assessment* (October 2000, as amended in 2007 and 2011). Building on the City's *2030 Smart Moves Transportation Master Plan*, the EA Study will assess the need for additional through and turning lanes on Highbury Avenue, improvements to the median on Hamilton Road and pedestrian and cyclist friendly design features. Changes in access to Highbury Avenue and Hamilton Road will also be assessed. A map of the Study Area is shown on the reverse.

Public Meeting:

Public consultation is a vital component of this study. Public input, including comments, questions and concerns are welcome throughout the study. A Public Information Centre (PIC) will be held on **May 14, 2015** to present existing conditions and alternative design solutions for the proposed intersection improvements. The PIC display materials will be available for review on the City of London website, starting on May 14, 2015.

Public Information Centre #1

Date:	May 14, 2015
Time:	Agency Session 4:30-5:30 Public Session 5:30 – 8:00
Location:	Fairmont United Church 29 Tweedsmuir Avenue
Format:	Informal Drop-in Session

A second Public Information Centre will be held later this year to present the preferred design solution.

Information collected for the study will be used in accordance with *the Municipal Freedom of Information and Protection of Privacy Act*. Except for personal information, including your name, address and property location, all comments received throughout the study will become part of the public record and included in project documentation.

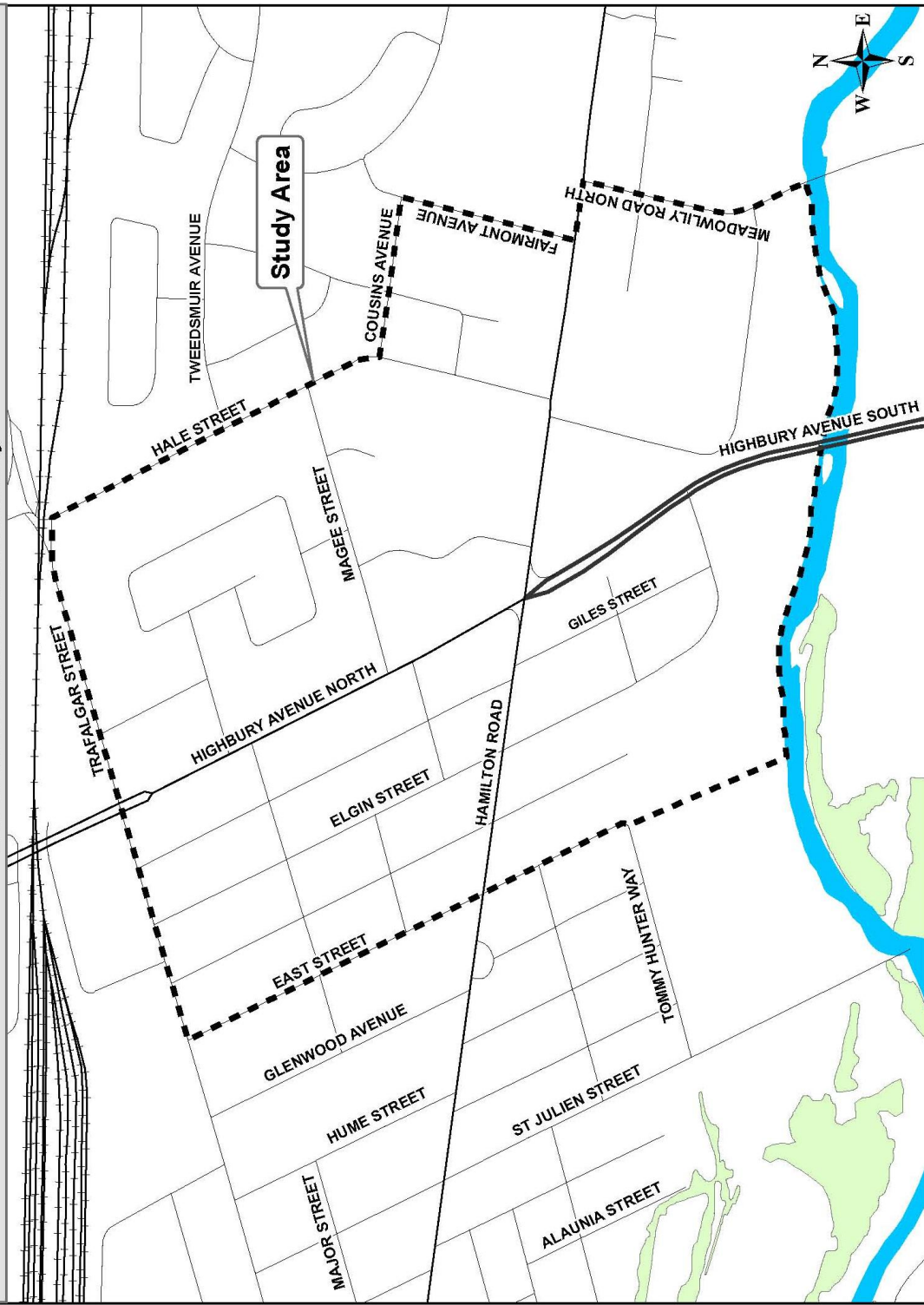
For More

Information: For more information, to provide comments or to be added to the mailing list, please visit <http://www.london.ca/residents/Environment/EAs/Pages/Highbury-Avenue-and-Hamilton-Road-Intersection.aspx> or contact:

Kevin Welker, P.Eng.
Project Manager
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 4W7
Tel: 519-438-6192 Ext. 1283
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
300 Dufferin Avenue, P.O. Box 5035
London, Ontario, N6A 4L9
Tel : 519-661-2500 Ext. 4934
Fax : 519-661-4734
Email: melmadho@london.ca

**Highbury Avenue/ Hamilton Road Intersection Improvements
Environmental Assessment Study**





HIGHBURY AVENUE/HAMILTON ROAD INTERSECTION IMPROVEMENTS

Municipal Class Environmental Assessment

PUBLIC INFORMATION CENTRE |
MAY 14, 2015

ACCESSIBILITY

Under the *Accessibility Standards for Customer Service Regulation (2008)*, the City of London (City) is committed to ensuring that public participation opportunities are accessible to all participants. This Public Information Centre (PIC) incorporates the following accessibility features:

- Accessible venue location for persons with disabilities, including wheelchair ramps, accessible washrooms, parking and elevators
- For persons requiring assistance, project team members will:
 - Explain presentation board content
 - Assist with the preparation and submission of comment forms
- Reading aids are available, including magnifying glasses.

WELCOME!



The City's Smart Moves Transportation Master Plan (TMP) is a long-term transportation strategy to guide transportation and land use decisions to 2030 and beyond. Building on the TMP, this study is assessing the need for traffic operations and safety improvements, access modifications and pedestrian and cyclist friendly design features at the Highbury Avenue and Hamilton Road Intersection.

Today's Outline

- ✓ **CONFIRM** the need for improvements to the intersection
- ✓ **SUMMARIZE** existing/future engineering and environmental conditions in the Study Area
- ✓ **PRESENT** alternative design solutions for the intersection improvements
- ✓ **OBTAIN** public/agency input and comments
- ✓ **OUTLINE** the next steps in the planning and design process.

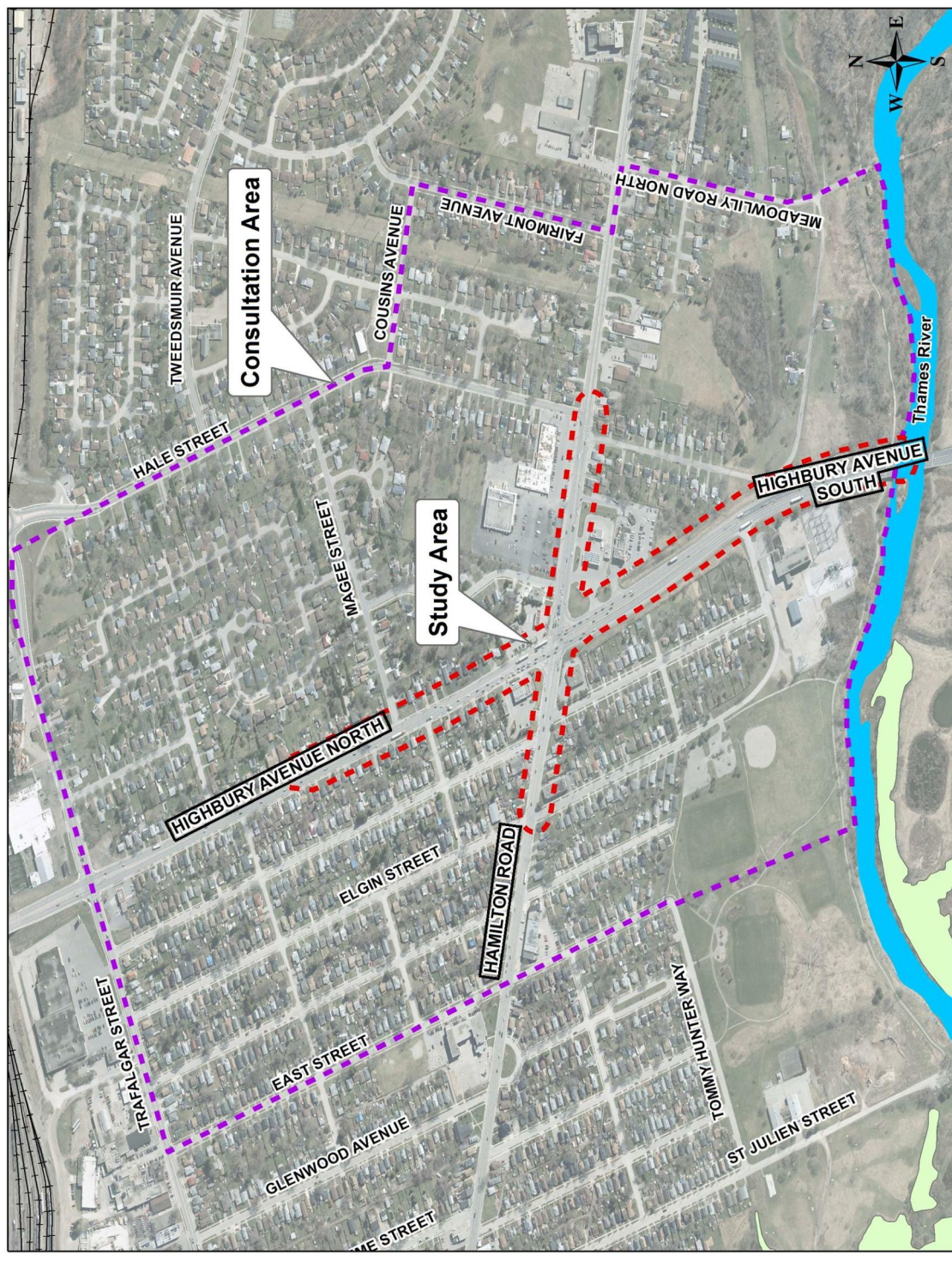
PROBLEM/OPPORTUNITY STATEMENT

The intersection improvements will be planned and designed to minimize impacts on the surrounding residential neighbourhoods and existing and future commercial uses along Hamilton Road. Improvements at the Highbury Avenue/Hamilton Road intersection are required to address:

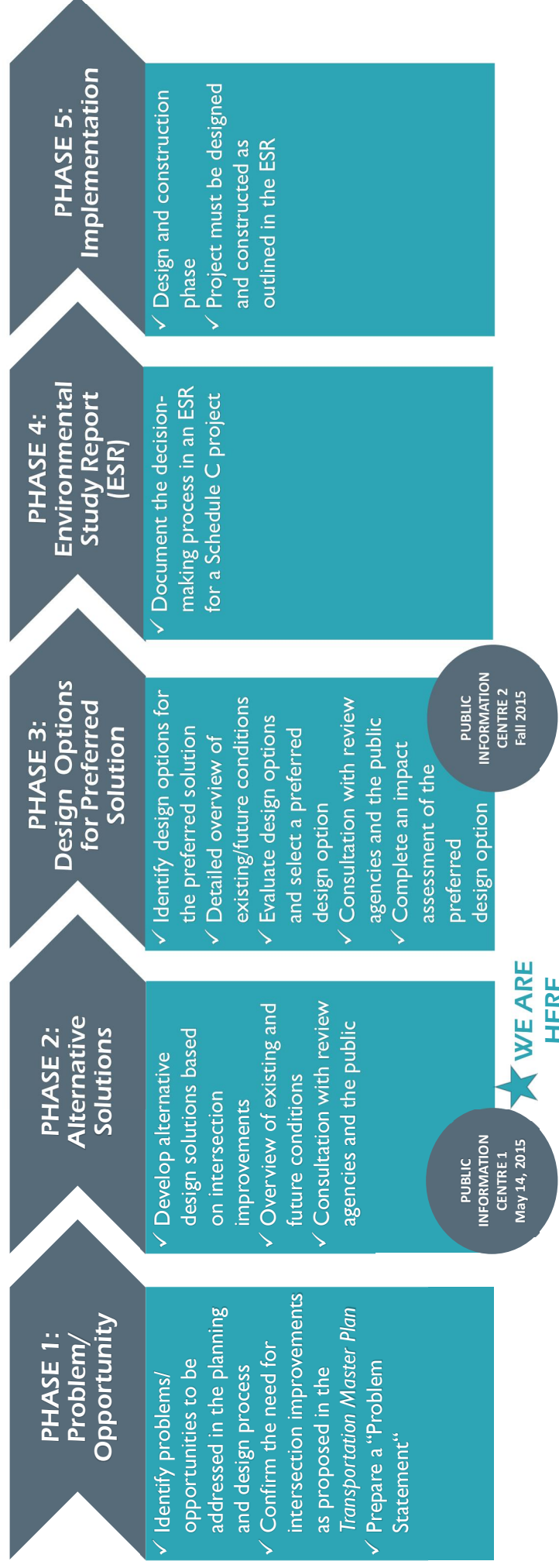
- **Existing Traffic Volumes (2015)**
 - Heavy northbound and southbound straight-through volumes, northbound and westbound left-turn volumes and eastbound right turn volumes during morning/afternoon rush hours
- **Future Traffic Volumes (2025):**
 - Up to 2.5 minutes of delay and 270 metres of vehicle back-ups during weekday morning rush hour
 - More than 3 minutes of delay and up to 390 metres of vehicle back-ups during weekday afternoon rush hour
- **Intersection Safety (2010 to 2014):**
 - 110 reported collisions at intersection (40% rear end collisions)
 - 24 reported collisions along Highbury Avenue, between Hamilton Road and Calvin Street (67% rear end collisions)
 - Ranks in the top 10* most collision-prone intersections in London
- **Pedestrians/Cyclists Needs**

*According to 2014 London Police reported collisions

HIGHBURY AVENUE/HAMILTON ROAD STUDY AREA



CLASS EA PROCESS



The Study is following the requirements of the *Municipal Class Environmental Assessment (EA)* (2011) for a Schedule 'C' (major) project.

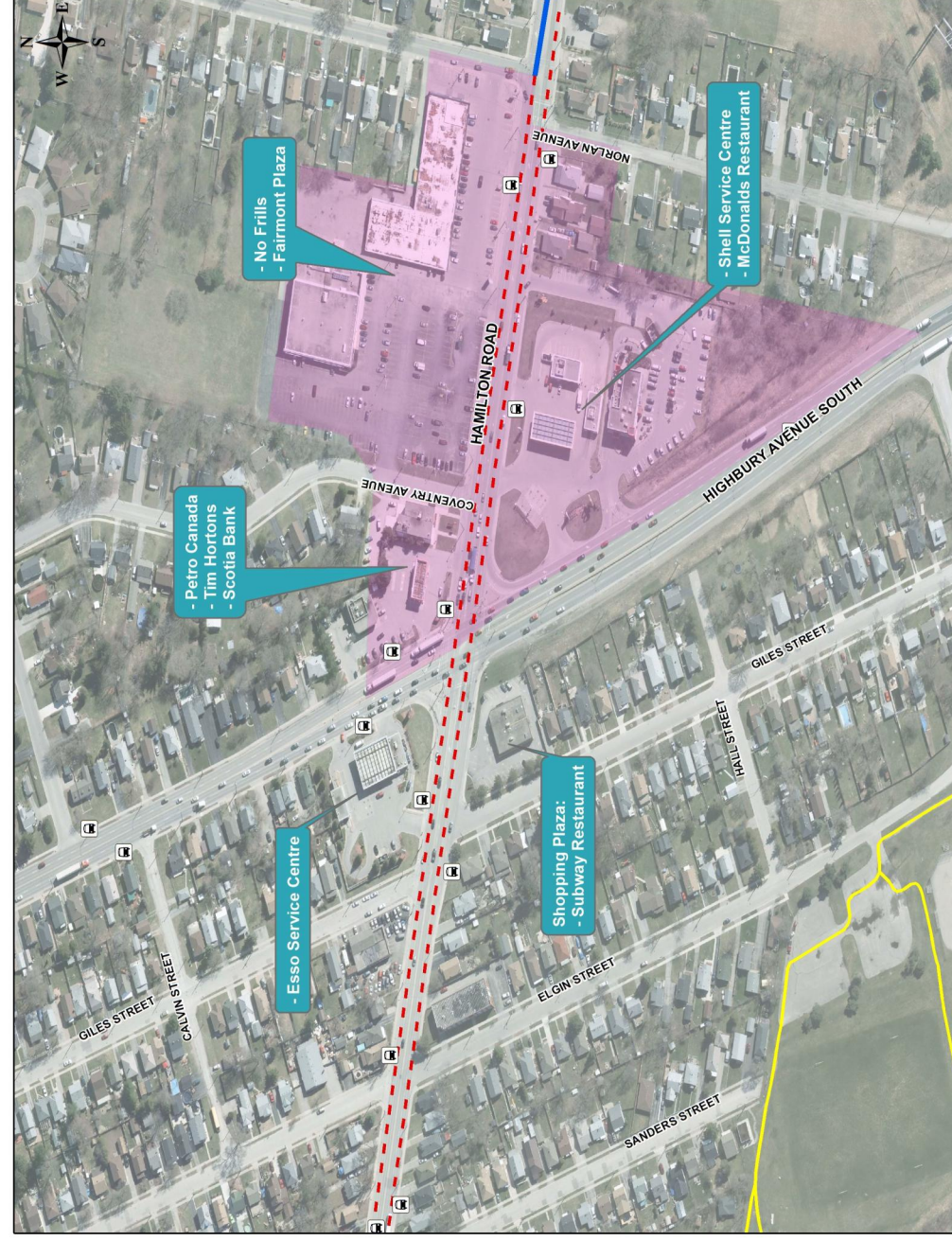
The Class EA process ensures:

- ✓ All relevant social, environmental and engineering factors are considered in the planning and design process
- ✓ Public and agency input is integrated into the EA process.

The Highbury Avenue/Hamilton Road project will follow all five phases of the Class EA process:

- Phases 1 and 2, as covered by the 2030 *Transportation Master Plan*, will be reviewed and updated. A preferred solution will be chosen at the end of Phase 2 following PIC #1
- Phase 3 will evaluate design options for implementing the preferred solution. A preferred design will be chosen at the end of Phase 3
- In Phase 4, the ESR will be placed on the "public record" for a 30-day public and agency review period.

SOCIO-ECONOMIC ENVIRONMENT



EXISTING TRAFFIC CONDITIONS 2015



Legend

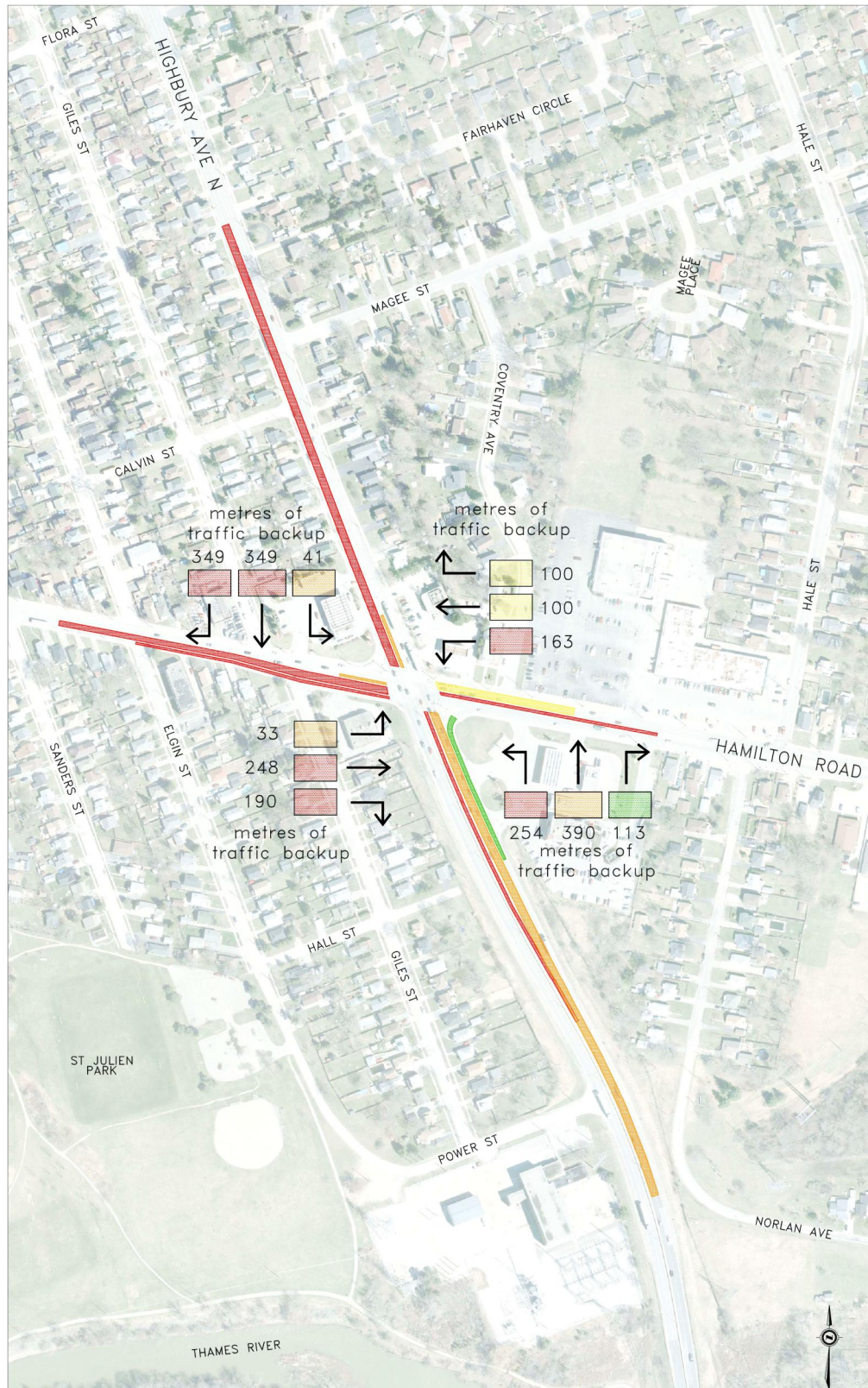
- █ Traffic Backup (metres) - LOS A/B/C*
- █ Traffic Backup (metres) - LOS D*
- █ Traffic Backup (metres) - LOS E*
- █ Traffic Backup (metres) - LOS F*

*Level-of-Service (LOS)

- A Unrestricted Capacity - Free flowing traffic
- B Affected Capacity - Traffic volume is stable
- C Disturbed Capacity - Traffic volume is steady
- D Restricted Capacity - Traffic volume makes road difficult to navigate
- E Reaching Capacity - Traffic volume makes road more difficult to navigate
- F Over Capacity - Road cannot handle volume of traffic

PROJECTED TRAFFIC CONDITIONS 2025 - NO IMPROVEMENTS

DILLON
CONSULTING



Legend

- Traffic Backup (metres) - LOS A/B/C*
- Traffic Backup (metres) - LOS D*
- Traffic Backup (metres) - LOS E*
- Traffic Backup (metres) - LOS F*

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ACCESS MANAGEMENT

What is Access Management?

Access Management is a tool for coordinating land use planning and transportation planning/design. The objectives of access management are to reduce collisions, alleviate traffic congestion, reduce energy consumption, preserve the long term integrity of traffic movements and promote an aesthetically pleasing corridor.

