Traffic Impact Study

Leblanc Enterprises – 0 Croft St Development

Port Hope, ON

Official Plan & Zoning By-Law Amendment Applications

November 5, 2025

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Revision Summary

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Traffic Impact Study issued for Zoning By-Law & Official Plan Amendments.

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1 Introduction

Traffic impact analysis is a fundamental part of the continuous planning process of land use and the transportation infrastructure. The goal is to provide various interest groups and decision-makers with information regarding the use of developed land and the impacts the development has on the transportation system. From there, mitigation measures can be recommended if necessary. Traditionally, the analysis includes addressing the impacts of a proposed development during the adjacent street peak hours for present and future planning horizons. The impact area is considered "the site access" and the nearby key regional road intersections. Beyond that point, the traffic blends in and is considered as part of the "background traffic".

Jewell Engineering Inc. (Jewell) has prepared this Traffic Impact Study (TIS) to evaluate and summarize the impact of a proposed 1.8 ha residential development in the northeastern section of Port Hope (Figure 1-1).

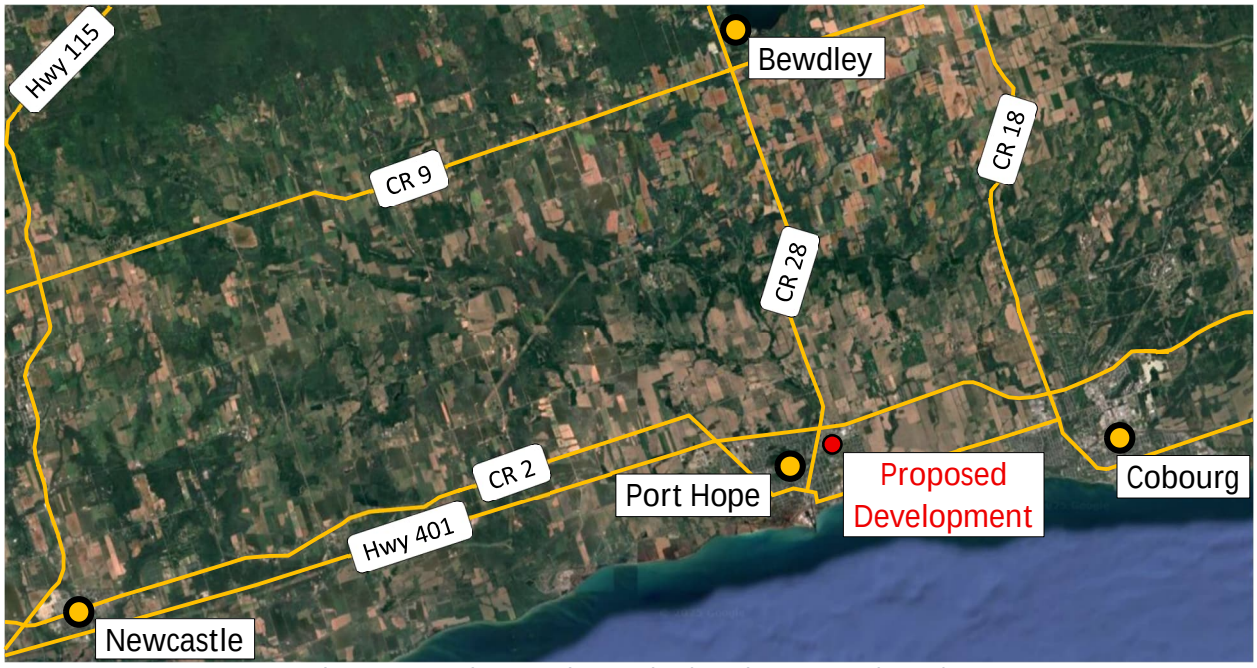


Figure 1-1: Development Site Location (Google, Maxar Tech 2020)

The evaluation of vehicular traffic is based on the performance of the intersections impacted. The performance of an intersection is based on Level of Service (LOS) and safety. Jewell uses the computer software SYNCHRO 11 for the LOS analysis. The Levels of Service are based on "vehicle delay".

This traffic study assumes that the development will be fully constructed in 2028 (see following sections for further details).

2 Background

2.1 Proposed Development

The proposed development will consist of two identical six-story residential buildings connected by a common lobby, with a total of 108 units. For the purposes of this TIS, modelling considered a maximum of 150 units in order to provide a conservative analysis. The existing ~200 m leg of Croft St west of Rose Glen Rd N will be extended an additional ~250 m, which will provide access to the site. The development concept plan is included in Appendix A.

The site is located approximately 500 m south of Hwy 401, to the east of Wellington St and west of Rose Glen Rd N. The lands adjacent to the site consist of residential developments, senior living facilities, a park, childcare centre, public school, and college (Figure 2-1).

Figure 2-1: Proposed Croft St Development and Surrounding Area (Google, Maxar Tech 2018)

Ultimately, traffic will access the proposed development via the proposed Croft St extension, with the development access stop-controlled. Accordingly, this TIS will evaluate the impact of the proposed development on the existing signalized intersection of Croft St at Rose Glen Rd N leading to the site. Beyond this point, traffic is expected to blend into the background traffic.

2.2 Existing Road Network

2.2.1 Rose Glen Rd N

Rose Glen Rd N is a hard-surfaced arterial road that connects to Hwy 401 and Ontario St (CR 28) to the north and Peter St (CR 2) to the south, with business districts located at both ends. Rose Glen Rd N has an urban cross section, with one travel lane ~3.5 m in width in each direction, a sidewalk on one side, and paved multi-use pathway on the other. The speed limit is 50 km/hr (unposted) through the study intersection, south of which it is posted at 40 km/hr (Figure 2-2).

Figure 2-2: Rose Glen Rd N at Croft St, Facing South (Google 2024)

2.2.2 Croft St

The segment of Croft St to the east of Rose Glen Rd N is a hard-surfaced local road that connects Hamilton Rd to the east and Rose Glen Rd N to the west, extending through a business district. Croft Rd has a rural cross section with one ~3.5 m wide travel lane in each direction, and no pedestrian facilities. The road has a posted speed limit of 50 km/hr (Figure 2-3).

Figure 2-3: Croft St at Rose Glen Rd N, Facing East (Google 2024)

To the west of Rose Glen Rd N, Croft St is classed as a local road (future collector) and has a varying cross section. The segment adjacent to Rose Glen Rd N consists of a hard-surfaced, semi-urbanized cross section with one travel lane ~3.5 m in width in each direction and a sidewalk along one side. This segment has a length of ~30 m (Figure 2-4). Further west, Croft St is a hard-surfaced road with a semi-urbanized cross section, a surface width of ~7 m, and no lane markings or pedestrian facilities. This segment has a length of ~170 m. No speed limits are posted.

Beyond the ~170 m extension (west of the subject site), the Croft St right-of-way currently consists of a dedicated multi-use trail.

Figure 2-4: Croft St at Rose Glen Rd N, Facing West (Google 2024)

2.2.3 Rose Glen Rd N / Croft St

Croft St forms a four-way signalized intersection at Rose Glen Rd N. The intersection is semi-actuated with radar detection on the minor road (Croft St - east/west approaches). No auxiliary lanes are provided (Figure 2-5) (Figure 2-6).

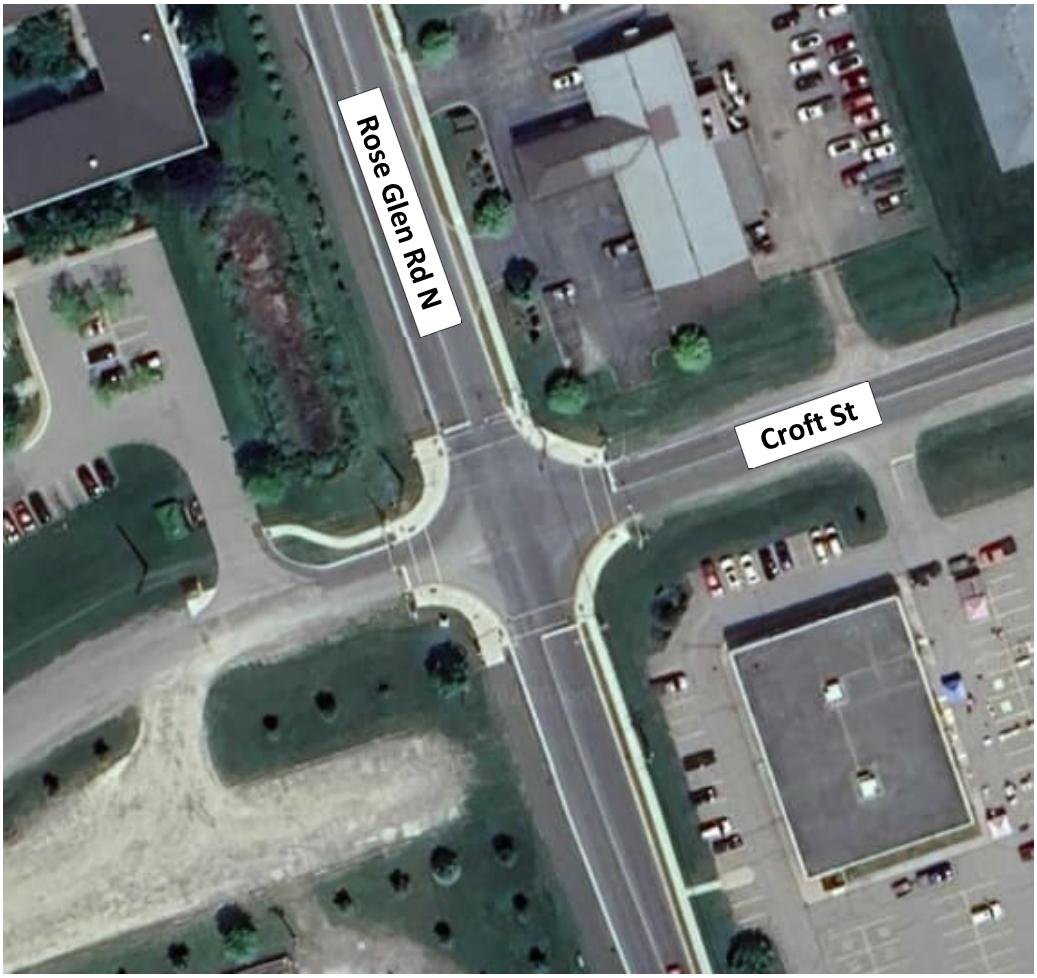


Figure 2-5: Rose Glen Rd N at Croft St (Google 2025)

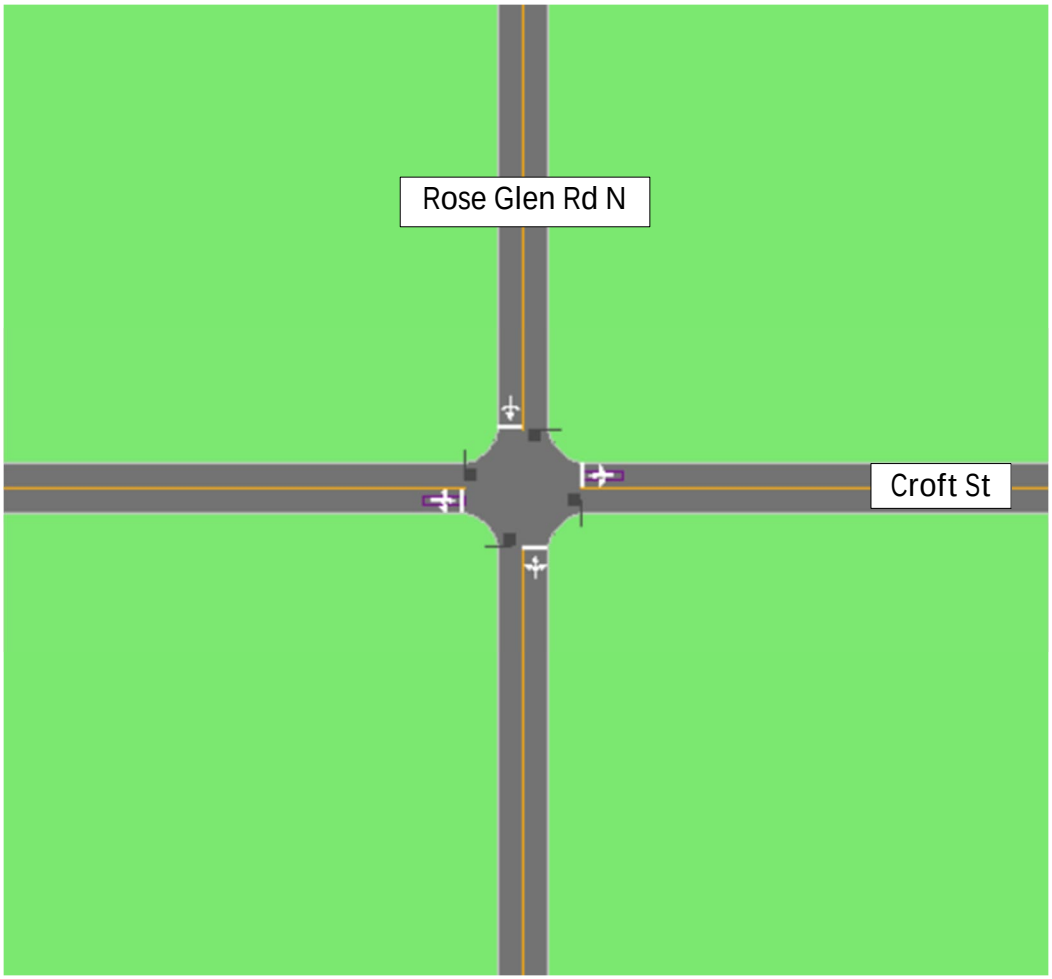


Figure 2-6: Rose Glen Rd N at Croft St (Synchro 11, Trafficware LLC)

The intersection timing settings were received from Port Hope, and aligned with observed peak-period site conditions (Table 2-1).

Table 2-1: Rose Glen Rd N / Croft St - Existing Timing

Approach Direction	Movement	Recall	Time(s)				
			Minimum Green	Extension	Maximum Green	Yellow	Red
NB/SB	L/T/R	Min	10	-	29	3.3	2.4
EB/WB		-		5	26		2.2

The intersection appears to operate at acceptable levels of service based on site observations, and the controller settings provide sufficient time for queued traffic to clear the intersection on a single cycle.

3 Background Traffic

3.1 Traffic Counts

To determine background traffic volumes, Jewell retained Traffic Survey Analysis Inc. (TSA) to conduct Turning Movement & Classification (TMC) counts at the study intersection. These counts were from 7:00 AM to 7:00 PM (07h to 19h) on Friday September 5th and Saturday September 6th. The counts are included in Appendix B. Hourly volumes at the signalized intersection are shown below (Figure 3-1).

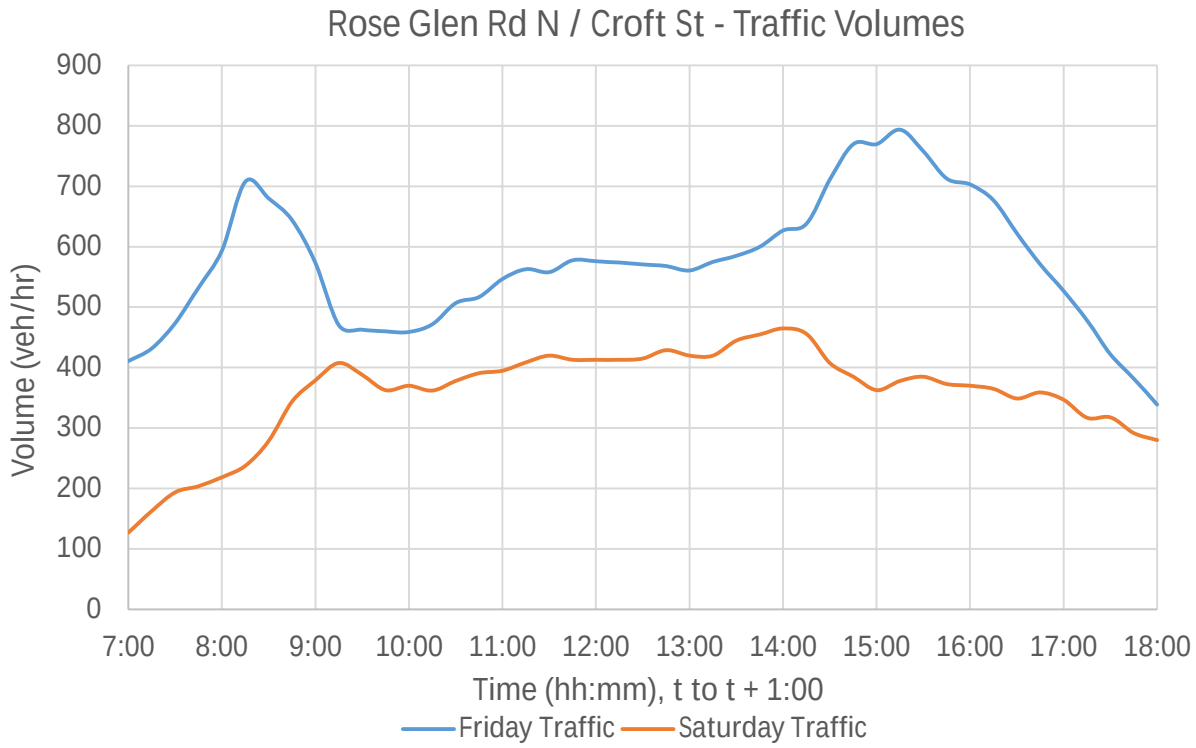


Figure 3-1: Traffic Volumes at Study Intersection

Weekday traffic volumes at the study intersection indicate a morning peak during the typical morning rush hour of 8:00 to 9:30 AM. Volumes then decrease slightly and remain below AM Peak volumes for the morning and early afternoon. Afternoon volumes then achieve a maximum from between 2:00 and 5:00 PM before tapering off in the evening. Weekend traffic volumes achieve a maximum from between 12:00 and 3:00 PM after steadily rising through the morning, before tapering off in the late afternoon and evening.

The recorded traffic patterns are similar to the majority of observed traffic counts with a typical commuter distribution. The weekday peak 15-minute periods occur at 9:00-9:15 AM and 3:15-3:30 PM, reflecting pick-up and drop-off times at the nearby public school.

Between 55% and 70% of all inbound and outbound trips travel to/from the north.

Based on the data collected, the peak hours for the study were selected as follows:

- AM 8:15 to 9:15 AM
- PM 3:15 to 4:15 PM
- Saturday 2:00 to 3:00 PM

The selected peak hour captures the maximum 15-minute volume at the intersection for all peak periods.

Jewell applied an annual growth factor of 2% to project the background counts to future conditions. The growth factor of 2% is conservative based on the background population growth of Port Hope (Table 3-1) and approved by City staff in the Terms of Reference (see Appendix E).

