nextrans
CONSULTING ENGINEERS

nextrans.ca

Transportation Impact Study

PROPOSED MIXED-USE DEVELOPMENT

35 Plains Road East
City of Burlington

August 22, 2024
Project No. NT-24-095

Prepared for: 2816544 Ontario Inc.

520 Industrial Parkway South, Suite 201
Aurora, Ontario L4G 6W8

Phone: 905-503-2563
www.nextrans.ca

NextEng Consulting Group Inc

August 22, 2024

2816544 Ontario Inc.
75 Dufflaw Road, Suite 201A
Toronto ON M6A 2W4

Attention: Nick Sampogna

Re: Engineering Service – Transportation Impact Study
Proposed Mixed-Use Development
35 Plains Road East, City of Burlington
Our Project No. NT-24-095

Nextrans Consulting Engineers, a Division of NextEng Consulting Group Inc., is pleased to present the enclosed Transportation Impact Study in support of an Official Plan Amendment Application and Zoning By-law Amendment Application for a proposed development at the property of 35 Plains Road East in the City of Burlington. The development proposes a 12-storey building (plus mechanical and amenity), with 161 residential dwelling units and 459sqm (4,939sqft) of at-grade retail space.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

NEXTRANS CONSULTING ENGINEERS

Prepared by:



John Nhan, B.Eng., EIT
Transportation Analyst

Reviewed and Approved by:



Richard Pernicky, MITE
Principal

Issues and Revisions Registry

Identification	Date	Description of issued and/or revision
Transportation Impact Study	August 22, 2024	First submission

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1. PROPOSED DEVELOPMENT 1
1.2. STUDY AREA 3
2.0 EXISTING TRANSPORTATION CONDITIONS 4
2.1. ROAD NETWORK 4
2.2. EXISTING TRANSIT FACILITIES 6
2.3. CYCLING AND PEDESTRIAN NETWORK 7
2.4. TRAFFIC DATA COLLECTION 8
2.5. SYNCHRO 9
2.6. EXISTING INTERSECTION CAPACITY ANALYSIS 9
3.0 FUTURE BACKGROUND TRAFFIC CONDITIONS 12
3.1. GROWTH AND BACKGROUND DEVELOPMENTS 12
3.2. FUTURE BACKGROUND INTERSECTION CAPACITY ANALYSIS 13
4.0 SITE TRAFFIC 17
4.1. VEHICULAR SITE TRIP GENERATION 17
4.2. NON-AUTO TRIP GENERATION 17
4.3. TRIP DISTRIBUTION AND ASSIGNMENT 18
5.0 FUTURE TOTAL TRAFFIC CONDITIONS 21
5.1. FUTURE TOTAL INTERSECTION CAPACITY ANALYSIS 21
5.2. MITIGATIVE MEASURES 23
5.2.1. MASONRY ROAD AND COOKE BOULEVARD – SIGNAL WARRANT ANALYSIS 23
5.2.2. WATERDOWN ROAD AND PLAINS ROAD EAST – TRAFFIC SIGNAL OPTIMIZATION 24
6.0 SITE PLAN REVIEW 26
6.1. VEHICULAR SITE CIRCULATION 26
6.2. LOADING REVIEW 26
7.0 PARKING REVIEW 27
7.1. VEHICULAR PARKING REVIEW 27
7.1.1. PROPOSED VEHICULAR PARKING PROVISION 27
7.1.2. VEHICULAR PARKING REVIEW – ZONING BY-LAW 2020 27
7.2. BICYCLE PARKING REVIEW 27

8.0 TRANSPORTATION DEMAND MANAGEMENT (TDM) 29
8.1. ACTIVE TRANSPORTATION 29
8.2. TRANSIT – ALDERSHOT MTSA 29
8.3. TDM CHECKLIST 29
9.0 CONCLUSIONS AND RECOMMENDATIONS 31

LIST OF TABLES

Table 2-1: Summary of TMC Survey 8
Table 2-2: Existing Intersection Capacity Analysis 10
Table 3-1: Summary of Background Developments 12
Table 3-2: Future Background Intersection Capacity Analysis 14
Table 4-1: Vehicular Site Trip Generation 17
Table 4-2: Non-Auto Site Trip Generation 17
Table 4-3: Directional Trip Distribution (Residential) 18
Table 4-4: Directional Trip Distribution (Retail) 18
Table 5-1: Future Total Intersection Capacity Analysis 21
Table 5-2: Sensitivity Analysis Results – Signalization of Cooke Boulevard and Masonry Road 24
Table 5-3: Sensitivity Analysis Results – Signal Optimization of Waterdown Road and Plains Road East . 24
Table 5-4: Comparison of Capacity Analysis Results with Signal Optimization 24

Table 7-1: Summary of Zoning By-law Vehicular Parking Requirements 27
Table 7-2: Summary of Bicycle Parking Requirements 28
Table 8-1: Recommended TDM Measures Checklist 29

LIST OF FIGURES

Figure 1-1: Subject Site Location 1
Figure 1-2: Proposed Site Plan 2
Figure 2-1: Existing Lane Configuration 5
Figure 2-2: Existing Transit Facilities 6
Figure 2-3: Existing Cycling Network 8
Figure 2-4: Existing Traffic Volumes 9
Figure 3-1: Background Development Traffic Volumes 13
Figure 3-2: Future Background Traffic Volumes 14
Figure 4-1: Residential Site Traffic Volumes 19
Figure 4-2: Retail Site Traffic Volumes 19
Figure 4-3: Total Site Traffic Volumes 20
Figure 5-1: Future Total Traffic Volumes 21

APPENDICES

Appendix A – Site Plan
Appendix B – Terms of Reference Correspondence
Appendix C – Existing Traffic Data
Appendix D – Existing Intersection Capacity Analysis and Queue Results
Appendix E –Background Developments
Appendix F – Future Background Intersection Capacity Analysis and Queue Results
Appendix G – TTS Data
Appendix H – Future Total Intersection Capacity Analysis and Queue Results
Appendix I – Signal Warrant Analysis
Appendix J – Vehicle Movement Diagrams
Appendix K – Site-Specific Zoning By-law 2020.384

1.0 INTRODUCTION

Nextrans Consulting Engineers ("Nextrans"), a Division of NextEng Consulting Group Inc., has been retained by 2816544 Ontario Inc. (the "client") to undertake this Transportation Impact Study (TIS) in support of an Official Plan Amendment Application and a Zoning By-law Amendment Application for a proposed mixed-use development located at the northwest corner of Plains Road East and Cooke Boulevard at the property of 35 Plains Road East (herein referred as the "subject site") in the City of Burlington. The subject site location is provided in **Figure 1-1**.

Figure 1-1: Subject Site Location

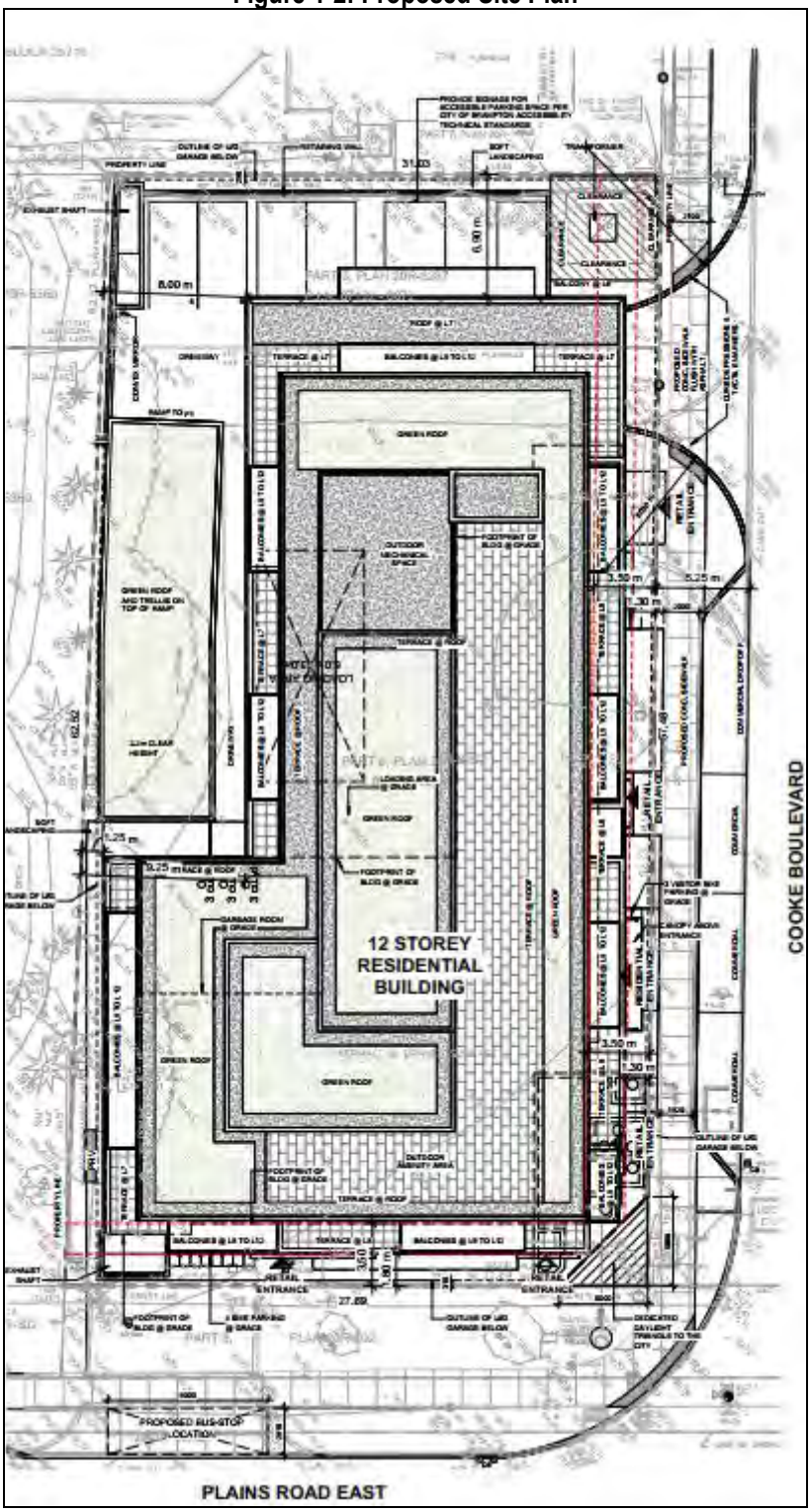


1.1. PROPOSED DEVELOPMENT

The subject site is currently undeveloped. The development proposes a mixed-use building of 12 storeys (plus mechanical and amenity) with 161 residential dwelling units and 459sqm (4,939sqft) of ground floor retail GFA. A vehicular parking provision of 116 on-site parking spaces (110 residential and 6 commercial/visitor spaces including 2 car-share spaces) within two underground levels and at surface level will be provided. In addition, a provision of 4 at-grade commercial/visitor lay-by parking spaces will be provided along Cooke Boulevard. A bicycle parking provision of 103 spaces will be provided. Vehicular site access is proposed at the northeast corner of the subject site as an unsignalized full moves driveway along Cooke Boulevard.

The site plan is illustrated in **Figure 1-2**. Architectural plans are enclosed in **Appendix A**.

Figure 1-2: Proposed Site Plan



Source: KFA Architects (August 15, 2024)

1.2. STUDY AREA

From establishing a Terms of Reference with the City of Burlington (the "City"), the study area was determined based on an assessment of the scale of the proposed development and the anticipated transportation impact. Correspondence for confirmation of the TIS Terms of Reference is enclosed in **Appendix B**.

The study area includes the following intersections.

- Plains Road East and Waterdown Road/Lasalle Park Rd (Signalized)
- Plains Road East and Cooke Boulevard/Private Driveway (Signalized)
- Plains Road East and Clearview Avenue/Birchwood Avenue (Unsignalized)
- Plains Road East and St Matthews Avenue (Signalized)
- Masonry Court/Railway Road and Waterdown Road (Signalized)
- Masonry Court and Cooke Boulevard (Unsignalized)
- Proposed Site Access and Cooke Boulevard (Unsignalized)

2.0 EXISTING TRANSPORTATION CONDITIONS

This section will identify and consider the existing transportation conditions for the road, transit, bicycling, and pedestrian networks within the study area.

2.1. ROAD NETWORK

This subsection will describe the study area road network. Illustrated in **Figure 2-1** is the existing lane configuration and intersection control of the roads within the study area. The existing road network descriptions are as follows:

- **Plains Road East** is a generally east-west multi purpose arterial road under the jurisdiction of the City. Plains Road East consists of a five-lane cross section (two lanes per direction and centre two-way left turn lane) and maintains a posted speed limit of 60km/h. Plains Road East runs between York Road / Old York Road to the west and Queen Elizabeth Way to the east.
- **Waterdown Road** is a north-south multi purpose arterial road under the jurisdiction of the City. Waterdown Road consists of a five-lane cross section (two lanes per direction and centre two-way left turn lane) and maintains a posted speed limit of 50km/h. Waterdown Road runs between Mountain Brow Road to the north and Plains Road East to the south.
- **Lasalle Park Road** is a north-south neighbourhood connector road under the jurisdiction of the City. Lasalle Park Road consists of a two-lane cross section (one lane per direction) and maintains a posted speed limit of 50km/h. Lasalle Park Road runs between Plains Road East to the north and its southern terminus by Lake Ontario.
- **Cooke Boulevard** is a generally north-south local road under the jurisdiction of the City. Cooke Boulevard consists of a two-lane cross section (one lane per direction) and maintains an unposted speed limit of 50km/h. Cooke Boulevard runs between Plains Road East to the south and north of Masonry Court to the north.
- **Masonry Road** is an east-west local road under the jurisdiction of the City. Masonry Road consists of a two-lane cross section (one lane per direction) and maintains an unposted speed limit of 50 km/h. Masonry Road runs between Waterdown Road to the west and its cul-de-sac terminus at Aldershot Station South Parking Lot to the east.
- **Railway Road** is a local road under the jurisdiction of the City. Railway Road consists of a two-lane cross section (one lane per direction) and maintains an unposted speed limit of 50 km/h. Railway Road runs between Waterdown Road to the south and terminates prior to the CN Railway corridor approximately 300m to the north of its intersection with Waterdown Road.
- **Clearview Avenue** is a north-south local road under the jurisdiction of the City. Clearview Avenue consists of a two-lane cross section (one lane per direction) and maintains a posted speed limit of 40km/h. Clearview Avenue runs from Plains Road East to the south to its cul-de-sac terminus approximately 315m north.
- **Birchwood Avenue** is a north-south local road under the jurisdiction of the City. Birchwood Avenue consists of a two-lane cross section (one lane per direction) and maintains an unposted speed limit of 50km/h. Birchwood Avenue runs between Plains Road East to the north and Townsend Avenue to the south.
- **St Matthews Avenue** is a north-south local road under the jurisdiction of the City. St Matthews Avenue consists of a two-lane cross section (one lane per direction) and maintains a posted speed limit of 40km/h. St Matthews Avenue runs between Plains Road East to the north and its terminus approximately 320 to the north.

Figure 2-1: Existing Lane Configuration



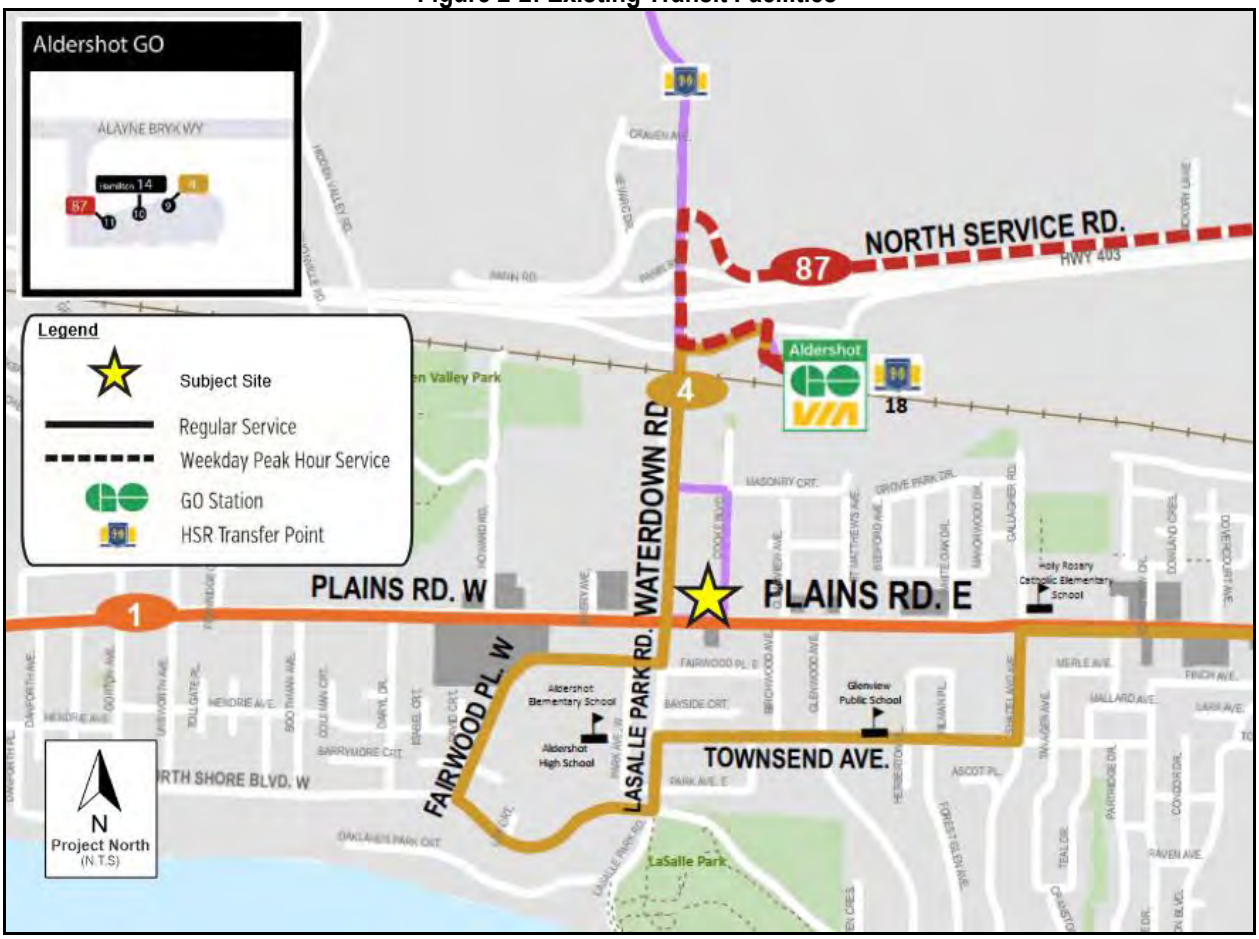
2.2. EXISTING TRANSIT FACILITIES

A number of transit facilities including transit routes operated by Burlington Transit, GO Transit, and Hamilton Street Rail Transit (HSR) are available within the surrounding area to the subject site.

It is noted that the subject site is located with the Aldershot Major Transit Station Area (MTSA).

Figure 2-2 illustrates the transit routes nearby the subject site.

Figure 2-2: Existing Transit Facilities



Source: Burlington Transit System Map

The following transit routes and facilities are available nearest to the subject site and within short walking distance:

- **Aldershot GO Station** is a bus terminal and GO Train station that is part of the Lakeshore West GO Train Line. Train service along Lakeshore West GO Train Line is available all day, every day, with 30-minute headways or better during the weekday AM and PM peak periods. Train service is augmented with bus service offered at the bus terminal, including **GO Bus Route 11**, **GO Bus Route 15 Brantford/Burlington**, **GO Bus Route 17 Waterloo/Hamilton**, **GO Bus Route 18 Lakeshore East and West**, **Burlington Transit Bus Route 4**, **Burlington Transit Bus Route 87**, and **Hamilton Street Rail (HSR) Bus Route 18 Waterdown Mountaineer**. The station train platform is located within walking distance and is approximately 800m (11-minute walk) from the subject site.
- **GO Train Lakeshore West** is a regional train line operated by GO Transit that operates between Union GO Station and west of Aldershot GO Station to Hamilton GO Station, West Harbour GO Station, or Niagara

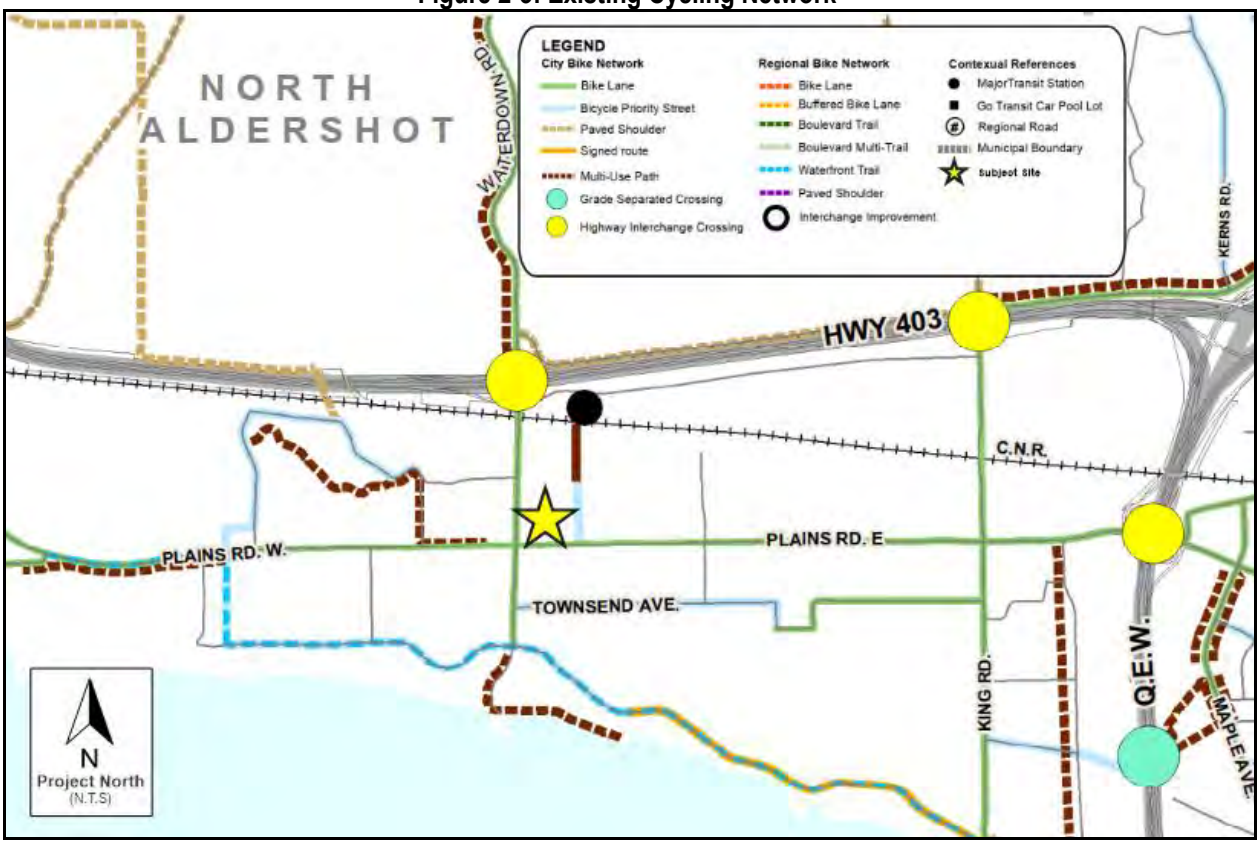
Falls GO Station. Lakeshore West train service operates all day, everyday, with 30-minute headways or better during the weekday AM and PM peak periods. Lakeshore West service is available within walking distance at Aldershot GO Station and is located approximately 800m (11-minute walk) from the subject site.

- **GO Bus Route 11 Lakeshore West** is a regional bus service operated by GO Transit that operates between Aldershot GO and Brock University. GO Bus Route 11 operates during weekdays from the late morning to the early evening, with approximately 60-minute headways. Route 11 is available within walking distance at Aldershot GO Station and is located approximately 800m (11-minute walk) from the subject site.
- **GO Bus Route 15 Brantford/Burlington** is a regional bus service operated by GO Transit that operates between Brantford Bus Terminal and Aldershot GO. GO Bus Route 15 operates all day, every day, with approximately 60-minute headways during the weekday AM and PM peak periods. Route 15 is available within walking distance at Aldershot GO Station and is located approximately 800m (11-minute walk) from the subject site.
- **GO Bus Route 17 Waterloo/Hamilton** is a regional bus service operated by GO Transit that operates between University of Waterloo and Hamilton GO. GO Bus Route 17 operates all day during weekdays, with approximately 60-minute headways. Route 17 is available within walking distance at Aldershot GO Station and is located approximately 800m (11-minute walk) from the subject site.
- **GO Bus Route 18 Lakeshore West** is a regional bus service operated by GO Transit that operates between Union GO and the West Harbour GO/Hamilton GO. GO Bus Route 18 operates all day, every day, with approximately 60-minute headways. Route 18 is available within walking distance at Aldershot GO Station. The nearest bus stop for Route 18 from the subject site is located approximately 200m (3-minute walk) at the Plains Road East and Waterdown Road intersection.
- **Burlington Transit Bus Route 1 Plains/Fairview** is a local bus route that operates between Appleby GO and the Catherine Street South/Wilson Street/King Street West/Bay Street North area in Hamilton. Route 1 operates all day, every day, with 12-minute headways or better during the weekday AM and PM peak periods. The nearest bus stop from the subject site is located approximately 200m (3-minute walk) at the Plains Road East and Waterdown Road intersection.
- **Burlington Transit Bus Route 4 Central** is a local bus route that operates between Appleby GO Station and Aldershot GO Station. Route 4 operates on all day, every day, with 30-minute headways during the weekday AM and PM peak periods. The nearest bus stop from the subject site is located approximately 200m (3-minute walk) at the Plains Road East and Waterdown Road intersection.
- **Burlington Transit Bus Route 87 North Service – Aldershot** is a local bus route that operates Appleby GO Station and Aldershot GO Station. Route 87 operates during the weekday mornings and afternoons, with 45-minute headways. Route 87 is available within walking distance at Aldershot GO Station and is located approximately 800m (11-minute walk) from the subject site.
- **Hamilton Street Rail (HSR) Bus Route 18 Waterdown Mountaineer** connects the Waterdown area to Aldershot GO Station and Burlington Transit at Plains Road East. Route 18 operates generally along Waterdown Road towards the area of Dundas Street/Spring Creek Drive/Parkside Drive/Hollybush Drive. Route 18 operates on weekdays and Saturdays, with 30-minute headways. The nearest bus stop from the subject site is located approximately 270m (4-minute walk) at the intersection of Plains Road East and Waterdown Road/Lasalle Park Road.

2.3. CYCLING AND PEDESTRIAN NETWORK

The cycling network within the broader area to the subject site is shown in **Figure 2-3**.

Figure 2-3: Existing Cycling Network



Source: City of Burlington Official Plan, Schedule P (Long Term Cycling Master Plan)

Nearby the subject site, bike lanes are available along Plains Road East and Waterdown Road. A bicycle priority street is designated along St Matthews Avenue towards Aldershot GO Station. A number of multi-use paths are available within the broader area to the subject site, including north of Hwy 403 along Waterdown Road. A waterfront trail and signed route is provided along North Shore Boulevard south of the subject site.

Within the study area, concrete pedestrian sidewalks are available along Plains Road East, Waterdown Road/Lasalle Park Road, Cooke Boulevard, and Masonry Court. Signalized pedestrian crosswalks are available at all signalized intersections within the study area.

2.4. TRAFFIC DATA COLLECTION

A turning movement count (TMC) survey was undertaken by Spectrum Traffic Data for the following study area intersections during the weekday AM and PM peak periods.

A summary of the traffic data collection is tabulated in **Table 2-1** below. Existing traffic data including TMC data and traffic signal timing plans is enclosed in **Appendix C**.

Table 2-1: Summary of TMC Survey

Intersection	Date of Survey	Time of Survey	Source
Plains Road East and Waterdown Road/Lasalle Park Rd (Signalized)	Wednesday, June 5, 2024	AM: 7:00am-10:00am PM: 4:00pm-	Spectrum Traffic Data
Plains Road East and Cooke Boulevard/Private Driveway (Signalized)			
Plains Road East and Clearview Avenue/Birchwood Avenue (Unsignalized)			

Plains Road East and St Matthews Avenue (Signalized)		7:00pm	
Masonry Court/Railway Road and Waterdown Road (Signalized)			
Masonry Court and Cooke Boulevard (Unsignalized)			

2.5. SYNCHRO

The traffic operations within this study were analyzed using Synchro 10 software which incorporates Highway Capacity Manual (HCM) 2000 methodology for signalized and unsignalized intersections and SimTraffic software for queueing analysis and adheres to the Halton Region Transportation Impact Study Guidelines dated January 2015.

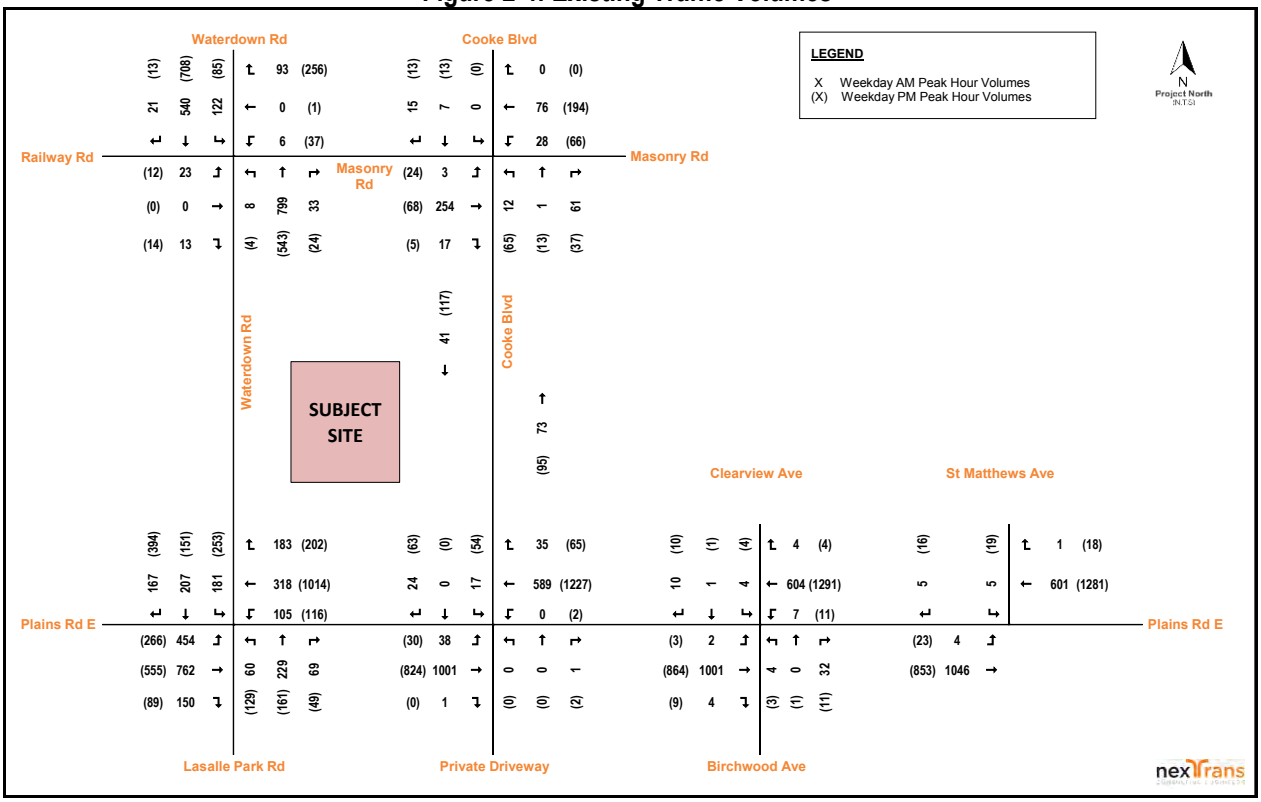
Mitigation measures were considered for signalized intersections where the v/c ratio for through or shared through movements increase to 0.85 or above, the v/c ratio for exclusive turning movements increase to 0.95 or above, or for 95th percentile queues that exceed available lane storage length. Similarly, mitigation measures were considered for unsignalized intersections where LOS for individual movements exceeds LOS D or for 95th percentile queues that exceed available lane storage length.

It is noted that based on the signal timing plan from the City of Burlington at the Plains Road East and Waterdown Road/Lasalle Park Road intersection for the weekday PM peak hour, the total split timing of 26 seconds for the southbound through movement is greater than the minimum split timing of 33 seconds for the southbound through movement. The discrepancy has been carried through in the study unless otherwise commented on by City staff.

2.6. EXISTING INTERSECTION CAPACITY ANALYSIS

The intersection capacity analysis has been conducted for the weekday AM and PM peak hours. **Figure 2-4** illustrates the traffic volumes within the study area road network.

Figure 2-4: Existing Traffic Volumes



The existing intersection capacity analysis results for the study area intersection is summarized in **Table 2-2**. The detailed Synchro and SimTraffic outputs for existing conditions are provided in **Appendix D**.

Table 2-2: Existing Intersection Capacity Analysis

Intersection	Movement of Interest	AM Peak Hour					PM Peak Hour					Storage Length (m)
		V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	Queue (m)		
					50th	95th				50th	95th	
Waterdown Rd & Railway Rd/ Masonry Rd (Signalized)	**Overall**	**0.36**	**9**	**A**	**-**	**-**	**0.31**	**14**	**B**	**-**	**-**	**-**
	EBT	0.04	44	D	12	29	0.06	45	D	5	14	-
	WBL	0.08	44	D	1	7	0.28	48	D	10	21	35
	WBT	0.06	44	D	11	21	0.18	46	D	20	31	-
	NBL	0.02	5	A	1	6	0.01	9	A	0	3	25
	NBT	0.39	8	A	19	46	0.27	9	A	19	37	-
	SBL	0.27	3	A	12	22	0.15	3	A	9	18	30
	SBT	0.23	3	A	12	32	0.30	4	A	21	46	-
Lasalle Park Rd/ Waterdown Rd & Plains Rd E (Signalized)	**Overall**	**0.90**	**34**	**C**	**-**	**-**	**0.88**	**35**	**C**	**-**	**-**	**-**
	EBL	0.91	37	D	56	89	0.91	61	E	53	87	45
	EBT	0.69	27	C	59	98	0.42	21	C	48	101	-
	WBL	0.47	31	C	15	31	0.29	9	A	31	73	40
	WBT	0.55	33	C	39	68	0.90	35	C	98	160	-
	NBL	0.21	30	C	15	39	0.45	38	D	38	85	40
	NBT	0.83	54	D	58	95	0.77	57	E	69	133	-
	SBL	0.77	41	D	32	58	0.72	40	D	104	220	-
	SBT	0.48	35	C	33	60	0.37	33	C	57	153	-
	SBR	0.13	31	C	16	37	0.52	33	C	50	81	45
Cooke Blvd & Plains Rd E (Signalized)	**Overall**	**0.37**	**3**	**A**	**-**	**-**	**0.51**	**8**	**A**	**-**	**-**	**-**
	EBL	0.06	1	A	4	12	0.11	3	A	6	14	40
	EBT	0.37	1	A	9	27	0.30	3	A	13	30	-
	WBT	0.25	3	A	12	36	0.52	7	A	37	80	-
	SBT	0.03	51	D	10	21	0.43	49	D	22	40	-
Plains Rd E & St Matthews Ave (Signalized)	**Overall**	**0.38**	**2**	**A**	**-**	**-**	**0.45**	**4**	**A**	**-**	**-**	**-**
	EBL	0.01	1	A	0	3	0.08	2	A	4	12	15
	EBT	0.38	2	A	10	46	0.31	2	A	12	37	-
	WBT	0.23	2	A	3	15	0.47	3	A	15	44	-
	SBL	0.18	52	D	1	6	0.23	47	D	5	14	9
	SBTR	-	-	-	2	7	0.01	45	D	3	10	-
Cooke Blvd & Masonry Rd (Unsignalized)	EBLTR	0.00	0	A	-	7	0.02	2	A	-	7	-
	WBLTR	0.03	2	A	-	9	0.05	2	A	-	9	-
	NBLTR	0.13	11	B	-	15	0.25	14	B	-	16	-
	SBLTR	0.03	10	B	-	12	0.05	12	B	-	13	-
Birchwood Ave/Clearview Ave & Plains Rd E (Unsignalized)	EBLTR	0.00	9	A	-	3	0.01	12	B	-	3	50
	WBLTR	0.01	11	B	-	1	0.01	10	A	-	2	50
	NBLTR	0.08	13	B	-	15	0.03	13	B	-	14	-
	SBLTR	0.03	12	B	-	10	0.05	16	C	-	12	-

The following observations are made based on the existing intersection capacity analysis.

<u>Waterdown Rd and Railway Rd/Masonry Rd (Signalized)</u>

All intersection movements operate within capacity with overall intersection v/c ratios of 0.36 (LOS A) and 0.31 (LOS B) in the AM and PM peak hours, respectively, and acceptable levels of service of LOS D or better in both peak hours.

Lasalle Park Rd/Waterdown Rd and Plains Rd E (Signalized)

The intersection operates within capacity with overall intersection v/c ratios of 0.90 (LOS C) and 0.88 (LOS C) in the AM and PM peak hours, respectively. The westbound through movement operates with a v/c ratio of 0.90 in the PM peak hour. The 95th queue of 89m and 87m in and AM and PM peak hours for the eastbound left movement, respectively, exceed the storage length lane of approximately 45m. The 95th queues of the westbound left, northbound left, and southbound right movements each exceed their respective lane storage lengths in the PM peak hour. Occasional spillovers are common at major intersections with heavy traffic volumes and queues can be cleared in one or two cycles.

Cooke Blvd and Plains Rd E (Signalized)

All intersection movements operate within capacity with overall intersection v/c ratios of 0.37 (LOS A) and 0.51 (LOS A) within the AM and PM peak hours and acceptable LOS in both peak hours.

Plains Rd E & St Matthews Ave (Signalized)

All intersection movements operate within capacity with overall intersection v/c ratios of 0.38 (LOS A) and 0.45 (LOS A) within the AM and PM peak hours and acceptable LOS in both peak hours.

Cooke Blvd & Masonry Rd (Unsignalized)

All intersection movements operate well within capacity and LOS B or better within the AM and PM peak hours.

Birchwood Ave/Clearview Ave & Plains Rd E (Unsignalized)

All intersection movements operate well within capacity and LOS B or better within the AM and PM peak hours.

3.0 FUTURE BACKGROUND TRAFFIC CONDITIONS

A five-year horizon was assessed for the future conditions as per Halton Region TIS Guidelines. The future background conditions include the summation of existing traffic volumes, corridor growth due to new developments within broader area, and site traffic volumes generated from other new developments within the surrounding area. The future background condition also incorporates any planned road improvement works such as road widenings.

3.1. GROWTH AND BACKGROUND DEVELOPMENTS

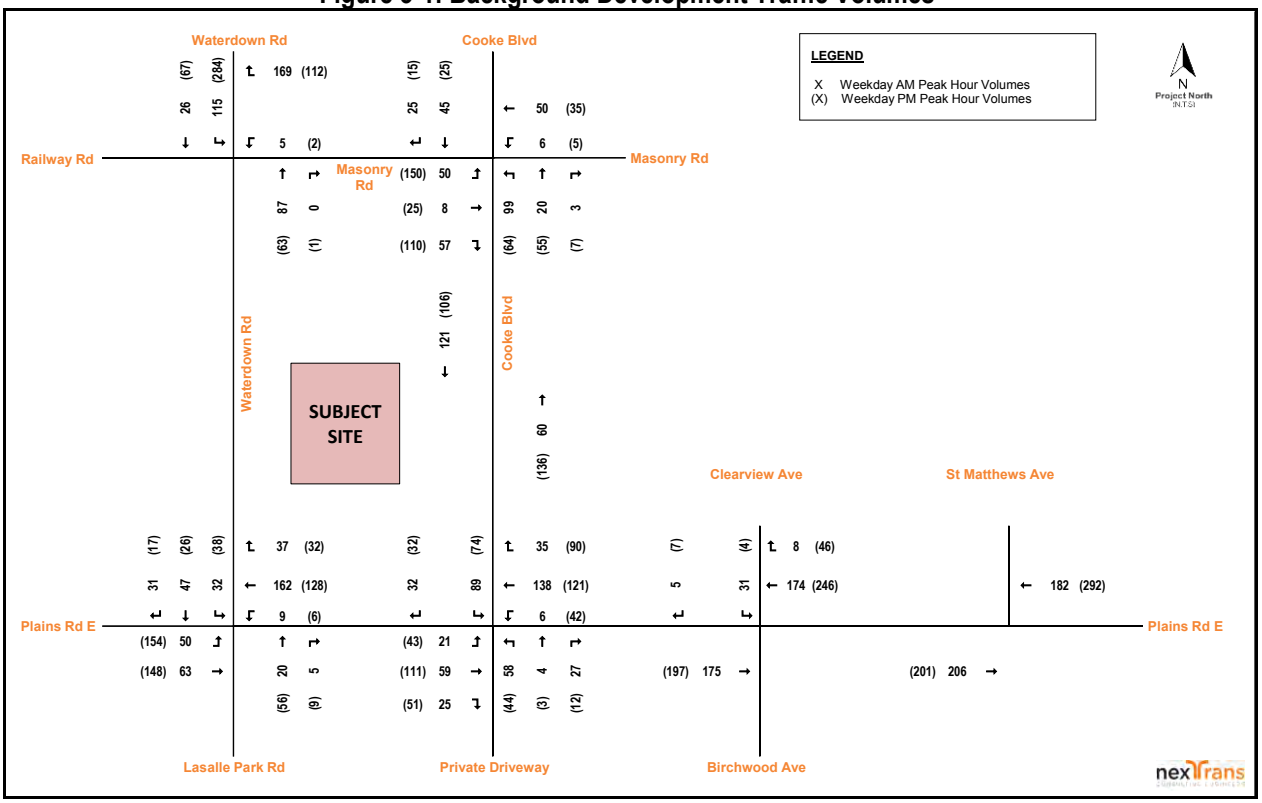
A general corridor annual growth rate of 1.0% was assumed for all study area roads.

A number of background developments were identified near the subject site. Background development traffic volumes from the identified background developments within the surrounding area to the subject site were included in the future background conditions. **Table 3-1** summarizes the identified background developments. **Figure 3-1** illustrates the background development traffic volumes within the study area road network. Relevant background development documents are available in **Appendix E**.

Table 3-1: Summary of Background Developments

No.	Development	Description / Statistics
1	40-70 Plains Road East	Proposed 9-storey mid-rise building with 360 residential dwelling units.
2	53 and 71 Plains Road East and 1025 Cooke Boulevard	Proposed high-rise building with 450 residential dwelling units and 1,208sqm of ground floor retail GFA.
3	284-292 Plains Road East	Proposed 7-storey mid-rise building with 107 residential dwelling units.
4	1010 Downsview Drive and 355 Plains Road East	Proposal for two mid-rise buildings consisting of 584 residential dwelling units and 629sqm of ground floor retail space.
5	1029 and 1033 Waterdown Road	Proposed 29-storey building with 295 residential dwelling units and 189sqm of ground floor retail space.
6	1062-1074 Cooke Boulevard	Proposal for two residential buildings with 809 residential dwelling units in total.
7	1085 Clearview Avenue	Proposed residential building with 162 dwelling units.
8	1120 Cooke Boulevard	Proposed residential development consisting of 1,165 dwelling units and 495sqm of ground floor retail space.

Figure 3-1: Background Development Traffic Volumes



3.2. FUTURE BACKGROUND INTERSECTION CAPACITY ANALYSIS

The future background traffic volumes for the anticipated full build-out horizon year were analyzed using Synchro 10 and incorporates corridor growth traffic and background development traffic for the surrounding area.

Figure 3-2 illustrates the future background traffic volumes. **Table 3-2** summarizes the future background intersection capacity analysis results. Detailed Synchro and SimTraffic results are enclosed in **Appendix F**.