Proper access control maintains a high level of service for straight-through traffic and provides reasonable access to abutting properties. The principles of good access management are:

- Good traffic flow is essential for successful development
- Good access management is essential to support traffic flow that may be associated with achieving development objectives
- Good access management ensures that municipal road corridors can meet current/projected transportation needs.

Without good access management, the function and character of corridors can deteriorate rapidly. Failure to manage access can cause:

- Increase in vehicular collisions
- Reduction in roadway efficiency
- Increase in commute times, fuel consumption and vehicular emissions since numerous access points and traffic signals intensify road network congestion.

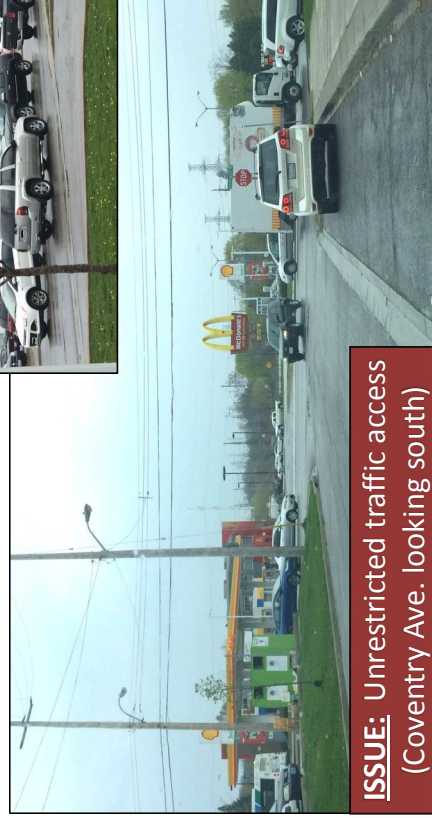
ACCESS MANAGEMENT

Managing access alleviates traffic congestion and back-ups and improves safety. Access management changes being considered at the intersection are:

- **Right-in /Right-out access** – use medians to physically restrict left-turns causing conflicts with other traffic movements
- **Entrance closures** – eliminate entrances in close proximity to the intersection subject to availability of other entrances
- **Bus bays** – provide street-side bus stops offset from traffic lanes
- **Bicycle lanes** – provide separation between vehicular traffic and slower moving cyclists.



ISSUE: Long back-ups and delays
(Hamilton Rd looking North)



ISSUE: Unrestricted traffic access
(Coventry Ave. looking south)



ISSUE: Heavy traffic volumes
(Highbury Ave. looking north)

PUBLIC & AGENCY CONSULTATION TO DATE

Residents:

Almost 140 members of the public replied to the Notice of Study Commencement with 45 submitting comments:

General Concerns

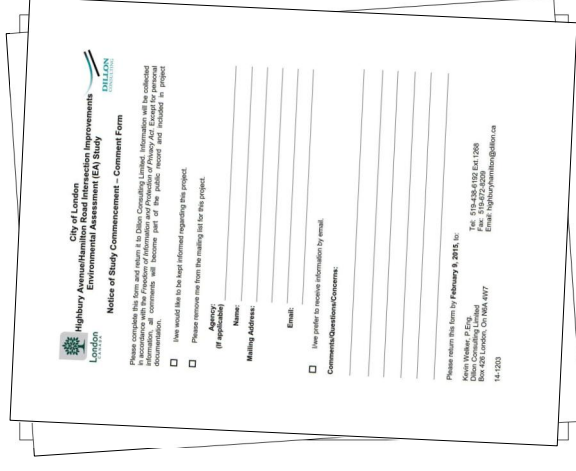
- Timing and length of construction
- Property and access impacts
- Pedestrian and cyclist safety, especially for children
- High traffic volumes and speed of traffic on local streets
- Sidewalks, stop signs and traffic calming measures should be installed on local streets
- Very difficult to back out of driveways on Highbury Avenue during peak periods
- Too many collisions at intersection.

Improvement Suggestions

- Inset bus bays
- Restricted access to Giles Street from Hamilton Road during peak periods and no parking on Giles Street from Calvin Street to Highbury Avenue
- Restrict turning movements to Coventry Avenue and plaza
- Designated turning lane for access to residences along Highbury Avenue
- Redirect truck traffic from Highbury Avenue to Veterans Memorial Parkway
- Designated turning lanes from Hamilton Road to Highbury Avenue.

Agencies:

- London Transit Commission (LTC) will consolidate some bus stops and integrate bus bays into the design.



ALTERNATIVE DESIGN SOLUTIONS



* Level of Service (LOS)

- A - Unrestricted Capacity (Free flowing traffic)
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- D - Restricted Capacity (Difficult to navigate)
- E - Approaching Capacity (More difficult to navigate)
- F - Over Capacity (Road cannot handle traffic volume)

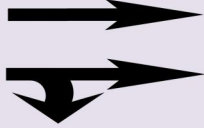
Traffic Movement	Issue	Alternative Design Solutions	Key Considerations
Highbury Avenue Northbound Left-turn  (LOS F)*	Long traffic backup (254m) with insufficient lane length	Increase green time for advance left	Creates longer delays for other traffic
	Long delay (>180 sec/vehicle)	Provide dual left turn lanes	- Increases pavement width, affecting pedestrian crossing time for Hamilton Road - Potential property impacts - Affects painted stop line placement on west leg of intersection, reducing available left turn storage (eastbound straight-through lane) - Requires a protected phase - Protected phase improves safety of this traffic movement - Requires a southbound dual or slotted left turn lane - Potential for property and utility impacts north of intersection
	Traffic volume exceeds capacity	Provide longer left turn lane	- Longer left only provides storage for vehicles in waiting to turn left, reducing interference in straight-through lane and improving safety - Does not improve the delay
		Reduce opposing traffic (provide more gaps)	High volume of opposing traffic means that this will not improve
Highbury Avenue Northbound Straight-through  (LOS E)*		Increase green time	Creates longer delays for other traffic movements
		Increase capacity (number of straight-through lanes)	- Increases pavement width, affecting pedestrian crossing time for Hamilton Road - High potential for property impacts - Downstream merge creates a bottleneck
	Long traffic backup (390m)	Provide a continuous two-way left turn lane from Calvin Street to the end of Southbound Left Turn Lane	- Results in less downstream interference to straight-through traffic movements - Provides safer turning traffic movements for access to residential entrances (reduces potential for rear-end collisions) - Potential property impacts
	Traffic volume exceeds capacity	Reduce downstream interference at commercial entrances (apply access management. See Board 10)	- Results in less disruption to straight-through traffic movements and potential for rear-end collisions - Impacts access to commercial properties

Note: Issues are based on 2025 projected traffic volumes (Weekday afternoon rush hour)

ALTERNATIVE DESIGN SOLUTIONS

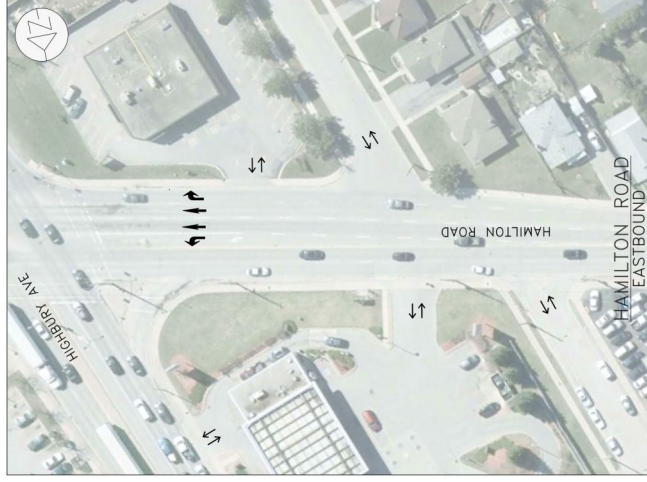


- * Level of Service (LOS)**
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 - D - Restricted Capacity (Difficult to navigate)
 - E - Approaching Capacity (More difficult to navigate)
 - F - Over Capacity (Road cannot handle traffic volume)

Traffic Movement	Issue	Alternative Design Solutions	Key Considerations
Highbury Avenue Southbound Straight -through/ Right  (LOS F)*	- Long traffic backup (349m) - Traffic volume exceeds capacity	Increase green time	Creates longer delays for other traffic movements
		Increase capacity (number of straight-through lanes)	- Increases pavement width, affecting pedestrian clearance time for Hamilton Road - High potential for property impacts - Downstream merge creates conflict point
Highbury Avenue Southbound Left-turn  (LOS E)*	- Moderate traffic backup (41m) - Moderate delay (57sec/veh)	Reduce interference at Esso/Tim Horton's entrance (apply access management. See Board 10)	- Results in less disruption to straight-through traffic movement and potential for rear-end collisions - Impacts access to commercial properties
		Provide a separate right turn lane	- Results in less disruption to straight-through traffic movement and potential for rear-end collisions - Increases pavement width, affecting pedestrian clearance time for Hamilton Road - Potential property impacts
		Provide longer left turn lane	- Longer left provides storage for vehicles waiting to turn left, reducing interference in straight-through lane - Does not improve the delay
		Provide dual left turn lanes	- Increases pavement width, affecting pedestrian clearance time for Hamilton Road - Potential property impacts - Affects painted stop line placement on east leg of intersection, reducing available left turn storage (westbound left turn) - Requires a protected phase - Protected phase improves safety of this traffic movement - Requires a dual or slotted northbound left turn lane

Note: Issues are based on 2025 projected traffic volumes (Weekday afternoon rush hour)

ALTERNATIVE DESIGN SOLUTIONS



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- E - Approaching Capacity (More difficult to navigate)
- F - Over Capacity (Road cannot handle traffic volume)

Traffic Movement	Issue	Alternative Design Solutions	Key Considerations
Hamilton Road Eastbound Straight-through  (LOS F)*	- Long traffic backup (248m) - Long delay (>180sec/veh) - Traffic volume exceeds capacity	Increase green time Increase capacity (number of straight-through lanes) Increase capacity beyond Hale Street to eliminate merge occurring between Highbury and Hale Reduce interference at commercial entrances (apply access management. See Board 10) Increase left turn lane storage at Hale Street Eliminate eastbound left turn to Coventry Street	- Creates longer delays for other traffic movements - Increases pavement width, affecting pedestrian clearance time - High potential for property impacts - Downstream merge creates bottleneck - Planned widening - Potential property impacts - Reduces interference by vehicles turning into commercial entrances - Results in less disruption to straight-through traffic movement and potential for rear-end collisions - Impacts access to commercial properties - Provides more storage for high volume of left turns, reducing impact on the eastbound straight-through. - Does not improve weave condition - Reduces downstream interference to eastbound straight-through traffic, particularly at a location that is very close to the Highbury intersection
	- Long traffic backup (190m) - Long delay (124sec/veh) - Traffic volume exceeds capacity	Increase green time Increase storage length Provide a channelized right turn lane	- Creates longer delays for other traffic movements - Longer right only provides storage for vehicles waiting to turn left, reducing interference on the straight-through lane. - Does not improve the delay - Creates an essentially free-flow traffic movement, providing significant operational improvement - Potential for property impact
Hamilton Road Eastbound Left-turn  (LOS E)*	Moderate delay (63sec/veh)	Increase storage length	- Longer left provides storage for vehicles waiting to turn left, reducing interference in the straight-through lane - Does not improve the delay

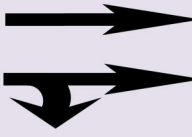
Note: Issues are based on 2025 projected traffic volumes (Weekday afternoon rush hour)

ALTERNATIVE DESIGN SOLUTIONS



* Level of Service (LOS)

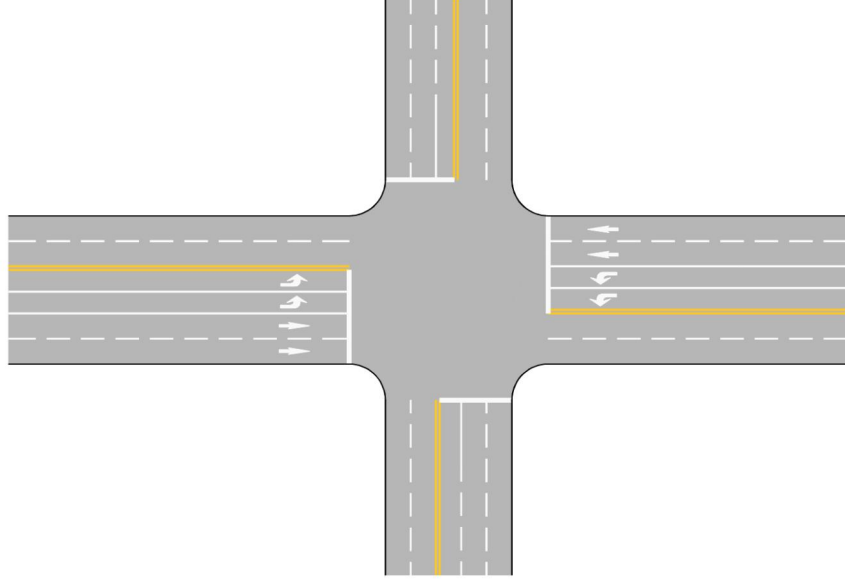
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- F - Over Capacity (Road cannot handle traffic volume)

Traffic Movement	Issue	Alternative Design Solutions	Key Considerations
Hamilton Road Westbound Left-turn  (LOS F)*	- Long traffic backup (163m) - Long delay (>180sec/veh) - Traffic volume exceeds capacity	Increase green time for advanced left	Creates longer delays for other traffic movements
		Provide dual left turn lanes	- Increases pavement width, affecting pedestrian clearance time for Highbury Ave - Potential property impacts - Affects painted stop line placement on south leg of intersection, reducing available left turn storage (northbound left turn) - Requires a protected phase - Protected phase improves safety of this traffic movement - Requires a dual or slotted eastbound left turn lane
		Increase storage length	- Longer left only provides storage for vehicles waiting to turn left, reducing interference in straight-through lane and improving safety - Does not improve the delay
		Reduce opposing traffic (provide more gaps)	High volume of opposing traffic means that this will not improve
Hamilton Road Westbound Straight-through/ Right  (LOS D)*	- Moderate traffic backup (100m) - Moderate delay (42sec/veh)	Create bus bay downstream of Highbury to avoid interference to straight-through traffic movement	Reduces interference caused by buses parking for longer duration than a normal stop (driver transition and washroom breaks occur here)
		Consolidate upstream bus stops to eliminate the stop immediately east of Highbury	Eliminates the stop immediately east of Highbury Ave, reducing the capacity of the right lane
		Provide a separate right turn lane	- Provides less disruption to straight-through traffic movement and potential for rear-end collisions - Increases pavement width, affecting pedestrian clearance time for Highbury Ave - Potential property impacts

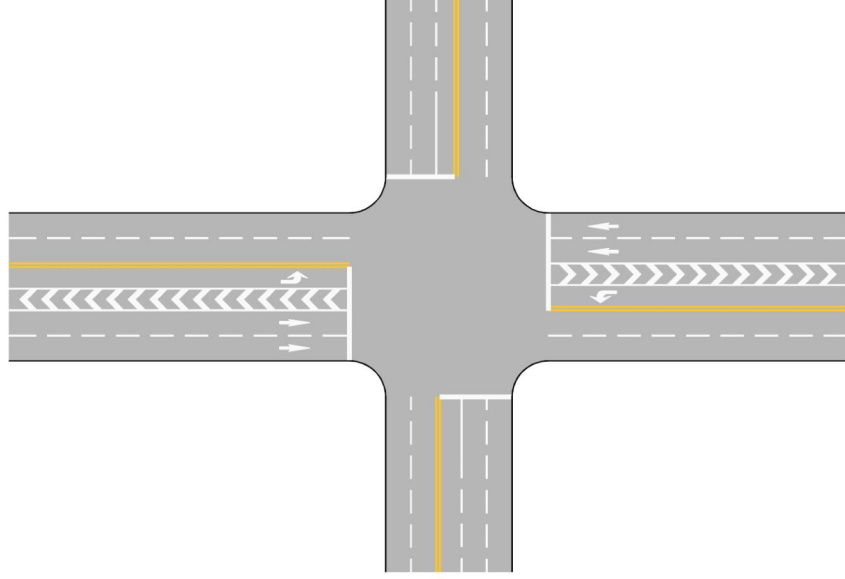
Note: Issues are based on 2025 projected traffic volumes (Weekday afternoon rush hour)

EXAMPLES OF DESIGN SOLUTIONS

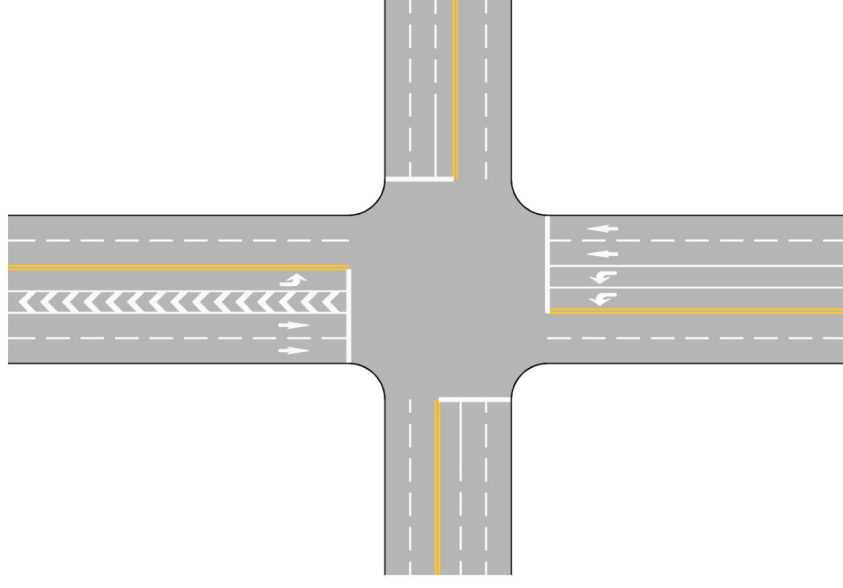
Dual Left-turn Lanes



Slotted Left-turn Lanes

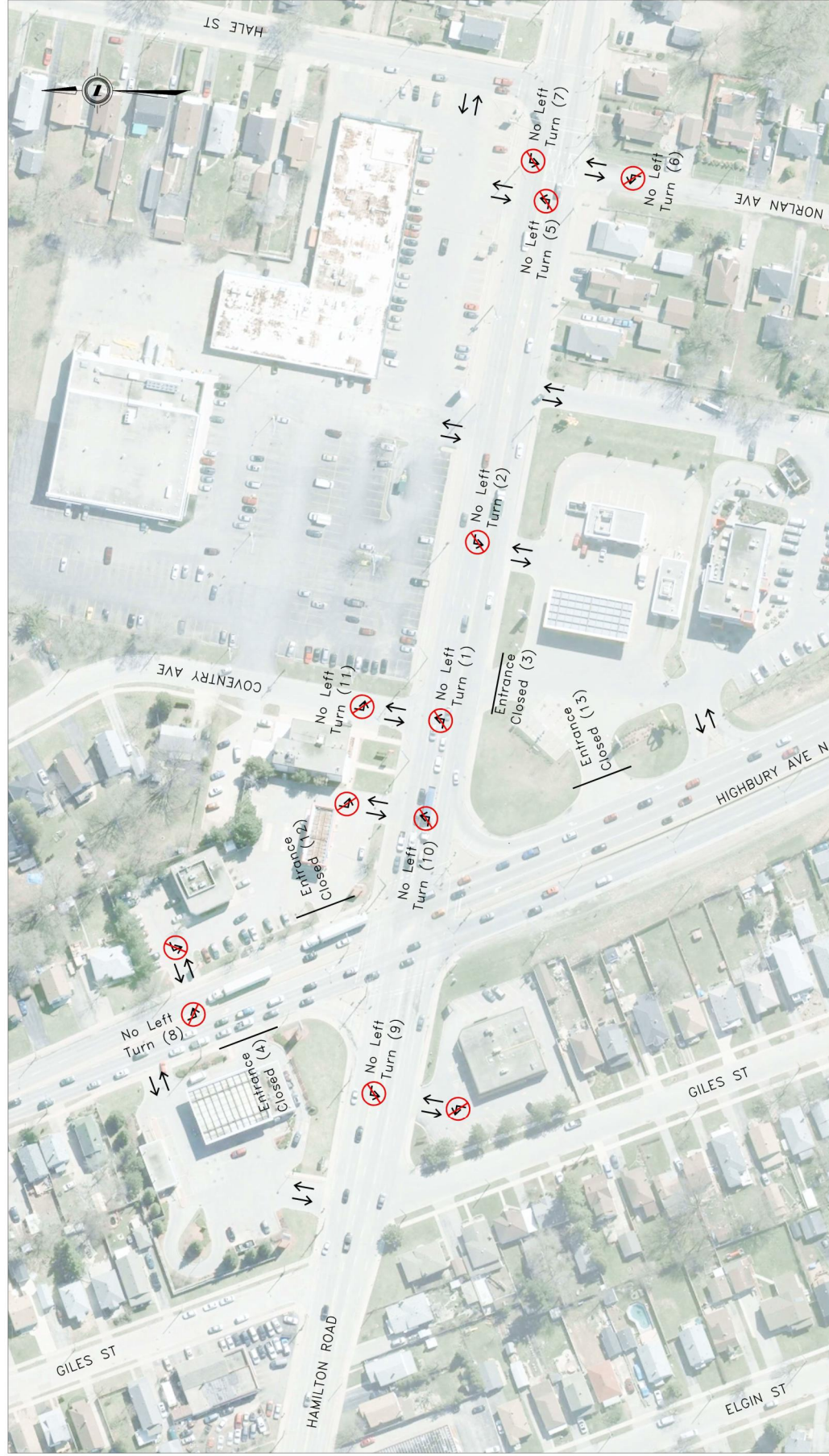


Opposing Dual Left-turn Lanes
and Slotted Left-turn Lane



ACCESS MANAGEMENT

Potential Access Modifications for Consideration

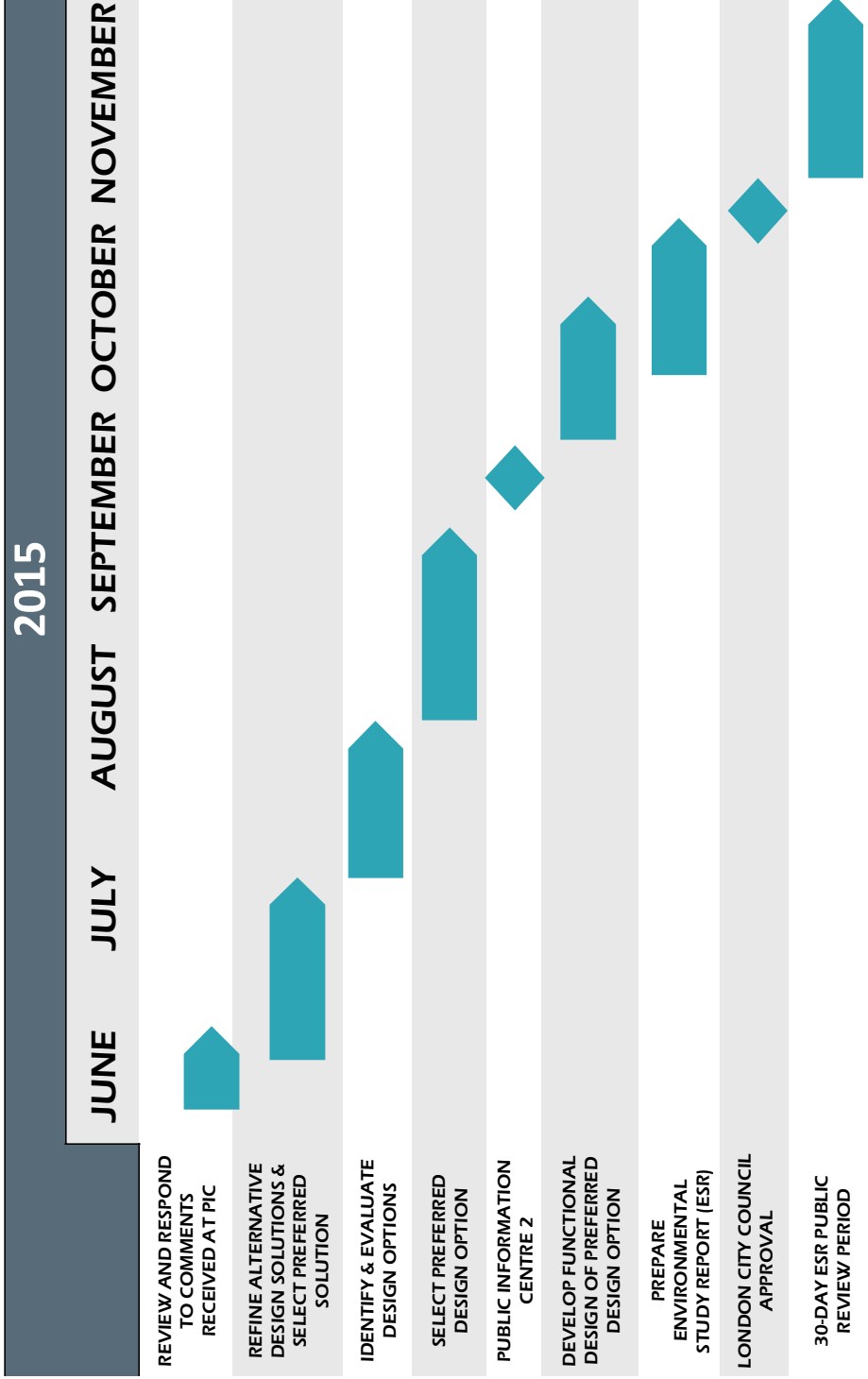


Refer to **Board 19** for description of access change

To reduce traffic congestion at the intersection and comply with the City's Access Management Guidelines, the following access changes are being ***considered***:

- ① No eastbound left-turn to Coventry Avenue from Hamilton Road
- ② No westbound left-turn from Hamilton Road to gas station
- ③ Close eastbound Hamilton Road gas station access
- ④ Close southbound Highbury Avenue gas station access
- ⑤ No eastbound left-turn from Hamilton Road to Fairmont Shopping Plaza
- ⑥ No northbound left from Norlan Avenue to Hamilton Road
- ⑦ No westbound left from Hamilton Road to Norlan Avenue
- ⑧ No southbound left from Highbury Avenue to restaurant
- ⑨ No westbound left from Hamilton Road to restaurant
- ⑩ No eastbound left from Hamilton Road to gas station
- ⑪ No southbound left from Coventry Avenue to Hamilton Road
- ⑫ Close northbound Highbury Avenue gas station access (north of intersection)
- ⑬ Close northbound Highbury Avenue gas station access (south of intersection)

NEXT STEPS



THANK YOU FOR ATTENDING

Your input is important to the outcome of this project.