Table 3-1: Port Hope Population Growth (Statistics Canada 2021)

Census Area	2016 Population	2021 Population	Annual Growth Rate
Port Hope	16,753	17,294	0.65%

3.2 Future Background Traffic Conditions

Buildout of the Croft St development is projected to be complete in 2028. A 5-yr and 10-yr projection was modeled to analyze future intersection performance.

Accordingly, Jewell considered the following scenarios and planning horizons:

- 2025
  - Existing background traffic
- 2028
  - Projected background traffic
  - Projected background traffic + Croft St development traffic
- 2033
  - Projected background traffic
  - Projected background traffic + Croft St development traffic

- 2038
    - Projected background traffic
    - Projected background traffic + Croft St development traffic

3.3 Level of Service

The performance of the study intersection was assessed based on delay calculations per the Highway Capacity Manual criteria noted below:

Table 3-2: Intersection Level-of-Service Criteria (HCM 2000, Exhibit 16-2, 17-2)

Level of Service	Average Control Delay (s/veh)	
	Stop-Controlled Intersection	Signalized Intersection
A	0 – 10	< 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

The heavy vehicle percentages were modelled to be consistent with the observed heavy vehicle percentage (HVP) for each turning movement during the respective peak hours at the study intersection.

Jewell conservatively modelled the study intersection's performance on the highest recorded 15-minute volume in each respective peak hour. The Peak Hour Factors (PHF) of the AM, PM, and Weekend peaks were calculated based on the traffic count data as 0.83, 0.88, and 0.89 respectively.

The performance of the study intersection under the background traffic conditions (i.e. without the proposed Croft St development) are summarized on the following page (Table 3-3). Traffic volume figures are included in Appendix C. Additional details are provided in Appendix D.

In summary:

- AM Peak
    - Good levels of service throughout all planning horizons. NB and WB traffic operate at LOS A, and SB and EB traffic operate at LOS B. Good LOS is maintained through 2038. As all V/C ratios are below 0.75 and all 50th% and 95th% queues are below 28 and 63 m (4 and 9 vehicles) respectively; the study intersection will continue to operate well under background traffic conditions through the study horizon with existing signal timing.
- PM Peak
    - Good levels of service throughout all planning horizons. NB and WB traffic operate at LOS A, and SB and EB traffic operate at LOS B. Good LOS is maintained through 2038. As all V/C ratios are below 0.75 and all 50th% and 95th% queues are below 29 and 67 m (4 and 10 vehicles) respectively; the study intersection will continue to operate well under background traffic conditions through the study horizon with existing signal timing.
- Saturday Peak
    - Good levels of service throughout all planning horizons. NB, SB and WB traffic operate at LOS A and LOS is maintained through 2038. EB traffic operates at LOS A, projected to decrease to LOS B by 2033. As all V/C ratios are below 0.4 and all 50th% and 95th% queues are below 12 and 28 m (2 and 4 vehicles) respectively; the study intersection will continue to operate well under background traffic conditions through the study horizon with existing signal timing.

Table 3-3: Intersection Performance - Rose Glen Rd N at Croft St, Background Conditions

		AM				PM				Sat			
		2025	2028	2033	2038	2025	2028	2033	2038	2025	2028	2033	2038
NB	Lane LOS	A	A	A	A	A	A	A	A	A	A	A	A
	Control Delay (s)	7	7.2	7.3	7.3	7.3	7.7	7.6	7.9	6.6	6.6	7.4	7.5
	Lane v/c Ratio	0.19	0.24	0.26	0.27	0.23	0.29	0.3	0.33	0.09	0.1	0.14	0.15
	50th% Queue (m)	6.9	7.4	8.4	9.3	9	9.6	10.8	13	3.7	4	4.4	4.9
	95th% Queue (m)	16.3	17.2	19.5	22.1	20.9	22.1	24.6	28.7	9.7	10.3	11.5	12.6
EB	Lane LOS	B	B	B	B	B	B	B	B	A	A	B	B
	Control Delay (s)	11.9	12.9	13.9	15.3	13.1	14.3	16.5	18.9	9.3	9.4	10.4	11
	Lane v/c Ratio	0.17	0.2	0.23	0.28	0.21	0.26	0.31	0.37	0.15	0.16	0.19	0.21
	50th% Queue (m)	2.6	2.9	3.4	4.4	3.7	4.1	5.1	7	2.1	2.3	2.6	3
	95th% Queue (m)	11.1	12.2	13.5	14.6	14.5	16	18.8	20.8	8.3	9	10.4	11.6
SB	Lane LOS	B	B	B	B	B	B	B	B	A	A	A	A
	Control Delay (s)	10.3	12.6	14.1	16.2	10.5	13.1	14	15.9	7.1	7.2	8.8	9.2
	Lane v/c Ratio	0.5	0.62	0.67	0.73	0.5	0.62	0.67	0.72	0.24	0.25	0.35	0.39
	50th% Queue (m)	18	19.7	23.1	27.5	17.6	19.4	22.6	28.4	8.3	8.9	10.1	11.6
	95th% Queue (m)	39.3	42.9	51.2	62.9	41.5	45.3	53.2	66.3	19.2	20.8	24.2	27.6
WB	Lane LOS	A	A	A	A	A	A	A	A	A	A	A	A
	Control Delay (s)	7.4	8.1	8.6	9.2	6.7	7.2	7.8	8.2	4.7	4.7	5	5.2
	Lane v/c Ratio	0.39	0.43	0.47	0.51	0.35	0.39	0.43	0.46	0.21	0.22	0.25	0.27
	50th% Queue (m)	1.8	1.9	2.3	3	1.6	1.8	2.2	2.9	0.7	0.7	0.8	1
	95th% Queue (m)	13.3	14.3	15.6	16.4	14.6	15.6	17.5	18.4	8.1	8.6	9.7	10.7

4 Proposed Development Traffic

4.1 ITE Vehicular Trip Generation

The I.T.E. Trip Generation Manual, 11th Ed. was referenced to estimate vehicular trip production for the proposed development. Trip generation Code 221 – Multifamily Housing (Mid-Rise) aligns with the development's proposed land use.

Peak Hour of Generator was used to conservatively estimate the peak hour trips, which assumes that the peak of site-generated traffic aligns with the peak-hour volumes of background traffic. The estimated trips were calculated with the fitted curve equation, which is conservative relative to the average rate for the size of the Croft St development.

The anticipated trip-generation for the site, assuming a maximum of 150 units, is as follows:

Table 4-1: ITE Trip Generation, Fitted Curve Equation

Peak Hour	Fitted Curve Equation	Trip Volume
AM	T = 0.32 (X) + 5.84	54
PM	T = 0.32 (X) + 15.57	64
Weekend	Ln(T) = 0.94 Ln(X) + 1.84	60

Inbound and outbound trips are as follows:

Table 4-2: Inbound/Outbound Trip Distribution

Distribution	AM	PM	Weekend
Inbound %	26%	60%	51%
Outbound %	74%	40%	49%
Inbound Trips	14	38	31
Outbound Trips	40	26	29

4.2 Vehicular Trip Distribution and Assignment

The new vehicle trips generated by the proposed development were assigned and distributed to the surrounding road network according to the existing travel patterns which reflect various "trip productions and attractions" in the study environs.

The "trip productions and attractions" in the vicinity of the proposed development are as follows:

- North
    - Hwy 401
    - Business District
- East
    - Business District
- South
    - Public School and College
    - Business District and Downtown

The Croft St development trip distribution is as follows:

Table 4-3: Croft St Development Trip Distribution

Peak Hour	To / From	Trip Distribution			
		IB %	IB Volume	OB %	OB Volume
AM	North	70%	10	60%	24
	East	15%	2	15%	6
	South	15%	2	25%	10
PM	North	55%	21	65%	17
	East	25%	10	20%	5
	South	20%	8	15%	4
Weekend	North	60%	18	70%	21
	East	20%	6	15%	4
	South	20%	6	15%	4

The vehicular trips generated by the proposed development are shown in Appendix C.

5 Transportation Impacts

5.1 Traffic Analysis

In order to conservatively predict the impact of the additional trips, Jewell assumed that the development traffic peak hour would occur simultaneously with the background traffic peak.

5.1.1 Traffic Volumes

Figures displaying background plus development-generated traffic are provided in Appendix C.

5.1.2 Level of Service

The performance of the study intersection with existing geometry/controls and the added development-generated traffic during the AM, PM, and Weekend Peak hours are summarized in Table 5-1. Additional details are provided in Appendix D.

In summary:

- AM Peak
    - Good levels of service throughout all planning horizons. NB and WB traffic operate at LOS A, and SB and EB traffic operate at LOS B. Good LOS is maintained through 2038. As all V/C ratios are below 0.8 and all 50th% and 95th% queues are below 31 and 66 m (5 and 10 vehicles) respectively; the study intersection will continue to operate well with existing geometry/controls through all horizons with the development traffic.
- PM Peak
    - Acceptable levels of service throughout all planning horizons. NB and WB traffic operate at LOS A and SB traffic operates at LOS B, with LOS maintained through 2038. EB traffic operates at LOS B, projected to decrease to LOS C by 2038. As all V/C ratios are below 0.8 and all 50th% and 95th% queues are below 34 and 80 m (5 and 12 vehicles) respectively; the study intersection will continue to operate with existing geometry/controls through all horizons with the development traffic.
- Saturday Peak
    - Good levels of service throughout all planning horizons. NB, SB and WB traffic operate at LOS A, with LOS maintained through 2038. EB traffic operates at LOS A, projected to decrease to LOS B by 2028. As all V/C ratios are below 0.45 and all 50th% and 95th% queues are below 13 and 33 m (2 and 5 vehicles)

respectively; the study intersection will continue to operate with existing geometry/controls through all horizons with the development traffic.

5.2 Intersection Improvements

The levels of service under both background and development-incorporated traffic conditions were found to be acceptable for all traffic movements throughout all planning horizons. As such, no improvements to the study intersection are proposed.

5.3 On-Site Traffic Circulation

Applications at this time are for OPA & ZBA, thus, on-site circulation should be assessed at the time of the Site Plan Control Application when detailed design of the site is complete. The proposed site access onto Croft St will be stop controlled at the private entrance (SE approach).

Table 5-1: Intersection Performance - Rose Glen Rd N at Croft St, Background + Development Conditions

		AM							PM							Saturday						
		2025	2028		2033		2038		2025	2028		2033		2038		2025	2028		2033		2038	
		Bkg	Bkg	B+D	Bkg	B+D	Bkg	B+D	Bkg	Bkg	B+D	Bkg	B+D	Bkg	B+D	Bkg	Bkg	B+D	Bkg	B+D	Bkg	B+D
NB	Lane LOS	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Control Delay (s)	7	7.2	7.4	7.3	7.6	7.3	7.7	7.3	7.7	8.1	7.6	8.5	7.9	8.8	6.6	6.6	6.9	7.4	7.9	7.5	8
	Lane v/c Ratio	0.19	0.24	0.24	0.26	0.27	0.27	0.29	0.23	0.29	0.3	0.3	0.33	0.33	0.35	0.09	0.1	0.11	0.14	0.15	0.15	0.16
	50th% Queue (m)	6.9	7.4	7.6	8.4	8.8	9.3	10.2	9	9.6	10.4	10.8	12.3	13	14.9	3.7	4	4.3	4.4	4.7	4.9	5.2
	95th% Queue (m)	16.3	17.2	17.7	19.5	19.9	22.1	22.6	20.9	22.1	24.8	24.6	28.6	28.7	33.6	9.7	10.3	11.8	11.5	13.2	12.6	14.8
EB	Lane LOS	B	B	B	B	B	B	B	B	B	B	B	B	B	C	A	A	B	B	B	B	B
	Control Delay (s)	11.9	12.9	14.7	13.9	16.1	15.3	18.4	13.1	14.3	16.5	16.5	17.8	18.9	20.7	9.3	9.4	10.1	10.4	11.4	11	11.9
	Lane v/c Ratio	0.17	0.2	0.33	0.23	0.36	0.28	0.41	0.21	0.26	0.34	0.31	0.37	0.37	0.44	0.15	0.16	0.23	0.19	0.27	0.21	0.27
	50th% Queue (m)	2.6	2.9	5.2	3.4	6.3	4.4	8.1	3.7	4.1	6.2	5.1	7.4	7	10.1	2.1	2.3	3.6	2.6	4	3	4.6
	95th% Queue (m)	11.1	12.2	18.5	13.5	20.2	14.6	21.7	14.5	16	22	18.8	23.5	20.8	25.7	8.3	9	13	10.4	14.4	11.6	16.1
SB	Lane LOS	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A
	Control Delay (s)	10.3	12.6	13	14.1	15.4	16.2	17.9	10.5	13.1	13.8	14	15.9	15.9	18.7	7.1	7.2	7.3	8.8	9.1	9.2	9.6
	Lane v/c Ratio	0.5	0.62	0.63	0.67	0.71	0.73	0.76	0.5	0.62	0.65	0.67	0.71	0.72	0.76	0.24	0.25	0.27	0.35	0.38	0.39	0.41
	50th% Queue (m)	18	19.7	20.5	23.1	24.8	27.5	30.8	17.6	19.4	21.2	22.6	25.9	28.4	33.1	8.3	8.9	9.3	10.1	10.7	11.6	12.2
	95th% Queue (m)	39.3	42.9	44.4	51.2	53.4	62.9	65.6	41.5	45.3	51.5	53.2	62.4	66.3	79.4	19.2	20.8	23.9	24.2	27.7	27.6	32.3
WB	Lane LOS	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Control Delay (s)	7.4	8.1	8.2	8.6	8.6	9.2	9.2	6.7	7.2	7.8	7.8	7.9	8.2	8.2	4.7	4.7	5	5	5.3	5.2	5.4
	Lane v/c Ratio	0.39	0.43	0.43	0.47	0.46	0.51	0.5	0.35	0.39	0.4	0.43	0.43	0.46	0.46	0.21	0.22	0.22	0.25	0.25	0.27	0.28
	50th% Queue (m)	1.8	1.9	2.1	2.3	2.6	3	3.3	1.6	1.8	2.6	2.2	3	2.9	3.9	0.7	0.7	1	0.8	1.2	1	1.3
	95th% Queue (m)	13.3	14.3	14.8	15.6	16	16.4	16.7	14.6	15.6	17.9	17.5	18.5	18.4	19.3	8.1	8.6	9.6	9.7	10.6	10.7	11.8

6 Transportation Demand Management

Transportation demand management is the application of strategies and policies to reduce travel demand, or to redistribute this demand in space or time. Managing demand can be a cost-effective alternative to increasing capacity.

Due to the current transportation demand management in the study area, no improvements are proposed.

6.1 Active Transportation

Active transportation infrastructure is in place along Rose Glen Rd N, consisting of a sidewalk and multi-use pathway. There is no active transportation infrastructure along the majority of Croft St, with only ~40 m of sidewalk providing access to the bus stop west of Rose Glen Rd N. However, a multi-use trail connects the dead end of Croft St to the adjacent developed area to the west. Marked pedestrian crosswalks equipped with visual and audible pedestrian countdown signals are located at the study intersection.

6.2 Transit Service

The Croft St development is served by Port Hope Transit Route B, which services the urban area to the east of Ganaraska River. The bus departs from the downtown hub on the half-hour and returns on the hour, with service offered from 7:00 AM to 8:00 PM on weekdays and from 9:00 AM to 4:00 PM on Saturday. In the vicinity of the development, there is a stop on Croft St near Rose Glen Rd N, with adjacent stops located on Wellington St and on Peacock Boulevard.

Intercity transit connection is provided by bus and rail. Port Hope Transit offers the Cobourg Express Shuttle (Route C), with the shuttle departing from the downtown hub every half-hour. Coach Canada's Megabus service also provides transit to Toronto. Via Rail services Port Hope as part of the Toronto – Ottawa & Toronto – Montreal route.

7 Conclusions & Recommendations

Jewell has prepared this TIS to discuss the impact of a proposed residential development on Croft St in Port Hope, ON. The 1.8 ha development consists of two identical six-story apartment buildings with a total of 108 units. Vehicles will access the development via the proposed west-leg-extension of Croft St, with traffic routing via the Rose Glen Rd N / Croft St intersection. The development is projected to be completed in 2028.

The Rose Glen Rd N / Croft St intersection is semi-actuated with radar detection on the minor road approaches. Peak hours for the intersection were determined to be 8:15-9:15 AM, 3:15-4:15 PM, and 2:00-3:00 PM for the AM, PM and Saturday peaks respectively. Traffic patterns were observed to be similar to a typical commuter distribution, and traffic is fairly directional with a majority of trips to/from the north.

Background and development-generated traffic was projected through 2038 to analyze the performance of the study intersection. The intersection will continue to operate well through the study horizon under background traffic conditions (LOS at B or higher, V/C ratios below 0.75, and 95% queues below 67 m). This holds true when development traffic is added as well (LOS at C or higher, V/C ratios below 0.8, and 95% queues below 80 m).

The active transportation network is conducive to good pedestrian connectivity, with infrastructure in place along Rose Glen Rd N and at the study intersection, including crossings on all four approaches. The development area is served by Port Hope Transit, with a stop on Croft St west of Rose Glen Rd N. Intercity transit options are also available.

As the Rose Glen Rd N / Croft St intersection is projected to operate well through the study horizon with existing signal timing, no network upgrades are required to support the proposed development.

The proposed site access onto Croft St will be stop-controlled on the private entrance (SE approach).

Prepared by:

Duncan Burgess, BASc.
Jewell Engineering Inc.

Reviewed by:

Andrew Rosenthal, P.Eng.
Jewell Engineering Inc.

Amanda Redden, P.Eng.
Jewell Engineering Inc.