Figure 3-2: Future Background Traffic Volumes

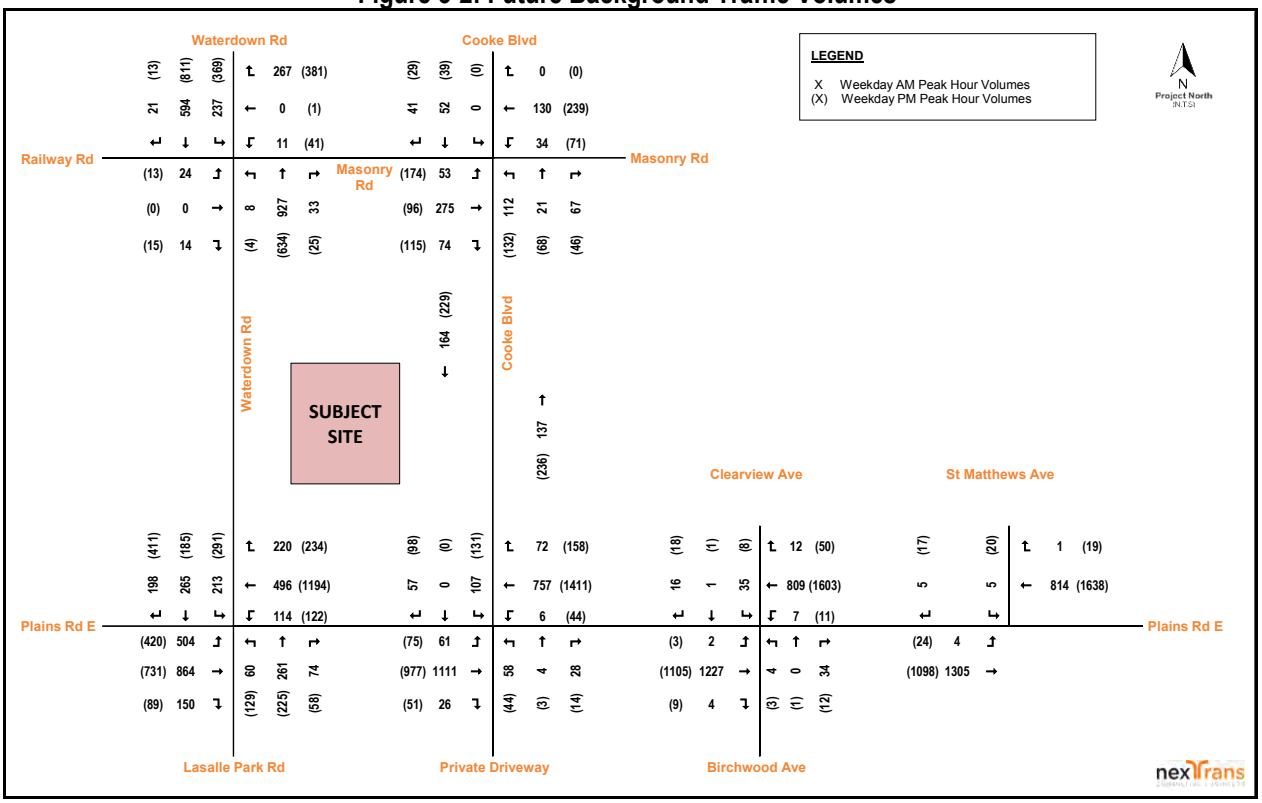


Table 3-2: Future Background Intersection Capacity Analysis

Intersection	Movement of Interest	AM Peak Hour					PM Peak Hour					Storage Length (m)
		V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	Queue (m)		
					50th	95th				50th	95th	
Waterdown Rd & Railway Rd/ Masonry Rd (Signalized)	**Overall**	**0.51**	**14**	**B**	**-**	**-**	**0.70**	**17**	**B**	**-**	**-**	**-**
	EBT	0.08	43	D	12	30	0.08	43	D	7	17	-
	WBL	0.09	42	D	3	13	0.24	44	D	10	22	35
	WBT	0.18	43	D	26	46	0.51	48	D	27	45	-
	NBL	0.02	9	A	2	8	0.01	14	B	0	3	25
	NBT	0.52	13	B	37	69	0.35	15	B	26	43	-
	SBL	0.54	7	A	23	40	0.71	10	A	32	59	30
	SBT	0.26	4	A	20	45	0.36	6	A	37	93	-
Lasalle Park Rd/ Waterdown Rd & Plains Rd E (Signalized)	**Overall**	**1.08**	**54**	**D**	**-**	**-**	**1.21**	**84**	**F**	**-**	**-**	**-**
	EBL	1.08	93	F	78	102	1.34	205	F	85	85	45
	EBT	0.79	32	C	154	298	0.58	26	C	521	697	-
	WBL	0.60	33	C	27	60	0.39	12	B	30	72	40
	WBT	1.01	69	E	72	120	1.18	115	F	124	170	-
	NBL	0.24	29	C	26	76	0.42	35	D	69	120	40
	NBT	0.88	59	E	108	239	0.91	74	E	276	437	-
	SBL	0.96	75	E	66	133	0.87	66	E	206	335	-
	SBT	0.58	36	D	45	76	0.40	37	D	108	273	-
	SBR	0.15	30	C	19	42	0.54	45	D	55	89	45
Cooke Blvd & Plains Rd E (Signalized)	**Overall**	**0.52**	**10**	**A**	**-**	**-**	**0.71**	**15**	**B**	**-**	**-**	**-**
	EBL	0.15	2	A	9	18	0.39	29	C	10	21	40
	EBT	0.48	2	A	16	35	0.42	5	A	21	43	-

	WBL	0.02	6	A	1	6	0.14	8	A	27	69	
	WBT	0.39	8	A	30	58	0.73	15	B	119	161	-
	NBT	0.46	46	D	17	32	0.27	41	D	13	27	
	SBT	0.65	53	D	33	61	0.71	58	E	41	67	-
Plains Rd E & St Matthews Ave (Signalized)	**Overall**	**0.47**	**2**	**A**	**-**	**-**	**0.58**	**4**	**A**	**-**	**-**	**-**
	EBL	0.01	1	A	1	4	0.14	3	A	4	12	15
	EBT	0.48	2	A	7	34	0.39	3	A	13	37	-
	WBT	0.31	2	A	5	25	0.60	4	A	91	276	-
	SBL	0.18	52	D	1	6	0.24	47	D	5	14	9
	SBTR	-	-	-	1	7	0.01	45	D	5	12	-
Cooke Blvd & Masonry Rd (Unsignalized)	EBLTR	0.04	1	A	-	14	0.15	5	A	-	24	-
	WBLTR	0.03	2	A	-	12	0.06	2	A	-	17	-
	NBLTR	0.75	45	E	-	36	1.58	333	F	-	35	-
	SBLTR	0.24	16	C	-	17	0.30	25	C	-	16	-
Birchwood Ave/Clearview Ave & Plains Rd E (Unsignalized)	EBL	0.00	10	A	-	2	0.01	14	B	-	2	50
	WBL	0.01	12	B	-	-	0.02	11	B	-	34	50
	NBLTR	0.08	13	B	-	15	0.04	15	B	-	21	-
	SBLTR	0.17	18	C	-	20	0.11	21	C	-	80	-

The following observations are made based on the future background intersection capacity analysis:

Waterdown Rd and Railway Rd/Masonry Rd (Signalized)

All intersection movements will operate within capacity with increased overall intersection v/c ratios of 0.51 (LOS B) and 0.70 (LOS B) in the AM and PM peak hours, respectively, and acceptable levels of service of LOS D or better in both peak hours. The increase in v/c is due to a significant increase in traffic volumes primarily from background traffic volumes due to a high number of developments proposed within and nearby the Aldershot MTSA.

Lasalle Park Rd/Waterdown Rd and Plains Rd E (Signalized)

The intersection will operate above capacity with overall intersection v/c ratios of 1.08 (LOS D) and 1.21 (LOS F) in the AM and PM peak hours, respectively. This is contributed by the overcapacity and failing levels of service of the eastbound left and westbound through movements in both peak hours due to the significant increase in traffic volumes from background developments within and surrounding the Aldershot MTSA.

The northbound through movement will increase from the existing condition to a v/c ratio of 0.88 (LOS E) and 0.91 (LOS E) in the AM and PM peak hours, respectively. Similarly, the southbound left movement will increase to a v/c of 0.96 (LOS E) and 0.87 (LOS E) in the AM and PM peak hours, respectively. Exclusive turning storage lanes will continue to be exceeded by the 95th queues of their respective movements.

Cooke Blvd and Plains Rd E (Signalized)

All intersection movements will operate within capacity with increased overall intersection v/c ratios of 0.52 (LOS A) and 0.71 (LOS B) within the AM and PM peak hours and acceptable LOS in both peak hours.

Plains Rd E & St Matthews Ave (Signalized)

All intersection movements operate within capacity with overall intersection v/c ratios of 0.47 (LOS A) and 0.58 (LOS A) within the AM and PM peak hours and acceptable LOS in both peak hours.

Cooke Blvd & Masonry Rd (Unsignalized)

The northbound left through right movement will operate with a v/c ratio of 0.75 and LOS E in the AM peak hour and will operate above capacity in the PM peak hour with a v/c ratio of 1.58 and LOS F from considerable delay. This is due to the significant increase in traffic volumes from background developments along Cooke Boulevard and Masonry Road.

Birchwood Ave/Clearview Ave & Plains Rd E (Unsignalized)

All intersection movements will operate well within capacity and LOS C or better within the AM and PM peak hours.

4.0 SITE TRAFFIC

The following section discusses the calculation, distribution, and assignment of trips generated by the subject site.

4.1. VEHICULAR SITE TRIP GENERATION

The trip generation for proposed development was derived from the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition using Land Use Code (LUC) 222 Multifamily Housing (High-Rise) Close to Rail Transit (for residential dwelling units) and LUC 822 Strip Retail Plaza (<40k) (for ground floor retail space) for the weekday AM and PM peak hour of adjacent street. The average rate was used for both LUCs given no fitted curve equation or a low R^2 value. Close to Rail Transit for LUC 222 was used with consideration that the subject site is located within 800m of rail transit. A summary of the vehicular site trip generation is shown in **Table 4-1**.

Table 4-1: Vehicular Site Trip Generation

Land Use	Units / GFA	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) (LUC 222)	161 Units	Directional Distribution	33%	67%	100%	57%	43%	100%
		Trip Rate	0.07	0.16	0.23	0.15	0.11	0.26
		Trips Generated	12	25	37	24	18	42
Strip Retail Plaza (<40k) (LUC 822)	459sqm (4,939sqft)	Directional Distribution	60%	40%	100%	50%	50%	100%
		Trip Rate	1.42	1.01	2.43	3.44	3.24	6.68
		Trips Generated	7	5	12	17	16	33
Total Vehicular Site Trips			19	30	49	41	34	75

The proposed development will generate 49 two-way trips (19 in, 30 out) and 75 two-way trips (41 in, 34 out) in the weekday AM and PM peak hours, respectively.

4.2. NON-AUTO TRIP GENERATION

The non-auto (i.e. walk, bike, and transit) trip generation for proposed development was derived from the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition using LUC 222 and LUC 822 for the weekday AM and PM peak hour of adjacent street using the average rate. It is noted that no data is available for the weekday AM peak hour of adjacent street for LUC 822 in the ITE Trip Generation Manual 11th Edition for non-auto trip generation.

The non-auto trip generation was divided further into trips generated for transit, walk, and cycle based on the non-auto modal split derived for the area surrounding the subject site from the 2016 Transportation Tomorrow Survey (TTS) data, which is a comprehensive travel survey conducted in the Greater Toronto Area (GTA) in order to derive travel patterns, including travel mode split within the weekday AM and PM peak hours. Modal split data is enclosed in **Appendix G**.

Table 4-2: Non-Auto Site Trip Generation

Land Use	Units / GFA	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) (LUC 222)	161 Units	Transit Trips	6	1	7	5	10	15
		Walk Trips	12	2	14	2	5	7
		Cycle Trips	6	1	7	1	1	2
		Non-Auto Trips	24	4	28	8	16	24
Strip Retail Plaza (<40k)	459sqm (4,939sqft)	Transit Trips	0	0	0	1	1	2
		Walk Trips	0	0	0	1	0	1

(LUC 822)		Cycle Trips	0	0	0	0	0	0
		Non-Auto Trips	0	0	0	2	1	3
Total Non-Auto Site Trip Generation (Transit + Walk + Cycle)			24	4	28	10	17	27

The resulting total non-auto site trip generation (transit, walk, cycle) for the proposed development will yield 28 two-way trips (24 in, 4 out) and 27 two-way trips (10 in, 17 out) in the weekday AM and PM peak hours, respectively.

4.3. TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution of the auto site traffic for residential land use was derived from the 2016 Transportation Tomorrow Survey (TTS), which is a comprehensive travel survey conducted in the Greater Toronto Area (GTA) in order to derive the trip distribution for the weekday AM and PM peak periods. Using engineering judgement, extracted data was further reviewed to derive trip distributions on roads within the study area, based on routes that drivers would likely take to access the subject site. TTS zones 4050, 4051, 4052, 4053, 4054, and 4055 were used to extract trip distribution data for the subject site. Detailed TTS data is enclosed in **Appendix G.**

The trip distribution of the at-grade retail land use was derived from the existing trip distribution of the intersection study area based on the existing TMC volumes. The trip distribution for residential and non-residential land uses are summarized in **Table 4-3** and **Table 4-4**, respectively.

Table 4-3: Directional Trip Distribution (Residential)

Corridor	Direction	Weekday AM Peak Hour		Weekday PM Peak Hour	
		In	Out	In	Out
Plains Road East	Eastbound	14%	22%	8%	27%
	Westbound	34%	6%	27%	16%
Waterdown Road	Northbound	0%	72%	0%	56%
	Southbound	53%	0%	65%	0%
TOTAL		100%	100%	100%	100%

Table 4-4: Directional Trip Distribution (Retail)

Corridor	Direction	Weekday AM Peak Hour		Weekday PM Peak Hour	
		In	Out	In	Out
Plains Road East	Eastbound	52%	42%	30%	27%
	Westbound	23%	22%	43%	48%
Waterdown Road	Northbound	0%	36%	0%	25%
	Southbound	26%	0%	27%	0%
TOTAL		100%	100%	100%	100%

The auto site-generated traffic was assigned accordingly to the study area roads to reflect the configuration of the site access, turning restrictions, and based on logical routing.

The trip assignment for the residential site traffic volumes, retail site traffic volumes, and total site traffic volumes for the proposed development is illustrated in **Figure 4-1**, **Figure 4-2**, and **Figure 4-3**, respectively.

Figure 4-1: Residential Site Traffic Volumes

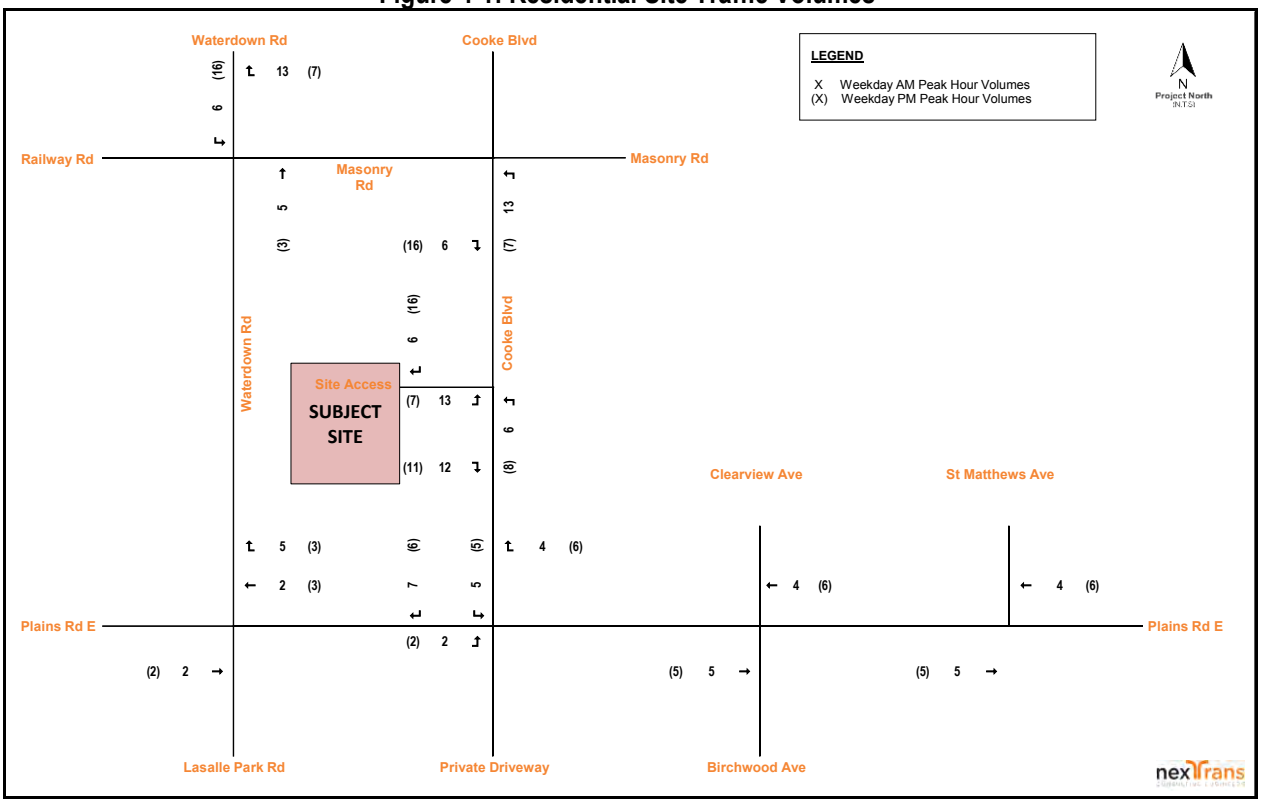


Figure 4-2: Retail Site Traffic Volumes

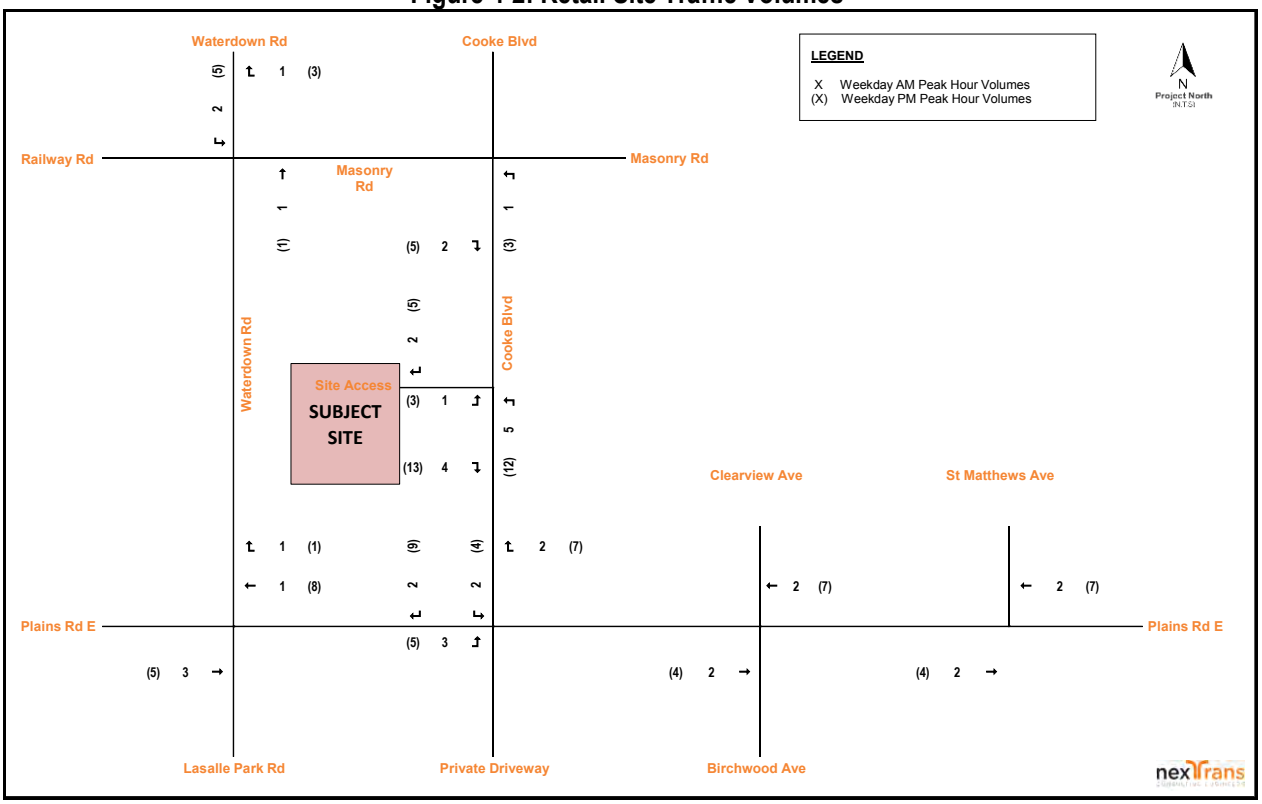
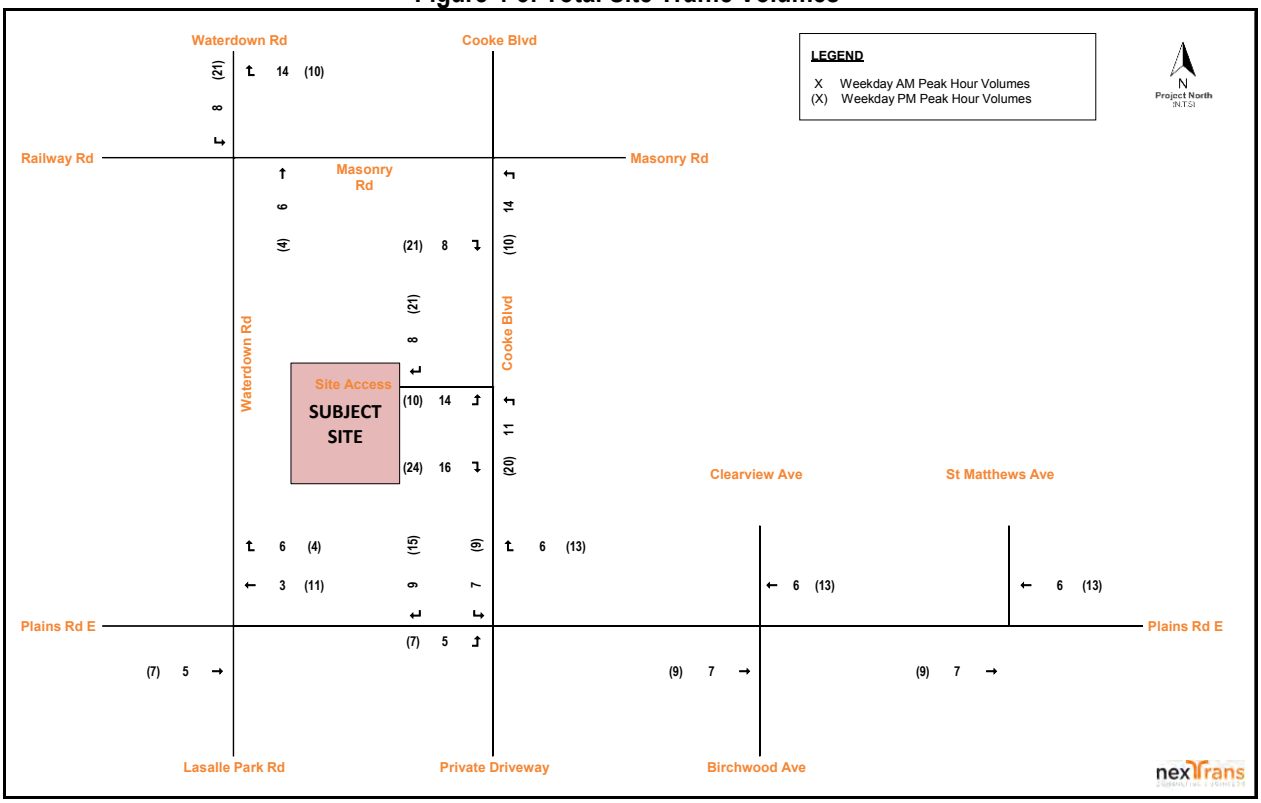


Figure 4-3: Total Site Traffic Volumes



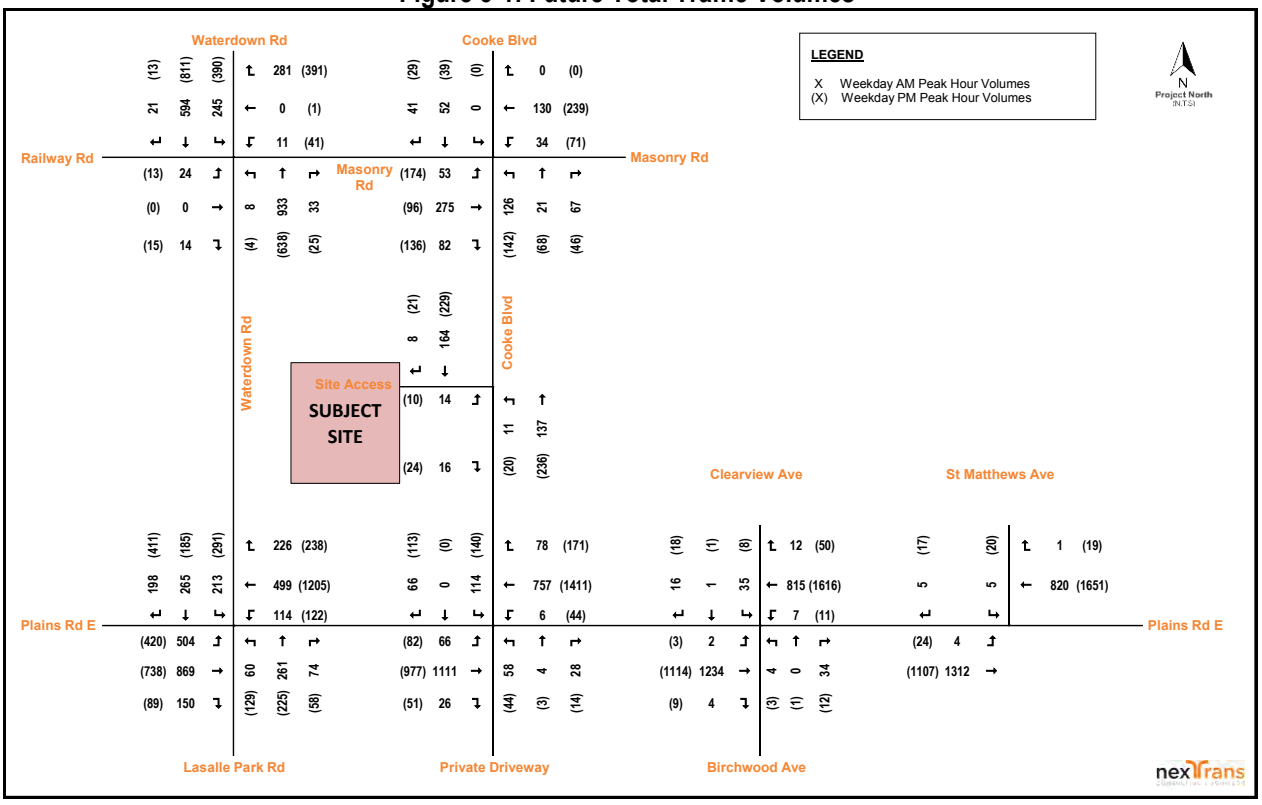
5.0 FUTURE TOTAL TRAFFIC CONDITIONS

The future total traffic conditions include future background traffic volumes and site-generated auto trips produced by the proposed development. Synchro 10 was used to analyze the future total traffic conditions for the weekday AM and PM peak hours.

5.1. FUTURE TOTAL INTERSECTION CAPACITY ANALYSIS

The future total traffic volumes are illustrated in **Figure 5-1**.

Figure 5-1: Future Total Traffic Volumes



The results of the intersection capacity analysis under the future total conditions are summarized in **Table 5-1**. Detailed Synchro and SimTraffic results are available in **Appendix H**.

Table 5-1: Future Total Intersection Capacity Analysis

Intersection	Movement of Interest	AM Peak Hour					PM Peak Hour					Storage Length (m)
		V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	Queue (m)		
					50th	95th				50th	95th	
Waterdown Rd & Railway Rd/ Masonry Rd (Signalized)	**Overall**	**0.53**	**15**	**B**	**-**	**-**	**0.73**	**18**	**B**	**-**	**-**	**-**
	EBT	0.09	43	D	11	29	0.08	43	D	5	13	-
	WBL	0.09	41	D	3	11	0.24	43	D	11	26	35
	WBT	0.19	43	D	27	47	0.56	49	D	30	51	-
	NBL	0.02	9	A	2	12	0.01	14	B	1	7	25
	NBT	0.53	14	B	44	79	0.37	16	B	24	42	-
	SBL	0.55	7	A	26	45	0.74	11	B	35	65	30
	SBT	0.26	4	A	26	55	0.36	6	A	38	109	-

Lasalle Park Rd/ Waterdown Rd & Plains Rd E (Signalized)	**Overall**	**1.07**	**56**	**E**	**-**	**-**	**1.21**	**86**	**F**	**-**	**-**	**-**
	EBL	1.06	87	F	80	99	1.34	205	F	85	86	45
	EBT	0.79	32	C	172	338	0.58	26	C	526	691	-
	WBL	0.61	34	C	31	66	0.39	12	B	33	77	40
	WBT	1.05	81	F	78	131	1.20	119	F	125	169	-
	NBL	0.24	29	C	18	54	0.42	35	D	57	113	40
	NBT	0.88	59	E	71	126	0.91	74	E	195	384	-
	SBL	0.96	75	E	59	119	0.87	66	E	159	313	-
	SBT	0.58	36	D	45	80	0.40	37	D	102	256	-
	SBR	0.15	30	C	24	56	0.54	47	D	56	89	45
Cooke Blvd & Plains Rd E (Signalized)	**Overall**	**0.54**	**10**	**B**	**-**	**-**	**0.73**	**17**	**B**	**-**	**-**	**-**
	EBL	0.16	2	A	9	19	0.43	35	D	11	24	40
	EBT	0.49	2	A	16	35	0.43	5	A	23	45	-
	WBL	0.03	6	A	2	8	0.15	9	A	27	68	-
	WBT	0.41	9	A	31	58	0.75	17	B	120	160	-
	NBT	0.43	44	D	18	33	0.26	40	D	11	22	-
	SBT	0.69	54	D	34	61	0.76	60	E	45	72	-
Plains Rd E & St Matthews Ave (Signalized)	**Overall**	**0.48**	**2**	**A**	**-**	**-**	**0.58**	**4**	**A**	**-**	**-**	**-**
	EBL	0.01	1	A	1	7	0.14	4	A	5	14	15
	EBT	0.48	2	A	6	29	0.40	3	A	14	40	-
	WBT	0.31	2	A	4	20	0.60	4	A	185	459	-
	SBL	0.18	52	D	2	7	0.24	47	D	5	14	9
	SBTR	-	-	-	2	8	0.01	45	D	4	12	-
Cooke Blvd & Site Access (Unsignalized)	EBLR	0.04	10	B	-	13	0.06	11	B	-	13	-
	NBLT	0.01	1	A	-	5	0.02	1	A	-	8	-
Cooke Blvd & Masonry Rd (Unsignalized)	EBLTR	0.04	1	A	-	13	0.15	4	A	-	26	-
	WBLTR	0.03	2	A	-	15	0.06	2	A	-	17	-
	NBLTR	0.83	55	F	-	35	1.72	396	F	-	37	-
	SBLTR	0.25	16	C	-	18	0.31	26	D	-	17	-
Birchwood Ave/Clearview Ave & Plains Rd E (Unsignalized)	EBL	0.00	10	A	-	3	0.01	14	B	-	4	50
	WBL	0.01	12	B	-	2	0.02	11	B	-	38	50
	NBLTR	0.08	13	B	-	16	0.04	15	B	-	62	-
	SBLTR	0.17	18	C	-	21	0.11	22	C	-	143	-

The following observations are made based on the future total intersection capacity analysis.

Waterdown Rd and Railway Rd/Masonry Rd (Signalized)

All intersection movements will operate within capacity with overall intersection v/c ratios of 0.53 (LOS B) and 0.73 (LOS B) in the AM and PM peak hours, respectively, and acceptable levels of service of LOS D or better in both peak hours, similar to the future background condition.

Lasalle Park Rd/Waterdown Rd and Plains Rd E (Signalized)

The intersection will operate above capacity with overall intersection v/c ratios of 1.07 (LOS E) and 1.21 (LOS F) in the AM and PM peak hours, respectively. The intersection overcapacity and failing levels of service continue to be carried forward from the future background condition due to the significant increase in traffic volumes from background developments within and surrounding the Aldershot MTSA. The subject site however generates a

minimal traffic impact to the intersection given the similar capacity results of the future background and future total condition for the intersection in both peak hours

Exclusive turning storage lanes for the eastbound left, westbound left, northbound left, and southbound right turn lanes will continue to be exceeded by the 95th queues. Occasional spillovers are common at major intersections with heavy traffic volumes and queues can be cleared in one or two cycles.

Cooke Blvd and Plains Rd E (Signalized)

All intersection movements will operate within capacity with increased overall intersection v/c ratios of 0.54 (LOS A) and 0.73 (LOS B) within the AM and PM peak hours and acceptable LOS in both peak hours.

Plains Rd E and St Matthews Ave (Signalized)

All intersection movements operate within capacity with overall intersection v/c ratios of 0.48 (LOS A) and 0.58 (LOS A) within the AM and PM peak hours and acceptable LOS in both peak hours.

Cooke Blvd and Site Access (Unsignalized)

All movements at the intersection of the Site Access and Cooke Boulevard will operate well within capacity and good levels of service of LOS B or better in both peak hours.

Cooke Blvd and Masonry Rd (Unsignalized)

The northbound left through right movement will operate with a v/c ratio of 0.83 and failing level of service of LOS F in the AM peak hour and will operate above capacity in the PM peak hour with a v/c ratio of 1.72 and LOS F. The failing levels of service are continued from the future background condition due to the significant increase in traffic volumes from background developments along Cooke Boulevard and Masonry Road – with the additional site traffic volumes from the subject site, northbound left through right movement will continue to operate with failing levels of service.

Birchwood Ave/Clearview Ave and Plains Rd E (Unsignalized)

All intersection movements will operate within capacity and LOS C or better within the AM and PM peak hours.

5.2. MITIGATIVE MEASURES

5.2.1. MASONRY ROAD AND COOKE BOULEVARD – SIGNAL WARRANT ANALYSIS

Given the failing levels of service and considerable delay at the intersection of Masonry Road and Cooke Boulevard, a signal warrant analysis was undertaken to determine a traffic control signal is warranted. The traffic signal warrant was assessed based on Justification 7 of Ontario Traffic Manual (OTM) Book 12 (OTM Book 12, Section 4.10) to determine if a traffic signal control is justified under the future total condition. Based on the signal warrant analysis results as enclosed in **Appendix I**, traffic signalization is technically not warranted. Notwithstanding the foregoing, it is recommended that the City monitor the intersection and consider traffic signalization in the future as the subject site and other developments within the Aldershot MTSA are build out.

Table 5-2 summarizes the Cooke Boulevard and Masonry Road intersection in the future total condition with an intersection traffic signal control with a 50-second cycle length and existing lane configuration.

Table 5-2: Sensitivity Analysis Results – Signalization of Cooke Boulevard and Masonry Road

Intersection	Movement of Interest	AM Peak Hour					PM Peak Hour					Storage Length (m)
		V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	Queue (m)		
					50th	95th				50th	95th	
Cooke Blvd & Masonry Rd (Signalized)	**Overall**	**0.52**	**11**	**B**	**-**	**-**	**0.64**	**13**	**B**	**-**	**-**	**-**
	EBLTR	0.47	7	A	21	43	0.60	11	B	31	61	-
	WBLTR	0.19	5	A	11	23	0.39	7	A	57	233	-
	NBLTR	0.65	22	C	24	40	0.72	23	C	43	129	-
	SBLTR	0.16	15	B	12	23	0.11	14	B	11	30	-

With traffic control signalization, the intersection will operate within capacity with overall intersection v/c ratios of 0.52 (LOS B) and 0.64 (LOS B) in the AM and PM peak hours, respectively. All intersection movements will operate within capacity and acceptable levels of service of LOS C or better in both peak hours. Further consideration of introducing exclusive left/right turning movements at the intersection will improve 95th queues.

5.2.2. WATERDOWN ROAD AND PLAINS ROAD EAST – TRAFFIC SIGNAL OPTIMIZATION

Given the overcapacity and failing levels of service at the intersection of Waterdown Road and Plains Road East in both peak hours, the existing timing splits of the signal timing plan were optimized to improve the capacity and levels of service. It is noted that the cycle length for each peak hour was unchanged from the existing signal timing plan. **Table 5-3** summarizes the future total intersection capacity analysis results with signal optimization. **Table 5-4** summarizes the changes of the v/c ratio and delay of each intersection movement with signal optimization compared to the existing signal timing plan.

Table 5-3: Sensitivity Analysis Results – Signal Optimization of Waterdown Road and Plains Road East

Intersection	Movement of Interest	AM Peak Hour					PM Peak Hour					Storage Length (m)
		V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	Queue (m)		
					50th	95th				50th	95th	
Lasalle Park Rd/ Waterdown Rd & Plains Rd E (Signalized) [Optimized]	**Overall**	**1.09**	**56**	**E**	**-**	**-**	**1.19**	**83**	**F**	**-**	**-**	**-**
	EBL	1.04	83	F	78	98	1.23	159	F	85	85	45
	EBT	0.74	29	C	134	256	0.56	25	C	501	707	-
	WBL	0.60	34	C	29	62	0.38	13	B	36	79	40
	WBT	0.99	74	E	73	121	1.20	119	F	123	171	-
	NBL	0.26	32	C	35	94	0.41	35	C	70	119	40
	NBT	0.91	67	E	104	187	0.88	68	E	241	412	-
	SBL	1.04	103	F	86	176	0.96	86	F	262	390	-
	SBT	0.59	38	D	53	118	0.43	41	D	187	401	-
	SBR	0.17	32	C	23	51	0.51	55	D	52	87	45

Table 5-4: Comparison of Capacity Analysis Results with Signal Optimization

Intersection	Movement of Interest	AM Peak Hour		PM Peak Hour	
		V/C	Delay (s)	V/C	Delay (s)
Lasalle Park Rd/ Waterdown Rd & Plains Rd E (Signalized) [Optimized]	**Overall**	+0.02	0	-0.02	-3
	EBL	-0.02	-4	-0.11	-46
	EBT	-0.05	-3	-0.02	-1
	WBL	-0.01	0	-0.01	+1
	WBT	-0.06	-7	0	0
	NBL	+0.02	+3	-0.01	0
	NBT	+0.03	+8	-0.03	-6

	SBL	+0.08	+28	+0.09	+20
	SBT	+0.01	+2	+0.03	+4
	SBR	+0.02	+2	-0.03	+8

Notwithstanding split timing signal optimization, the intersection will continue to operate above capacity given the overcapacity of conflicting movements such as the eastbound left and westbound through movements. It is recommended that the City monitor the intersection and consider traffic signalization in the future as the subject site and other developments within the Aldershot MTSA are build out.

6.0 SITE PLAN REVIEW

6.1. VEHICULAR SITE CIRCULATION

A vehicle swept path analysis using AutoTURN software was to determine the functionality of the subject site for vehicle access, including within drive aisles, access entrances, parking areas, fire routes, and loading spaces.

The swept path analysis determined that a P TAC-2017 (large passenger car), Halton Region Front-Loading Garbage Truck, and Halton Region Recycling Collection Truck can circulate the subject site without functional conflict.

Vehicle movement diagrams are enclosed in **Appendix J**.

6.2. LOADING REVIEW

One loading space of dimensions 6m by 13m is provided at surface level within the subject site for loading and waste collection activities. As noted in Section 6.1, a Halton Region Front-Loading Garbage Truck and Halton Region Recycling Truck are able to access the loading space by fronting into the loading space, reversing from the loading space, and exiting the subject site forward-out.

It is noted that the parking ramp is located adjacent to the loading space at surface level. The loading space location as shown on the architectural plans is suitable to allow for a waste collection truck to forward into the loading space, reverse out of the loading space through the “hammerhead” design of the driveway, and exit via forward motion out of the subject site. To provide adequate sightline for passenger cars exiting the adjacent parking ramp, a convex mirror is provided at the corner of the ground floor driveway located opposite to the parking ramp entrance, to allow visibility of incoming passenger cars and waste collection trucks. It is recommended that in addition to the convex mirror, posted “Do Not Proceed When Light is Red – Garbage Truck Reversing” signage and a corresponding red signal light should be located opposite of the parking ramp entrance nearby the convex mirror. A sensor system will activate the light signal when a waste collection truck drives onto the loading space to alert an outbound car at the top of parking ramp to wait until allowed to proceed.

7.0 PARKING REVIEW

7.1. VEHICULAR PARKING REVIEW

This section will review the proposed parking provision for the subject site and compare it to the parking requirements defined in the prevailing City of Burlington zoning by-law, as amended.

7.1.1. PROPOSED VEHICULAR PARKING PROVISION

The subject development will provide an on-site vehicular parking provision of 116 parking spaces (110 residential including 4 accessible spaces, 6 shared visitor/non-residential including 1 accessible space).

Inclusive of the shared visitor/non-residential parking provision, the subject development will provide 2 on-site parking spaces dedicated to car-share.

In addition to the proposed on-site parking provision of 116 spaces, the subject development will provide 4 non-residential/commercial lay-by parking spaces along Cooke Boulevard at the easterly frontage of the subject site.

7.1.2. VEHICULAR PARKING REVIEW – ZONING BY-LAW 2020

The proposed development is subject to City of Burlington Zoning By-law 2020, as amended by site-specific Zoning By-law 2020.384 (PL171346 – LPAT) (see **Appendix K**). It is also noted that the subject site is located with the Primary Growth Area as identified within Schedule B-1 of the City of Burlington 2020 Official Plan. A summary of the minimum parking requirements of Zoning By-law 2020, as amended by site-specific Zoning By-law 2020.384, is provided in **Table 7-1**.

Table 7-1: Summary of Zoning By-law Vehicular Parking Requirements

Use	Site-Specific Zoning By-law 2020.384		Proposed Parking Supply	Variance
	Parking Rate	Parking Spaces Required		
Residential	-	86 occupant spaces including 4 accessible spaces	110	+24
Visitor and Non-Residential	-	6 shared spaces including 2 accessible spaces	6	-
		Total	116	+24

Based on site-specific Zoning By-law 2020.384, the proposed residential parking provision of 110 parking spaces meets the required minimum occupant supply of 86 spaces (technical surplus of 24 spaces) and the proposed shared visitor and non-residential/commercial parking provision of 6 spaces meets the required minimum shared parking supply of 6 spaces.

An accessible parking provision of 4 residential spaces and 2 visitor/non-residential spaces is required per the site-specific zoning by-law. The development will provide 4 residential accessible parking spaces and 1 shared visitor/non-residential accessible parking space. Although deficient by 1 non-residential accessible parking space, the deficiency is minor, and a non-residential parking space will continue to be provided as part of the development.

7.2. BICYCLE PARKING REVIEW

The proposed development is subject to the minimum bicycle parking supply requirements of City of Burlington Zoning By-law 2020, as amended, and as summarized in **Table 7-2**.

Table 7-2: Summary of Bicycle Parking Requirements

Land Use	Units / GFA	Bicycle Parking Rates (Zoning By-law 2020)	Bicycle Parking Required	Bicycle Parking Spaces Proposed	Variance
Residential	161 units	n/a	0	81	+81
Visitor	161 units	n/a	0	22	+19
Retail	459sqm	2sp + 1sp/1000sqm GFA	3		
		Total	**3**	**103**	**+100**

A bicycle parking provision of 103 bicycle parking spaces (81 residential, 22 visitor/non-residential) will be provided, which exceeds the parking requirements within the Zoning By-law 2020. All 81 residential (long-term) bicycle parking spaces will be provided within secure bicycle locker rooms. The provision of 22 visitor/non-residential (short-term) spaces will be provided at ground level. The provision of 103 bicycle parking spaces meets the Community Permit Plan that was recently approved in principle by City Council for the City's MTSAs including Aldershot MTSA.

8.0 TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation demand management (TDM) refers to variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system.

8.1. ACTIVE TRANSPORTATION

The City of Burlington Long Term Cycling Master Plan was developed with the vision of encouraging residents to utilize active transportation and mitigate the congested roadways. As previously stated, the adjacent transportation network is accommodating of cycling, including bike lanes along Plains Road East and Waterdown Road, for convenient and accessible east-west and north-south travel, respectively. The proposed development will provide on-site bicycle parking spaces.

8.2. TRANSIT – ALDERSHOT MTSA

MTSAs are areas located nearby a higher-order transit station (generally within 500m to 800m or about a 10-minute walk) that are planned for transit-oriented development and density intensification. MTSAs provide the framework for growth within walking distance of rapid transit while providing walkable areas with a diverse mix of land uses.

As the subject site is located within the Aldershot Major Transit Station Area (MTSA), the subject site within walking distance to Aldershot GO Station for access to Lakeshore West GO Train service, in addition to a number of local and regional buses nearby the subject site.

With mixed-use development intensification anticipated for the Aldershot MTSA, it is expected that there will be a further increase in non-auto modal share for residents of the area.

8.3. TDM CHECKLIST

A recommended TDM measures checklist for the proposed development is provided in **Table 8-1**.