Please complete a comment form and return it by

MAY 31, 2015

Personal information collected and recorded at the Public Information Centre or submitted in writing on this subject is collected under the authority of the Municipal Act, 2011 and will be used by members of Council and City of London staff in their review of this matter. With the exception of personal information, all comments will become part of the public record. Questions about this collection should be referred to the City Clerk's office at 519-661-2500.

IMS



Ministry of Aboriginal Affairs

160 Bloor St. East, 9th Floor
Toronto, ON M7A 2E6
Tel: (416) 326-4740
Fax: (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ministère des Affaires Autochtones

160, rue Bloor Est, 9^e étage
Toronto ON M7A 2E6
Tél. : (416) 326-4740
Télec. : (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Reference: EA #2015-98

Rebecca Schmidt
Dillon Consulting Limited
130 Dufferin Suite 1400
London, ON N64 NR2

Re: Hamilton Avenue Hamilton Road Intersection Improvements Environmental Assessment

Dear Rebecca Schmidt:

Thank you for informing the Ministry of Aboriginal Affairs (MAA) of your project. Please note that MAA treats all letters, emails, general notices, etc. about a project as a request for information about which Aboriginal communities may have rights or interests in the project area.

As a member of the government review team, the Ministry of Aboriginal Affairs (MAA) identifies First Nation and Métis communities who may have the following interests in the area of your project:

- reserves;
- land claims or claims in litigation against Ontario;
- existing or asserted Aboriginal or treaty rights, such as harvesting rights; or
- an interest in the area of the project.

MAA is not the approval or regulatory authority for your project, and receives very limited information about projects in the early stages of their development. In circumstances where a Crown-approved project may negatively impact a claimed Aboriginal or treaty right, the Crown may have a duty to consult the Aboriginal community advancing the claim. The Crown often delegates procedural aspects of its duty to consult to proponents. Please note that the information in this letter should not be relied on as advice about whether the Crown owes a duty to consult in respect of your project, or what consultation may be appropriate. Should you have any questions about your consultation obligations, please contact the appropriate ministry.

You should be aware that many First Nations and/or Métis communities either have or assert rights to hunt and fish in their traditional territories. For First Nations, these territories typically include lands and waters outside of their reserves.

In some instances, project work may impact aboriginal archaeological resources. If any Aboriginal archaeological resources could be impacted by your project, you should contact

your regulating or approving Ministry to inquire about whether any additional Aboriginal communities should be contacted. Aboriginal communities with an interest in archaeological resources may include communities who are not presently located in the vicinity of the proposed project.

With respect to your project, and based on the brief materials you have provided, we can advise that the project appears to be located in an area where First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation, that could be impacted by your project. Contact information is below:

Oneida Nation of the Thames 2212 Elm Avenue SOUTHWOLD, Ontario N0L 2G0	Chief Sheri Doxtator (519) 652-3244 (Fax) 652-9287 Sheri.Doxtator@oneida.on.ca
Chippewas of the Thames First Nation 320 Chippewa Road R.R. #1 MUNCEY, Ontario N0L 1Y0	Chief Richard "Joe" Miskokomon (519) 289-5555 (Fax) 289-2230 chief@cottfn.com cdeleary@cottfn.com

For your information, MAA notes that the following Métis communities or First Nations may be interested in your project given the proximity of their community or reserve lands to the area of the proposed project or because of your project's potential environmental impacts:

Munsee-Delaware Nation R. R. #1 MUNCEY, Ontario N0L 1Y0	Chief Roger Thomas (519) 289-5396 (Fax) 289-5156 Chief.thomas@munsee-delaware.org
--	--

The information upon which the above comments are based is subject to change. First Nation or Métis communities can make claims at any time, and other developments can occur that could result in additional communities being affected by or interested in your undertaking.

Through Aboriginal Affairs and Northern Development (AANDC), the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. AANDC's Consultation and Accommodation Unit (CAU) established a "single window" to respond to requests for baseline information held by AANDC on established or potential Aboriginal Treaty and rights. To request information from the Ontario Subject Matter Expert send an email to: UCA-CAU@aadnc-aandc.gc.ca

Additional details about your project or changes to it that suggest impacts beyond what you have provided to date may necessitate further consideration of which Aboriginal communities may be affected by or interested in your undertaking. If you think that further consideration may be required, please bring your inquiry to whatever government body

oversees the regulatory process for your project. MAA does not wish to be kept informed of the progress of the project; please be sure to remove MAA from the mailing list.

Yours truly,

A handwritten signature in dark ink, appearing to read 'C. Troje'.

Corwin Troje
Manager, Ministry Partnerships Unit
Aboriginal Relations and Ministry Partnerships Branch



Smolders, Janet <jsmolders@dillon.ca>

City of London - Highbury Avenue/Hamilton Road Intersection Improvements

1 message

Bernie McCall <Bernie.McCall@mlhu.on.ca>

Wed, Jun 10, 2015 at 10:07 AM

To: "highburyhamilton@dillon.ca" <highburyhamilton@dillon.ca>

Cc: "Maged Elmadhoon (melmadho@london.ca)" <melmadho@london.ca>, Mary Lou Albanese <MaryLou.Albanese@mlhu.on.ca>

Good morning Ms. Smolders:

Thank you for the opportunity to comment on this Municipal Class Environmental Assessment. Please find attached comments pertaining to the Highbury Avenue/Hamilton Road Intersection Improvements from the Middlesex London Health Unit. If you have any questions, please be in touch.

Sincerely,

Bernie McCall

Bernadette McCall, RN, HBA, BScN, MA
Public Health Nurse/Healthy Communities Coordinator
Environmental Health & Chronic Disease Prevention Services
Middlesex-London Health Unit
50 King St., London, ON N6A 5L7
PH:(519)663-5317 ext 2314 / FX: (519)663-9276
EM: bernie.mccall@mlhu.on.ca



===== Middlesex-London Health Unit E-Mail Disclaimer =====

Private and confidential, intended only for named recipient. If otherwise received, please destroy immediately. Health information in this email is only general information and is not intended to replace an in person consultation with a medical professional, nor is it intended to provide medical advice. Individual circumstances of which we are not aware may affect the information provided herein and as such, the Middlesex-London Health Unit assumes no liability or responsibility for your reliance thereon. The Middlesex-London Health Unit works under the authority of the Health Protection and Promotion Act and this correspondence may be used to assess your needs for public health services (519-663-5317, ext. 2448).

 **Highbury-HamiltonIntersectionComments.pdf**
174K



COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 – May 14, 2015



Name: Bernadette McCall, Public Health Nurse, RN, MA

Agency : Middlesex-London Health Unit

Address: 50 King St, London ON N6A 5L7

PH: 519-663-5317 ext 2314

Email: bernie.mccall@mlhu.on.ca

Please provide your comments below:

The Middlesex-London Health Unit is pleased that a process to consider improvements to the Highbury Ave/ Hamilton Road intersection has been initiated using a Municipal Class Environmental Assessment. Since this intersection ranks among the city's top 10 for most collision prone (London Police report, 2014), we recommend the following be considered: 1) that safety is maximized for all road users, including drivers, and in particular, vulnerable road users such as pedestrians (all abilities) and cyclists by using a Complete Streets approach; 2) that design features support safe pedestrian access to nearby features such as the commercial hub, shopping plaza, bank, etc; and 3) that road design and cycling facilities provide an environment that minimizes driver-cyclist interactions. We look forward to being kept apprised of the progress and opportunities for input on this project.

Please deposit this form in the comment box or return by **May 31, 2015** to:

Attn: Janet Smolders, MCIP RPP
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
Email: melmadho@london.ca

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Smolders, Janet <jsmolders@dillon.ca>

FW: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study

1 message

Norma McFadden <norma@utsconsultants.ca>
To: "jsmolders@dillon.ca" <jsmolders@dillon.ca>

Mon, May 11, 2015 at 7:16 AM

Good Morning Janet,

UTS Consultants has been contracted by Chris Gill of Bell Canada to conduct the conflict analysis for the above project. I understand it is still in the assessment stage, however if you could provide us with CAD files with cross-sections and profiles at your earliest convenience it would be greatly appreciated.

Thank you

Norma



Norma McFadden
Operational Support Associate

195 St. David Street South, 3rd Floor

Fergus, ON N1M 2L4

Tel: 519.787.1813 ext. 293

Website: <http://www.utsconsultants.ca>

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the sender immediately and delete all copies. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of the company. Finally, the recipient should check this email and any attachments for the presence of viruses. The company accepts no liability for any damage caused by any virus transmitted by this email. Please consider the environment before printing this email and/or its attachments.

From: Gill, Chris (6011790) [<mailto:chris.gill@bell.ca>]

Sent: April-28-15 3:18 PM

To: Brian Morris; Norma McFadden

Subject: Fw: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study

New job. London

Chris Gill, C.Tech

Structures Manager-

Access Network 519-GH

905 577 6812 office. 289 260 3934 mobile

Bell Canada.

From: Levair, Bobbie K (N234446)

Sent: Tuesday, April 28, 2015 11:01 AM Eastern Standard Time

To: Gill, Chris (6011790)

Subject: FW: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study

Hey Chris – how are things – here this the update for the EA study at Hamilton & Highbury in London East

will you be the prime contact for this job & I will do the cable work (if it is not contracted out). Please let me know

We have a lot of structure in the area – most notable is on Hamilton Road & Highbury intersection

(east & west)

4PVCD1

1 PVCD2 &

1CFD

North & south

3 PVCD2

2 CFD

4PVCD1

The EA study is quite extensive from Trafalgar south to the river & East St to Hale St

Thanks Chris & I hope all is well!

..bobbie

Bobbie Levair

Bell Canada - Specialist Network Provisioning

F-4, 100 Dundas Street,

London Ontario N6A 5B6

Office: 519-663-6130

Cell: 226-377-1161

London East, St. Thomas, Belmont, Fingal, Port Stanley, Shedden

Sparta, Dorchester, Thorndale

From: Ariss, Jordan [<mailto:jariss@dillon.ca>]

Sent: Tuesday, April 28, 2015 10:42 AM

To: Levair, Bobbie K (N234446)

Subject: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study

Dillon Consulting Limited is pleased to provide this electronic transmission related to the above-noted project.

If you have any questions, please contact Janet Smolders at jsmolders@dillon.ca



Jordan Ariss
Dillon Consulting Limited
130 Dufferin Suite 1400
London, Ontario, N6A 5R2
T - 519.438.1288 ext. 1231
JAris@dillon.ca
www.dillon.ca



Please consider the environment before printing this email

This message is directed in confidence solely to the person(s) named above and may contain privileged, confidential or private information which is not to be disclosed. If you are not the addressee or an authorized representative thereof, please contact the undersigned and then destroy this message.

Ce message est destiné uniquement aux personnes indiquées dans l'entête et peut contenir une information privilégiée, confidentielle ou privée et ne pouvant être divulguée. Si vous n'êtes pas le destinataire de ce message ou une personne autorisée à le recevoir, veuillez communiquer avec le soussigné et ensuite détruire ce message.



Highbury Hamilton Notice_042715.pdf

489K



Smolders, Janet <jsmolders@dillon.ca>

Re: Highbury Avenue/Hamilton Rd Intersection Improvements EA

1 message

Elmadhoon, Maged <melmadho@london.ca>

Mon, May 11, 2015 at 6:46 PM

To: "SecondaryLandUse@HydroOne.com" <SecondaryLandUse@hydroone.com>, "highburyhamilton@dillon.ca" <highburyhamilton@dillon.ca>

Cc: "joan.zhao@HydroOne.com" <joan.zhao@hydroone.com>, "ierullo@HydroOne.com" <ierullo@hydroone.com>, "w.d.kloostra@HydroOne.com" <w.d.kloostra@hydroone.com>, "MacRae, Doug" <dmacrae@london.ca>, "Kireev, Maxim" <mkireev@london.ca>

Thanks Claire for your initial input and comments. I hope that a representative from Hydro One will be able to attend the first PIC this Thursday May 14 from 4:30 to 5:30 pm. This time has been allocated for technical agencies and the general public is invited from 5:30 to 8:00 pm. I assume you have received the notice for the meeting.

Thanks
Maged

Sent from my BlackBerry 10 smartphone on the Rogers network.

From: SecondaryLandUse@HydroOne.com**Sent:** Monday, May 11, 2015 4:52 PM**To:** highburyhamilton@dillon.ca; Elmadhoon, Maged**Cc:** joan.zhao@HydroOne.com; ierullo@HydroOne.com; w.d.kloostra@HydroOne.com**Subject:** Highbury Avenue/Hamilton Rd Intersection Improvements EA

Dear Mr. Welker and Mr. Elmadhoon,

In our initial review, we have confirmed that Hydro One has high voltage transmission facilities within your study area. At this point in time we do not have enough information about your project to provide you with meaningful input with respect to the impacts that your project may have on our infrastructure. As such, this response does not constitute any sort of approval for your plans and is being sent to you as a courtesy to inform you that we must be consulted on your project.

In addition to the existing infrastructure mentioned above, the affected transmission corridor may have provisions for future lines or already contain secondary land uses (i.e. pipelines, water mains, parking, etc). Please take this into consideration in your planning.

Please allow the appropriate lead-time in your project schedule in the event that your proposed development impacts Hydro One infrastructure to the extent that it would require modifications to our infrastructure.

In planning, please note that developments should not reduce line clearances or limit access to our facilities at any time in the study area of your Proposal. Any construction activities must maintain the electrical clearance from the transmission line conductors as specified in the Ontario Health and Safety Act for the respective line voltage.

The integrity of the structure foundations must be maintained at all times, with no disturbance of the earth around the poles, guy wires and tower footings. There must not be any grading, excavating,

filling or other civil work close to the structures.

We reiterate that this message does not constitute any form of approval for your project. Once more details about your plans are known and it is established that your development will affect Hydro One facilities including the rights of way, please submit your plans to:

Joan Zhao ,Hydro One Real Estate Management
185 Clegg Road, Markham L6G 1B7
Phone: (905) 946-6230
Joan.Zhao@HydroOne.com

Please note that the proponent will be held responsible for all costs associated with modification or relocation of Hydro One facilities, as well as any added costs that may be incurred due to increase efforts to maintain our facilities.

Regards,

Claire Zhang

Tel: 647-896-8862

On behalf of

Secondary Land Use
Transmission Asset Management
Hydro One Networks

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Smolders, Janet <jsmolders@dillon.ca>

Highbury Avenue/Hamilton Rd Intersection Improvements EA

1 message

SecondaryLandUse@hydroone.com <SecondaryLandUse@hydroone.com>

Mon, May 11, 2015 at 4:51 PM

To: highburyhamilton@dillon.ca, melmadho@london.caCc: joan.zhao@hydroone.com, ierullo@hydroone.com, w.d.kloostra@hydroone.com

Dear Mr. Welker and Mr. Elmadhoon,

In our initial review, we have confirmed that Hydro One has high voltage transmission facilities within your study area. At this point in time we do not have enough information about your project to provide you with meaningful input with respect to the impacts that your project may have on our infrastructure.

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Phone: (905) 946-6230
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Regards,

Claire Zhang

Tel: 647-896-8862

On behalf of

**Secondary Land Use
Transmission Asset Management
Hydro One Networks**

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COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 – May 14, 2015



Name:

Agency :

Address:

Email:

Please provide your comments below:

I would like WHITE X X painted on Hamilton Rd at Elgin St. so we can do right or left turns on Hamilton Rd & left turns onto Elgin St. We would appreciate this being done now before 2019.
We don't care if you close Giles St. at Hamilton Rd. Keep the exit off power St onto Highbury Ave open to residence of Giles St, Elgin St at all times (2 exit from Giles & Elgin St.) (a sticker in car windows for residence)
We also need 2 lanes turning left from Hamilton Rd. going south on Highbury Ave. Cars back up passed Hale St at times.

Please deposit this form in the comment box or return by **May 31, 2015** to:

Attn: Janet Smolders, MCIP RPP
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
Email: melmadho@london.ca

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COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 – May 14, 2015



Name:

Agency :

Address:

Email:

Please provide your comments below:

- CPSC Coventry to separate resident from commercial
- if not permanently ; at least during construction
- 20 yrs ago Coventry traffic was 400 cars/hr on THU / FRI evening
most likely more now.
- extend plaza parking lot to Scotiabank
- ~~more Coventry~~
- remove TD ~~bank~~ ATM in parking lot and make access from Hamilton here.
- make this the ONLY access from Hamilton (see over)
- Engineers need to visit south edge of bridge in ~~south~~ Northbound lane during heavy rain.

Please deposit this form in the comment box or return by **May 31, 2015** to:

Attn: Janet Smolders, MCIP RPP

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.

Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
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COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 – May 14, 2015



Name: _____

Agency : _____

Address: _____

Email: _____

Please provide your comments below:

~~South~~

Left turn on south bound Highbury is an issue
~~was~~ already recognized.

- Adding additional lanes might help; but
many vehicles will continue to turn left
at Magee then south on Coventry to get
to plaza and avoid TWO problem
LEFT turns

~~Recommend~~ Close Coventry between residents & commercial

Please deposit this form in the comment box or return by **May 31, 2015** to:

Attn: Janet Smolders, MCIP RPP

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.

Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
Email: melmadho@london.ca

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Smolders, Janet <jsmolders@dillon.ca>

FW:

1 message

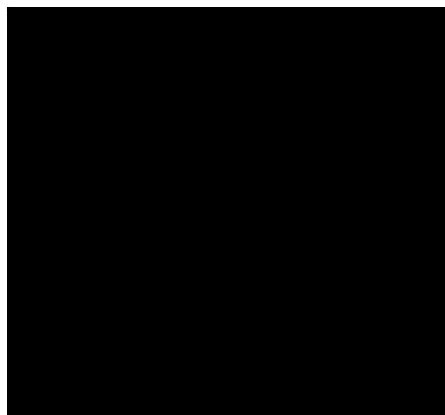
To: highburyhamilton@dillon.ca

Mon, May 25, 2015 at 10:08 AM

To whom it may concern,

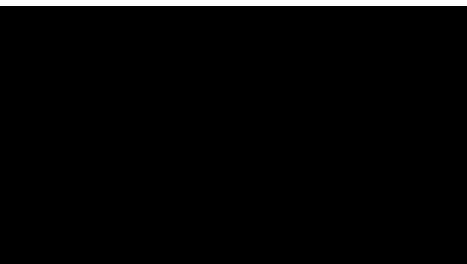
Just wondering about the info I requested. Please see attachment

Thank you



From: S [redacted]
Sent: May-19-15 12:32 PM
To: 'highburyhamilton@dillon.ca'
Subject:

To whom it may concern,





Highbury Comment Form.pdf
103K



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Except for personal information, all comments will become part of the public record and included in project documentation.

- ☐ I/we would like to be kept informed regarding this project.
- ☐ Please remove me from the mailing list for this project.

Agency:
(If applicable)

Name:

Mailing Address:

Email:

- ☐ I/we prefer to receive information by email.

Comments/Questions/Concerns:

I was unable to attend the meeting on May 14th but would still like to be kept up to date with the project also can you tell me what impact the project will have on my property [REDACTED] i.e. Will we lose any land? if so how much?

Please return this form by **February 9, 2015**, to:

Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext.1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

14-1203



Smolders, Janet <jsmolders@dillon.ca>

Fwd: FW: London - Intersection Improvements - information

1 message

Fox, Brandon <bfox@dillon.ca>

Wed, Jun 10, 2015 at 12:48 PM

To: Highbury & Hamilton Intersection Improvements Public Comments <highburyhamilton@dillon.ca>



Brandon Fox
Dillon Consulting Limited
130 Dufferin Avenue Suite 1400
London, Ontario, N6A 5R2
T - 519-438-1288 ext. 1307
F - 519 - 672-8209
BFox@dillon.ca
www.dillon.ca



----- Forwarded message -----

From: [REDACTED]
Date: Wed, Jun 10, 2015 at 11:53 AM
Subject: RE: FW: London - Intersection Improvements - information
To: "Fox, Brandon" <bfox@dillon.ca>
[REDACTED]

Hi Brandon,

I have reviewed the EA - public information package and have a couple questions.

I see that you are considering closing the south entrance to Esso on Highbury, I have requested the fuel truck route to see if this will cause delivery issues.

Does the plan call for a median on the West side of Hamilton Rd, restricting that entrance to rt in/ rt out? I believe they currently have full turning movement into this access point.

Does the current plan require any property from Esso? It looks like the larger impacts are on the properties on the east side of Highbury.

Once I have Esso truck route I will confirm any potential impacts.

Thank you in advance for any information you can provide.

[REDACTED]

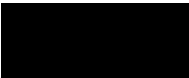


From: Fox, Brandon [mailto:bfox@dillon.ca]

Sent: Wednesday, June 03, 2015 11:16 AM

[REDACTED] Highbury & Hamilton Intersection Improvements Public Comments;
Elmadhoon, Maged; 141203; Kevin Welker; Janet Smolders

Subject: Re: FW: London - Intersection Improvements - information



Thank you for the information. We will add your contact information to our project contact list to ensure you receive future project correspondence.

Brandon



Brandon Fox
Dillon Consulting Limited
130 Dufferin Avenue Suite 1400
London, Ontario, N6A 5R2
T - 519-438-1288 ext. 1307
F - 519 - 672-8209
BFox@dillon.ca
www.dillon.ca



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Smolders, Janet <jsmolders@dillon.ca>

Re: FW: London - Intersection Improvements - information

1 message

Fox, Brandon <bfox@dillon.ca>

Wed, Jun 3, 2015 at 11:16 AM

[REDACTED] Highbury & Hamilton Intersection Improvements Public Comments <highburyhamilton@dillon.ca>, "Elmadhoon, Maged" <melmadho@london.ca>, 141203 <141203@dillon.ca>, Kevin Welker <kwelker@dillon.ca>, Janet Smolders <jsmolders@dillon.ca>

[REDACTED]

Thank you for the information. We will add your contact information to our project contact list to ensure you receive future project correspondence.