8 References

Institute of Transportation Engineers. (2021). *Trip Generation Manual, 11th Edition.*

Ontario Ministry of Transportation. (2012). *Ontario Traffic Manual - Traffic Signals (Book 12).*

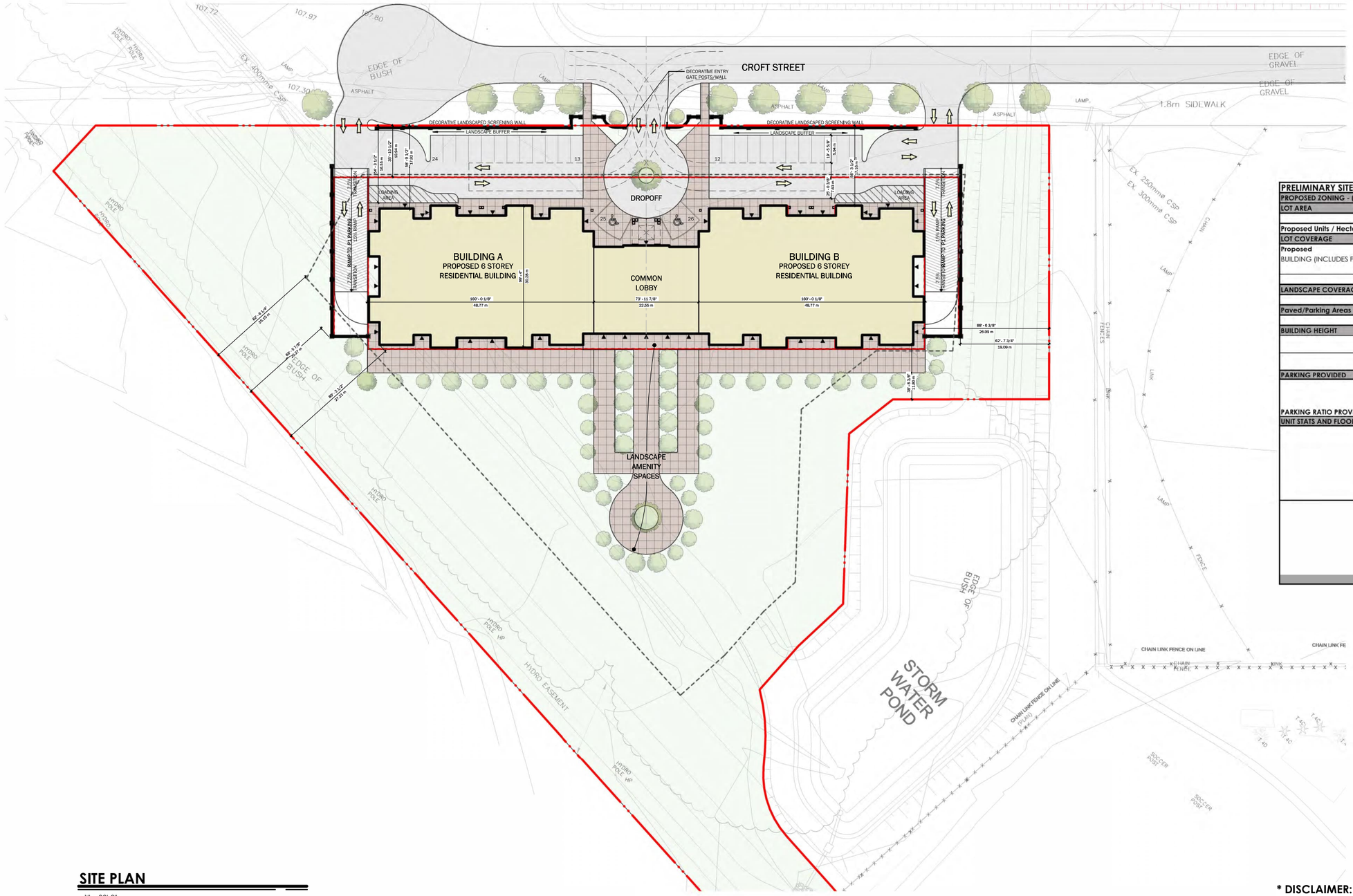
Ontario Ministry of Transportation. (2021). *Ontario Traffic Manual - Regulatory Signs (Book 5).*

Statistics Canada. (2022). *2021 Census of Population*. Retrieved from Statistics Canada.

Transportation Association of Canada. (2017). *Geometric Design Guide for Canadian Roads.*

APPENDIX A

Development Concept Plan



PRELIMINARY SITE STATS	HECTARES	ft²	m²	%
PROPOSED ZONING - (RES4 HIGH DENSITY RESIDENTIAL)				
LOT AREA				
	1.8581	200000.00	18,580.6	100%
Proposed Units / Hectare	58.1251			
LOT COVERAGE				
Proposed				
BUILDING (INCLUDES PROJECTIONS)		39000.0	3,623.2	19.5%
Total		**39000.0**	**3623.2**	**19.5%**
LANDSCAPE COVERAGE (INCLUDES SIDEWALKS/PATIOS)				
Proposed		135000.0	12,541.9	67.5%
Paved/Parking Areas Not Covered By Building				
		26000.0	2,415.5	13.0%
BUILDING HEIGHT				
Building A	**6 Storey**			23m (Top of Roof)
Building B	**6 Storey**			23m (Top of Roof)
PARKING PROVIDED				
P1 UNDERGROUND				132
Surface				26
Total				**158**
PARKING RATIO PROVIDED	**1.46**	**Spaces Per Unit**		

UNIT STATS AND FLOOR AREAS	
BuildingA	Units
1st FLOOR	8
2nd FLOOR	10
3rd FLOOR	10
4th FLOOR	10
5th FLOOR	10
6th FLOOR	6
Total Building A	**54**
BuildingB	Units
1st FLOOR	8
2nd FLOOR	10
3rd FLOOR	10
4th FLOOR	10
5th FLOOR	10
6th FLOOR	6
Total Building B	**54**
Total Units Provided	**108**

SITE PLAN

1" = 30'-0"

*** DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY**

LEBLANC ENTERPRISES CROFT STREET DEVELOPMENT

CROFT STREET | PORT HOPE | ONTARIO

A·C·K architects STUDIO INC.

SITE PLAN

DWG. No. .SP1

SCALE: AS SHOWN
DATE: JANUARY 2024
PROJECT No.: 2021-347S

APPENDIX B

Traffic Counts

Croft Street & Rose Glen Road North

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 11:00:00

One Hour Peak
From: 8:15:00
To: 9:15:00

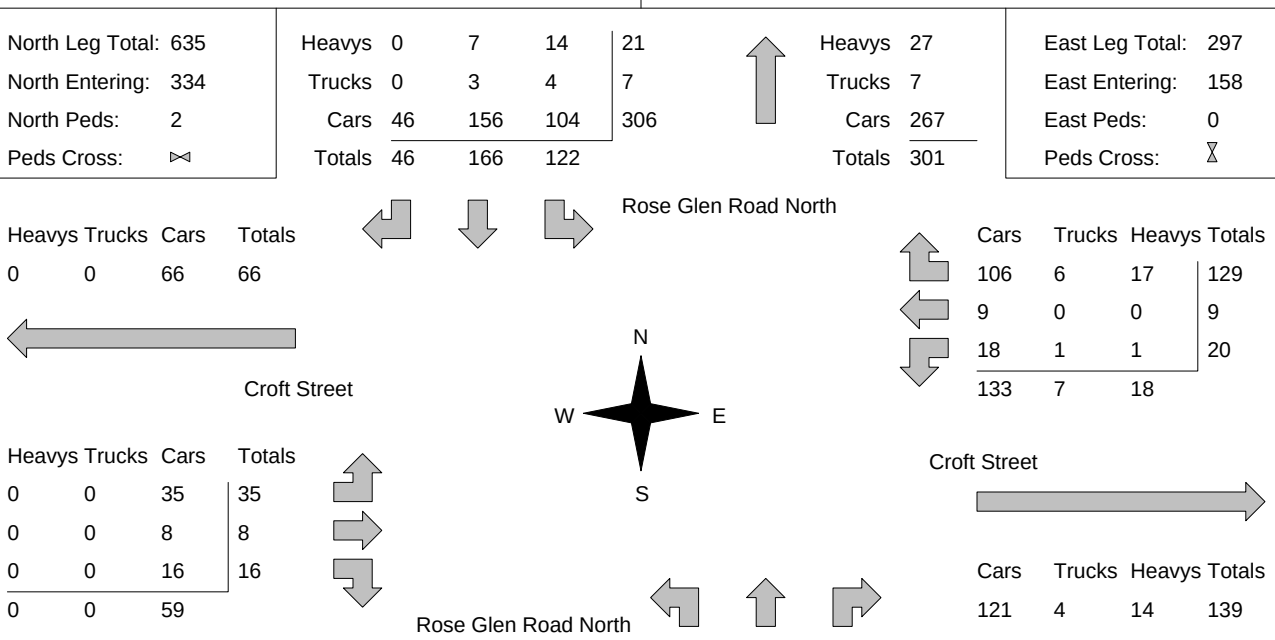
Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 5-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Rose Glen Road North runs N/S



Comments

Croft Street & Rose Glen Road North

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 14:00:00
To: 15:00:00

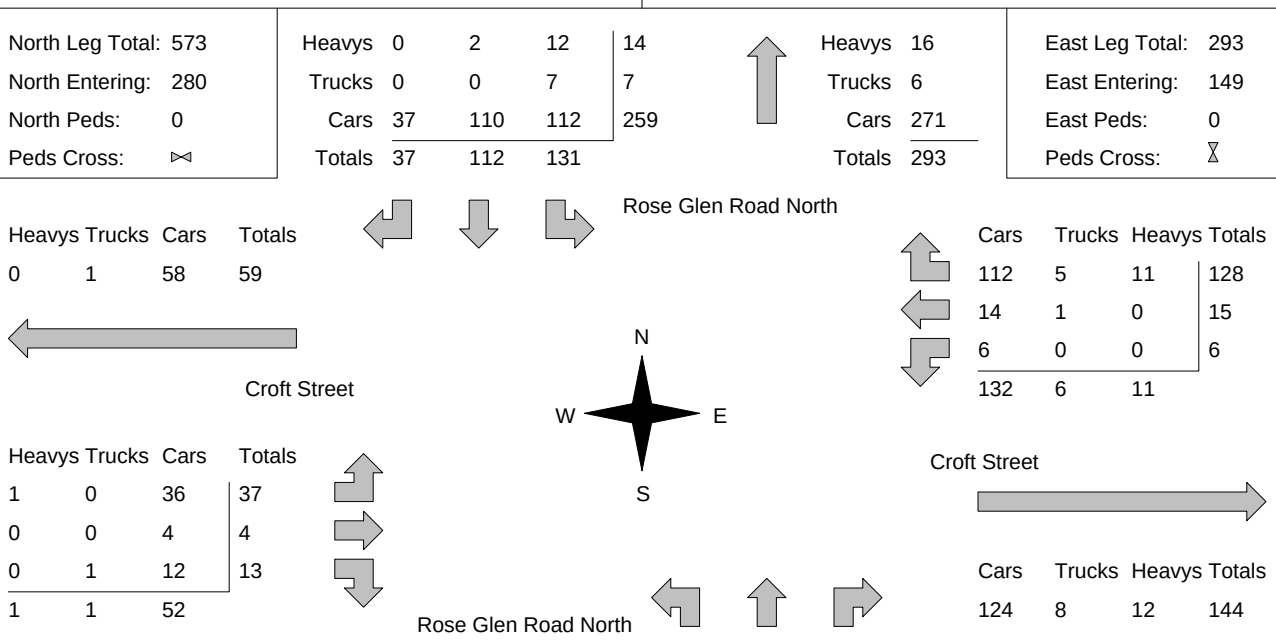
Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 5-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Rose Glen Road North runs N/S



Comments

Croft Street & Rose Glen Road North

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 19:00:00

One Hour Peak
From: 15:15:00
To: 16:15:00

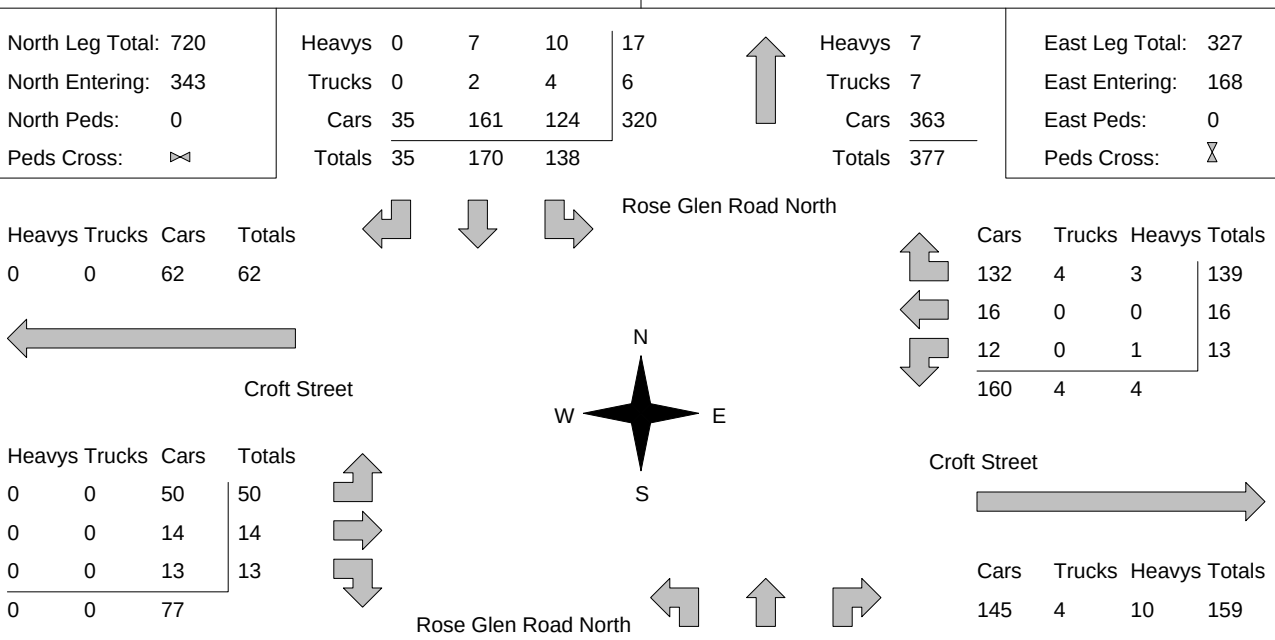
Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 5-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Rose Glen Road North runs N/S



Comments

Croft Street & Rose Glen Road North

Total Count Diagram

Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 5-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Rose Glen Road North runs N/S

North Leg Total:	6128
North Entering:	3013
North Peds:	11
Peds Cross:	⋈

Heavys	0	31	104	135
Trucks	4	21	42	67
Cars	308	1350	1153	2811
Totals	312	1402	1299	

Heavys	152
Trucks	64
Cars	2899
Totals	3115

East Leg Total:	3021
East Entering:	1579
East Peds:	2
Peds Cross:	⧖

Rose Glen Road North

Heavys	Trucks	Cars	Totals
2	5	490	497

Cars	Trucks	Heavys	Totals
1221	40	112	1373
93	1	1	95
107	2	2	111
1421	43	115	

Croft Street

N
W E
S

Heavys	Trucks	Cars	Totals
2	2	302	306
0	1	69	70
0	3	117	120
2	6	488	

Croft Street

Cars	Trucks	Heavys	Totals
1293	45	104	1442

Rose Glen Road North

Peds Cross:	⧖
West Peds:	43
West Entering:	496
West Leg Total:	993

Cars	1574
Trucks	26
Heavys	33
Totals	1633

Cars	89	1376	71	1536
Trucks	0	22	2	24
Heavys	1	38	0	39
Totals	90	1436	73	

Peds Cross:	⋈
South Peds:	17
South Entering:	1599
South Leg Total:	3232

Comments

Croft Street & Rose Glen Road North
Traffic Count Summary

Intersection: Rose Glen Road North & Croft Stre | **Count Date:** 5-Sep-2025 | **Municipality:** Port Hope

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	74	116	9	199	0	313
9:00:00	106	162	37	305	1	410
10:00:00	100	113	30	243	1	399
11:00:00	97	80	21	198	2	304
12:00:00	128	91	34	253	1	369
13:00:00	121	103	28	252	0	377
14:00:00	137	106	21	264	0	371
15:00:00	131	112	37	280	0	424
16:00:00	128	171	41	340	1	527
17:00:00	136	153	20	309	4	520
18:00:00	76	107	22	205	0	351
19:00:00	65	88	12	165	1	247
Totals:	1299	1402	312	3013	11	4612

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	2	107	5	114	1
9:00:00	9	92	4	105	4
10:00:00	5	142	9	156	4
11:00:00	5	99	2	106	0
12:00:00	10	99	7	116	1
13:00:00	7	111	7	125	1
14:00:00	10	93	4	107	0
15:00:00	7	128	9	144	1
16:00:00	15	166	6	187	1
17:00:00	12	186	13	211	2
18:00:00	5	138	3	146	2
19:00:00	3	75	4	82	0
Totals:	90	1436	73	1599	17

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	1	5	79	85	0	98
9:00:00	16	8	127	151	0	184
10:00:00	10	3	100	113	0	174
11:00:00	10	8	108	126	0	155
12:00:00	7	7	111	125	0	178
13:00:00	8	9	139	156	1	199
14:00:00	9	9	132	150	0	190
15:00:00	6	15	128	149	0	203
16:00:00	14	17	133	164	1	243
17:00:00	16	7	120	143	0	183
18:00:00	9	4	129	142	0	176
19:00:00	5	3	67	75	0	92
Totals:	111	95	1373	1579	2	2075

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	8	3	2	13	4
9:00:00	19	5	9	33	7
10:00:00	29	10	22	61	2
11:00:00	18	1	10	29	5
12:00:00	33	6	14	53	1
13:00:00	30	5	8	43	0
14:00:00	26	11	3	40	0
15:00:00	37	4	13	54	2
16:00:00	49	14	16	79	7
17:00:00	27	5	8	40	6
18:00:00	20	4	10	34	5
19:00:00	10	2	5	17	4
Totals:	306	70	120	496	43

Calculated Values for Traffic Crossing Major Street

Hours Ending:	9:00	10:00	12:00	13:00	14:00	15:00	16:00	17:00
Crossing Values:	48	54	49	48	46	59	82	56

Croft Street & Rose Glen Road North

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 11:00:00

One Hour Peak
From: 9:15:00
To: 10:15:00

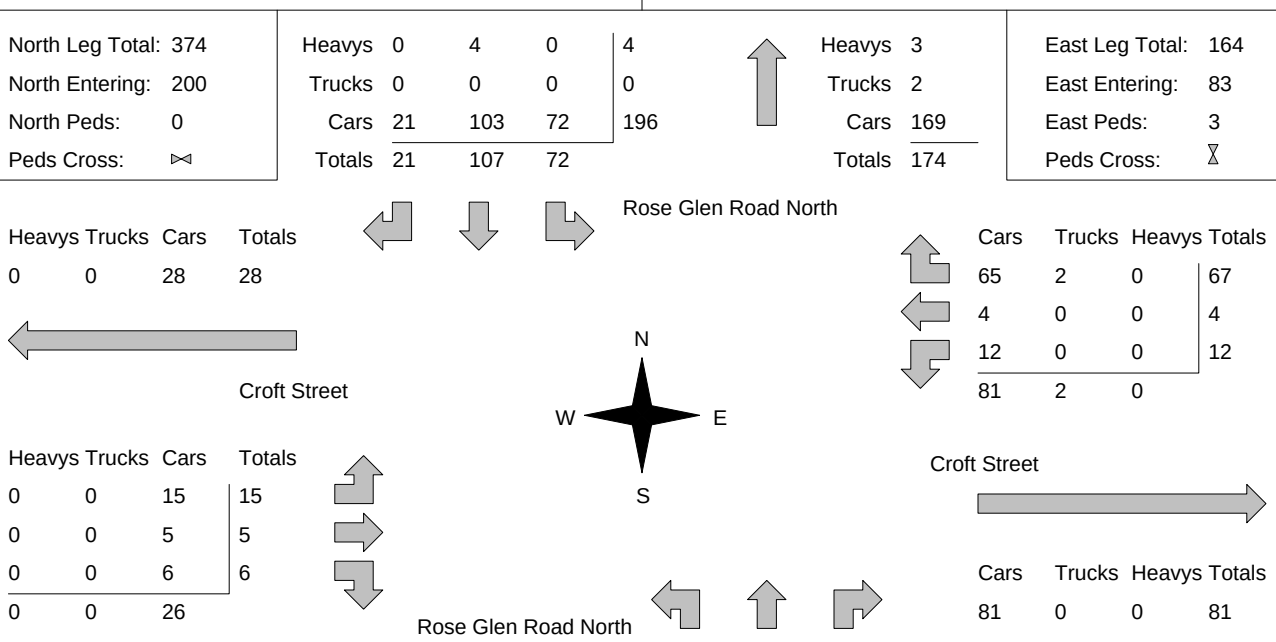
Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 6-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Rose Glen Road North runs N/S