Table 8-1: Recommended TDM Measures Checklist

TDM Measure	Responsibility	Estimated Cost
Transit Incentives (i.e. Pre-loaded Presto Cards of ($2.75 per fare, twice per day, 30 days = $165 per Card; $165 x 161 units = $26,565)	City of Burlington/ Halton Region to Consider	$26,565
TDM information package (i.e. YRT maps, GO schedules, Cycling maps, etc)	City of Burlington/ Halton Region to Consider	TBD
Communications strategy and physical location to deliver Presto Cards and Information Packages	City of Burlington/ Halton Region to Consider	$1,500
Outreach Programs	York Region to Consider	TBD
Pedestrian Connections, including connections to the adjacent streets	Applicant	The associated cost is included in the site plan agreement
Cycling Connections, including connections to the adjacent streets	Applicant	The associated cost is included in the site plan agreement
Bicycle Parking	Applicant	The associated cost is included in the site plan agreement

Bicycle Repair Station	Applicant	The associated cost is included in the site plan agreement
Car-Share Parking Provision and Car-Share Program	Applicant	The associated cost is included in the site plan agreement
Undertake a TDM Monitoring Initial Survey with residents at 50% condominium occupancy and report back to Region staff within 2 months of reaching this occupancy rate. The Owner will coordinate with the Region staff for a list for survey questions.	City of Burlington/ Halton Region to Consider	Securities of $1,000 are required to undertake the Initial survey
Undertake a TDM Monitoring Follow-up Survey after the Initial survey and report back to Region staff within 2 months. The Owner will coordinate with the Region staff for survey questions.	City of Burlington/ Halton Region to Consider	Securities of $1,000 are required to undertake the Follow-up survey

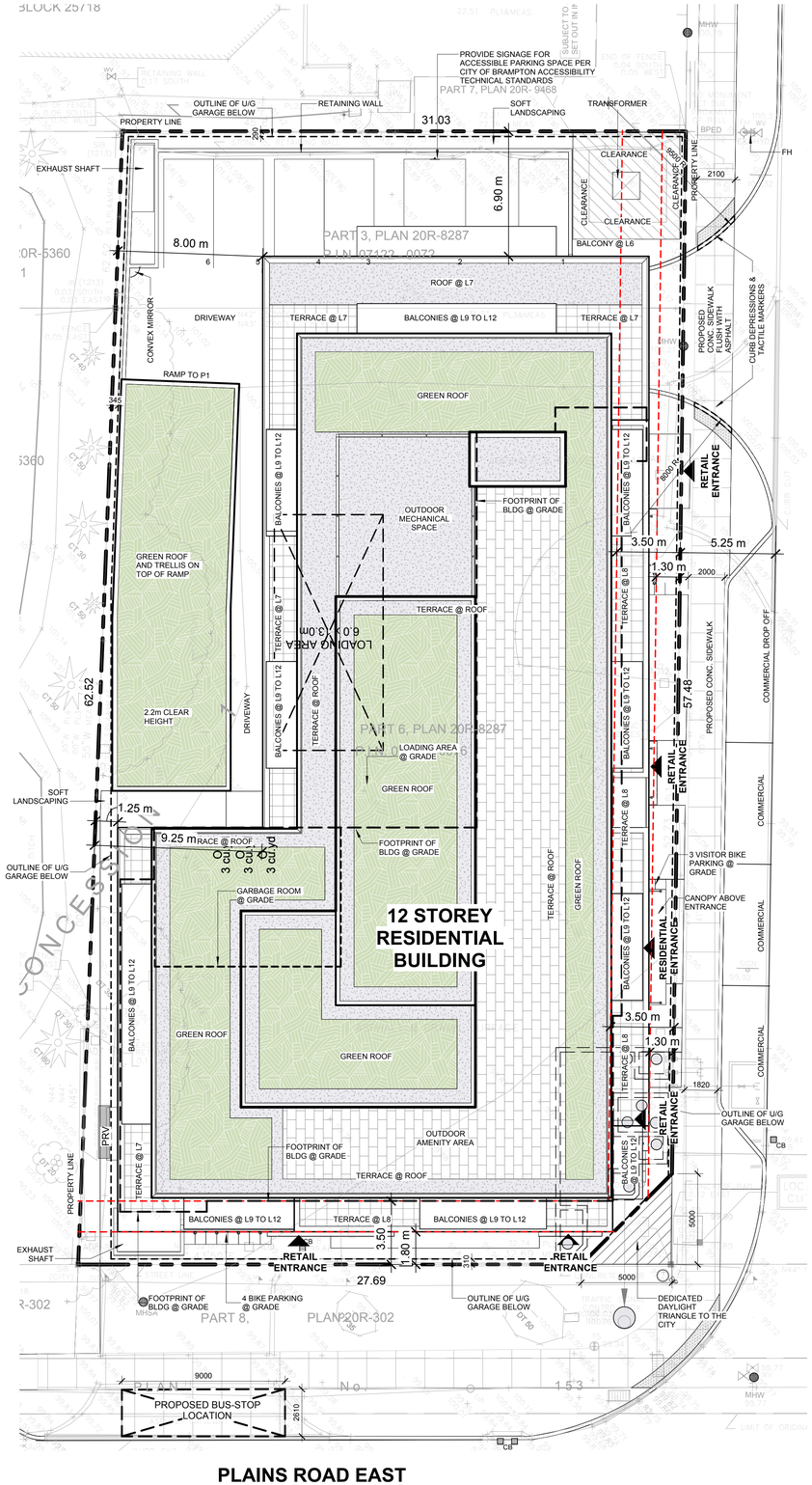
9.0 CONCLUSIONS AND RECOMMENDATIONS

The recommendations of this Transportation Impact Study are summarized as follows:

- The proposed development will generate 49 two-way trips (19 in, 30 out) and 75 two-way trips (41 in, 34 out) in the weekday AM and PM peak hours, respectively.
- The resulting total non-auto site trip generation (transit, walk, cycle) for the proposed development will yield 28 two-way trips (24 in, 4 out) and 27 two-way trips (10 in, 17 out) in the weekday AM and PM peak hours, respectively.
- The Waterdown Road and Plains Road East intersection and the Cooke Boulevard and Masonry Road intersection will operate above capacity and failing levels of service in the future background conditions in the AM and PM peak hours due to a significant increase in traffic volumes primarily from a number of background developments located within and nearby the Aldershot GO MTSA. The overcapacity and failing levels of service continue into the future total condition for both peak hours.
- Traffic control signalization of the Cooke Boulevard and Masonry Road intersection is recommended for the AM and PM peak hours to mitigate the overcapacity and failing levels of service despite being technically not warranted based on a signal warrant analysis.
- Traffic signal optimization of the Waterdown Road and Plains Road East intersection is recommended to improve intersection operations in the AM and PM peak hours. However, the intersection will continue to operate above capacity in the AM and PM peak hours.
- The City is recommended to monitor the Waterdown Road and Plains Road East intersection and the Cooke Boulevard and Masonry Road intersection for critical intersection movements and make adjustments as necessary, when the proposed development and other developments in the area are fully built out and occupied. Recommended TDM measures will minimize the potential traffic impact of the development and support active transportation and transit and reduce the reliance on single-occupant vehicle trips.
- The proposed vehicular parking provision of 116 spaces (110 residential, 6 visitor/non-residential) meets the site-specific zoning by-law requirement of 86 residential and 6 visitor/non-residential spaces.
- The visitor/non-residential accessible parking space provision is deficient of by 1 visitor/non-residential accessible parking space. However, consideration for the minor shortfall is recommended as the development will nonetheless provide 1 visitor/non-residential accessible parking space.
- A proposed bicycle parking provision of 103 spaces, including 81 residential (long-term) and 22 visitor/non-residential (short-term) spaces will be provided to meet the zoning by-law bicycle parking requirement and Community Permit Plan that was recently approved in principle by City Council for MTSAs.
- A range of Transportation Demand Management (TDM) measures that target a reduction in single occupancy vehicle trips are recommended.

Appendix A

Site Plan



1 Site Plan
1 : 150

NOTES:

1. THIS SITE PLAN HAS BEEN PREPARED IN ACCORDANCE TO THE ZONING BY-LAW NO. 2020.384 OF THE CITY OF BURLINGTON
2. ANY GRADE ELEVATIONS ARE SHOWN FOR REFERENCE ONLY. REFER TO GRADING AND SITE SERVICING PLAN FOR GRADING AND U/G SERVICES.
3. ALL SITE AREA LIGHTING TO BE DIRECTED DOWNWARD AND DEFLECTED AWAY FROM ADJACENT LOTS, ROADS AND STREETS.
4. ALL CURBING AND DRIVEWAY ENTRANCES TO BE DESIGNED IN ACCORDANCE WITH THE CITY'S MATERIALS STANDARDS AND SPECIFICATIONS MANUAL
5. THE BUILDING AND THE SITE HAS BEEN DESIGNED TO BE BARRIER FREE IN ACCORDANCE WITH THE REQUIREMENTS OF BILL 118 AND 126, ACCESSIBILITY FOR ONTARIANS WITH DISABILITY ACT, 2005 AND IN THE GENERAL CONTENTS OF THE ONTARIO BUILDING CODE
6. 15% OF ALL RESIDENTIAL SUITES SHALL BE PROVIDED WITH BARRIER-FREE DESIGN REQUIREMENTS IN ACCORDANCE WITH OBC 3.7.2.1.(1)
7. GUARD RAILS IN ACCORDANCE TO OBC 2006 SHALL BE PROVIDED WHEREVER GRADE DIFFERENCE EXCEEDS 600mm. DETAILS TO BE SUBMITTED AT BUILDING PERMIT STAGE
8. CONSTRUCTION OF ASPHALT PAVING ALONG SERVICE ROUTE:
   40mm COMPACTED HL-3 ASPHALT
   50mm COMPACTED HL-8 ASPHALT
9. RAMP TO THE U/G GARAGE SHALL BE DESIGNED WITH A SLOPE NOT EXCEEDING 15.0% AND WITH TRANSITION AREAS AT THE TOP AND BOTTOM HAVING MAXIMUM SLOPES OF 7.5% FOR A MINIMUM DISTANCE OF 6.0m.



2 CONTEXT PLAN

COOKE BOULEVARD

CB

PROJECT STATISTICS
35 PLAINS ROAD EAST RESIDENTIAL DEVELOPMENT
Thursday, August 15, 2024

PROJECT NO. 21024

1.0 SITE STATISTICS

	sq.m.	sq. ft.	acres	hectares
1.1 LOT AREA				
Lot	1,992.0	21,441.5	0.49	0.20
Land conveyed to the City as daylight triangle	12.5			
Lot (minus Daylight Triangle)	1,979.5	21,306.9	0.49	0.20

	metres	feet
1.2 LOT FRONTAGE		
Lot Frontage (Measured 7.5m from Property Line on Plains Road East)	84.6	277.6
1.3 PROPOSED BUILDING HEIGHT	**metres**	**feet**
Measured FROM Est. Grade from Plains Road East	42.5	139.43

BUILDING SETBACKS
Cooke Blvd. **3.5m** max. GF, **1.3m** other storeys
Plains Road E **3.5m** max. GF, **1.8m** other storeys

	Units per Hectare
1.4 MAXIMUM SITE DENSITY	
	813.34

2.0 GBFA

*Includes all the areas above and below grade with the exception of parking areas above and below grade.

		GFA			GBFA*	
2.1 RESIDENTIAL CONDOMINIUM PROPOSED FLOOR AREA		sq.m.	sq. ft.	excl.	sq.m.	sq. ft.
P2 - LEVEL	1 x	26.35	284	*187.33*	213.670	2300
P1 - LEVEL	1 x	26.35	284	*314.31*	340.650	3667
L1	1 x	198.31	2135	*84.02*	282.320	3039
L2	1 x	1,036.59	11158	*17.81*	1,054.395	11349
L3	1 x	1,208.03	13003	*17.80*	1,225.830	13195
L4	1 x	1,208.03	13003	*17.80*	1,225.830	13195
L5	1 x	1,208.03	13003	*17.80*	1,225.830	13195
L6	1 x	1,208.03	13003	*17.80*	1,225.830	13195
L7	1 x	1,042.06	11217	*17.80*	1,059.860	11408
L8	1 x	985.22	10605	*17.80*	1,003.020	10796
L9	1 x	962.48	10360	*17.80*	980.280	10552
L10	1 x	962.47	10360	*17.80*	980.275	10552
L11	1 x	962.47	10360	*17.80*	980.275	10552
L12	1 x	962.48	10360	*17.80*	980.280	10552
L13	1 x	138.60	1492	*150.72*	289.310	3114
Total GFA		**12135.44**	**130625**		**13067.66**	**140659**
2.2 NON-RESIDENTIAL GBFA		**sq.m.**	**sq. ft.**	**excl.**	**sq.m.**	**sq. ft.**
Retail - L1	1 x	452.78	4874	*4.62*	457.40	4923
Total GBFA		**452.78**	**4874**		**457.40**	**4923**
2.3 GRAND TOTAL GFA & GBFA		**12588.22**	**135498**		**13525.06**	**145582**

3.0 FLOOR AREA RATIO

	FAR	Total Allowable Area
(Grand Total GBFA divided by LOT AREA)	6.8	8764.7 94343

4.0 UNIT STATISTICS

UNIT COUNT	1-BED	1-BED + D	2-BED	2-BED + D	3-BED	Studio	TOTAL
L2	9	0	4	1	0	1	15 Units
L3	12	1	4	1	0	0	18 Units
L4	12	1	4	1	0	0	18 Units
L5	12	1	4	1	0	0	18 Units
L6	12	1	4	1	0	0	18 Units
L7	8	2	5	0	0	0	15 Units
L8	9	2	4	0	0	0	15 Units
L9	2	0	4	1	4	0	11 Units
L10	2	0	4	1	4	0	11 Units
L11	2	0	4	1	4	0	11 Units
L12	2	0	4	1	4	0	11 Units
Total Units	**82**	**8**	**45**	**9**	**16**	**1**	**161 Units**
Ratio	51%	5%	28%	6%	10%	1%	100%

5.0 AMENITY AREA

5.1 AMENITY AREA REQUIRED

Bylaw Number 2020.384	sq.m.	sq. ft.
Total	**1240.0**	**13,347.2**

5.2 AMENITY AREA PROVIDED

	Outdoor - sq.m.	Indoor - sq.m.	sq.m.	sq. ft.
Level 1	0.00	0.00	0.00	0.0
Level 2 (Balconies)	95.60	0.00	95.60	1,029.0
Level 3 (Balconies)	103.78	0.00	103.78	1,117.1
Level 4 (Balconies)	103.78	0.00	103.78	1,117.1
Level 5 (Balconies)	103.78	0.00	103.78	1,117.1
Level 6 (Balconies)	103.78	0.00	103.78	1,117.1
Level 7 (Balconies & Terraces)	177.63	0.00	177.63	1,912.0
Level 8 (Balconies & Terraces)	146.90	0.00	146.90	1,581.2
Level 9 (Balconies & Terraces)	135.69	0.00	135.69	1,460.5
Level 10 (Balconies)	117.41	0.00	117.41	1,263.7
Level 11 (Balconies)	117.41	0.00	117.41	1,263.7
Level 12 (Balconies)	117.41	0.00	117.41	1,263.7
Level 12 (Indoor and Outdoor Amenity)	232.88	100.93	333.81	3,593.0
Total Amenity Area Provided	**1,556.02**	**100.93**	**1,656.95**	**17,835.3**

6.0 PARKING

6.1 PARKING REQUIRED

Bylaw Number 2020.384	Total
Residential	86 spaces *
Visitor and Non-Residential Shared Parking Spaces	6 spaces **
Total Parking Required	**92 spaces**

* including 4 accessible spaces ** including 2 accessible spaces

6.2 TOTAL PARKING PROVIDED

Residential	Resident	Accessible	Visitor	Total
P2 Level	62	2	0	64 spaces
P1 Level	44	2	0	46 spaces
At Grade	0	0	0	0 spaces
Total Residential Parking				**110 spaces**
Parking Ratio for Residential Scope	**0.68 Parking Ratio**			

Visitor and Non-Residential Parking Spaces	Commercial/Visitor	Accessible	Car Share	Total
At Grade	3	1	2	6 spaces
On Street	0	0	0	0 spaces
Total Commercial Parking				**6 spaces**

6.3 BIKE PARKING PROVIDED	Res. Short Term	Res. Long Term	Comm. Short Term	Comm. Long Term	Total
At Grade	17	0	3	2	22 spaces
P1 Level	0	81	0	0	81 spaces
P2 Level	0	0	0	0	0 spaces
TOTAL BIKE PARKING PROVIDED					**103 Spaces**

6.4 GRAND TOTAL PARKING PROVIDED
116 Parking Spaces
103 Bicycle Spaces

35 PLAINS ROAD EAST

BURLINGTON, ONTARIO

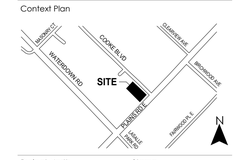
© Copyright KFA Architects and Planners Inc., all rights reserved. No part of this document whether printed form or supplied as digital data may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical photocopying, recording or otherwise without the prior written permission of KFA Architects and Planners Inc..
All dimensions to be checked on site by the contractor. Drawings are not to be scaled, any discrepancies are to be reported to the Architect before proceeding with the work.

Revisions

6	Issued for PAC	2023-11-22
12	Issued for OPA & ZBLA	2024-07-09

Notes

Context Plan



Project North

Stamp

Client

JANIK GROUP
1020 Lawrence Ave West, Suite 302
Toronto, Ontario
M6A 1C8

KFA architects + planners inc.
197 SPADINA AVE - SUITE 500
TORONTO - ON - M5T 2C8
416.633.6226 – telephone
www.kfarchitecture.com

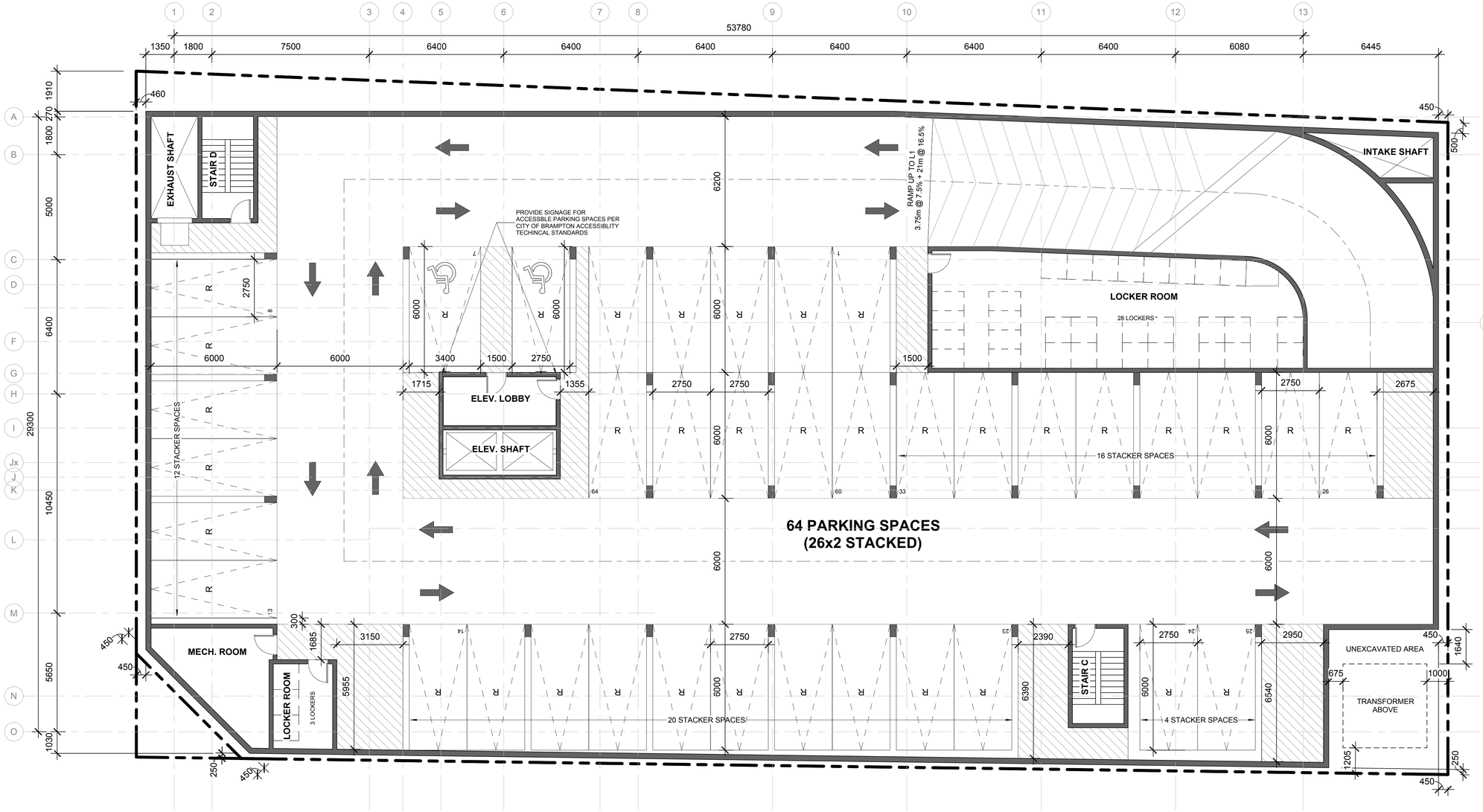
Project No.:	21024
Scale:	1 : 150
Issue Date:	11/21/2023
Drawn By:	AC

Title

SITEPLAN, CONTEXT PLAN & STATS

No.

A001



1 P2 LEVEL
1 : 100

35 PLAINS ROAD EAST

BURLINGTON, ONTARIO

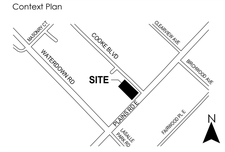
© Copyright KFA Architects and Planners Inc., all rights reserved. No part of this document whether printed form or supplied as digital data may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical photocopying, recording or otherwise without the prior written permission of KFA Architects and Planners Inc..
All dimensions to be checked on site by the contractor. Drawings are not to be scaled, any discrepancies are to be reported to the Architect before proceeding with the work.

Revisions

6	Issued for PAC	2023-11-22
12	Issued for OPA & ZBLA	2024-07-08

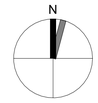
Notes

Context Plan



Project North

Stamp



Client

JANIK GROUP
1020 Lawrence Ave West, Suite 302
Toronto, Ontario
M6A 1C8

KFA architects + planners inc.
197 SPADINA AVE - SUITE 500
TORONTO - ON - M5T 2C8
416.633.6226 - telephone
www.kfarchitecture.com

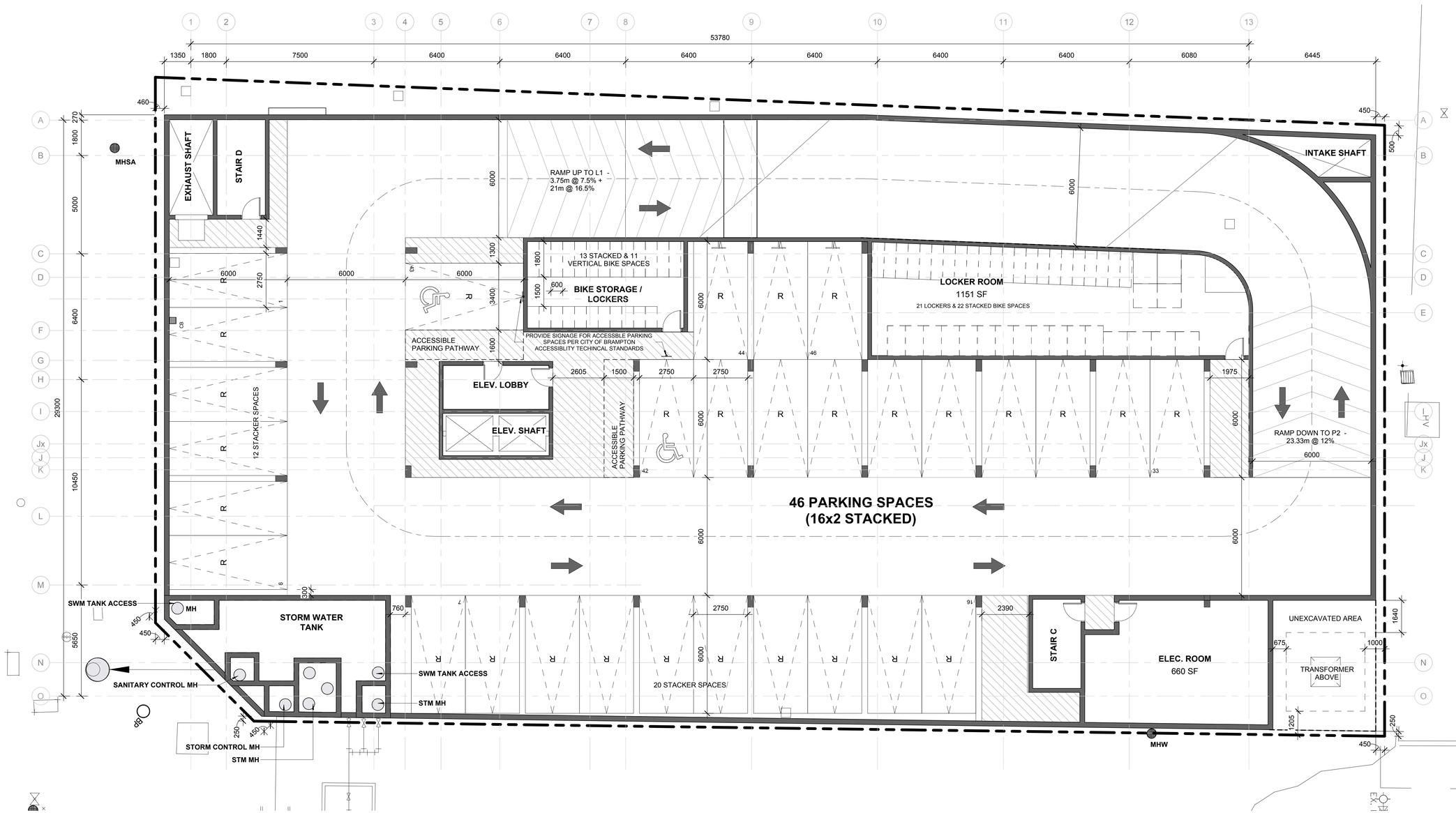
Project No.:	21024
Scale:	1 : 100
Issue Date:	11/21/2023
Drawn By:	AC

Title

P2 FLOOR PLAN

No.

A101



1 P1 LEVEL
1 : 100

TOTAL PARKING

P3 - 62
P2 - 59
P1 - 45
SURFACE - 6
TOTAL = 172

@1.03 = 161 SUITES

35 PLAINS ROAD EAST

BURLINGTON, ONTARIO

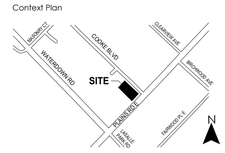
© Copyright KFA Architects and Planners Inc., all rights reserved. No part of this document whether printed form or supplied as digital data may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical photocopying, recording or otherwise without the prior written permission of KFA Architects and Planners Inc..
All dimensions to be checked on site by the contractor. Drawings are not to be scaled, any discrepancies are to be reported to the Architect before proceeding with the work.

Revisions

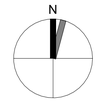
6	Issued for PAC	2023-11-22
12	Issued for OPA & ZBLA	2024-07-08

Notes

Context Plan



Project North



Stamp

Client

JANIK GROUP
1020 Lawrence Ave West, Suite 302
Toronto, Ontario
M6A 1C8

KFA architects + planners inc.
197 SPADINA AVE - SUITE 500
TORONTO - ON - M5T 2C8
416.633.6226 - telephone
www.kfarchitecture.com

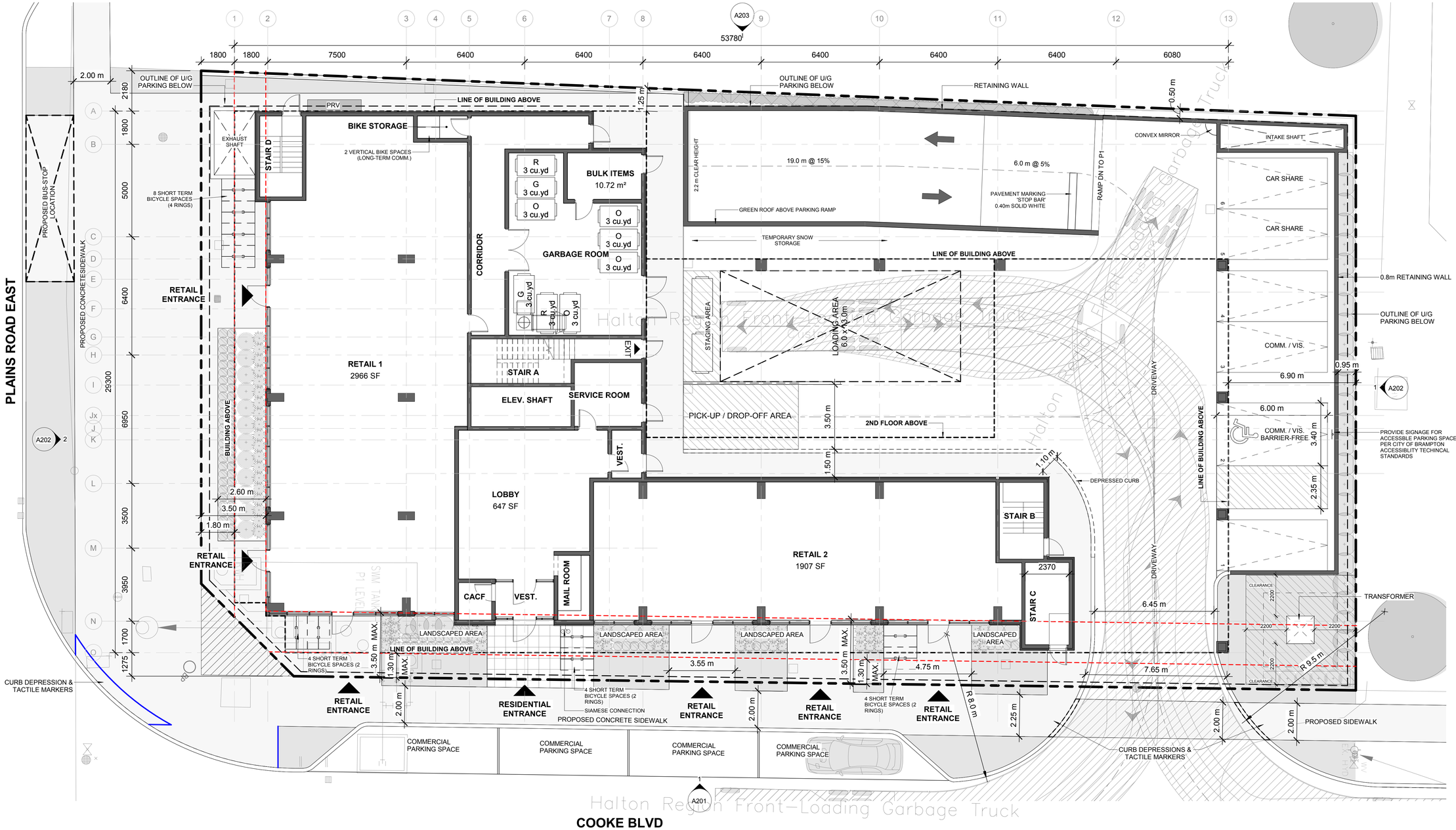
Project No.:	21024
Scale:	1 : 100
Issue Date:	11/21/2023
Drawn By:	AC

Title

P1 FLOOR PLAN

No.

A102



35 PLAINS ROAD EAST

BURLINGTON, ONTARIO

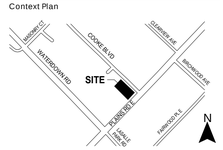
© Copyright KFA Architects and Planners Inc., all rights reserved. No part of this document whether printed form or supplied as digital data may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical photocopying, recording or otherwise without the prior written permission of KFA Architects and Planners Inc..
All dimensions to be checked on site by the contractor. Drawings are not to be scaled, any discrepancies are to be reported to the Architect before proceeding with the work.

Revisions

6	Issued for PAC	2023-11-22
12	Issued for OPA & ZBLA	2024-07-09

Notes

Context Plan



Project North

Stamp

Client

JANIK GROUP
1020 Lawrence Ave West, Suite 302
Toronto, Ontario
M6A 1C8

KFA architects + planners inc.
197 SPADINA AVE • SUITE 500
TORONTO • ON • M5T 2C8
416.633.6226 – telephone
www.kfarchitecture.com

Project No.:	21024
Scale:	1 : 100
Issue Date:	11/21/2023
Drawn By:	AC

Title

GROUND FLOOR PLAN

No.

A103

Appendix B

Terms of Reference

John Nhan

From: Adiga, Smeeta <Smeeta.Adiga@burlington.ca>
Sent: June 5, 2024 11:25 AM
To: John Nhan
Cc: Richard Pernicky; Lucas, Sandra
Subject: FW: NT-24-095 - TIS Terms of Reference - 35 Plains Road East, City of Burlington
Attachments: NT-24-095 - TIS Terms of Reference - 35 Plains Road East.pdf

Importance: High

Hi John,

Thank you for providing the Terms of Reference (TOR) for 35 Plains Road East. Please ensure that any comments from the Region, MTO, and CN Rail are taken into consideration.

The submitted TOR is acceptable.

Here are the relevant City contact and information for your reference:

a. For inquiries related to traffic signals, please reach out to Steve Vrakela at steve.vrakela@burlington.ca
b. For inquiries related to turning movement counts, please reach out to Josip Kafadar at josip.kafadar@burlington.ca
c. For inquiries related to transit, please reach out to Tony Zhuang at Tony.zhuang@burlington.ca
d. Background development information that is to be included within the study is found on the City website. https://www.burlington.ca/Modules/News/en/Development
e. Please incorporate a projected future growth rate of 1% for background traffic within the study, considering a 5-year horizon.

Thanks,

Smeeta Adiga (she/her)
Transportation Planning Technologist
Transportation Services Department

P. 905 335 7600, ext 7691
smeeta.adiga@burlington.ca

426 Brant Street P.O. Box 5013, Burlington, Ontario, L7R 3Z6

City of Burlington | www.burlington.ca

Our working hours may be different. You are not obligated to reply outside of your typical working hours.

From: John Nhan <john@nextrans.ca>
Sent: Sunday, June 2, 2024 2:20 PM
To: Adiga, Smeeta <Smeeta.Adiga@burlington.ca>

Cc: Richard Pernicky <richard@nextrans.ca>
Subject: NT-24-095 - TIS Terms of Reference - 35 Plains Road East, City of Burlington
Importance: High

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Smeeta,

Nextrans has been retained to undertake a Transportation Impact Study for a proposed development at the property of 35 Plains Road East in the City of Burlington. The development proposes a 12-storey building with 161 residential dwelling units and 459 sqm (4,939 sqft) of ground floor retail GFA. Please find attached our TIS Terms of Reference, for your review and comment.

I greatly appreciate if this review can be expedited as the timeline for this file is accelerated.

Thank you,

John Nhan, B.Eng., EIT
Transportation Analyst
o: 905-503-2563 ext.223
e: john@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

This message, including any attachments, is privileged and intended only for the addressee(s) named above. If you are not the intended recipient, you must not read, use or disseminate the information contained in this email/fax. If you have received this email/fax transmission in error, please notify the sender immediately by telephone, fax or email and permanently delete this email from your computer/shred this fax, including any attachments, without making a copy. Access to this email/fax by anyone else is unauthorized. Thank you.

520 Industrial Parkway South, Suite 201
Aurora, Ontario L4G 6W8

Phone: 905-503-2563
www.nextrans.ca

NextEng Consulting Group Inc.

To: Smeeta Adiga, City of Burlington

From: John Nhan, Nextrans Consulting Engineers

Date: June 2, 2024

Re: **Terms of Reference – Transportation Impact Study**
Proposed Mixed-Use Development
35 Plains Road East, City of Burlington
Our Project No.: NT-24-095

INTRODUCTION

We wish to confirm the following work plan for a Transportation Impact Study (TIS) in support of a Zoning By-law Amendment Application for a proposed mixed-use development located at 35 Plains Road East (herein referred to as the "subject site") in the City of Burlington. **Figure 1** illustrates the subject site location. The site plan is enclosed in **Attachment 1**.

Figure 1: Subject Site Location



DEVELOPMENT PROPOSAL

The subject site is currently undeveloped. The development proposes a 12-storey building with 161 residential dwelling units and 458.86 sqm (4,939 sqft) of ground floor retail GFA. The development will provide 116 vehicular parking spaces (110 residential and 6 commercial/visitor spaces) including 2 car-share spaces). A bicycle parking provision of 38 parking spaces will be provided. Vehicular site driveway access will be provided along Cooke Boulevard.

The following outlines the proposed Terms of Reference for the study.

STUDY AREA & TRAFFIC DATA

The proposed intersection study area will include the analysis of the following intersections.

- Plains Road East and Waterdown Road;
- Plains Road East and Cooke Boulevard;
- Plains Road East and Clearview Avenue/Birchwood Avenue;
- Plains Road East and St. Matthews Avenue;
- Masonry Court/Railway Road and Waterdown Road;
- Masonry Court and Cooke Boulevard; and
- Proposed Site Access and Cooke Boulevard.

A Turning Movement Count (TMC) survey of the studied intersections will be undertaken during one weekday during the AM and PM peak periods of 7:00am to 10:00am and 4:00pm to 7:00pm, respectively. Weekday AM and PM peak hour traffic data captured from the foregoing peak periods will be used within the study.

TRAFFIC ASSESSMENT & STUDY HORIZON YEAR

The TIS for the proposed development will be conducted following the Region of Halton Transportation Impact Study Guidelines dated January 2015.

The study will assess the weekday AM and PM peak hour traffic operations for the existing, future background, and future total conditions. Synchro version 10 will be used for intersection capacity analysis based on HCM 2000 methodology.

Given the scale of the development and the context area, the following horizon years will be assessed.

- Existing baseline year
- 5-year horizon

BACKGROUND TRAFFIC

General Corridor Growth Rate

Nextrans will consult with City staff as necessary to determine corridor growth rates within the study area.

Road Network Improvements

Road network improvements identified within the study area and any traffic diversions associated with these improvements will be accounted for within the traffic operations analysis. It is our understanding that there are no road improvements identified at this time within the proposed study area.

Background Development Traffic

Nextrans has identified the following background development within an approximately 1-km radius surrounding the subject site that will be considered within the traffic analysis as site-specific background development traffic volumes.

- 40-70 Plains Road East
- 53 and 71 Plains Road East
- 92 Plains Road East

- 284-292 Plains Road East
- 1010 Downsview Drive and 355 Plains Road East
- 1029 and 1033 Waterdown Road
- 1062-1074 Cooke Boulevard
- 1085 Clearview Avenue
- 1120 Cooke Boulevard

TRIP GENERATION, DISTRIBUTION, & ASSIGNMENT

Trip Generation

Nextrans proposes to use the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition to determine the site traffic volumes generated from the proposed development onto the studied intersection road network.

Trip Distribution and Assignment

The residential trip distribution will be based on a review of 2016 Transportation Tomorrow Survey (TTS) data. Trip assignment will be completed accordingly to reflect the configuration of the proposed site access, turning restrictions, and logical routings. Retail/commercial trip distribution will be based on a review of the TMC existing distribution of the study area.

REMEDIAL MEASURES

Under future conditions for signalized and unsignalized intersections, any critical movements will be identified that experience or exceed the critical thresholds noted in Section 3.6.1 of the Region of Halton Transportation Impact Study Guidelines. Remedial actions such as intersection road improvements (e.g. road widening, additional road lane) or signal timing split optimization (cycle length will remain unchanged) will be considered as necessary. If remedial measures are to be employed, a scenario will be provided demonstrating the change in intersection operations.

TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN

A review of existing nearby transportation facilities and possible initiatives and policies to promote and encourage modes of transportation in lieu of single occupant vehicle (SOV) trips will be made to influence the travel behaviour of residents and visitors to reduce travel demand and create a more efficient transportation network. TDM measures that are recommended to be implemented for the subject site will be summarized.

PARKING AND LOADING REVIEW

The study will provide a review of the proposed vehicular parking, bicycle parking, accessible parking, and loading provisions against the minimum requirements from the Town's Zoning By-law 2020, as amended.

VEHICULAR SITE CIRCULATION

A vehicle swept path analysis using AutoTURN software will be undertaken to confirm the on-site functionality of driveway entrances, drive aisles, parking spaces, loading spaces, etc., of the subject site for typical vehicles that are intended to access the subject site.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

NEXTRANS CONSULTING ENGINEERS



John Nhan, B.Eng., EIT
Transportation Analyst

Enclosed: Attachment 1: Site Plan

Appendix C

Existing Traffic Data

Spectrum

Turning Movement Count
Location Name: MASONRY CRT & COOKE BLVD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (6 . MASONRY CRT & COOKE BLVD)

Start Time	Southbound NORTH DRIVEWAY						Westbound MASONARY CT						Northbound COOKE BLVD						Eastbound MASONARY CT						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	4	3	0	0	1	7	0	14	5	0	0	19	14	0	1	0	0	15	2	58	0	0	0	60	101	
07:15:00	4	0	0	0	2	4	0	20	8	0	3	28	11	0	2	0	0	13	4	79	1	0	0	84	129	
07:30:00	5	2	0	0	1	7	0	25	9	0	4	34	23	0	3	0	2	26	2	66	1	0	0	69	136	
07:45:00	2	2	0	0	1	4	0	17	6	0	3	23	13	1	6	0	0	20	9	51	1	0	1	61	108	474
08:00:00	3	3	0	0	1	6	0	18	10	0	2	28	4	4	4	0	0	12	2	20	1	0	0	23	69	442
08:15:00	4	2	0	0	1	6	0	13	4	0	0	17	10	3	2	0	0	15	6	20	0	0	0	26	64	377
08:30:00	2	4	0	0	4	6	0	14	1	0	1	15	5	2	7	0	2	14	9	18	4	0	5	31	66	307
08:45:00	3	1	0	0	13	4	0	13	4	0	1	17	3	6	5	0	1	14	7	20	0	0	10	27	62	261
09:00:00	2	1	0	0	7	3	0	11	5	0	1	16	7	0	2	0	0	9	6	11	2	0	0	19	47	239
09:15:00	2	3	1	0	5	6	0	11	6	0	3	17	4	3	3	0	0	10	4	16	6	0	2	26	59	234
09:30:00	3	2	0	0	12	5	0	6	3	0	6	9	2	2	7	0	0	11	3	11	3	0	0	17	42	210
09:45:00	1	1	0	0	1	2	0	5	6	0	4	11	2	3	7	0	2	12	1	18	0	0	0	19	44	192
BREAK																										
16:00:00	2	0	0	0	0	2	0	15	4	0	1	19	8	4	11	0	0	23	2	12	6	0	0	20	64	
16:15:00	1	2	0	0	1	3	0	24	1	0	2	25	3	2	11	0	1	16	5	18	2	0	0	25	69	
16:30:00	3	6	0	0	2	9	0	30	16	0	2	46	10	3	22	0	0	35	2	21	8	0	1	31	121	
16:45:00	2	1	0	0	0	3	0	60	23	0	2	83	12	3	16	0	0	31	0	21	2	0	0	23	140	394
17:00:00	2	4	0	0	0	6	0	45	4	0	1	49	5	4	20	0	0	29	2	11	9	0	0	22	106	436
17:15:00	6	2	0	0	2	8	0	59	23	0	6	82	10	3	7	0	1	20	1	15	5	0	1	21	131	498
17:30:00	4	2	0	0	4	6	0	24	19	0	3	43	2	1	10	0	1	13	4	12	8	0	1	24	86	463
17:45:00	3	3	1	0	2	7	3	58	13	0	2	74	9	5	7	0	0	21	0	16	6	0	0	22	124	447
18:00:00	4	3	1	0	2	8	0	35	16	0	1	51	5	4	4	0	0	13	1	8	3	0	0	12	84	425
18:15:00	6	2	0	0	0	8	0	39	15	0	3	54	11	4	4	0	0	19	1	13	3	0	1	17	98	392
18:30:00	4	0	0	0	0	4	0	54	10	0	1	64	5	8	6	0	0	19	0	8	5	0	0	13	100	406
18:45:00	4	0	0	0	1	4	0	18	9	0	2	27	5	1	7	0	0	13	1	11	6	0	0	18	62	344
Grand Total	76	49	3	0	63	128	3	628	220	0	54	851	183	66	174	0	10	423	74	554	82	0	22	710	**2112**	-
Approach%	59.4%	38.3%	2.3%	0%		-	0.4%	73.8%	25.9%	0%		-	43.3%	15.6%	41.1%	0%		-	10.4%	78%	11.5%	0%		-	**-**	-
Totals %	3.6%	2.3%	0.1%	0%		6.1%	0.1%	29.7%	10.4%	0%		40.3%	8.7%	3.1%	8.2%	0%		20%	3.5%	26.2%	3.9%	0%		33.6%	**-**	-
Heavy	0	0	1	0		-	0	2	0	0		-	1	1	3	0		-	15	0	0	0		-	**-**	-
Heavy %	0%	0%	33.3%	0%		-	0%	0.3%	0%	0%		-	0.5%	1.5%	1.7%	0%		-	20.3%	0%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Peak Hour: 07:00 AM - 08:00 AM Weather: Broken Clouds (17.74 °C)

Start Time	Southbound NORTH DRIVEWAY						Westbound MASONARY CT						Northbound COOKE BLVD						Eastbound MASONARY CT						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:00:00	4	3	0	0	1	7	0	14	5	0	0	19	14	0	1	0	0	15	2	58	0	0	0	60	101
07:15:00	4	0	0	0	2	4	0	20	8	0	3	28	11	0	2	0	0	13	4	79	1	0	0	84	129
07:30:00	5	2	0	0	1	7	0	25	9	0	4	34	23	0	3	0	2	26	2	66	1	0	0	69	136
07:45:00	2	2	0	0	1	4	0	17	6	0	3	23	13	1	6	0	0	20	9	51	1	0	1	61	108
Grand Total	15	7	0	0	5	22	0	76	28	0	10	104	61	1	12	0	2	74	17	254	3	0	1	274	**474**
Approach%	68.2%	31.8%	0%	0%		-	0%	73.1%	26.9%	0%		-	82.4%	1.4%	16.2%	0%		-	6.2%	92.7%	1.1%	0%		-	**-**
Totals %	3.2%	1.5%	0%	0%		4.6%	0%	16%	5.9%	0%		21.9%	12.9%	0.2%	2.5%	0%		15.6%	3.6%	53.6%	0.6%	0%		57.8%	**-**
PHF	0.75	0.58	0	0		0.79	0	0.76	0.78	0		0.76	0.66	0.25	0.5	0		0.71	0.47	0.8	0.75	0		0.82	**-**
Heavy	0	0	0	0		0	0	0	0	0		0	1	0	1	0		2	3	0	0	0		3	**-**
Heavy %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.6%	0%	8.3%	0%		2.7%	17.6%	0%	0%	0%		1.1%	**-**
Lights	14	7	0	0		21	0	75	28	0		103	60	1	11	0		72	14	254	3	0		271	**-**
Lights %	93.3%	100%	0%	0%		95.5%	0%	98.7%	100%	0%		99%	98.4%	100%	91.7%	0%		97.3%	82.4%	100%	100%	0%		98.9%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.6%	0%	0%	0%		1.4%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	1	0		1	3	0	0	0		3	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	8.3%	0%		1.4%	17.6%	0%	0%	0%		1.1%	**-**
Bicycles on Road	1	0	0	0		1	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	6.7%	0%	0%	0%		4.5%	0%	1.3%	0%	0%		1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	5	-	-	-	-	-	10	-	-	-	-	-	2	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	27.8%		-	-	-	-	55.6%		-	-	-	-	11.1%		-	-	-	-	5.6%		**-**

Spectrum

Turning Movement Count
Location Name: MASONRY CRT & COOKE BLVD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