Brandon



Brandon Fox
Dillon Consulting Limited
130 Dufferin Avenue Suite 1400
London, Ontario, N6A 5R2
T - 519-438-1288 ext. 1307
F - 519 - 672-8209
BFox@dillon.ca
www.dillon.ca

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On Wed, Jun 3, 2015 at 11:00 AM, [REDACTED] wrote:

Hi Brandon,

I will be involved in handling this file for Esso, can you please add me to the list of people to receive any notices and information regarding this intersection upgrade. Thank you.

[REDACTED]

[REDACTED]

[REDACTED]
Sent: Monday, June 01, 2015 11:28 AM

[REDACTED]
Subject: FW: London - Intersection Improvements - information

Can you handle and add this to your list of “expro sites”? They are looking for a response by June 12th.

[REDACTED]

[REDACTED]
Sent: Friday, May 29, 2015 10:38 AM

[REDACTED]
Subject: FW: London - Intersection Improvements - information

[REDACTED] can either of you review?



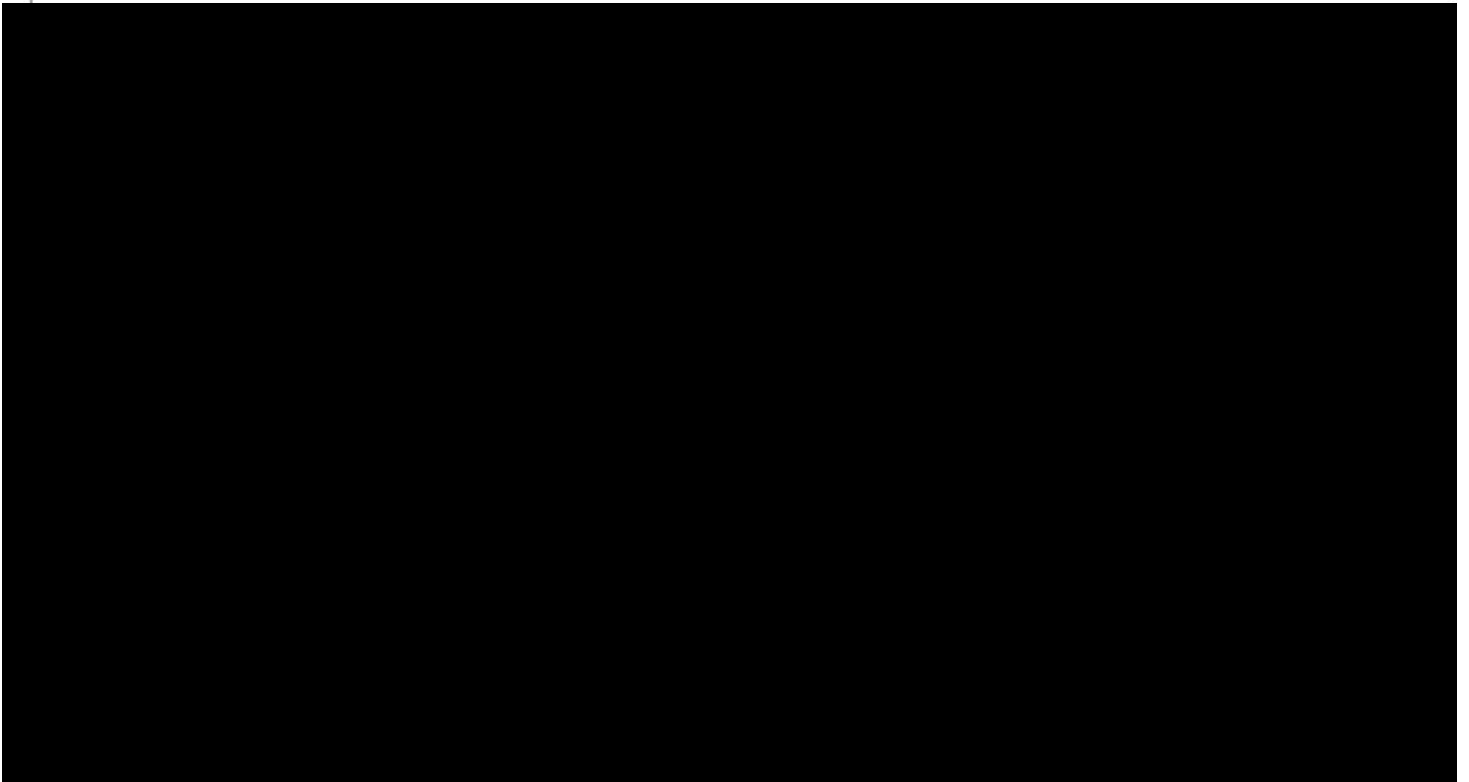
Sent: Friday, May 29, 2015 10:29 AM

Subject: London - Intersection Improvements - information



Please see this email below about a study that will be happening in London, I have lost track of who to send this to, can you kindly forward to the correct person for me and copy me please. Thanks for your help.

Thank you.



[REDACTED]
Sent: Friday, May 29, 2015 8:13 AM

[REDACTED]
Subject: Fwd: Intersection Improvements

Hi the City of London is planning to make some changes to the intersection of Hamilton and Highbury...they are asking for input from the business owners and the deadline is June 12, 2015. This plan could have some major implications on our entrances and exits from the property. Please forward to the appropriate people.
Leo

----- Forwarded message -----

From: **Fox, Brandon** <bfox@dillon.ca>

Date: Thu, May 28, 2015 at 9:24 AM

Subject: Re: Intersection Improvements
[REDACTED]

Cc: Highbury & Hamilton Intersection Improvements Public Comments <highburyhamilton@dillon.ca>, Janet Smolders <jsmolders@dillon.ca>, "Elmadhoon, Maged" <melmadho@london.ca>, "Kireev, Maxim" <mkireev@london.ca>, Kevin Welker <kwelker@dillon.ca>, 141203 <141203@dillon.ca>

[REDACTED]

We have attached a copy of the slides you received yesterday for your reference. Also, below is a link to the City of London project page where the presentation and initial project notices are available for download.

<https://www.london.ca/residents/Environment/EAs/Pages/Highbury-Avenue-and-Hamilton-Road-Intersection.aspx>

Please let us know if you have any additional comments.

Thanks,

Brandon



Brandon Fox
Dillon Consulting Limited
130 Dufferin Avenue Suite 1400
London, Ontario, N6A 5R2
T - 519-438-1288 ext. 1307
F - 519 - 672-8209
BFox@dillon.ca
www.dillon.ca



Please consider the environment before printing this email

On Thu, May 28, 2015 at 8:41 AM, [REDACTED] wrote:

Hi Janet

I left you a voice message regarding the above...I would like to get an electronic copy of the presentation document I received yesterday..It is call Highbury Avenue/Hamilton Road Intersection Improvements - Municipal Class Environmental Assessment - Public information Centre. If you could send it asap I would appreciate it. Thanks!

This message is directed in confidence solely to the person(s) named above and may contain privileged, confidential or private information which is not to be disclosed. If you are not the addressee or an authorized representative thereof, please contact the undersigned and then destroy this message.

Ce message est destiné uniquement aux personnes indiquées dans l'entête et peut contenir une information privilégiée, confidentielle ou privée et ne pouvant être divulguée. Si vous n'êtes pas le destinataire de ce message ou une personne autorisée à le recevoir, veuillez communiquer avec le soussigné et ensuite détruire ce message.



Please consider the environment before printing this email - Help save our planet.

Veuillez songer à l'environnement avant d'imprimer le présent courriel – Aidez-nous à protéger notre planète.

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Ce courriel est confidentiel et protégé. L'expéditeur ne renonce pas aux droits et obligations qui s'y rapportent. Toute diffusion, utilisation ou copie de ce message ou des renseignements qu'il contient par une personne autre que le(les) destinataire(s) désigné(s) est interdite. Si vous recevez ce courriel par erreur, veuillez m'en aviser immédiatement, par retour de courriel ou par un autre moyen.)

[REDACTED]
Sent: Wednesday, May 20, 2015 6:06 PM

To: Kireev, Maxim

Subject: Notice for next meeting for Highbury & Hamilton Rd.

Please put my name on the list for email notices for upcoming meetings and plans for Highbury and Hamilton Rd. projects.

Thank you

[REDACTED]



Smolders, Janet <jsmolders@dillon.ca>

Comments on Highbury Avenue/Hamilton Road Intersection Improvements

1 message

Sun, May 24, 2015 at 8:53 PM

To: highburyhamilton@dillon.ca, melmadho@london.ca

I attended the Public Information Centre on May 15th and have the following comments on information presented.

Problem/Opportunity Statement

It appears that a great number of collisions are "rear end". This is likely the result of drivers not paying attention at this busy intersection. It is not clear to me how any of the proposed changes will change this situation.

An on-road bike lane on Hamilton Road would be a disaster. There is/will be too much traffic going at relatively high speeds (certainly not at the speed limit) for cycling to be safe. The bike path along the Thames is a much better alternative.

Alternative Design Solutions

The addition of new lanes will only further discourage pedestrians from crossing. **Highbury Avenue Northbound Left-Turn** – I support an increased green time for advanced left and the provision of a longer left turn lane. **Highbury Avenue Northbound Straight-Through** – I support an increased green time and the reduction of downstream interference at commercial entrances. **Highbury Avenue Southbound Straight-Through Right** – I support an increased green time and the reduction of interference at Esso/Tim Horton's entrance. **Highbury Avenue Southbound Left-Turn** – I support the provision of a longer left turn lane. **Hamilton Road Eastbound Straight-Through** – I support an increased green time, and an increase in the capacity beyond Hale Street to eliminate the merge occurring between Highbury and Hale. With respect to the elimination of the eastbound left turn to Coventry Street and the Fairmont Shopping Plaza, I am concerned about where this traffic will go in order to access the bank and the Plaza. I live on Magee Street which is already very busy and has no sidewalks and will shortly have one or more postal boxes located on it. One consolidated left turn into the Plaza with access to Coventry would seem to be necessary. **Highbury Avenue Eastbound Right-Turn** – I support an increased green time and an increase in the storage length. **Hamilton Road Eastbound Left-Turn** – I support and increase to the storage length. **Hamilton Road Westbound Left-Turn** – I support an increased green time for advanced left and an increased storage length. **Hamilton Road Westbound Straight-Through/Right** – I support the creation of a bus bay downstream of Highbury to avoid interference to straight through traffic movement, although I question the wisdom of having driver transition and washroom breaks occur at this busy intersection, and I support the consolidation of upstream bus stops to eliminate the stop immediately east of Highbury.

I would also like to suggest that traffic would flow better and safer if there was no southbound left turn from Highbury to Magee and no southbound left from Magee to Highbury.

I have previously commented that a major problem at this intersection is the high speed at which vehicles approach it coming north on Highbury. Maybe the speed should be reduced starting around Commissioners Road. Also, why do so many large trucks use Highbury rather than Veteran's Memorial?

I did not find the information session particularly helpful. I sensed that decisions have already been made and no one seemed to be very familiar with the problems at this intersection.





COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 – May 14, 2015



Name:

Agency :

Address:

Email:

Please provide your comments below:

KEEP INFORMED OF PROJECT.

Please deposit this form in the comment box or return by **May 31, 2015** to:

Attn: Janet Smolders, MCIP RPP
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
Email: melmadho@london.ca

Personal information collected and recorded at the Public Information Centre or submitted in writing is collected under the authority of the Municipal Act, 2011 and will be used by members of Council and City of London staff in their review of this matter. With the exception of personal information, all comments will become part of the public record. Questions about this collection should be referred to Cathy Saunders, City Clerk, at 519-661-2500 ext. 4937.



JMS

DILLON
CONSULTING

COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 – May 14, 2015

RECEIVED

25 2015

N, LONDON

Name:

Agency :

Address:

Email:

Please provide your comments below:

traffic at peak times is backed up in front of my house and your maps & charts don't indicate that - a suggestion is making the left turn signal longer by even 10 seconds - getting the buses to stop for breaks @ peak times OR making Bus pull off lane on both North & South side of HAMILTON RD as well as north bound lane on Highbury on North side of HAMILTON RD.

- PROHIBITING LEFT TURN OFF HAMILTON RD ONTO Coventry

- PROHIBITING LEFT TURN OFF NORLAN AT PEAK TIMES

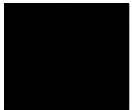
Please deposit this form in the comment box or return by **May 31, 2015** to: ➔

Attn: Janet Smolders, MCIP RPP
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
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SOUTH BOUND HIGHWAY - PROHIBIT LEFT TURN ONTO
MAGEE, BUT ENLARGE LEFT TURN LANE ONTO
HAMILTON RD - MANY TAKE MAGEE TO AVOID
SHORT ACCESS TO LEFT LANE AT HAMILTON





COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 – May 14, 2015



Name:

Agency :

Address:

Email:

Please provide your comments below:

- ① Concerned regards pedestrian walk lights at Hamilton Rd + Highbury - need more time for crossing intersection.
- ② Need advanced turning signals turning left at Highbury from Hamilton Rd. going east.
- ③ A median in front of Hiles St would be problematic for left turns.
- ④ Impressed with the way your info has been set up for information

Please deposit this form in the comment box or return by **May 31, 2015** to:

Attn: Janet Smolders, MCIP RPP
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
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Smolders, Janet <jsmolders@dillon.ca>

road access for Hamilton Road and Hale St.

1 message

Sun, May 17, 2015 at 9:52 AM

To: highburyhamilton@dillon.ca

I noticed when I was looking at the map of Hamilton road. That the street access from Mac Donald's and the Fairmont plaza are not aligned. In the past I know if some body is trying to turn left from both access points at the same time they hit head on. Since your proposing to eliminate access points and limiting left hand turns these will be nearly the only East bound access from the plaza and West bound from Mac Donald's, the perfect storm.

I was wondering if Mac Donald's and Shell's west bound access could combine a single access point and realign with No Frills and the plaza to give us a running chance to make a left and get back on the street.

The only other access from the plaza parking lot is to far east and to close to Hale. The South access to Hale St. Is to close to the corner to cross the right hand turn lane and safely enter the left hand turn lane to turn left East bound. If more than one car let alone the Hamilton road bus is stuck at the corner your screwed. We won't even talk about turning left into the north bound lane of Hale street. The only alternative is the North entrance Access from Hale to the parking lot. It is used to get into the left hand turn lane on Hale to go East on Hamilton Rd or turn left to access North bound lane Hale St..(every one east of Highbury and South of Dundas knows this and uses it). Would it be possible to close both access points and have one that exits in between, stop the oncoming traffic at the entrance so that you could access hale street from the lot. One more thing The North East corner of Hale/Hamilton is to square it's extremely dangerous for kids, seniors and scooters. Hale St. is to narrow for 3 lanes, buses and trucks turning North on Hale from Hamilton Rd. in either direction is dangerous but from the west bound lane to the north around that tight corner is going to seriously hurt or kill a pedestrian some day.

I was wondering since I don't believe you, I'll put another traffic light in at the plaza-mickey D's entrance.

? Are the advance lights at Hale/Hamilton and Highbury/Hamilton in sync ? If they were would they create a longer interval in the traffic? There all ready is a short interval so that you can make the left out onto Hamilton Rd..Hamilton Rd. East bound traffic has the advance at hale and west bound Hamilton at highbury has the advance. If traffic north bound on highbury turning east bound and hale st. south bound turning west bound was delayed during the advance time, would that create an interval for commercial traffic to get out on to Hamilton road. To complicated?

I was wondering? If the stop lines on Highbury and Hamilton were at 90 degrees instead of angled across the lanes. Wouldn't it make it a shorter distance for pedestrians to cross the intersection. Even though they would have to walk a short distance to access the cross walk wouldn't it be safer. By doing this might require cutting back the medians it would make the intersection bigger and much easier to traverse the left hand turns from Hamilton Rd. to Highbury Ave. North and South.

I,m sure you're aware of 3 service stations, 2 banks, 4 restraunts, grocery store, school, YMCA, dog park and a huge conservation area along with a large area of people who depend on alternate transportation other than a car . All creates a huge amount of pedestrian traffic. We all need to safely cross HAMILTON ROAD.

I don't envy you.



Smolders, Janet <jsmolders@dillon.ca>

Highbury Hamilton improvements.

1 message

Fri, May 15, 2015 at 12:53 PM

[REDACTED]
To: "highburyhamilton@dillon.ca" <highburyhamilton@dillon.ca>

I did not see anything in the proposal for west bound Hamilton just having two left hand turn lanes designated with only one straight through lane. Also why are we not considering a multi lane round-a-bout for this intersection like they have in Michigan?

[REDACTED]



Smolders, Janet <jsmolders@dillon.ca>

Comment Form - Highbury Ave/Hamilton Rd Intersection Improvements1 message

Sat, May 30, 2015 at 10:29 PM

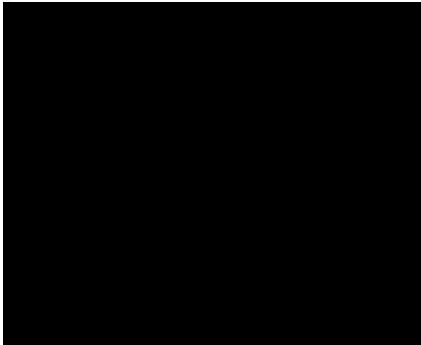
To: highburyhamilton@dillon.ca, melmadho@london.ca

Good Evening.

I'm sending this email to both Janet Smolders with Dillon Consulting Ltd and Maged Elmadhoon with the City of London.

Please find a pdf attached with my/our comments regarding the Highbury Ave/Hamilton Rd Intersection Improvements Environmental Assessment Study Public Information Centre #1 - May 14, 2015. As owners of [REDACTED] I attended the meeting and have some questions, suggestions and comments about this intersection project. I look forward to the next information meeting as well as a response to my questions, suggestions and comments.

Thanks

**Highbury Hamilton Improvements.pdf**

18K

Comment Form
Highbury/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 - May 14, 2015

May 29, 2015

[REDACTED]

[REDACTED]

After attending the meeting I have several comments and questions:

As the owners of [REDACTED] we are wondering what changes this project will have on our property. Will the City of London need more of our front yard and driveway and how does that process work? Does the City offer to purchase the home outright at a fair market value with today's road configuration or just expropriate the land they require? The value of the home and property will significantly decrease if more land is taken from the existing lot size, plus entering and exiting the driveway will become even more difficult if more of my land is taken.

When we purchased [REDACTED] years ago, the former owner explained that the City expropriated the land and then constructed the retaining wall. The City then gave the retaining wall back to the property owner. Now as the owner I have to maintain the retaining wall which can become very expensive given the damage caused by road salt spray over the winter season. If a new retaining wall is required with this future intersection improvement project, will the City construct and maintain the retaining wall at their expense or will it again be downloaded back to the property owners?

If the current retaining wall is replaced by a taller retaining wall this will greatly decrease the safety sight line for seeing pedestrians, cyclists or vehicles when trying to exit from whatever portion of the driveway that remains after the road changes are completed on Highbury Ave.

As owners of this property and residents of the east end we travel through this intersection at least twice a day, if not more. Some questions, comments and suggestions arose regarding the intersection improvements

Is there a plan in place to install bike lanes on Highbury Ave and/or Hamilton Road, as we have either overlooked them or we are not seeing bike lanes on any drawings?

Does the City need to look at remedies for the number of left hand turns onto side streets, businesses and residential homes along Highbury Ave between Hamilton Rd and Trafalgar St? A thought would be to stop all left turns between Trafalgar St and Hamilton Rd as wherever anyone is turning left in that stretch of road the traffic just backs up. Or

Comment Form
Highbury/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 - May 14, 2015

an option would be to include a shared central lane for left hand turns, south or north bound which would give access to driveways and streets in the area.

I see a concern where the City is trying to increase the movement of traffic on Hamilton Road, but the City has a huge bottle neck at the intersection of Hale St and Hamilton Rd. going east or west on Hamilton Road is always delayed because Hamilton Rd is only 2 lanes wide east of Hale St. As the City remedies the intersection of Highbury Ave and Hamilton Rd they have just moved the traffic jam one block east to Hale St for the morning or evening rush hour of people going to and coming home from work. Around 5 pm, going eastbound, the traffic is often backed up to East St and going westbound, often reaches to Fairmont PS or even as far as Gore Rd. Is there a plan to make Hamilton Rd four lanes to at the very least Gore Rd to help with the traffic flow? Without the City doing something in this stretch of road the whole idea of changes to Highbury/Hamilton intersection just is a waste of time because the bottle neck is going to be worse and just moved to one block east of the intersection you are trying to fix.

Is the City going to provide a left turn lane into the No Frills Plaza for the east bound traffic as I see the centre and east entrances are going to still be open to traffic? All of the no left turns referenced in the handout from the meeting, are they going to be created by a raised median or just signage? We don't believe just signage will stop the left turns and a raised median would be required.

Is there plans, if there are no raised medians on Hamilton Rd, to make U-turns illegal for east and westbound traffic? Is there plans to limit access into the small plaza where Subway is located? If their entrance was on Giles instead of Hamilton Rd it would make it a safer entrance/exit for everyone involved.

As a London Transit bus driver I can tell you the need for bus bays in the Highbury Ave and Hamilton Rd intersection is critical given that this intersection is a transfer point for passengers and a timed waiting point for the buses. The drivers use the Shell station and the Esso station as washroom breaks and are listed by the LTC as recognized washroom stops. For the Hamilton Road bus route this really is the only place that we have access to washrooms. When westbound on Hamilton Road I use the Esso station as a washroom stop at times, but also as the place to kill any time I may have to wait so as not to block traffic turning from Hamilton Rd to north on Highbury Ave. This area is used as a timed transfer point from the Highbury Ave (Route 14) buses and also the Hamilton Rd (Route 3) buses, so the installation of bus bays is needed in this area. The LTC also has built into the schedule a timed layover in front of the Shell station at different times in the day or night. Also the Highbury Ave bus route often uses 60-foot buses so the bus bays need to fit the bus size. I hope this is of some help in locating the bus bay locations.

At the present time the walk lights at Hamilton Rd are not long enough even for me to cross the road east to west or west to east. There is a number of elderly people in the area plus the people pushing shopping carts across the road which all seem much slower than

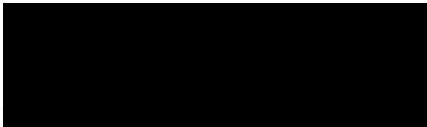
Comment Form
Highbury/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #1 - May 14, 2015

me crossing the road. The timing for the walk light at present needs to be longer if the walk button is pushed and with any additional width in the road added the light again will need to be increased for the walking time.

The advance green southbound on Highbury Ave at Hamilton Rd at the present time very rarely seems to work which could be a situation where the light is not turned on in the traffic control headquarters at certain hours. Quite often when travelling south on Highbury Ave the traffic seems to be only able to turn left onto Hamilton Rd when the traffic stops northbound for the red light on Highbury Ave. This just adds to the delay of the traffic turning south on Highbury Ave from westbound Hamilton Rd.

A problem that the City needs to address which is not from this project is the parking of cars on both sides of the street on Giles St by the repair garage on the northwest corner. There are days when I have struggled to get my car down that street and have often wondered how an emergency vehicle would gain access to the street. The garage has turned the street into their personal parking lot. I use this street when going over to our property at [REDACTED] and park on Calvin St because it is often too difficult to get in and out of the present driveway given the traffic situation.

Please feel free to contact us regarding anything in this letter. We look forward to attending the next information meeting about this project.





Highbury Avenue/Hamilton Road Intersection Improvements Environmental Assessment Study



Notice of Public Information Centre 2

The City of London retained Dillon Consulting Limited to complete a Schedule 'C' Municipal Class Environmental Assessment (EA) Study for improvements to the Highbury Avenue/Hamilton Road intersection. Building on the City's 2030 Smart Moves Transportation Master Plan, the EA Study assessed the need for additional through and turning lanes on Highbury Avenue, improvements to the median on Hamilton Road and pedestrian and cyclist friendly design features. Changes in access to Highbury Avenue and Hamilton Road were also assessed. A map of the Study Area is shown on the reverse.

Public Meeting:

Public input, including comments, questions and concerns are welcome throughout the study. A Public Information Centre will be held on **March 9, 2016**, to present the alternative designs developed for the intersection improvements, comparative evaluation of the alternatives and the preferred design option.

