Memo

To: Greg Atkinson, City of Windsor

From: Mike Walters, Dillon Consulting Limited

cc: Karl Tanner, Dillon Consulting Limited

Date: September 6, 2023

Subject: Scoped Transportation Brief for the Surplus Airport Lands - City of Windsor, County of Essex

Our File: 23-5796

1.0 Introducon

Dillon Consulting Limited (Dillon) has been retained by the City of Windsor to undertake a scoped transportation brief associated with a proposed business and industrial development adjacent to the Windsor International Airport. This brief was developed to assess the anticipated traffic volumes compared to the Lauzon Parkway ESR in order to determine the level of development that could be accommodated within the existing transportation network prior to County Road 42 being widened. Ultimately, County Road 42 is anticipated to be widened from two to four lanes as per the completed Lauzon Parkway Improvements Class EA Study ESR (January 2014).

Figure 1 shows the limits of the proposed development on the north side of County Road 42. Phase 1 includes three industrial lots (approximately 74 hectares / 184 acres) and seven business park lots (approximately 27 hectares / 67 acres). Phase 2 includes five industrial lots, covering approximately 70 acres / 172 acres. Within this scoped assessment, only Phase 1 is being considered at this time.

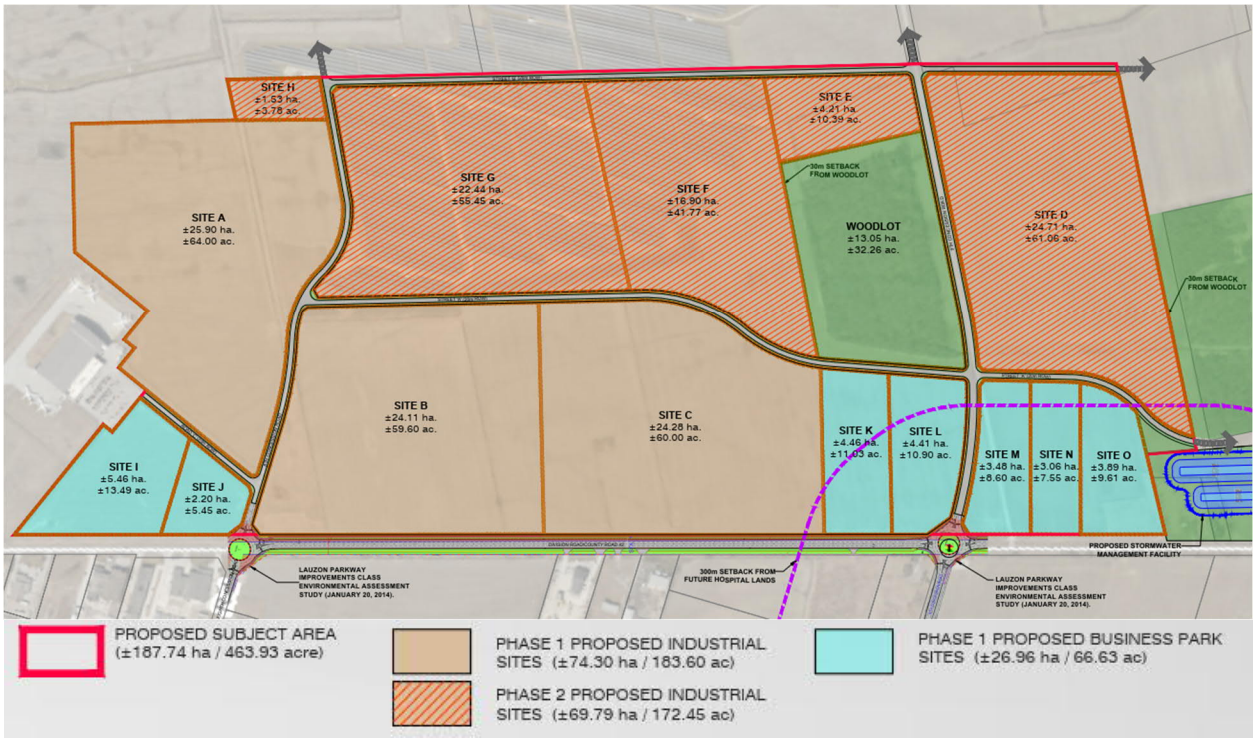


Figure 1: Conceptual Development Plan

1.1 Scope

The scope of this transportation brief includes the following:

- A review of background documentaon and appendi ces from the relevant Lauzon Parkway EA study and other updates to this study.
- Confirmaon of the m eframe for when the City of Windsor plans to widen and urbanize this secon o f County Road 42.
- Confirmaon of the number of vehicles that may be generated by Phase 1 of the subject Windsor Airport Lands development.
- A comparison of the number of trips expected for Phase 1 with those assumed in previous studies.
- A determinaon` of the addional infras tructure may be required to accommodate the rezoned lands.
- The iden ficaon of the level of developm ent that could occur within the Phase 1 lands based on the exisng capac ity along County Road 42 fronng the subject` development lands.

2.0 Background Informaon

2.1 2014 Lauzon Parkway Class EA ESR

In 2014, the Lauzon Parkway Improvements Environmental Assessment Study was completed in order to identify recommendations for a future transportation network in the Sandwich South area of the city of Windsor. This EA study considered County Road 42 in the city of Windsor from Walker Road east to the City/County boundary and made a number of recommendations from a laning, traffic control and road network perspective.

The study recommended that County Road 42 be widened from two to four lanes and that a number of intersections be reconstructed. The County Road 42 cross-section would ultimately include a multi-use trail on one side of the road, buffered bike lanes, and a sidewalk on the other side of the road. Within the EA, both the 8th Concession Road and 9th Concession Road intersections on County Road 42 were recommended to ultimately operate as two-lane roundabouts.

2.2 2018 County Road 42 Secondary Plan - Transporta on Background Study

In January 2018, a County Road 42 Secondary Plan – Transportation Background Study was completed by LEA Consulting Ltd. This study was developed to account for changes in the overall population/employment forecasts in the area. Those changes required the Lauzon Parkway EA analyses and recommendations to be updated. This study considered traffic forecasts for the County Road 42 Secondary Plan area, Lauzon Parkway and lands within the full limits of the Lauzon Parkway EA.

Figure 2 shows the context map, as taken from this study.

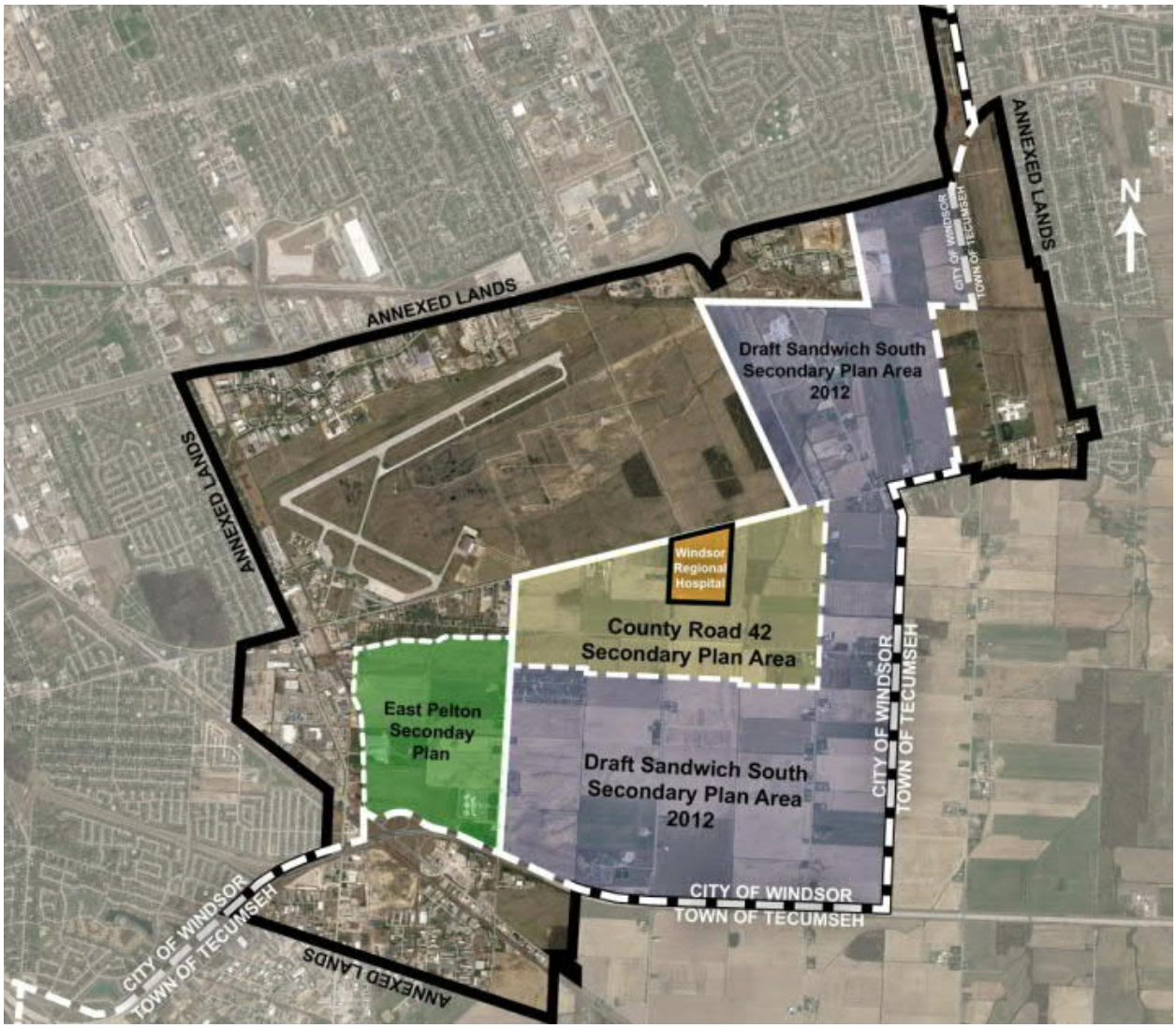


Figure 2: Context Plan (Sourced from Background Transporta on Study - 2018)

2.3 Timeframe for County Road 42 Widening

Even though the original EA has recommended that County Road 42 east of Walker Road would be widened from two lanes to four lanes in 2021, or when the traffic volume reaches 700 vehicles per hour in the peak direction, the actual timeframe for widening the corridor has not yet been identified by the City of Windsor.