Comments

Croft Street & Rose Glen Road North

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 14:00:00
To: 15:00:00

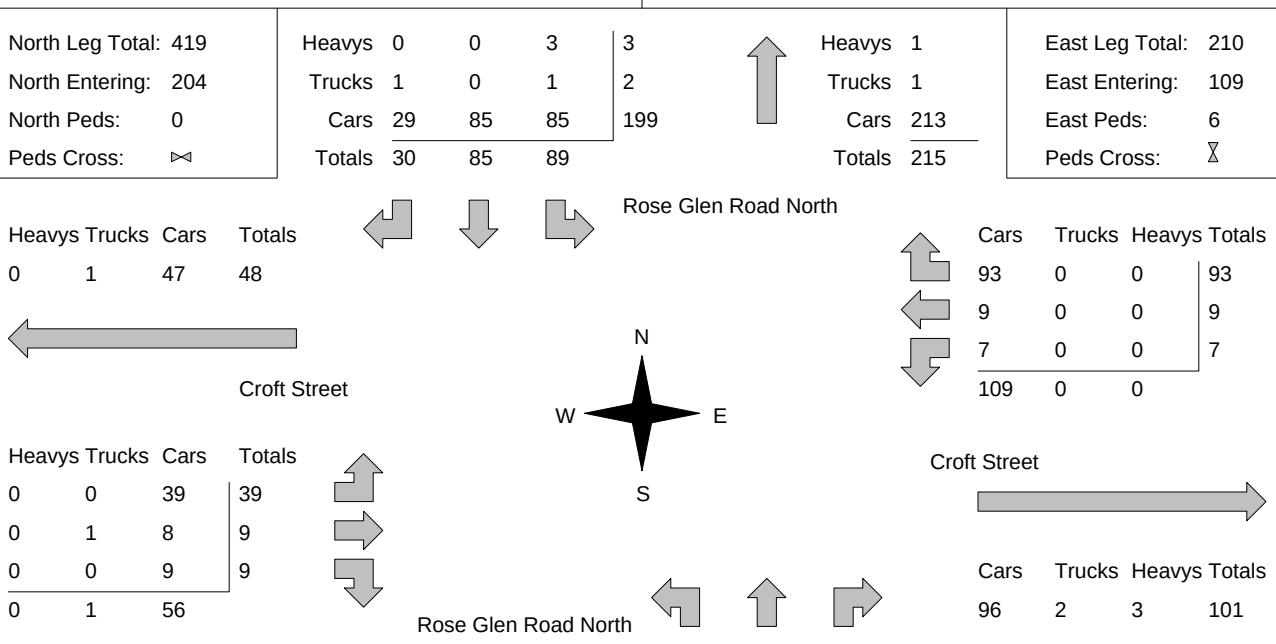
Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 6-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Rose Glen Road North runs N/S



Comments

Croft Street & Rose Glen Road North

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 19:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 6-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

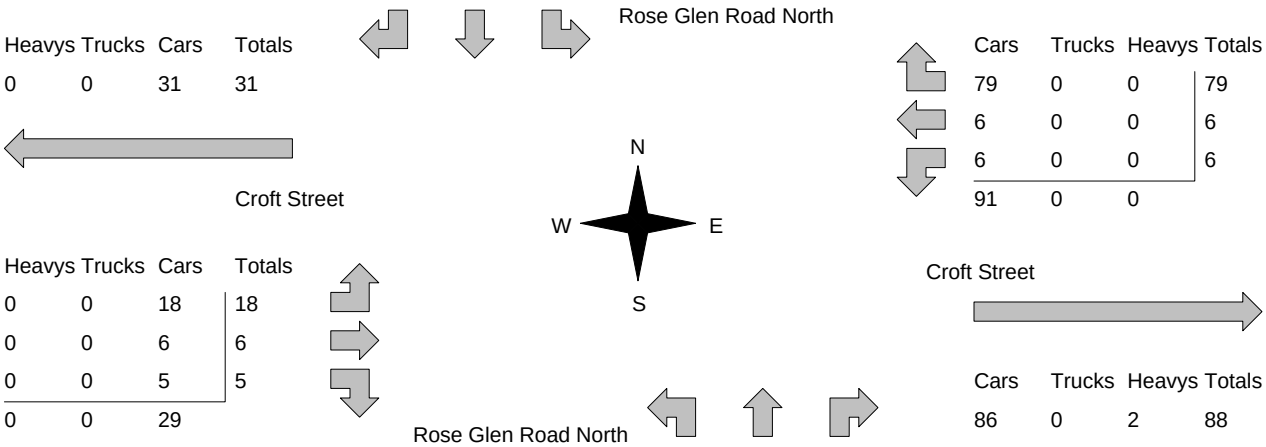
Major Road: Rose Glen Road North runs N/S

North Leg Total: 350
North Entering: 173
North Peds: 5
Peds Cross: ⋈

Heavys	0	5	2	7
Trucks	0	0	0	0
Cars	19	73	74	166
Totals	19	78	76	

Heavys	0
Trucks	1
Cars	176
Totals	177

East Leg Total: 179
East Entering: 91
East Peds: 2
Peds Cross: ⧖



Heavys	Trucks	Cars	Totals
0	0	31	31

Cars	Trucks	Heavys	Totals
79	0	0	79
6	0	0	6
6	0	0	6
91	0	0	

Heavys	Trucks	Cars	Totals
0	0	18	18
0	0	6	6
0	0	5	5
0	0	29	

Cars	Trucks	Heavys	Totals
86	0	2	88

Peds Cross: ⧖
West Peds: 3
West Entering: 29
West Leg Total: 60

Cars	84
Trucks	0
Heavys	5
Totals	89

Cars	6	79	6	91
Trucks	0	1	0	1
Heavys	0	0	0	0
Totals	6	80	6	

Peds Cross: ⋈
South Peds: 0
South Entering: 92
South Leg Total: 181

Comments

Croft Street & Rose Glen Road North

Total Count Diagram

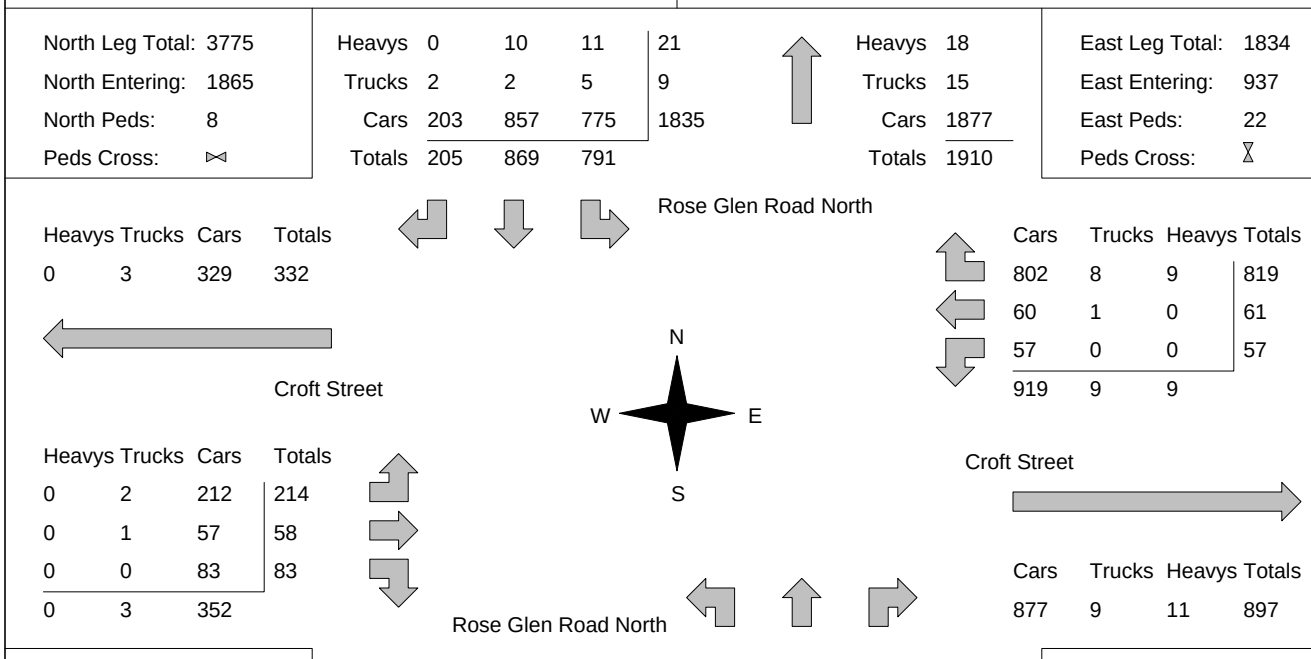
Municipality: Port Hope
Site #: 0000007200
Intersection: Rose Glen Road North & Croft Stree
TFR File #: 1
Count date: 6-Sep-2025

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Rose Glen Road North runs N/S



Comments

Croft Street & Rose Glen Road North
Traffic Count Summary

Intersection: Rose Glen Road North & Croft Stre | **Count Date:** 6-Sep-2025 | **Municipality:** Port Hope

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	32	21	5	58	0	88
9:00:00	41	51	12	104	2	155
10:00:00	72	97	14	183	0	284
11:00:00	60	88	20	168	0	257
12:00:00	72	71	15	158	0	267
13:00:00	77	83	14	174	0	282
14:00:00	80	84	28	192	0	286
15:00:00	89	85	30	204	0	299
16:00:00	81	75	16	172	3	251
17:00:00	59	76	22	157	3	249
18:00:00	72	82	17	171	0	248
19:00:00	56	56	12	124	0	190
Totals:	791	869	205	1865	8	2856

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	3	24	3	30	0
9:00:00	2	48	1	51	1
10:00:00	2	96	3	101	0
11:00:00	5	77	7	89	0
12:00:00	7	100	2	109	0
13:00:00	5	98	5	108	0
14:00:00	6	83	5	94	2
15:00:00	9	83	3	95	1
16:00:00	9	66	4	79	0
17:00:00	6	80	6	92	2
18:00:00	9	63	5	77	1
19:00:00	3	59	4	66	0
Totals:	66	877	48	991	7

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	1	27	28	0	39
9:00:00	4	4	38	46	0	64
10:00:00	12	4	51	67	2	95
11:00:00	5	4	85	94	1	113
12:00:00	2	7	86	95	0	128
13:00:00	5	7	92	104	0	131
14:00:00	0	9	84	93	6	134
15:00:00	7	9	93	109	6	166
16:00:00	7	4	70	81	4	112
17:00:00	9	3	75	87	1	121
18:00:00	3	2	67	72	0	99
19:00:00	3	7	51	61	2	90
Totals:	57	61	819	937	22	1292

West Approach Totals

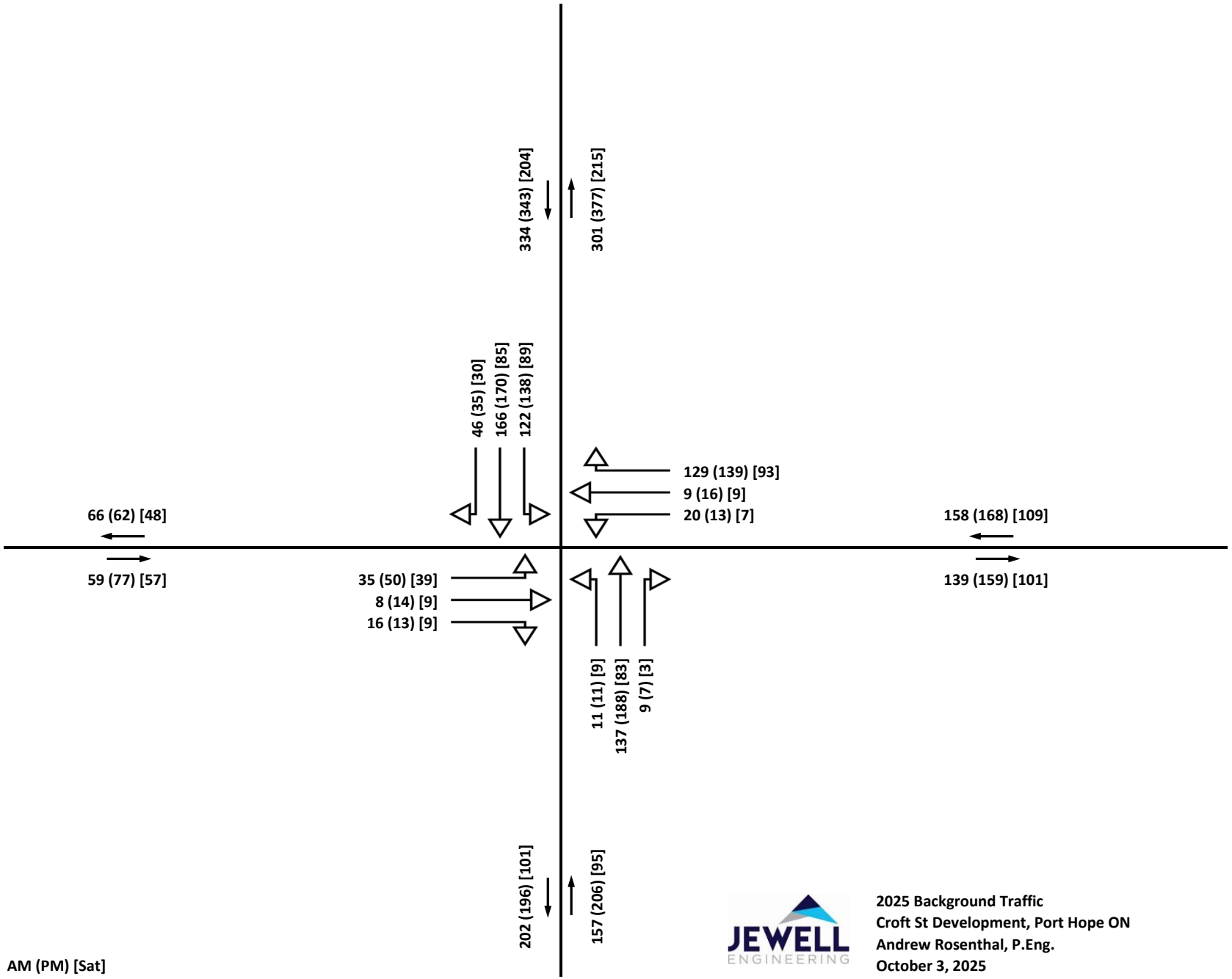
Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	5	4	2	11	6
9:00:00	10	2	6	18	4
10:00:00	15	6	7	28	5
11:00:00	12	2	5	19	0
12:00:00	16	9	8	33	5
13:00:00	17	4	6	27	4
14:00:00	23	6	12	41	1
15:00:00	39	9	9	57	3
16:00:00	20	3	8	31	3
17:00:00	22	8	4	34	5
18:00:00	12	4	11	27	5
19:00:00	23	1	5	29	1
Totals:	214	58	83	355	42

Calculated Values for Traffic Crossing Major Street

Hours Ending:	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
Crossing Values:	33	21	27	29	34	56	34	44

APPENDIX C

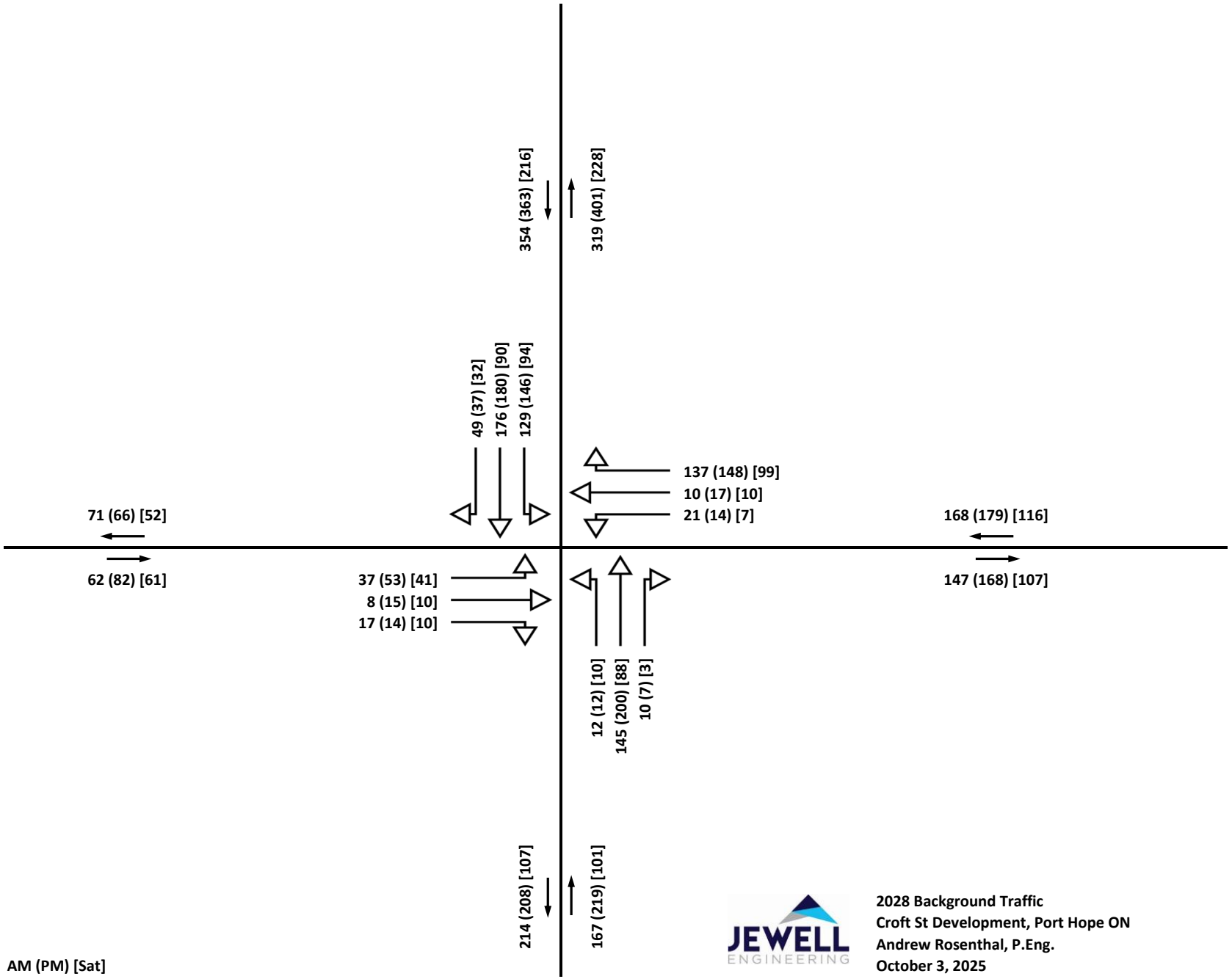
Traffic Volume Figures – Background, Development Traffic