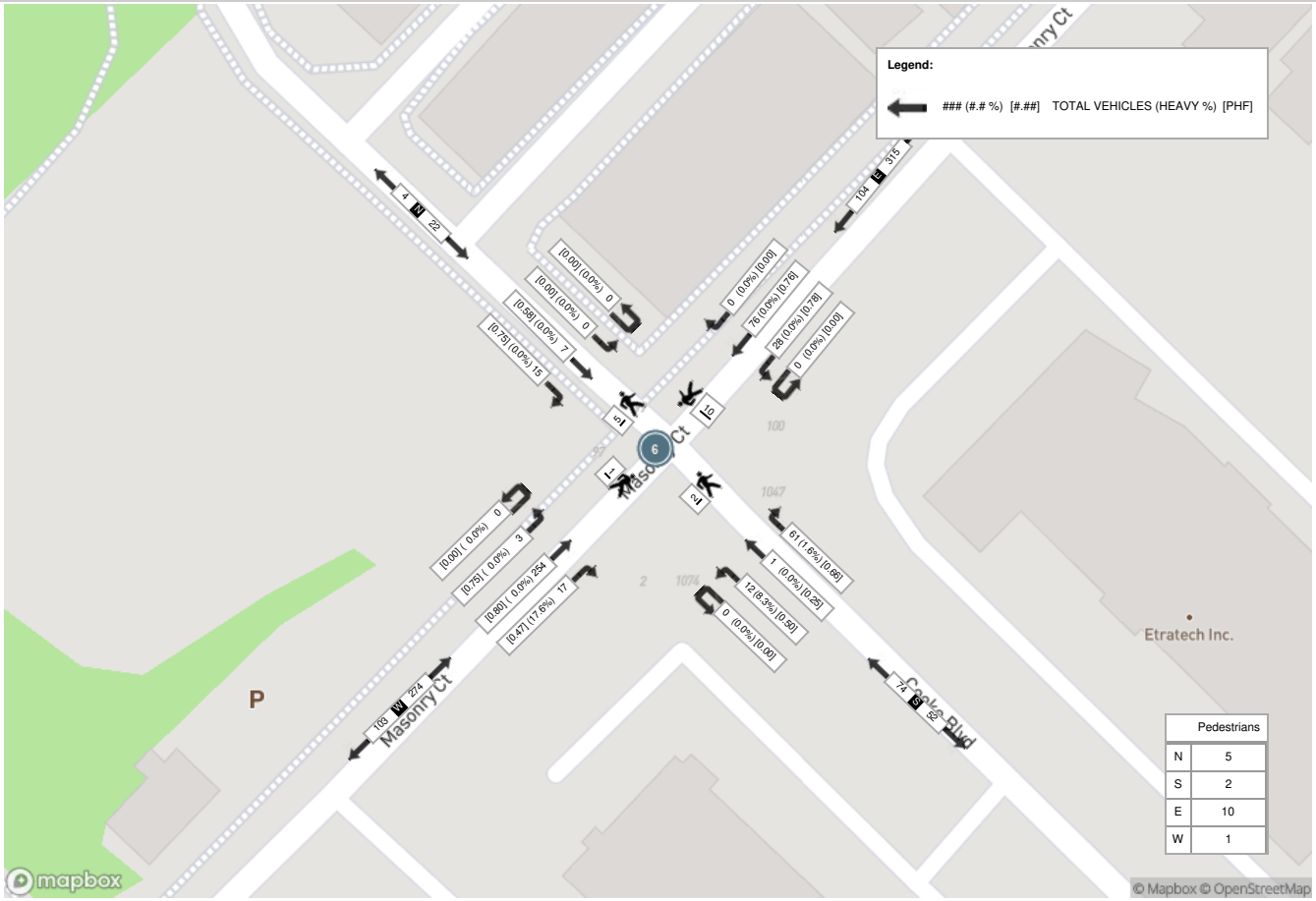
NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (26.81 °C)

Start Time	Southbound NORTH DRIVEWAY						Westbound MASONARY CT						Northbound COOKE BLVD						Eastbound MASONARY CT						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	3	6	0	0	2	9	0	30	16	0	2	46	10	3	22	0	0	35	2	21	8	0	1	31	121
16:45:00	2	1	0	0	0	3	0	60	23	0	2	83	12	3	16	0	0	31	0	21	2	0	0	23	140
17:00:00	2	4	0	0	0	6	0	45	4	0	1	49	5	4	20	0	0	29	2	11	9	0	0	22	106
17:15:00	6	2	0	0	2	8	0	59	23	0	6	82	10	3	7	0	1	20	1	15	5	0	1	21	131
Grand Total	13	13	0	0	4	26	0	194	66	0	11	260	37	13	65	0	1	115	5	68	24	0	2	97	**498**
Approach%	50%	50%	0%	0%		-	0%	74.6%	25.4%	0%		-	32.2%	11.3%	56.5%	0%		-	5.2%	70.1%	24.7%	0%		-	**-**
Totals %	2.6%	2.6%	0%	0%		5.2%	0%	39%	13.3%	0%		52.2%	7.4%	2.6%	13.1%	0%		23.1%	1%	13.7%	4.8%	0%		19.5%	**-**
PHF	0.54	0.54	0	0		0.72	0	0.81	0.72	0		0.78	0.77	0.81	0.74	0		0.82	0.63	0.81	0.67	0		0.78	**-**
Heavy	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	1	0	0	0		1	**-**
Heavy %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	20%	0%	0%	0%		1%	**-**
Lights	13	11	0	0		24	0	192	65	0		257	36	13	65	0		114	4	68	24	0		96	**-**
Lights %	100%	84.6%	0%	0%		92.3%	0%	99%	98.5%	0%		98.8%	97.3%	100%	100%	0%		99.1%	80%	100%	100%	0%		99%	**-**
Single-Unit Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	20%	0%	0%	0%		1%	**-**
Bicycles on Road	0	2	0	0		2	0	1	1	0		2	1	0	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	15.4%	0%	0%		7.7%	0%	0.5%	1.5%	0%		0.8%	2.7%	0%	0%	0%		0.9%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	4	-	-	-	-	-	11	-	-	-	-	-	1	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	22.2%		-	-	-	-	61.1%		-	-	-	-	5.6%		-	-	-	-	11.1%		**-**

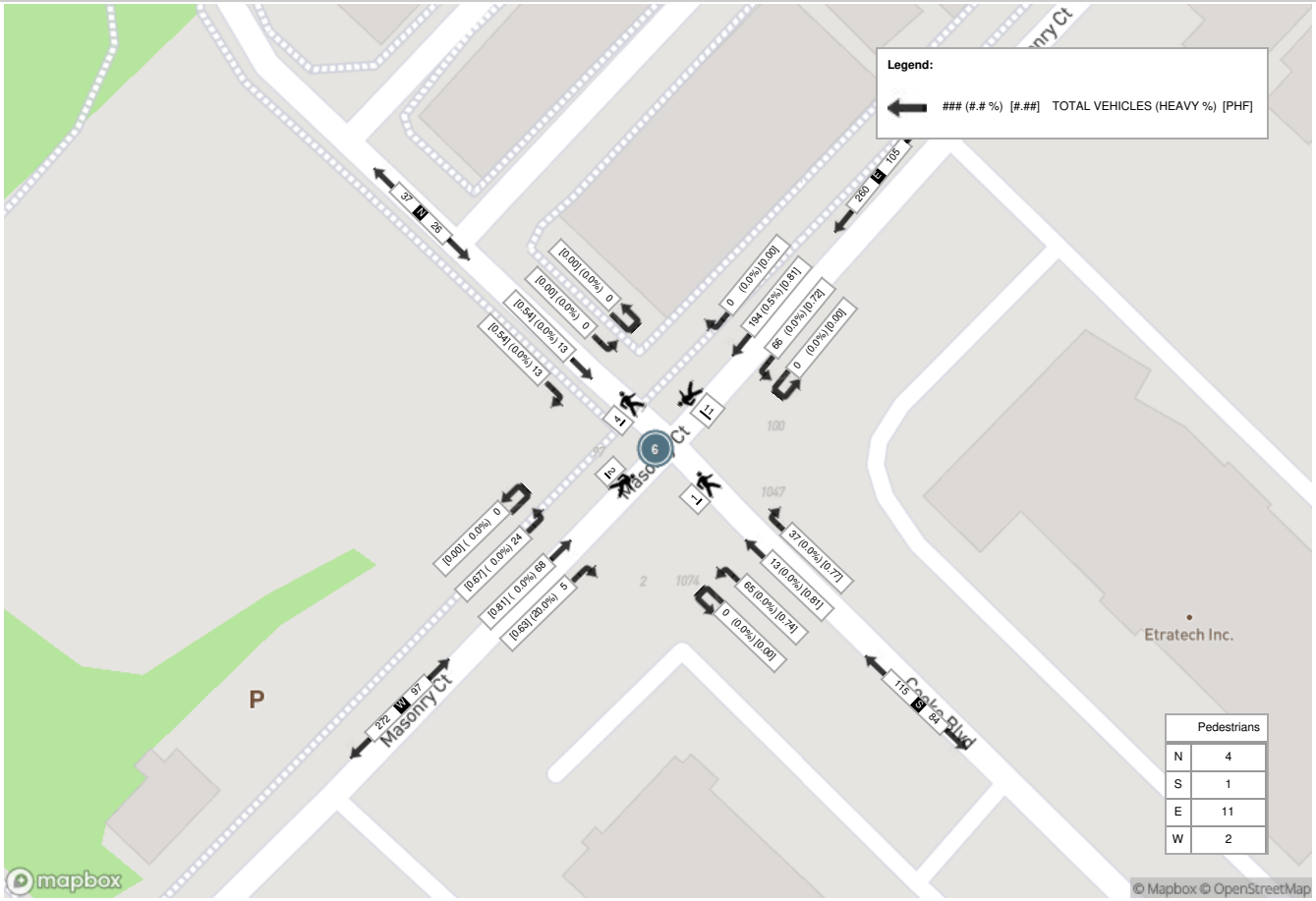
NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:00 AM - 08:00 AM **Weather: Broken Clouds (17.74 °C)**



	Pedestrians
N	5
S	2
E	10
W	1

Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (26.81 °C)



Spectrum

Turning Movement Count
Location Name: MASONRY CT / RAILWAY RD & WATERDOWN RD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (5 . MASONRY CT / RAILWAY RD & WATERDOWN RD)

Start Time	Southbound WATERDOWN RD						Westbound MASONRY CT						Northbound WATERDOWN RD						Eastbound RAILWAY RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	3	56	48	0	0	107	18	0	0	0	0	18	8	133	1	0	0	142	0	0	3	0	0	3	270	
07:15:00	4	72	66	0	0	142	25	0	4	0	3	29	19	154	10	0	0	183	2	0	7	0	1	9	363	
07:30:00	4	92	61	0	0	157	29	0	4	0	1	33	15	167	3	0	0	185	0	0	6	0	0	6	381	
07:45:00	3	124	46	0	0	173	25	0	1	0	1	26	19	184	0	0	1	203	4	0	4	0	0	8	410	1424
08:00:00	9	165	21	0	0	195	25	0	3	0	0	28	6	211	5	0	0	222	3	0	6	0	0	9	454	1608
08:15:00	5	114	26	0	0	145	19	0	1	0	1	20	4	201	3	0	1	208	3	0	7	0	2	10	383	1628
08:30:00	4	137	29	0	0	170	24	0	1	0	2	25	4	203	0	0	0	207	3	0	6	0	1	9	411	1658
08:45:00	2	133	27	0	0	162	20	0	2	0	1	22	5	155	2	0	0	162	5	0	1	0	0	6	352	1600
09:00:00	5	108	19	0	0	132	17	0	0	0	1	17	2	128	1	0	2	131	0	0	4	0	0	4	284	1430
09:15:00	1	137	26	0	0	164	17	0	0	0	3	17	1	146	0	0	0	147	0	0	5	0	1	5	333	1380
09:30:00	11	136	18	0	0	165	16	0	1	0	0	17	2	131	3	0	0	136	1	0	3	0	0	4	322	1291
09:45:00	6	124	20	0	0	150	15	0	0	0	1	15	3	90	1	0	0	94	4	0	10	0	0	14	273	1212
BREAK																										
16:00:00	3	136	17	0	0	156	29	0	2	0	0	31	4	139	1	0	0	144	2	0	4	0	2	6	337	
16:15:00	8	137	18	0	0	163	26	0	4	0	2	30	5	128	6	0	0	139	2	0	5	0	3	7	339	
16:30:00	6	149	29	0	0	184	59	0	5	0	1	64	10	140	1	0	0	151	2	0	3	0	0	5	404	
16:45:00	3	132	16	0	0	151	74	0	9	0	1	83	4	147	2	1	0	154	2	0	5	0	0	7	395	1475
17:00:00	2	178	20	0	0	200	59	1	12	0	1	72	3	147	1	0	0	151	4	0	2	0	2	6	429	1567
17:15:00	2	249	20	0	0	271	64	0	11	0	1	75	7	109	0	2	0	118	6	0	2	0	0	8	472	1700
17:30:00	3	200	24	0	0	227	34	0	4	0	0	38	0	110	0	0	0	110	0	0	2	0	0	2	377	1673
17:45:00	0	137	20	0	0	157	63	0	7	0	0	70	6	113	1	0	0	120	1	0	1	0	0	2	349	1627
18:00:00	2	179	14	0	0	195	34	0	10	0	0	44	2	127	0	0	0	129	0	0	1	0	0	1	369	1567
18:15:00	2	147	17	0	0	166	37	0	10	0	0	47	3	118	1	0	0	122	1	0	0	0	1	1	336	1431
18:30:00	2	121	8	0	0	131	60	0	9	0	0	69	4	92	0	0	0	96	1	0	2	0	0	3	299	1353
18:45:00	2	106	18	0	0	126	23	0	2	0	2	25	2	102	0	0	1	104	0	0	1	0	0	1	256	1260
Grand Total	92	3269	628	0	0	3989	812	1	102	0	22	915	138	3375	42	3	5	3558	46	0	90	0	13	136	**8598**	-
Approach%	2.3%	82%	15.7%	0%		-	88.7%	0.1%	11.1%	0%		-	3.9%	94.9%	1.2%	0.1%		-	33.8%	0%	66.2%	0%		-	**-**	-
Totals %	1.1%	38%	7.3%	0%		46.4%	9.4%	0%	1.2%	0%		10.6%	1.6%	39.3%	0.5%	0%		41.4%	0.5%	0%	1%	0%		1.6%	**-**	-
Heavy	48	97	15	0		-	3	0	1	0		-	1	108	6	0		-	6	0	46	0		-	**-**	-
Heavy %	52.2%	3%	2.4%	0%		-	0.4%	0%	1%	0%		-	0.7%	3.2%	14.3%	0%		-	13%	0%	51.1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: MASONRY CT / RAILWAY RD & WATERDOWN RD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Broken Clouds (17.74 °C)

Start Time	Southbound WATERDOWN RD						Westbound MASONRY CT						Northbound WATERDOWN RD						Eastbound RAILWAY RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	3	124	46	0	0	173	25	0	1	0	1	26	19	184	0	0	1	203	4	0	4	0	0	8	410
08:00:00	9	165	21	0	0	195	25	0	3	0	0	28	6	211	5	0	0	222	3	0	6	0	0	9	454
08:15:00	5	114	26	0	0	145	19	0	1	0	1	20	4	201	3	0	1	208	3	0	7	0	2	10	383
08:30:00	4	137	29	0	0	170	24	0	1	0	2	25	4	203	0	0	0	207	3	0	6	0	1	9	411
Grand Total	21	540	122	0	0	683	93	0	6	0	4	99	33	799	8	0	2	840	13	0	23	0	3	36	**1658**
Approach%	3.1%	79.1%	17.9%	0%		-	93.9%	0%	6.1%	0%		-	3.9%	95.1%	1%	0%		-	36.1%	0%	63.9%	0%		-	**-**
Totals %	1.3%	32.6%	7.4%	0%		41.2%	5.6%	0%	0.4%	0%		6%	2%	48.2%	0.5%	0%		50.7%	0.8%	0%	1.4%	0%		2.2%	**-**
PHF	0.58	0.82	0.66	0		0.88	0.93	0	0.5	0		0.88	0.43	0.95	0.4	0		0.95	0.81	0	0.82	0		0.9	**-**
Heavy	8	18	4	0		30	0	0	0	0		0	0	31	1	0		32	1	0	13	0		14	**-**
Heavy %	38.1%	3.3%	3.3%	0%		4.4%	0%	0%	0%	0%		0%	0%	3.9%	12.5%	0%		3.8%	7.7%	0%	56.5%	0%		38.9%	**-**
Lights	13	522	118	0		653	93	0	6	0		99	33	767	7	0		807	12	0	10	0		22	**-**
Lights %	61.9%	96.7%	96.7%	0%		95.6%	100%	0%	100%	0%		100%	100%	96%	87.5%	0%		96.1%	92.3%	0%	43.5%	0%		61.1%	**-**
Single-Unit Trucks	8	11	0	0		19	0	0	0	0		0	0	16	1	0		17	1	0	12	0		13	**-**
Single-Unit Trucks %	38.1%	2%	0%	0%		2.8%	0%	0%	0%	0%		0%	0%	2%	12.5%	0%		2%	7.7%	0%	52.2%	0%		36.1%	**-**
Buses	0	6	4	0		10	0	0	0	0		0	0	11	0	0		11	0	0	0	0		0	**-**
Buses %	0%	1.1%	3.3%	0%		1.5%	0%	0%	0%	0%		0%	0%	1.4%	0%	0%		1.3%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	0	4	0	0		4	0	0	1	0		1	**-**
Articulated Trucks %	0%	0.2%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	4.3%	0%		2.8%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	3	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	44.4%		-	-	-	-	22.2%		-	-	-	-	33.3%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: MASONRY CT / RAILWAY RD & WATERDOWN RD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (26.81 °C)

Start Time	Southbound WATERDOWN RD						Westbound MASONRY CT						Northbound WATERDOWN RD						Eastbound RAILWAY RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	6	149	29	0	0	184	59	0	5	0	1	64	10	140	1	0	0	151	2	0	3	0	0	5	404
16:45:00	3	132	16	0	0	151	74	0	9	0	1	83	4	147	2	1	0	154	2	0	5	0	0	7	395
17:00:00	2	178	20	0	0	200	59	1	12	0	1	72	3	147	1	0	0	151	4	0	2	0	2	6	429
17:15:00	2	249	20	0	0	271	64	0	11	0	1	75	7	109	0	2	0	118	6	0	2	0	0	8	472
Grand Total	13	708	85	0	0	806	256	1	37	0	4	294	24	543	4	3	0	574	14	0	12	0	2	26	**1700**
Approach%	1.6%	87.8%	10.5%	0%		-	87.1%	0.3%	12.6%	0%		-	4.2%	94.6%	0.7%	0.5%		-	53.8%	0%	46.2%	0%		-	**-**
Totals %	0.8%	41.6%	5%	0%		47.4%	15.1%	0.1%	2.2%	0%		17.3%	1.4%	31.9%	0.2%	0.2%		33.8%	0.8%	0%	0.7%	0%		1.5%	**-**
PHF	0.54	0.71	0.73	0		0.74	0.86	0.25	0.77	0		0.89	0.6	0.92	0.5	0.38		0.93	0.58	0	0.6	0		0.81	**-**
Heavy	6	11	2	0		19	1	0	0	0		1	0	13	1	0		14	0	0	0	0		0	**-**
Heavy %	46.2%	1.6%	2.4%	0%		2.4%	0.4%	0%	0%	0%		0.3%	0%	2.4%	25%	0%		2.4%	0%	0%	0%	0%		0%	**-**
Lights	7	694	83	0		784	254	1	37	0		292	24	530	3	3		560	14	0	12	0		26	**-**
Lights %	53.8%	98%	97.6%	0%		97.3%	99.2%	100%	100%	0%		99.3%	100%	97.6%	75%	100%		97.6%	100%	0%	100%	0%		100%	**-**
Single-Unit Trucks	5	6	1	0		12	1	0	0	0		1	0	6	1	0		7	0	0	0	0		0	**-**
Single-Unit Trucks %	38.5%	0.8%	1.2%	0%		1.5%	0.4%	0%	0%	0%		0.3%	0%	1.1%	25%	0%		1.2%	0%	0%	0%	0%		0%	**-**
Buses	0	3	1	0		4	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	**-**
Buses %	0%	0.4%	1.2%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.9%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	1	2	0	0		3	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Articulated Trucks %	7.7%	0.3%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	3	0	0		3	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0.4%	0%	0%		0.4%	0.4%	0%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	0%		-	-	-	-	33.3%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	16.7%		-	-	-	-	0%		-	-	-	-	0%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (17.74 °C)**



NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Broken Clouds (26.81 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	0
E	1	3
W	0	2

Spectrum

Turning Movement Count
Location Name: PLAINS RD E & CLEARVIEW AVE / BIRCHWOOD AVE
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (3 . PLAINS RD E & CLEARVIEW AVE / BIRCHWOOD AVE)

Start Time	Southbound CLEARVIEW AVE						Westbound PLAINS RD E						Northbound BIRCHWOOD AVE						Eastbound PLAINS RD E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	2	0	0	0	5	2	0	80	0	0	0	80	2	0	0	0	1	2	0	180	0	0	0	180	264	
07:15:00	0	0	1	0	4	1	0	90	0	0	0	90	2	0	1	0	5	3	0	185	0	0	0	185	279	
07:30:00	4	0	1	0	0	5	0	116	1	0	1	117	2	0	0	0	4	2	1	260	2	0	0	263	387	
07:45:00	5	1	1	0	2	7	0	144	1	0	0	145	6	0	1	0	5	7	1	260	2	0	0	263	422	1352
08:00:00	4	0	1	0	3	5	2	154	3	0	0	159	13	0	3	0	1	16	2	280	0	0	0	282	462	1550
08:15:00	1	0	1	0	1	2	1	133	1	0	0	135	5	0	0	0	2	5	1	236	0	0	0	237	379	1650
08:30:00	0	0	1	0	1	1	1	173	2	0	0	176	8	0	0	0	1	8	0	225	0	0	1	225	410	1673
08:45:00	1	0	1	0	0	2	1	140	1	0	0	142	5	0	1	0	1	6	3	225	0	0	0	228	378	1629
09:00:00	1	0	1	0	3	2	1	132	2	0	0	135	3	0	0	0	2	3	2	217	1	0	0	220	360	1527
09:15:00	2	0	0	0	1	2	0	145	2	0	0	147	4	0	1	0	2	5	1	171	1	0	0	173	327	1475
09:30:00	2	0	1	0	2	3	0	135	2	0	0	137	0	0	0	0	12	0	0	189	0	0	0	189	329	1394
09:45:00	2	0	0	0	2	2	0	156	3	0	0	159	3	0	0	0	2	3	2	182	1	0	1	185	349	1365
BREAK																										
16:00:00	2	0	1	0	1	3	2	271	5	0	0	278	2	0	0	0	2	2	2	182	0	0	0	184	467	
16:15:00	0	0	1	0	1	1	2	274	1	0	0	277	2	1	1	0	1	4	1	176	2	0	0	179	461	
16:30:00	3	1	1	0	2	5	2	323	1	0	0	326	2	0	0	0	4	2	3	229	0	0	0	232	565	
16:45:00	2	0	1	0	2	3	1	347	3	0	0	351	1	0	2	0	3	3	3	191	0	1	0	195	552	2045
17:00:00	3	0	0	0	2	3	0	325	3	0	0	328	3	0	1	0	1	4	1	219	1	0	0	221	556	2134
17:15:00	2	0	2	0	3	4	1	296	4	0	0	301	5	1	0	0	2	6	2	225	2	0	0	229	540	2213
17:30:00	0	0	1	0	2	1	0	286	2	0	0	288	1	0	0	0	1	1	2	232	1	0	0	235	525	2173
17:45:00	3	0	0	0	1	3	1	241	3	0	0	245	1	0	0	0	4	1	1	167	0	0	0	168	417	2038
18:00:00	3	0	0	0	1	3	0	267	2	0	0	269	2	0	0	0	5	2	2	154	3	0	0	159	433	1915
18:15:00	2	0	2	0	2	4	1	277	4	0	0	282	3	0	0	0	4	3	1	143	0	0	0	144	433	1808
18:30:00	3	0	1	0	1	4	2	214	5	1	0	222	1	0	0	0	4	1	0	141	0	0	0	141	368	1651
18:45:00	1	0	0	0	0	1	1	186	0	0	0	187	4	0	1	0	2	5	1	131	3	0	0	135	328	1562
Grand Total	48	2	19	0	42	69	19	4905	51	1	1	4976	80	2	12	0	71	94	32	4800	19	1	2	4852	**9991**	-
Approach%	69.6%	2.9%	27.5%	0%		-	0.4%	98.6%	1%	0%		-	85.1%	2.1%	12.8%	0%		-	0.7%	98.9%	0.4%	0%		-	**-**	-
Totals %	0.5%	0%	0.2%	0%		0.7%	0.2%	49.1%	0.5%	0%		49.8%	0.8%	0%	0.1%	0%		0.9%	0.3%	48%	0.2%	0%		48.6%	**-**	-
Heavy	1	0	0	0		-	0	123	1	0		-	0	0	1	0		-	2	119	0	0		-	**-**	-
Heavy %	2.1%	0%	0%	0%		-	0%	2.5%	2%	0%		-	0%	0%	8.3%	0%		-	6.3%	2.5%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (17.74 °C)**

Start Time	Southbound CLEARVIEW AVE						Westbound PLAINS RD E						Northbound BIRCHWOOD AVE						Eastbound PLAINS RD E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	5	1	1	0	2	7	0	144	1	0	0	145	6	0	1	0	5	7	1	260	2	0	0	263	422
08:00:00	4	0	1	0	3	5	2	154	3	0	0	159	13	0	3	0	1	16	2	280	0	0	0	282	462
08:15:00	1	0	1	0	1	2	1	133	1	0	0	135	5	0	0	0	2	5	1	236	0	0	0	237	379
08:30:00	0	0	1	0	1	1	1	173	2	0	0	176	8	0	0	0	1	8	0	225	0	0	1	225	410
Grand Total	10	1	4	0	7	15	4	604	7	0	0	615	32	0	4	0	9	36	4	1001	2	0	1	1007	**1673**
Approach%	66.7%	6.7%	26.7%	0%		-	0.7%	98.2%	1.1%	0%		-	88.9%	0%	11.1%	0%		-	0.4%	99.4%	0.2%	0%		-	**-**
Totals %	0.6%	0.1%	0.2%	0%		0.9%	0.2%	36.1%	0.4%	0%		36.8%	1.9%	0%	0.2%	0%		2.2%	0.2%	59.8%	0.1%	0%		60.2%	**-**
PHF	0.5	0.25	1	0		0.54	0.5	0.87	0.58	0		0.87	0.62	0	0.33	0		0.56	0.5	0.89	0.25	0		0.89	**-**
Heavy	0	0	0	0		0	0	31	0	0		31	0	0	0	0		0	0	34	0	0		34	**-**
Heavy %	0%	0%	0%	0%		0%	0%	5.1%	0%	0%		5%	0%	0%	0%	0%		0%	0%	3.4%	0%	0%		3.4%	**-**
Lights	10	1	4	0		15	4	573	7	0		584	32	0	4	0		36	4	962	2	0		968	**-**
Lights %	100%	100%	100%	0%		100%	100%	94.9%	100%	0%		95%	100%	0%	100%	0%		100%	100%	96.1%	100%	0%		96.1%	**-**
Single-Unit Trucks	0	0	0	0		0	0	14	0	0		14	0	0	0	0		0	0	18	0	0		18	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	2.3%	0%	0%		2.3%	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.8%	**-**
Buses	0	0	0	0		0	0	17	0	0		17	0	0	0	0		0	0	15	0	0		15	**-**
Buses %	0%	0%	0%	0%		0%	0%	2.8%	0%	0%		2.8%	0%	0%	0%	0%		0%	0%	1.5%	0%	0%		1.5%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	5	0	0		5	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	**-**
Pedestrians	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	35.3%		-	-	-	-	0%		-	-	-	-	41.2%		-	-	-	-	5.9%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	5.9%		-	-	-	-	0%		-	-	-	-	11.8%		-	-	-	-	0%		**-**

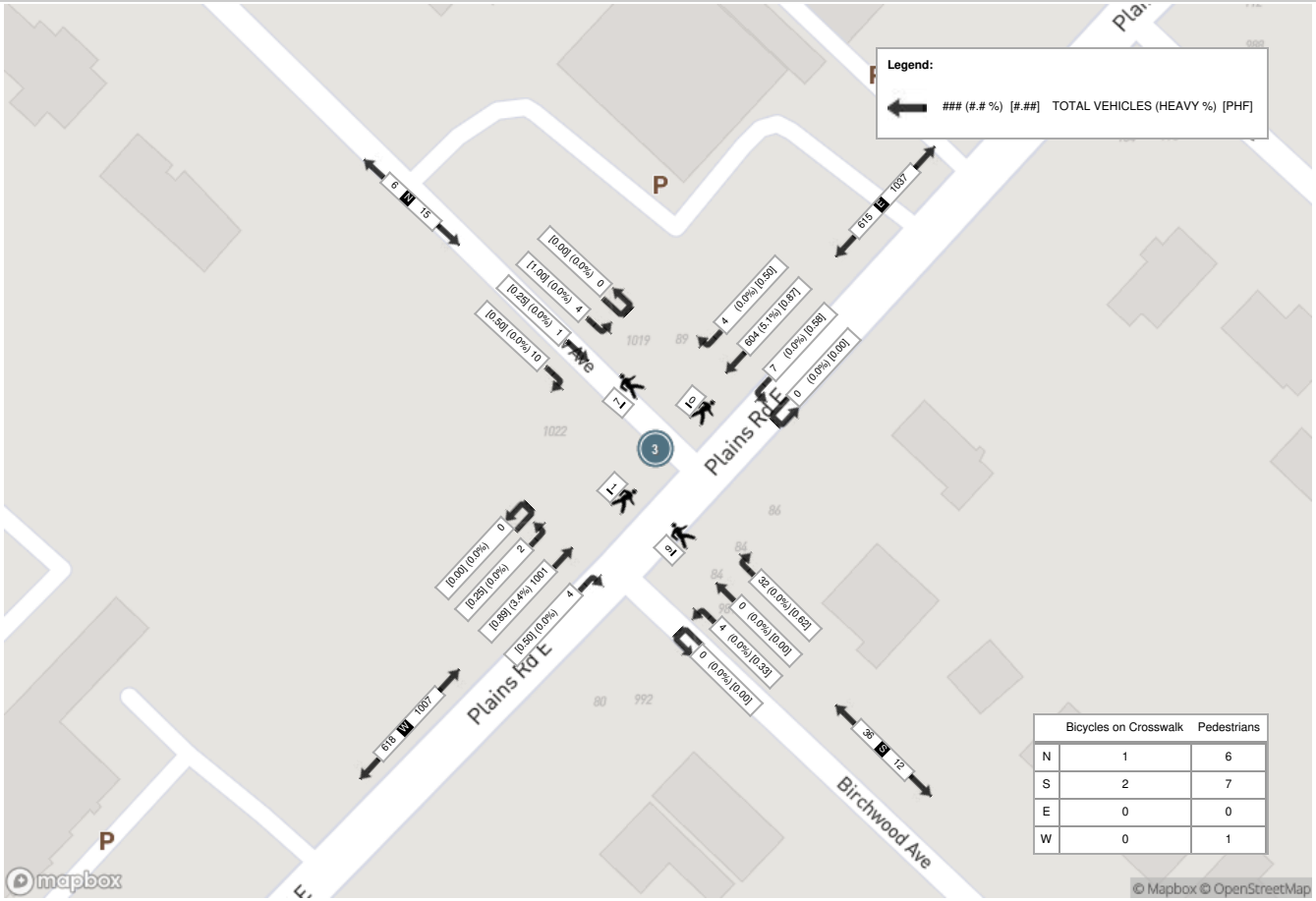
NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Broken Clouds (26.81 °C)**

Start Time	Southbound CLEARVIEW AVE						Westbound PLAINS RD E						Northbound BIRCHWOOD AVE						Eastbound PLAINS RD E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	3	1	1	0	2	5	2	323	1	0	0	326	2	0	0	0	4	2	3	229	0	0	0	232	565
16:45:00	2	0	1	0	2	3	1	347	3	0	0	351	1	0	2	0	3	3	3	191	0	1	0	195	552
17:00:00	3	0	0	0	2	3	0	325	3	0	0	328	3	0	1	0	1	4	1	219	1	0	0	221	556
17:15:00	2	0	2	0	3	4	1	296	4	0	0	301	5	1	0	0	2	6	2	225	2	0	0	229	540
Grand Total	10	1	4	0	9	15	4	1291	11	0	0	1306	11	1	3	0	10	15	9	864	3	1	0	877	**2213**
Approach%	66.7%	6.7%	26.7%	0%		-	0.3%	98.9%	0.8%	0%		-	73.3%	6.7%	20%	0%		-	1%	98.5%	0.3%	0.1%		-	**-**
Totals %	0.5%	0%	0.2%	0%		0.7%	0.2%	58.3%	0.5%	0%		59%	0.5%	0%	0.1%	0%		0.7%	0.4%	39%	0.1%	0%		39.6%	**-**
PHF	0.83	0.25	0.5	0		0.75	0.5	0.93	0.69	0		0.93	0.55	0.25	0.38	0		0.63	0.75	0.94	0.38	0.25		0.95	**-**
Heavy	1	0	0	0		1	0	17	0	0		17	0	0	1	0		1	1	9	0	0		10	**-**
Heavy %	10%	0%	0%	0%		6.7%	0%	1.3%	0%	0%		1.3%	0%	0%	33.3%	0%		6.7%	11.1%	1%	0%	0%		1.1%	**-**
Lights	9	1	4	0		14	4	1266	11	0		1281	11	1	2	0		14	8	854	3	1		866	**-**
Lights %	90%	100%	100%	0%		93.3%	100%	98.1%	100%	0%		98.1%	100%	100%	66.7%	0%		93.3%	88.9%	98.8%	100%	100%		98.7%	**-**
Single-Unit Trucks	1	0	0	0		1	0	7	0	0		7	0	0	1	0		1	1	4	0	0		5	**-**
Single-Unit Trucks %	10%	0%	0%	0%		6.7%	0%	0.5%	0%	0%		0.5%	0%	0%	33.3%	0%		6.7%	11.1%	0.5%	0%	0%		0.6%	**-**
Buses	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	0	5	0	0		5	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	**-**
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	0	1	0	0		1	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	**-**
Pedestrians	-	-	-	-	8	-	-	-	-	-	0	-	-	-	-	-	8	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	42.1%		-	-	-	-	0%		-	-	-	-	42.1%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	5.3%		-	-	-	-	0%		-	-	-	-	10.5%		-	-	-	-	0%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

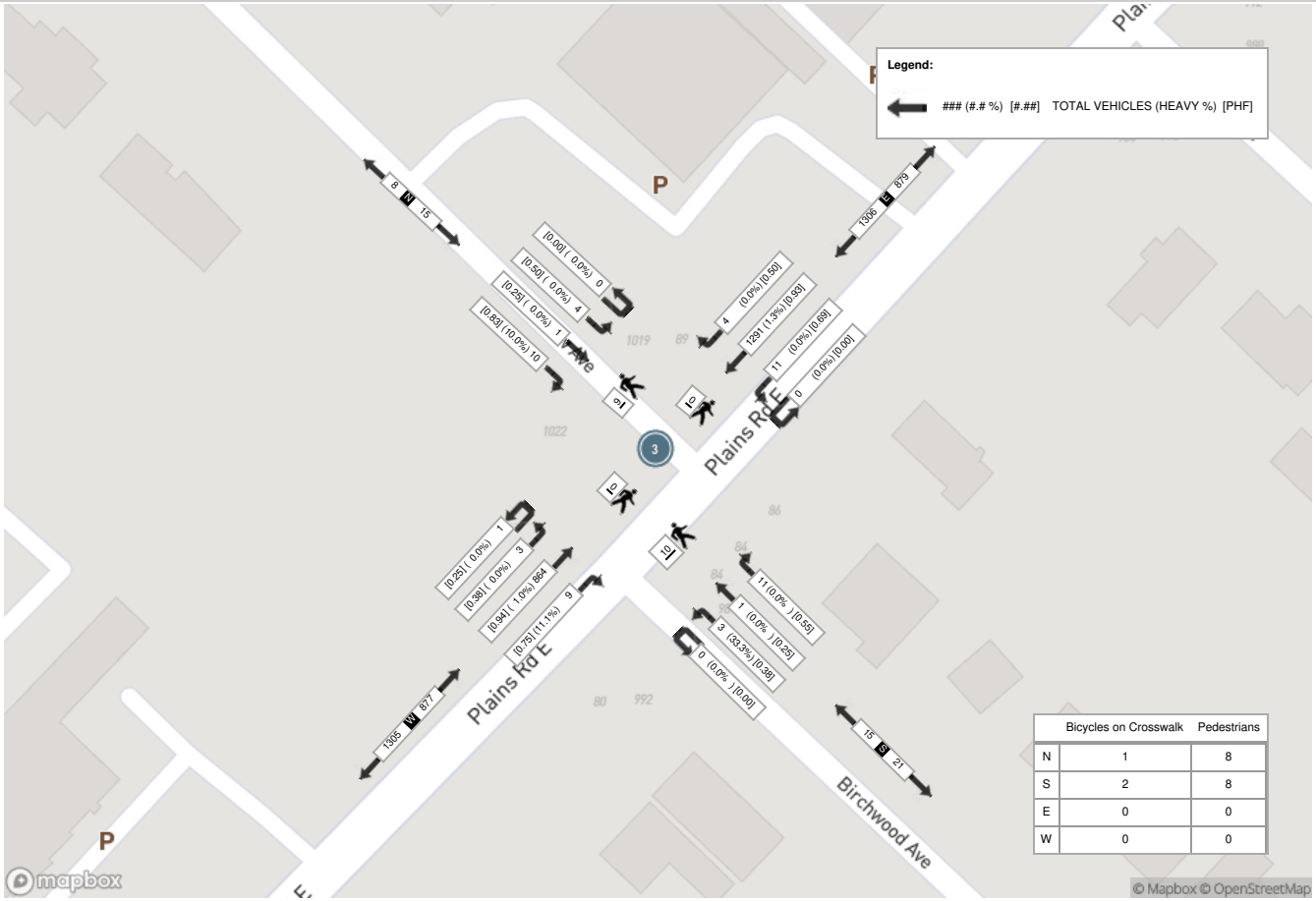
Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (17.74 °C)**



	Bicycles on Crosswalk	Pedestrians
N	1	6
S	2	7
E	0	0
W	0	1

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Broken Clouds (26.81 °C)**



	Bicycles on Crosswalk	Pedestrians
N	1	8
S	2	8
E	0	0
W	0	0

Spectrum

Turning Movement Count
Location Name: PLAINS RD E & COOKE BLVD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (2 . PLAINS RD E & COOKE BLVD)

Start Time	Southbound COOKE BLVD						Westbound PLAINS RD E						Northbound SOUTH DRIVEWAY						Eastbound PLAINS RD E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	4	0	5	0	8	9	7	76	0	0	0	83	0	0	0	0	1	0	0	174	13	0	0	187	279	
07:15:00	2	0	5	0	1	7	8	85	0	0	0	93	0	0	0	0	5	0	0	177	7	0	0	184	284	
07:30:00	5	0	7	0	1	12	18	102	0	0	1	120	0	0	0	0	4	0	0	260	16	0	0	276	408	
07:45:00	8	0	4	0	3	12	12	139	0	0	1	151	0	0	0	0	5	0	0	260	16	0	8	276	439	1410
08:00:00	4	0	9	0	4	13	4	161	0	0	0	165	0	0	0	0	1	0	0	276	9	0	2	285	463	1594
08:15:00	6	0	1	0	5	7	8	124	0	0	0	132	1	0	0	0	2	1	1	240	6	0	1	247	387	1697
08:30:00	6	0	3	0	0	9	11	165	0	0	2	176	0	0	0	0	2	0	0	225	7	0	1	232	417	1706
08:45:00	6	0	4	0	2	10	12	134	0	0	0	146	0	0	0	0	2	0	0	226	7	0	1	233	389	1656
09:00:00	3	0	4	0	2	7	6	134	0	0	1	140	1	0	0	0	3	1	0	211	9	0	0	220	368	1561
09:15:00	7	0	4	0	1	11	9	134	0	0	1	143	0	0	0	0	3	0	0	178	5	0	2	183	337	1511
09:30:00	4	0	2	0	5	6	12	130	0	0	0	142	0	0	0	0	9	0	0	185	4	0	7	189	337	1431
09:45:00	1	0	8	0	5	9	11	149	0	0	0	160	0	0	0	0	3	0	0	179	2	0	0	181	350	1392
BREAK																										
16:00:00	6	0	3	0	1	9	19	257	0	0	0	276	1	0	0	0	5	1	0	180	2	0	1	182	468	
16:15:00	5	0	3	0	5	8	12	267	0	0	0	279	0	0	0	0	0	0	0	181	1	0	0	182	469	
16:30:00	16	0	21	0	2	37	18	312	1	0	1	331	0	0	0	0	5	0	0	216	8	0	0	224	592	
16:45:00	19	0	12	0	3	31	18	321	1	0	1	340	1	0	0	0	2	1	0	180	9	0	0	189	561	2090
17:00:00	10	0	9	0	2	19	17	310	0	0	1	327	1	0	0	0	1	1	0	207	4	0	3	211	558	2180
17:15:00	18	0	12	0	1	30	12	284	0	0	0	296	0	0	0	0	4	0	0	221	9	0	1	230	556	2267
17:30:00	17	0	11	0	2	28	11	287	0	0	2	298	0	0	1	0	0	1	0	225	2	0	0	227	554	2229
17:45:00	9	0	7	0	0	16	15	228	0	0	0	243	0	0	0	0	4	0	0	164	3	0	0	167	426	2094
18:00:00	9	0	11	0	0	20	9	249	0	0	0	258	0	0	0	0	6	0	0	146	3	0	1	149	427	1963
18:15:00	6	0	10	0	3	16	18	255	1	0	2	274	0	0	0	0	5	0	0	137	2	0	1	139	429	1836
18:30:00	5	0	7	0	1	12	14	202	1	0	0	217	0	0	0	0	1	0	0	136	2	0	1	138	367	1649
18:45:00	6	0	6	0	2	12	13	174	0	0	0	187	0	0	1	0	4	1	0	132	0	0	1	132	332	1555
Grand Total	182	0	168	0	59	350	294	4679	4	0	13	4977	5	0	2	0	77	7	1	4716	146	0	31	4863	**10197**	-
Approach%	52%	0%	48%	0%		-	5.9%	94%	0.1%	0%		-	71.4%	0%	28.6%	0%		-	0%	97%	3%	0%		-	**-**	-
Totals %	1.8%	0%	1.6%	0%		3.4%	2.9%	45.9%	0%	0%		48.8%	0%	0%	0%	0%		0.1%	0%	46.2%	1.4%	0%		47.7%	**-**	-
Heavy	16	0	2	0		-	6	124	0	0		-	0	0	0	0		-	0	134	0	0		-	**-**	-
Heavy %	8.8%	0%	1.2%	0%		-	2%	2.7%	0%	0%		-	0%	0%	0%	0%		-	0%	2.8%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Broken Clouds (17.74 °C)