The City has advised that while it is open to the idea of widening County Road 42 prior to the opening of the new Windsor Regional Hospital, it is unlikely that the corridor will be reconstructed in the next ten years, since the City's 10-year budget only provides budget to undertake the detailed design work.

3.0 Traffic Volumes

In order to confirm the current and projected traffic volumes, a number of studies and documents were considered. These included the following:

- The projected traffic volumes as noted within the 2014 Lauzon Parkway EA.
- The 2031 projected traffic volumes as noted within the 2018 County Road 42 Secondary Plan – Transportaon Backgr ound Study.
- The exisng and fu ture traffic volumes as noted within the 2018 Transportaon Impact` Study for Windsor Regional Hospital.
- Recent turning movement counts collected along the County Road 42 at Walker Road and Lauzon Parkway.

In order to ensure the findings are more conservative, the traffic volumes from the 2018 County Road 42 Secondary Plan – Transportation Background Study were generally utilized.

3.1 Future Background (2031) Condion s

3.1.1 Trans porta on Background Study

Within the 2018 County Road 42 Secondary Plan – Transportation Background Study (as referenced in **Section 2.2**), the projected traffic volumes were based on all the proposed background developments up to a 2031 horizon year. As a result, the vast majority of these traffic forecasts were utilized within this scoped assessment. However, as this study also made some assumptions about the subject lands, the majority of traffic volumes projected on 8th Concession Road and 9th Concession Road to the north of County Road 42 were removed from the future background analyses (as seen in **Section 3.1.3**). That said, a slight amount of traffic was retained; corresponding to existing traffic on 8th Concession Road (north of County Road 42) related to the AAR Aircraft Services building.

3.1.2 Intersecon Laning and Traffic Control

In the 2018 Transportation Impact Study conducted for the Windsor Regional Hospital, several recommendations on laning and traffic control were made, including:

- At 8th Concession Road and County Road 42
  - Traffic control signals
  - A dedicated northbound right-turn lane.
- At 9th Concession Road and County Road 42
  - Traffic control signals
  - A dedicated northbound right-turn lane, and dedicated westbound le -turn lane.

Figure 3 illustrates the assumed laning and traffic control under the assumed future background (2031) conditions, noting this matches the recommendations in the 2018 Transportation Impact Study conducted for the Windsor Regional Hospital.

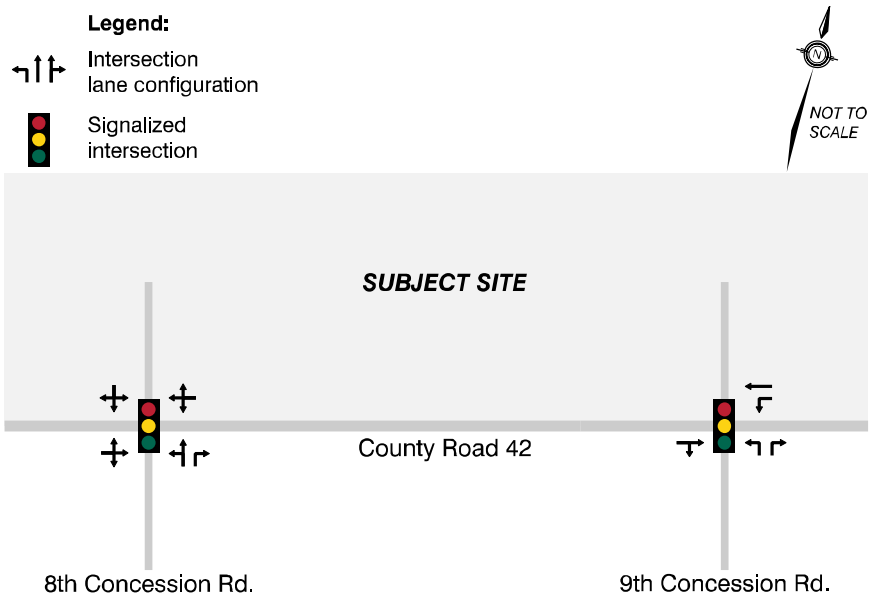


Figure 3: Future Background Laning and Traffic Control

3.1.3 Future Background ( ) Traffi c Volumes

Figure 4 illustrates the projected future background (2031) traffic volumes, noting that all volumes were rounded to the nearest five vehicles.

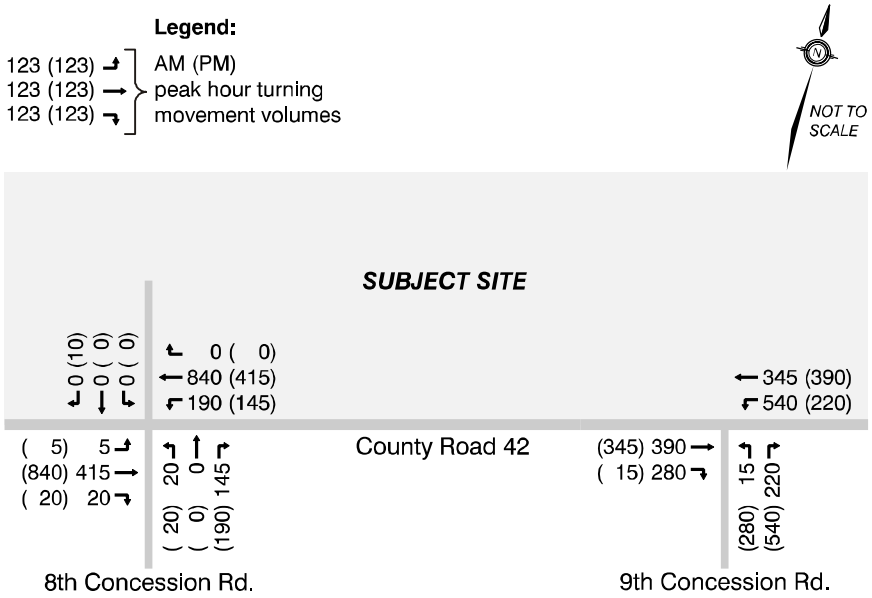


Figure 4: Future Background (2031) Traffic Volumes

3.1.4 Future Background ( ) Int ersecon Oper aons

Table 1 summarizes the intersection operations under future background (2031) conditions, noting both intersections were assumed to operate under traffic signal control. In both peak hours, a 110-second cycle length was assumed.

Table 1: Future Background (2031) Intersecon Operao ns

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*
8th Concession Road and County Road 42								
EB approach	0.34	A	4.0	41	0.67	A	8.6	142
WB approach	0.97	C	32.3	347	0.70	C	20.1	139
NB left	0.17	D	48.2	13	0.16	D	46.8	12
NB right	0.53	B	14.3	19	0.62	B	16.6	25
SB approach	0.00	A	0.0	0	0.02	A	0.1	0
Overall	—	**C**	**23.3**	—	—	**B**	**13.8**	—
9th Concession Road and County Road 42								
EB through	0.89	D	37.8	234	0.43	C	24.0	104
WB left	0.94	D	48.9	172	0.38	B	10.3	41
WB through	0.27	A	3.7	32	0.37	B	11.4	81
NB left	0.09	D	45.3	10	0.72	D	47.4	80
NB right	0.64	B	14.4	23	0.84	C	21.8	74
Overall	—	**C**	**31.8**	—	—	**C**	**22.5**	—

Under future background conditions, the intersection of 8th Concession Road and County Road 42 is projected to operate at LOS C overall during the AM peak hour and LOS B overall during the PM peak hour. During the AM peak hour, the westbound approach is projected to approach capacity, with a delay corresponding to LOS C.

The intersection of 9th Concession Road and County Road 42 is projected to operate at LOS C overall during both peak hours. There are no critical movements anticipated; although the westbound left-turn movement in the AM peak hour is projected to approach capacity, with a delay corresponding to LOS D.

3.2 Phase 1 Full Build-Out (2031) Condi. ons

3.2.1 Assumed IntersecĀon Laning and Traffic Control

For the Phase 1 full build-out (2031) analyses (i.e., with Phase 1 of the subject development in place), the following modifications were assumed at both intersections (to accommodate the increase in traffic volumes due to the development):

- The addi on of a north leg at 9th Concession Road;
- Le. -turn lanes on all legs at both intersecĀons; and
- Westbound right-turn lanes at both intersecĀons.

Figure 5 illustrates the assumed intersection laning and traffic control under full build-out (2031) conditions, noting that both intersections would operate with traffic signals.