Public Information Centre 2

Date:	Wed., March 9, 2016
Time:	4:30 – 7:00
Location:	BMO Centre London 295 Rectory Street London, Ontario
Format:	Informal Drop-in Session

For More Information:

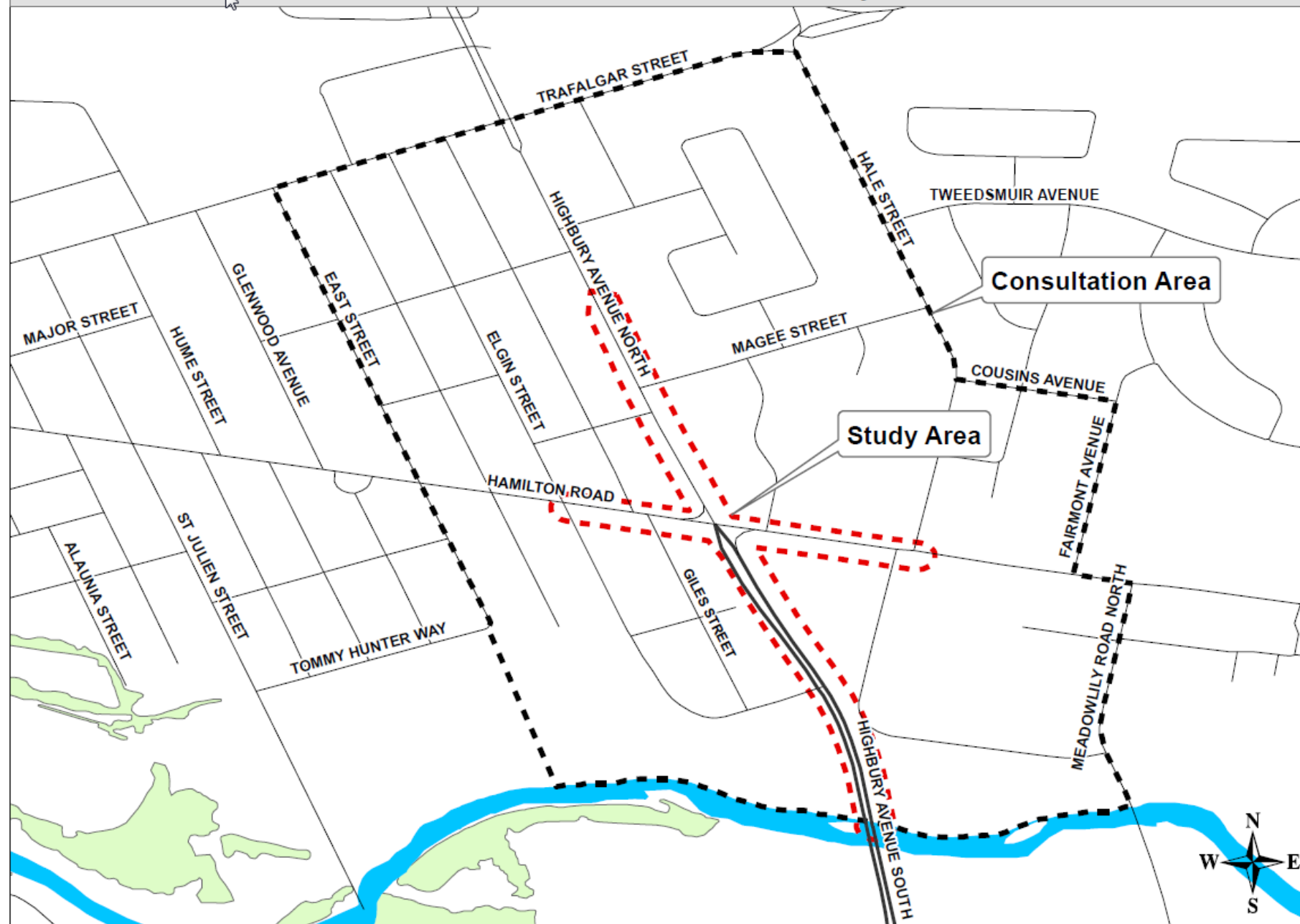
For more information, to provide comments or to be added to the mailing list, please visit <http://www.london.ca/residents/Environment/EAs/Pages/Highbury-Avenue-and-Hamilton-Road-Intersection.aspx> or contact:

Brian Huston, P.Eng.
Project Manager
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 4W7
Tel: 519-438-6192 Ext. 1227
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning and Design
City of London
300 Dufferin Avenue, P.O. Box 5035
London, Ontario, N6A 4L9
Tel : 519-661-2500 Ext. 4934
Fax : 519-661-4734
Email: melmadho@london.ca

Information collected for the study will be used in accordance with the Municipal Freedom of Information and Protection of Privacy Act. Except for personal information, including your name, address and property location, all comments received throughout the study will become part of the public record and included in project documentation.

Highbury Avenue/ Hamilton Road Intersection Improvements Environmental Assessment Study





HIGHBURY AVENUE/HAMILTON ROAD INTERSECTION IMPROVEMENTS

Municipal Class Environmental Assessment

PUBLIC INFORMATION CENTRE 2
March 9, 2016

ACCESSIBILITY

Under the *Accessibility Standards for Customer Service Regulation (2008)*, the City of London (City) is committed to ensuring that public participation opportunities are accessible to all participants. This Public Information Centre (PIC) incorporates the following accessibility features:

- Accessible venue location for persons with disabilities, including wheelchair ramps, accessible washrooms, parking and elevators
- For persons requiring assistance, project team members will:
 - Explain presentation board content
 - Assist with the preparation and submission of comment forms
- Reading aids are available, including magnifying glasses.

WELCOME! AND TODAY'S AGENDA



The City's Smart Moves Transportation Master Plan (TMP) is a long-term transportation strategy to guide transportation and land use decisions to 2030 and beyond. Building on the TMP, this Class EA study assessed the need for traffic operations and safety improvements, access modifications and pedestrian and cyclist friendly design features at the Highbury Avenue and Hamilton Road Intersection.

Today's Agenda

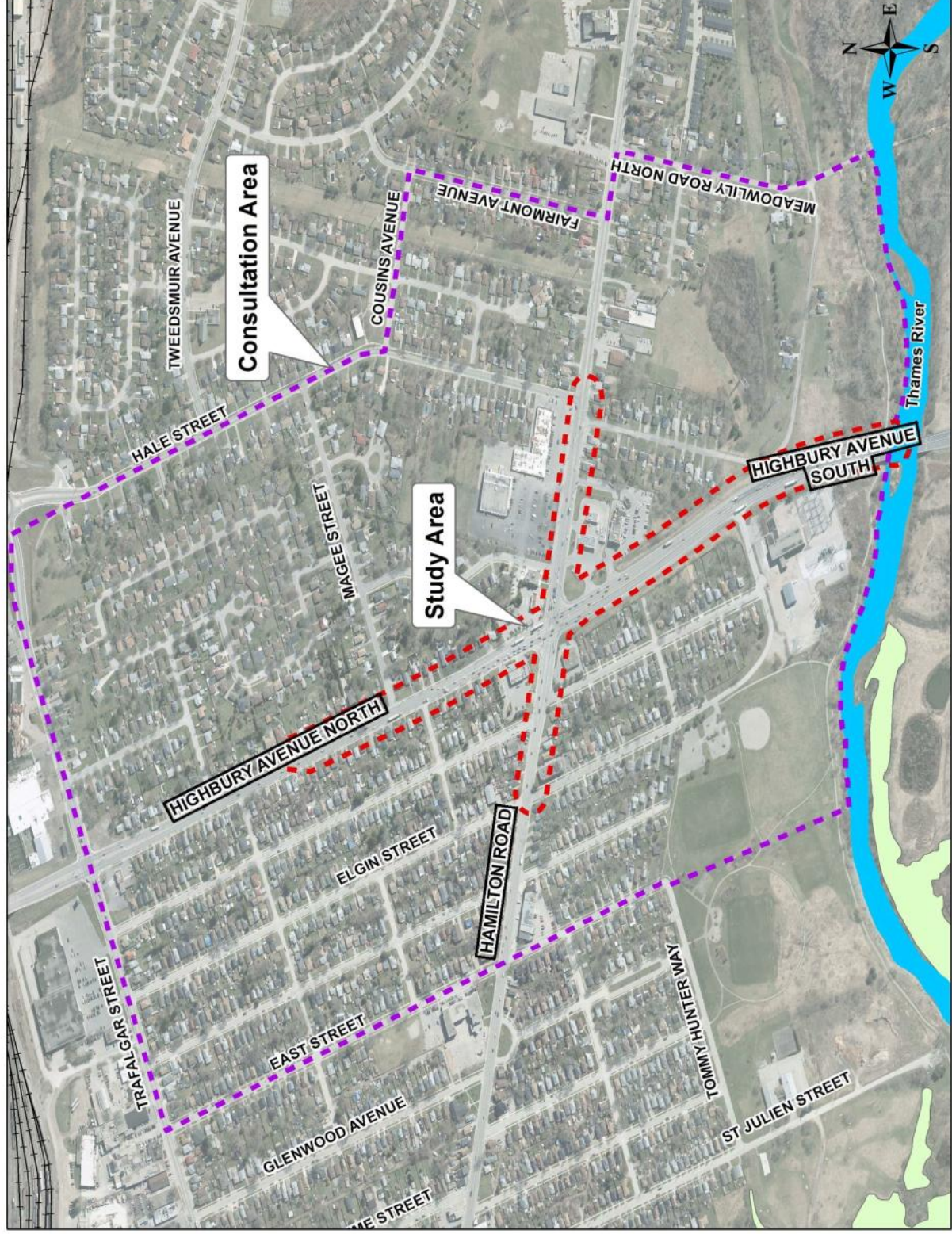
✓ PRESENT:

- Summary of Phases 1 and 2 of the Class EA process
- Evaluation of alternative designs for the intersection improvements and the recommended design, including proposed access management changes
- Design options for the recommended design

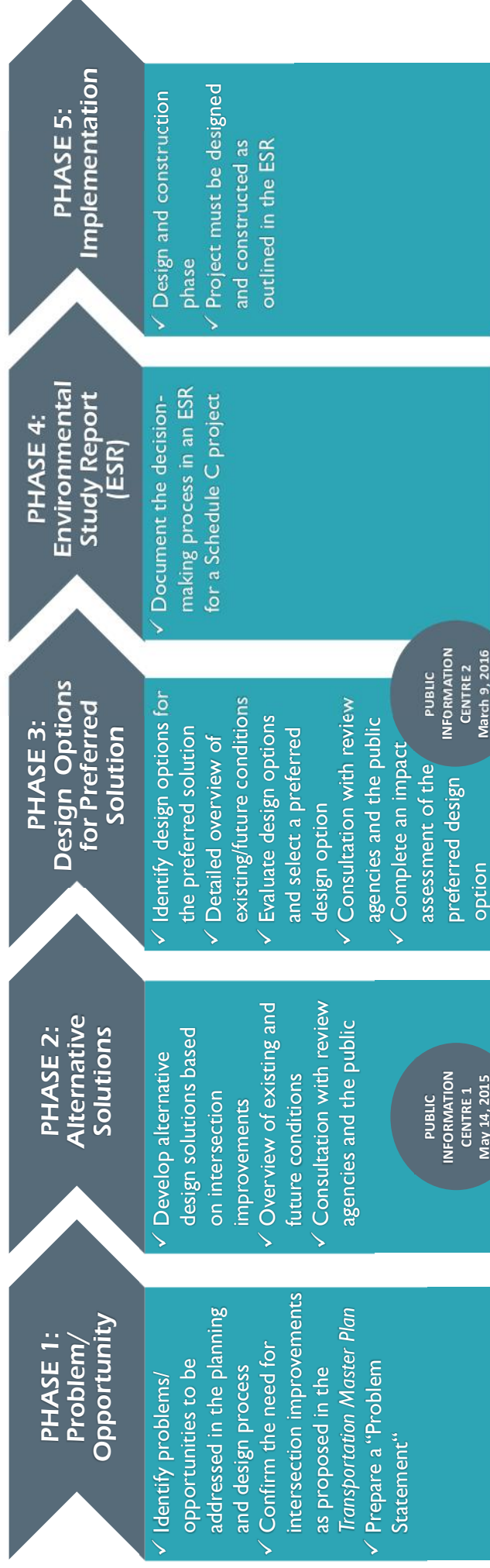
✓ OBTAIN public/agency input and comments

✓ OUTLINE the next steps in the planning and design process.

HIGHBURY AVENUE/HAMILTON ROAD STUDY AREA



CLASS EA PROCESS



The Study is following the requirements of the *Municipal Class Environmental Assessment (EA)* (2011) for a Schedule 'C' (major) project.

The Class EA process ensures:

- ✓ All relevant social, environmental and engineering factors are considered in the planning and design process
- ✓ Public and agency input is integrated into the EA process.

The Highbury Avenue/Hamilton Road project is following Phases 1 to 4 of the Class EA process:

- Phases 1 and 2 Review and Update, as covered by the 2030 *Smart Moves Transportation Master Plan*, have been completed
- Phase 3 evaluated alternative designs. A preferred design will be chosen at the end of Phase 3
- In Phase 4, the ESR will be placed on the "public record" for a 30-day public and agency review period.

PROBLEM/OPPORTUNITY STATEMENT



The intersection improvements will be planned and designed to minimize impacts on the residential neighbourhoods and existing and future commercial uses in the Study Area. Improvements at the Highbury Avenue/Hamilton Road intersection are required to address:

- **Existing Traffic Volumes (2015)**
 - Intersection operates at Level of Service (LOS) D during AM Peak Hour and LOS F during PM Peak Hour with significant delays and queues
- **Future Traffic Volumes without improvements (2025):**
 - During AM Peak Hour, the overall intersection operates at LOS E with up to 2.5 minute delays for the northbound left movement
 - During PM Peak Hour, the overall intersection operates at LOS F with more than 3 minute delays for the eastbound through and westbound left movements and delays of over 9 minutes for the northbound left
- **Intersection Safety (2015):**
 - Ranks in the top 50* most collision-prone intersections in London
- **Access Management Issues:**
 - Individual access points to commercial uses are contributing to the existing queuing and collision issues
- **Pedestrians/Cyclists Needs.**

*According to the City's 2014 Network Screening

PUBLIC AND AGENCY CONSULTATION TO DATE



Over 150 members of the public are involved in the Class EA Study:

- 140 people replied to the Notice of Study Commencement with 45 submitting comments
- 33 people attended PIC 1 with 15 submitting comments
- Project Team has met with local businesses to discuss access changes.

Most residents agree that intersection improvements are required to relieve traffic congestion, reduce neighbourhood traffic infiltration and improve traffic and pedestrian safety. **Concerns** include property requirements, access changes, timing/length of construction, traffic signal timing and pedestrian/cyclist safety.

Residents **suggested many improvements**, including:

- Prohibit left turns onto some streets and businesses to reduce traffic back-ups and infiltration through neighbourhoods
- Prohibit on-street parking on some streets
- Add double left-turn lanes
- Provide a turning lane on Highbury Avenue to facilitate access to houses
- Modify traffic signals, including advanced green, longer advanced green/pedestrian crossing times and signal coordination
- Redirect truck traffic to Veterans Memorial Parkway
- Reduce the speed limit on the freeway portion of Highbury Avenue
- Add inset bus bays.

COMMITTEE TO DATE
Highway Avenue/Highway 104 Intersection Improvements
Public Information Centre #1 - May 14, 2015

Name: _____
Agency: _____
Address: _____
Email: _____

Please provide your comments below:

Please deposit this form in the comment box or return by May 14, 2015 to:
Attn: David Brindley, MPP BPP
City of London
130 Dundas Avenue, Suite 1600
London, ON N6A 4L2
Phone: 519-338-1288 Ext. 1288
Email: david.brindley@cityoflondon.ca

Attn: Margaret Eustachius, M.Eng., P.Eng.
City of London
130 Dundas Avenue, Suite 1600
London, ON N6A 4L2
Phone: 519-338-1288 Ext. 1288
Email: margaret.eustachius@cityoflondon.ca

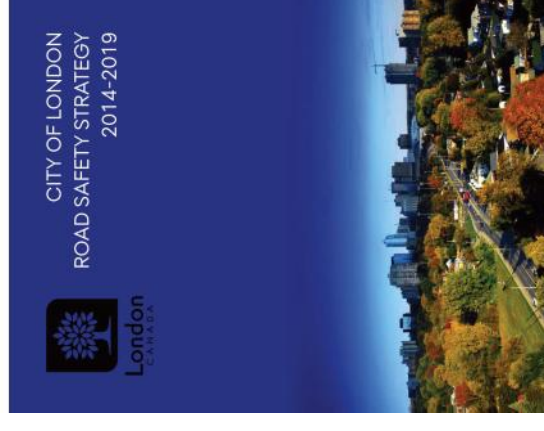
Personal information collected and recorded at the Public Information Centre is submitted in writing to the City of London and is subject to the City's Access to Information Act (ATIA) and the Freedom of Information Act (FOIA). The City of London is not responsible for the use of the information collected and for the accuracy of the information provided. Questions about this collection should be referred to the City of London, 130 Dundas Avenue, Suite 1600, London, ON N6A 4L2.

ROAD SAFETY

According to the City's 2014 Network Screening, the Highbury Avenue/Hamilton Road intersection ranks in the top 50 of the most collision prone intersections in London.

The City's *Road Safety Strategy* (2014-2019), prepared with the Middlesex-London Health Unit, Middlesex County and other partners, includes strategies to reduce fatal and injury collisions by 10% by the year 2019. Consistent with the strategy, the City is implementing the following actions to improve safety at collision prone intersections:

- Review advance left-turn phasing and determine need for a protected left-turn phase
- Review visibility of signal heads and sight distances at individual and adjacent signal locations
- Optimize and coordinate signal timing along corridors
- Determine if intersection is suitable for the crosswalk pavement marking program, including ladder markings
- Enhance pedestrian safety by expanding and upgrading pedestrian facilities
- Continue to implement the City's *Cycling Master Plan*.



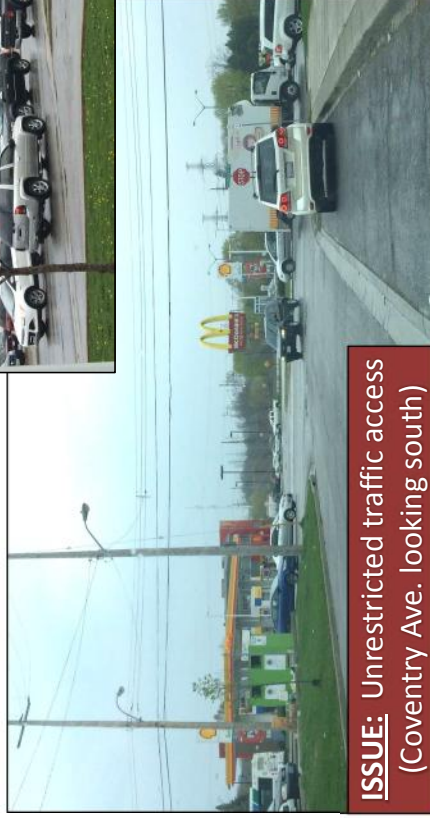
ACCESS MANAGEMENT CHANGES

Managing access alleviates traffic congestion and back-ups, reduces fuel consumption/vehicular emissions and improves safety. Access management changes being recommended at the intersection are:

- **Right-in/Right-out access** – use medians to physically restrict left-turns causing conflicts with other traffic movements
- **Entrance closures** – eliminate entrances in close proximity to the intersection subject to availability of other entrances



ISSUE: Long back-ups and delays
(Hamilton Rd looking North)

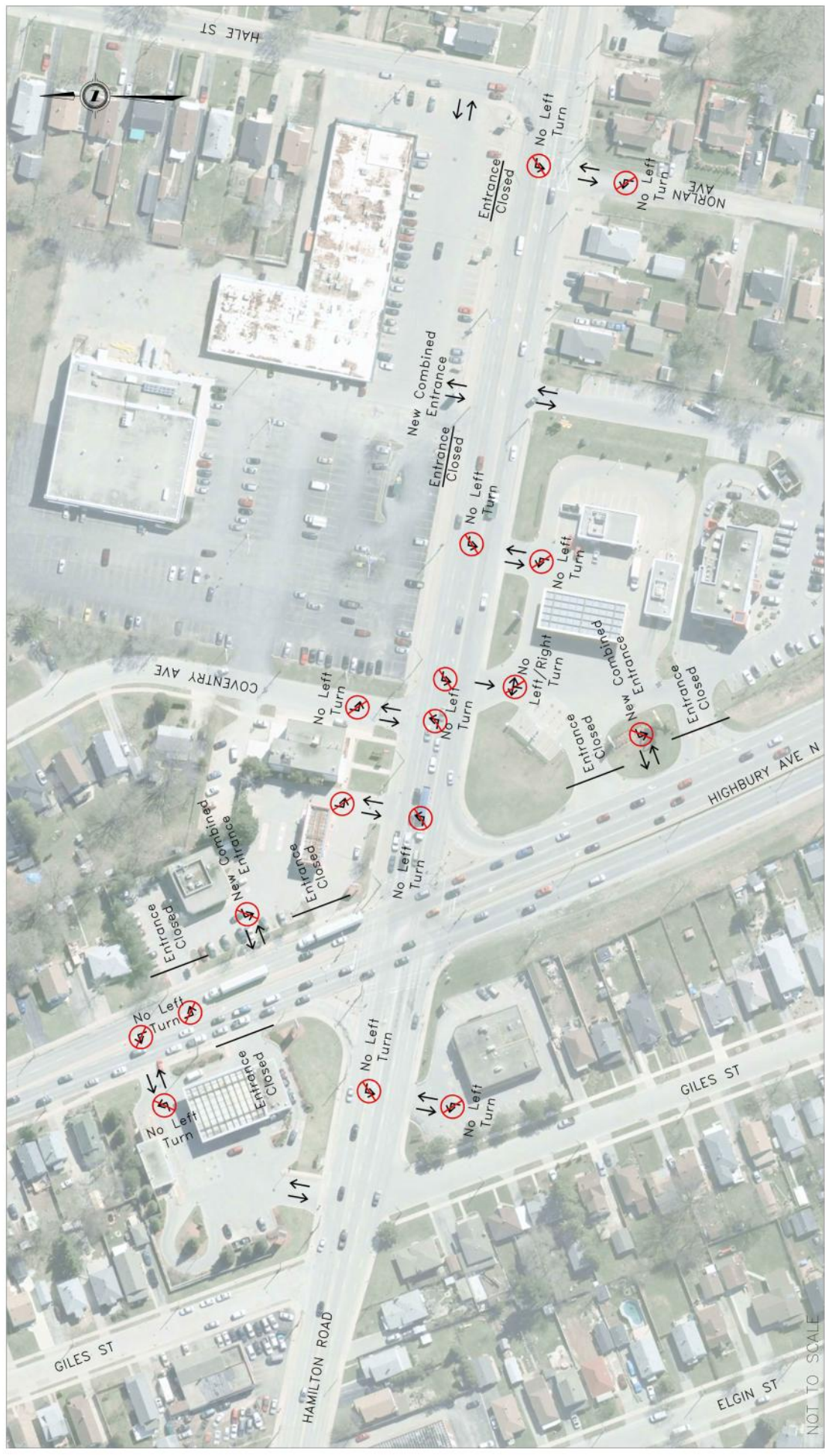


ISSUE: Unrestricted traffic access
(Coventry Ave. looking south)



ISSUE: Heavy traffic volumes
(Highbury Ave. looking north)

PROPOSED ACCESS MANAGEMENT CHANGES



Alternative Designs, Common Improvements



The range of alternatives that could be developed for the intersection improvements is constrained by the surrounding residential and commercial development. Developed to address problems and opportunities, the four alternatives designs include the following *common improvements*:

- Access modifications (see previous display)
- Median islands on Hamilton Road at the intersection and between Highbury Avenue and Hale Street
- Additional southbound through lane on Highbury Avenue
- Eastbound and westbound bike lanes on Hamilton Road
- Eastbound left turn lane to No Frills/Fairmont Plaza
- Westbound left turn lane into McDonald's
- Raised median and two-way left turn lane between Magee Street and the end of the southbound median island, north of Hamilton Road
- Provide bus bays (subject to restrictions).