AM (PM) [Sat]

JEWELL ENGINEERING

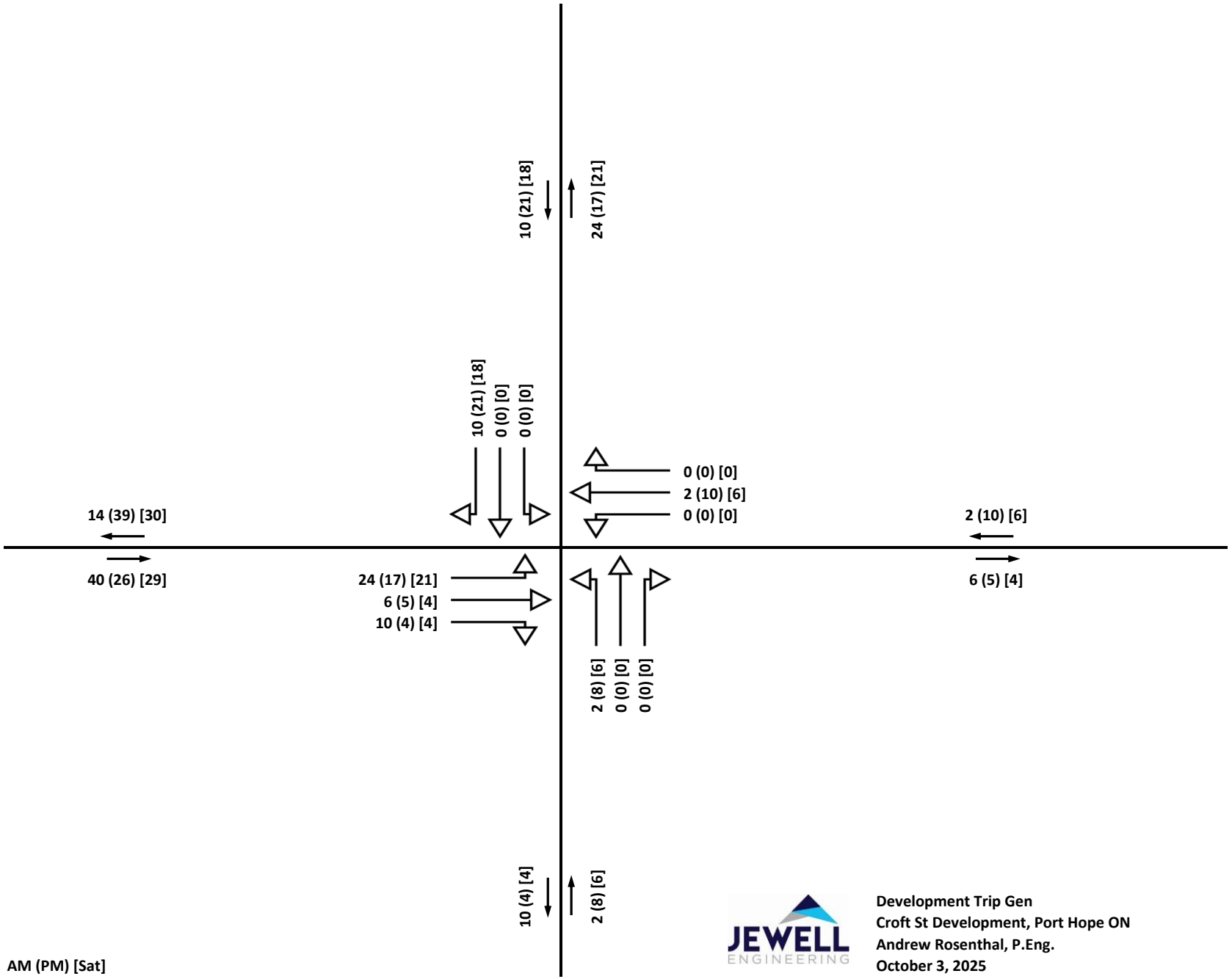
2025 Background Traffic
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025



AM (PM) [Sat]

JEWELL ENGINEERING

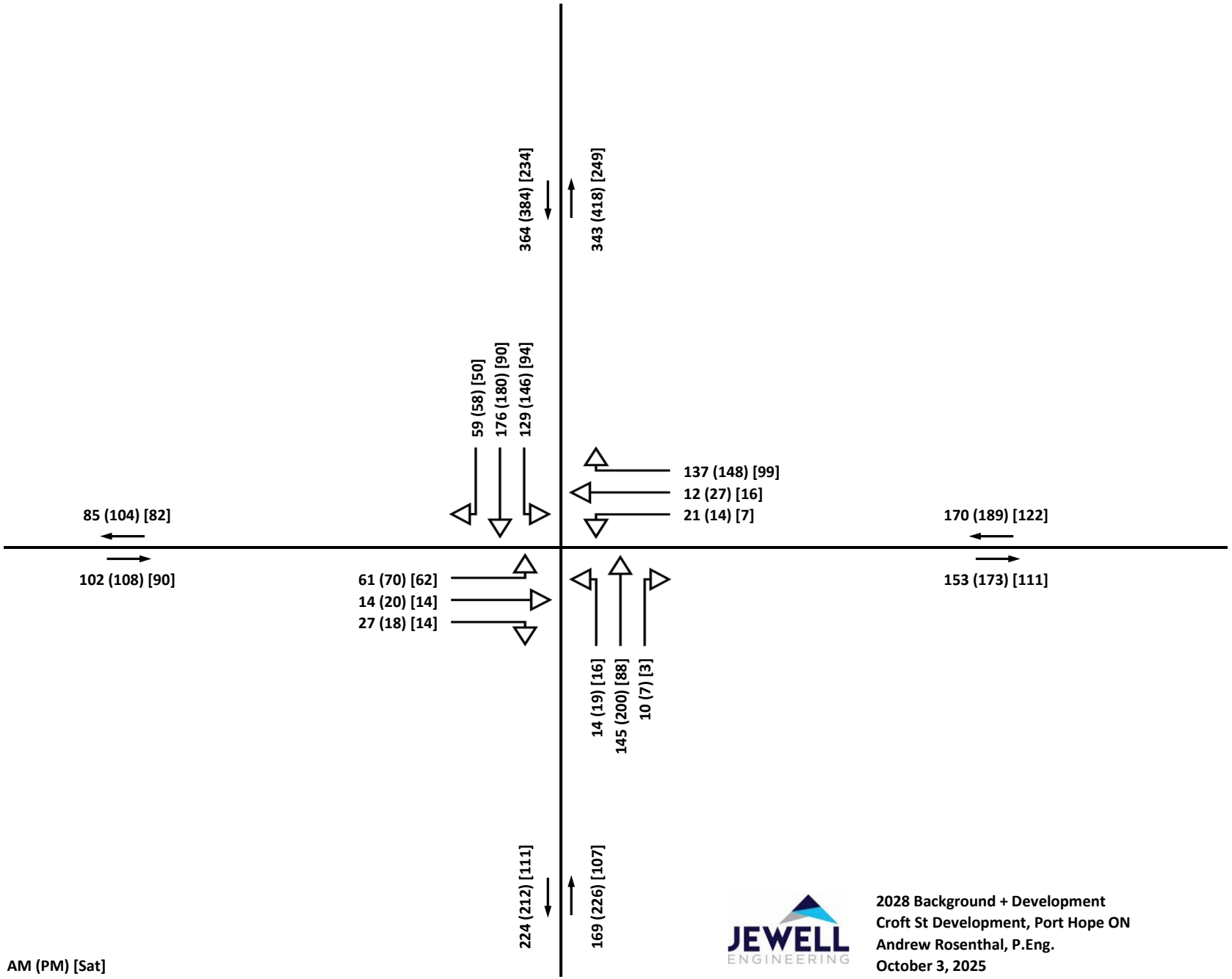
2028 Background Traffic
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025



AM (PM) [Sat]

JEWELL ENGINEERING

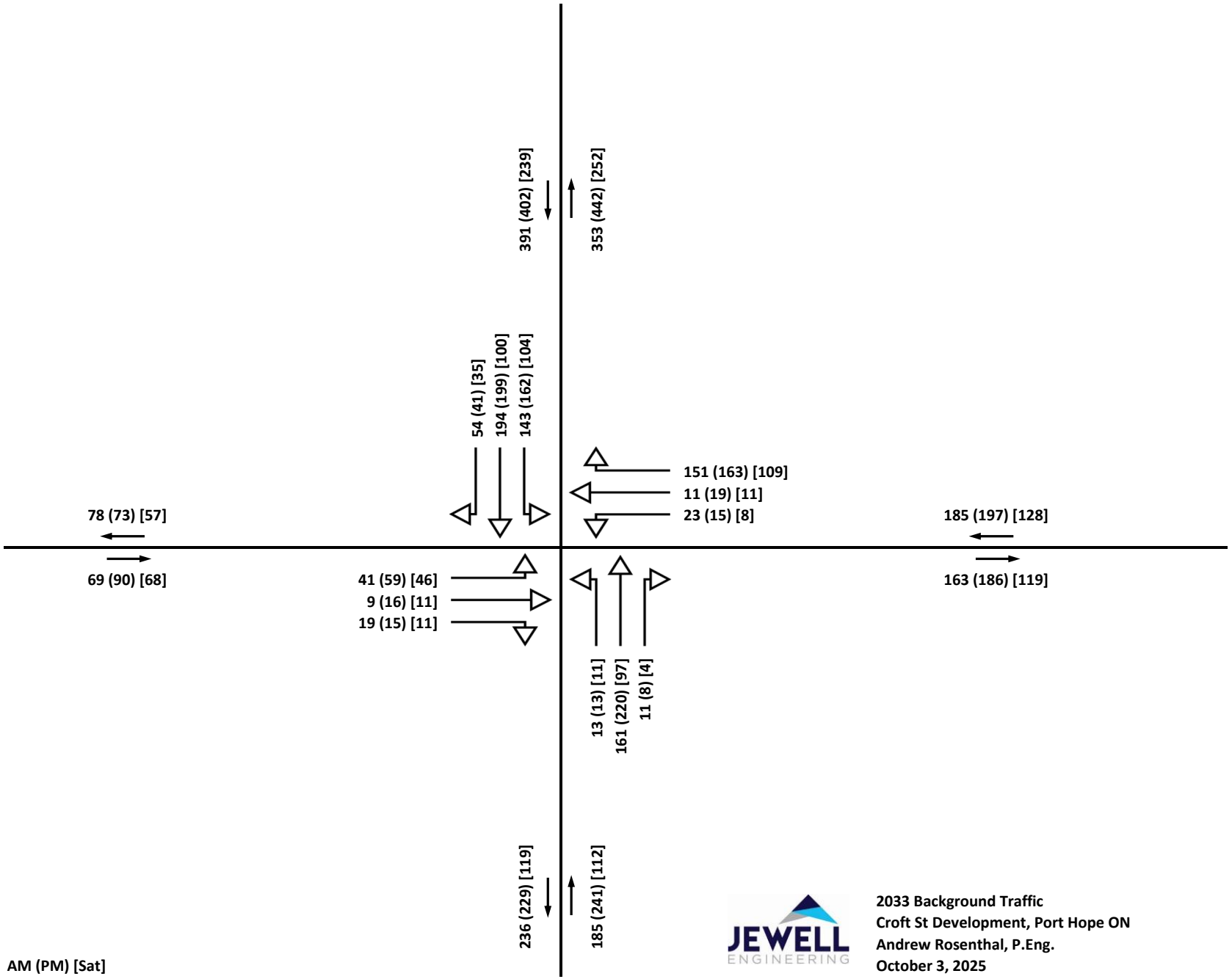
Development Trip Gen
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025



AM (PM) [Sat]

JEWELL ENGINEERING

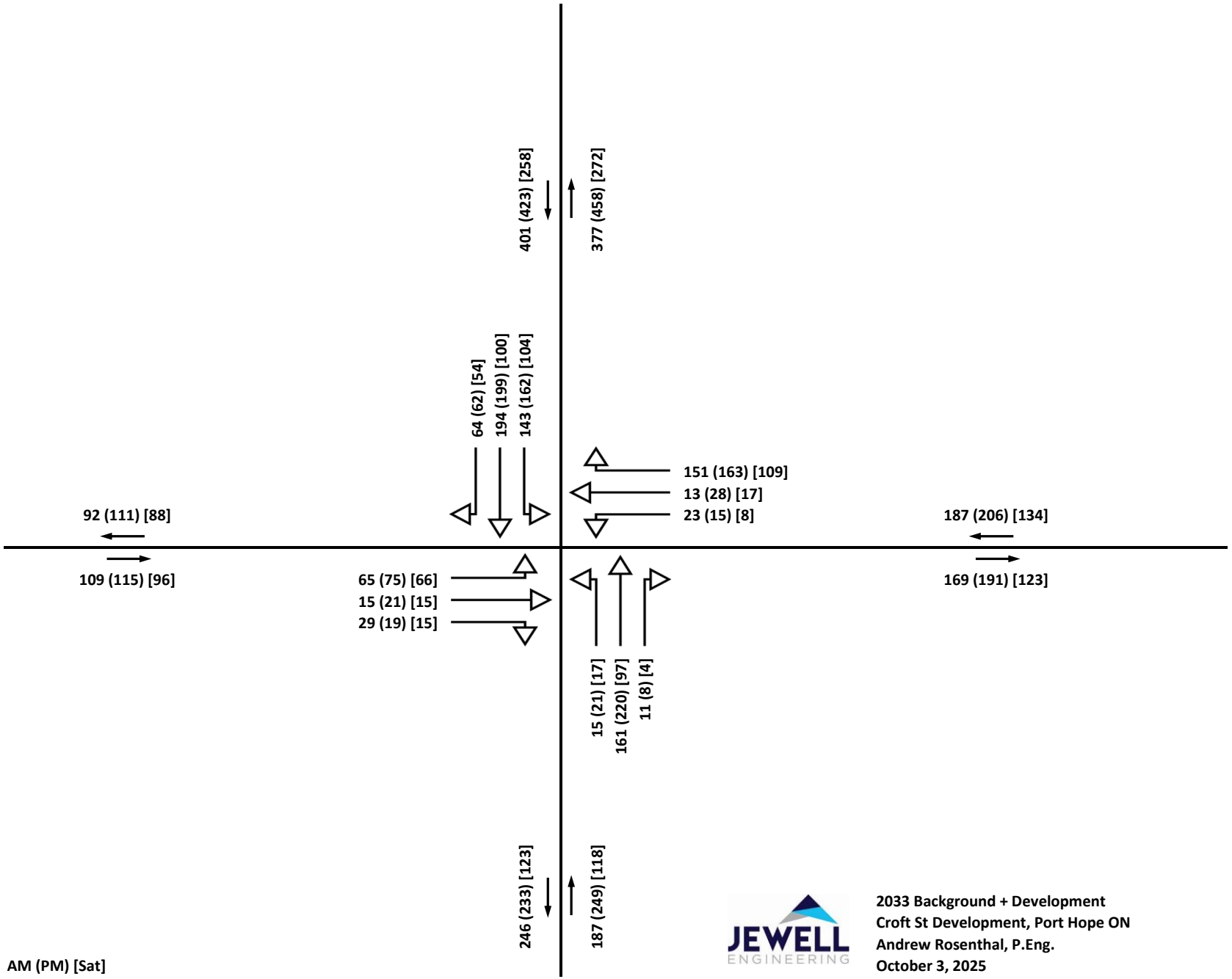
2028 Background + Development
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025



AM (PM) [Sat]

JEWELL ENGINEERING

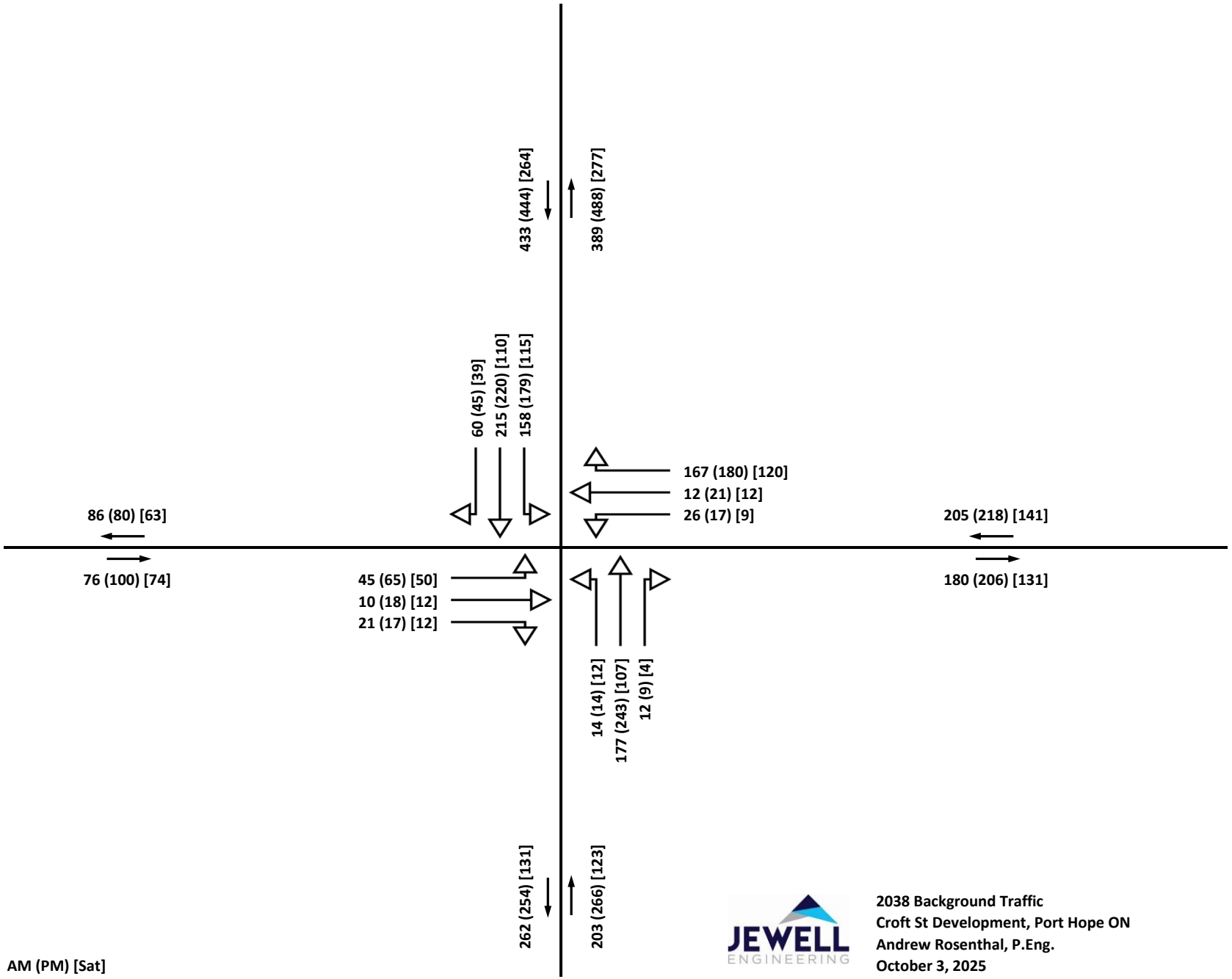
2033 Background Traffic
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025