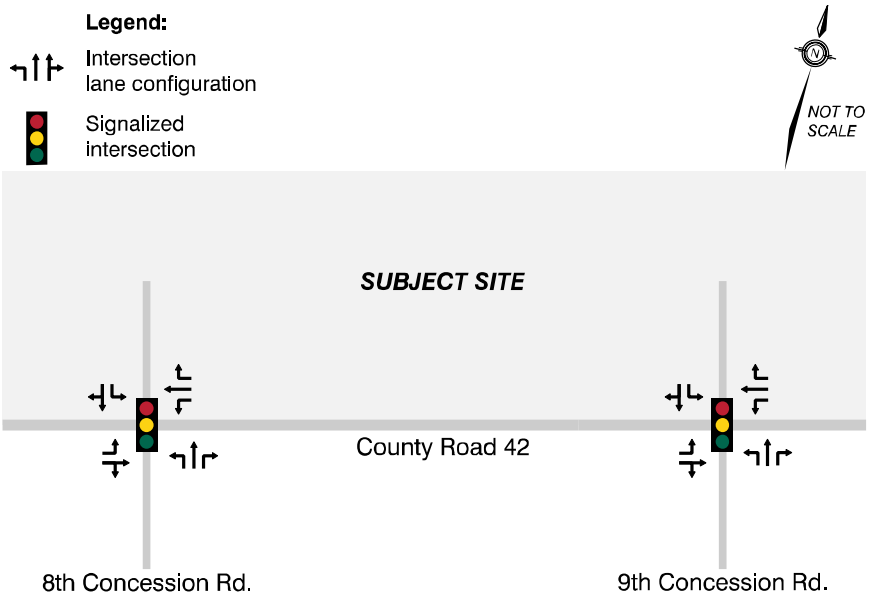


Figure 5: Assumed IntersecĀon Laning and Traffic Control

3.2.2 Phase Ā FullBuild-Out - Trip GeneraĀon

Vehicle trips for the subject development were estimated based on the trip generation rates published by the Institute of Transportation Engineers (ITE) in the document *Trip Generation Manual*, 11th edition. The trip rates for ITE Land Use Code 130 ("Industrial Park") were used for the industrial lots, while the trip rates for ITE Land Use Code 770 ("Business Park") were used for the business park lots. Considering that only a portion of each parcel will have buildings present, it was assumed that 30% of each parcel will be covered by a building, noting that this will vary on each parcel. This GFA percentage was carried forward in order to undertake the trip generation calculations.

Table 2 presents the trip generation calculations applied to the full build-out of the subject site. Given the high-level nature of this assessment, no pass-by trips, internal capture, or non-auto trips were calculated or assessed.

Table 2: Phase 1 Full Build-Out - Trip GeneraĀon (Assumed 30% GFA Coverage)

Land use / magnitude	AM peak hour					PM peak hour				
	Rate	% in/ out	Total trips	Trips in	Trips out	Rate	% in/ out	Total trips	Trips in	Trips out
Industrial Park (2399.28 ksf)	0.34	81 / 19	816	661	155	0.34	22 / 78	816	180	636
Business Park (870.72 ksf)	1.35	85 / 15	1,175	999	176	1.22	26 / 74	1,062	276	786
Total			**1,991**	**1,660**	**331**			**1,878**	**456**	**1,422**

When considering the full build-out of the Phase 1 lands and assuming each parcel has a 30% coverage, these development parcels are anticipated to generate 1,991 vehicle trips (1,660 inbound, 331 outbound) during the AM peak hour, and 1,878 vehicle trips (456 inbound, 1,422 outbound) during the PM peak hour.

3.2.3 Phase Ā Trip DistribuĀon andAssignment

The trip distribution percentages were generally taken from the County Road 42 Secondary Plan – Transportation Background Study (as referenced in **Section 2.2**). As a result, the following trip distribution was utilized:

- 0% to/from the north;
- 40% to/from the east (via County Road 42);
- 10% to/from the south (5% via 8th Concession Road; 5% via 9th Concession Road); and
- 50% to/from the west (via County Road 42).

Trips generated by the site were assigned logically based on the available street network and the relative attractiveness of the various approach routes. Trips were assigned to the northerly extensions of 8th Concession Road and 9th Concession Road as follows:

- 75% of trips to/from the west were assigned via 8th Concession Road while the remaining 25% were assigned via 9th Concession Road.
- 75% of trips to/from the east were assigned via 9th Concession Road; the remaining 25% were assigned via 8th Concession Road.

3.2.4 Phase Ā SiteGenerated Trips

Figure 6 illustrates the anticipated site-generated traffic volumes when considering the full-build out of the Phase 1 lands.

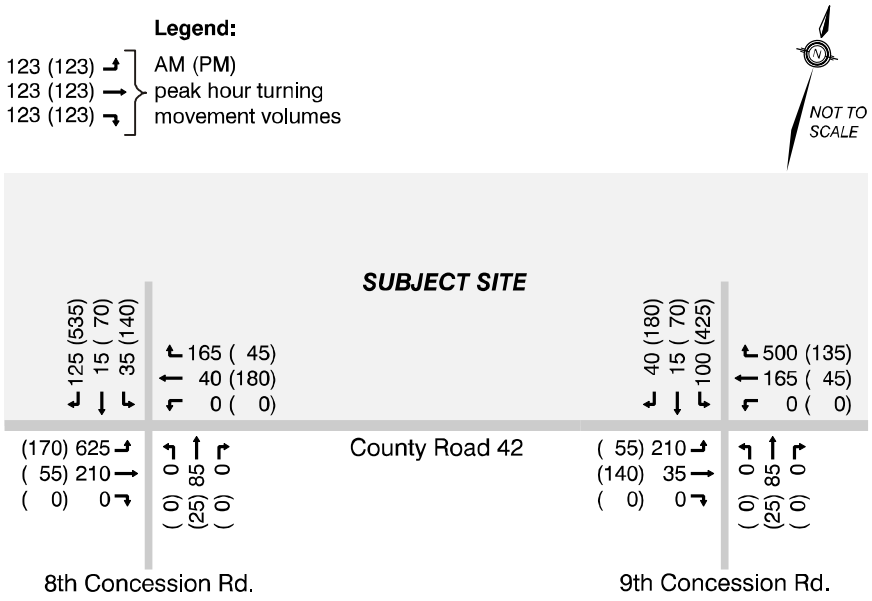


Figure 6: Full Build-Out Site Traffic

3.2.5 Phase Ā FullBuild-Out (ĀĀĀĄTraffic Volumes

The full build-out (2031) traffic volumes represent conditions anticipated with the development of the Phase 1 lands in place, and was calculated by adding the site traffic volumes to the projected future background (2031) traffic volumes.

Figure 7 illustrates the projected total future traffic volumes under full build-out (2031) conditions.

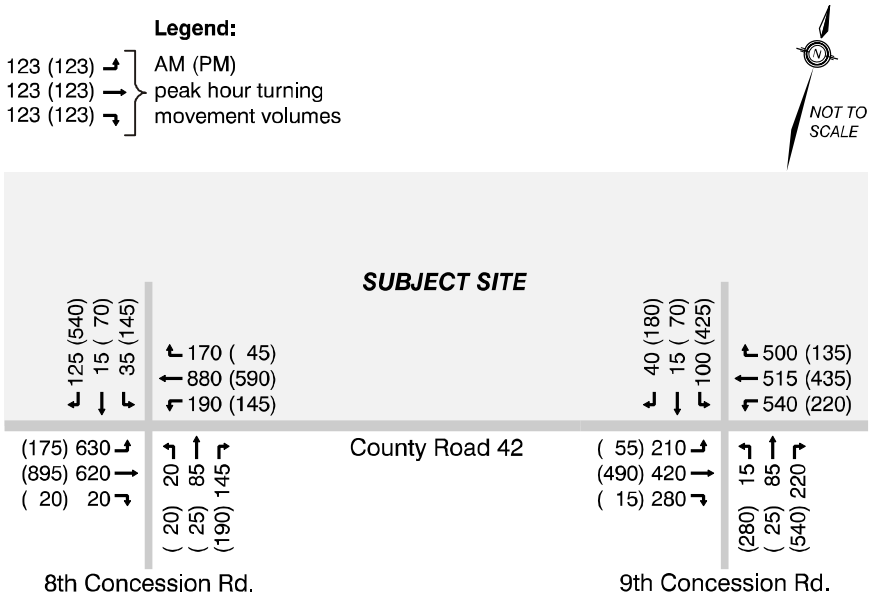


Figure 7: Full Build-Out (2031) Traffic Volumes

3.2.6 Phase Ā FullBuild-Out (ĀĀĀĀ) IntersecĀon OperaĀons

Table 3 summarizes the projected intersection operations under Phase 1 full build-out (2031) conditions. In both peak periods, the two intersections were assumed to operate with traffic signals and a 110-second cycle length. Protected/permissive left-turn signal phases were assumed for all four approaches.

Table 3: Full Build-Out (2031) IntersecĀon OperaĀons

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*
8th Concession Road								
EB left	1.67	F	338.0	289	0.48	B	11.8	27
EB through	0.65	C	20.6	181	1.06	E	72.1	333
WB left	0.45	A	9.4	16	0.69	C	34.2	59
WB through	1.08	F	83.3	354	0.65	C	22.6	162
WB right	0.21	A	5.1	20	0.05	A	1.3	0
NB left	0.11	C	34.5	10	0.14	C	30.9	10
NB through	0.46	D	52.6	35	0.10	D	39.0	13
NB right	0.50	B	12.5	19	0.51	B	11.1	22
SB left	0.17	D	36.5	15	0.51	D	40.4	45
SB through	0.46	B	14.5	22	1.15	F	109.5	189
Overall	—	**F**	**106.4**	—	—	**E**	**56.9**	—
9th Concession Road								
EB left	0.43	B	10.6	19	0.17	A	9.9	5
EB through	1.02	E	72.3	272	0.85	C	29.1	100
WB left	1.23	F	152.6	220	0.85	D	44.8	68
WB through	0.55	B	18.1	121	0.65	C	32.0	126
WB right	0.48	A	2.7	16	0.20	A	4.3	13
NB left	0.06	C	34.1	9	0.74	D	35.3	72
NB through	0.48	D	54.4	36	0.06	C	32.4	12
NB right	0.63	B	13.5	23	0.99	E	59.4	159
SB left	0.47	D	44.8	36	0.83	D	42.3	131
SB through	0.20	B	19.8	16	0.58	C	27.3	60
Overall	—	**D**	**54.3**	—	—	**D**	**37.3**	—

Under these conditions, the intersection of 8th Concession Road and County Road 42 is projected to operate at LOS F overall during the AM peak hour and LOS E overall during the PM peak hour. The eastbound left-turn, eastbound through, westbound through, and southbound through movements are all anticipated to exceed capacity.

The intersection of 9th Concession Road and County Road 42 is projected to operate at LOS D overall during both peak hours. The eastbound through and westbound left-turn movements are anticipated to exceed capacity.

3.3 Interim Future (2031) CondiĀons

Given that a number of movements are projected to operate above capacity under full build-out conditions, an interim analysis was completed to determine the maximum number of vehicle trips that could be generated prior to the planned widening of County Road 42. This was achieved by incrementally removing industrial park and business park areas as found within the conceptual development plan, until all movements at both intersections operated within or at capacity.