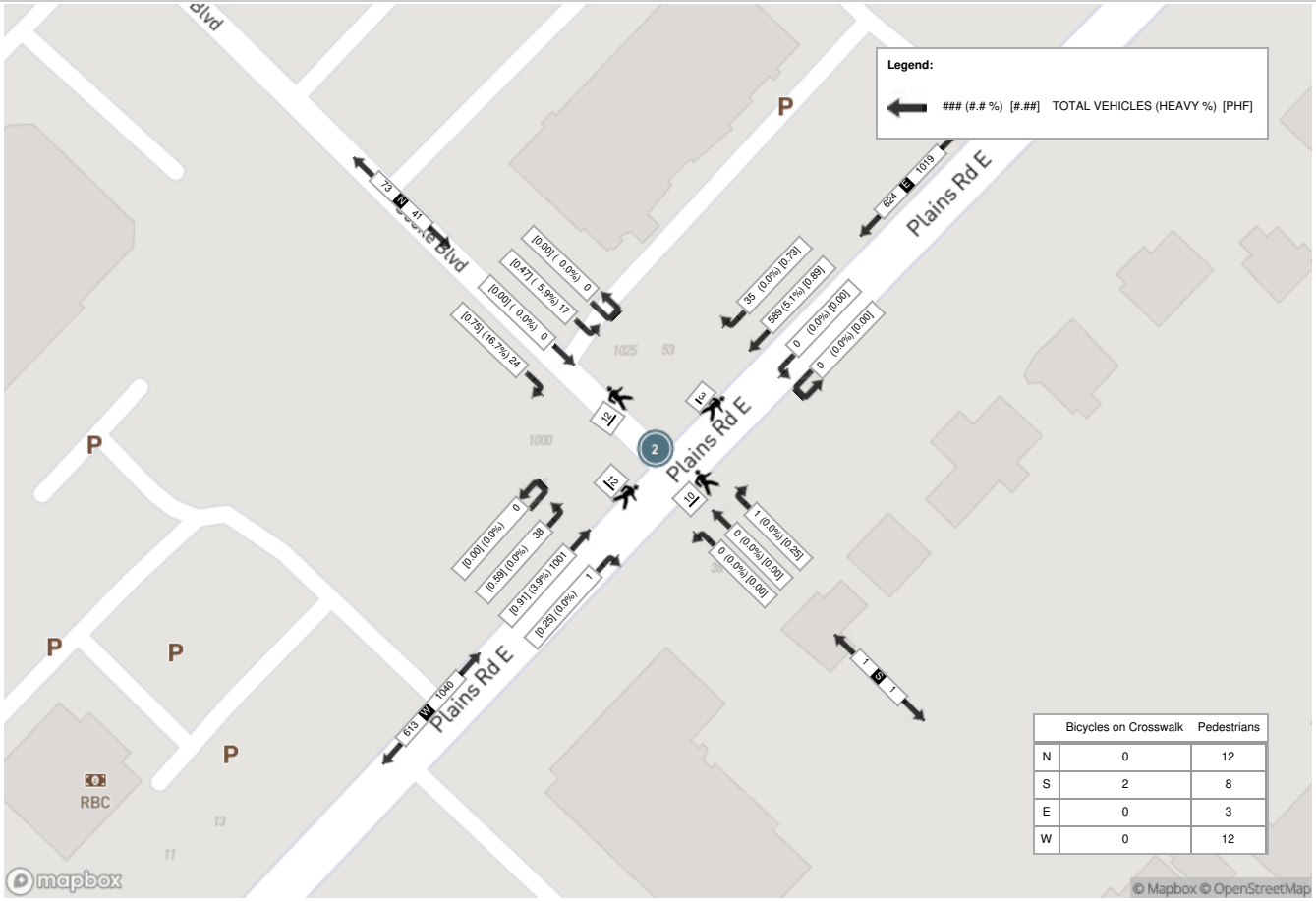
Start Time	Southbound COOKE BLVD						Westbound PLAINS RD E						Northbound SOUTH DRIVEWAY						Eastbound PLAINS RD E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	8	0	4	0	3	12	12	139	0	0	1	151	0	0	0	0	5	0	0	260	16	0	8	276	439
08:00:00	4	0	9	0	4	13	4	161	0	0	0	165	0	0	0	0	1	0	0	276	9	0	2	285	463
08:15:00	6	0	1	0	5	7	8	124	0	0	0	132	1	0	0	0	2	1	1	240	6	0	1	247	387
08:30:00	6	0	3	0	0	9	11	165	0	0	2	176	0	0	0	0	2	0	0	225	7	0	1	232	417
Grand Total	24	0	17	0	12	41	35	589	0	0	3	624	1	0	0	0	10	1	1	1001	38	0	12	1040	**1706**
Approach%	58.5%	0%	41.5%	0%		-	5.6%	94.4%	0%	0%		-	100%	0%	0%	0%		-	0.1%	96.3%	3.7%	0%		-	**-**
Totals %	1.4%	0%	1%	0%		2.4%	2.1%	34.5%	0%	0%		36.6%	0.1%	0%	0%	0%		0.1%	0.1%	58.7%	2.2%	0%		61%	**-**
PHF	0.75	0	0.47	0		0.79	0.73	0.89	0	0		0.89	0.25	0	0	0		0.25	0.25	0.91	0.59	0		0.91	**-**
Heavy	4	0	1	0		5	0	30	0	0		30	0	0	0	0		0	0	39	0	0		39	**-**
Heavy %	16.7%	0%	5.9%	0%		12.2%	0%	5.1%	0%	0%		4.8%	0%	0%	0%	0%		0%	0%	3.9%	0%	0%		3.8%	**-**
Lights	20	0	16	0		36	35	557	0	0		592	0	0	0	0		0	1	957	37	0		995	**-**
Lights %	83.3%	0%	94.1%	0%		87.8%	100%	94.6%	0%	0%		94.9%	0%	0%	0%	0%		0%	100%	95.6%	97.4%	0%		95.7%	**-**
Single-Unit Trucks	0	0	0	0		0	0	15	0	0		15	0	0	0	0		0	0	27	0	0		27	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	2.5%	0%	0%		2.4%	0%	0%	0%	0%		0%	0%	2.7%	0%	0%		2.6%	**-**
Buses	4	0	1	0		5	0	15	0	0		15	0	0	0	0		0	0	11	0	0		11	**-**
Buses %	16.7%	0%	5.9%	0%		12.2%	0%	2.5%	0%	0%		2.4%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1.1%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	**-**
Bicycles on Road	0	0	0	0		0	0	2	0	0		2	1	0	0	0		1	0	5	1	0		6	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	100%	0%	0%	0%		100%	0%	0.5%	2.6%	0%		0.6%	**-**
Pedestrians	-	-	-	-	12	-	-	-	-	-	3	-	-	-	-	-	8	-	-	-	-	-	12	-	**-**
Pedestrians%	-	-	-	-	32.4%		-	-	-	-	8.1%		-	-	-	-	21.6%		-	-	-	-	32.4%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	5.4%		-	-	-	-	0%		**-**

Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (26.81 °C)

Start Time	Southbound COOKE BLVD						Westbound PLAINS RD E						Northbound SOUTH DRIVEWAY						Eastbound PLAINS RD E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	16	0	21	0	2	37	18	312	1	0	1	331	0	0	0	0	5	0	0	216	8	0	0	224	592
16:45:00	19	0	12	0	3	31	18	321	1	0	1	340	1	0	0	0	2	1	0	180	9	0	0	189	561
17:00:00	10	0	9	0	2	19	17	310	0	0	1	327	1	0	0	0	1	1	0	207	4	0	3	211	558
17:15:00	18	0	12	0	1	30	12	284	0	0	0	296	0	0	0	0	4	0	0	221	9	0	1	230	556
Grand Total	63	0	54	0	8	117	65	1227	2	0	3	1294	2	0	0	0	12	2	0	824	30	0	4	854	**2267**
Approach%	53.8%	0%	46.2%	0%		-	5%	94.8%	0.2%	0%		-	100%	0%	0%	0%		-	0%	96.5%	3.5%	0%		-	**-**
Totals %	2.8%	0%	2.4%	0%		5.2%	2.9%	54.1%	0.1%	0%		57.1%	0.1%	0%	0%	0%		0.1%	0%	36.3%	1.3%	0%		37.7%	**-**
PHF	0.83	0	0.64	0		0.79	0.9	0.96	0.5	0		0.95	0.5	0	0	0		0.5	0	0.93	0.83	0		0.93	**-**
Heavy	2	0	0	0		2	2	19	0	0		21	0	0	0	0		0	0	11	0	0		11	**-**
Heavy %	3.2%	0%	0%	0%		1.7%	3.1%	1.5%	0%	0%		1.6%	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		1.3%	**-**
Lights	57	0	54	0		111	63	1200	2	0		1265	2	0	0	0		2	0	812	29	0		841	**-**
Lights %	90.5%	0%	100%	0%		94.9%	96.9%	97.8%	100%	0%		97.8%	100%	0%	0%	0%		100%	0%	98.5%	96.7%	0%		98.5%	**-**
Single-Unit Trucks	1	0	0	0		1	2	10	0	0		12	0	0	0	0		0	0	7	0	0		7	**-**
Single-Unit Trucks %	1.6%	0%	0%	0%		0.9%	3.1%	0.8%	0%	0%		0.9%	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.8%	**-**
Buses	1	0	0	0		1	0	7	0	0		7	0	0	0	0		0	0	4	0	0		4	**-**
Buses %	1.6%	0%	0%	0%		0.9%	0%	0.6%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	**-**
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	4	0	0	0		4	0	8	0	0		8	0	0	0	0		0	0	1	1	0		2	**-**
Bicycles on Road %	6.3%	0%	0%	0%		3.4%	0%	0.7%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.1%	3.3%	0%		0.2%	**-**
Pedestrians	-	-	-	-	7	-	-	-	-	-	3	-	-	-	-	-	10	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	25.9%		-	-	-	-	11.1%		-	-	-	-	37%		-	-	-	-	14.8%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	3.7%		-	-	-	-	0%		-	-	-	-	7.4%		-	-	-	-	0%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

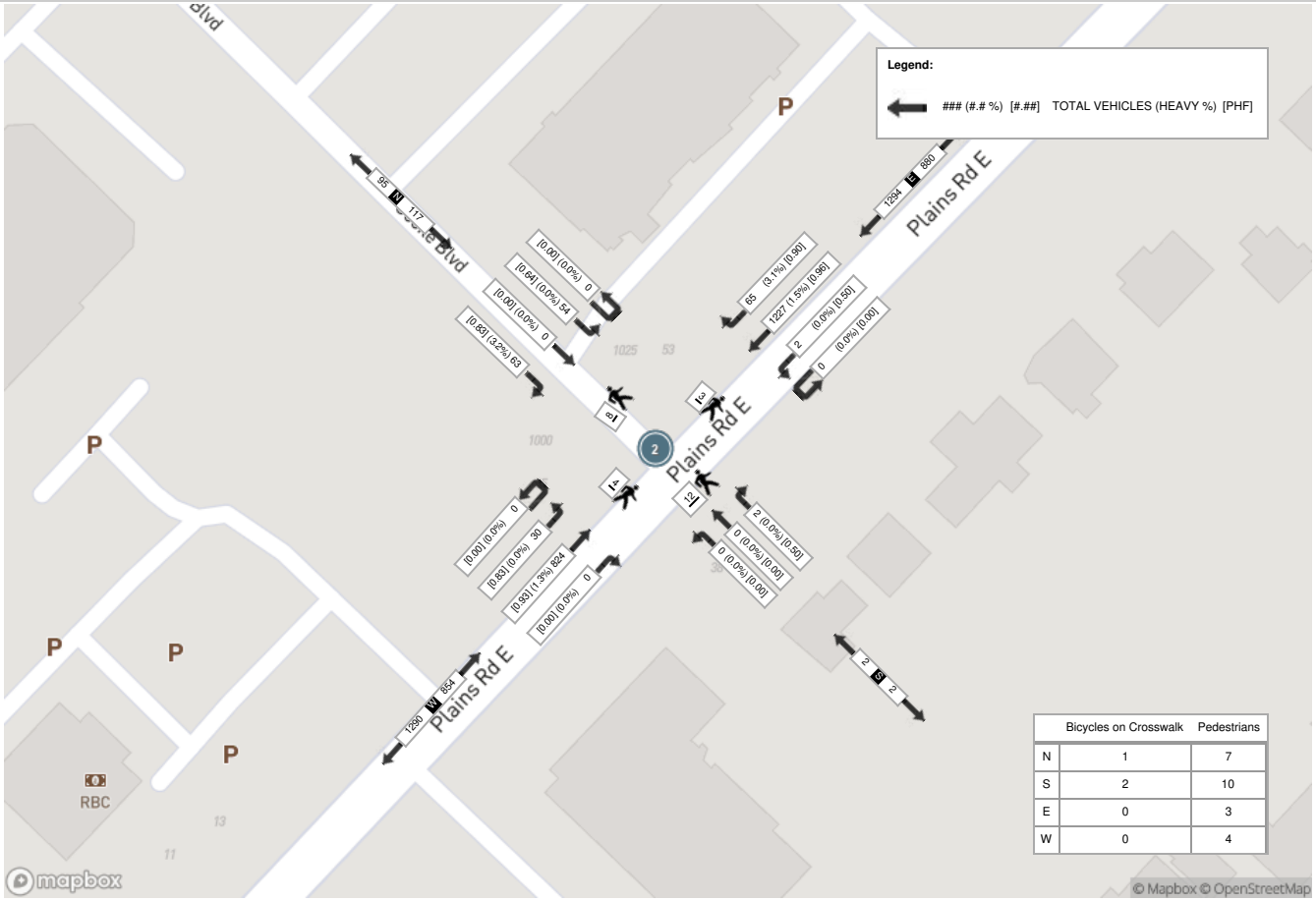
Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (17.74 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	12
S	2	8
E	0	3
W	0	12

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Broken Clouds (26.81 °C)**



	Bicycles on Crosswalk	Pedestrians
N	1	7
S	2	10
E	0	3
W	0	4

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (4 . PLAINS RD E & ST. MATTHEWS AVE)

Start Time	Southbound ST MATTHEWS AVE					Westbound PLAINS RD E					Eastbound PLAINS RD E					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	0	0	0	3	0	0	78	0	1	78	161	0	0	0	161	239	
07:15:00	4	0	0	5	4	0	87	0	0	87	198	1	0	1	199	290	
07:30:00	2	1	0	3	3	0	115	0	2	115	237	0	0	3	237	355	
07:45:00	1	1	0	1	2	1	147	0	1	148	285	0	0	2	285	435	1319
08:00:00	0	1	0	4	1	0	157	0	0	157	293	1	0	0	294	452	1532
08:15:00	3	1	0	1	4	0	128	0	0	128	233	3	0	0	236	368	1610
08:30:00	1	2	0	1	3	0	169	0	0	169	235	0	0	0	235	407	1662
08:45:00	3	2	0	1	5	3	142	0	6	145	237	1	0	0	238	388	1615
09:00:00	1	3	0	6	4	1	151	0	21	152	209	0	0	0	209	365	1528
09:15:00	2	0	0	0	2	1	129	0	7	130	179	0	0	0	179	311	1471
09:30:00	1	0	0	2	1	2	136	0	6	138	190	4	0	0	194	333	1397
09:45:00	2	3	0	2	5	3	155	0	3	158	185	4	0	1	189	352	1361
BREAK																	
16:00:00	6	2	0	1	8	3	270	0	4	273	184	2	0	1	186	467	
16:15:00	6	9	0	1	15	12	284	0	0	296	175	2	0	1	177	488	
16:30:00	5	8	0	3	13	4	330	0	0	334	224	5	0	5	229	576	
16:45:00	3	3	0	3	6	4	337	0	0	341	193	3	0	1	196	543	2074
17:00:00	5	5	0	1	10	4	321	0	1	325	208	7	0	0	215	550	2157
17:15:00	3	3	0	0	6	6	293	0	0	299	228	8	0	1	236	541	2210
17:30:00	4	8	0	2	12	6	306	0	0	312	228	8	0	0	236	560	2194
17:45:00	9	2	0	1	11	3	228	0	4	231	173	2	0	3	175	417	2068
18:00:00	3	1	0	2	4	2	265	0	4	267	151	1	0	0	152	423	1941
18:15:00	2	3	0	3	5	7	273	0	3	280	137	4	0	1	141	426	1826
18:30:00	8	3	0	1	11	4	225	0	2	229	143	4	0	1	147	387	1653
18:45:00	5	4	0	0	9	1	188	0	0	189	132	2	0	0	134	332	1568
Grand Total	79	65	0	47	144	67	4914	0	65	4981	4818	62	0	21	4880	**10005**	-
Approach%	54.9%	45.1%	0%		-	1.3%	98.7%	0%		-	98.7%	1.3%	0%		-	**-**	-
Totals %	0.8%	0.6%	0%		1.4%	0.7%	49.1%	0%		49.8%	48.2%	0.6%	0%		48.8%	**-**	-
Heavy	1	0	0		-	2	125	0		-	122	0	0		-	**-**	-
Heavy %	1.3%	0%	0%		-	3%	2.5%	0%		-	2.5%	0%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Broken Clouds (17.74 °C)

Start Time	Southbound ST MATTHEWS AVE					Westbound PLAINS RD E					Eastbound PLAINS RD E					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	1	1	0	1	2	1	147	0	1	148	285	0	0	2	285	435
08:00:00	0	1	0	4	1	0	157	0	0	157	293	1	0	0	294	452
08:15:00	3	1	0	1	4	0	128	0	0	128	233	3	0	0	236	368
08:30:00	1	2	0	1	3	0	169	0	0	169	235	0	0	0	235	407
Grand Total	5	5	0	7	10	1	601	0	1	602	1046	4	0	2	1050	**1662**
Approach%	50%	50%	0%		-	0.2%	99.8%	0%		-	99.6%	0.4%	0%		-	**-**
Totals %	0.3%	0.3%	0%		0.6%	0.1%	36.2%	0%		36.2%	62.9%	0.2%	0%		63.2%	**-**
PHF	0.42	0.63	0		0.63	0.25	0.89	0		0.89	0.89	0.33	0		0.89	**-**
Heavy	0	0	0		0	0	30	0		30	35	0	0		35	**-**
Heavy %	0%	0%	0%		0%	0%	5%	0%		5%	3.3%	0%	0%		3.3%	**-**
Lights	5	5	0		10	1	570	0		571	1005	3	0		1008	**-**
Lights %	100%	100%	0%		100%	100%	94.8%	0%		94.9%	96.1%	75%	0%		96%	**-**
Single-Unit Trucks	0	0	0		0	0	14	0		14	19	0	0		19	**-**
Single-Unit Trucks %	0%	0%	0%		0%	0%	2.3%	0%		2.3%	1.8%	0%	0%		1.8%	**-**
Buses	0	0	0		0	0	16	0		16	15	0	0		15	**-**
Buses %	0%	0%	0%		0%	0%	2.7%	0%		2.7%	1.4%	0%	0%		1.4%	**-**
Articulated Trucks	0	0	0		0	0	0	0		0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0.1%	0%	0%		0.1%	**-**
Bicycles on Road	0	0	0		0	0	1	0		1	6	1	0		7	**-**
Bicycles on Road %	0%	0%	0%		0%	0%	0.2%	0%		0.2%	0.6%	25%	0%		0.7%	**-**
Pedestrians	-	-	-	7	-	-	-	-	1	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	70%		-	-	-	10%		-	-	-	20%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (26.81 °C)

Start Time	Southbound ST MATTHEWS AVE					Westbound PLAINS RD E					Eastbound PLAINS RD E					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	5	8	0	3	13	4	330	0	0	334	224	5	0	5	229	576
16:45:00	3	3	0	3	6	4	337	0	0	341	193	3	0	1	196	543
17:00:00	5	5	0	1	10	4	321	0	1	325	208	7	0	0	215	550
17:15:00	3	3	0	0	6	6	293	0	0	299	228	8	0	1	236	541
Grand Total	16	19	0	7	35	18	1281	0	1	1299	853	23	0	7	876	**2210**
Approach%	45.7%	54.3%	0%		-	1.4%	98.6%	0%		-	97.4%	2.6%	0%		-	**-**
Totals %	0.7%	0.9%	0%		1.6%	0.8%	58%	0%		58.8%	38.6%	1%	0%		39.6%	**-**
PHF	0.8	0.59	0		0.67	0.75	0.95	0		0.95	0.94	0.72	0		0.93	**-**
Heavy	0	0	0		0	1	18	0		19	11	0	0		11	**-**
Heavy %	0%	0%	0%		0%	5.6%	1.4%	0%		1.5%	1.3%	0%	0%		1.3%	**-**
Lights	16	19	0		35	17	1256	0		1273	841	23	0		864	**-**
Lights %	100%	100%	0%		100%	94.4%	98%	0%		98%	98.6%	100%	0%		98.6%	**-**
Single-Unit Trucks	0	0	0		0	1	7	0		8	5	0	0		5	**-**
Single-Unit Trucks %	0%	0%	0%		0%	5.6%	0.5%	0%		0.6%	0.6%	0%	0%		0.6%	**-**
Buses	0	0	0		0	0	9	0		9	6	0	0		6	**-**
Buses %	0%	0%	0%		0%	0%	0.7%	0%		0.7%	0.7%	0%	0%		0.7%	**-**
Articulated Trucks	0	0	0		0	0	2	0		2	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%		0%	0%	0.2%	0%		0.2%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0		0	0	7	0		7	1	0	0		1	**-**
Bicycles on Road %	0%	0%	0%		0%	0%	0.5%	0%		0.5%	0.1%	0%	0%		0.1%	**-**
Pedestrians	-	-	-	6	-	-	-	-	1	-	-	-	-	6	-	**-**
Pedestrians%	-	-	-	40%		-	-	-	6.7%		-	-	-	40%		**-**
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	6.7%		-	-	-	0%		-	-	-	6.7%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Broken Clouds (17.74 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	7
E	0	1
W	0	2

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (26.81 °C)



Spectrum

Turning Movement Count
Location Name: PLAINS RD E & WATERDOWN RD / LASALLE PARK RD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (1 . PLAINS RD E & WATERDOWN RD / LASALLE PARK RD)

Start Time	Southbound WATERDOWN RD						Westbound PLAINS RD E						Northbound WATERDOWN RD						Eastbound PLAINS RD W						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	25	18	16	0	1	59	29	44	3	0	2	76	7	23	3	0	0	33	16	136	95	0	0	247	415	
07:15:00	34	21	17	0	6	72	34	52	6	0	6	92	5	37	7	0	1	49	30	167	109	0	1	306	519	
07:30:00	34	36	23	0	4	93	28	51	9	0	6	88	10	34	10	0	3	54	22	221	128	0	4	371	606	
07:45:00	34	57	39	0	2	130	36	84	26	0	4	146	14	51	9	0	0	74	37	234	126	0	5	397	747	2287
08:00:00	49	76	48	0	2	173	46	69	41	0	6	156	18	67	19	0	4	104	39	215	120	0	0	374	807	2679
08:15:00	34	40	47	0	0	121	51	68	20	0	5	139	19	63	14	0	0	96	49	157	102	0	1	308	664	2824
08:30:00	50	34	47	0	0	131	50	97	18	0	3	165	18	48	18	0	2	84	25	156	106	0	1	287	667	2885
08:45:00	55	42	42	0	3	139	34	83	18	0	3	135	11	31	19	0	3	61	33	181	116	0	2	330	665	2803
09:00:00	39	26	42	0	3	107	36	84	9	0	1	129	14	34	16	0	2	64	29	144	62	0	1	235	535	2531
09:15:00	47	34	48	0	0	129	48	85	12	0	3	145	10	41	22	0	0	73	23	115	58	0	4	196	543	2410
09:30:00	66	36	54	0	0	156	32	79	14	0	4	125	19	41	18	0	1	78	27	128	71	0	1	226	585	2328
09:45:00	51	27	53	0	3	131	36	95	15	0	3	146	13	26	17	0	4	56	10	115	36	0	1	161	494	2157
BREAK																										
16:00:00	70	43	49	0	7	162	52	183	16	0	2	251	13	38	35	0	1	86	25	126	46	0	0	197	696	
16:15:00	62	42	40	0	3	144	46	221	8	0	4	275	13	35	36	0	0	84	18	135	69	0	1	222	725	
16:30:00	101	37	50	0	2	188	48	222	33	0	0	303	14	45	34	0	2	93	21	151	69	0	1	241	825	
16:45:00	84	26	40	0	4	150	58	269	29	0	4	356	11	50	37	0	3	98	22	142	65	0	6	229	833	3079
17:00:00	95	48	64	0	6	207	59	258	23	0	2	340	16	29	28	0	0	73	23	128	77	0	6	228	848	3231
17:15:00	114	40	99	0	3	253	37	265	31	0	2	333	8	37	30	1	4	76	23	134	55	0	4	212	874	3380
17:30:00	88	38	107	0	7	233	34	235	16	0	2	285	14	35	26	0	1	75	22	100	45	0	1	167	760	3315
17:45:00	73	34	53	0	0	160	51	175	22	0	1	248	7	24	19	0	1	50	12	106	50	0	0	168	626	3108
18:00:00	88	57	56	1	2	202	56	184	32	0	3	272	18	33	19	0	0	70	9	83	53	0	3	145	689	2949
18:15:00	89	41	41	0	2	171	53	204	25	0	0	282	8	36	22	0	0	66	23	81	49	0	0	153	672	2747
18:30:00	62	26	49	0	2	137	35	156	18	0	0	209	7	26	13	0	0	46	19	91	39	0	0	149	541	2528
18:45:00	61	25	38	0	1	124	45	133	23	0	3	201	12	22	17	0	0	51	14	85	39	0	0	138	514	2416
Grand Total	1505	904	1162	1	63	3572	1034	3396	467	0	69	4897	299	906	488	1	32	1694	571	3331	1785	0	43	5687	**15850**	-
Approach%	42.1%	25.3%	32.5%	0%		-	21.1%	69.3%	9.5%	0%		-	17.7%	53.5%	28.8%	0.1%		-	10%	58.6%	31.4%	0%		-	**-**	-
Totals %	9.5%	5.7%	7.3%	0%		22.5%	6.5%	21.4%	2.9%	0%		30.9%	1.9%	5.7%	3.1%	0%		10.7%	3.6%	21%	11.3%	0%		35.9%	**-**	-
Heavy	62	21	31	0		-	36	92	11	0		-	9	29	9	0		-	9	98	52	0		-	**-**	-
Heavy %	4.1%	2.3%	2.7%	0%		-	3.5%	2.7%	2.4%	0%		-	3%	3.2%	1.8%	0%		-	1.6%	2.9%	2.9%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: PLAINS RD E & WATERDOWN RD / LASALLE PARK RD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Broken Clouds (17.74 °C)

Start Time	Southbound WATERDOWN RD						Westbound PLAINS RD E						Northbound WATERDOWN RD						Eastbound PLAINS RD W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	34	57	39	0	2	130	36	84	26	0	4	146	14	51	9	0	0	74	37	234	126	0	5	397	747
08:00:00	49	76	48	0	2	173	46	69	41	0	6	156	18	67	19	0	4	104	39	215	120	0	0	374	807
08:15:00	34	40	47	0	0	121	51	68	20	0	5	139	19	63	14	0	0	96	49	157	102	0	1	308	664
08:30:00	50	34	47	0	0	131	50	97	18	0	3	165	18	48	18	0	2	84	25	156	106	0	1	287	667
Grand Total	167	207	181	0	4	555	183	318	105	0	18	606	69	229	60	0	6	358	150	762	454	0	7	1366	**2885**
Approach%	30.1%	37.3%	32.6%	0%		-	30.2%	52.5%	17.3%	0%		-	19.3%	64%	16.8%	0%		-	11%	55.8%	33.2%	0%		-	**-**
Totals %	5.8%	7.2%	6.3%	0%		19.2%	6.3%	11%	3.6%	0%		21%	2.4%	7.9%	2.1%	0%		12.4%	5.2%	26.4%	15.7%	0%		47.3%	**-**
PHF	0.84	0.68	0.94	0		0.8	0.9	0.82	0.64	0		0.92	0.91	0.85	0.79	0		0.86	0.77	0.81	0.9	0		0.86	**-**
Heavy	7	6	7	0		20	8	20	6	0		34	2	9	4	0		15	3	24	12	0		39	**-**
Heavy %	4.2%	2.9%	3.9%	0%		3.6%	4.4%	6.3%	5.7%	0%		5.6%	2.9%	3.9%	6.7%	0%		4.2%	2%	3.1%	2.6%	0%		2.9%	**-**
Lights	160	201	174	0		535	175	297	99	0		571	67	220	55	0		342	146	732	442	0		1320	**-**
Lights %	95.8%	97.1%	96.1%	0%		96.4%	95.6%	93.4%	94.3%	0%		94.2%	97.1%	96.1%	91.7%	0%		95.5%	97.3%	96.1%	97.4%	0%		96.6%	**-**
Single-Unit Trucks	3	2	7	0		12	4	8	1	0		13	1	1	2	0		4	0	13	9	0		22	**-**
Single-Unit Trucks %	1.8%	1%	3.9%	0%		2.2%	2.2%	2.5%	1%	0%		2.1%	1.4%	0.4%	3.3%	0%		1.1%	0%	1.7%	2%	0%		1.6%	**-**
Buses	3	4	0	0		7	4	12	5	0		21	1	8	1	0		10	3	11	0	0		14	**-**
Buses %	1.8%	1.9%	0%	0%		1.3%	2.2%	3.8%	4.8%	0%		3.5%	1.4%	3.5%	1.7%	0%		2.8%	2%	1.4%	0%	0%		1%	**-**
Articulated Trucks	1	0	0	0		1	0	0	0	0		0	0	0	1	0		1	0	0	3	0		3	**-**
Articulated Trucks %	0.6%	0%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	1.7%	0%		0.3%	0%	0%	0.7%	0%		0.2%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	1	0		1	1	6	0	0		7	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	0%	1.7%	0%		0.3%	0.7%	0.8%	0%	0%		0.5%	**-**
Pedestrians	-	-	-	-	4	-	-	-	-	-	18	-	-	-	-	-	6	-	-	-	-	-	7	-	**-**
Pedestrians%	-	-	-	-	11.4%		-	-	-	-	51.4%		-	-	-	-	17.1%		-	-	-	-	20%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

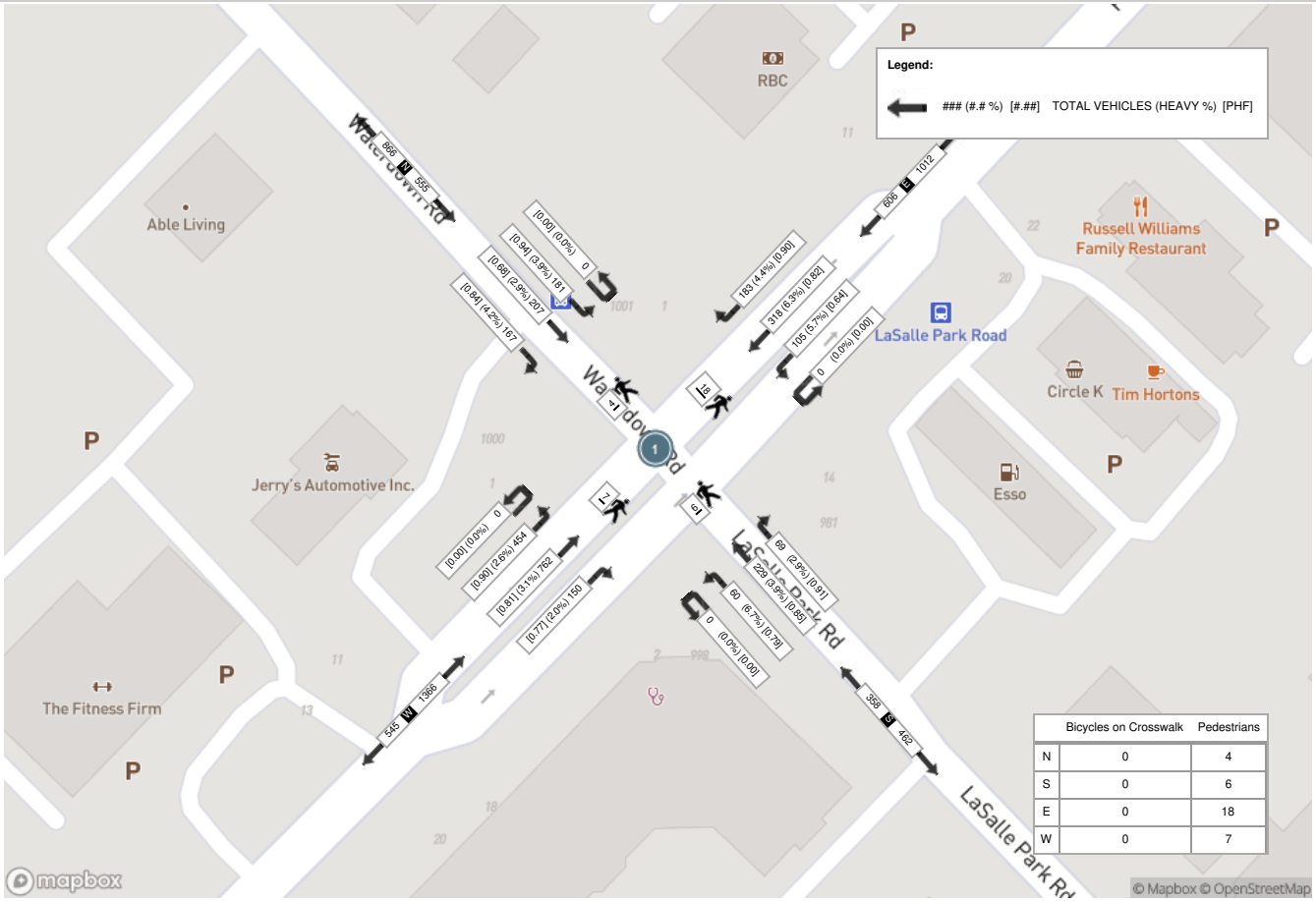
Turning Movement Count
Location Name: PLAINS RD E & WATERDOWN RD / LASALLE PARK RD
Date: Wed, Jun 05, 2024 Deployment Lead: David Chu

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

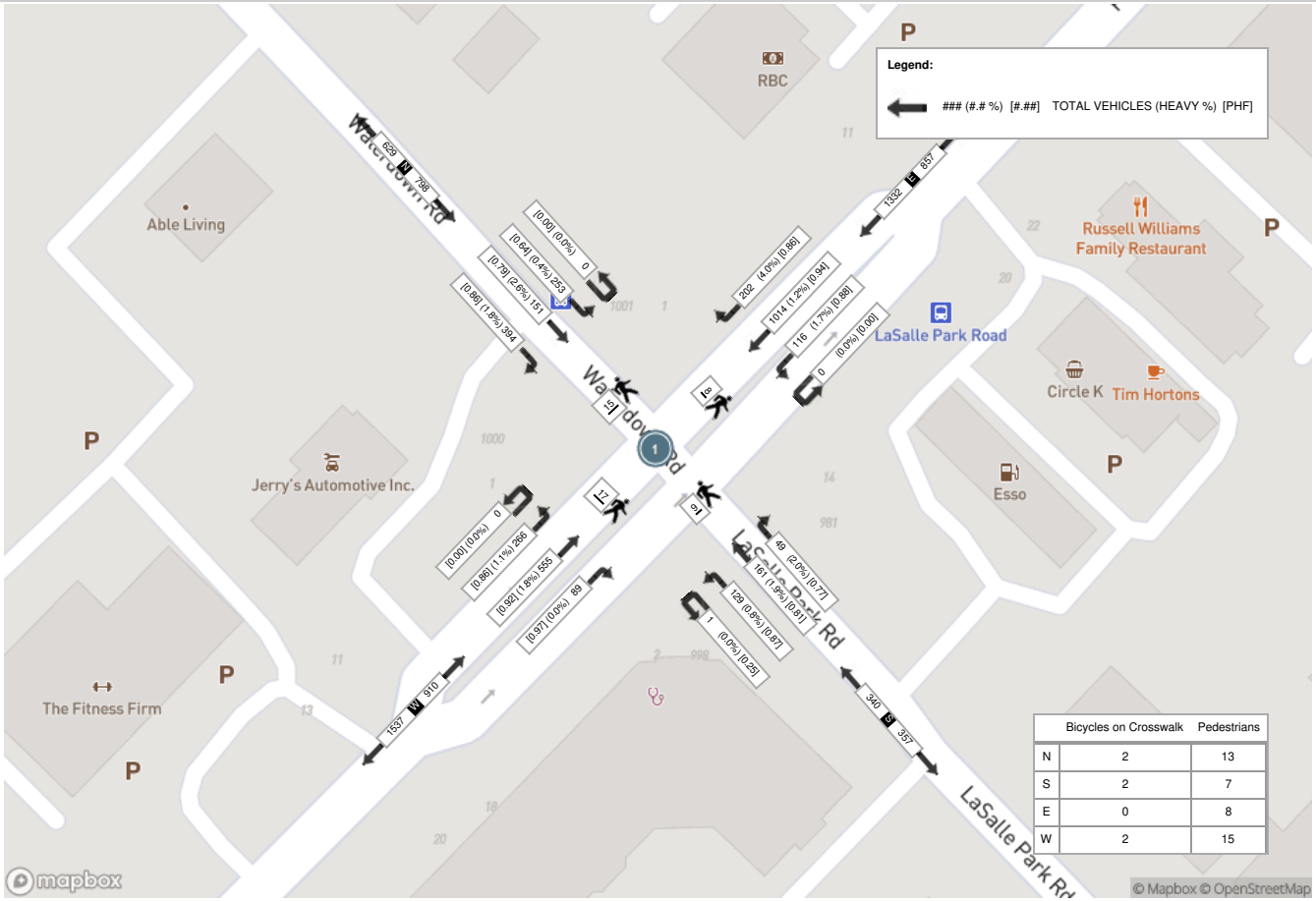
Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (26.81 °C)

Start Time	Southbound WATERDOWN RD						Westbound PLAINS RD E						Northbound WATERDOWN RD						Eastbound PLAINS RD W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	101	37	50	0	2	188	48	222	33	0	0	303	14	45	34	0	2	93	21	151	69	0	1	241	825
16:45:00	84	26	40	0	4	150	58	269	29	0	4	356	11	50	37	0	3	98	22	142	65	0	6	229	833
17:00:00	95	48	64	0	6	207	59	258	23	0	2	340	16	29	28	0	0	73	23	128	77	0	6	228	848
17:15:00	114	40	99	0	3	253	37	265	31	0	2	333	8	37	30	1	4	76	23	134	55	0	4	212	874
Grand Total	394	151	253	0	15	798	202	1014	116	0	8	1332	49	161	129	1	9	340	89	555	266	0	17	910	**3380**
Approach%	49.4%	18.9%	31.7%	0%		-	15.2%	76.1%	8.7%	0%		-	14.4%	47.4%	37.9%	0.3%		-	9.8%	61%	29.2%	0%		-	**-**
Totals %	11.7%	4.5%	7.5%	0%		23.6%	6%	30%	3.4%	0%		39.4%	1.4%	4.8%	3.8%	0%		10.1%	2.6%	16.4%	7.9%	0%		26.9%	**-**
PHF	0.86	0.79	0.64	0		0.79	0.86	0.94	0.88	0		0.94	0.77	0.81	0.87	0.25		0.87	0.97	0.92	0.86	0		0.94	**-**
Heavy	7	4	1	0		12	8	12	2	0		22	1	3	1	0		5	0	10	3	0		13	**-**
Heavy %	1.8%	2.6%	0.4%	0%		1.5%	4%	1.2%	1.7%	0%		1.7%	2%	1.9%	0.8%	0%		1.5%	0%	1.8%	1.1%	0%		1.4%	**-**
Lights	387	147	252	0		786	194	994	113	0		1301	48	157	127	1		333	89	543	263	0		895	**-**
Lights %	98.2%	97.4%	99.6%	0%		98.5%	96%	98%	97.4%	0%		97.7%	98%	97.5%	98.4%	100%		97.9%	100%	97.8%	98.9%	0%		98.4%	**-**
Single-Unit Trucks	4	2	1	0		7	5	5	1	0		11	1	2	0	0		3	0	5	1	0		6	**-**
Single-Unit Trucks %	1%	1.3%	0.4%	0%		0.9%	2.5%	0.5%	0.9%	0%		0.8%	2%	1.2%	0%	0%		0.9%	0%	0.9%	0.4%	0%		0.7%	**-**
Buses	2	2	0	0		4	2	6	1	0		9	0	1	1	0		2	0	5	2	0		7	**-**
Buses %	0.5%	1.3%	0%	0%		0.5%	1%	0.6%	0.9%	0%		0.7%	0%	0.6%	0.8%	0%		0.6%	0%	0.9%	0.8%	0%		0.8%	**-**
Articulated Trucks	1	0	0	0		1	1	1	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0.3%	0%	0%	0%		0.1%	0.5%	0.1%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	8	1	0		9	0	1	1	0		2	0	2	0	0		2	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.8%	0.9%	0%		0.7%	0%	0.6%	0.8%	0%		0.6%	0%	0.4%	0%	0%		0.2%	**-**
Pedestrians	-	-	-	-	13	-	-	-	-	-	8	-	-	-	-	-	7	-	-	-	-	-	15	-	**-**
Pedestrians%	-	-	-	-	26.5%		-	-	-	-	16.3%		-	-	-	-	14.3%		-	-	-	-	30.6%		**-**
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	2	-	**-**
Bicycles on Crosswalk%	-	-	-	-	4.1%		-	-	-	-	0%		-	-	-	-	4.1%		-	-	-	-	4.1%		**-**

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (17.74 °C)**



Peak Hour: 04:30 PM - 05:30 PM **Weather: Broken Clouds (26.81 °C)**



	Bicycles on Crosswalk	Pedestrians
N	2	13
S	2	7
E	0	8
W	2	15

Intersection Name:	TS ID:	Line No:	Model:	IP address:	Controller Make:
Plains Road @ Cooke Blvd	117	4	ACS/3	172.24.15.2	Econolite

Type of Operation: 8 Phase Semi-Actuated

No	Date			Description	Prepared by:
	Y	M	D		
5	2019	5	8	Plains Road Optimization	MA
6	2022	6	23	Plains Optimization	JR

*-Start from Main Menu

PHASE DESCRIPTION

Ph1		Ph5	EBLT - Plains Road
Ph2	EB - Plains Road	Ph6	WB - Plains Road
Ph3		Ph7	
Ph4	NB - Driveway	Ph8	SB - Cooke Blvd

CONFIGURATION (PHASE SEQ): PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use		X		X	X	X		X
Exclusive PED								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1

	Phase: 1	2	3	4	5	6	7	8
Minimum Green		8		8	6	8		8
Walk		8		8		8		8
Ped. Clearance		11		14		11		14
Pedestrian Carry Over								
Vehicle Extension		3		3	3	3		3
MAX 1		40		30	10	40		30
MAX 2		40		30	10	40		30
Yellow Change		3.7		3.3	3	3.7		3.3
Red Clearance		2.3		2.6		2.3		2.6
Phase Minimum:	0.0	25.0	0.0	27.9	9.0	25.0	0.0	27.9

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector								
Vehicle Recall								
Pedestrian Recall		X				X		
MAX Recall		X				X		
Min Recall								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN *** - 3 - 2, - 3 - 3**

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec)							
					1	2	3	4	5	6	7	8
1	110	102	1	1		78		32	16	62		32
2	90	84	1	2		52		38	12	40		38
3	110	96	1	3		78		32	16	62		32
4	90	12	1	4		60		30	12	48		30
10	0	0	1	10		0		0	0	0		0

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	4	06:00	4	1
1	1	1	07:00	1	1
1	1	2	09:00	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
1	1	10	22:00	254	1
2	2	4	08:00	4	1
2	2	3	10:30	3	1
2	2	4	17:00	4	1
2	2	10	21:00	254	1
3	3	4	09:30	4	1
3	3	2	12:00	2	1
3	3	4	17:00	4	1
3	3	10	21:00	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

Special Programming:

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOW	WOM/ Year	Day Plan
New Year's Day	1	Fixed	1	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	4	6	1	3
Victoria Day	4	Float	5	2	3	3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float	8	2	1	3
Labour Day	7	Float	9	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Intersection Name:	TS ID:	Line No:	Model:	IP address:	Controller Make:
Plains Road @ Waterdown Rd	100	4	ACS/3	172.24.7.2	Econolite

Type of Operation: 8 Phase Semi-Actuated

No	Date			Description	Prepared by:
	Y	M	D		
8	2019	5	15	Plains Road Optimization	MA
9	2022	5	19	Increase Main Street min green	JR
10	2022	6	23	Optimization	JR

*-Start from Main Menu

PHASE DESCRIPTION

Ph1	WBLT - Plains Road	Ph5	EBLT - Plains Road
Ph2	EB - Plains Road	Ph6	WB - Plains Road
Ph3	SBLT - Waterdown Road	Ph7	NBLT - Waterdown Road
Ph4	NB - Waterdown Road	Ph8	SB - Waterdown Road

CONFIGURATION (PHASE SEQ): PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use	X	X	X	X	X	X	X	X
Exclusive PED								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1

Phase:	1	2	3	4	5	6	7	8
Minimum Green	6	20	6	8	6	20	6	8
Walk		8		10		8		10
Ped. Clearance		13		17		17		17
Pedestrian Carry Over								
Vehicle Extension	3	3	3	3	3	3	3	3
MAX 1	12	35	12	25	12	35	12	25
MAX 2	12	35	12	25	12	35	12	25
Yellow Change	3	3.7	3	3.3	3	3.7	3	3.3
Red Clearance		2.6		3		2.6		3
Phase Minimum:	9.0	27.3	9.0	33.3	9.0	31.3	9.0	33.3

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector								
Vehicle Recall								
Pedestrian Recall								
MAX Recall		X				X		
Min Recall								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN *** - 3 - 2, - 3 - 3**

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec)							
					1	2	3	4	5	6	7	8
1	110	0	1	1	12	51	13	34	31	32	10	37
2	90	84	1	2	12	34	10	34	14	32	10	34
3	110	0	1	3	15	49	20	26	18	46	10	36
4	90	2	1	4	12	34	10	34	14	32	10	34
10	0	0	1	10	0	0	0	0	0	0	0	0

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	4	06:00	4	1
1	1	1	07:00	1	1
1	1	2	09:00	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
1	1	10	22:00	254	1
2	2	4	08:00	4	1
2	2	3	10:30	3	1
2	2	4	17:00	4	1
2	2	10	21:00	254	1
3	3	4	09:30	4	1
3	3	2	12:00	2	1
3	3	4	17:00	4	1
3	3	10	21:00	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

Special Programming:

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOW	WOM/ Year	Day Plan
New Year's Day	1	Fixed	1	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	4	6	1	3
Victoria Day	4	Float	5	2	3	3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float	8	2	1	3
Labour Day	7	Float	9	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Intersection Name:	TS ID:	Line No:	Model:	IP address:	Controller Make:
Waterdown Rd @ Masonry Crt	104	4	ACS/3	172.22.8.2	Econolite

Type of Operation: 8 Phase Semi-Actuated

*-Start from Main Menu

No	Date			Description	Prepared by
	Y	M	D		JR
8	2017	12	19	Timings reverted back to original	
9	2020	12	9	Increased phase 2 & 6 all-red	

PHASE DESCRIPTION

Ph1	SBL - Waterdown Road	Ph5	
Ph2	NB - Waterdown Road	Ph6	SB - Waterdown Road
Ph3		Ph7	
Ph4	EB - Railway Road	Ph8	WB - Masonry Court

PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use	X	X		X		X		X
Exclusive PED								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1

Phase:	1	2	3	4	5	6	7	8
Minimum Green	8	8		8		8		8
Walk		15		8		15		8
Ped. Clearance		14		14		14		14
Pedestrian Carry Over								
Vehicle Extension	3	3		5		3		5
MAX 1	15	40		30		40		30
MAX 2	15	40		30		40		30
Yellow Change	3	4		4		4		4
Red Clearance	0	3		3		3		3
Phase Minimum:	12	37	1	30	1	37	1	30

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector								
Vehicle Recall								
Pedestrian Recall		X				X		
MAX Recall		X				X		
Min Recall								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN *** - 3 - 2, - 3 - 3**

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec)							
					1	2	3	4	5	6	7	8
1	100	22	1	1	18	42		40		60		40
2	0	0	0	0	0	0		0		0		0
3	110	72	1	3	18	60		32		78		32
10	0	0	1	10	0	0		0		0		0