AM (PM) [Sat]

JEWELL ENGINEERING

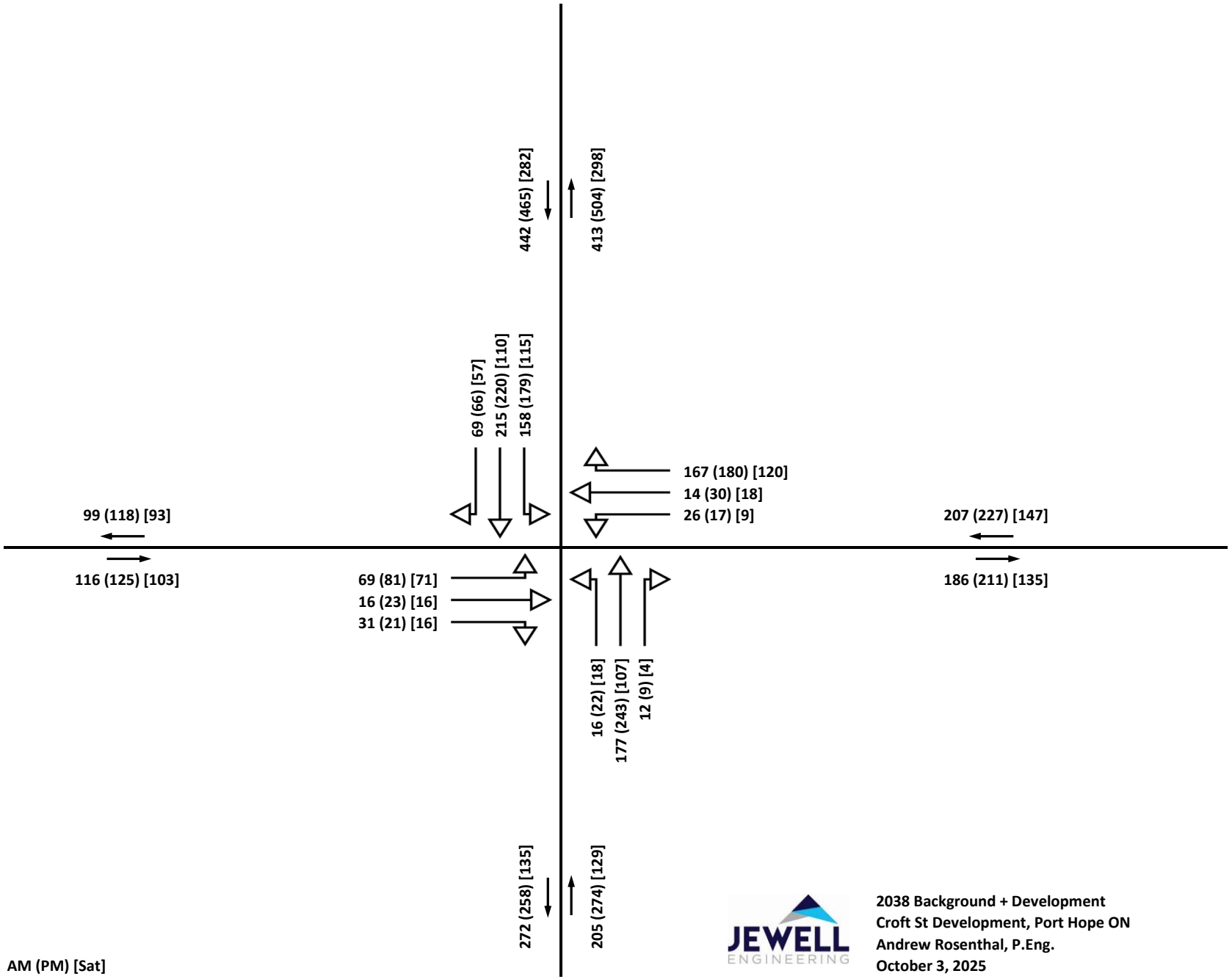
2033 Background + Development
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025



AM (PM) [Sat]

JEWELL ENGINEERING

2038 Background Traffic
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025



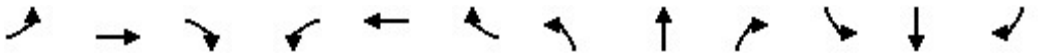
AM (PM) [Sat]

JEWELL ENGINEERING

2038 Background + Development
Croft St Development, Port Hope ON
Andrew Rosenthal, P.Eng.
October 3, 2025

APPENDIX D

Synchro Reports



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	8	16	20	9	129	11	137	9	122	166	46
Future Volume (vph)	35	8	16	20	9	129	11	137	9	122	166	46
Satd. Flow (prot)	0	1778	0	0	1450	0	0	1756	0	0	1689	0
Flt Permitted		0.791			0.945			0.966			0.809	
Satd. Flow (perm)	0	1449	0	0	1378	0	0	1702	0	0	1392	0
Satd. Flow (RTOR)		19			155			7			17	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	10%	0%	18%	0%	8%	0%	15%	6%	0%
Adj. Flow (vph)	42	10	19	24	11	155	13	165	11	147	200	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	0	0	190	0	0	189	0	0	402	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.1			11.1			23.0			23.0	
Actuated g/C Ratio		0.27			0.27			0.57			0.57	
v/c Ratio		0.17			0.39			0.19			0.50	
Control Delay		11.9			7.4			7.0			10.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.9			7.4			7.0			10.3	
LOS		B			A			A			B	
Approach Delay		11.9			7.4			7.0			10.3	
Approach LOS		B			A			A			B	
90th %ile Green (s)	14.7	14.7		14.7	14.7		29.0	29.0		29.0	29.0	
90th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.4	10.4		10.4	10.4		20.0	20.0		20.0	20.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		16.7	16.7		16.7	16.7	
50th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		14.3	14.3		14.3	14.3	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	0.0	0.0		0.0	0.0		26.4	26.4		26.4	26.4	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		2.6			1.8			6.9			18.0	
Queue Length 95th (m)		11.1			13.3			16.3			39.3	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		806			827			1438			1178	
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		0.09			0.23			0.13			0.34	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 40.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 51.7%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 54.9	
70th %ile Actuated Cycle: 41.6	
50th %ile Actuated Cycle: 37.9	
30th %ile Actuated Cycle: 35.5	
10th %ile Actuated Cycle: 32.1	

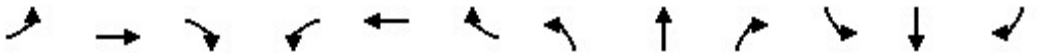
Splits and Phases: 3: Croft St & Rose Glen Rd N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	14	13	13	16	139	11	188	7	138	170	35
Future Volume (vph)	50	14	13	13	16	139	11	188	7	138	170	35
Satd. Flow (prot)	0	1799	0	0	1604	0	0	1819	0	0	1724	0
Flt Permitted		0.781			0.966			0.973			0.771	
Satd. Flow (perm)	0	1450	0	0	1556	0	0	1775	0	0	1356	0
Satd. Flow (RTOR)		15			158			4			13	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	8%	0%	5%	0%	4%	0%	10%	5%	0%
Adj. Flow (vph)	57	16	15	15	18	158	13	214	8	157	193	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	191	0	0	235	0	0	390	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.0			11.0			22.7			22.7	
Actuated g/C Ratio		0.28			0.28			0.57			0.57	
v/c Ratio		0.21			0.35			0.23			0.50	
Control Delay		13.1			6.7			7.3			10.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.1			6.7			7.3			10.5	
LOS		B			A			A			B	
Approach Delay		13.1			6.7			7.3			10.5	
Approach LOS		B			A			A			B	
90th %ile Green (s)	13.8	13.8		13.8	13.8		27.8	27.8		27.8	27.8	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.8	10.8		10.8	10.8		20.0	20.0		20.0	20.0	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		16.5	16.5		16.5	16.5	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		14.1	14.1		14.1	14.1	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	0.0	0.0		0.0	0.0		26.3	26.3		26.3	26.3	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		3.7			1.6			9.0			17.6	
Queue Length 95th (m)		14.5			14.6			20.9			41.5	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		810			932			1509			1154	
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		0.11			0.20			0.16			0.34	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 40
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 52.8	
70th %ile Actuated Cycle: 42	
50th %ile Actuated Cycle: 37.7	
30th %ile Actuated Cycle: 35.3	
10th %ile Actuated Cycle: 32	

Splits and Phases: 3: Croft St & Rose Glen Rd N

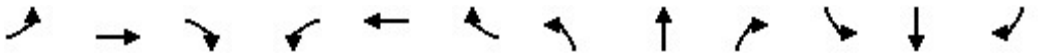


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	9	9	7	9	93	9	83	3	89	85	30
Future Volume (vph)	39	9	9	7	9	93	9	83	3	89	85	30
Satd. Flow (prot)	0	1768	0	0	1676	0	0	1850	0	0	1784	0
Flt Permitted		0.720			0.970			0.967			0.831	
Satd. Flow (perm)	0	1317	0	0	1631	0	0	1798	0	0	1514	0
Satd. Flow (RTOR)		10			104			3			19	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	2%	0%	4%	0%	3%
Adj. Flow (vph)	44	10	10	8	10	104	10	93	3	100	96	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	122	0	0	106	0	0	230	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		10.3			10.3			20.4			20.4	
Actuated g/C Ratio		0.32			0.32			0.63			0.63	
v/c Ratio		0.15			0.21			0.09			0.24	
Control Delay		9.3			4.7			6.6			7.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.3			4.7			6.6			7.1	
LOS		A			A			A			A	
Approach Delay		9.3			4.7			6.6			7.1	
Approach LOS		A			A			A			A	
90th %ile Green (s)	10.8	10.8		10.8	10.8		15.6	15.6		15.6	15.6	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.0	10.0		10.0	10.0		12.8	12.8		12.8	12.8	
70th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		11.3	11.3		11.3	11.3	
50th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	0.0	0.0		0.0	0.0		21.8	21.8		21.8	21.8	
30th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		2.1			0.7			3.7			8.3	
Queue Length 95th (m)		8.3			8.1			9.7			19.2	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		885			1126			1749			1474	
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		0.07			0.11			0.06			0.16	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 32.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.24	
Intersection Signal Delay: 6.7	Intersection LOS: A
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 37.6	
70th %ile Actuated Cycle: 34	
50th %ile Actuated Cycle: 32.5	
30th %ile Actuated Cycle: 27.5	
10th %ile Actuated Cycle: 30.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	8	17	21	10	137	12	145	10	129	176	49
Future Volume (vph)	37	8	17	21	10	137	12	145	10	129	176	49
Satd. Flow (prot)	0	1778	0	0	1450	0	0	1757	0	0	1688	0
Flt Permitted		0.785			0.953			0.963			0.801	
Satd. Flow (perm)	0	1438	0	0	1390	0	0	1697	0	0	1377	0
Satd. Flow (RTOR)		20			165			7			18	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	10%	0%	18%	0%	8%	0%	15%	6%	0%
Adj. Flow (vph)	45	10	20	25	12	165	14	175	12	155	212	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	75	0	0	202	0	0	201	0	0	426	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.2			11.2			22.3			22.3	
Actuated g/C Ratio		0.25			0.25			0.50			0.50	
v/c Ratio		0.20			0.43			0.24			0.62	
Control Delay		12.9			8.1			7.2			12.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.9			8.1			7.2			12.6	
LOS		B			A			A			B	
Approach Delay		12.9			8.1			7.2			12.6	
Approach LOS		B			A			A			B	
90th %ile Green (s)	15.0	15.0		15.0	15.0		31.3	31.3		31.3	31.3	
90th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.8	10.8		10.8	10.8		22.4	22.4		22.4	22.4	
70th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		17.6	17.6		17.6	17.6	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		26.9	26.9		26.9	26.9	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		2.9			1.9			7.4			19.7	
Queue Length 95th (m)		12.2			14.3			17.2			42.9	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		715			766			1291			1050	
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		0.10			0.26			0.16			0.41	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 45
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 10.4	Intersection LOS: B
Intersection Capacity Utilization 54.0%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 57.5	
70th %ile Actuated Cycle: 44.4	
50th %ile Actuated Cycle: 38.8	
30th %ile Actuated Cycle: 36.2	
10th %ile Actuated Cycle: 48.1	

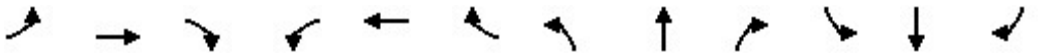
Splits and Phases: 3: Croft St & Rose Glen Rd N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	15	14	14	17	148	12	200	7	146	180	37
Future Volume (vph)	53	15	14	14	17	148	12	200	7	146	180	37
Satd. Flow (prot)	0	1799	0	0	1604	0	0	1820	0	0	1724	0
Flt Permitted		0.750			0.970			0.970			0.760	
Satd. Flow (perm)	0	1392	0	0	1562	0	0	1771	0	0	1337	0
Satd. Flow (RTOR)		16			168			4			12	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	8%	0%	5%	0%	4%	0%	10%	5%	0%
Adj. Flow (vph)	60	17	16	16	19	168	14	227	8	166	205	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	0	0	203	0	0	249	0	0	413	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.1			11.1			21.7			21.7	
Actuated g/C Ratio		0.25			0.25			0.49			0.49	
v/c Ratio		0.26			0.39			0.29			0.62	
Control Delay		14.3			7.2			7.7			13.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.3			7.2			7.7			13.1	
LOS		B			A			A			B	
Approach Delay		14.3			7.2			7.7			13.1	
Approach LOS		B			A			A			B	
90th %ile Green (s)	14.0	14.0		14.0	14.0		30.0	30.0		30.0	30.0	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	11.1	11.1		11.1	11.1		21.4	21.4		21.4	21.4	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		17.5	17.5		17.5	17.5	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		14.8	14.8		14.8	14.8	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		26.8	26.8		26.8	26.8	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		4.1			1.8			9.6			19.4	
Queue Length 95th (m)		16.0			15.6			22.1			45.3	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		698			859			1362			1030	
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		0.13			0.24			0.18			0.40	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 44.3
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 10.5	Intersection LOS: B
Intersection Capacity Utilization 66.9%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 55.2	
70th %ile Actuated Cycle: 43.7	
50th %ile Actuated Cycle: 38.7	
30th %ile Actuated Cycle: 36	
10th %ile Actuated Cycle: 48	

Splits and Phases: 3: Croft St & Rose Glen Rd N

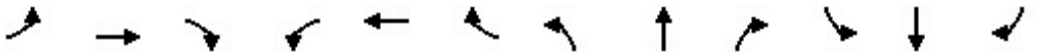


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	10	10	7	10	99	10	88	3	94	90	32
Future Volume (vph)	41	10	10	7	10	99	10	88	3	94	90	32
Satd. Flow (prot)	0	1765	0	0	1676	0	0	1851	0	0	1784	0
Flt Permitted		0.719			0.971			0.964			0.825	
Satd. Flow (perm)	0	1313	0	0	1633	0	0	1793	0	0	1503	0
Satd. Flow (RTOR)		11			111			3			19	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	2%	0%	4%	0%	3%
Adj. Flow (vph)	46	11	11	8	11	111	11	99	3	106	101	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	130	0	0	113	0	0	243	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		10.4			10.4			20.6			20.6	
Actuated g/C Ratio		0.32			0.32			0.63			0.63	
v/c Ratio		0.16			0.22			0.10			0.25	
Control Delay		9.4			4.7			6.6			7.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.4			4.7			6.6			7.2	
LOS		A			A			A			A	
Approach Delay		9.4			4.7			6.6			7.2	
Approach LOS		A			A			A			A	
90th %ile Green (s)	11.1	11.1		11.1	11.1		16.3	16.3		16.3	16.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.0	10.0		10.0	10.0		13.2	13.2		13.2	13.2	
70th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		11.7	11.7		11.7	11.7	
50th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	0.0	0.0		0.0	0.0		20.3	20.3		20.3	20.3	
30th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		2.3			0.7			4.0			8.9	
Queue Length 95th (m)		9.0			8.6			10.3			20.8	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		886			1134			1732			1453	
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		0.08			0.11			0.07			0.17	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 32.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.25	
Intersection Signal Delay: 6.8	Intersection LOS: A
Intersection Capacity Utilization 38.0%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 38.6	
70th %ile Actuated Cycle: 34.4	
50th %ile Actuated Cycle: 32.9	
30th %ile Actuated Cycle: 26	
10th %ile Actuated Cycle: 30.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N