3.3.1 ParĀal Build-Out – Trip GeneraĀon

It was found that if all 2,399,285 sq. ft. of GFA within the Phase 1 industrial lands were developed plus 247,508 sq. ft. of GFA within the business park lands (28%) were developed, each study area intersection would see all movements operating within or at capacity. This is because the business park land use is projected to generate approximately four times as many vehicle trips compared to the industrial park land use.

Table 4 presents the trip generation calculations applied to the partial build-out of the subject site.

Table 4: ParĀal Build-Out - Trip GeneraĀon

Land use / magnitude	AM peak hour					PM peak hour				
	Rate	% in/ out	Total trips	Trips in	Trips out	Rate	% in/ out	Total trips	Trips in	Trips out
Industrial Park (2399.28 ksf)	0.34	81 / 19	816	661	155	0.34	22 / 78	816	180	636
Business Park (247.51 ksf)	1.35	85 / 15	334	284	50	1.22	26 / 74	302	79	223
Total			**1,150**	**945**	**205**			**1,118**	**259**	**859**

Based on this amount of industrial park and business park GFA being developed within the Windsor Airport lands, it was calculated that 1,150 vehicle trips (945 inbound, 205 outbound) would be generated during the AM peak hour, and 1,118 vehicle trips (259 inbound, 859 outbound) would be generated during the PM peak hour.

3.3.2 ParĀal Build-Out (ĀĀĀĀ)Traffic Volumes

Figure 8 illustrates the projected traffic volumes under partial build-out (2031) conditions, rounded to the nearest five vehicles.

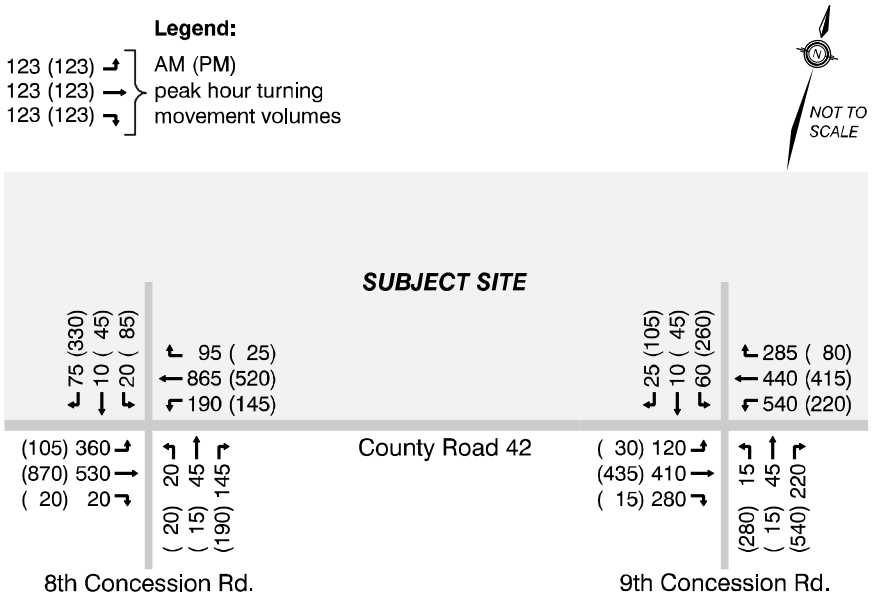


Figure 8: ParĀal Build-Out (2031) Traffic Volumes

3.3.3 ParĀal Build-Out (ĀĀĀĀ)ntersecĀon OperaĀons

Table 5 summarizes the intersection operations under the partial build-out (2031) conditions, noting the geometry and laning is the same as that referenced in **Section 3.2.6**. During the AM and PM peak hours, the traffic signals are projected to operate with a 110-second cycle length. However, protected-permissive left-turn phases were only assumed for the eastbound and westbound left-turn movements on County Road 42.

Table 5: ParĀal Build-Out (2031) IntersecĀon OperaĀons

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*
8th Concession Road								
EB left	0.95	E	59.0	120	0.20	A	5.0	13
EB through	0.50	B	10.9	98	0.86	C	27.3	292
WB left	0.34	A	4.5	14	0.55	B	12.6	15
WB through	0.89	C	29.6	284	0.48	B	10.5	102
WB right	0.10	A	1.3	2	0.03	A	0.6	0
NB left	0.17	D	48.3	13	0.33	D	53.0	12
NB through	0.28	D	50.0	22	0.06	D	37.9	9
NB right	0.53	B	14.2	19	0.51	A	10.0	20
SB left	0.17	D	48.0	13	0.46	D	49.1	34
SB through	0.40	B	18.1	18	0.83	C	27.6	59
Overall	**—**	**C**	**25.9**	**—**	**—**	**C**	**21.2**	**—**
9th Concession Road								
EB left	0.23	A	6.3	9	0.06	A	5.2	3
EB through	0.94	D	41.8	244	0.61	C	20.8	119
WB left	0.98	E	60.1	184	0.51	B	15.0	41
WB through	0.39	A	8.9	68	0.48	C	21.1	109
WB right	0.26	A	1.4	9	0.10	A	4.2	9
NB left	0.11	D	45.0	10	0.88	E	61.8	102
NB through	0.26	D	47.8	22	0.03	C	24.2	7
NB right	0.63	B	13.5	23	0.80	C	21.0	89
SB left	0.45	E	56.1	28	0.68	D	41.8	80
SB through	0.19	C	23.3	12	0.28	B	10.2	22
Overall	**—**	**C**	**31.1**	**—**	**—**	**C**	**25.9**	**—**

Under partial build-out conditions, the intersection of 8th Concession Road and County Road 42 is projected to operate at LOS C overall during both peak hours. The eastbound left-turn is anticipated to operate close to capacity with a v/c ratio of 0.95 and a 95th percentile queue of 120 metres during the AM peak hour.

The intersection of 9th Concession Road and County Road 42 is projected to operate at LOS C overall during both peak hours. The westbound left-turn movement is forecast to operate close to capacity with a v/ ratio of 0.98 and a 95th percentile queue of 184 metres during the AM peak hour.

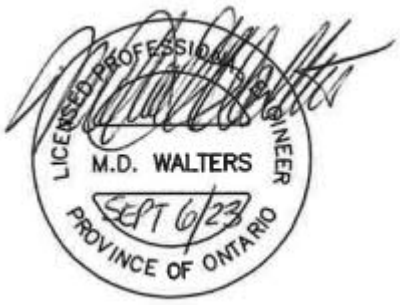
4.0 Summary & RecommendaĀon

This scoped transportation assessment has been prepared to determine the level of development that could be accommodated within the Phase 1 lands prior to County Road 42 being widened. Development lands within Phase 2 were not considered in this assessment.

Future background (2031) conditions were generally established using projected traffic volumes from the 2018 County Road 42 Secondary Plan – Transportation Background Study. Under future background conditions, both intersections along County Road 42 are anticipated to operate at a reasonable overall level of service (LOS B-C) with no critical movements identified.

Under Phase 1 full build-out (2031) conditions, and with the two intersections along County Road 42 signalized with left-turn and right-turn lanes on various approaches, the 8th Concession Road and County Road 42 intersection is expected to operate at a critical level of service (LOS F) during the AM peak hour and LOS E during the PM peak hour. The intersection of 9th Concession Road and County Road 42 is anticipated to operate at LOS D during both peak hours. Numerous movements are anticipated to operate over capacity at both intersections.

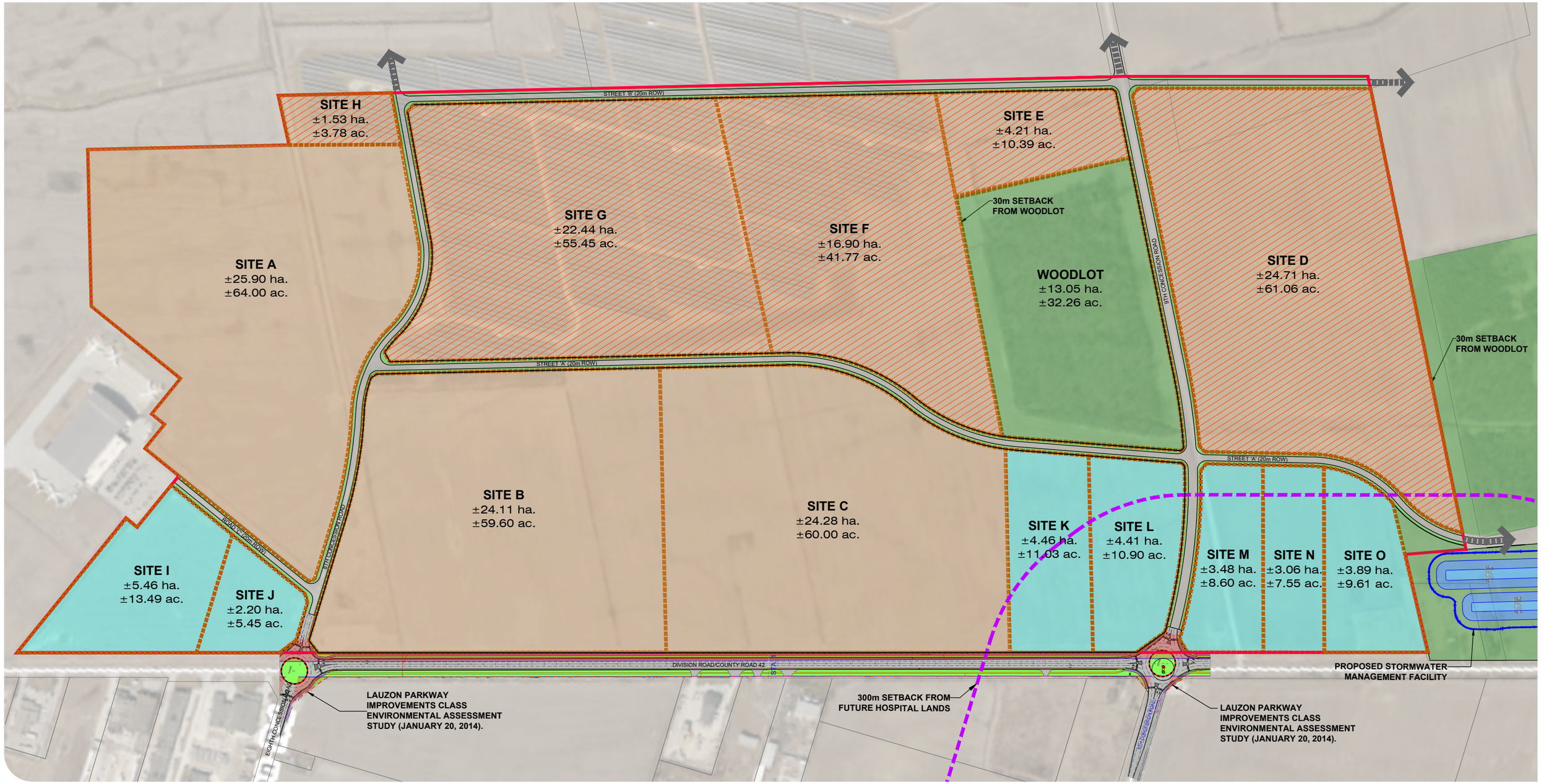
Analysis was performed to determine the approximate maximum number of trips the road network can accommodate by the Phase 1 lands before the planned widening of County Road 42. It was determined that these two intersections along County Road 42 would be able to accommodate approximately 1,150 additional vehicles during the AM peak hour and 1,118 additional vehicles during the PM peak hour. This amount of traffic would be generated by all of the 2,399,285 sq. ft. of GFA within the Phase 1 industrial park lands plus 247,508 sq. ft. GFA within the business park lands (28% of the Phase 1 lands). Under this partial build-out scenario, all movements at both intersections along County Road 42 would be able to operate below capacity. The 8th Concession Road and County Road 42 intersection is anticipated to operate at LOS C overall during both peak hours. The intersection of 9th Concession Road and County Road 42 is also anticipated to operate at LOS C overall during both peak hours.