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	1	06:00	1	1
1	1	10	09:00	254	1
1	1	3	15:30	3	1
1	1	10	19:00	254	1
2	2	1	09:00	1	1
2	2	10	18:00	254	1
3	3	1	9:00	1	1
3	3	10	18:00	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

Special Programming:

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOW	WOM/ Year	Day Plan
New Year's Day	1	Fixed	1	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	4	6	1	3
Victoria Day	4	Float	5	2	3	3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float	8	2	1	3

Labour Day	7	Float	9	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Intersection Name:	TS ID:	Group No:	IP address:
Plains Rd @ St. Matthews Ave	116		172.22.16.2

Controller Make:	Model:
Econolite	ACS/3

Type of Operation: 8 Phase Semi - Actuated

No	Date Y	M	D	Description	Prepared by
1	2015	1	22	Implement timings in Centracs	YK

*- Start from Main Manu

PHASE DESCRIPTION

Ph1		Ph5	
Ph2	EB - Plains Rd	Ph6	WB - Plains Rd
Ph3		Ph7	
Ph4		Ph8	SB - St. Matthews Ave

CONFIGURATION (PHASE SEQ): PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use :		X				X		X
Exclusive PED :								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1 Phase:	1	2	3	4	5	6	7	8
Minimum Green :		8				8		8
Walk :		30				30		8
Ped. Clearance :		8				8		13
Vehicle Extension :		3				3		3
MAX 1 :		40				40		30
MAX 2 :		40				40		30
Yellow Change :		4				4		4
Red Clearance :		2				2		3

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector :								
Vehicle Recall :								
Pedestrian Recall :		X				X		
MAX Recall :		X				X		
Soft Recall :								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN * - 3 - 2, - 3 - 3

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec) 1	2	3	4	5	6	7	8
1	100	10	1	1		69		31				
2	90	4	1	2		59		31				
3	100	32	1	3		69		31				
4	85	61	1	4		54		31				
10	0	0	1	10		0		0				

Intersection Name:	TS ID:	Group No:	IP address:
Plains Rd @ St. Matthews Ave	116		172.22.16.2
Controller Make:	**Model:**		
Econolite	ACS/3		

CP # 1, 2, 10	Phase:	1	2	3	4	5	6	7	8
Coord Phase	:		X				X		
Vehicle Recall	:								
Pedestrian Recall *(3-3, 5-2)	:		X				X		
Recall to MAX Time	:								
Phase Omit	:								
Special Function Outputs	:								

Coordinator Pattern #	Prefer.	Phase							
		1	2	3	4	5	6	7	8
	1								
	2								

X - select "." deselect

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	4	06:00	4	1
1	1	1	07:00	1	1
1	1	2	09:00	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
1	1	10	22:00	254	1
2	2	4	08:00	4	1
2	2	3	10:30	3	1
2	2	4	17:00	4	1
2	2	10	21:00	254	1
3	3	4	09:30	4	1
3	3	2	12:00	2	1
3	3	4	17:00	4	1
3	3	10	21:00	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

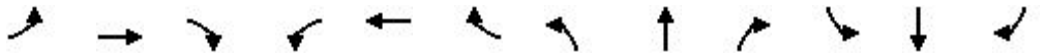
Action Plan 10 = free (254)

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOW	WOM/ Year	Day Plan
New Year's Day	1	Fixed	1	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	4	6	1	3
Victoria Day	4	Float	5	2	3	3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float	8	2	1	3
Labour Day	7	Float	9	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Appendix D

Existing Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	254	17	28	76	0	12	1	61	0	7	15
Future Volume (Veh/h)	3	254	17	28	76	0	12	1	61	0	7	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	3	292	20	32	87	0	14	1	70	0	8	17
Pedestrians		1			10			2			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		145										
pX, platoon unblocked												
vC, conflicting volume	92			314			483	466	314	544	476	93
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	92			314			483	466	314	544	476	93
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			97	100	90	100	98	98
cM capacity (veh/h)	1509			1256			457	481	719	393	475	965

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	315	119	85	25
Volume Left	3	32	14	0
Volume Right	20	0	70	17
cSH	1509	1256	654	725
Volume to Capacity	0.00	0.03	0.13	0.03
Queue Length 95th (m)	0.0	0.6	3.6	0.9
Control Delay (s)	0.1	2.3	11.3	10.1
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	2.3	11.3	10.1
Approach LOS			B	B

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	42.6%	ICU Level of Service	A	
Analysis Period (min)	15			

3: Waterdown Rd & Railway Rd/Masonry Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	0	13	6	0	93	8	799	33	122	540	21
Future Volume (vph)	23	0	13	6	0	93	8	799	33	122	540	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	35.0		0.0	25.0		0.0	30.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			20.0			35.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		1.00			1.00	1.00		1.00	1.00	
Frt		0.952			0.850			0.994			0.994	
Flt Protected		0.969		0.950			0.950			0.950		
Satd. Flow (prot)	0	1424	0	1785	1597	0	1594	3414	0	1733	3399	0
Flt Permitted		0.745		0.732			0.419			0.278		
Satd. Flow (perm)	0	1095	0	1372	1597	0	701	3414	0	506	3399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76			352			4			6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		318.9			144.8			350.0			576.8	
Travel Time (s)		23.0			10.4			25.2			41.5	
Confl. Peds. (#/hr)			2	2			3		4	4		3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	56%	0%	8%	0%	0%	0%	12%	4%	0%	3%	3%	38%
Adj. Flow (vph)	25	0	14	7	0	102	9	878	36	134	593	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	7	102	0	9	914	0	134	616	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes				
Headway Factor	0.85	0.85	0.85	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		11.0	36.0	
Total Split (s)	40.0	40.0		40.0	40.0		42.0	42.0		18.0	60.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		42.0%	42.0%		18.0%	60.0%	
Maximum Green (s)	33.0	33.0		33.0	33.0		35.0	35.0		15.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag							Lag	Lag		Lead		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		15.0	15.0			15.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)		8.4		8.4	8.4		69.4	69.4		84.6	82.0	
Actuated g/C Ratio		0.08		0.08	0.08		0.69	0.69		0.85	0.82	
v/c Ratio		0.24		0.06	0.22		0.02	0.39		0.25	0.22	
Control Delay		5.8		43.2	1.1		6.2	7.6		3.0	2.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		5.8		43.2	1.1		6.2	7.6		3.0	2.9	
LOS		A		D	A		A	A		A	A	
Approach Delay		5.8			3.8			7.6			2.9	
Approach LOS		A			A			A			A	
Queue Length 50th (m)		0.0		1.3	0.0		0.6	39.2		3.9	13.9	
Queue Length 95th (m)		2.9		5.8	0.0		2.4	54.8		7.6	20.1	
Internal Link Dist (m)		294.9			120.8			326.0			552.8	
Turn Bay Length (m)				35.0			25.0			30.0		
Base Capacity (vph)		412		452	762		486	2371		612	2789	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.09		0.02	0.13		0.02	0.39		0.22	0.22	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 5.4		Intersection LOS: A	
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Waterdown Rd & Railway Rd/Masonry Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	0	13	6	0	93	8	799	33	122	540	21
Future Volume (vph)	23	0	13	6	0	93	8	799	33	122	540	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.95		1.00	0.85		1.00	0.99		1.00	0.99	
Flt Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1423		1780	1597		1590	3414		1732	3400	
Flt Permitted		0.75		0.73	1.00		0.42	1.00		0.28	1.00	
Satd. Flow (perm)		1095		1371	1597		701	3414		508	3400	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	25	0	14	7	0	102	9	878	36	134	593	23
RTOR Reduction (vph)	0	36	0	0	95	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	3	0	7	7	0	9	913	0	134	615	0
Confl. Peds. (#/hr)			2	2			3		4	4		3
Heavy Vehicles (%)	56%	0%	8%	0%	0%	0%	12%	4%	0%	3%	3%	38%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.8		6.8	6.8		68.0	68.0		79.2	79.2	
Effective Green, g (s)		6.8		6.8	6.8		68.0	68.0		79.2	79.2	
Actuated g/C Ratio		0.07		0.07	0.07		0.68	0.68		0.79	0.79	
Clearance Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		74		93	108		476	2321		502	2692	
v/s Ratio Prot					0.00			c0.27		c0.02	0.18	
v/s Ratio Perm		0.00		c0.01			0.01			0.19		
v/c Ratio		0.04		0.08	0.06		0.02	0.39		0.27	0.23	
Uniform Delay, d1		43.5		43.7	43.6		5.2	7.0		2.7	2.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4		0.7	0.5		0.1	0.5		0.3	0.2	
Delay (s)		44.0		44.4	44.1		5.3	7.5		3.0	2.8	
Level of Service		D		D	D		A	A		A	A	
Approach Delay (s)		44.0			44.2			7.5			2.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

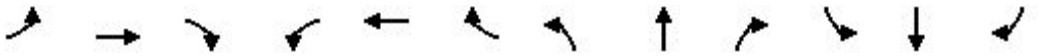
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	454	762	150	105	318	183	60	229	69	181	207	167
Future Volume (vph)	454	762	150	105	318	183	60	229	69	181	207	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		0.99	0.99		0.99		0.98
Frt		0.975			0.945			0.965				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	3365	0	1684	3185	0	1668	1734	0	1716	1824	1536
Flt Permitted	0.280			0.255			0.581			0.235		
Satd. Flow (perm)	510	3365	0	450	3185	0	1014	1734	0	420	1824	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			98			13				188
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
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 (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Adj. Flow (vph)	510	856	169	118	357	206	67	257	78	203	233	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	510	1025	0	118	563	0	67	335	0	203	233	188
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	31.0	51.0		12.0	32.0		10.0	34.0		13.0	37.0	37.0
Total Split (%)	28.2%	46.4%		10.9%	29.1%		9.1%	30.9%		11.8%	33.6%	33.6%
Maximum Green (s)	28.0	44.7		9.0	25.7		7.0	27.7		10.0	30.7	30.7
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	63.4	48.8		42.8	31.3		34.4	24.3		40.6	29.3	29.3
Actuated g/C Ratio	0.58	0.44		0.39	0.28		0.31	0.22		0.37	0.27	0.27
v/c Ratio	0.88	0.68		0.44	0.58		0.19	0.85		0.75	0.48	0.35
Control Delay	34.9	27.5		23.0	28.7		23.1	59.6		42.6	37.7	6.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.9	27.5		23.0	28.7		23.1	59.6		42.6	37.7	6.4
LOS	C	C		C	C		C	E		D	D	A
Approach Delay		29.9			27.7			53.5			29.8	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	67.7	96.6		10.3	50.8		9.6	69.1		31.6	44.6	0.0
Queue Length 95th (m)	#128.4	123.2		18.5	70.0		18.5	#101.7		#52.3	67.2	16.3
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	609	1507		279	975		360	446		272	509	555
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.84	0.68		0.42	0.58		0.19	0.75		0.75	0.46	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 32.4		Intersection LOS: C	
Intersection Capacity Utilization 92.5%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	454	762	150	105	318	183	60	229	69	181	207	167
Future Volume (vph)	454	762	150	105	318	183	60	229	69	181	207	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.95		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1732	3366		1683	3185		1663	1734		1713	1824	1504
Flt Permitted	0.28	1.00		0.26	1.00		0.58	1.00		0.24	1.00	1.00
Satd. Flow (perm)	510	3366		452	3185		1018	1734		424	1824	1504
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	510	856	169	118	357	206	67	257	78	203	233	188
RTOR Reduction (vph)	0	14	0	0	71	0	0	10	0	0	0	138
Lane Group Flow (vph)	510	1011	0	118	492	0	67	325	0	203	233	50
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
Heavy Vehicles (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	59.5	48.2		39.0	30.7		30.5	24.9		37.9	29.3	29.3
Effective Green, g (s)	59.5	48.2		39.0	30.7		30.5	24.9		37.9	29.3	29.3
Actuated g/C Ratio	0.54	0.44		0.35	0.28		0.28	0.23		0.34	0.27	0.27
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	562	1474		253	888		315	392		263	485	400
v/s Ratio Prot	c0.21	0.30		0.04	0.15		0.01	0.19		c0.07	0.13	
v/s Ratio Perm	c0.28			0.13			0.05			c0.20		0.03
v/c Ratio	0.91	0.69		0.47	0.55		0.21	0.83		0.77	0.48	0.13
Uniform Delay, d1	18.3	24.8		24.7	33.8		29.9	40.5		28.3	33.9	30.6
Progression Factor	1.00	1.00		1.20	0.89		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.3	2.6		1.3	2.5		0.3	13.5		13.1	0.8	0.1
Delay (s)	36.7	27.4		30.9	32.7		30.3	54.0		41.4	34.7	30.8
Level of Service	D	C		C	C		C	D		D	C	C
Approach Delay (s)		30.5			32.4			50.0			35.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

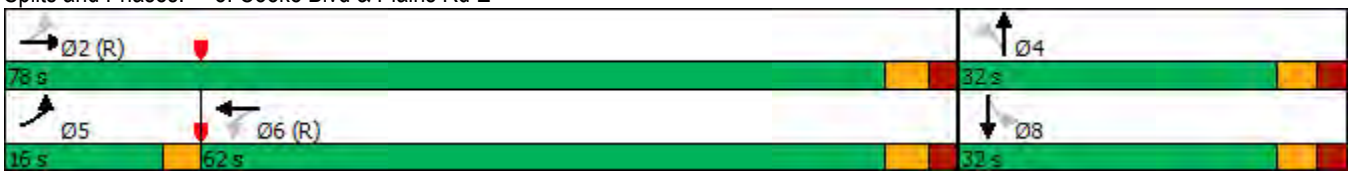
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1001	1	0	589	35	0	0	1	17	0	24
Future Volume (vph)	38	1001	1	0	589	35	0	0	1	17	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Storage Length (m)	40.0		0.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00			1.00			0.98			0.98	
Frt					0.992			0.865			0.920	
Flt Protected	0.950										0.980	
Satd. Flow (prot)	1785	3433	0	1879	3371	0	0	1599	0	0	1696	0
Flt Permitted	0.381										0.867	
Satd. Flow (perm)	709	3433	0	1879	3371	0	0	1599	0	0	1497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8			117			60	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		157.2			142.3			238.5			100.6	
Travel Time (s)		9.4			8.5			17.2			7.2	
Confl. Peds. (#/hr)	12		10	10		12	12		3	3		12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	0%	0%	5%	0%	0%	0%	0%	6%	0%	17%
Adj. Flow (vph)	41	1088	1	0	640	38	0	0	1	18	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	1089	0	0	678	0	0	1	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.85	0.85	0.85
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA			NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	25.0		25.0	25.0		27.9	27.9		27.9	27.9	
Total Split (s)	16.0	78.0		62.0	62.0		32.0	32.0		32.0	32.0	
Total Split (%)	14.5%	70.9%		56.4%	56.4%		29.1%	29.1%		29.1%	29.1%	
Maximum Green (s)	13.0	72.0		56.0	56.0		26.1	26.1		26.1	26.1	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lead/Lag	Lead			Lag	Lag							

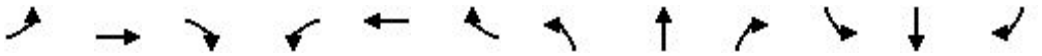
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	98.7	98.1			92.6			8.0			8.0	
Actuated g/C Ratio	0.90	0.89			0.84			0.07			0.07	
v/c Ratio	0.06	0.36			0.24			0.00			0.27	
Control Delay	0.8	1.0			3.5			0.0			11.9	
Queue Delay	0.0	0.1			0.0			0.0			0.0	
Total Delay	0.8	1.1			3.5			0.0			11.9	
LOS	A	A			A			A			B	
Approach Delay		1.1			3.5						11.9	
Approach LOS		A			A						B	
Queue Length 50th (m)	0.6	11.4			22.3			0.0			0.0	
Queue Length 95th (m)	m0.8	13.9			29.6			0.0			7.7	
Internal Link Dist (m)		133.2			118.3			214.5			76.6	
Turn Bay Length (m)	40.0											
Base Capacity (vph)	763	3060			2839			468			400	
Starvation Cap Reductn	0	762			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.05	0.47			0.24			0.00			0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 2.2		Intersection LOS: A	
Intersection Capacity Utilization 54.1%		ICU Level of Service A	
Analysis Period (min) 15			

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

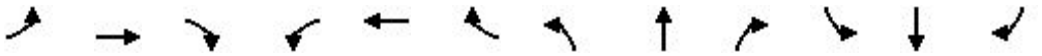
Splits and Phases: 5: Cooke Blvd & Plains Rd E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1001	1	0	589	35	0	0	1	17	0	24
Future Volume (vph)	38	1001	1	0	589	35	0	0	1	17	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Total Lost time (s)	3.0	6.0			6.0			5.9			5.9	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			0.98			0.98	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			0.99			0.86			0.92	
Flt Protected	0.95	1.00			1.00			1.00			0.98	
Satd. Flow (prot)	1777	3432			3370			1599			1693	
Flt Permitted	0.38	1.00			1.00			1.00			0.87	
Satd. Flow (perm)	712	3432			3370			1599			1497	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	1088	1	0	640	38	0	0	1	18	0	26
RTOR Reduction (vph)	0	0	0	0	2	0	0	1	0	0	42	0
Lane Group Flow (vph)	41	1089	0	0	676	0	0	0	0	0	2	0
Confl. Peds. (#/hr)	12		10	10		12	12		3	3		12
Heavy Vehicles (%)	0%	4%	0%	0%	5%	0%	0%	0%	0%	6%	0%	17%
Turn Type	pm+pt	NA		Perm	NA			NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	93.3	93.3			86.6			4.8			4.8	
Effective Green, g (s)	93.3	93.3			86.6			4.8			4.8	
Actuated g/C Ratio	0.85	0.85			0.79			0.04			0.04	
Clearance Time (s)	3.0	6.0			6.0			5.9			5.9	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	639	2910			2653			69			65	
v/s Ratio Prot	0.00	c0.32			0.20			0.00				
v/s Ratio Perm	0.05										c0.00	
v/c Ratio	0.06	0.37			0.25			0.00			0.03	
Uniform Delay, d1	1.3	1.9			3.1			50.3			50.4	
Progression Factor	0.53	0.42			1.00			1.00			1.00	
Incremental Delay, d2	0.0	0.3			0.2			0.0			0.2	
Delay (s)	0.7	1.0			3.3			50.3			50.6	
Level of Service	A	A			A			D			D	
Approach Delay (s)		1.0			3.3			50.3			50.6	
Approach LOS		A			A			D			D	

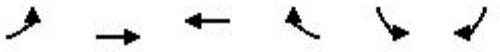
Intersection Summary			
HCM 2000 Control Delay	3.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



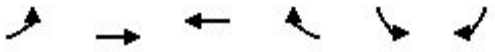
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1001	4	7	604	4	4	0	32	4	1	10
Future Volume (Veh/h)	2	1001	4	7	604	4	4	0	32	4	1	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	1100	4	8	664	4	4	0	35	4	1	11
Pedestrians		1						9			7	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						1			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		142			179							
pX, platoon unblocked	0.99			0.93			0.94	0.94	0.93	0.94	0.94	0.99
vC, conflicting volume	675			1113			1476	1806	561	1278	1806	342
vC1, stage 1 conf vol							1115	1115		689	689	
vC2, stage 2 conf vol							360	691		589	1117	
vCu, unblocked vol	652			971			1322	1675	378	1111	1675	315
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	94	99	100	98
cM capacity (veh/h)	930			663			238	259	578	339	255	675

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2	733	371	8	443	225	39	16
Volume Left	2	0	0	8	0	0	4	4
Volume Right	0	0	4	0	0	4	35	11
cSH	930	1700	1700	663	1700	1700	504	499
Volume to Capacity	0.00	0.43	0.22	0.01	0.26	0.13	0.08	0.03
Queue Length 95th (m)	0.1	0.0	0.0	0.3	0.0	0.0	2.0	0.8
Control Delay (s)	8.9	0.0	0.0	10.5	0.0	0.0	12.7	12.4
Lane LOS	A			B			B	B
Approach Delay (s)	0.0			0.1			12.7	12.4
Approach LOS							B	B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	38.1%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	1046	601	1	5	5
Future Volume (vph)	4	1046	601	1	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	9.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	11.0				12.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.99
Frt						0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1785	3466	3400	0	1785	1597
Flt Permitted	0.403				0.950	
Satd. Flow (perm)	754	3466	3400	0	1782	1573
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						5
Link Speed (k/h)		60	60		50	
Link Distance (m)		179.0	398.2		302.2	
Travel Time (s)		10.7	23.9		21.8	
Confl. Peds. (#/hr)	7			7	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	5%	0%	0%	0%
Adj. Flow (vph)	4	1137	653	1	5	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	1137	654	0	5	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Detector Phase	2	2	6		8	8
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	45.0	45.0	45.0		28.0	28.0
Total Split (s)	69.0	69.0	69.0		31.0	31.0
Total Split (%)	69.0%	69.0%	69.0%		31.0%	31.0%
Maximum Green (s)	63.0	63.0	63.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						

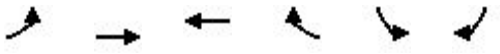


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)	30.0	30.0	30.0		8.0	8.0
Flash Dont Walk (s)	8.0	8.0	8.0		13.0	13.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	95.8	95.8	95.8		8.0	8.0
Actuated g/C Ratio	0.96	0.96	0.96		0.08	0.08
v/c Ratio	0.01	0.34	0.20		0.04	0.04
Control Delay	1.2	1.2	0.9		43.2	26.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	1.2	1.2	0.9		43.2	26.8
LOS	A	A	A		D	C
Approach Delay		1.2	0.9		35.0	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.0	0.0	0.0		1.0	0.0
Queue Length 95th (m)	0.8	37.6	18.8		4.7	3.7
Internal Link Dist (m)		155.0	374.2		278.2	
Turn Bay Length (m)	15.0				9.0	
Base Capacity (vph)	722	3320	3257		428	381
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.01	0.34	0.20		0.01	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 10 (10%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 1.3		Intersection LOS: A	
Intersection Capacity Utilization 49.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: Plains Rd E & St Matthews Ave





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	1046	601	1	5	5
Future Volume (vph)	4	1046	601	1	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		7.0	7.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1778	3466	3399		1785	1573
Flt Permitted	0.40	1.00	1.00		0.95	1.00
Satd. Flow (perm)	755	3466	3399		1785	1573
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1137	653	1	5	5
RTOR Reduction (vph)	0	0	0	0	0	5
Lane Group Flow (vph)	4	1137	654	0	5	0
Confl. Peds. (#/hr)	7			7	1	2
Heavy Vehicles (%)	0%	3%	5%	0%	0%	0%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Actuated Green, G (s)	85.4	85.4	85.4		1.6	1.6
Effective Green, g (s)	85.4	85.4	85.4		1.6	1.6
Actuated g/C Ratio	0.85	0.85	0.85		0.02	0.02
Clearance Time (s)	6.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	644	2959	2902		28	25
v/s Ratio Prot		c0.33	0.19		c0.00	
v/s Ratio Perm	0.01					0.00
v/c Ratio	0.01	0.38	0.23		0.18	0.00
Uniform Delay, d1	1.1	1.6	1.3		48.6	48.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.4	0.2		3.0	0.1
Delay (s)	1.1	2.0	1.5		51.6	48.5
Level of Service	A	A	A		D	D
Approach Delay (s)		2.0	1.5		50.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	2.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	68	5	66	194	0	65	13	37	0	13	13
Future Volume (Veh/h)	24	68	5	66	194	0	65	13	37	0	13	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	27	76	6	74	218	0	73	15	42	0	15	15
Pedestrians		2			11			1			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		145										
pX, platoon unblocked												
vC, conflicting volume	222			83			524	504	91	564	507	224
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222			83			524	504	91	564	507	224
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			95			83	97	96	100	97	98
cM capacity (veh/h)	1355			1526			421	439	963	383	438	817

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	109	292	130	30
Volume Left	27	74	73	0
Volume Right	6	0	42	15
cSH	1355	1526	518	570
Volume to Capacity	0.02	0.05	0.25	0.05
Queue Length 95th (m)	0.5	1.2	7.9	1.3
Control Delay (s)	2.0	2.2	14.3	11.7
Lane LOS	A	A	B	B
Approach Delay (s)	2.0	2.2	14.3	11.7
Approach LOS			B	B

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	38.9%	ICU Level of Service	A	
Analysis Period (min)	15			

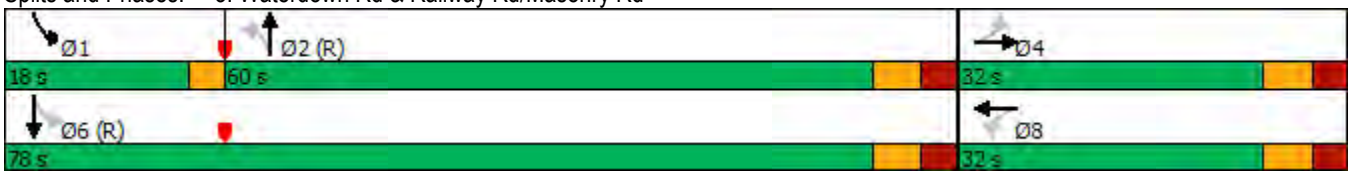
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	0	14	37	1	256	4	543	24	85	708	13
Future Volume (vph)	12	0	14	37	1	256	4	543	24	85	708	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	35.0		0.0	25.0		0.0	30.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			20.0			35.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt		0.926			0.851			0.994			0.997	
Flt Protected		0.978		0.950			0.950			0.950		
Satd. Flow (prot)	0	1950	0	1785	1599	0	1428	3478	0	1750	3462	0
Flt Permitted		0.250		0.738			0.349			0.392		
Satd. Flow (perm)	0	498	0	1387	1599	0	524	3478	0	720	3462	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			284			6			3	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		318.9			144.8			350.0			576.8	
Travel Time (s)		23.0			10.4			25.2			41.5	
Confl. Peds. (#/hr)							2		4	4		2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	25%	2%	0%	2%	2%	46%
Adj. Flow (vph)	13	0	16	41	1	284	4	603	27	94	787	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	41	285	0	4	630	0	94	801	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes				
Headway Factor	0.85	0.85	0.85	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		11.0	36.0	
Total Split (s)	32.0	32.0		32.0	32.0		60.0	60.0		18.0	78.0	
Total Split (%)	29.1%	29.1%		29.1%	29.1%		54.5%	54.5%		16.4%	70.9%	
Maximum Green (s)	25.0	25.0		25.0	25.0		53.0	53.0		15.0	71.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag							Lag	Lag		Lead		

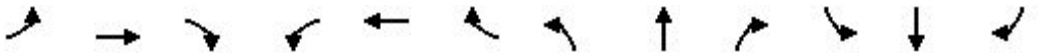
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		15.0	15.0			15.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)		11.6		11.6	11.6		75.5	75.5		88.4	84.4	
Actuated g/C Ratio		0.11		0.11	0.11		0.69	0.69		0.80	0.77	
v/c Ratio		0.25		0.28	0.68		0.01	0.26		0.14	0.30	
Control Delay		5.3		48.6	13.8		11.8	10.3		3.2	4.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		5.3		48.6	13.8		11.8	10.3		3.2	4.5	
LOS		A		D	B		B	B		A	A	
Approach Delay		5.3			18.1			10.3			4.4	
Approach LOS		A			B			B			A	
Queue Length 50th (m)		0.0		8.8	0.2		0.3	29.7		3.2	22.5	
Queue Length 95th (m)		0.6		18.5	24.4		m0.5	m53.2		9.2	40.7	
Internal Link Dist (m)		294.9			120.8			326.0			552.8	
Turn Bay Length (m)				35.0			25.0			30.0		
Base Capacity (vph)		166		315	582		359	2389		718	2656	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.17		0.13	0.49		0.01	0.26		0.13	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 72 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 64.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Waterdown Rd & Railway Rd/Masonry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	0	14	37	1	256	4	543	24	85	708	13
Future Volume (vph)	12	0	14	37	1	256	4	543	24	85	708	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.93		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1949		1785	1598		1426	3476		1748	3463	
Flt Permitted		0.25		0.74	1.00		0.35	1.00		0.39	1.00	
Satd. Flow (perm)		498		1387	1598		524	3476		721	3463	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	0	16	41	1	284	4	603	27	94	787	14
RTOR Reduction (vph)	0	26	0	0	254	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	3	0	41	31	0	4	628	0	94	800	0
Confl. Peds. (#/hr)							2		4	4		2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	25%	2%	0%	2%	2%	46%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.6		11.6	11.6		74.9	74.9		84.4	84.4	
Effective Green, g (s)		11.6		11.6	11.6		74.9	74.9		84.4	84.4	
Actuated g/C Ratio		0.11		0.11	0.11		0.68	0.68		0.77	0.77	
Clearance Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		52		146	168		356	2366		613	2657	
v/s Ratio Prot					0.02			0.18		0.01	c0.23	
v/s Ratio Perm		0.01		c0.03			0.01			0.11		
v/c Ratio		0.06		0.28	0.18		0.01	0.27		0.15	0.30	
Uniform Delay, d1		44.3		45.4	44.9		5.6	6.8		3.2	3.9	
Progression Factor		1.00		1.00	1.00		1.49	1.35		1.00	1.00	
Incremental Delay, d2		1.0		2.2	1.1		0.0	0.1		0.1	0.3	
Delay (s)		45.3		47.6	46.0		8.5	9.4		3.3	4.2	
Level of Service		D		D	D		A	A		A	A	
Approach Delay (s)		45.3			46.2			9.4			4.1	
Approach LOS		D			D			A			A	

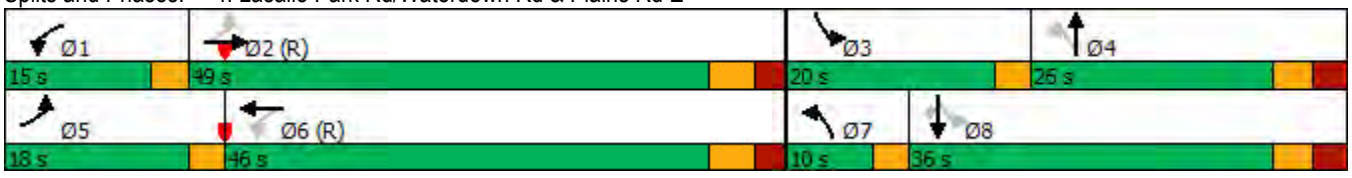
Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

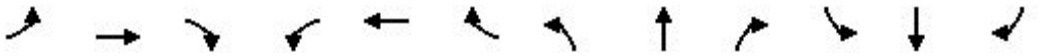
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	555	89	116	1014	202	129	161	49	253	151	394
Future Volume (vph)	266	555	89	116	1014	202	129	161	49	253	151	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.99		0.98	0.99		0.99		0.97
Frt		0.979			0.975			0.965				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1767	3415	0	1750	3411	0	1767	1769	0	1785	1824	1566
Flt Permitted	0.085			0.376			0.658			0.325		
Satd. Flow (perm)	158	3415	0	687	3411	0	1204	1769	0	607	1824	1515
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			24			12				292
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Adj. Flow (vph)	274	572	92	120	1045	208	133	166	51	261	156	406
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	664	0	120	1253	0	133	217	0	261	156	406
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	18.0	49.0		15.0	46.0		10.0	26.0		20.0	36.0	36.0
Total Split (%)	16.4%	44.5%		13.6%	41.8%		9.1%	23.6%		18.2%	32.7%	32.7%
Maximum Green (s)	15.0	42.7		12.0	39.7		7.0	19.7		17.0	29.7	29.7
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	65.1	49.8		56.4	44.2		27.1	16.8		38.9	25.6	25.6
Actuated g/C Ratio	0.59	0.45		0.51	0.40		0.25	0.15		0.35	0.23	0.23
v/c Ratio	0.89	0.43		0.27	0.91		0.40	0.78		0.68	0.37	0.70
Control Delay	57.5	22.0		7.6	36.3		29.1	60.6		38.9	33.6	16.0
Queue Delay	0.0	0.0		0.0	0.5		0.0	0.0		0.0	0.0	0.0
Total Delay	57.5	22.0		7.6	36.8		29.1	60.6		38.9	33.6	16.0
LOS	E	C		A	D		C	E		D	C	B
Approach Delay		32.4			34.2			48.6			26.6	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	43.8	52.7		6.0	~148.0		20.0	44.5		37.0	23.9	13.7
Queue Length 95th (m)	#94.6	74.5		5.9	#198.4		33.7	70.2		68.3	37.0	38.0
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	319	1557		487	1383		332	326		396	492	622
Starvation Cap Reductn	0	0		0	17		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.86	0.43		0.25	0.92		0.40	0.67		0.66	0.32	0.65

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 33.4		Intersection LOS: C	
Intersection Capacity Utilization 94.8%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

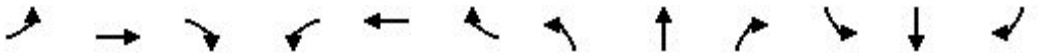




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	555	89	116	1014	202	129	161	49	253	151	394
Future Volume (vph)	266	555	89	116	1014	202	129	161	49	253	151	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3416		1745	3412		1748	1768		1782	1824	1515
Flt Permitted	0.08	1.00		0.38	1.00		0.66	1.00		0.32	1.00	1.00
Satd. Flow (perm)	158	3416		690	3412		1211	1768		609	1824	1515
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	274	572	92	120	1045	208	133	166	51	261	156	406
RTOR Reduction (vph)	0	10	0	0	14	0	0	10	0	0	0	224
Lane Group Flow (vph)	274	654	0	120	1239	0	133	207	0	261	156	182
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	61.8	49.8		53.2	44.2		23.8	16.8		35.6	25.6	25.6
Effective Green, g (s)	61.8	49.8		53.2	44.2		23.8	16.8		35.6	25.6	25.6
Actuated g/C Ratio	0.56	0.45		0.48	0.40		0.22	0.15		0.32	0.23	0.23
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	302	1546		420	1371		296	270		365	424	352
v/s Ratio Prot	c0.12	0.19		0.02	0.36		0.03	0.12		c0.10	0.09	
v/s Ratio Perm	c0.39			0.11			0.07			c0.13		0.12
v/c Ratio	0.91	0.42		0.29	0.90		0.45	0.77		0.72	0.37	0.52
Uniform Delay, d1	31.8	20.4		15.8	30.9		36.6	44.7		30.0	35.4	36.8
Progression Factor	1.00	1.00		0.55	0.82		1.00	1.00		1.13	0.91	0.86
Incremental Delay, d2	28.9	0.8		0.3	9.0		1.1	12.2		6.3	0.5	1.2
Delay (s)	60.7	21.2		9.0	34.5		37.6	56.9		40.3	32.7	33.0
Level of Service	E	C		A	C		D	E		D	C	C
Approach Delay (s)		32.8			32.2			49.6			35.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



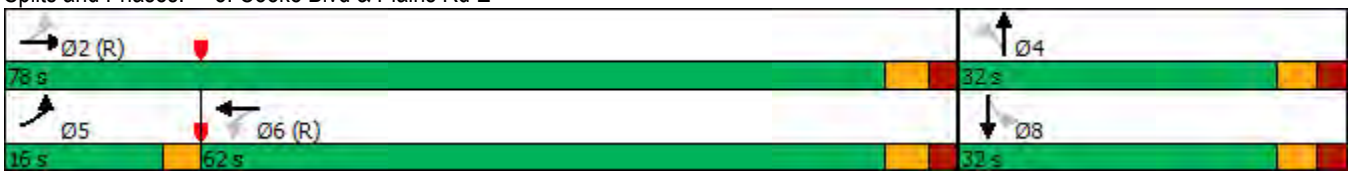
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	824	0	2	1227	65	0	0	2	54	0	63
Future Volume (vph)	30	824	0	2	1227	65	0	0	2	54	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Storage Length (m)	40.0		0.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.99	1.00			0.98			0.99	
Frt					0.992			0.865			0.927	
Flt Protected	0.950			0.950							0.978	
Satd. Flow (prot)	1785	3535	0	1785	3495	0	0	1599	0	0	1902	0
Flt Permitted	0.164			0.330							0.852	
Satd. Flow (perm)	308	3535	0	613	3495	0	0	1599	0	0	1654	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			187			60	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		157.2			142.3			238.5			100.6	
Travel Time (s)		9.4			8.5			17.2			7.2	
Confl. Peds. (#/hr)	8		12	12		8	4		3	3		4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	1%	3%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	31	858	0	2	1278	68	0	0	2	56	0	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	858	0	2	1346	0	0	2	0	0	122	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.85	0.85	0.85
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA			NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	25.0		25.0	25.0		27.9	27.9		27.9	27.9	
Total Split (s)	16.0	78.0		62.0	62.0		32.0	32.0		32.0	32.0	
Total Split (%)	14.5%	70.9%		56.4%	56.4%		29.1%	29.1%		29.1%	29.1%	
Maximum Green (s)	13.0	72.0		56.0	56.0		26.1	26.1		26.1	26.1	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lead/Lag	Lead			Lag	Lag							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	90.6	87.6		82.1	82.1			10.5			10.5	
Actuated g/C Ratio	0.82	0.80		0.75	0.75			0.10			0.10	
v/c Ratio	0.09	0.30		0.00	0.52			0.01			0.58	
Control Delay	1.9	2.6		5.5	7.5			0.0			36.1	
Queue Delay	0.0	0.1		0.0	0.2			0.0			0.0	
Total Delay	1.9	2.7		5.5	7.7			0.0			36.1	
LOS	A	A		A	A			A			D	
Approach Delay		2.7			7.7						36.1	
Approach LOS		A			A						D	
Queue Length 50th (m)	0.5	18.0		0.1	62.4			0.0			13.6	
Queue Length 95th (m)	m2.0	30.8		1.0	95.3			0.0			31.1	
Internal Link Dist (m)		133.2			118.3			214.5			76.6	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	428	2815		457	2610			522			438	
Starvation Cap Reductn	0	812		0	0			0			0	
Spillback Cap Reductn	0	0		0	518			0			8	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.07	0.43		0.00	0.64			0.00			0.28	

Intersection Summary

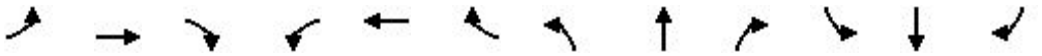
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 96 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 7.3 Intersection LOS: A
Intersection Capacity Utilization 60.3% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Cooke Blvd & Plains Rd E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	824	0	2	1227	65	0	0	2	54	0	63
Future Volume (vph)	30	824	0	2	1227	65	0	0	2	54	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Total Lost time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.86			0.93	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.98	
Satd. Flow (prot)	1784	3535		1766	3497			1599			1898	
Flt Permitted	0.16	1.00		0.33	1.00			1.00			0.85	
Satd. Flow (perm)	309	3535		613	3497			1599			1654	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	31	858	0	2	1278	68	0	0	2	56	0	66
RTOR Reduction (vph)	0	0	0	0	2	0	0	2	0	0	54	0
Lane Group Flow (vph)	31	858	0	2	1344	0	0	0	0	0	68	0
Confl. Peds. (#/hr)	8		12	12		8	4		3	3		4
Heavy Vehicles (%)	0%	1%	0%	0%	1%	3%	0%	0%	0%	0%	0%	3%
Turn Type	pm+pt	NA		Perm	NA			NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	87.6	87.6		80.9	80.9			10.5			10.5	
Effective Green, g (s)	87.6	87.6		80.9	80.9			10.5			10.5	
Actuated g/C Ratio	0.80	0.80		0.74	0.74			0.10			0.10	
Clearance Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	295	2815		450	2571			152			157	
v/s Ratio Prot	0.00	c0.24			c0.38			0.00				
v/s Ratio Perm	0.08			0.00							c0.04	
v/c Ratio	0.11	0.30		0.00	0.52			0.00			0.43	
Uniform Delay, d1	3.6	3.0		3.9	6.3			45.0			46.9	
Progression Factor	0.67	0.74		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.2		0.0	0.8			0.0			1.9	
Delay (s)	2.5	2.5		3.9	7.0			45.0			49.1	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		2.5			7.0			45.0			49.1	
Approach LOS		A			A			D			D	

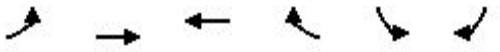
Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



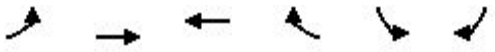
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	864	9	11	1291	4	3	1	11	4	1	10
Future Volume (Veh/h)	3	864	9	11	1291	4	3	1	11	4	1	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	3	882	9	11	1317	4	3	1	11	4	1	10
Pedestrians								10			9	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		142			179							
pX, platoon unblocked	0.88			0.94			0.91	0.91	0.94	0.91	0.91	0.88
vC, conflicting volume	1330			901			1594	2254	456	1808	2257	670
vC1, stage 1 conf vol							902	902		1350	1350	
vC2, stage 2 conf vol							691	1352		458	907	
vCu, unblocked vol	1109			764			1159	1882	289	1394	1885	362
tC, single (s)	4.1			4.1			8.2	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)							7.2	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			99			99	100	98	98	100	98
cM capacity (veh/h)	559			799			246	206	664	183	206	537

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	588	303	11	878	443	15	15
Volume Left	3	0	0	11	0	0	3	4
Volume Right	0	0	9	0	0	4	11	10
cSH	559	1700	1700	799	1700	1700	446	331
Volume to Capacity	0.01	0.35	0.18	0.01	0.52	0.26	0.03	0.05
Queue Length 95th (m)	0.1	0.0	0.0	0.3	0.0	0.0	0.8	1.1
Control Delay (s)	11.5	0.0	0.0	9.6	0.0	0.0	13.3	16.4
Lane LOS	B			A			B	C
Approach Delay (s)	0.0			0.1			13.3	16.4
Approach LOS							B	C

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	45.8%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	853	1281	18	19	16
Future Volume (vph)	23	853	1281	18	19	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	9.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	11.0				12.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.98
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1785	3535	3524	0	1785	1597
Flt Permitted	0.187				0.950	
Satd. Flow (perm)	351	3535	3524	0	1782	1562
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3			17
Link Speed (k/h)		60	60		50	
Link Distance (m)		179.0	398.2		302.2	
Travel Time (s)		10.7	23.9		21.8	
Confl. Peds. (#/hr)	7			7	1	7
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	6%	0%	0%
Adj. Flow (vph)	24	889	1334	19	20	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	889	1353	0	20	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Detector Phase	2	2	6		8	8
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	45.0	45.0	45.0		28.0	28.0
Total Split (s)	69.0	69.0	69.0		31.0	31.0
Total Split (%)	69.0%	69.0%	69.0%		31.0%	31.0%
Maximum Green (s)	63.0	63.0	63.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						

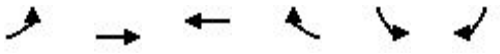


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)	30.0	30.0	30.0		8.0	8.0
Flash Dont Walk (s)	8.0	8.0	8.0		13.0	13.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	87.3	87.3	87.3		8.1	8.1
Actuated g/C Ratio	0.87	0.87	0.87		0.08	0.08
v/c Ratio	0.08	0.29	0.44		0.14	0.12
Control Delay	2.9	2.3	3.0		45.1	21.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	2.9	2.3	3.0		45.1	21.0
LOS	A	A	A		D	C
Approach Delay		2.4	3.0		34.0	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.9	20.8	38.4		3.9	0.0
Queue Length 95th (m)	2.7	27.5	49.5		11.4	6.8
Internal Link Dist (m)		155.0	374.2		278.2	
Turn Bay Length (m)	15.0				9.0	
Base Capacity (vph)	306	3086	3077		428	387
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.08	0.29	0.44		0.05	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 3.3		Intersection LOS: A	
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Plains Rd E & St Matthews Ave





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	853	1281	18	19	16
Future Volume (vph)	23	853	1281	18	19	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		7.0	7.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1783	3535	3523		1785	1562
Flt Permitted	0.19	1.00	1.00		0.95	1.00
Satd. Flow (perm)	351	3535	3523		1785	1562
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	24	889	1334	19	20	17
RTOR Reduction (vph)	0	0	1	0	0	16
Lane Group Flow (vph)	24	889	1352	0	20	1
Confl. Peds. (#/hr)	7			7	1	7
Heavy Vehicles (%)	0%	1%	1%	6%	0%	0%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Actuated Green, G (s)	82.1	82.1	82.1		4.9	4.9
Effective Green, g (s)	82.1	82.1	82.1		4.9	4.9
Actuated g/C Ratio	0.82	0.82	0.82		0.05	0.05
Clearance Time (s)	6.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	288	2902	2892		87	76
v/s Ratio Prot		0.25	c0.38		c0.01	
v/s Ratio Perm	0.07					0.00
v/c Ratio	0.08	0.31	0.47		0.23	0.01
Uniform Delay, d1	1.7	2.1	2.6		45.7	45.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.6	0.3	0.5		1.4	0.1
Delay (s)	2.3	2.4	3.1		47.1	45.3
Level of Service	A	A	A		D	D
Approach Delay (s)		2.4	3.1		46.3	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	3.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3476	3413	3328	3394	3283	3377
Vehs Exited	3456	3419	3293	3338	3269	3357
Starting Vehs	99	123	104	83	128	106
Ending Vehs	119	117	139	139	142	129
Travel Distance (km)	4705	4638	4508	4537	4457	4569
Travel Time (hr)	125.2	123.3	119.1	121.7	118.2	121.5
Total Delay (hr)	33.1	32.6	30.7	33.1	31.0	32.1
Total Stops	3062	2935	2879	3003	2797	2935
Fuel Used (l)	370.0	365.7	351.4	359.6	348.8	359.1

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	3476	3413	3328	3394	3283	3377
Vehs Exited	3456	3419	3293	3338	3269	3357
Starting Vehs	99	123	104	83	128	106
Ending Vehs	119	117	139	139	142	129
Travel Distance (km)	4705	4638	4508	4537	4457	4569
Travel Time (hr)	125.2	123.3	119.1	121.7	118.2	121.5
Total Delay (hr)	33.1	32.6	30.7	33.1	31.0	32.1
Total Stops	3062	2935	2879	3003	2797	2935
Fuel Used (l)	370.0	365.7	351.4	359.6	348.8	359.1