Alternative Designs, Additional Improvements

Along with the common improvements, the four alternative designs developed for the intersection improvements include the following *additional improvements*:

Alternative 1:

- Additional northbound and southbound through lanes along Highbury Avenue.

Alternative 2:

- Additional southbound through lane along Highbury Avenue
- Eastbound channelized right turn.

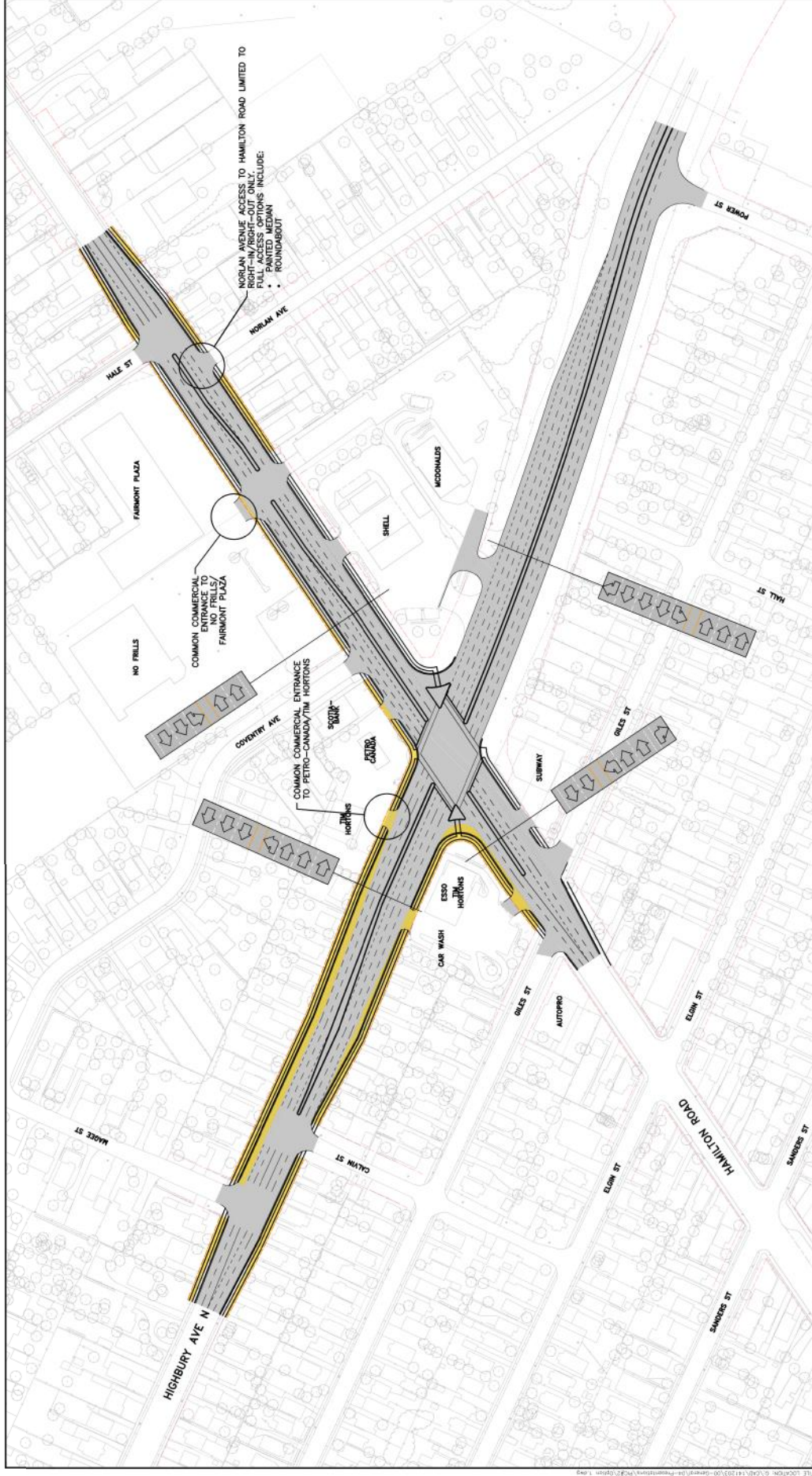
Alternative 3:

- Additional northbound and southbound through lanes
- Eastbound channelized right turn with a receiving lane on Highbury Avenue
- Westbound dual left turn
- northbound channelized right turn lane with a receiving lane on Hamilton Road.

Alternative 4:

- Additional northbound and southbound through lanes
- Westbound dual left turn
- Northbound dual left turn
- Northbound channelized right turn with receiving lane on Hamilton Road.

ALTERNATIVE 1



CITY OF LONDON

HIGHBURY AVENUE/HAMILTON ROAD
INTERSECTION IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT STUDY

TS-1309-11

**CORPORATION OF THE
CITY OF LONDON**

London
CANADA

EXISTING ROW

PROPOSED ROW

PROPOSED NEW RIGHT-OF-WAY

PROPOSED BIKE LANES

SCALE - HORIZ.

1:2500

0m 10m 20m



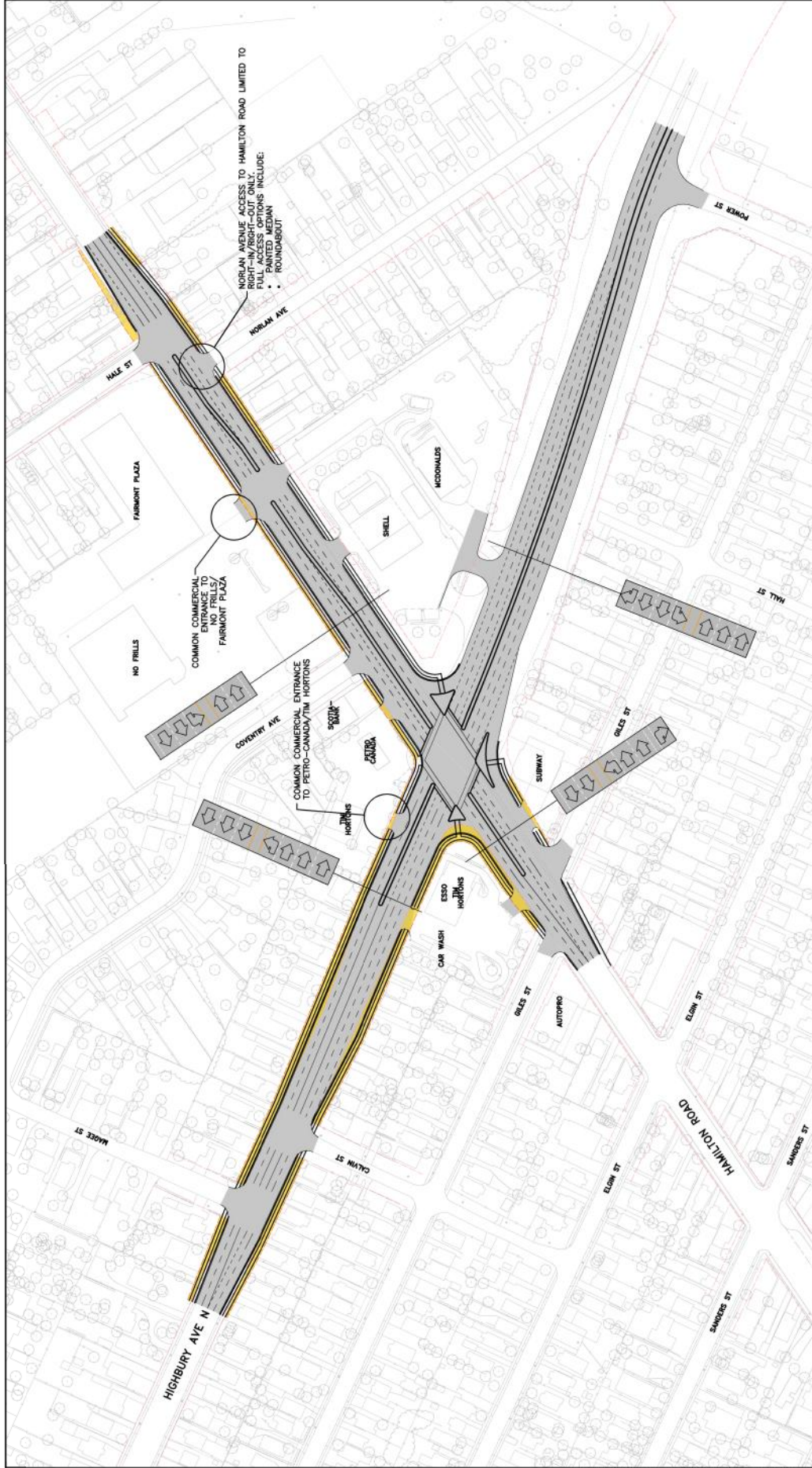
PROJECT No. 14-1203

DATE: MARCH 2016

DILLON
CONSULTING

HIGHBURY AVENUE AND
HAMILTON ROAD
INTERSECTION
ALTERNATIVE 1

ALTERNATIVE 2



CITY OF LONDON
HIGHBURY AVENUE/HAMILTON ROAD
INTERSECTION IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT STUDY

TS-1309-11

CORPORATION OF THE CITY OF LONDON
London CANADA

EXISTING ROW
PROPOSED ROW
PROPOSED NEW RIGHT-OF-WAY

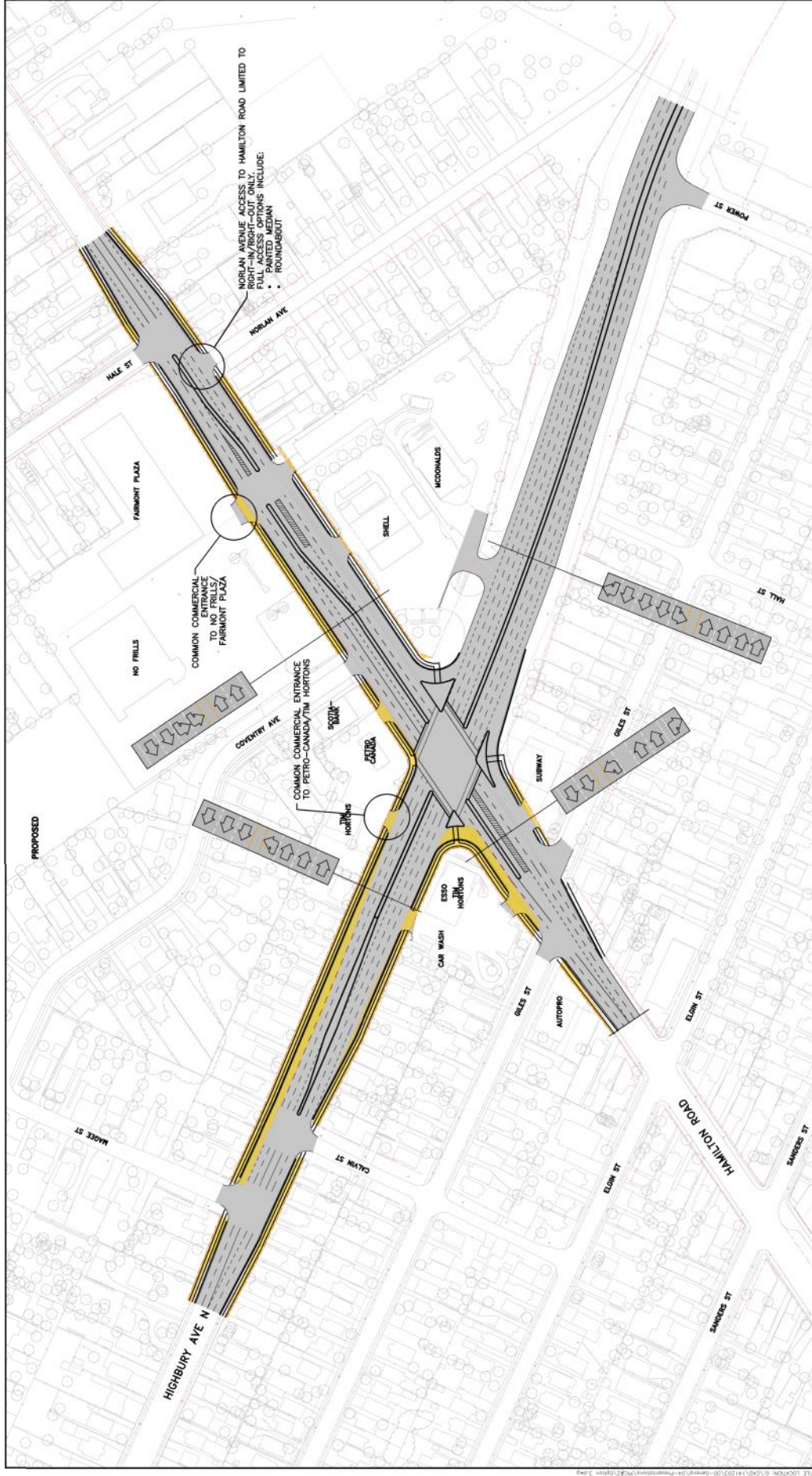
PROPOSED BIKE LANES

HIGHBURY AVENUE AND HAMILTON ROAD INTERSECTION
ALTERNATIVE 2

DILLON CONSULTING

PROJECT No. 14-1203
DATE: MARCH 2016

ALTERNATIVE 3



CITY OF LONDON
HIGHBURY AVENUE/HAMILTON ROAD
INTERSECTION IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT STUDY

TS-1309-11

CORPORATION OF THE CITY OF LONDON
London CANADA

DILLON CONSULTING

PROJECT No. 14-1203
DATE: MARCH 2016

HIGHBURY AVENUE AND HAMILTON ROAD INTERSECTION ALTERNATIVE 3

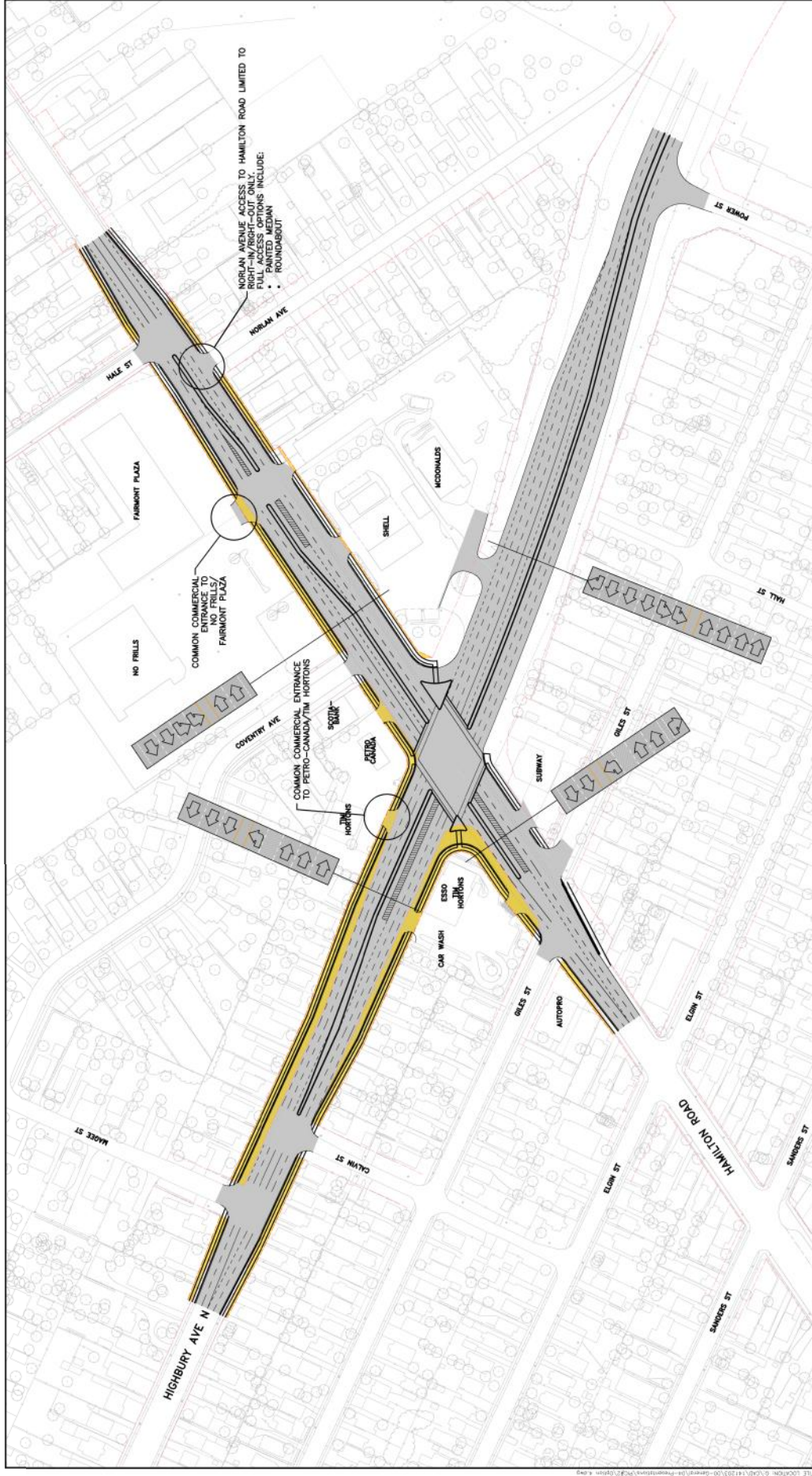
EXISTING ROW
PROPOSED ROW
PROPOSED NEW RIGHT-OF-WAY

PROPOSED BIKE LANES

SCALE - HORIZ.
1" = 20'

1:2" = 20'

ALTERNATIVE 4



CITY OF LONDON
HIGHBURY AVENUE/HAMILTON ROAD
INTERSECTION IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT STUDY

TS-1309-11

CORPORATION OF THE CITY OF LONDON
London CANADA

HIGHBURY AVENUE AND HAMILTON ROAD INTERSECTION
ALTERNATIVE 4

DILLON CONSULTING

PROJECT No. 14-1203
DATE: MARCH 2016

SCALE - HORIZ.
1:2 = 1" = 20m

EXISTING ROW
PROPOSED ROW
PROPOSED NEW RIGHT-OF-WAY

PROPOSED BIKE LANES

COMPARATIVE EVALUATION OF ALTERNATIVE DESIGNS

Evaluation factors and criteria used to evaluate Alternatives 1 to 4 included:

- **Traffic Planning & Operations:**
 - Future (2025) Traffic Operations
 - Impacts on Transit Operations
 - Potential to Reduce Neighbourhood Traffic Infiltration
 - Pedestrian & Cyclist Safety Improvements
- **Construction:**
 - Construction Staging
- **Land Uses and Socio-Economic Environment:**
 - Property/Access Impacts on Residential Uses
 - Property /Access Impacts on Commercial Uses
- **Road Design:**
 - New Infrastructure Requirements
 - Opportunity to Incorporate Urban Design Elements
 - Compatibility with Future Infrastructure
 - Drainage Modifications
 - Impacts on City Services (water, sanitary, storm)
 - Utility Relocations
- **Relative Costs:**
 - Infrastructure Costs
 - Property Costs.

SUMMARY OF COMPARATIVE EVALUATION OF ALTERNATIVE DESIGNS SIMILAR IMPACTS

As shown on the following table, the impacts of Alternatives 1, 2, 3 and 4 are similar or approximately equal for many of the evaluation factors and criteria:

Evaluation Factors & Criteria	Alternatives 1, 2, 3 & 4	Preferred Alternative
Transportation Planning & Operations		
Impacts on Transit Operations	All alternatives consolidate some bus stops and provide bus bays.	Equal
Pedestrian Safety Improvements	Alt. 2 has the shortest crossing distance, while Alt. 4 has the longest. Channelized right turns (all alternatives) and dual left turns (Alts. 3 and 4) are considered less preferred for pedestrians.	Approximately Equal
Cyclist Safety Improvements	Bike lanes on Hamilton Road will improve cyclist safety.	Equal
Road Design		
Opportunity for Urban Design Elements (signage, trees, street furniture, etc.)	Constrained for all alternatives but could be provided in some areas.	Approximately Equal. Less opportunity for Alternative 2
Compatibility with Future Infrastructure	All are compatible with future widening of Hamilton Road, east of Hale Street.	Equal
Drainage Modifications	All alternatives increase impervious areas potentially increasing run-off. Alt. 4 potentially causes the most run-off since it has additional lanes.	Approximately Equal
Impacts on City Services (water, sanitary, storm)	All alternatives have similar impacts.	Approximately Equal
Utility Relocations	Relocations are similar for all.	Approximately Equal
Construction		
Construction Staging & Traffic Management	Construction staging similar for all alternatives. Lane closures required during construction.	Approximately Equal
Land Uses & Socio-Economic Environment		
Access Impacts	Access management changes incorporated into all alternatives provide the same access to businesses and side streets.	Equal
Relative Costs		
Infrastructure Costs	Due to similar scope and limits of work, costs are similar for all alternatives.	Equal

SUMMARY OF COMPARATIVE EVALUATION OF ALTERNATIVE DESIGNS SIGNIFICANT DIFFERENCES IN IMPACTS OF ALTERNATIVES 1 TO 4

Summary of Significant Differences in Impacts for Alternatives 1 to 4				
Evaluation Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Traffic Operations (2025 PM Peak Hour Volumes) The average overall intersection delay for the base case ("do nothing") scenario is 132 seconds/vehicle.	Does not provide an overall improvement in traffic operations compared to base case. Causes significant increases in delays for northbound and southbound through movements which increases potential for traffic infiltration in adjacent neighbourhoods. Average overall intersection delay (during PM peak hour) : 132 s/veh. ○	Does not provide an overall improvement in traffic operations compared to base case. Causes significant increases in delays for northbound and southbound through movements which increases potential for traffic infiltration in adjacent neighbourhoods. Average overall intersection delay (during PM peak hour): 142 s/veh. ○	Provides an overall improvement in traffic operations compared to base case. Causes a slight increase in delays for northbound through and southbound left movements and significant increase in delays for southbound through movements. Potential for increase in traffic infiltration is not as significant as Alternatives 1 and 2. Average overall intersection delay (during PM peak hour): 106 s/veh. ◐	Provides an overall improvement in traffic operations compared to base case. Causes a slight increase in delays for southbound left movement. Potential for traffic infiltration in adjacent neighbourhoods is not as significant as other alternatives. Average overall intersection delay (during PM peak hour): 60 s/veh. ◑
Residential Property Impacts and Costs	Impacts almost all residential properties within project limits. Impacts 7 houses. ◐	Impacts almost all residential properties within project limits. Impacts 7 houses. ◐	Impacts almost all residential properties within project limits. Impacts 7 houses. ◐	Impacts almost all residential properties within project limits. Impacts 10 houses, resulting in the highest residential property costs. ○
Commercial Property Impacts and Costs	Minor property impacts on all commercial properties within property limits. Moderate impacts on Esso/Tim Horton's site. ◐	Minor property impacts on all commercial properties within property limits. Moderate impacts on Esso/Tim Horton's site. ◐	Minor property impacts on all commercial properties within property limits. Moderate impacts on Esso/Tim Horton's site. ◐	Minor property impacts on all commercial properties within property limits. Significant impacts on Esso/Tim Horton's site, likely requiring total site reconfiguration or property acquisition, resulting in the highest commercial property costs. ○
Summary	Alternative 1 does not provide an overall improvement in traffic operations and has moderate impacts on residential and commercial properties. ○	Alternative 2 does not provide an overall improvement in traffic operations and has moderate impacts on residential and commercial properties. ◐	Alternative 3 provides an overall improvement in traffic operations and has moderate impacts on residential and commercial properties. ◐	Alternative 4 provides the most significant improvement in traffic operations but has significant impacts on residential and commercial properties. ○
PREFERRED ALTERNATIVE				

○ Poor (significant impacts/complexity)

◐ Fair (high impacts/complexity)

◑ Moderate (moderate impacts/complexity)

◑ Good (moderate-low impacts/complexity)

● Very Good (low impacts/complexity)

PREFERRED ALTERNATIVE

Alternative 3 is recommended as **preferred**:

- Alternatives 1 and 2 do not provide an overall improvement in traffic operations
- Although Alternative 4 results in the most significant improvement in traffic operations, it has the most significant adverse impacts on residential and commercial properties and the highest property costs
- Alternative 3 provides an overall improvement in traffic operations and minimizes impacts on residential and commercial properties.