Mike Walters, P.Eng.,
Transportation Engineer

Appendix A

Conceptual Development Plan



THE CORPORATION OF THE CITY OF WINDSOR
FUTURE AIRPORT LAND DEVELOPMENT

CONCEPTUAL DEVELOPMENT PLAN
JULY 21, 2023

PROPOSED SUBJECT AREA (±187.74 ha / 463.93 acre)

PHASE 1 PROPOSED INDUSTRIAL SITES (±74.30 ha / 183.60 ac)

PHASE 2 PROPOSED INDUSTRIAL SITES (±69.79 ha / 172.45 ac)

PHASE 1 PROPOSED BUSINESS PARK SITES (±26.96 ha / 66.63 ac)

PROPOSED SWM PONDS

File Location:
c:\pw working directory\projects 2023\dillon_20eb\dms10133\23-5796 - airport lands development - concept plan - july 2023.dwg
August, 02, 2023 4:45 PM

MAP/DRAWING INFORMATION
THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. ALL DIMENSIONS AND BOUNDARY INFORMATION SHOULD BE VERIFIED BY AN O.L.S PRIOR TO CONSTRUCTION.
CREATED BY: MRU
CHECKED BY:KDT
DESIGNED BY:KDT/MMM/EB

SCALE: 1:6000 (11x17)

N W E S

DILLON CONSULTING

PROJECT: 23-5796
STATUS: FINAL
DATE: 08/02/2023

Appendix B

Synchro Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	415	20	190	840	0	20	0	145	0	0	0
Future Volume (vph)	5	415	20	190	840	0	20	0	145	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		45.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994							0.850			
Flt Protected		0.999			0.991			0.950				
Satd. Flow (prot)	0	1768	0	0	1764	0	0	1691	1583	0	1863	0
Flt Permitted		0.990			0.816			0.757				
Satd. Flow (perm)	0	1752	0	0	1452	0	0	1347	1583	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5							158			
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		866.6			1421.2			289.7			208.7	
Travel Time (s)		52.0			85.3			20.9			15.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	451	22	207	913	0	22	0	158	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	478	0	0	1120	0	0	22	158	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm			
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	82.0	82.0		82.0	82.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	74.5%	74.5%		74.5%	74.5%		25.5%	25.5%	25.5%	25.5%	25.5%	
Maximum Green (s)	76.0	76.0		76.0	76.0		22.0	22.0	22.0	22.0	22.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)		87.3			87.3			10.7	10.7			
Actuated g/C Ratio		0.79			0.79			0.10	0.10			
v/c Ratio		0.34			0.97			0.17	0.53			
Control Delay		4.0			32.3			48.2	14.3			
Queue Delay		0.0			0.0			0.0	0.0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		4.0			32.3			48.2	14.3			
LOS		A			C			D	B			
Approach Delay		4.0			32.3			18.5				
Approach LOS		A			C			B				
Queue Length 50th (m)		23.1			181.3			4.7	0.0			
Queue Length 95th (m)		40.5			#347.3			12.5	19.3			
Internal Link Dist (m)		842.6			1397.2			265.7			184.7	
Turn Bay Length (m)									45.0			
Base Capacity (vph)		1392			1152			269	443			
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			0.97			0.08	0.36			

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 52 (47%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 23.3		Intersection LOS: C	
Intersection Capacity Utilization 101.4%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

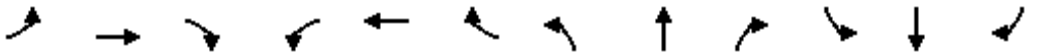
Splits and Phases: 110: 8th Concession Rd. & County Road 42

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	390	280	540	345	15	220
Future Volume (vph)	390	280	540	345	15	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.6	3.6	3.2	3.6	3.6
Storage Length (m)		0.0	25.0		0.0	25.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1680	0	1770	1780	1770	1583
Flt Permitted			0.130		0.950	
Satd. Flow (perm)	1680	0	242	1780	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	40					239
Link Speed (k/h)	60			60	60	
Link Distance (m)	1421.2			949.8	293.1	
Travel Time (s)	85.3			57.0	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	424	304	587	375	16	239
Shared Lane Traffic (%)						
Lane Group Flow (vph)	728	0	587	375	16	239
Turn Type	NA		pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases			6		8	8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	10.0	10.0
Minimum Split (s)	26.0		11.0	26.0	24.0	24.0
Total Split (s)	51.0		35.0	86.0	24.0	24.0
Total Split (%)	46.4%		31.8%	78.2%	21.8%	21.8%
Maximum Green (s)	45.0		31.0	80.0	18.0	18.0
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	2.0		1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		4.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	52.1		89.1	87.1	10.9	10.9
Actuated g/C Ratio	0.47		0.81	0.79	0.10	0.10
v/c Ratio	0.89		0.94	0.27	0.09	0.64
Control Delay	37.8		48.9	3.7	45.3	14.4
Queue Delay	0.0		0.0	0.0	0.0	0.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Delay	37.8		48.9	3.7	45.3	14.4
LOS	D		D	A	D	B
Approach Delay	37.8			31.3	16.3	
Approach LOS	D			C	B	
Queue Length 50th (m)	104.4		95.1	16.9	3.4	0.0
Queue Length 95th (m)	#233.8		#171.9	31.8	10.0	23.2
Internal Link Dist (m)	1397.2			925.8	269.1	
Turn Bay Length (m)			25.0			25.0
Base Capacity (vph)	817		626	1409	289	458
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	0.89		0.94	0.27	0.06	0.52

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 108 (98%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 31.8		Intersection LOS: C	
Intersection Capacity Utilization 89.2%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 120: 9th Concession Rd. & County Road 42

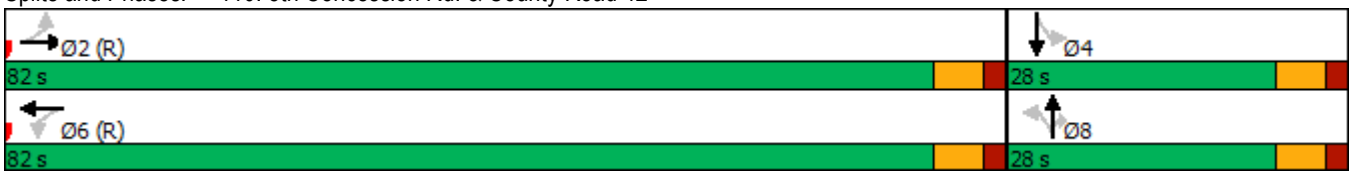


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	840	20	145	415	0	20	0	190	0	0	10
Future Volume (vph)	5	840	20	145	415	0	20	0	190	0	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		45.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997							0.850		0.865	
Flt Protected					0.987			0.950				
Satd. Flow (prot)	0	1775	0	0	1757	0	0	1691	1583	0	1611	0
Flt Permitted		0.998			0.625			0.750				
Satd. Flow (perm)	0	1771	0	0	1112	0	0	1335	1583	0	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3							193		471	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		866.6			1421.2			289.7			208.7	
Travel Time (s)		52.0			85.3			20.9			15.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	913	22	158	451	0	22	0	207	0	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	940	0	0	609	0	0	22	207	0	11	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm		NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	82.0	82.0		82.0	82.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	74.5%	74.5%		74.5%	74.5%		25.5%	25.5%	25.5%	25.5%	25.5%	
Maximum Green (s)	76.0	76.0		76.0	76.0		22.0	22.0	22.0	22.0	22.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)		86.7			86.7			11.3	11.3		11.3	
Actuated g/C Ratio		0.79			0.79			0.10	0.10		0.10	
v/c Ratio		0.67			0.70			0.16	0.62		0.02	
Control Delay		8.6			21.6			46.8	16.6		0.1	
Queue Delay		0.0			0.0			0.0	0.0		0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		8.6			21.6			46.8	16.6		0.1	
LOS		A			C			D	B		A	
Approach Delay		8.6			21.6			19.5			0.1	
Approach LOS		A			C			B			A	
Queue Length 50th (m)		71.2			112.7			4.7	3.0		0.0	
Queue Length 95th (m)		142.0			169.1			12.1	24.9		0.0	
Internal Link Dist (m)		842.6			1397.2			265.7			184.7	
Turn Bay Length (m)									45.0			
Base Capacity (vph)		1396			876			267	471		699	
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		0.67			0.70			0.08	0.44		0.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 52 (47%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 98.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 110: 8th Concession Rd. & County Road 42