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	14.6	15.2	19.3	10.4
Average Queue (m)	0.8	1.9	8.7	4.5
95th Queue (m)	7.2	8.7	14.9	11.9
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Waterdown Rd & Railway Rd/Masonry Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	41.7	8.9	27.1	10.2	52.5	53.3	28.5	28.6	41.1
Average Queue (m)	11.6	1.4	11.4	1.0	15.2	19.2	12.0	6.0	11.6
95th Queue (m)	29.1	6.5	20.7	5.7	39.2	46.2	22.4	19.3	31.5
Link Distance (m)	303.8		122.3		322.3	322.3		566.2	566.2
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)		35.0		25.0			30.0		
Storage Blk Time (%)			0		3		0	0	
Queuing Penalty (veh)			0		0		0	0	

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	84.8	118.3	106.0	43.2	65.5	78.1	69.7	111.2	71.9	74.7	64.3
Average Queue (m)	56.1	58.8	59.2	15.0	28.8	38.5	14.6	58.0	32.4	33.4	15.5
95th Queue (m)	88.5	98.4	92.5	30.8	53.9	67.6	39.2	95.1	57.9	60.0	36.5
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	18	11		0	4		0	30		4	0
Queuing Penalty (veh)	69	48		0	4		1	18		7	0

Intersection: 5: Cooke Blvd & Plains Rd E

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	LTR	LTR
Maximum Queue (m)	12.7	34.2	40.9	41.6	53.0	5.1	23.2
Average Queue (m)	3.9	6.0	8.7	9.7	12.0	0.3	9.6
95th Queue (m)	11.6	21.5	26.5	29.4	35.7	2.8	21.0
Link Distance (m)		131.3	131.3	125.6	125.6	224.6	80.6
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	40.0						
Storage Blk Time (%)		0		0			
Queuing Penalty (veh)		0		0			

Intersection: 6: Birchwood Ave/Clearview Ave & Plains Rd E

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (m)	4.3	1.3	0.9	18.3	9.1
Average Queue (m)	0.3	0.0	0.0	6.6	3.4
95th Queue (m)	2.6	0.9	0.7	14.6	10.2
Link Distance (m)		125.6		290.4	306.4
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	50.0		50.0		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Plains Rd E & St Matthews Ave

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (m)	7.1	68.1	74.7	25.5	19.4	9.0	9.1
Average Queue (m)	0.4	8.1	10.1	3.4	2.4	1.1	1.7
95th Queue (m)	3.4	39.3	45.5	15.0	12.3	5.6	7.3
Link Distance (m)		138.2	138.2	388.2	388.2		288.6
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	15.0					9.0	
Storage Blk Time (%)		3				5	1
Queuing Penalty (veh)		0				0	0

Zone Summary

Zone wide Queuing Penalty: 148

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:20	4:20	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3822	3950	3914	3872	3885	3887
Vehs Exited	3783	3950	3919	3856	3870	3877
Starting Vehs	160	155	152	174	163	156
Ending Vehs	199	155	147	190	178	172
Travel Distance (km)	5263	5492	5415	5355	5378	5381
Travel Time (hr)	190.6	172.0	167.6	164.1	166.6	172.2
Total Delay (hr)	87.2	63.9	61.1	58.9	61.0	66.4
Total Stops	4387	4706	4364	4419	4134	4403
Fuel Used (l)	460.5	458.5	447.8	443.4	444.9	451.0

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	3822	3950	3914	3872	3885	3887
Vehs Exited	3783	3950	3919	3856	3870	3877
Starting Vehs	160	155	152	174	163	156
Ending Vehs	199	155	147	190	178	172
Travel Distance (km)	5263	5492	5415	5355	5378	5381
Travel Time (hr)	190.6	172.0	167.6	164.1	166.6	172.2
Total Delay (hr)	87.2	63.9	61.1	58.9	61.0	66.4
Total Stops	4387	4706	4364	4419	4134	4403
Fuel Used (l)	460.5	458.5	447.8	443.4	444.9	451.0

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.1	14.4	18.6	10.6
Average Queue (m)	1.2	1.9	10.4	5.6
95th Queue (m)	6.8	9.1	16.4	12.9
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Waterdown Rd & Railway Rd/Masonry Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	17.8	24.6	37.8	5.6	33.2	38.6	23.0	28.1	52.4
Average Queue (m)	5.3	9.9	19.9	0.3	14.6	18.5	8.9	10.5	21.4
95th Queue (m)	14.3	20.8	31.4	2.9	30.8	36.5	18.0	24.4	46.2
Link Distance (m)	303.8		122.3		322.3	322.3		566.2	566.2
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)		35.0		25.0			30.0		
Storage Blk Time (%)		0	1		2		0	0	
Queuing Penalty (veh)		0	0		0		0	0	

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	81.1	117.5	112.0	64.9	136.7	137.5	89.8	165.6	184.0	180.0	75.0
Average Queue (m)	52.5	48.2	41.4	31.0	95.7	98.2	38.4	69.3	104.3	57.2	49.7
95th Queue (m)	86.9	100.7	86.4	73.0	156.0	160.0	85.0	132.9	220.3	152.7	81.4
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)					4	4			0	0	
Queuing Penalty (veh)					25	28			0	1	
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	30	3		0	33		10	46		10	18
Queuing Penalty (veh)	83	9		0	39		22	59		40	27

Intersection: 5: Cooke Blvd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (m)	16.4	29.6	35.3	7.2	86.6	95.4	5.1	48.5
Average Queue (m)	6.1	8.8	12.7	0.4	33.0	37.3	0.3	21.9
95th Queue (m)	14.4	24.5	30.2	3.4	74.0	80.3	2.8	39.7
Link Distance (m)		131.3	131.3		125.6	125.6	224.6	80.6
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (m)	40.0			50.0				
Storage Blk Time (%)		0			5			
Queuing Penalty (veh)		0			0			

Intersection: 6: Birchwood Ave/Clearview Ave & Plains Rd E

Movement	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR
Maximum Queue (m)	5.9	2.7	18.3	15.4
Average Queue (m)	0.4	0.1	4.9	3.7
95th Queue (m)	3.2	1.9	14.2	12.2
Link Distance (m)		138.2	290.4	306.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	50.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Plains Rd E & St Matthews Ave

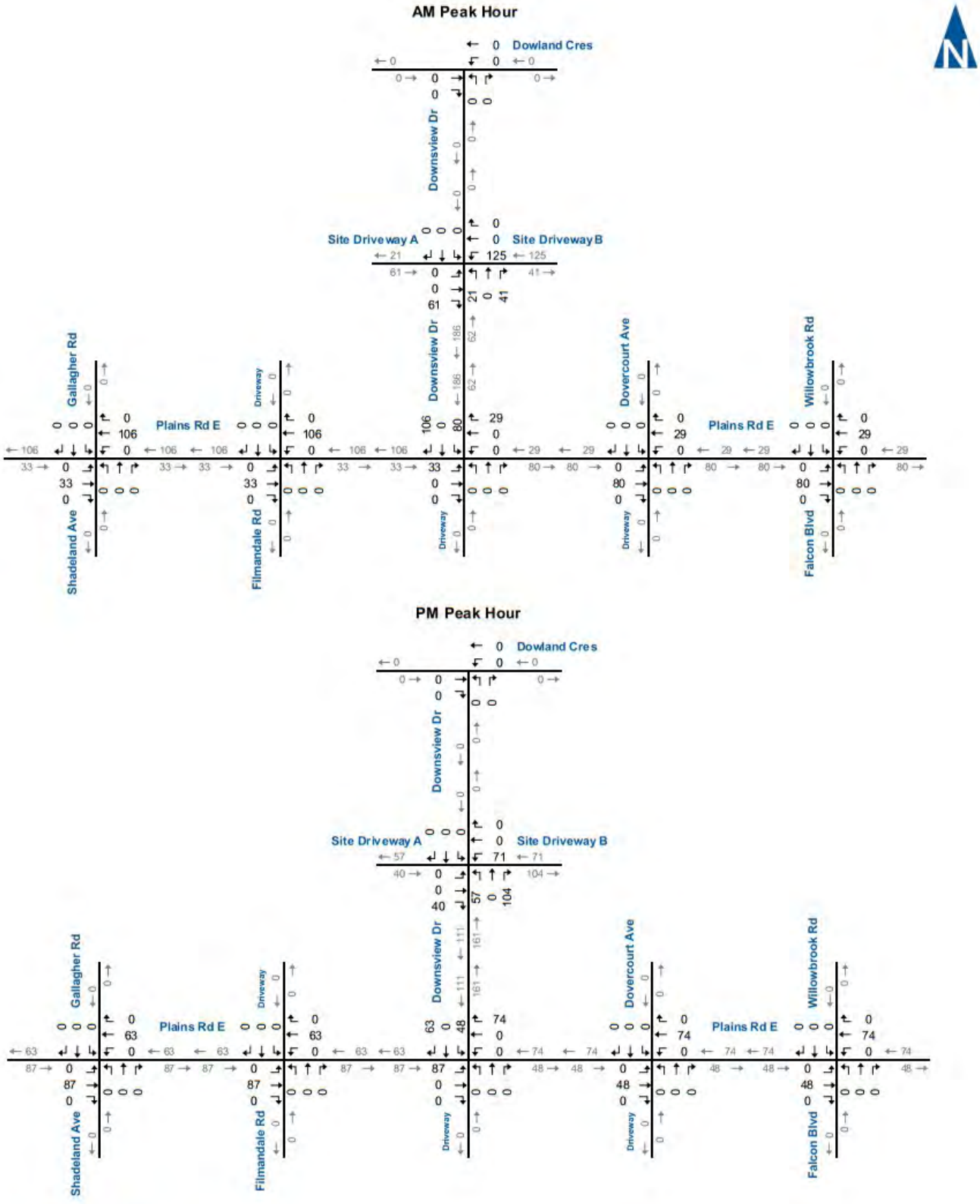
Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (m)	16.5	45.9	54.3	57.8	59.0	15.9	9.3
Average Queue (m)	3.8	8.2	11.6	15.2	13.8	5.1	3.1
95th Queue (m)	12.3	29.8	37.4	44.2	41.7	14.3	10.0
Link Distance (m)		138.2	138.2	388.2	388.2		288.6
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	15.0					9.0	
Storage Blk Time (%)	1	2				20	3
Queuing Penalty (veh)	2	1				3	1

Zone Summary

Zone wide Queuing Penalty: 342

Appendix E

Background Developments

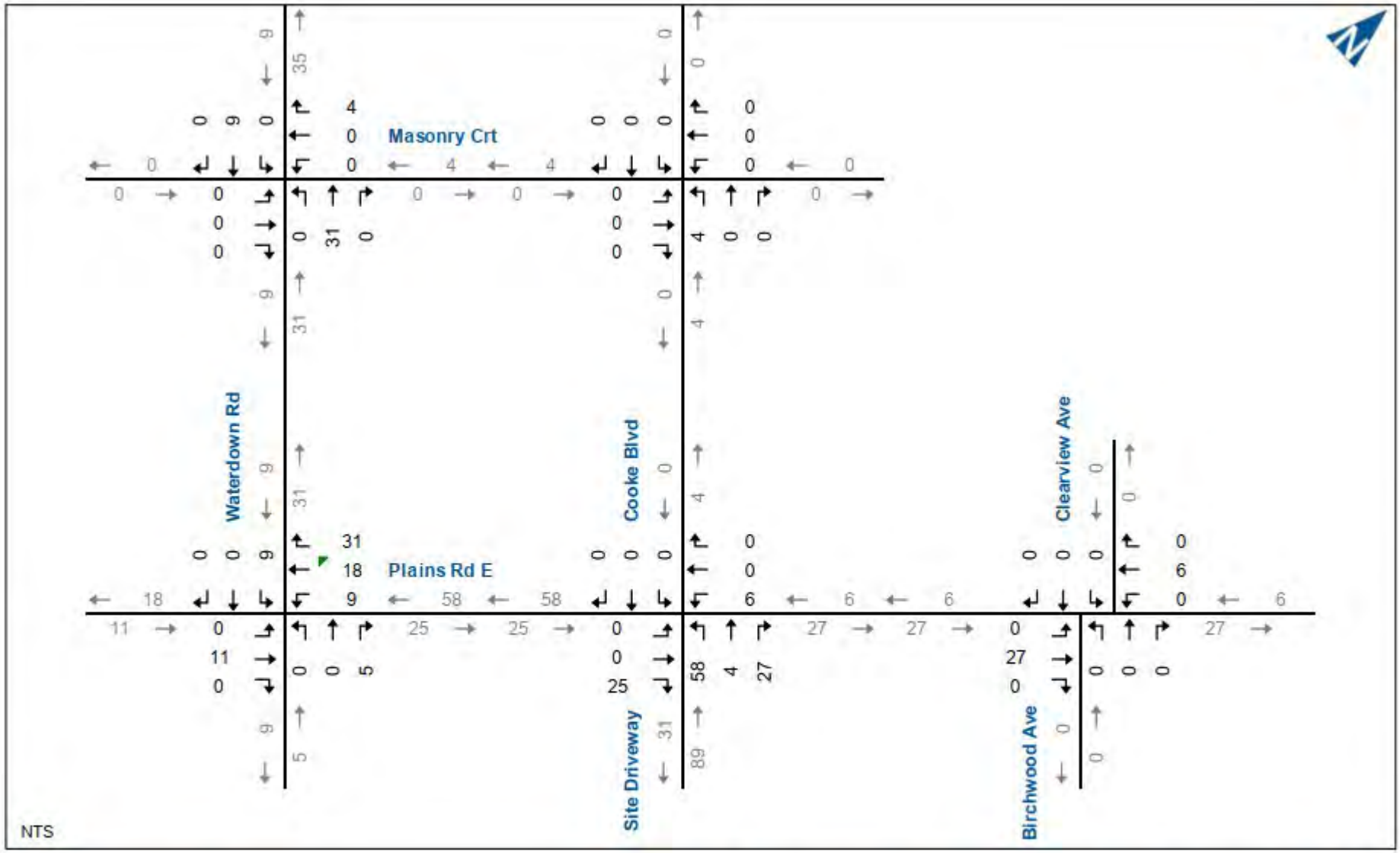


paradigm TRANSPORTATION SOLUTIONS LIMITED

Site Generated Traffic

1010 Downsview Drive & 355 Plains Road East
210771

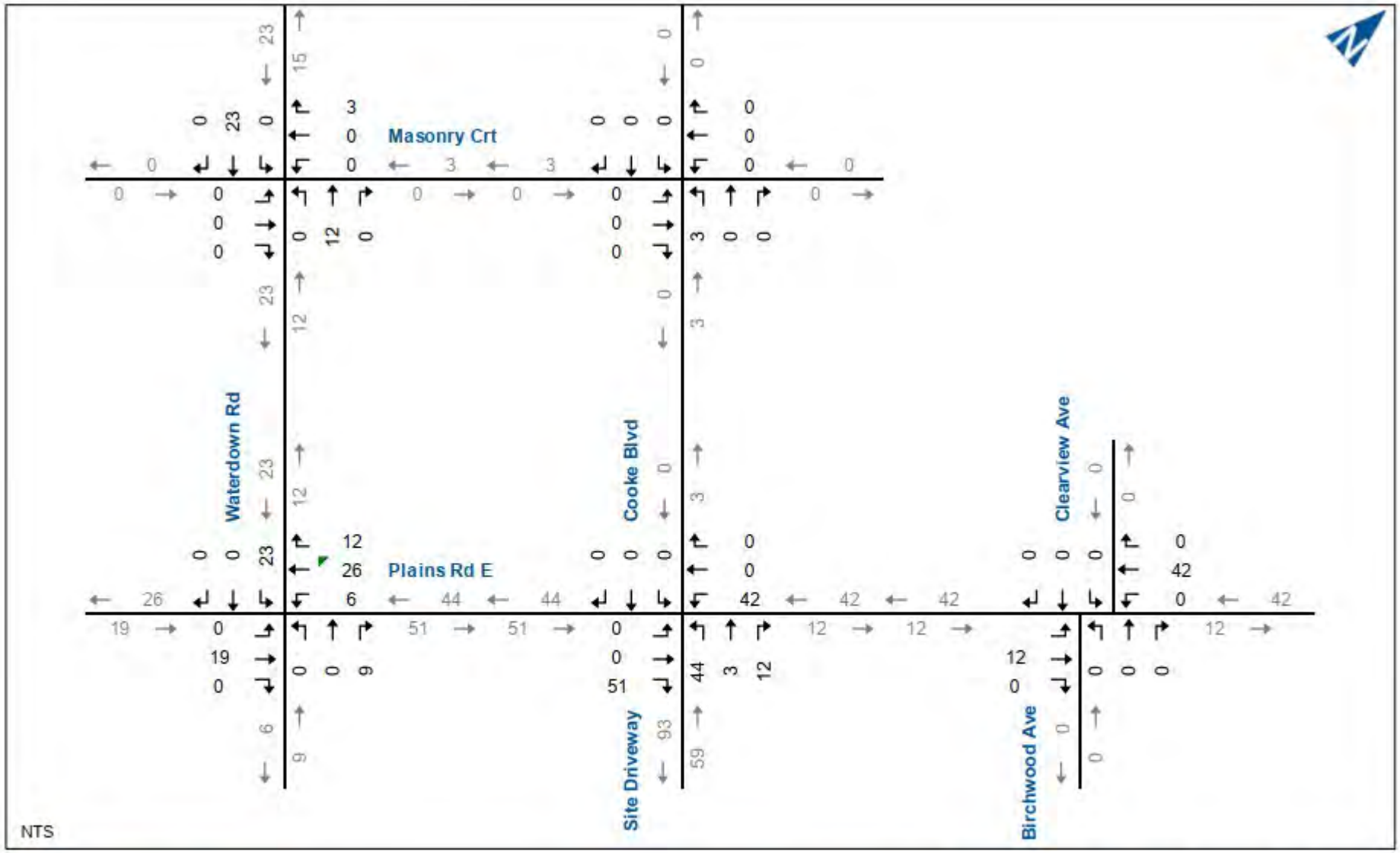
Figure 3.2



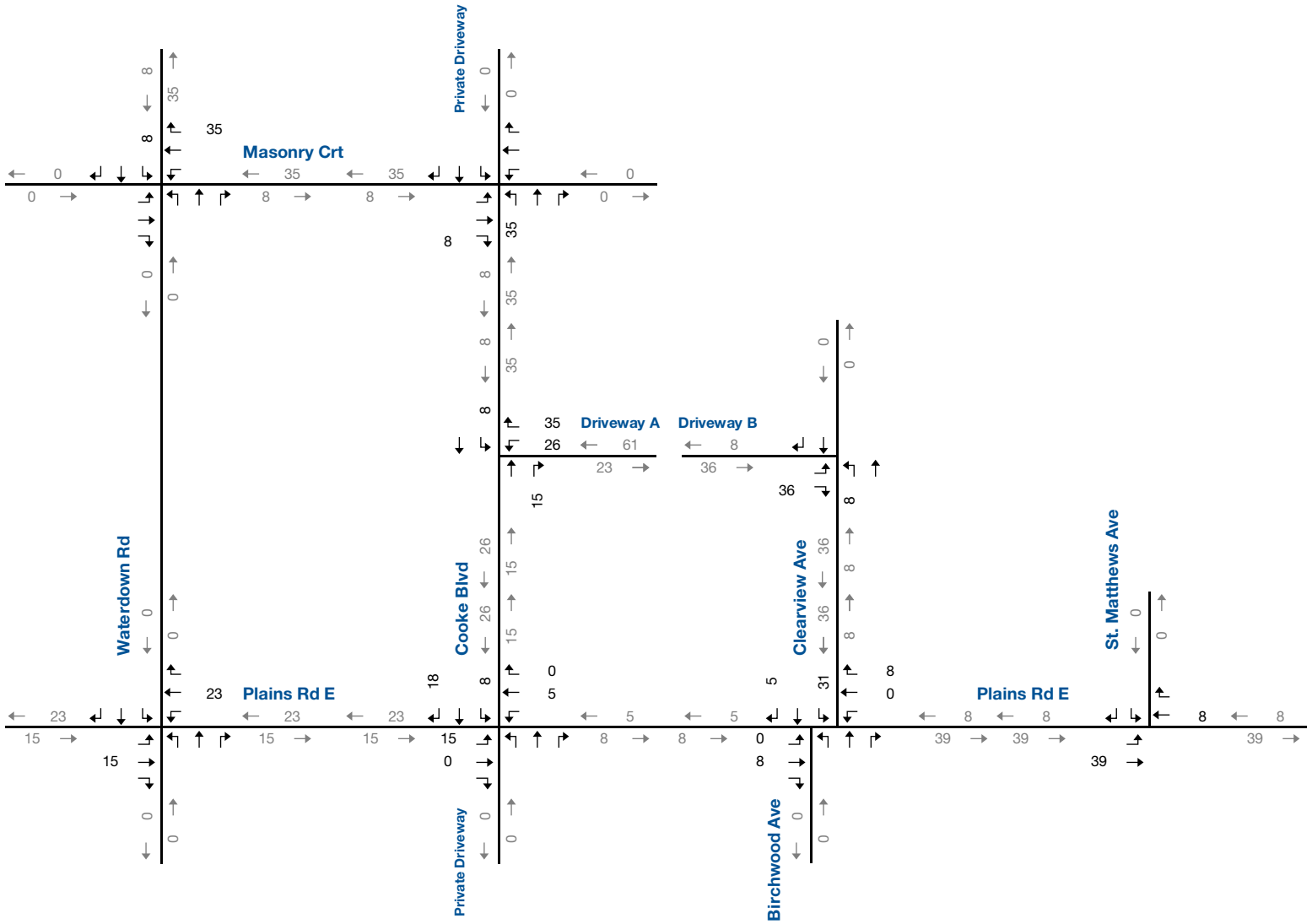
Site Generated Traffic (Full Build-Out) – AM Peak Hour

40-70 Plains Road East TIA
190488

Figure 3.3A

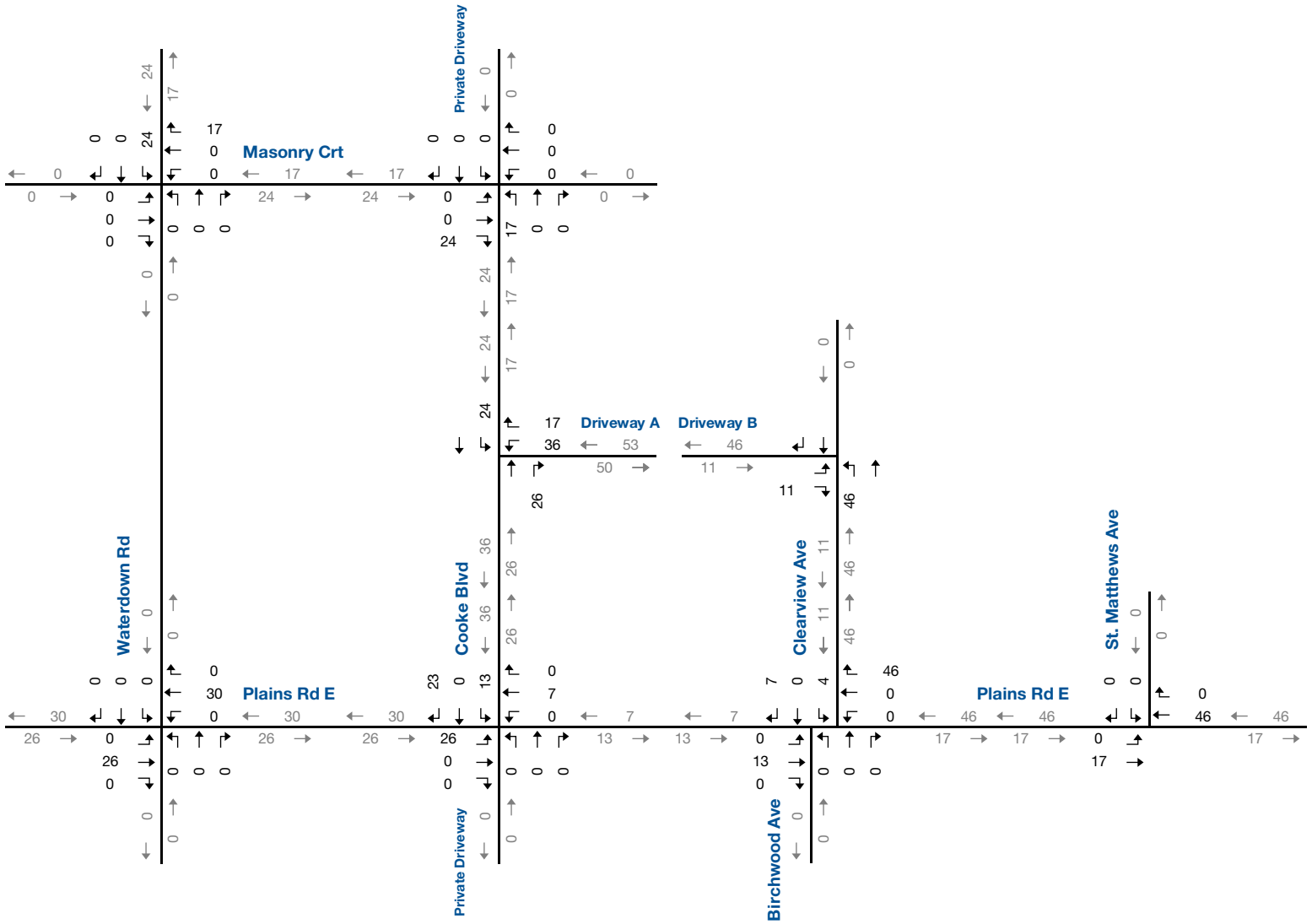


Site Generated Traffic (Full Build-Out) – PM Peak Hour



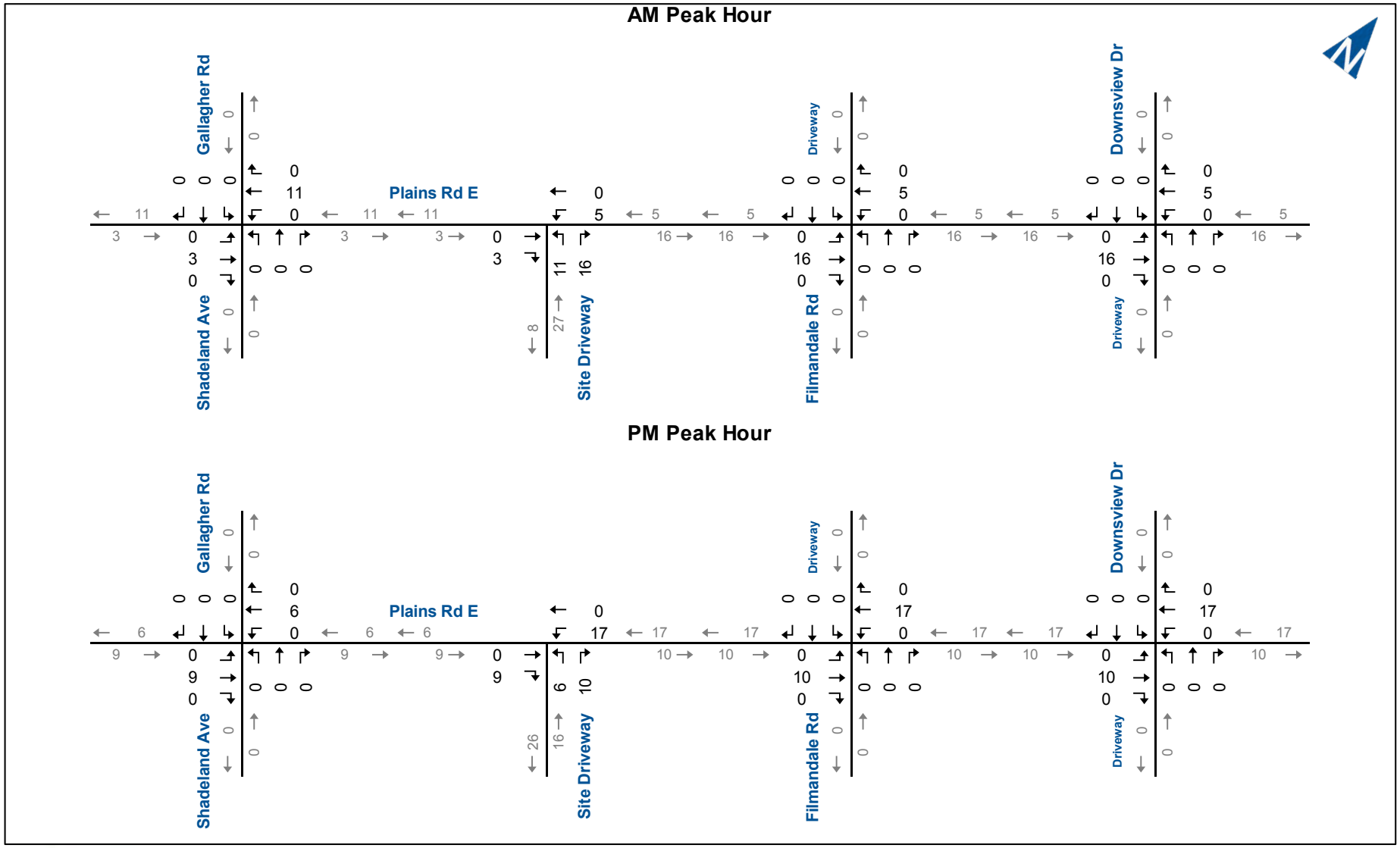
NTS

Estimated Site Generated Traffic – AM Peak Hour



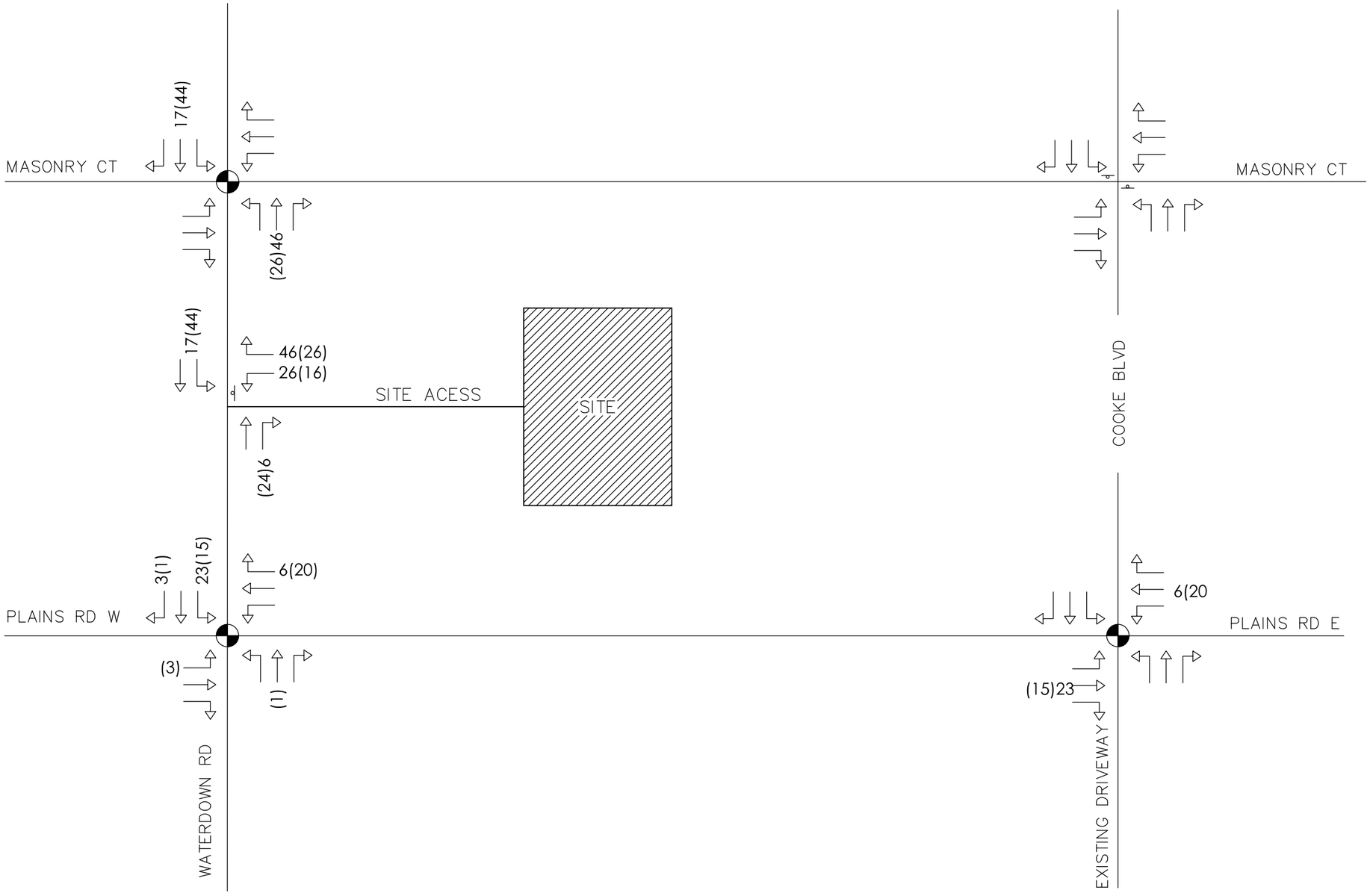
NTS

Estimated Site Generated Traffic – PM Peak Hour



Site Generated Traffic

Figure 3.2



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

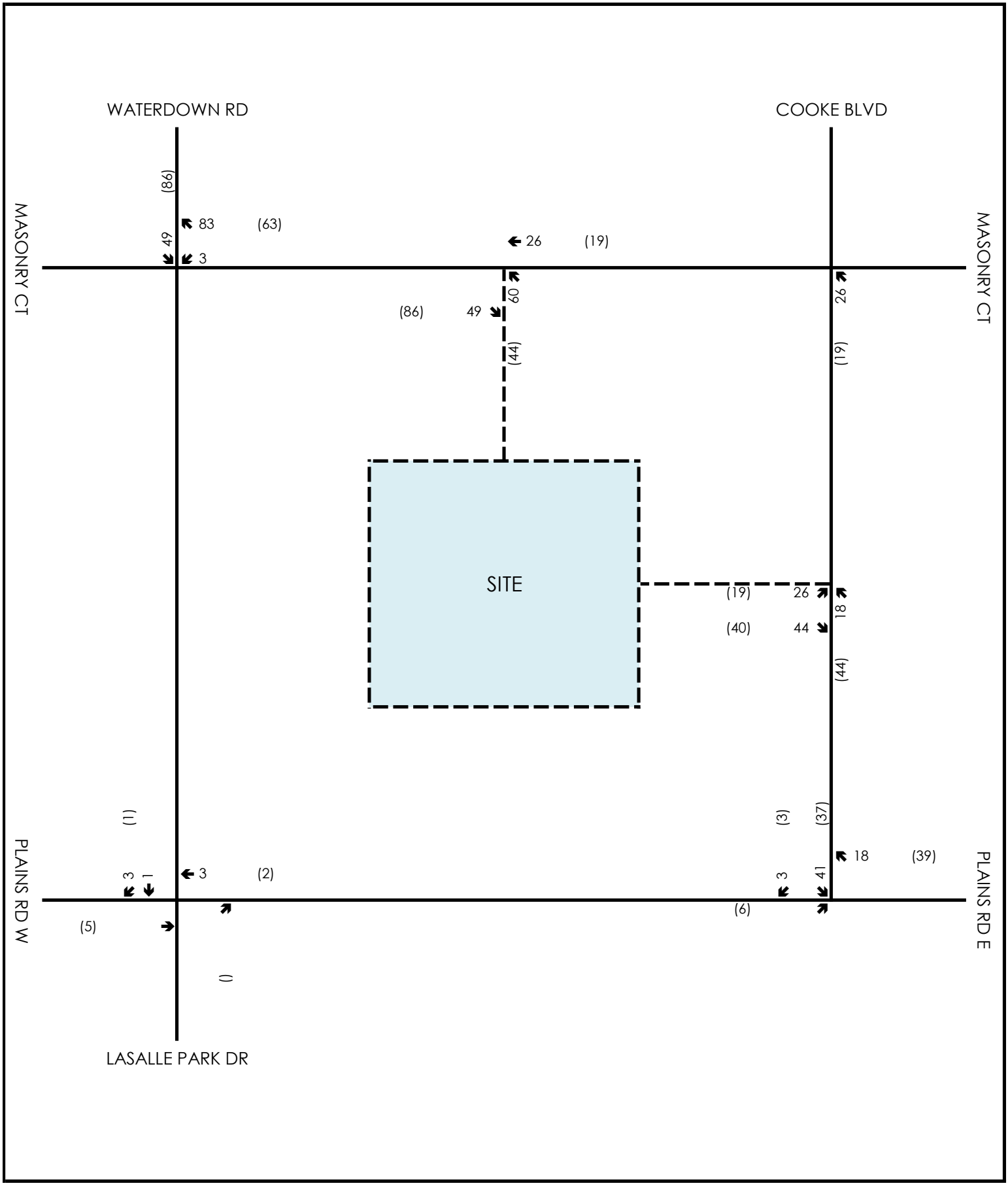
	SIGNAL CONTROL
	STOP CONTROL / YEILD CONTROL
XX%(YY%)	A.M. (P.M.) WEEKDAY PEAK HOUR TRAFFIC

Project: 1029 & 1023 WATERDOWN ROAD
CITY OF BURLINGTON

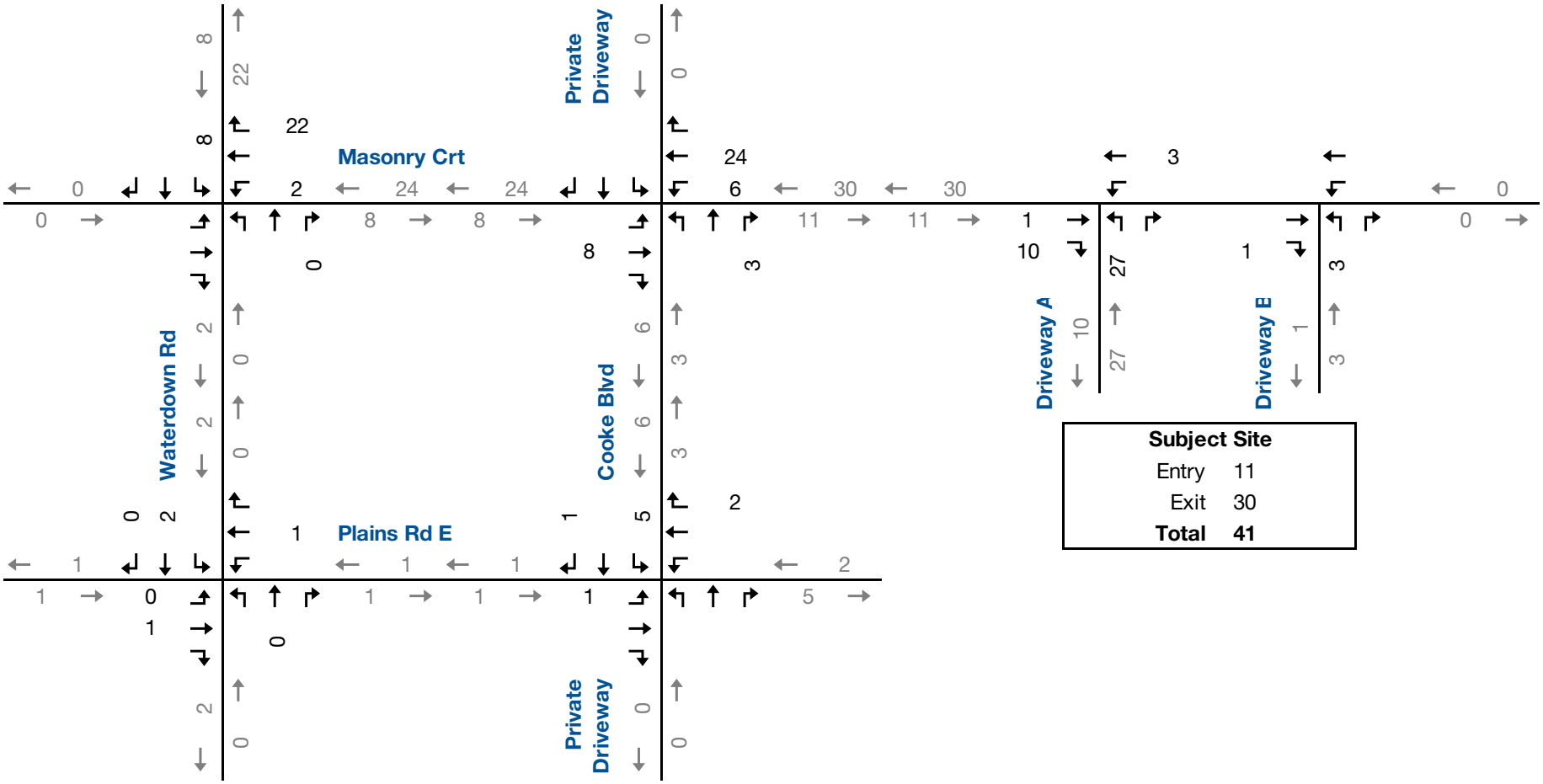
Drawing: SITE GENERATED TRAFFIC

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn By	T.K	Design By	F.S	Project	2172-6124
Scale	N.T.S.	Date	2021/09/27	Check By	A.W	Drawing	FIG. 07

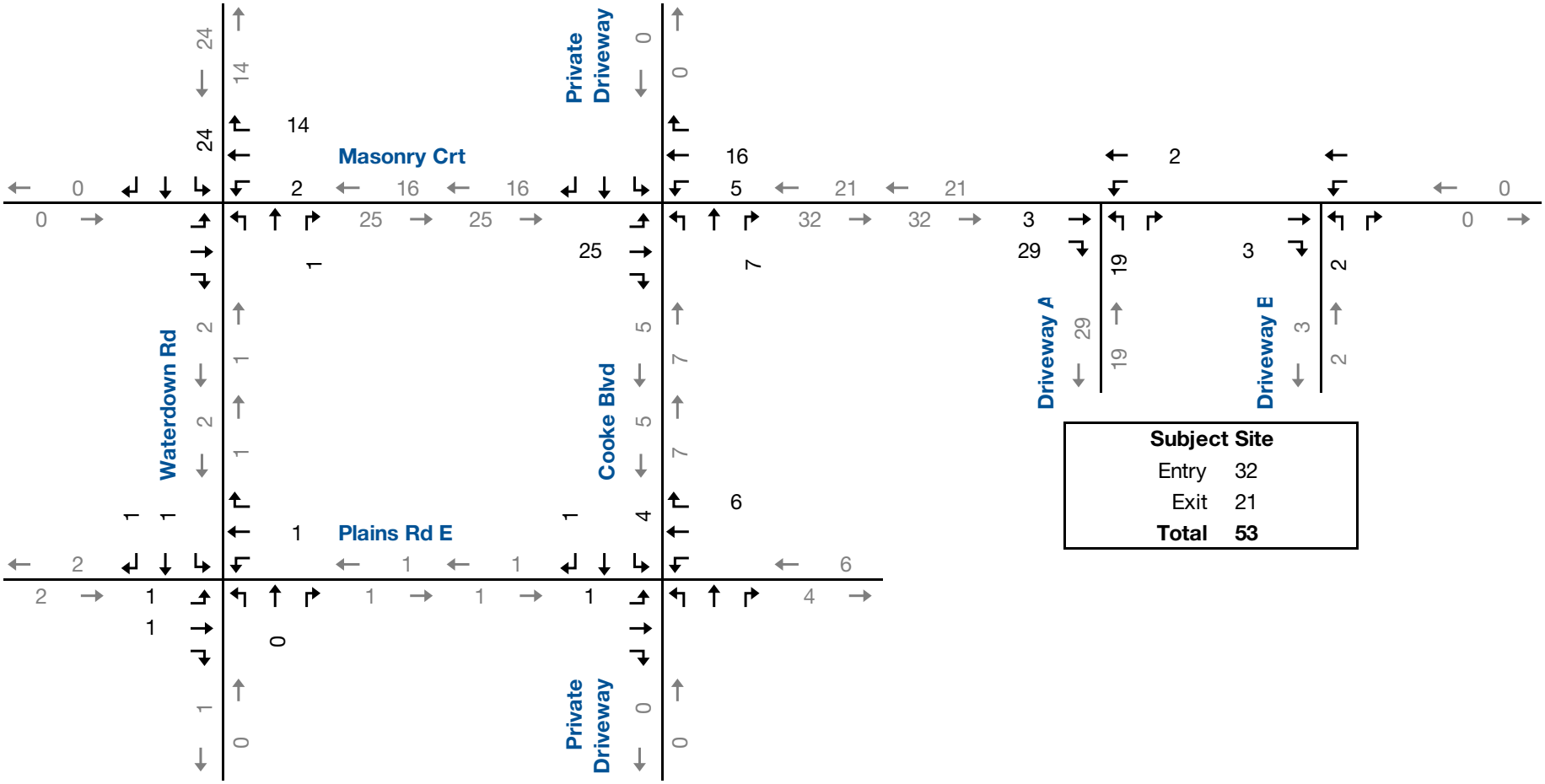


Legend	1062-1074 Cooke Blvd	CROZIER CONSULTING ENGINEERS	Figure 10
xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes {xx} Weekend Peak Hour Traffic Volumes	Site Generated Trips		Project No. 2321-6441 Date. Analyst. FC