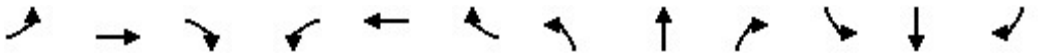


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	14	27	21	12	137	14	145	10	129	176	59
Future Volume (vph)	61	14	27	21	12	137	14	145	10	129	176	59
Satd. Flow (prot)	0	1778	0	0	1453	0	0	1757	0	0	1688	0
Flt Permitted		0.759			0.947			0.953			0.804	
Satd. Flow (perm)	0	1390	0	0	1385	0	0	1681	0	0	1381	0
Satd. Flow (RTOR)		30			165			7			21	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	10%	0%	18%	0%	8%	0%	15%	6%	0%
Adj. Flow (vph)	73	17	33	25	14	165	17	175	12	155	212	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	123	0	0	204	0	0	204	0	0	438	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.5			11.5			22.5			22.5	
Actuated g/C Ratio		0.25			0.25			0.49			0.49	
v/c Ratio		0.33			0.43			0.24			0.63	
Control Delay		14.7			8.2			7.4			13.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.7			8.2			7.4			13.0	
LOS		B			A			A			B	
Approach Delay		14.7			8.2			7.4			13.0	
Approach LOS		B			A			A			B	
90th %ile Green (s)	15.3	15.3		15.3	15.3		32.3	32.3		32.3	32.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	12.1	12.1		12.1	12.1		23.6	23.6		23.6	23.6	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.1	10.1		10.1	10.1		18.2	18.2		18.2	18.2	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		15.2	15.2		15.2	15.2	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		24.6	24.6		24.6	24.6	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		5.2			2.1			7.6			20.5	
Queue Length 95th (m)		18.5			14.8			17.7			44.4	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		690			757			1266			1044	
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		0.18			0.27			0.16			0.42	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 45.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 62.4%	ICU Level of Service B
Analysis Period (min) 15	
90th %ile Actuated Cycle: 58.8	
70th %ile Actuated Cycle: 46.9	
50th %ile Actuated Cycle: 39.5	
30th %ile Actuated Cycle: 36.4	
10th %ile Actuated Cycle: 45.8	

Splits and Phases: 3: Croft St & Rose Glen Rd N

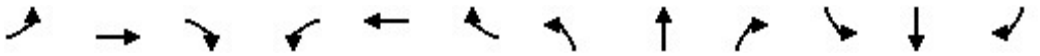


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	20	18	14	27	148	19	200	7	146	180	58
Future Volume (vph)	70	20	18	14	27	148	19	200	7	146	180	58
Satd. Flow (prot)	0	1801	0	0	1621	0	0	1821	0	0	1721	0
Flt Permitted		0.729			0.970			0.948			0.774	
Satd. Flow (perm)	0	1355	0	0	1578	0	0	1733	0	0	1358	0
Satd. Flow (RTOR)		16			168			4			20	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	8%	0%	5%	0%	4%	0%	10%	5%	0%
Adj. Flow (vph)	80	23	20	16	31	168	22	227	8	166	205	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	123	0	0	215	0	0	257	0	0	437	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.9			11.9			22.4			22.4	
Actuated g/C Ratio		0.26			0.26			0.49			0.49	
v/c Ratio		0.34			0.40			0.30			0.65	
Control Delay		16.5			7.8			8.1			13.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.5			7.8			8.1			13.8	
LOS		B			A			A			B	
Approach Delay		16.5			7.8			8.1			13.8	
Approach LOS		B			A			A			B	
90th %ile Green (s)	16.1	16.1		16.1	16.1		33.2	33.2		33.2	33.2	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	12.7	12.7		12.7	12.7		24.2	24.2		24.2	24.2	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.6	10.6		10.6	10.6		18.6	18.6		18.6	18.6	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		15.3	15.3		15.3	15.3	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		22.5	22.5		22.5	22.5	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		6.2			2.6			10.4			21.2	
Queue Length 95th (m)		22.0			17.9			24.8			51.5	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		662			849			1297			1021	
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		0.19			0.25			0.20			0.43	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 45.8
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 11.4	Intersection LOS: B
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 60.5	
70th %ile Actuated Cycle: 48.1	
50th %ile Actuated Cycle: 40.4	
30th %ile Actuated Cycle: 36.5	
10th %ile Actuated Cycle: 43.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N

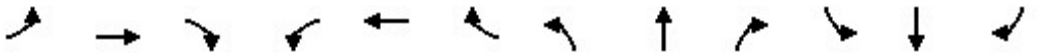


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	14	14	7	16	99	16	88	3	94	90	50
Future Volume (vph)	62	14	14	7	16	99	16	88	3	94	90	50
Satd. Flow (prot)	0	1768	0	0	1688	0	0	1851	0	0	1768	0
Flt Permitted		0.712			0.970			0.938			0.833	
Satd. Flow (perm)	0	1302	0	0	1642	0	0	1748	0	0	1503	0
Satd. Flow (RTOR)		15			111			3			30	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	2%	0%	4%	0%	3%
Adj. Flow (vph)	70	16	16	8	18	111	18	99	3	106	101	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	102	0	0	137	0	0	120	0	0	263	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.0			11.0			20.7			20.7	
Actuated g/C Ratio		0.34			0.34			0.63			0.63	
v/c Ratio		0.23			0.22			0.11			0.27	
Control Delay		10.1			5.0			6.9			7.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.1			5.0			6.9			7.3	
LOS		B			A			A			A	
Approach Delay		10.1			5.0			6.9			7.3	
Approach LOS		B			A			A			A	
90th %ile Green (s)	12.8	12.8		12.8	12.8		17.6	17.6		17.6	17.6	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.6	10.6		10.6	10.6		14.0	14.0		14.0	14.0	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	0.0	0.0		0.0	0.0		16.1	16.1		16.1	16.1	
30th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		3.6			1.0			4.3			9.3	
Queue Length 95th (m)		13.0			9.6			11.8			23.9	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		903			1167			1654			1424	
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		0.11			0.12			0.07			0.18	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 32.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.27	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 40.7%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 41.6	
70th %ile Actuated Cycle: 35.8	
50th %ile Actuated Cycle: 33.2	
30th %ile Actuated Cycle: 21.8	
10th %ile Actuated Cycle: 30.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N

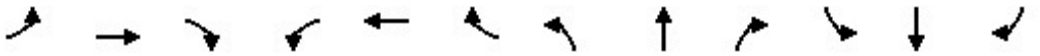


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	9	19	23	11	151	13	161	11	143	194	54
Future Volume (vph)	41	9	19	23	11	151	13	161	11	143	194	54
Satd. Flow (prot)	0	1777	0	0	1450	0	0	1755	0	0	1688	0
Flt Permitted		0.757			0.950			0.958			0.788	
Satd. Flow (perm)	0	1385	0	0	1386	0	0	1688	0	0	1354	0
Satd. Flow (RTOR)		23			182			7			18	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	10%	0%	18%	0%	8%	0%	15%	6%	0%
Adj. Flow (vph)	49	11	23	28	13	182	16	194	13	172	234	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	223	0	0	223	0	0	471	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.4			11.4			23.9			23.9	
Actuated g/C Ratio		0.24			0.24			0.51			0.51	
v/c Ratio		0.23			0.47			0.26			0.67	
Control Delay		13.9			8.6			7.3			14.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.9			8.6			7.3			14.1	
LOS		B			A			A			B	
Approach Delay		13.9			8.6			7.3			14.1	
Approach LOS		B			A			A			B	
90th %ile Green (s)	15.7	15.7		15.7	15.7		33.3	33.3		33.3	33.3	
90th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Max	Max	
70th %ile Green (s)	11.4	11.4		11.4	11.4		25.0	25.0		25.0	25.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		19.3	19.3		19.3	19.3	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		16.3	16.3		16.3	16.3	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		27.0	27.0		27.0	27.0	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		3.4			2.3			8.4			23.1	
Queue Length 95th (m)		13.5			15.6			19.5			51.2	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		665			750			1235			994	
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		0.12			0.30			0.18			0.47	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 46.8
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	
90th %ile Actuated Cycle: 60.2	
70th %ile Actuated Cycle: 47.6	
50th %ile Actuated Cycle: 40.5	
30th %ile Actuated Cycle: 37.5	
10th %ile Actuated Cycle: 48.2	

Splits and Phases: 3: Croft St & Rose Glen Rd N

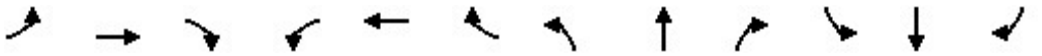


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	16	15	15	19	163	13	220	8	162	199	41
Future Volume (vph)	59	16	15	15	19	163	13	220	8	162	199	41
Satd. Flow (prot)	0	1797	0	0	1606	0	0	1820	0	0	1724	0
Flt Permitted		0.708			0.970			0.969			0.759	
Satd. Flow (perm)	0	1314	0	0	1564	0	0	1769	0	0	1335	0
Satd. Flow (RTOR)		16			185			4			13	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	8%	0%	5%	0%	4%	0%	10%	5%	0%
Adj. Flow (vph)	67	18	17	17	22	185	15	250	9	184	226	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	102	0	0	224	0	0	274	0	0	457	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.4			11.4			23.7			23.7	
Actuated g/C Ratio		0.25			0.25			0.51			0.51	
v/c Ratio		0.31			0.43			0.30			0.67	
Control Delay		16.5			7.8			7.6			14.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.5			7.8			7.6			14.0	
LOS		B			A			A			B	
Approach Delay		16.5			7.8			7.6			14.0	
Approach LOS		B			A			A			B	
90th %ile Green (s)	14.6	14.6		14.6	14.6		33.3	33.3		33.3	33.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	12.0	12.0		12.0	12.0		25.5	25.5		25.5	25.5	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		19.7	19.7		19.7	19.7	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		16.3	16.3		16.3	16.3	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		5.1			2.2			10.8			22.6	
Queue Length 95th (m)		18.8			17.5			24.6			53.2	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		631			838			1299			983	
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		0.16			0.27			0.21			0.46	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 46.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 73.0%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 59.1	
70th %ile Actuated Cycle: 48.7	
50th %ile Actuated Cycle: 40.9	
30th %ile Actuated Cycle: 37.5	
10th %ile Actuated Cycle: 46.2	

Splits and Phases: 3: Croft St & Rose Glen Rd N

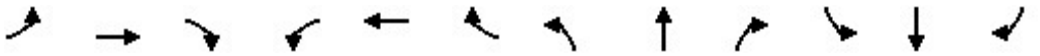


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	11	11	8	11	109	11	97	4	104	100	35
Future Volume (vph)	46	11	11	8	11	109	11	97	4	104	100	35
Satd. Flow (prot)	0	1768	0	0	1676	0	0	1851	0	0	1784	0
Flt Permitted		0.709			0.974			0.960			0.810	
Satd. Flow (perm)	0	1296	0	0	1638	0	0	1786	0	0	1476	0
Satd. Flow (RTOR)		12			122			4			19	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	2%	0%	4%	0%	3%
Adj. Flow (vph)	52	12	12	9	12	122	12	109	4	117	112	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	143	0	0	125	0	0	268	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		10.4			10.4			18.0			18.0	
Actuated g/C Ratio		0.30			0.30			0.52			0.52	
v/c Ratio		0.19			0.25			0.14			0.35	
Control Delay		10.4			5.0			7.4			8.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.4			5.0			7.4			8.8	
LOS		B			A			A			A	
Approach Delay		10.4			5.0			7.4			8.8	
Approach LOS		B			A			A			A	
90th %ile Green (s)	11.7	11.7		11.7	11.7		17.7	17.7		17.7	17.7	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.0	10.0		10.0	10.0		14.1	14.1		14.1	14.1	
70th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		12.3	12.3		12.3	12.3	
50th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		12.8	12.8		12.8	12.8	
30th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		2.6			0.8			4.4			10.1	
Queue Length 95th (m)		10.4			9.7			11.5			24.2	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		811			1065			1692			1399	
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		0.09			0.13			0.07			0.19	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 34.8
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 40.6	
70th %ile Actuated Cycle: 35.3	
50th %ile Actuated Cycle: 33.5	
30th %ile Actuated Cycle: 34	
10th %ile Actuated Cycle: 30.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N

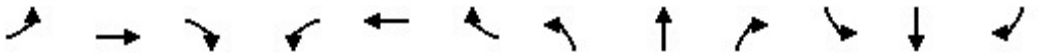


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	15	29	23	13	151	15	161	11	143	194	64
Future Volume (vph)	65	15	29	23	13	151	15	161	11	143	194	64
Satd. Flow (prot)	0	1778	0	0	1454	0	0	1756	0	0	1687	0
Flt Permitted		0.729			0.945			0.951			0.791	
Satd. Flow (perm)	0	1335	0	0	1382	0	0	1677	0	0	1358	0
Satd. Flow (RTOR)		29			182			7			21	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	10%	0%	18%	0%	8%	0%	15%	6%	0%
Adj. Flow (vph)	78	18	35	28	16	182	18	194	13	172	234	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	0	0	226	0	0	225	0	0	483	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.9			11.9			23.1			23.1	
Actuated g/C Ratio		0.26			0.26			0.50			0.50	
v/c Ratio		0.36			0.46			0.27			0.71	
Control Delay		16.1			8.6			7.6			15.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.1			8.6			7.6			15.4	
LOS		B			A			A			B	
Approach Delay		16.1			8.6			7.6			15.4	
Approach LOS		B			A			A			B	
90th %ile Green (s)	16.0	16.0		16.0	16.0		33.3	33.3		33.3	33.3	
90th %ile Term Code	Gap	Gap		Gap	Gap		Hold	Hold		Max	Max	
70th %ile Green (s)	13.0	13.0		13.0	13.0		26.5	26.5		26.5	26.5	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.6	10.6		10.6	10.6		20.3	20.3		20.3	20.3	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		16.5	16.5		16.5	16.5	
30th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		20.2	20.2		20.2	20.2	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		6.3			2.6			8.8			24.8	
Queue Length 95th (m)		20.2			16.0			19.9			53.4	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		650			753			1238			1006	
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			0.30			0.18			0.48	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 46.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 60.5	
70th %ile Actuated Cycle: 50.7	
50th %ile Actuated Cycle: 42.1	
30th %ile Actuated Cycle: 37.7	
10th %ile Actuated Cycle: 41.4	

Splits and Phases: 3: Croft St & Rose Glen Rd N

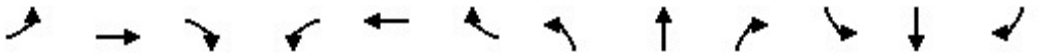


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	21	19	15	28	163	21	220	8	162	199	62
Future Volume (vph)	75	21	19	15	28	163	21	220	8	162	199	62
Satd. Flow (prot)	0	1799	0	0	1617	0	0	1821	0	0	1720	0
Flt Permitted		0.698			0.971			0.944			0.772	
Satd. Flow (perm)	0	1296	0	0	1576	0	0	1725	0	0	1354	0
Satd. Flow (RTOR)		16			185			4			19	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	8%	0%	5%	0%	4%	0%	10%	5%	0%
Adj. Flow (vph)	85	24	22	17	32	185	24	250	9	184	226	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	0	0	234	0	0	283	0	0	480	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		12.4			12.4			23.4			23.4	
Actuated g/C Ratio		0.26			0.26			0.49			0.49	
v/c Ratio		0.37			0.43			0.33			0.71	
Control Delay		17.8			7.9			8.5			15.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.8			7.9			8.5			15.9	
LOS		B			A			A			B	
Approach Delay		17.8			7.9			8.5			15.9	
Approach LOS		B			A			A			B	
90th %ile Green (s)	17.1	17.1		17.1	17.1		33.3	33.3		33.3	33.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	13.9	13.9		13.9	13.9		27.8	27.8		27.8	27.8	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	11.3	11.3		11.3	11.3		21.2	21.2		21.2	21.2	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		16.9	16.9		16.9	16.9	
30th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		19.3	19.3		19.3	19.3	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		7.4			3.0			12.3			25.9	
Queue Length 95th (m)		23.5			18.5			28.6			62.4	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		615			836			1253			987	
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		0.21			0.28			0.23			0.49	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 47.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 75.8%	ICU Level of Service D
Analysis Period (min) 15	
90th %ile Actuated Cycle: 61.6	
70th %ile Actuated Cycle: 52.9	
50th %ile Actuated Cycle: 43.7	
30th %ile Actuated Cycle: 38.1	
10th %ile Actuated Cycle: 40.5	

Splits and Phases: 3: Croft St & Rose Glen Rd N

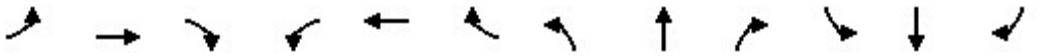


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	15	15	8	17	109	17	97	4	104	100	54
Future Volume (vph)	66	15	15	8	17	109	17	97	4	104	100	54
Satd. Flow (prot)	0	1768	0	0	1686	0	0	1849	0	0	1770	0
Flt Permitted		0.704			0.974			0.934			0.819	
Satd. Flow (perm)	0	1287	0	0	1647	0	0	1739	0	0	1479	0
Satd. Flow (RTOR)		15			122			3			29	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	2%	0%	4%	0%	3%
Adj. Flow (vph)	74	17	17	9	19	122	19	109	4	117	112	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	0	0	150	0	0	132	0	0	290	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		10.9			10.9			18.3			18.3	
Actuated g/C Ratio		0.31			0.31			0.51			0.51	
v/c Ratio		0.27			0.25			0.15			0.38	
Control Delay		11.4			5.3			7.9			9.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.4			5.3			7.9			9.1	
LOS		B			A			A			A	
Approach Delay		11.4			5.3			7.9			9.1	
Approach LOS		B			A			A			A	
90th %ile Green (s)	13.6	13.6		13.6	13.6		19.4	19.4		19.4	19.4	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	11.0	11.0		11.0	11.0		15.1	15.1		15.1	15.1	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		12.8	12.8		12.8	12.8	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		11.1	11.1		11.1	11.1	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	0.0	0.0		0.0	0.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		4.0			1.2			4.7			10.7	
Queue Length 95th (m)		14.4			10.6			13.2			27.7	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		793			1055			1609			1370	
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		0.14			0.14			0.08			0.21	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 35.7
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 51.6%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 44.2	
70th %ile Actuated Cycle: 37.3	
50th %ile Actuated Cycle: 34	
30th %ile Actuated Cycle: 32.3	
10th %ile Actuated Cycle: 30.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	10	21	26	12	167	14	177	12	158	215	60
Future Volume (vph)	45	10	21	26	12	167	14	177	12	158	215	60
Satd. Flow (prot)	0	1777	0	0	1449	0	0	1756	0	0	1688	0
Flt Permitted		0.702			0.947			0.956			0.779	
Satd. Flow (perm)	0	1284	0	0	1381	0	0	1684	0	0	1339	0
Satd. Flow (RTOR)		25			201			7			18	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	10%	0%	18%	0%	8%	0%	15%	6%	0%
Adj. Flow (vph)	54	12	25	31	14	201	17	213	14	190	259	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	0	0	246	0	0	244	0	0	521	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.6			11.6			25.6			25.6	
Actuated g/C Ratio		0.24			0.24			0.53			0.53	
v/c Ratio		0.28			0.51			0.27			0.73	
Control Delay		15.3			9.2			7.3			16.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.3			9.2			7.3			16.2	
LOS		B			A			A			B	
Approach Delay		15.3			9.2			7.3			16.3	
Approach LOS		B			A			A			B	
90th %ile Green (s)	16.6	16.6		16.6	16.6		33.3	33.3		33.3	33.3	
90th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Max	Max	
70th %ile Green (s)	12.0	12.0		12.0	12.0		29.6	29.6		29.6	29.6	
70th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		23.4	23.4		23.4	23.4	
50th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		18.7	18.7		18.7	18.7	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		23.9	23.9		23.9	23.9	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		4.4			3.0			9.3			27.5	
Queue Length 95th (m)		14.6			16.4			22.1			62.9	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		593			733			1179			941	
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		0.15			0.34			0.21			0.55	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 48.7
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	
90th %ile Actuated Cycle: 61.1	
70th %ile Actuated Cycle: 52.8	
50th %ile Actuated Cycle: 44.6	
30th %ile Actuated Cycle: 39.9	
10th %ile Actuated Cycle: 45.1	