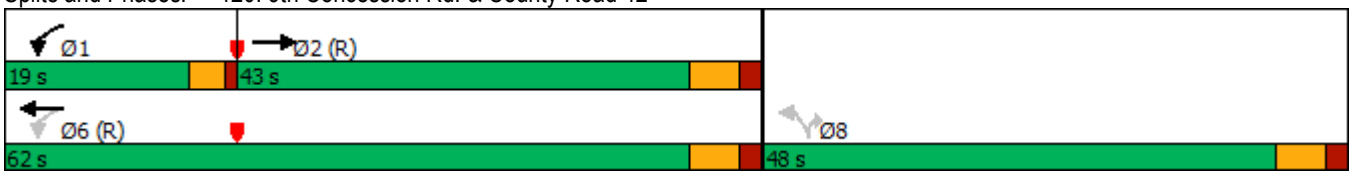


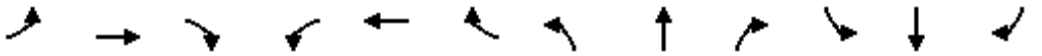
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	345	15	220	390	280	540
Future Volume (vph)	345	15	220	390	280	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.6	3.6	3.2	3.6	3.6
Storage Length (m)		0.0	25.0		0.0	25.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1769	0	1770	1780	1770	1583
Flt Permitted			0.418		0.950	
Satd. Flow (perm)	1769	0	779	1780	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2					422
Link Speed (k/h)	60			60	60	
Link Distance (m)	1421.2			949.8	293.1	
Travel Time (s)	85.3			57.0	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	375	16	239	424	304	587
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	0	239	424	304	587
Turn Type	NA		pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases			6		8	8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	10.0	10.0
Minimum Split (s)	26.0		11.0	26.0	24.0	24.0
Total Split (s)	43.0		19.0	62.0	48.0	48.0
Total Split (%)	39.1%		17.3%	56.4%	43.6%	43.6%
Maximum Green (s)	37.0		15.0	56.0	42.0	42.0
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	2.0		1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		4.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	56.6		73.7	71.7	26.3	26.3
Actuated g/C Ratio	0.51		0.67	0.65	0.24	0.24
v/c Ratio	0.43		0.38	0.37	0.72	0.84
Control Delay	24.0		10.3	11.4	47.4	21.8
Queue Delay	0.0		0.0	0.0	0.0	0.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Delay	24.0		10.3	11.4	47.4	21.8
LOS	C		B	B	D	C
Approach Delay	24.0			11.0	30.5	
Approach LOS	C			B	C	
Queue Length 50th (m)	54.9		18.1	38.9	64.2	37.0
Queue Length 95th (m)	104.0		41.3	81.1	79.7	73.5
Internal Link Dist (m)	1397.2			925.8	269.1	
Turn Bay Length (m)			25.0			25.0
Base Capacity (vph)	910		657	1160	675	865
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	0.43		0.36	0.37	0.45	0.68

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 108 (98%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 120: 9th Concession Rd. & County Road 42





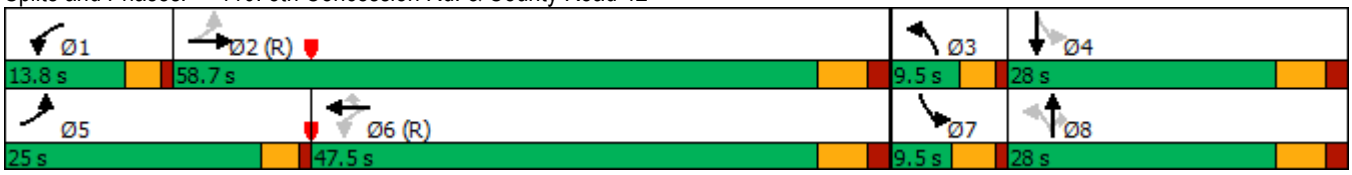
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	630	620	20	190	880	170	20	85	145	35	15	125
Future Volume (vph)	630	620	20	190	880	170	20	85	145	35	15	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	45.0		45.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850			0.850		0.866	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1771	0	1770	1780	1583	1770	1780	1583	1770	1613	0
Flt Permitted	0.071			0.309			0.583			0.634		
Satd. Flow (perm)	132	1771	0	576	1780	1583	1086	1780	1583	1181	1613	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				154			158		136	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		866.6			1421.2			289.7			208.7	
Travel Time (s)		52.0			85.3			20.9			15.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	674	22	207	957	185	22	92	158	38	16	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	685	696	0	207	957	185	22	92	158	38	152	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0		5.0	20.0	20.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	9.5	26.0		9.5	26.0	26.0	9.5	28.0	28.0	9.5	28.0	
Total Split (s)	25.0	58.7		13.8	47.5	47.5	9.5	28.0	28.0	9.5	28.0	
Total Split (%)	22.7%	53.4%		12.5%	43.2%	43.2%	8.6%	25.5%	25.5%	8.6%	25.5%	
Maximum Green (s)	21.0	52.7		9.8	41.5	41.5	5.5	22.0	22.0	5.0	22.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		15.0	15.0		15.0	
Pedestrian Calls (#/hr)		0			0	0		0	0		0	
Act Effct Green (s)	81.9	66.1		66.7	54.9	54.9	17.7	12.4	12.4	17.8	14.3	
Actuated g/C Ratio	0.74	0.60		0.61	0.50	0.50	0.16	0.11	0.11	0.16	0.13	
v/c Ratio	1.67	0.65		0.45	1.08	0.21	0.11	0.46	0.50	0.17	0.46	
Control Delay	338.0	20.6		9.4	83.3	5.1	34.5	52.6	12.5	36.5	14.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

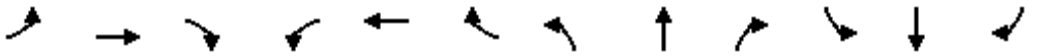
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	338.0	20.6		9.4	83.3	5.1	34.5	52.6	12.5	36.5	14.5	
LOS	F	C		A	F	A	C	D	B	D	B	
Approach Delay		178.0			61.2			27.8			18.9	
Approach LOS		F			E			C			B	
Queue Length 50th (m)	~212.6	104.6		10.1	~260.0	9.7	4.0	19.9	0.0	7.0	3.0	
Queue Length 95th (m)	#288.5	181.0		15.7	#353.6	19.7	10.4	35.3	18.6	15.4	22.0	
Internal Link Dist (m)		842.6			1397.2			265.7			184.7	
Turn Bay Length (m)	100.0			25.0		100.0	45.0		45.0	100.0		
Base Capacity (vph)	410	1065		473	888	866	209	356	443	218	431	
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	1.67	0.65		0.44	1.08	0.21	0.11	0.26	0.36	0.17	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.67
Intersection Signal Delay: 106.4 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.

Splits and Phases: 110: 8th Concession Rd. & County Road 42





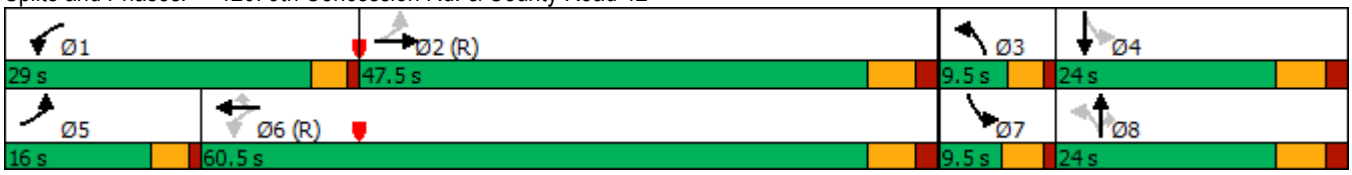
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	420	280	540	515	500	15	85	220	100	15	40
Future Volume (vph)	210	420	280	540	515	500	15	85	220	100	15	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.3	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	50.0		25.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.940				0.850			0.850		0.891	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1673	0	1770	1780	1583	1770	1801	1583	1770	1660	0
Flt Permitted	0.442			0.081			0.719			0.565		
Satd. Flow (perm)	823	1673	0	151	1780	1583	1339	1801	1583	1052	1660	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35				543			239		43	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1421.2			949.8			293.1			213.6	
Travel Time (s)		85.3			57.0			17.6			15.4	
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
Adj. Flow (vph)	228	457	304	587	560	543	16	92	239	109	16	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	761	0	587	560	543	16	92	239	109	59	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0	20.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	26.0		11.0	26.0	26.0	9.5	24.0	24.0	9.5	24.0	
Total Split (s)	16.0	47.5		29.0	60.5	60.5	9.5	24.0	24.0	9.5	24.0	
Total Split (%)	14.5%	43.2%		26.4%	55.0%	55.0%	8.6%	21.8%	21.8%	8.6%	21.8%	
Maximum Green (s)	12.0	41.5		25.0	54.5	54.5	5.5	18.0	18.0	5.0	18.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	4.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	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	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0	0		0	0		0	
Act Effct Green (s)	59.7	47.8		78.8	62.8	62.8	19.2	11.7	11.7	20.9	17.4	
Actuated g/C Ratio	0.54	0.43		0.72	0.57	0.57	0.17	0.11	0.11	0.19	0.16	
v/c Ratio	0.43	1.02		1.23	0.55	0.48	0.06	0.48	0.63	0.47	0.20	
Control Delay	10.6	72.3		152.6	18.1	2.7	34.1	54.4	13.5	44.8	19.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