Alternative 3 provides a balance between improvements in overall traffic operations and property impacts and costs.

DESIGN OPTIONS

The alternative designs developed and evaluated during Phases 2 and 3 of the Class EA process include lane configuration, geometry and property requirements. The design options developed during Phase 3 for the preferred alternative (Alternative 3) will consider:

- Location of bus-bays
- Landscaping and urban design features
- Median treatment on Hamilton Road at Norlan Avenue
- Need for a left turn lane on Hamilton Road and Giles Street
- Boulevard and sidewalk designs.

PREFERRED ALTERNATIVE



CITY OF LONDON
HIGHBURY AVENUE/HAMILTON ROAD
INTERSECTION IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT STUDY

TS-1309-11

CORPORATION OF THE CITY OF LONDON

HIGHBURY AVENUE AND HAMILTON ROAD INTERSECTION
PREFERRED ALTERNATIVE

DILLON CONSULTING

EXISTING ROW
PROPOSED ROW
PROPOSED ROW REQUIRED

PROPOSED BIKE LANES

SCALE - HORIZ.
1:2,000
0 10m 20m

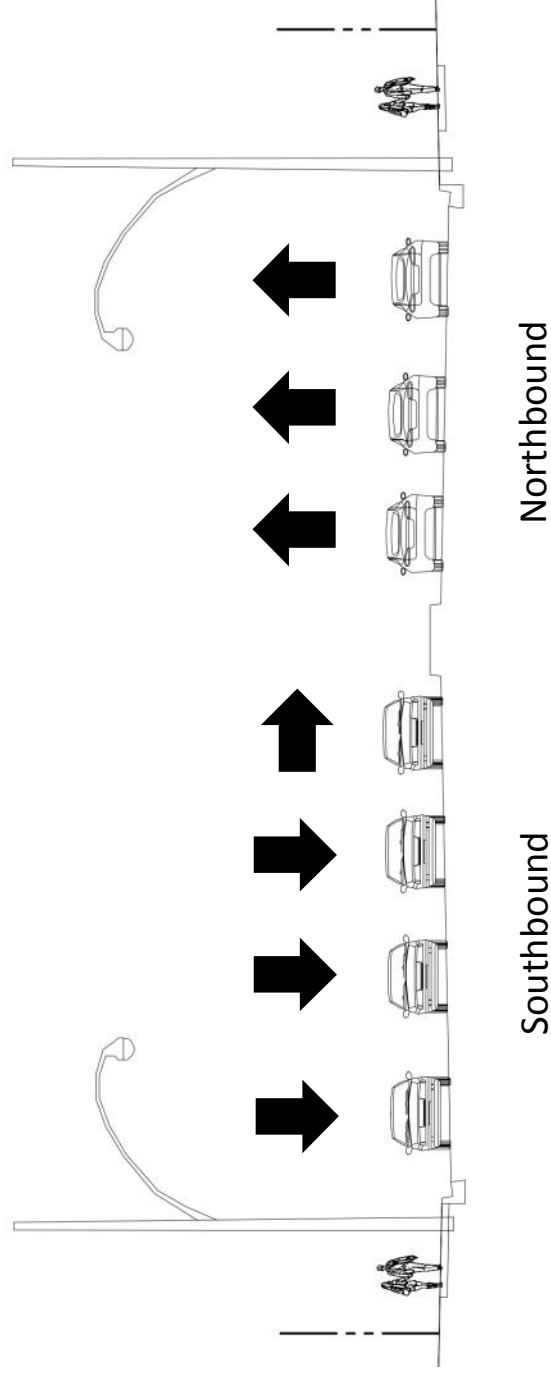
PROJECT No. 14-1203
DATE: MARCH 2016

PREFERRED ALTERNATIVE

Highbury Avenue

North of Hamilton Road

- Six through lanes
- Southbound left turn lane with median island

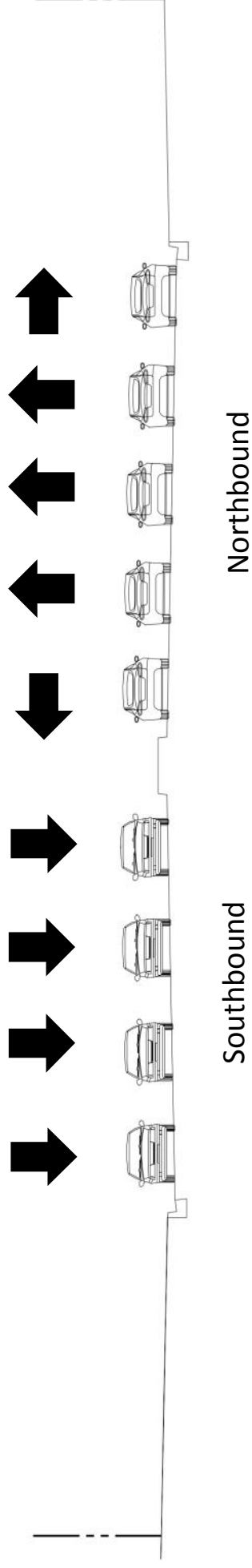


PREFERRED ALTERNATIVE

Highbury Avenue

South of Hamilton Road

- Seven through lanes
- Northbound left turn with median island
- Northbound right turn lane

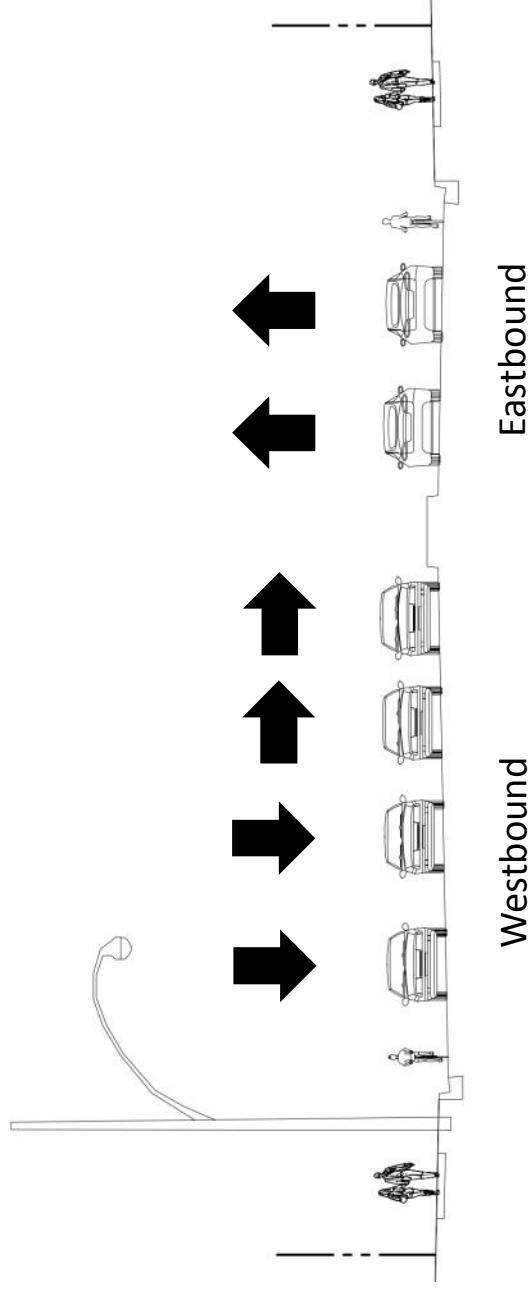


PREFERRED ALTERNATIVE

Hamilton Road

East of Highbury Avenue

- Four through lanes
- Westbound dual-left turn lanes with median island
- Eastbound and westbound on-street bike lanes

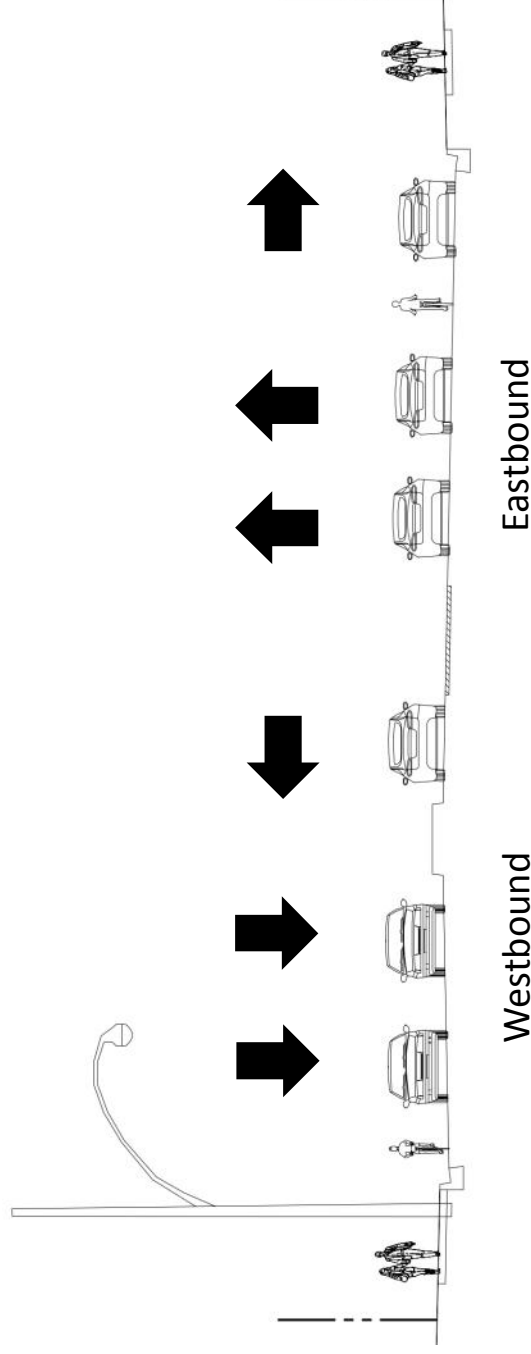


PREFERRED ALTERNATIVE

Hamilton Road

West of Highbury Avenue

- Four through lanes
- Eastbound slotted left turn with median island
- Eastbound channelized right turn lane
- Eastbound and westbound on-street bike lanes



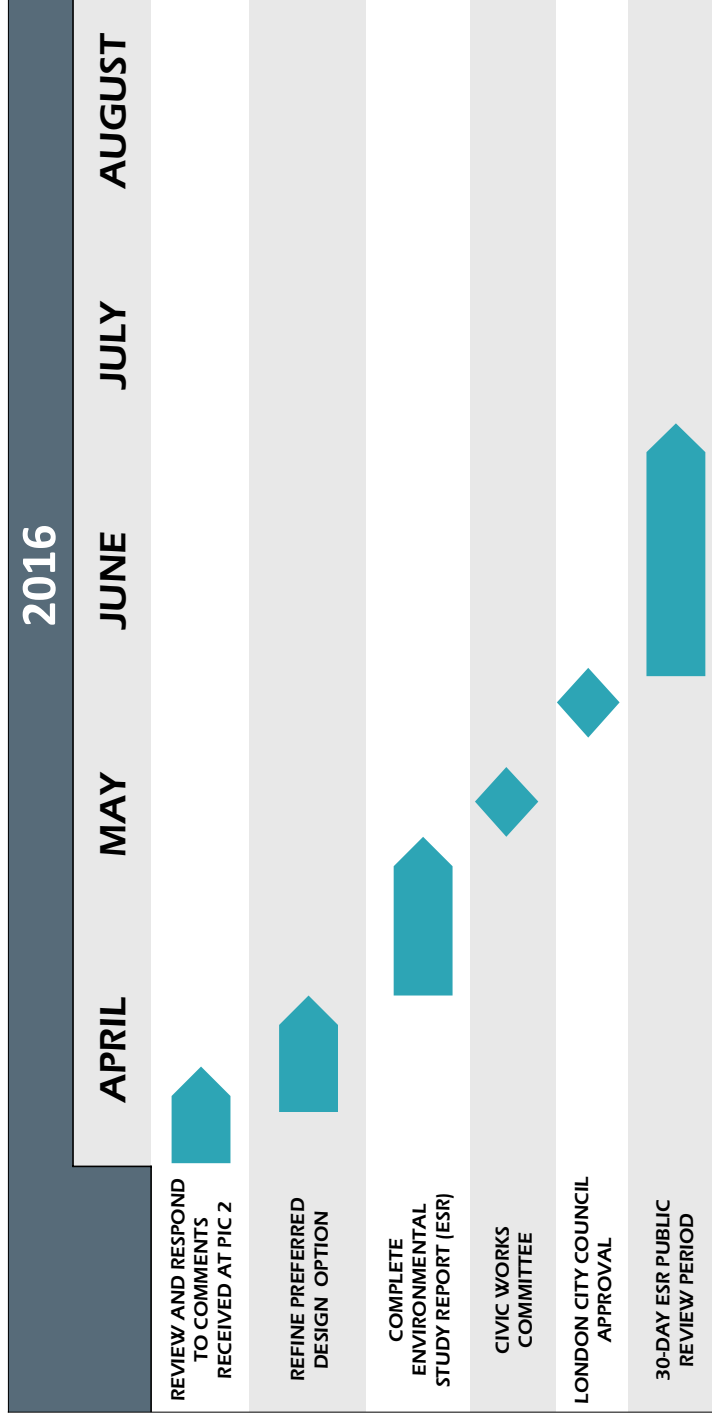
Project currently scheduled for 2019 construction, subject to budget availability.

Utility relocations and property acquisitions will be completed prior to construction.

During construction:

- temporary lane reductions on Highbury Avenue and Hamilton Road
- access to residential properties and businesses will be maintained
- temporary traffic signals will be in operation at the intersection.

NEXT STEPS



THANK YOU FOR ATTENDING

Your input is important to the outcome of this project.

Please complete and return a comment form by

March 25, 2016

Personal information collected and recorded at the Public Information Centre or submitted in writing on this subject is collected under the authority of the Municipal Act, 2011 and will be used by members of Council and City of London staff in their review of this matter. With the exception of personal information, all comments will become part of the public record. Questions about this collection should be referred to the City Clerk's office at 519-661-2500.



RECEIVED

APR 01 2016

CHIPPEWAS OF THE THAMES FIRST NATION

March 21, 2016

The Corporation of the City of London
300 Dufferin Avenue
P.O. Box 5035
London, ON N6H 5T3

Attn: Maged Elmadhoon
Engineer, Transportation Planning & Design

Subject: Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study

Dear Mr. Elmadhoon,

Thank you for distributing the information for the abovementioned work. The proposed work will be conducted within the London Township Treaty area, to which Chippewas of the Thames First Nation (COTTFN) are a signatory. The proposed work is also located within the Big Bear Creek Additions to Reserve (ATR) Land selection area, as well as COTTFN Traditional territory.

Unfortunately, I was unable to attend the PIC 2. Is it possible to obtain a copy? We encourage all project proponents to exercise due diligence in the area of respecting our Aboriginal and Treaty Rights, and any Consultation and Accommodation. Moreover, we look forward to continuing this open line of communication.

Respectfully,

A handwritten signature in blue ink, appearing to be "MA", followed by a horizontal line.

Mary Alikakos
Consultation Coordinator
Chippewa of the Thames First Nation
(519) 289-2662 Ext. 213
malikakos@cottfn.com

c. Brian Huston, Dillon Consulting Limited

320 Chippewa Road, Muncey, ON, N0L 1Y0
Ph. 519-289-5555 Fax. 519-289-2230
info@cottfn.ca www.cottfn.com

March 23, 2016

Janet Smolders, MCIP, RPP
highburyhamilton@dillon.ca
Dillon Consulting Limited

Maged Elmadhoon, M.Eng., P.Eng.
melmadho@london.ca
Manager, Transportation Planning
City of London

RE: Highbury Avenue / Hamilton Road Intersection Improvements, Environmental Assessment Study

Dear Ms. Smolders & Mr. Elmadhoon:

It has been identified that the Highbury Ave / Hamilton Road intersection requires improvements in order to address; existing and future motor vehicle demands, safety, access management as well as pedestrian and cyclist needs. The Middlesex-London Health Unit supports facilitating environments that increase the use of active and safe modes of transportation including walking, cycling & public transit for health, environmental and economic benefits. Given the current Municipal Class Environmental Assessment of the Highbury Ave / Hamilton Road intersection, we recommend the following points for consideration:

Pedestrians

Providing landscaping and urban design features will add to the attractiveness of the area and should serve to encourage more people to walk and to also walk more often. Additionally, enhancing and upgrading the pedestrian facilities at the intersection is warranted, given the addition of lanes to Highbury Ave and the speed / volume of traffic that moves through this intersection.

- In light of Highbury Ave road widening, ensure traffic signal length / count down features allows pedestrians sufficient time to cross the intersection, taking into account pedestrian volumes at different times of day / days of the week.
- Ensure channel islands provide adequate safety and space for anticipated volumes of pedestrians to congregate (Ontario Traffic Manual Book 15, Section 3.5). Consider enhanced crosswalk markings, appropriate signals and signage.

Cyclists

With eastbound and westbound bike lanes being added to Hamilton Road, it can be expected that cyclist volumes will increase and that cyclists will want to access Highbury Ave north as well as the local neighbourhood streets to a greater degree.

- Provide pavement markings & signage to clarify to both cyclists & drivers how to safely navigate the intersection.
 - Eastbound Hamilton Road cyclists making a left turn to head north on Highbury Ave from the eastbound bike lane:
 - Alternatives 3 & 4 have a divider for left turning vehicles which will impact how cyclists will move from the bike lane into this lane in order to make a left turn.
 - Provide appropriate lane and bike lane markings (OTM Book 18, pp. 81-83).
 - Consider bike box or Two Stage Left Turn Queue options.
 - Signage and road markings to indicate cyclist and motor vehicle positioning on eastbound Hamilton Road given the added channel lane (SW corner) in Alternatives 2 & 3 (OTM Book 18, p. 79)
 - Signage in general
 - Indicating bike route(s)
 - No cycling on Highbury Ave South
- Use of various types of road surface treatments to clarify positioning of cyclists and motor vehicles.
- Review bike lane proximity to on-street parking along eastbound Hamilton Road (S) side (OTM Book 18, p. 73).
- Provide bike route connections to / from Hamilton Road, Highbury Ave. N and neighbourhood streets to the Cycling Master Plan indicated by signage on appropriate streets.
- Include bicycle parking where amenities exist, i.e. No Frills, Tim Hortons, Fairmont Plaza, Subway.

Thank you for the opportunity to comment on this Municipal Class Environmental Assessment. Should you have any inquiries related to this submission, please be in touch.

Sincerely,



Bernadette McCall, RN, HBA, BScN, MA
Public Health Nurse
Healthy Communities & Injury Prevention Team
Healthy Living Division
Middlesex-London Health Unit
50 King St., London, ON N6A 5L7
PH: (519) 663-5317, Ext. 2314 /FX: (519) 663-9276
Email: bernie.mccall@mlhu.on.ca



Smolders, Janet <jsmolders@dillon.ca>

Fwd: FW: J29730 LONDON15

1 message

Ariss, Jordan <jariss@dillon.ca>
To: Janet Smolders <jsmolders@dillon.ca>

Mon, Mar 28, 2016 at 8:04 AM

----- Forwarded message -----

From: **Norma McFadden** <nmcfadden@utsconsultants.ca>
Date: Thu, Mar 24, 2016 at 10:18 AM
Subject: FW: J29730 LONDON15
To: "JARiss@dillon.ca" <JARiss@dillon.ca>
Cc: Charlsie Searle <csearle@utsconsultants.ca>

Good Morning Jordan,

We have now received the presentation from the City which outlines the scope of the project. Bell has contracted UTS to conduct the conflict analysis. I had requested CAD from Dillon last year, but we have yet to receive it.

If you could please send us your CAD with profiles and cross-sections if available it would be greatly appreciated. If you have any questions do not hesitate to contact us.

Thank you

Norma McFadden
Project Coordinator
Email address: nmcfadden@utsconsultants.ca

195 St. David Street South, 3rd Floor
Fergus, ON N1M 2L4
Tel: 519.787.1813 ext. 293
Toll Free: 1.888.787.1813
Website: <http://www.utsconsultants.ca>

-----Original Message-----

From: bobbie.levair@bell.ca [mailto:bobbie.levair@bell.ca]
Sent: March-22-16 2:08 PM
To: Norma McFadden <nmcfadden@utsconsultants.ca>
Subject: j29730 LONDON15

Hey Norma,

Hope all is well

Attached is a presentation sent by the city for the above network - when it gets assigned please have the person you assign it to call me if there are questions.

Thanks..bobbie

Bobbie Levair
Bell Canada - Specialist Network Provisioning F-4, 100 Dundas Street, London Ontario N6A 5B6
Office: 519-663-6130
Cell: 226-377-1161
London East, St. Thomas, Belmont, Fingal, Port Stanley, Shedden Sparta, Dorchester, Thorndale

-----Original Message-----

From: Levair, Bobbie K (N234446)
Sent: Tuesday, March 22, 2016 2:02 PM
To: Levair, Bobbie K (N234446)
Subject: Scanned from a Xerox Multifunction Device

Please open the attached document. It was scanned and sent to you using a Xerox Multifunction Device.

Attachment File Type: pdf, Multi-Page

Multifunction Device Location: LONDON\100 DUNDAS\04\WC5845_ONAF_04-8
Device Name: WC5845_ONAF_04-8

Pour plus d'informations sur les produits et solutions Xerox, visitez le site <http://www.xerox.com>

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----- Forwarded message -----

From: Norma McFadden <IMCEAEX_O=ABLEONECLOUD_OU=EXCHANGE+20ADMINISTRATIVE+20GROUP+20+28FYDIBOHF23SPDLT+29_CN=RECIPIENTS_CN=NORMA+20MCFADDEN485@oakvillehydro.com>
 To: "jsmolders@dillon.ca" <jsmolders@dillon.ca>
 Cc:
 Date: Mon, 11 May 2015 11:16:28 +0000
 Subject: FW: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study
 Good Morning Janet,

UTS Consultants has been contracted by Chris Gill of Bell Canada to conduct the conflict analysis for the above project. I understand it is still in the assessment stage, however if you could provide us with CAD files with cross-sections and profiles at your earliest convenience it would be greatly appreciated.

Thank you
 Norma

[http://utsconsultants.ca/images/UTS-2014-Logo-email.png]

Norma McFadden
 Operational Support Associate

195 St. David Street South, 3rd Floor
 Fergus, ON N1M 2L4
 Tel: 519.787.1813 ext. 293
 Website: <http://www.utsconsultants.ca><<http://www.utsconsultants.ca>>

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From: Gill, Chris (6011790) [mailto:chris.gill@bell.ca]
 Sent: April-28-15 3:18 PM
 To: Brian Morris; Norma McFadden
 Subject: Fw: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study

New job. London
 Chris Gill, C.Tech
 Structures Manager-
 Access Network 519-GH
 905 577 6812 office. 289 260 3934 mobile
 Bell Canada.

From: Levair, Bobbie K (N234446)
 Sent: Tuesday, April 28, 2015 11:01 AM Eastern Standard Time
 To: Gill, Chris (6011790)
 Subject: FW: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study

Hey Chris – how are things – here this the update for the EA study at Hamilton & Highbury in London East

will you be the prime contact for this job & I will do the cable work (if it is not contracted out). Please let me know

We have a lot of structure in the area – most notable is on Hamilton Road & Highbury Intersection
 (east & west)
 4PVCD1
 1 PVCD2 &
 1CFD

North & south
 3 PVCD2
 2 CFD
 4PVCD1

The EA study is quite extensive from Trafalgar south to the river & East St to Hale St

Thanks Chris & I hope all is well!