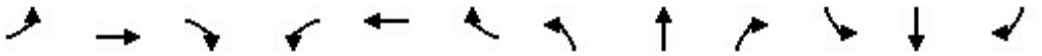
Splits and Phases: 3: Croft St & Rose Glen Rd N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	18	17	17	21	180	14	243	9	179	220	45
Future Volume (vph)	65	18	17	17	21	180	14	243	9	179	220	45
Satd. Flow (prot)	0	1797	0	0	1604	0	0	1820	0	0	1724	0
Flt Permitted		0.659			0.969			0.967			0.756	
Satd. Flow (perm)	0	1223	0	0	1561	0	0	1765	0	0	1330	0
Satd. Flow (RTOR)		16			205			4			12	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	8%	0%	5%	0%	4%	0%	10%	5%	0%
Adj. Flow (vph)	74	20	19	19	24	205	16	276	10	203	250	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	248	0	0	302	0	0	504	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.9			11.9			25.6			25.6	
Actuated g/C Ratio		0.24			0.24			0.52			0.52	
v/c Ratio		0.37			0.46			0.33			0.72	
Control Delay		18.9			8.2			7.9			15.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.9			8.2			7.9			15.9	
LOS		B			A			A			B	
Approach Delay		18.9			8.2			7.9			15.9	
Approach LOS		B			A			A			B	
90th %ile Green (s)	15.8	15.8		15.8	15.8		33.3	33.3		33.3	33.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	13.0	13.0		13.0	13.0		31.0	31.0		31.0	31.0	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	11.0	11.0		11.0	11.0		24.6	24.6		24.6	24.6	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		19.1	19.1		19.1	19.1	
30th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		21.1	21.1		21.1	21.1	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		7.0			2.9			13.0			28.4	
Queue Length 95th (m)		20.8			18.4			28.7			66.3	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		558			814			1230			929	
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			0.30			0.25			0.54	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 49
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 78.5%	ICU Level of Service D
Analysis Period (min) 15	
90th %ile Actuated Cycle: 60.3	
70th %ile Actuated Cycle: 55.2	
50th %ile Actuated Cycle: 46.8	
30th %ile Actuated Cycle: 40.3	
10th %ile Actuated Cycle: 42.3	

Splits and Phases: 3: Croft St & Rose Glen Rd N

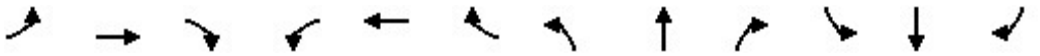


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	12	12	9	12	120	12	107	4	115	110	39
Future Volume (vph)	50	12	12	9	12	120	12	107	4	115	110	39
Satd. Flow (prot)	0	1768	0	0	1676	0	0	1851	0	0	1784	0
Flt Permitted		0.701			0.974			0.958			0.802	
Satd. Flow (perm)	0	1282	0	0	1638	0	0	1782	0	0	1461	0
Satd. Flow (RTOR)		13			135			3			19	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	2%	0%	4%	0%	3%
Adj. Flow (vph)	56	13	13	10	13	135	13	120	4	129	124	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	82	0	0	158	0	0	137	0	0	297	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		10.5			10.5			18.4			18.4	
Actuated g/C Ratio		0.30			0.30			0.52			0.52	
v/c Ratio		0.21			0.27			0.15			0.39	
Control Delay		11.0			5.2			7.5			9.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.0			5.2			7.5			9.2	
LOS		B			A			A			A	
Approach Delay		11.0			5.2			7.5			9.2	
Approach LOS		B			A			A			A	
90th %ile Green (s)	12.2	12.2		12.2	12.2		19.3	19.3		19.3	19.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.1	10.1		10.1	10.1		15.3	15.3		15.3	15.3	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.0	10.0		10.0	10.0		13.1	13.1		13.1	13.1	
50th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		11.5	11.5		11.5	11.5	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	0.0	0.0		0.0	0.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		3.0			1.0			4.9			11.6	
Queue Length 95th (m)		11.6			10.7			12.6			27.6	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		793			1059			1661			1363	
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		0.10			0.15			0.08			0.22	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 35.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 52.0%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 42.7	
70th %ile Actuated Cycle: 36.6	
50th %ile Actuated Cycle: 34.3	
30th %ile Actuated Cycle: 32.7	
10th %ile Actuated Cycle: 30.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N

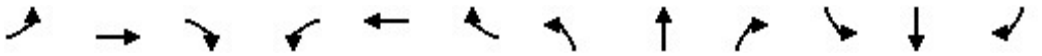


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	16	31	26	14	167	16	177	12	158	215	69
Future Volume (vph)	69	16	31	26	14	167	16	177	12	158	215	69
Satd. Flow (prot)	0	1778	0	0	1453	0	0	1756	0	0	1687	0
Flt Permitted		0.685			0.942			0.949			0.782	
Satd. Flow (perm)	0	1255	0	0	1377	0	0	1673	0	0	1343	0
Satd. Flow (RTOR)		29			201			7			20	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	10%	0%	18%	0%	8%	0%	15%	6%	0%
Adj. Flow (vph)	83	19	37	31	17	201	19	213	14	190	259	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	139	0	0	249	0	0	246	0	0	532	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		12.3			12.3			25.2			25.2	
Actuated g/C Ratio		0.25			0.25			0.51			0.51	
v/c Ratio		0.41			0.50			0.29			0.76	
Control Delay		18.4			9.2			7.7			17.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.4			9.2			7.7			17.9	
LOS		B			A			A			B	
Approach Delay		18.4			9.2			7.7			17.9	
Approach LOS		B			A			A			B	
90th %ile Green (s)	16.8	16.8		16.8	16.8		33.3	33.3		33.3	33.3	
90th %ile Term Code	Hold	Hold		Gap	Gap		Hold	Hold		Max	Max	
70th %ile Green (s)	13.5	13.5		13.5	13.5		31.5	31.5		31.5	31.5	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	11.3	11.3		11.3	11.3		24.9	24.9		24.9	24.9	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		19.2	19.2		19.2	19.2	
30th %ile Term Code	Min	Min		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		18.5	18.5		18.5	18.5	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		8.1			3.3			10.2			30.8	
Queue Length 95th (m)		21.7			16.7			22.6			65.6	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		583			732			1173			946	
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		0.24			0.34			0.21			0.56	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 49
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 70.9%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 61.3	
70th %ile Actuated Cycle: 56.2	
50th %ile Actuated Cycle: 47.4	
30th %ile Actuated Cycle: 40.4	
10th %ile Actuated Cycle: 39.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N

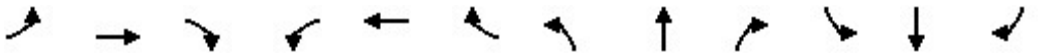


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	23	21	17	30	180	22	243	9	179	220	66
Future Volume (vph)	81	23	21	17	30	180	22	243	9	179	220	66
Satd. Flow (prot)	0	1799	0	0	1616	0	0	1820	0	0	1722	0
Flt Permitted		0.645			0.969			0.943			0.763	
Satd. Flow (perm)	0	1197	0	0	1572	0	0	1723	0	0	1339	0
Satd. Flow (RTOR)		16			205			4			18	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	8%	0%	5%	0%	4%	0%	10%	5%	0%
Adj. Flow (vph)	92	26	24	19	34	205	25	276	10	203	250	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	142	0	0	258	0	0	311	0	0	528	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		13.2			13.2			26.2			26.2	
Actuated g/C Ratio		0.26			0.26			0.51			0.51	
v/c Ratio		0.44			0.46			0.35			0.76	
Control Delay		20.7			8.2			8.8			18.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.7			8.2			8.8			18.7	
LOS		C			A			A			B	
Approach Delay		20.7			8.2			8.8			18.7	
Approach LOS		C			A			A			B	
90th %ile Green (s)	18.7	18.7		18.7	18.7		33.3	33.3		33.3	33.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	15.0	15.0		15.0	15.0		33.3	33.3		33.3	33.3	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	12.7	12.7		12.7	12.7		27.1	27.1		27.1	27.1	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.2	10.2		10.2	10.2		20.5	20.5		20.5	20.5	
30th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0		18.0	18.0		18.0	18.0	
10th %ile Term Code	Hold	Hold		Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		10.1			3.9			14.9			33.1	
Queue Length 95th (m)		25.7			19.3			33.6			#79.4	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		531			802			1167			912	
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		0.27			0.32			0.27			0.58	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 51
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	
90th %ile Actuated Cycle: 63.2	
70th %ile Actuated Cycle: 59.5	
50th %ile Actuated Cycle: 51	
30th %ile Actuated Cycle: 41.9	
10th %ile Actuated Cycle: 39.2	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 3: Croft St & Rose Glen Rd N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	16	16	9	18	120	18	107	4	115	110	57
Future Volume (vph)	71	16	16	9	18	120	18	107	4	115	110	57
Satd. Flow (prot)	0	1769	0	0	1686	0	0	1848	0	0	1772	0
Flt Permitted		0.740			0.974			0.933			0.810	
Satd. Flow (perm)	0	1353	0	0	1647	0	0	1737	0	0	1465	0
Satd. Flow (RTOR)		15			135			3			28	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	2%	0%	4%	0%	3%
Adj. Flow (vph)	80	18	18	10	20	135	20	120	4	129	124	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	0	0	165	0	0	144	0	0	317	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (s)	27.0	27.0		27.0	27.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%		59.1%	59.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.7			5.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		11.4			11.4			19.5			19.5	
Actuated g/C Ratio		0.31			0.31			0.52			0.52	
v/c Ratio		0.27			0.28			0.16			0.41	
Control Delay		11.9			5.4			8.0			9.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.9			5.4			8.0			9.6	
LOS		B			A			A			A	
Approach Delay		11.9			5.4			8.0			9.6	
Approach LOS		B			A			A			A	
90th %ile Green (s)	14.9	14.9		14.9	14.9		21.6	21.6		21.6	21.6	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	11.8	11.8		11.8	11.8		16.5	16.5		16.5	16.5	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.1	10.1		10.1	10.1		13.8	13.8		13.8	13.8	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.0	10.0		10.0	10.0		11.7	11.7		11.7	11.7	
30th %ile Term Code	Hold	Hold		Min	Min		Hold	Hold		Gap	Gap	
10th %ile Green (s)	0.0	0.0		0.0	0.0		25.0	25.0		25.0	25.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (m)		4.6			1.3			5.2			12.2	
Queue Length 95th (m)		16.1			11.8			14.8			32.3	
Internal Link Dist (m)		111.7			112.5			82.5			66.0	
Turn Bay Length (m)												
Base Capacity (vph)		807			1030			1560			1318	
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		0.14			0.16			0.09			0.24	

Intersection Summary
Cycle Length: 66
Actuated Cycle Length: 37.2
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 47.7	
70th %ile Actuated Cycle: 39.5	
50th %ile Actuated Cycle: 35.1	
30th %ile Actuated Cycle: 32.9	
10th %ile Actuated Cycle: 30.7	

Splits and Phases: 3: Croft St & Rose Glen Rd N

APPENDIX E

Port Hope – Terms of Reference

Amanda Redden

From: Byrne, Samuel (MTO) <Samuel.Byrne@ontario.ca>
Sent: August-14-25 9:50 AM
To: Jamie McKelvie
Cc: Amanda Redden
Subject: RE: Correction on Previous Email Regarding the Project at 0 Croft Street

Importance: Low

Hi Jaimie,

Thanks for reaching out. As stated on October 17th, 2024, the project does not fall within our zone of control and thus no permits will be needed for the development of this project. As such, this also extend towards any traffic assessment in relation to the project.

The ministry has no additional comments regarding this project and no further involvement is required from our end.

I hope this clarifies things. Please let me know if you have any further questions or require further clarification.

Best regards,

Samuel P. Byrne
Planning Intern | Corridor Management
Ministry of Transportation | Ontario Public Service
samuel.byrne@ontario.ca

Ontario

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From: Jamie McKelvie <JMcKelvie@porthope.ca>
Sent: Wednesday, August 13, 2025 9:25 AM
To: Byrne, Samuel (MTO) <Samuel.Byrne@ontario.ca>
Subject: FW: Correction on Previous Email Regarding the Project at 0 Croft Street

FYI – I had your email incorrect when I sent this earlier this morning.

Amanda Redden is the contact at Jewell Engineering and she was cc'd on the email that didn't go through earlier.
reddena@jewelleng.ca

Thanks,
Jamie

From: Jamie McKelvie
Sent: Wednesday, August 13, 2025 8:25 AM
To: Samuel.Byrne@ontario.ca
Cc: tayler.george2@ontario.ca; Amanda Redden <reddena@jewelleng.ca>
Subject: Correction on Previous Email Regarding the Project at 0 Croft Street

Hello Samual,
We are looking for conformation if the MTO will require their intersection to be included in a traffic study/brief for the development of 0 Craft Street which is 2 6-storey apartment blocks proposed.

In your email below it states there will be no permit required for the development but doesn't mention if it's to be included in any traffic assessments.

I have cc'd a contact from Jewell engineering who is working on behalf of the developer to bring the detailed design to the table.

Please confirm.

Thanks,
Jamie

From: Byrne, Samuel (MTO) <Samuel.Byrne@ontario.ca>
Sent: Thursday, October 17, 2024 10:22 AM
To: Mandy Kort <MKort@porthope.ca>
Cc: Taylor, George (MTO) <George.Taylor2@ontario.ca>
Subject: Correction on Previous Email Regarding the Project at 0 Croft Street

Hi Mandy,

You can disregard that last email; the project does not fall within our zone of control and thus no permits will be needed for the development of this project.

Sorry for the confusion. If you have any other questions, please feel free to reach out.

Kind regards,

Samuel P. Byrne
Planning Intern | Corridor Management
Ministry of Transportation | Ontario Public Service
samuel.byrne@ontario.ca

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Amanda Redden

From:	Amanda Redden
Sent:	July-22-25 11:03 AM
To:	Megan Maurer; TMerepeza@porthope.ca
Cc:	Andrew Rosenthal; dbeckett@porthope.ca
Subject:	RE: Terms of Reference- Croft St, Port Hope
Attachments:	development site.png; concept plan.pdf

Hi Dave & Theodhora,

One of our clients is completing an OPA/ZBA application to construct a residential development at the west end of Croft St, west of Rose Glen Road North in Port Hope. The development is estimated to have 108 residential units (two identical six-story apartments) and proposed parking along Croft St, which will generate an estimated 38 (AM) peak hour trips, and 42 (PM) peak hour trips. Traffic will route via the Croft St and Rose Glen Road North signalized intersection. We're accordingly looking to confirm our proposed scope of work will be sufficient for our development's traffic impact assessment:

- Description of existing road network (geometry, posted speed, etc.)
- Level-of-service analysis at the following intersections:
    - Croft St at Rose Glen Road north
- Turning lane warrants based on TAC Guidelines (capacity analysis)
- One day weekday and one day weekend traffic counts at Rose Glen Rd N and / Croft St;
- Weekday AM, PM, and Saturday peak hour analysis;
- Development year (2028), plus 5- and 10-year projection;
- 2% annual background growth rate, exceeding Port Hope's population growth of 0.65%; and
- Review of on-site circulation

Please let us know if you have the corresponding traffic counts and signal timing for Croft St at Rose Glen Rd North intersection so we can use for reference. If counts are not available, we plan to collect counts shortly.

Thank you,
Megan Maurer

Jewell Engineering Inc.
1-71 Millennium Pkwy,
Belleville, ON K8N 4Z5

Amanda Redden

From: Amanda Redden
Sent: August-07-25 1:51 PM
To: Jamie McKelvie
Cc: Elliott Fledderus; Andrew Rosenthal
Subject: RE: Croft Street Development
Attachments: RE: Terms of Reference- Croft St, Port Hope

Hi Jamie,

My apologies! I missed cc'ing you on the original email. See attached.

We had been thinking of a full TIS but given that we're talking about ~40 trips you may be right that a brief is more appropriate than a full study here. Or were you thinking you'd want a Synchro analysis of Croft & Rose Glen intersection in addition to the items below? If so, do you have the corresponding traffic counts and signal timing for Croft St at Rose Glen Rd North intersection so we can use for reference. If counts are not available, we plan to collect counts shortly.

The pre-con notes do not make any mention of MTO requirements/comments – can you confirm if they were circulated on the pre-con? If not, we'll reach out separately to confirm.

Thanks,
Amanda Redden, P.Eng.
Municipal Engineer

JEWELL
ENGINEERING

Jewell Engineering
1-71 Millennium Parkway
Belleville, ON
K8N 4Z5
Office 613.969.1111
Cell 613.242.9456
Fax 613.969.8988

From: Jamie McKelvie <JMcKelvie@porthope.ca>
Sent: August-01-25 7:42 AM
To: Amanda Redden <reddena@jewelleng.ca>
Cc: Elliott Fledderus <elliott@jewelleng.ca>
Subject: FW: Croft Street Development

Hey Amanda,
Forgive me, as I didn't see the listed criteria of the terms for a traffic brief in any of the email chains.

Thinking of other traffic briefs within PH,

We'd need to see the turning movements within the development for all deliveries/refuse collection assessed.
Fire Emergency Services fire route displayed.
Site triangles assessed.
Impacts to the intersection of Croft & Rose Glen throughout the day/week.
Will on-street parking be affected.
The MTO may require an assessment of the impacts on their intersection as well.

Thanks,
Jamie

From: Amanda Redden <reddena@jewelleng.ca>
Sent: Wednesday, July 30, 2025 1:45 PM
To: Jamie McKelvie <JMcKelvie@porthope.ca>
Cc: Elliott Fledderus <elliott@jewelleng.ca>
Subject: RE: Croft Street Development

Thank you Jamie!

I think the only piece we are missing now is approval of the Traffic Terms of Reference.