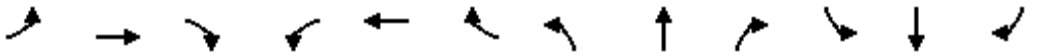
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	10.6	72.3		152.6	18.1	2.7	34.1	54.4	13.5	44.8	19.8	
LOS	B	E		F	B	A	C	D	B	D	B	
Approach Delay		58.1			59.9			25.3			36.0	
Approach LOS		E			E			C			D	
Queue Length 50th (m)	14.2	~179.3		~146.9	73.2	0.0	2.9	20.1	0.0	21.2	3.0	
Queue Length 95th (m)	18.7	#271.5		#220.3	120.9	16.3	8.7	35.7	23.0	36.0	15.5	
Internal Link Dist (m)		1397.2			925.8			269.1			189.6	
Turn Bay Length (m)	100.0			25.0		100.0	50.0		25.0	100.0		
Base Capacity (vph)	565	746		476	1016	1137	255	294	458	233	323	
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	0.40	1.02		1.23	0.55	0.48	0.06	0.31	0.52	0.47	0.18	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 54.3 Intersection LOS: D
Intersection Capacity Utilization 94.7% 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: 120: 9th Concession Rd. & County Road 42





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	895	20	145	590	45	20	25	190	145	70	540
Future Volume (vph)	175	895	20	145	590	45	20	25	190	145	70	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	45.0		45.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850			0.850		0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1775	0	1770	1780	1583	1770	1780	1583	1770	1615	0
Flt Permitted	0.269			0.069			0.214			0.629		
Satd. Flow (perm)	501	1775	0	129	1780	1583	399	1780	1583	1172	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				109			198		316	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		866.6			1421.2			289.7			208.7	
Travel Time (s)		52.0			85.3			20.9			15.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	973	22	158	641	49	22	27	207	158	76	587
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	995	0	158	641	49	22	27	207	158	663	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0		5.0	20.0	20.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	9.5	26.0		9.5	26.0	26.0	9.5	28.0	28.0	9.5	28.0	
Total Split (s)	11.6	63.0		9.5	60.9	60.9	9.5	28.0	28.0	9.5	28.0	
Total Split (%)	10.5%	57.3%		8.6%	55.4%	55.4%	8.6%	25.5%	25.5%	8.6%	25.5%	
Maximum Green (s)	7.6	57.0		5.5	54.9	54.9	5.5	22.0	22.0	5.5	22.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		15.0	15.0		15.0	
Pedestrian Calls (#/hr)		0			0	0		0	0		0	
Act Effct Green (s)	67.9	58.4		71.8	60.7	60.7	23.8	16.3	16.3	26.2	22.0	
Actuated g/C Ratio	0.62	0.53		0.65	0.55	0.55	0.22	0.15	0.15	0.24	0.20	
v/c Ratio	0.48	1.06		0.69	0.65	0.05	0.14	0.10	0.51	0.51	1.15	
Control Delay	11.8	72.1		34.2	22.6	1.3	30.9	39.0	11.1	40.4	109.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	11.8	72.1		34.2	22.6	1.3	30.9	39.0	11.1	40.4	109.5	
LOS	B	E		C	C	A	C	D	B	D	F	
Approach Delay		62.4			23.6			15.7			96.2	
Approach LOS		E			C			B			F	
Queue Length 50th (m)	12.3	~245.7		17.5	83.2	0.0	4.0	5.6	1.8	30.9	~115.8	
Queue Length 95th (m)	27.2	#333.1		m#58.5	162.0	m0.0	9.6	12.9	21.6	45.2	#188.8	
Internal Link Dist (m)		842.6			1397.2			265.7			184.7	
Turn Bay Length (m)	100.0			25.0		100.0	45.0		45.0	100.0		
Base Capacity (vph)	397	942		230	982	922	155	356	475	309	575	
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	0.48	1.06		0.69	0.65	0.05	0.14	0.08	0.44	0.51	1.15	

Intersection Summary

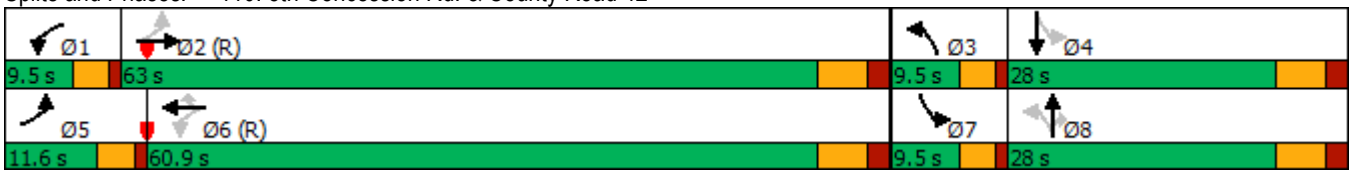
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 15 (14%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 56.9 Intersection LOS: E
Intersection Capacity Utilization 106.7% 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: 110: 8th Concession Rd. & County Road 42



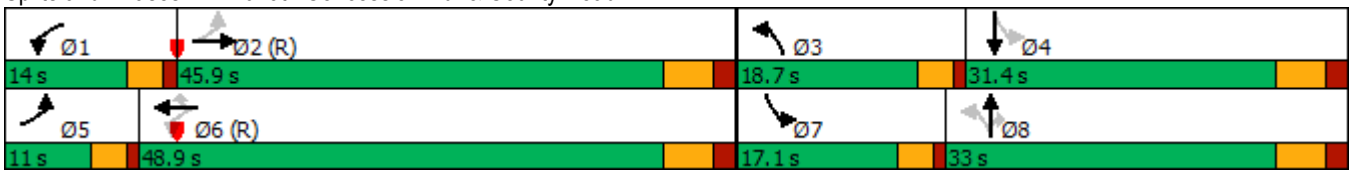
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	490	15	220	435	135	280	25	540	425	70	180
Future Volume (vph)	55	490	15	220	435	135	280	25	540	425	70	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.3	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	50.0		25.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850			0.850		0.892	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1773	0	1770	1780	1583	1770	1801	1583	1770	1662	0
Flt Permitted	0.332			0.158			0.369			0.740		
Satd. Flow (perm)	618	1773	0	294	1780	1583	687	1801	1583	1378	1662	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				147			267		110	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1421.2			949.8			293.1			213.6	
Travel Time (s)		85.3			57.0			17.6			15.4	
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
Adj. Flow (vph)	60	533	16	239	473	147	304	27	587	462	76	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	549	0	239	473	147	304	27	587	462	272	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0	20.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	26.0		11.0	26.0	26.0	9.5	24.0	24.0	9.5	24.0	
Total Split (s)	11.0	45.9		14.0	48.9	48.9	18.7	33.0	33.0	17.1	31.4	
Total Split (%)	10.0%	41.7%		12.7%	44.5%	44.5%	17.0%	30.0%	30.0%	15.5%	28.5%	
Maximum Green (s)	7.0	39.9		10.0	42.9	42.9	14.7	27.0	27.0	13.1	25.4	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	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	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0	0		0	0		0	
Act Effct Green (s)	48.9	39.9		55.1	45.1	45.1	43.3	27.0	27.0	40.9	25.8	
Actuated g/C Ratio	0.44	0.36		0.50	0.41	0.41	0.39	0.25	0.25	0.37	0.23	
v/c Ratio	0.17	0.85		0.85	0.65	0.20	0.74	0.06	0.99	0.83	0.58	
Control Delay	9.9	29.1		44.8	32.0	4.3	35.3	32.4	59.4	42.3	27.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

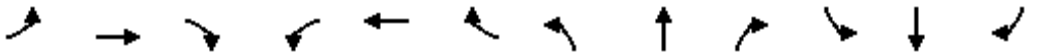
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	9.9	29.1		44.8	32.0	4.3	35.3	32.4	59.4	42.3	27.3	
LOS	A	C		D	C	A	D	C	E	D	C	
Approach Delay		27.2			30.8			50.6			36.8	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	3.4	93.0		29.6	87.4	0.0	47.3	4.7	81.4	80.5	32.1	
Queue Length 95th (m)	m4.7	m99.5		#68.1	126.0	12.7	#72.1	12.1	#158.9	#131.0	60.4	
Internal Link Dist (m)		1397.2			925.8			269.1			189.6	
Turn Bay Length (m)	100.0			25.0		100.0	50.0		25.0	100.0		
Base Capacity (vph)	348	644		281	730	736	417	442	590	558	473	
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	0.17	0.85		0.85	0.65	0.20	0.73	0.06	0.99	0.83	0.58	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 37.3 Intersection LOS: D
Intersection Capacity Utilization 97.0% ICU Level of Service F
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: 120: 9th Concession Rd. & County Road 42





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	530	20	190	865	95	20	45	145	20	10	75
Future Volume (vph)	360	530	20	190	865	95	20	45	145	20	10	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	45.0		45.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850			0.850		0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1769	0	1770	1780	1583	1770	1780	1583	1770	1617	0
Flt Permitted	0.102			0.421			0.697			0.725		
Satd. Flow (perm)	190	1769	0	784	1780	1583	1298	1780	1583	1350	1617	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				114			158		82	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		866.6			1421.2			289.7			208.7	
Travel Time (s)		52.0			85.3			20.9			15.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	576	22	207	940	103	22	49	158	22	11	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	391	598	0	207	940	103	22	49	158	22	93	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0		5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	9.5	26.0		9.5	26.0	26.0	28.0	28.0	28.0	28.0	28.0	
Total Split (s)	22.0	67.0		15.0	60.0	60.0	28.0	28.0	28.0	28.0	28.0	
Total Split (%)	20.0%	60.9%		13.6%	54.5%	54.5%	25.5%	25.5%	25.5%	25.5%	25.5%	
Maximum Green (s)	18.0	61.0		10.5	54.0	54.0	22.0	22.0	22.0	22.0	22.0	
Yellow Time (s)	3.0	4.0		3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	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)		11.0			11.0	11.0	15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)		0			0	0	0	0	0	0	0	
Act Effct Green (s)	89.2	74.3		75.1	65.2	65.2	10.8	10.8	10.8	10.8	10.8	
Actuated g/C Ratio	0.81	0.68		0.68	0.59	0.59	0.10	0.10	0.10	0.10	0.10	
v/c Ratio	0.95	0.50		0.34	0.89	0.10	0.17	0.28	0.53	0.17	0.40	
Control Delay	59.0	10.9		4.5	29.6	1.3	48.3	50.0	14.2	48.0	18.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	59.0	10.9		4.5	29.6	1.3	48.3	50.0	14.2	48.0	18.1	
LOS	E	B		A	C	A	D	D	B	D	B	
Approach Delay		29.9			23.1			25.1			23.8	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	56.9	57.4		7.4	170.9	0.3	4.7	10.5	0.0	4.7	2.3	
Queue Length 95th (m)	#120.4	98.0		14.4	#283.7	2.4	12.5	22.3	19.3	12.5	17.9	
Internal Link Dist (m)		842.6			1397.2			265.7			184.7	
Turn Bay Length (m)	100.0			25.0		100.0	45.0		45.0	100.0		
Base Capacity (vph)	412	1196		645	1055	985	259	356	443	270	389	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.95	0.50		0.32	0.89	0.10	0.08	0.14	0.36	0.08	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 51 (46%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 87.1%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 110: 8th Concession Rd. & County Road 42