..bobbie

Bobbie Levair
 Bell Canada - Specialist Network Provisioning
 F-4, 100 Dundas Street,
 London Ontario N6A 5B6
 Office: 519-663-6130
 Cell: 226-377-1161
 London East, St. Thomas, Belmont, Fingal, Port Stanley, Shedden
 Sparta, Dorchester, Thorndale

From: Ariss, Jordan [mailto:jariss@dillon.ca]
 Sent: Tuesday, April 28, 2015 10:42 AM
 To: Levair, Bobbie K (N234446)
 Subject: Highbury Avenue and Hamilton Road Intersection Improvements - Environmental Assessment Study

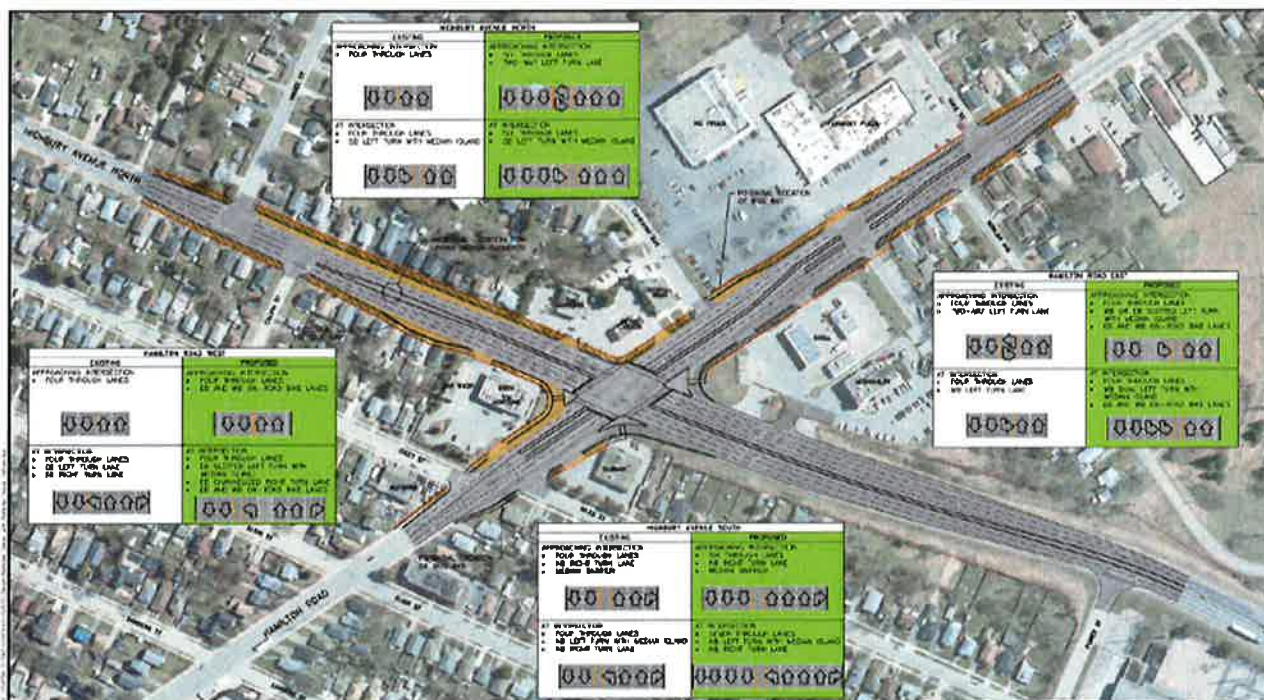
Dillon Consulting Limited is pleased to provide this electronic transmission related to the above-noted project.

If you have any questions, please contact Janet Smolders at jsmolders@dillon.ca<<mailto:jsmolders@dillon.ca>>

Cc: Jagoda Borovickic <borovici@londonhydro.com>, Rodney Doyle <dovler@londonhydro.com>

Regards,
Hassan

DILLON
CONSULTING



**Hassan El Madhoun, P.Eng., M.Eng.**

Distribution Engineer, London Hydro Inc.

*Phone: 519-661-5800, Ext. 5853**Email: elmadhoh@londonhydro.com**Website: <http://www.londonhydro.com>**Address: 111 Horton St., London, ON. N6A 4H6*

This correspondence may contain personal or confidential information. If you are not the intended recipient, please delete the e-mail and any attachments and notify London Hydro immediately.



COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #2 – March 9, 2016



Name:

Agency :

Address:

Email:

TRANSPORTATION DIVISION
RECEIVED
MAR 22 2016
REFERRED TO: _____
COPIES TO: _____

Please provide your comments below:

*I would like white X X painted on
Hamilton Rd at Elgin St plus large sign
saying DO NOT BLOCK INTERSECTION
I hope this can be done soon.*

Please deposit this form in the comment box or return by **March 25, 2016** to:

Attn: Janet Smolders, MCIP RPP
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
Email: melmadho@london.ca

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COMMENT FORM
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #2 – March 9, 2016

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MAR 30 2016

Name:

Agency :

Address:

Email:

Please provide your comments below:

Where is the funding coming from
for both the Environmental
Assessment and the intersection
work?

Thank you.

Please deposit this form in the comment box or return by **March 25, 2016** to:

mailed
March 24/16

Attn: Janet Smolders, MCIP RPP

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400

London, ON N6A 5R2

Phone: 519.438.1288 Ext. 1268

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Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #2 – March 9, 2016



RECEIVED

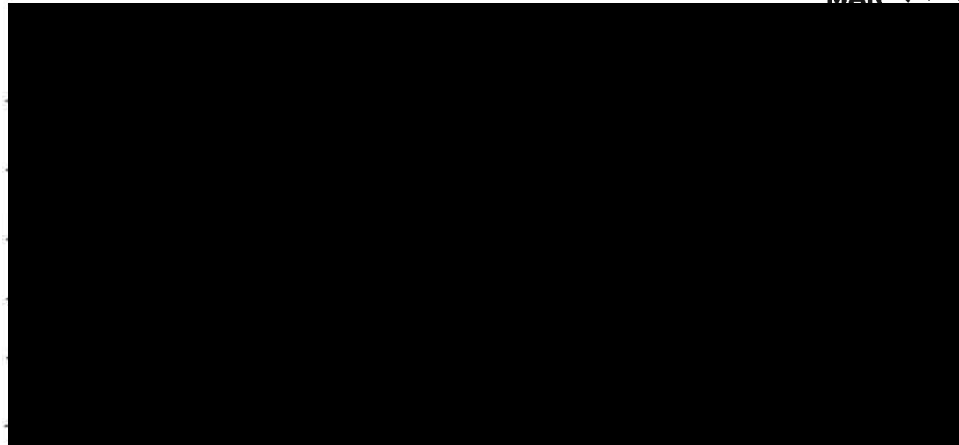
MAR 17 2016

Name:

Agency :

Address:

Email:



Please provide your comments below:

I Agree alternative 3 would be the best.

What is the length of time on this from utility etc start to finish?

The refurbishing of the Highbury + Trafalgar overpass took 6 mths. The single lane started in front of my house and the traffic was quite the nightmare with honking horns etc. This proposal which is definitely needed will go from 3 lanes to 2. How will you handle the speed which is a problem?

Please deposit this form in the comment box or return by **March 25, 2016** to:

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Name:

Agency :

Address:

Email:

Please provide your comments below:

Alternative 3 - like the median on Hamilton preventing left turns.

~~DO NOT~~

Sight lines for north + south left turns off of Highbury are still an issue in my opinion. The angle of the road approaching the intersection makes it difficult to see the traffic going through when there is an opposing vehicle sitting waiting to turn left. If you are also I would suggest the Highbury left turn be moved over on both ways (apart from thru way lanes) to enable a clearer vision. As well dedicated left turn signal during rush hours would be helpful.

Please deposit this form in the comment box or return by **March 25, 2016** to:

Attn: Janet Smolders, MCIP RPP

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130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.

Manager, Transportation Planning
City of London
300 Dufferin Ave, 8th floor, PO Box 5035
London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
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Smolders, Janet <jsmolders@dillon.ca>

Hamilton and Highbury Intersection work

1 message

Thu, Feb 25, 2016 at 3:40 PM

To: melmadho@london.ca

Cc: highburyhamilton@dillon.ca, [REDACTED]

FYI.

This notice in the URL below is dated Feb 25th, and I just received my paper copy by snail mail yesterday (February 24).

The comments form indicated comments must be returned by February 9th - I think something is a little off with your dates.

I am attaching comments now, regardless in both scanned document, and written below.

When the Highbury/Hamilton intersection becomes even remotely backed up (as a result of day to day rush hour, frequent accidents etc), Magee St. becomes a dangerous detour. CONSTANT speeding vehicles race up this street, endangering our residents and children by impatient, hurried drivers trying to avoid that intersection.

We have no speed limiting measures (i.e. speed bumps) and its been something that this street has needed for years.

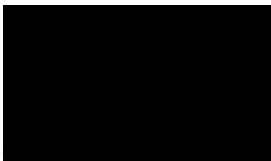
Its a very wide, open street, and you have a full clear view from Highbury to Hale - perfect for speeding, and avoiding the intersection of Hamilton and Highbury.

Im VERY concerned about the impact to Magee St, and its potential to become (by default) a dangerous detour while this work is taking place.

I am only 3 driveways from Hale, and have almost been t-boned at least once a month just backing out of my driveway.

This will need to be taken into review.

<http://www.london.ca/residents/Environment/EAs/Pages/Highbury-Avenue-and-Hamilton-Road-Intersection.aspx>



Scan 1.pdf
1950K



City of London
Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment (EA) Study



Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Except for personal information, all comments will become part of the public record and included in project documentation.

- ☒ I/we would like to be kept informed regarding this project.
- ☐ Please remove me from the mailing list for this project.

Agency:
(if applicable)

Name

Mailing Address

Email

- ☒ I/we prefer to receive information by email.

Comments/Questions/Concerns:

When the Highbury/Hamilton intersection becomes even remotely backed up (i.e. rush hour) Magee St. becomes the detour. CONSTANT speeding vehicles, endangering our residents and children by impatient hurried drivers. We have no speed limiting measures (speed bumps) and it's a nice wide clear street. I'm VERY concerned about the impact as a result of this work.

Please return this form by **February 9, 2015**, to:

Kevin Welker, P.Eng.
Dillon Consulting Limited
Box 426 London, On N6A 4W7

Tel: 519-438-6192 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca



COMMENT FORM

Highbury Avenue/Hamilton Road Intersection Improvements
Environmental Assessment Study
Public Information Centre #2 – March 9, 2016

JMS
DILLON CONSULTING

RECEIVED

MAR 16 2016

DILLON, LONDON

Name:

Agency :

Address:

Email:

Please provide your comments below:

YOU NEED 50 METERS OR MORE PAST HALE ST. FOR MERGE AFTER
THE INTERSECTION. TO STOP MERGING BEFORE THE INTERSECTION,
NEED A BUS BAY ON HALE, MUST STOP ON HALE AND NEW
BUS BAY ON HAMILTON RD. TO FAN APART.
IF THE LANE STOP LINE NORTH BOUND AND SOUTH BOUND
HIGHBURY AVE ALLOW TO VEHICLES IN LEFT HAND TURN LANES
OF HAMILTON RD. TO TURN THE CORNER AT 90° INSTEAD OF 120°
WOULD FLOW SMOOTHER. LARGE VEHICLES MAY COLLIDE IN INTERSECTION
BECAUSE THEY HAVE TO SWING VERY WIDE TO MAKE THE CORNER
AND NOT PINCH VEHICLES ON THE INSIDE OF DOUBLE LEFT LANES. OVER

Please deposit this form in the comment box or return by **March 25, 2016** to:

Attn: Janet Smolders, MCIP RPP
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2
Phone: 519.438.1288 Ext. 1268
Fax: 519-672-8209
Email: highburyhamilton@dillon.ca

Attn: Maged Elmadhoon, M.Eng., P.Eng.
Manager, Transportation Planning
City of London
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London, ON N6A 4L9
Phone: 519-661-2500 Ext. 4934
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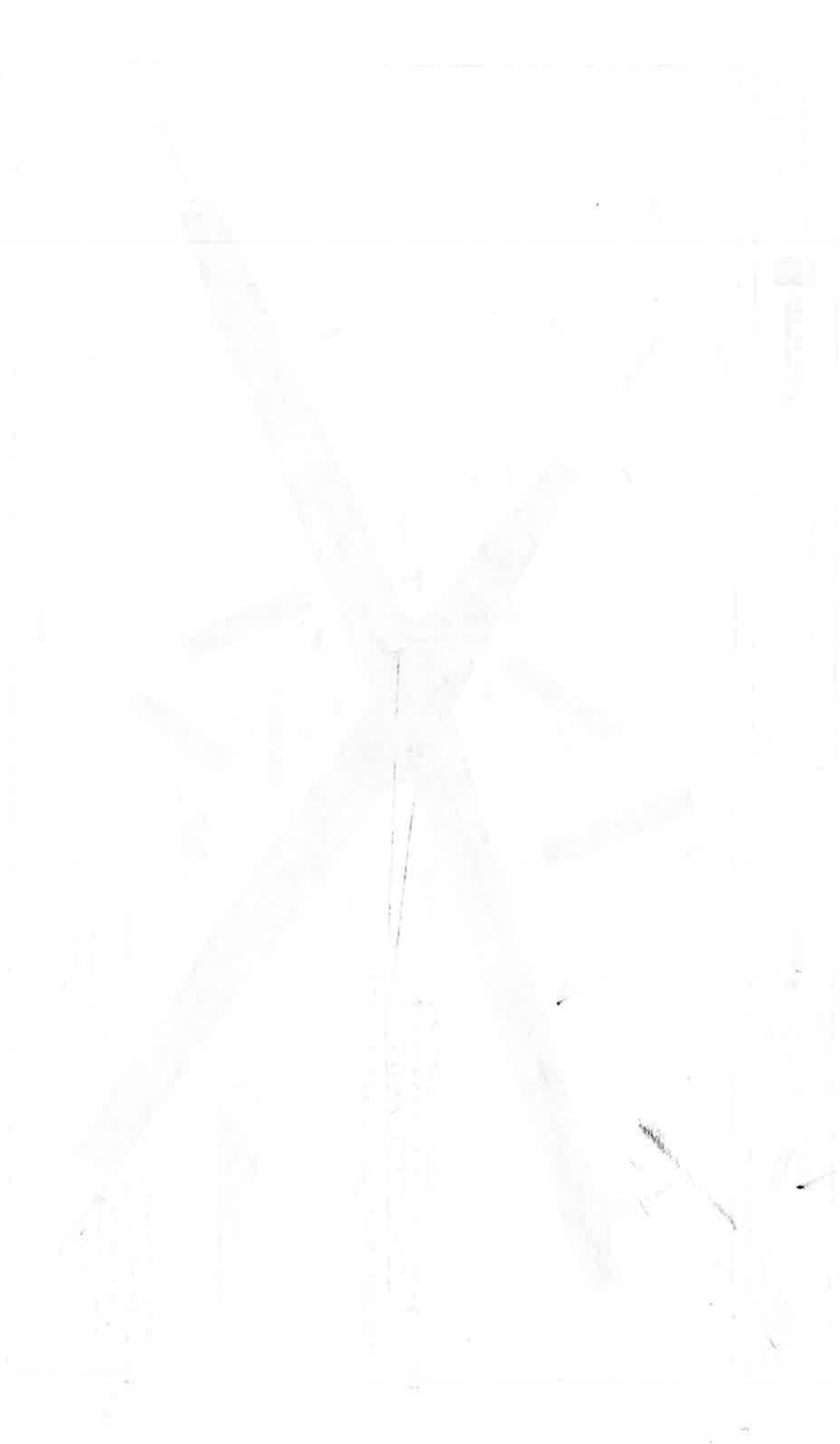
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ON HALE ST. THE BUS STOP OR BUS BAY SHOULD BE CLOSED TO HAMILTON
TO STOP VEHICLES FROM EXITING THE PLAZA AND TRYING TO CROSS
HALE INTO LEFT HAND TURN LANE ON HALE TO TURN EAST BOUND
HAMILTON RD. PLAZA EXIT SHOULD BE NORTH OF STOP SO THEY CAN
QUE UP PROPERLY IN LEFT HAND TURN LANE. INSTEAD OF BLOCKING
RIGHT HAND TURN LANE ON HALE.

Dillon
Consulting
London



THE UNIVERSITY OF CHICAGO



1871



Smolders, Janet <jsmolders@dillon.ca>

Attn Janet Smolders Re: residential property Impact and costs

1 message

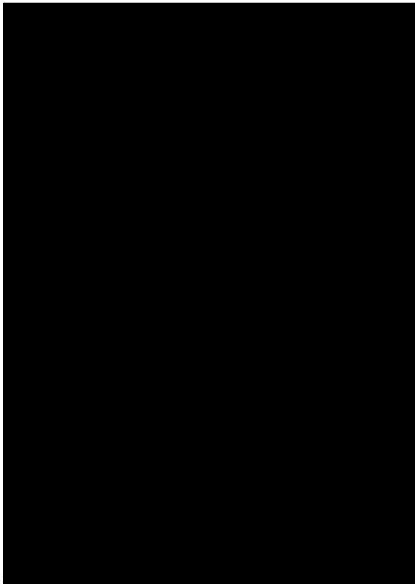
Sun, Mar 13, 2016 at 8:57 PM

[REDACTED]
To: melmadho@london.ca, highburyhamilton@dillon.ca

Hello Maged and Janet

I was looking at the report for Highbury Ave and Hamilton Rd.. The report on page 19 states that there are 7 homes impacted in Alternatives 1- 3, with Alternative 4 having 10 homes impacted. Can you tell me if this is complete purchases of the homes and lands or if it is just the taking of a large portion of the front lawns? How many homes will be completely purchased and where are they in relationship to our house at [REDACTED]

Thank you for any help you can provide.





Smolders, Janet <jsmolders@dillon.ca>

RE: Attn Janet Smolders Re: residential property Impact and costs

1 message

Mon, Mar 21, 2016 at 9:23 PM

To: "Elmadhoon, Maged" <melmadho@london.ca>, highburyhamilton@dillon.ca
Cc: jsolders@dillon.ca, "Huston, Brian" <bhuston@dillon.ca>, "Kireev, Maxim" <mkireev@london.ca>

Hello again

At the open house I saw some drawings for [REDACTED] and how much land the City of London was thinking they may need. I took pictures of these drawings with me phone, but the problem is I can not figure out where the new retaining wall would be in front of the house. Can anyone tell me where the new retaining wall will be located in a measurement from the front of the house? It would be nice to know where the measurement from the face of the basement wall to either the inside edge/centre or outside of the retaining wall. I am thinking the new retaining wall will be about 2 M from the face of the basement wall. But I will admit I'm not following the measurements very well.

We very much are trying to understand what if anything will be left of our front yard and driveway. If the City of London is planning on taking most of the front yard that is there now or even half of the yard, I believe this will devalue the property at [REDACTED] greatly. With the street being almost at the front door and given the likely even greater traffic volume we are wondering if there will be any resale value left in the home.

By knowing what the retaining wall measurement from the house to the wall will either calm our fears or increase them. So any help you can be would be greatly appreciated.



Comment Form
Highbury/Hamilton Road Intersection Improvements
Municipal Class Environmental Assessment
Public Information Centre #2 – March 9, 2016

Would it not be safer for everyone in a vehicle if there was no access to Highbury at Power St? It is a time controlled access but that does not seem to matter as vehicles turn right from Power onto Highbury at all hours of the day. As people are travelling at a high speed by the time they get to Power, a slow moving vehicle turning in front of them can be a dangerous situation especially as people are already trying to merge over as the lanes end.

Would it not be better to move or add an access/exit to the businesses on the south west corner of the intersection to Giles St? This would greatly improve the flow of the traffic as people would not be trying to fight their way out of the plaza in the middle of the right turn lane. A curb cut and access on Giles would provide in and out access for east bound or west bound vehicles (turning onto Giles from Hamilton).

Bus bays are a required at this intersection because of the transfer times to and from the Hamilton and Highbury buses. In addition, the LTC has made layover time points at this intersection. The layovers can be anywhere from less then 1 minute to about 5 minutes depending on the time of day or night. That means a bus can sit in an active traffic lane up to 5 minutes. It would ease congestion if they were able to pull over and allow the traffic to continue moving. The LTC has agreements with various businesses throughout the City for operators to use washroom facilities. The location of possible bus bays are far enough away from the intersection and the businesses at the corner that it will make it virtually impossible to use their facilities. It is one thing to work in an office or on a work site with facilities, it is something else to work where there is extremely limited access and then to have access eliminated because it is too far away and would be too long to leave a bus.

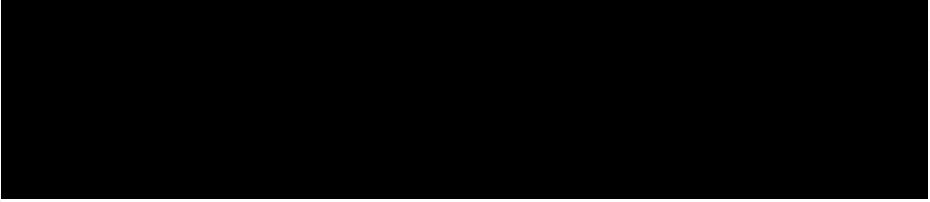
The Urban Design Elements, if referring to the medians anywhere in this project, they need to be cost effective and assist in the safety of pedestrians, cyclists and motorists. Other areas of the City that feature raised medians with planters have maintenance and safety issues. Maintenance adds costs for plants, weeding, watering, as well as shutting down one or two lanes on either side of the planters for worker safety which disrupts traffic flow. Planters that have large plants in them that wave in the wind are distracting to drivers and make it less likely for them to realize a pedestrian is jay walking between them. Larger plants or trees are damaged by large commercial vehicles. Since this is one of the worst intersections in London, would it not be better to have fewer distractions in the area?

The north entrance for McDonalds, hopefully that will involve a curb cut and a three lane driveway – entry, left exit and right exit lanes.

Could clarification of how a roundabout would work at Norlan Ave. be given? It is listed as an option in the Alternative 1-4 drawings.

Comment Form
Highbury/Hamilton Road Intersection Improvements
Municipal Class Environmental Assessment
Public Information Centre #2 – March 9, 2016

March 22, 2016



After attending the meeting and reading handout, I have several comments and questions regarding the Alternative 3:

I have already emailed regarding the measurements of where exactly the retaining wall will be on the front of my property. It is already extremely hard to get into and out of the driveway because of the current retaining wall and the traffic flow. Reducing the length of my driveway and the height of the retaining wall is not going to help access to my property. I'm concerned about how much property is going to be removed and what affect that will have on my property value. It is frustrating to lose property, have less accessibility, and have an even busier street that will not help my resale value. If the impact is significant enough to purchase neighbouring lots, what makes the impact not significant enough to purchase my lot? How close will the retaining wall be to my front door? When is it too close to be safe? Too close to be acceptable for noise? When does my driveway become too steep and too short to be safe to enter or exit?

One road safety issue is the lack of a dedicated right turn lanes, with or without islands on all four corners of the Highbury Ave/Hamilton Road intersection. Without the dedicated turn lane or island, a bicycle can come up the inside of a vehicle and possible be hit if a driver was not aware that they were there. Bicycle lanes are usually separated from the right turn lane especially where an island is used. Would this not be a better approach if the islands were used on all four corners? It would also lend itself to the safety of pedestrians that have a hard time to cross the road with the current five lanes within the time period given. If they were able to safely cross to the island, cross with the light and then cross from the island, it would eliminate the need for them to cross two lanes of traffic within the time period given, especially if some parts of the intersection will have a minimum of seven lanes.

There are no bicycle lanes indicated for Highbury – north or south of Hamilton. As vehicles are travelling at a high rate of speed prior to reaching Power St, would it not be prudent to provide bicycle lanes for the first block south of Hamilton? Or perhaps it would be worthwhile to look at not allowing bicycles in that first block because they often continue south towards Commissioners, despite the sign posted just south of Power. The volume of traffic north of the intersection would also suggest that bike lanes or perhaps bike paths beside the sidewalks are needed?

Comment Form
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While I understand that financial and property costs are reasons to choose the Alternative 3 instead of Alternative 4, I am wondering if it would be best to spend the extra money at this time and make the intersection better now, instead of revisiting the same issue in 5-10 years. The volume of traffic has not lessened and won't likely lessen in the future. Currently, the average travel time is 132 seconds and Alternative 3 is 106 seconds. Alternative 4 would drop that to 60 seconds. The main difference between the two is an additional left turn lane from Highbury (northbound) to Hamilton (westbound). If an extra lane now would reduce the average travel time by over a minute, why wouldn't that be taken into consideration – the future of this intersection needs to be considered here. The traffic isn't going to lessen. Unless the left hand turn lane becomes a lot longer than it is now, there will still be issues for those turning but also in the closest through lane going north as they will have slow downs when there is too many cars for the turn lane to accommodate them all.

Please feel free to contact us about anything within this letter. We look forward to hearing from you.

Sincerely

A solid black rectangular box used to redact the signature of the sender.