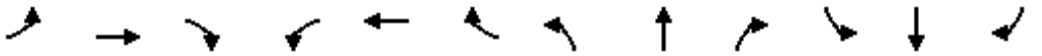
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	410	280	540	440	285	15	45	220	60	10	25
Future Volume (vph)	120	410	280	540	440	285	15	45	220	60	10	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.3	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	50.0		25.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939				0.850			0.850		0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1671	0	1770	1780	1583	1770	1801	1583	1770	1663	0
Flt Permitted	0.490			0.106			0.732			0.725		
Satd. Flow (perm)	913	1671	0	197	1780	1583	1364	1801	1583	1350	1663	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38				310			239		27	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1421.2			949.8			293.1			213.6	
Travel Time (s)		85.3			57.0			17.6			15.4	
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
Adj. Flow (vph)	130	446	304	587	478	310	16	49	239	65	11	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	750	0	587	478	310	16	49	239	65	38	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.0	26.0		11.0	26.0	26.0	24.0	24.0	24.0	24.0	24.0	
Total Split (s)	11.0	51.0		35.0	75.0	75.0	24.0	24.0	24.0	24.0	24.0	
Total Split (%)	10.0%	46.4%		31.8%	68.2%	68.2%	21.8%	21.8%	21.8%	21.8%	21.8%	
Maximum Green (s)	7.0	45.0		31.0	69.0	69.0	18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	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	C-Max		None	C-Max	C-Max	None	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)		11.0			11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0	0	0	0	
Act Effct Green (s)	60.3	51.3		88.3	75.3	75.3	11.7	11.7	11.7	11.7	11.7	
Actuated g/C Ratio	0.55	0.47		0.80	0.68	0.68	0.11	0.11	0.11	0.11	0.11	
v/c Ratio	0.23	0.94		0.98	0.39	0.26	0.11	0.26	0.63	0.45	0.19	
Control Delay	6.3	41.8		60.1	8.9	1.4	45.0	47.8	13.5	56.1	23.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	6.3	41.8		60.1	8.9	1.4	45.0	47.8	13.5	56.1	23.3	
LOS	A	D		E	A	A	D	D	B	E	C	
Approach Delay		36.5			29.0			20.7			44.0	
Approach LOS		D			C			C			D	
Queue Length 50th (m)	4.4	149.1		104.3	40.1	0.0	3.4	10.4	0.0	14.2	2.3	
Queue Length 95th (m)	9.3	#243.8		#183.5	67.7	9.2	10.0	21.8	22.9	27.6	12.1	
Internal Link Dist (m)		1397.2			925.8			269.1			189.6	
Turn Bay Length (m)	100.0			25.0		100.0	50.0		25.0	100.0		
Base Capacity (vph)	555	799		601	1219	1181	223	294	458	220	294	
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	0.23	0.94		0.98	0.39	0.26	0.07	0.17	0.52	0.30	0.13	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 108 (98%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 31.1 Intersection LOS: C
Intersection Capacity Utilization 91.9% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 120: 9th Concession Rd. & County Road 42



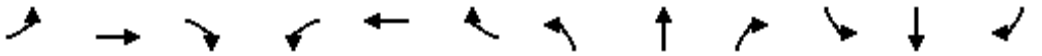
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	870	20	145	520	25	20	15	190	85	45	330
Future Volume (vph)	105	870	20	145	520	25	20	15	190	85	45	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	45.0		45.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850			0.850		0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1775	0	1770	1780	1583	1770	1780	1583	1770	1617	0
Flt Permitted	0.393			0.125			0.252			0.747		
Satd. Flow (perm)	732	1775	0	233	1780	1583	469	1780	1583	1391	1617	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				69			207		300	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		866.6			1421.2			289.7			208.7	
Travel Time (s)		52.0			85.3			20.9			15.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	946	22	158	565	27	22	16	207	92	49	359
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	968	0	158	565	27	22	16	207	92	408	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0		5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	9.5	26.0		9.5	26.0	26.0	28.0	28.0	28.0	28.0	28.0	
Total Split (s)	10.1	70.0		12.0	71.9	71.9	28.0	28.0	28.0	28.0	28.0	
Total Split (%)	9.2%	63.6%		10.9%	65.4%	65.4%	25.5%	25.5%	25.5%	25.5%	25.5%	
Maximum Green (s)	6.1	64.0		8.0	65.9	65.9	22.0	22.0	22.0	22.0	22.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	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)		11.0			11.0	11.0	15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)		0			0	0	0	0	0	0	0	
Act Effct Green (s)	77.9	69.9		82.3	72.1	72.1	15.9	15.9	15.9	15.9	15.9	
Actuated g/C Ratio	0.71	0.64		0.75	0.66	0.66	0.14	0.14	0.14	0.14	0.14	
v/c Ratio	0.20	0.86		0.55	0.48	0.03	0.33	0.06	0.51	0.46	0.83	
Control Delay	5.0	27.3		12.6	10.5	0.6	53.0	37.9	10.0	49.1	27.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	5.0	27.3		12.6	10.5	0.6	53.0	37.9	10.0	49.1	27.6	
LOS	A	C		B	B	A	D	D	A	D	C	
Approach Delay		25.0			10.6			15.7			31.6	
Approach LOS		C			B			B			C	
Queue Length 50th (m)	5.2	165.8		1.5	61.9	0.0	4.6	3.2	0.0	19.5	23.2	
Queue Length 95th (m)	12.6	#292.1		m14.7	101.9	m0.4	12.3	9.2	19.7	33.9	59.0	
Internal Link Dist (m)		842.6			1397.2			265.7			184.7	
Turn Bay Length (m)	100.0			25.0		100.0	45.0		45.0	100.0		
Base Capacity (vph)	576	1127		295	1166	1060	93	356	482	278	563	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.20	0.86		0.54	0.48	0.03	0.24	0.04	0.43	0.33	0.72	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 100 (91%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 91.1% ICU Level of Service F
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: 110: 8th Concession Rd. & County Road 42



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	435	15	220	415	80	280	15	540	260	45	105
Future Volume (vph)	30	435	15	220	415	80	280	15	540	260	45	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.3	3.6	3.6	3.6	3.6
Storage Length (m)	100.0		0.0	25.0		100.0	50.0		25.0	100.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850			0.850		0.895	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1771	0	1770	1780	1583	1770	1801	1583	1770	1667	0
Flt Permitted	0.455			0.301			0.621			0.747		
Satd. Flow (perm)	848	1771	0	561	1780	1583	1157	1801	1583	1391	1667	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				87			370		114	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1421.2			949.8			293.1			213.6	
Travel Time (s)		85.3			57.0			17.6			15.4	
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
Adj. Flow (vph)	33	473	16	239	451	87	304	16	587	283	49	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	489	0	239	451	87	304	16	587	283	163	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.0	26.0		11.0	26.0	26.0	24.0	24.0	24.0	24.0	24.0	
Total Split (s)	11.0	48.0		17.0	54.0	54.0	45.0	45.0	45.0	45.0	45.0	
Total Split (%)	10.0%	43.6%		15.5%	49.1%	49.1%	40.9%	40.9%	40.9%	40.9%	40.9%	
Maximum Green (s)	7.0	42.0		13.0	48.0	48.0	39.0	39.0	39.0	39.0	39.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	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	C-Max		None	C-Max	C-Max	None	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)		11.0			11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0	0	0	0	
Act Effct Green (s)	58.7	49.7		67.1	58.5	58.5	32.9	32.9	32.9	32.9	32.9	
Actuated g/C Ratio	0.53	0.45		0.61	0.53	0.53	0.30	0.30	0.30	0.30	0.30	
v/c Ratio	0.06	0.61		0.51	0.48	0.10	0.88	0.03	0.80	0.68	0.28	
Control Delay	5.2	20.8		15.0	21.1	4.2	61.8	24.2	21.0	41.8	10.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	5.2	20.8		15.0	21.1	4.2	61.8	24.2	21.0	41.8	10.2	
LOS	A	C		B	C	A	E	C	C	D	B	
Approach Delay		19.8			17.3			34.7			30.2	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	1.7	91.6		23.7	69.2	0.0	63.8	2.5	45.5	54.9	7.8	
Queue Length 95th (m)	m2.6	m119.3		41.2	108.8	9.3	#101.8	7.3	89.0	80.2	22.2	
Internal Link Dist (m)		1397.2			925.8			269.1			189.6	
Turn Bay Length (m)	100.0			25.0		100.0	50.0		25.0	100.0		
Base Capacity (vph)	511	801		484	945	881	410	638	800	493	664	
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	0.06	0.61		0.49	0.48	0.10	0.74	0.03	0.73	0.57	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 86.6%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 120: 9th Concession Rd. & County Road 42