NTS

Estimated Site Generated Traffic – AM Peak Hour



NTS

Estimated Site Generated Traffic – PM Peak Hour

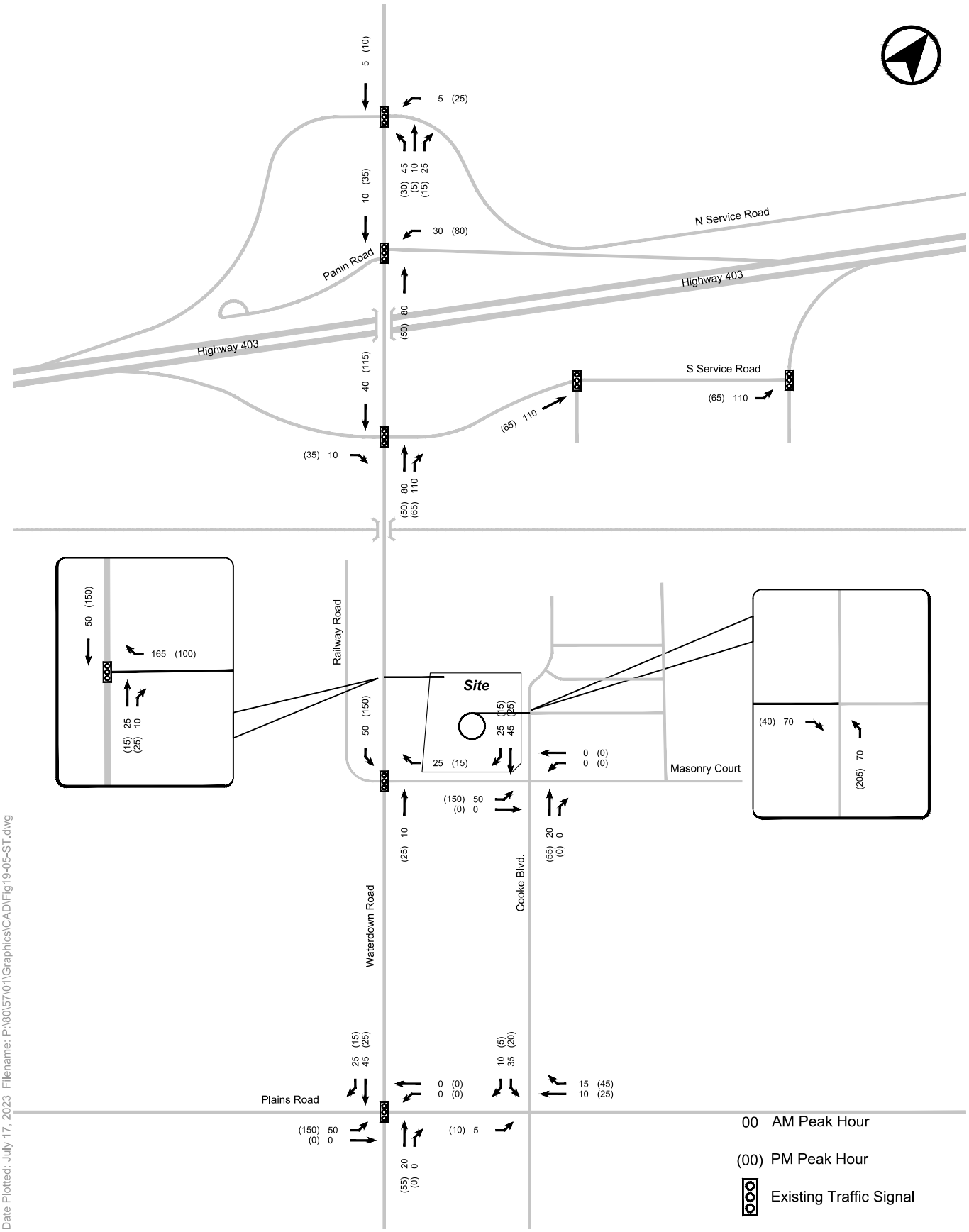
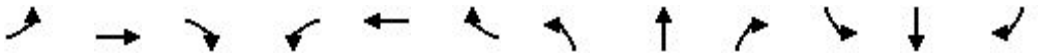


FIGURE 19 SITE TRAFFIC VOLUMES

Appendix F

Future Background Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	275	74	34	130	0	112	21	67	0	52	41
Future Volume (Veh/h)	53	275	74	34	130	0	112	21	67	0	52	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	61	316	85	39	149	0	129	24	77	0	60	47
Pedestrians		1			10			2			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		145										
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	154			403			788	714	370	812	757	155
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154			380			772	698	347	797	741	155
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			97			44	93	89	100	81	95
cM capacity (veh/h)	1433			1163			229	331	675	233	312	892

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	462	188	230	107
Volume Left	61	39	129	0
Volume Right	85	0	77	47
cSH	1433	1163	307	437
Volume to Capacity	0.04	0.03	0.75	0.24
Queue Length 95th (m)	1.1	0.8	45.2	7.6
Control Delay (s)	1.4	1.9	44.7	15.9
Lane LOS	A	A	E	C
Approach Delay (s)	1.4	1.9	44.7	15.9
Approach LOS			E	C

Intersection Summary				
Average Delay	13.2			
Intersection Capacity Utilization	51.2%	ICU Level of Service	A	
Analysis Period (min)	15			

3: Waterdown Rd & Railway Rd/Masonry Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	0	14	11	0	267	8	927	33	237	594	21
Future Volume (vph)	24	0	14	11	0	267	8	927	33	237	594	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	35.0		0.0	25.0		0.0	30.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			20.0			35.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		1.00			1.00	1.00		1.00	1.00	
Frt		0.951			0.850			0.995			0.995	
Flt Protected		0.969		0.950			0.950			0.950		
Satd. Flow (prot)	0	1426	0	1785	1597	0	1594	3417	0	1733	3406	0
Flt Permitted		0.340		0.730			0.395			0.209		
Satd. Flow (perm)	0	500	0	1368	1597	0	661	3417	0	381	3406	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76			341			4			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		318.9			144.8			350.0			576.8	
Travel Time (s)		23.0			10.4			25.2			41.5	
Confl. Peds. (#/hr)			2	2			3		4	4		3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	56%	0%	8%	0%	0%	0%	12%	4%	0%	3%	3%	38%
Adj. Flow (vph)	26	0	15	12	0	293	9	1019	36	260	653	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	12	293	0	9	1055	0	260	676	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes				
Headway Factor	0.85	0.85	0.85	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		11.0	36.0	
Total Split (s)	40.0	40.0		40.0	40.0		42.0	42.0		18.0	60.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		42.0%	42.0%		18.0%	60.0%	
Maximum Green (s)	33.0	33.0		33.0	33.0		35.0	35.0		15.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag							Lag	Lag		Lead		

3: Waterdown Rd & Railway Rd/Masonry Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		15.0	15.0			15.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)		9.6		9.6	9.6		59.1	59.1		80.4	76.4	
Actuated g/C Ratio		0.10		0.10	0.10		0.59	0.59		0.80	0.76	
v/c Ratio		0.35		0.09	0.63		0.02	0.52		0.52	0.26	
Control Delay		10.7		41.0	8.9		12.0	14.5		6.5	4.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		10.7		41.0	8.9		12.0	14.5		6.5	4.0	
LOS		B		D	A		B	B		A	A	
Approach Delay		10.7			10.2			14.5			4.7	
Approach LOS		B			B			B			A	
Queue Length 50th (m)		0.0		2.3	0.0		0.7	59.9		8.4	15.8	
Queue Length 95th (m)		3.3		7.4	13.9		3.8	104.5		20.2	29.5	
Internal Link Dist (m)		294.9			120.8			326.0			552.8	
Turn Bay Length (m)				35.0			25.0			30.0		
Base Capacity (vph)		215		451	755		390	2019		529	2601	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.19		0.03	0.39		0.02	0.52		0.49	0.26	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 78.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Waterdown Rd & Railway Rd/Masonry Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	0	14	11	0	267	8	927	33	237	594	21
Future Volume (vph)	24	0	14	11	0	267	8	927	33	237	594	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.95		1.00	0.85		1.00	0.99		1.00	0.99	
Flt Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1425		1780	1597		1590	3416		1733	3406	
Flt Permitted		0.34		0.73	1.00		0.39	1.00		0.21	1.00	
Satd. Flow (perm)		501		1369	1597		661	3416		381	3406	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	26	0	15	12	0	293	9	1019	36	260	653	23
RTOR Reduction (vph)	0	37	0	0	265	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	4	0	12	28	0	9	1053	0	260	675	0
Confl. Peds. (#/hr)			2	2			3		4	4		3
Heavy Vehicles (%)	56%	0%	8%	0%	0%	0%	12%	4%	0%	3%	3%	38%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.6		9.6	9.6		59.1	59.1		76.4	76.4	
Effective Green, g (s)		9.6		9.6	9.6		59.1	59.1		76.4	76.4	
Actuated g/C Ratio		0.10		0.10	0.10		0.59	0.59		0.76	0.76	
Clearance Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		48		131	153		390	2018		484	2602	
v/s Ratio Prot					c0.02			0.31		c0.08	0.20	
v/s Ratio Perm		0.01		0.01			0.01			c0.33		
v/c Ratio		0.08		0.09	0.18		0.02	0.52		0.54	0.26	
Uniform Delay, d1		41.2		41.2	41.6		8.5	12.1		5.4	3.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5		0.6	1.2		0.1	1.0		1.2	0.2	
Delay (s)		42.7		41.9	42.8		8.6	13.1		6.6	3.7	
Level of Service		D		D	D		A	B		A	A	
Approach Delay (s)		42.7			42.8			13.0			4.5	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	504	864	150	114	496	220	60	261	74	213	265	198
Future Volume (vph)	504	864	150	114	496	220	60	261	74	213	265	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		0.99	0.99		0.99		0.98
Frt		0.978			0.954			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	3377	0	1684	3215	0	1668	1738	0	1716	1824	1536
Flt Permitted	0.139			0.204			0.469			0.196		
Satd. Flow (perm)	253	3377	0	361	3215	0	819	1738	0	351	1824	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			60			12				222
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
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 (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Adj. Flow (vph)	566	971	169	128	557	247	67	293	83	239	298	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	566	1140	0	128	804	0	67	376	0	239	298	222
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	31.0	51.0		12.0	32.0		10.0	34.0		13.0	37.0	37.0
Total Split (%)	28.2%	46.4%		10.9%	29.1%		9.1%	30.9%		11.8%	33.6%	33.6%
Maximum Green (s)	28.0	44.7		9.0	25.7		7.0	27.7		10.0	30.7	30.7
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	61.8	47.1		37.9	26.2		36.0	25.9		42.2	30.9	30.9
Actuated g/C Ratio	0.56	0.43		0.34	0.24		0.33	0.24		0.38	0.28	0.28
v/c Ratio	1.06	0.78		0.57	0.99		0.21	0.90		0.93	0.58	0.38
Control Delay	85.5	31.8		26.5	61.1		22.9	64.6		67.2	39.6	6.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	85.5	31.8		26.5	61.1		22.9	64.6		67.2	39.6	6.2
LOS	F	C		C	E		C	E		E	D	A
Approach Delay		49.6			56.3			58.3			38.5	
Approach LOS		D			E			E			D	
Queue Length 50th (m)	~127.9	116.9		11.0	~93.1		9.3	78.6		37.1	58.0	0.0
Queue Length 95th (m)	#193.7	143.5		26.8	#71.5		18.5	#127.2		#72.1	86.0	17.5
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	535	1458		234	812		323	446		258	519	586
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.06	0.78		0.55	0.99		0.21	0.84		0.93	0.57	0.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 50.0		Intersection LOS: D	
Intersection Capacity Utilization 98.1%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

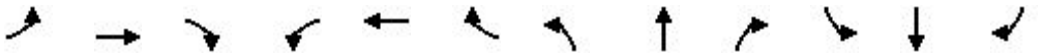
Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	504	864	150	114	496	220	60	261	74	213	265	198
Future Volume (vph)	504	864	150	114	496	220	60	261	74	213	265	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.95		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	3376		1683	3214		1664	1738		1714	1824	1504
Flt Permitted	0.14	1.00		0.20	1.00		0.47	1.00		0.20	1.00	1.00
Satd. Flow (perm)	254	3376		362	3214		822	1738		354	1824	1504
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	566	971	169	128	557	247	67	293	83	239	298	222
RTOR Reduction (vph)	0	13	0	0	46	0	0	9	0	0	0	160
Lane Group Flow (vph)	566	1127	0	128	758	0	67	367	0	239	298	62
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
Heavy Vehicles (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	57.9	46.5		34.1	25.7		32.1	26.5		39.5	30.9	30.9
Effective Green, g (s)	57.9	46.5		34.1	25.7		32.1	26.5		39.5	30.9	30.9
Actuated g/C Ratio	0.53	0.42		0.31	0.23		0.29	0.24		0.36	0.28	0.28
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	526	1427		213	750		282	418		250	512	422
v/s Ratio Prot	c0.29	0.33		0.05	0.24		0.01	0.21		c0.09	0.16	
v/s Ratio Perm	c0.28			0.14			0.06			c0.26		0.04
v/c Ratio	1.08	0.79		0.60	1.01		0.24	0.88		0.96	0.58	0.15
Uniform Delay, d1	31.6	27.5		28.5	42.1		28.9	40.2		30.4	34.0	29.7
Progression Factor	1.00	1.00		1.02	0.81		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	61.3	4.5		4.4	34.5		0.4	18.4		44.4	1.7	0.2
Delay (s)	92.9	32.0		33.4	68.7		29.3	58.5		74.8	35.7	29.8
Level of Service	F	C		C	E		C	E		E	D	C
Approach Delay (s)		52.2			63.9			54.1			46.3	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



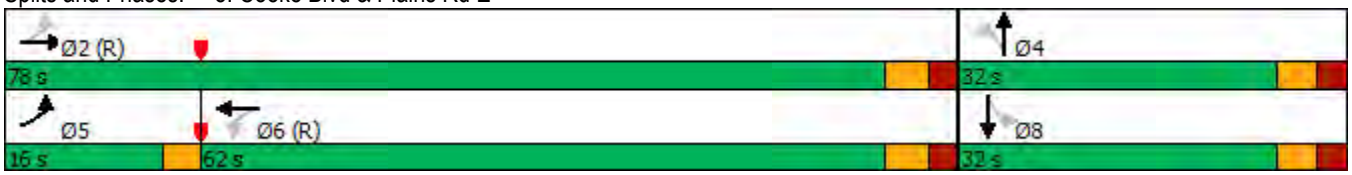
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1111	26	6	757	72	58	4	28	107	0	57
Future Volume (vph)	61	1111	26	6	757	72	58	4	28	107	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Storage Length (m)	40.0		0.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.98			0.99	
Frt		0.997			0.987			0.958			0.953	
Flt Protected	0.950			0.950				0.969			0.968	
Satd. Flow (prot)	1785	3422	0	1785	3354	0	0	1735	0	0	1790	0
Flt Permitted	0.277			0.224				0.729			0.765	
Satd. Flow (perm)	515	3422	0	419	3354	0	0	1291	0	0	1411	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			13			19			60	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		157.2			142.3			238.5			100.6	
Travel Time (s)		9.4			8.5			17.2			7.2	
Confl. Peds. (#/hr)	12		10	10		12	12		3	3		12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	0%	0%	5%	0%	0%	0%	0%	6%	0%	17%
Adj. Flow (vph)	66	1208	28	7	823	78	63	4	30	116	0	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1236	0	7	901	0	0	97	0	0	178	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.85	0.85	0.85
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	25.0		25.0	25.0		27.9	27.9		27.9	27.9	
Total Split (s)	16.0	78.0		62.0	62.0		32.0	32.0		32.0	32.0	
Total Split (%)	14.5%	70.9%		56.4%	56.4%		29.1%	29.1%		29.1%	29.1%	
Maximum Green (s)	13.0	72.0		56.0	56.0		26.1	26.1		26.1	26.1	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lead/Lag	Lead			Lag	Lag							

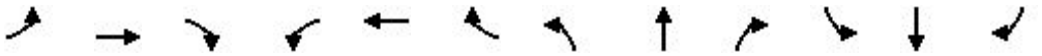
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	86.0	83.0		75.2	75.2			15.1			15.1	
Actuated g/C Ratio	0.78	0.75		0.68	0.68			0.14			0.14	
v/c Ratio	0.14	0.48		0.02	0.39			0.50			0.73	
Control Delay	2.0	2.4		8.8	9.2			42.6			46.0	
Queue Delay	0.0	0.3		0.0	0.0			0.0			0.0	
Total Delay	2.0	2.7		8.8	9.2			42.6			46.0	
LOS	A	A		A	A			D			D	
Approach Delay		2.7			9.2			42.6			46.0	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	1.2	15.9		0.5	42.8			16.4			25.8	
Queue Length 95th (m)	m2.1	m21.6		2.7	71.1			31.4			47.0	
Internal Link Dist (m)		133.2			118.3			214.5			76.6	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	552	2582		286	2295			320			380	
Starvation Cap Reductn	0	685		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.65		0.02	0.39			0.30			0.47	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 9.8 Intersection LOS: A
Intersection Capacity Utilization 66.9% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

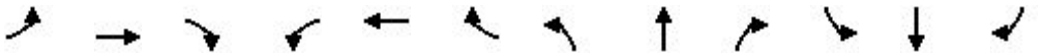
Splits and Phases: 5: Cooke Blvd & Plains Rd E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1111	26	6	757	72	58	4	28	107	0	57
Future Volume (vph)	61	1111	26	6	757	72	58	4	28	107	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Total Lost time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.99			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1782	3420		1776	3354			1723			1787	
Flt Permitted	0.28	1.00		0.22	1.00			0.73			0.76	
Satd. Flow (perm)	519	3420		418	3354			1296			1411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	1208	28	7	823	78	63	4	30	116	0	62
RTOR Reduction (vph)	0	1	0	0	4	0	0	16	0	0	52	0
Lane Group Flow (vph)	66	1235	0	7	897	0	0	81	0	0	126	0
Confl. Peds. (#/hr)	12		10	10		12	12		3	3		12
Heavy Vehicles (%)	0%	4%	0%	0%	5%	0%	0%	0%	0%	6%	0%	17%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	83.0	83.0		74.6	74.6			15.1			15.1	
Effective Green, g (s)	83.0	83.0		74.6	74.6			15.1			15.1	
Actuated g/C Ratio	0.75	0.75		0.68	0.68			0.14			0.14	
Clearance Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	453	2580		283	2274			177			193	
v/s Ratio Prot	0.01	c0.36			0.27							
v/s Ratio Perm	0.10			0.02				0.06			c0.09	
v/c Ratio	0.15	0.48		0.02	0.39			0.46			0.65	
Uniform Delay, d1	3.9	5.2		5.8	7.8			43.7			45.0	
Progression Factor	0.47	0.35		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.4		0.2	0.5			1.9			7.7	
Delay (s)	1.9	2.2		6.0	8.3			45.5			52.7	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		2.1			8.3			45.5			52.7	
Approach LOS		A			A			D			D	

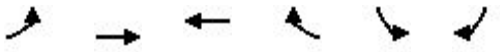
Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1227	4	7	809	12	4	0	34	35	1	16
Future Volume (Veh/h)	2	1227	4	7	809	12	4	0	34	35	1	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	1348	4	8	889	13	4	0	37	38	1	18
Pedestrians		1						9			7	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						1			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		142			179							
pX, platoon unblocked	0.96			0.86			0.88	0.88	0.86	0.88	0.88	0.96
vC, conflicting volume	909			1361			1843	2288	685	1634	2284	459
vC1, stage 1 conf vol							1363	1363		918	918	
vC2, stage 2 conf vol							480	925		715	1365	
vCu, unblocked vol	828			1093			1491	1997	307	1252	1992	360
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	94	86	100	97
cM capacity (veh/h)	777			551			186	204	593	276	200	614

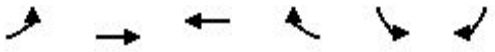
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2	899	453	8	593	309	41	57
Volume Left	2	0	0	8	0	0	4	38
Volume Right	0	0	4	0	0	13	37	18
cSH	777	1700	1700	551	1700	1700	489	331
Volume to Capacity	0.00	0.53	0.27	0.01	0.35	0.18	0.08	0.17
Queue Length 95th (m)	0.1	0.0	0.0	0.4	0.0	0.0	2.2	4.9
Control Delay (s)	9.6	0.0	0.0	11.6	0.0	0.0	13.0	18.1
Lane LOS	A			B			B	C
Approach Delay (s)	0.0			0.1			13.0	18.1
Approach LOS							B	C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	50.5%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	1305	814	1	5	5
Future Volume (vph)	4	1305	814	1	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	9.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	11.0				12.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.99
Frt						0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1785	3466	3400	0	1785	1597
Flt Permitted	0.321				0.950	
Satd. Flow (perm)	601	3466	3400	0	1782	1573
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						5
Link Speed (k/h)		60	60		50	
Link Distance (m)		179.0	398.2		302.2	
Travel Time (s)		10.7	23.9		21.8	
Confl. Peds. (#/hr)	7			7	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	5%	0%	0%	0%
Adj. Flow (vph)	4	1418	885	1	5	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	1418	886	0	5	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Detector Phase	2	2	6		8	8
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	45.0	45.0	45.0		28.0	28.0
Total Split (s)	69.0	69.0	69.0		31.0	31.0
Total Split (%)	69.0%	69.0%	69.0%		31.0%	31.0%
Maximum Green (s)	63.0	63.0	63.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						

7: Plains Rd E & St Matthews Ave

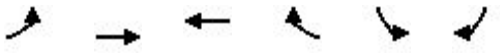


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)	30.0	30.0	30.0		8.0	8.0
Flash Dont Walk (s)	8.0	8.0	8.0		13.0	13.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	95.8	95.8	95.8		8.0	8.0
Actuated g/C Ratio	0.96	0.96	0.96		0.08	0.08
v/c Ratio	0.01	0.43	0.27		0.04	0.04
Control Delay	1.2	1.5	1.0		43.2	26.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	1.2	1.5	1.0		43.2	26.8
LOS	A	A	A		D	C
Approach Delay		1.5	1.0		35.0	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.0	0.0	0.0		1.0	0.0
Queue Length 95th (m)	0.8	53.0	27.1		4.7	3.7
Internal Link Dist (m)		155.0	374.2		278.2	
Turn Bay Length (m)	15.0				9.0	
Base Capacity (vph)	576	3320	3257		428	381
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.01	0.43	0.27		0.01	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 10 (10%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 1.4		Intersection LOS: A	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: Plains Rd E & St Matthews Ave

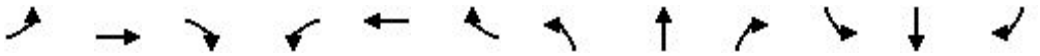




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	1305	814	1	5	5
Future Volume (vph)	4	1305	814	1	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		7.0	7.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1780	3466	3399		1785	1573
Flt Permitted	0.32	1.00	1.00		0.95	1.00
Satd. Flow (perm)	601	3466	3399		1785	1573
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1418	885	1	5	5
RTOR Reduction (vph)	0	0	0	0	0	5
Lane Group Flow (vph)	4	1418	886	0	5	0
Confl. Peds. (#/hr)	7			7	1	2
Heavy Vehicles (%)	0%	3%	5%	0%	0%	0%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Actuated Green, G (s)	85.4	85.4	85.4		1.6	1.6
Effective Green, g (s)	85.4	85.4	85.4		1.6	1.6
Actuated g/C Ratio	0.85	0.85	0.85		0.02	0.02
Clearance Time (s)	6.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	513	2959	2902		28	25
v/s Ratio Prot		c0.41	0.26		c0.00	
v/s Ratio Perm	0.01					0.00
v/c Ratio	0.01	0.48	0.31		0.18	0.00
Uniform Delay, d1	1.1	1.8	1.4		48.6	48.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.6	0.3		3.0	0.1
Delay (s)	1.1	2.4	1.7		51.6	48.5
Level of Service	A	A	A		D	D
Approach Delay (s)		2.4	1.7		50.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	2.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	96	115	71	239	0	132	68	46	0	39	29
Future Volume (Veh/h)	174	96	115	71	239	0	132	68	46	0	39	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	196	108	129	80	269	0	148	76	52	0	44	33
Pedestrians		2			11			1			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		145										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	273			238			1052	998	184	1098	1063	275
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	273			135			1015	958	77	1066	1027	275
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			94			0	60	94	100	75	96
cM capacity (veh/h)	1298			1350			132	191	906	102	174	765

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	433	349	276	77
Volume Left	196	80	148	0
Volume Right	129	0	52	33
cSH	1298	1350	175	260
Volume to Capacity	0.15	0.06	1.58	0.30
Queue Length 95th (m)	4.3	1.5	146.4	9.6
Control Delay (s)	4.5	2.2	333.4	24.6
Lane LOS	A	A	F	C
Approach Delay (s)	4.5	2.2	333.4	24.6
Approach LOS			F	C

Intersection Summary				
Average Delay	85.1			
Intersection Capacity Utilization	67.5%	ICU Level of Service	C	
Analysis Period (min)	15			

3: Waterdown Rd & Railway Rd/Masonry Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	0	15	41	1	381	4	634	25	369	811	13
Future Volume (vph)	13	0	15	41	1	381	4	634	25	369	811	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	35.0		0.0	25.0		0.0	30.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			20.0			35.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt		0.926			0.850			0.994			0.998	
Flt Protected		0.978		0.950			0.950			0.950		
Satd. Flow (prot)	0	1950	0	1785	1597	0	1428	3478	0	1750	3469	0
Flt Permitted		0.194		0.737			0.312			0.328		
Satd. Flow (perm)	0	387	0	1385	1597	0	468	3478	0	603	3469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			362			5			3	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		318.9			144.8			350.0			576.8	
Travel Time (s)		23.0			10.4			25.2			41.5	
Confl. Peds. (#/hr)							2		4	4		2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	25%	2%	0%	2%	2%	46%
Adj. Flow (vph)	14	0	17	46	1	423	4	704	28	410	901	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	46	424	0	4	732	0	410	915	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes				
Headway Factor	0.85	0.85	0.85	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		11.0	36.0	
Total Split (s)	32.0	32.0		32.0	32.0		60.0	60.0		18.0	78.0	
Total Split (%)	29.1%	29.1%		29.1%	29.1%		54.5%	54.5%		16.4%	70.9%	
Maximum Green (s)	25.0	25.0		25.0	25.0		53.0	53.0		15.0	71.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag							Lag	Lag		Lead		

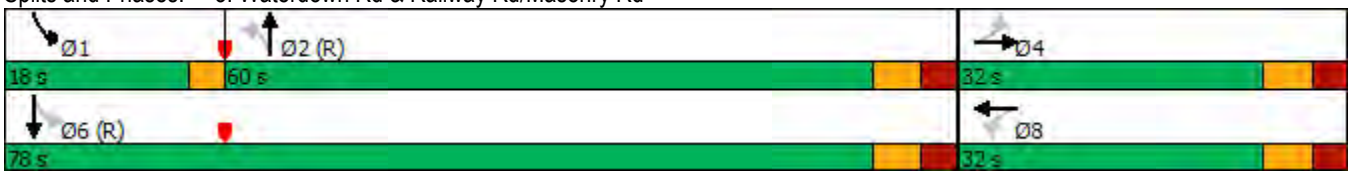
3: Waterdown Rd & Railway Rd/Masonry Rd

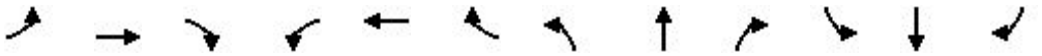
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		15.0	15.0			15.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)		15.0		15.0	15.0		65.1	65.1		85.0	81.0	
Actuated g/C Ratio		0.14		0.14	0.14		0.59	0.59		0.77	0.74	
v/c Ratio		0.28		0.24	0.80		0.01	0.36		0.68	0.36	
Control Delay		6.6		42.4	19.7		20.2	16.7		11.0	6.4	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		6.6		42.4	19.7		20.2	16.7		11.0	6.4	
LOS		A		D	B		C	B		B	A	
Approach Delay		6.6			21.9			16.7			7.8	
Approach LOS		A			C			B			A	
Queue Length 50th (m)		0.0		9.5	12.9		0.4	51.3		21.2	31.6	
Queue Length 95th (m)		1.1		18.7	44.9		m0.4	m45.5		50.6	60.3	
Internal Link Dist (m)		294.9			120.8			326.0			552.8	
Turn Bay Length (m)				35.0			25.0			30.0		
Base Capacity (vph)		141		314	642		276	2059		625	2554	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.22		0.15	0.66		0.01	0.36		0.66	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 72 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 83.3% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Waterdown Rd & Railway Rd/Masonry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	0	15	41	1	381	4	634	25	369	811	13
Future Volume (vph)	13	0	15	41	1	381	4	634	25	369	811	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.93		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1950		1785	1598		1426	3479		1749	3468	
Flt Permitted		0.19		0.74	1.00		0.31	1.00		0.33	1.00	
Satd. Flow (perm)		386		1385	1598		468	3479		605	3468	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	0	17	46	1	423	4	704	28	410	901	14
RTOR Reduction (vph)	0	27	0	0	313	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	4	0	46	111	0	4	730	0	410	914	0
Confl. Peds. (#/hr)							2		4	4		2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	25%	2%	0%	2%	2%	46%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		15.0		15.0	15.0		65.1	65.1		81.0	81.0	
Effective Green, g (s)		15.0		15.0	15.0		65.1	65.1		81.0	81.0	
Actuated g/C Ratio		0.14		0.14	0.14		0.59	0.59		0.74	0.74	
Clearance Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		52		188	217		276	2058		579	2553	
v/s Ratio Prot					c0.07			0.21		c0.08	0.26	
v/s Ratio Perm		0.01		0.03			0.01			c0.44		
v/c Ratio		0.08		0.24	0.51		0.01	0.35		0.71	0.36	
Uniform Delay, d1		41.5		42.4	44.1		9.2	11.6		5.8	5.2	
Progression Factor		1.00		1.00	1.00		1.47	1.27		1.00	1.00	
Incremental Delay, d2		1.4		1.4	4.0		0.0	0.0		4.0	0.4	
Delay (s)		42.9		43.9	48.1		13.6	14.8		9.7	5.6	
Level of Service		D		D	D		B	B		A	A	
Approach Delay (s)		42.9			47.7			14.7			6.9	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	731	89	122	1194	234	129	225	58	291	185	411
Future Volume (vph)	420	731	89	122	1194	234	129	225	58	291	185	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99	0.99		0.98	1.00		1.00		0.97
Frt		0.984			0.975			0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1767	3435	0	1750	3412	0	1767	1777	0	1785	1824	1566
Flt Permitted	0.094			0.267			0.637			0.210		
Satd. Flow (perm)	175	3435	0	489	3412	0	1165	1777	0	393	1824	1515
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			23			10				285
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Adj. Flow (vph)	433	754	92	126	1231	241	133	232	60	300	191	424
Shared Lane Traffic (%)												
Lane Group Flow (vph)	433	846	0	126	1472	0	133	292	0	300	191	424
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	18.0	49.0		15.0	46.0		10.0	26.0		20.0	36.0	36.0
Total Split (%)	16.4%	44.5%		13.6%	41.8%		9.1%	23.6%		18.2%	32.7%	32.7%
Maximum Green (s)	15.0	42.7		12.0	39.7		7.0	19.7		17.0	29.7	29.7
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	62.0	46.4		52.3	39.7		29.5	19.2		42.0	28.7	28.7
Actuated g/C Ratio	0.56	0.42		0.48	0.36		0.27	0.17		0.38	0.26	0.26
v/c Ratio	1.31	0.58		0.37	1.18		0.38	0.92		0.84	0.40	0.70
Control Delay	187.8	26.5		9.9	114.1		27.5	77.1		60.9	38.6	21.1
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	187.8	26.5		9.9	114.2		27.5	77.1		60.9	38.6	21.1
LOS	F	C		A	F		C	E		E	D	C
Approach Delay		81.1			105.9			61.6			37.8	
Approach LOS		F			F			E			D	
Queue Length 50th (m)	~113.2	75.5		4.7	~210.4		19.5	63.1		54.7	28.4	16.8
Queue Length 95th (m)	#177.1	100.6		m9.2	#249.8		33.7	#114.1		#104.7	58.4	72.0
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	331	1458		382	1246		351	326		364	492	617
Starvation Cap Reductn	0	0		0	29		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.31	0.58		0.33	1.21		0.38	0.90		0.82	0.39	0.69

Intersection Summary

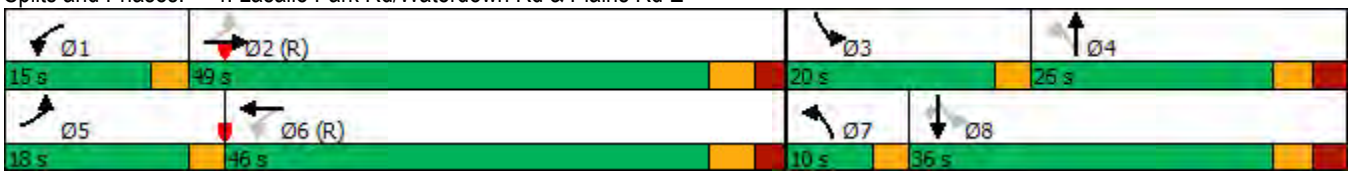
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 79.2 Intersection LOS: E
Intersection Capacity Utilization 114.4% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

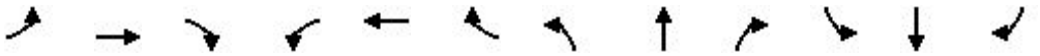
Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	731	89	122	1194	234	129	225	58	291	185	411
Future Volume (vph)	420	731	89	122	1194	234	129	225	58	291	185	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3434		1748	3413		1750	1777		1784	1824	1515
Flt Permitted	0.09	1.00		0.27	1.00		0.64	1.00		0.21	1.00	1.00
Satd. Flow (perm)	174	3434		492	3413		1174	1777		393	1824	1515
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	433	754	92	126	1231	241	133	232	60	300	191	424
RTOR Reduction (vph)	0	8	0	0	15	0	0	8	0	0	0	211
Lane Group Flow (vph)	433	838	0	126	1457	0	133	284	0	300	191	213
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	58.7	46.4		49.0	39.7		26.3	19.3		38.7	28.7	28.7
Effective Green, g (s)	58.7	46.4		49.0	39.7		26.3	19.3		38.7	28.7	28.7
Actuated g/C Ratio	0.53	0.42		0.45	0.36		0.24	0.18		0.35	0.26	0.26
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	324	1448		325	1231		317	311		345	475	395
v/s Ratio Prot	c0.19	0.24		0.03	0.43		0.03	0.16		c0.13	0.10	
v/s Ratio Perm	c0.52			0.14			0.07			c0.18		0.14
v/c Ratio	1.34	0.58		0.39	1.18		0.42	0.91		0.87	0.40	0.54
Uniform Delay, d1	34.2	24.3		18.6	35.1		34.5	44.5		29.1	33.6	35.0
Progression Factor	1.00	1.00		0.63	0.74		1.00	1.00		1.60	1.08	1.24
Incremental Delay, d2	170.9	1.7		0.5	88.9		0.9	29.5		19.4	0.5	1.4
Delay (s)	205.1	26.0		12.2	115.0		35.4	74.0		66.0	36.6	44.9
Level of Service	F	C		B	F		D	E		E	D	D
Approach Delay (s)		86.7			106.9			61.9			50.1	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	83.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	114.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	977	51	44	1411	158	44	3	14	131	0	98
Future Volume (vph)	75	977	51	44	1411	158	44	3	14	131	0	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Storage Length (m)	40.0		0.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99	1.00			0.99			0.99	
Frt		0.993			0.985			0.968			0.942	
Flt Protected	0.950			0.950				0.965			0.972	
Satd. Flow (prot)	1785	3502	0	1785	3460	0	0	1748	0	0	1932	0
Flt Permitted	0.085			0.267				0.656			0.813	
Satd. Flow (perm)	160	3502	0	498	3460	0	0	1185	0	0	1612	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			16			13			60	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		157.2			142.3			238.5			100.6	
Travel Time (s)		9.4			8.5			17.2			7.2	
Confl. Peds. (#/hr)	8		12	12		8	4		3	3		4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	1%	3%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	78	1018	53	46	1470	165	46	3	15	136	0	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	1071	0	46	1635	0	0	64	0	0	238	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.85	0.85	0.85
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	25.0		25.0	25.0		27.9	27.9		27.9	27.9	
Total Split (s)	16.0	78.0		62.0	62.0		32.0	32.0		32.0	32.0	
Total Split (%)	14.5%	70.9%		56.4%	56.4%		29.1%	29.1%		29.1%	29.1%	
Maximum Green (s)	13.0	72.0		56.0	56.0		26.1	26.1		26.1	26.1	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lead/Lag	Lead			Lag	Lag							

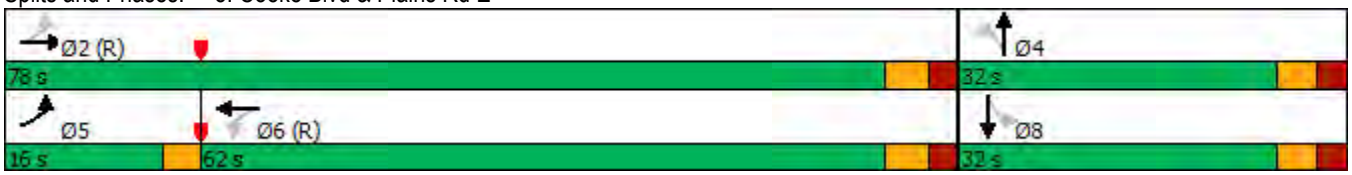
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	83.1	80.1		71.9	71.9			18.0			18.0	
Actuated g/C Ratio	0.76	0.73		0.65	0.65			0.16			0.16	
v/c Ratio	0.35	0.42		0.14	0.72			0.31			0.76	
Control Delay	15.0	5.0		11.5	16.7			35.0			50.7	
Queue Delay	0.0	0.1		0.0	19.4			0.0			0.1	
Total Delay	15.0	5.1		11.5	36.1			35.1			50.9	
LOS	B	A		B	D			D			D	
Approach Delay		5.8			35.4			35.1			50.9	
Approach LOS		A			D			D			D	
Queue Length 50th (m)	3.7	34.1		3.8	121.0			10.2			42.7	
Queue Length 95th (m)	m12.7	m49.8		11.9	191.4			21.5			68.3	
Internal Link Dist (m)		133.2			118.3			214.5			76.6	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	312	2551		325	2268			291			428	
Starvation Cap Reductn	0	437		0	0			0			0	
Spillback Cap Reductn	0	0		0	676			2			11	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.25	0.51		0.14	1.03			0.22			0.57	

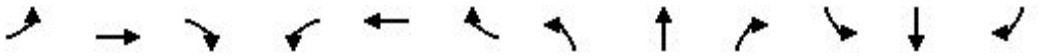
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 96 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 25.7 Intersection LOS: C
Intersection Capacity Utilization 77.2% ICU Level of Service D
Analysis Period (min) 15

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

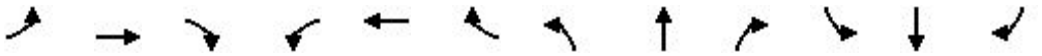
Splits and Phases: 5: Cooke Blvd & Plains Rd E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	977	51	44	1411	158	44	3	14	131	0	98
Future Volume (vph)	75	977	51	44	1411	158	44	3	14	131	0	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Total Lost time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.97			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1785	3501		1771	3459			1746			1928	
Flt Permitted	0.09	1.00		0.27	1.00			0.66			0.81	
Satd. Flow (perm)	160	3501		498	3459			1187			1612	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	78	1018	53	46	1470	165	46	3	15	136	0	102
RTOR Reduction (vph)	0	3	0	0	6	0	0	11	0	0	50	0
Lane Group Flow (vph)	78	1068	0	46	1629	0	0	53	0	0	188	0
Confl. Peds. (#/hr)	8		12	12		8	4		3	3		4
Heavy Vehicles (%)	0%	1%	0%	0%	1%	3%	0%	0%	0%	0%	0%	3%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	80.1	80.1		71.4	71.4			18.0			18.0	
Effective Green, g (s)	80.1	80.1		71.4	71.4			18.0			18.0	
Actuated g/C Ratio	0.73	0.73		0.65	0.65			0.16			0.16	
Clearance Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	200	2549		323	2245			194			263	
v/s Ratio Prot	0.02	c0.31			c0.47							
v/s Ratio Perm	0.26			0.09				0.04			c0.12	
v/c Ratio	0.39	0.42		0.14	0.73			0.27			0.71	
Uniform Delay, d1	10.8	5.8		7.5	12.8			40.3			43.6	
Progression Factor	2.61	0.71		1.00	1.00			1.00			1.13	
Incremental Delay, d2	1.0	0.4		0.9	2.1			0.8			8.5	
Delay (s)	29.2	4.5		8.4	14.9			41.0			57.6	
Level of Service	C	A		A	B			D			E	
Approach Delay (s)		6.2			14.7			41.0			57.6	
Approach LOS		A			B			D			E	

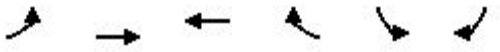
Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1105	9	11	1603	50	3	1	12	8	1	18
Future Volume (Veh/h)	3	1105	9	11	1603	50	3	1	12	8	1	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	3	1128	9	11	1636	51	3	1	12	8	1	18
Pedestrians								10			9	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		142			179							
pX, platoon unblocked	0.80			0.88			0.86	0.86	0.88	0.86	0.86	0.80
vC, conflicting volume	1696			1147			2007	2866	578	2275	2846	852
vC1, stage 1 conf vol							1148	1148		1692	1692	
vC2, stage 2 conf vol							858	1718		582	1153	
vCu, unblocked vol	1377			905			1243	2241	262	1554	2217	327
tC, single (s)	4.1			4.1			8.2	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)							7.2	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			98			98	99	98	93	99	97
cM capacity (veh/h)	402			667			194	141	651	119	146	515

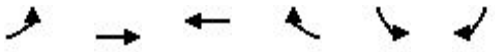
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	752	385	11	1091	596	16	27
Volume Left	3	0	0	11	0	0	3	8
Volume Right	0	0	9	0	0	51	12	18
cSH	402	1700	1700	667	1700	1700	390	248
Volume to Capacity	0.01	0.44	0.23	0.02	0.64	0.35	0.04	0.11
Queue Length 95th (m)	0.2	0.0	0.0	0.4	0.0	0.0	1.0	2.9
Control Delay (s)	14.0	0.0	0.0	10.5	0.0	0.0	14.6	21.3
Lane LOS	B			B			B	C
Approach Delay (s)	0.0			0.1			14.6	21.3
Approach LOS							B	C

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	55.9%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1098	1638	19	20	17
Future Volume (vph)	24	1098	1638	19	20	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	9.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	11.0				12.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.98
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1785	3535	3524	0	1785	1597
Flt Permitted	0.117				0.950	
Satd. Flow (perm)	220	3535	3524	0	1782	1562
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2			18
Link Speed (k/h)		60	60		50	
Link Distance (m)		179.0	398.2		302.2	
Travel Time (s)		10.7	23.9		21.8	
Confl. Peds. (#/hr)	7			7	1	7
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	6%	0%	0%
Adj. Flow (vph)	25	1144	1706	20	21	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	1144	1726	0	21	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Detector Phase	2	2	6		8	8
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	45.0	45.0	45.0		28.0	28.0
Total Split (s)	69.0	69.0	69.0		31.0	31.0
Total Split (%)	69.0%	69.0%	69.0%		31.0%	31.0%
Maximum Green (s)	63.0	63.0	63.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						

7: Plains Rd E & St Matthews Ave

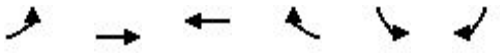


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)	30.0	30.0	30.0		8.0	8.0
Flash Dont Walk (s)	8.0	8.0	8.0		13.0	13.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	87.3	87.3	87.3		8.1	8.1
Actuated g/C Ratio	0.87	0.87	0.87		0.08	0.08
v/c Ratio	0.13	0.37	0.56		0.15	0.13
Control Delay	4.1	2.7	3.9		45.2	20.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	4.1	2.7	3.9		45.2	20.5
LOS	A	A	A		D	C
Approach Delay		2.7	3.9		33.8	
Approach LOS		A	A		C	
Queue Length 50th (m)	1.0	29.7	59.4		4.1	0.0
Queue Length 95th (m)	3.3	38.6	76.7		11.6	7.0
Internal Link Dist (m)		155.0	374.2		278.2	
Turn Bay Length (m)	15.0				9.0	
Base Capacity (vph)	192	3086	3076		428	388
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.37	0.56		0.05	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 3.8		Intersection LOS: A	
Intersection Capacity Utilization 65.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Plains Rd E & St Matthews Ave





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1098	1638	19	20	17
Future Volume (vph)	24	1098	1638	19	20	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		7.0	7.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1784	3535	3525		1785	1562
Flt Permitted	0.12	1.00	1.00		0.95	1.00
Satd. Flow (perm)	220	3535	3525		1785	1562
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	25	1144	1706	20	21	18
RTOR Reduction (vph)	0	0	0	0	0	17
Lane Group Flow (vph)	25	1144	1726	0	21	1
Confl. Peds. (#/hr)	7			7	1	7
Heavy Vehicles (%)	0%	1%	1%	6%	0%	0%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Actuated Green, G (s)	82.1	82.1	82.1		4.9	4.9
Effective Green, g (s)	82.1	82.1	82.1		4.9	4.9
Actuated g/C Ratio	0.82	0.82	0.82		0.05	0.05
Clearance Time (s)	6.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	180	2902	2894		87	76
v/s Ratio Prot		0.32	c0.49		c0.01	
v/s Ratio Perm	0.11					0.00
v/c Ratio	0.14	0.39	0.60		0.24	0.01
Uniform Delay, d1	1.8	2.4	3.1		45.8	45.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.6	0.4	0.9		1.4	0.1
Delay (s)	3.4	2.8	4.1		47.2	45.3
Level of Service	A	A	A		D	D
Approach Delay (s)		2.8	4.1		46.3	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4357	4355	4438	4252	4396	4363
Vehs Exited	4356	4321	4364	4249	4347	4329
Starting Vehs	150	161	160	171	168	162
Ending Vehs	151	195	234	174	217	193
Travel Distance (km)	5827	5774	5865	5670	5823	5792
Travel Time (hr)	175.0	189.2	220.4	171.2	191.4	189.4
Total Delay (hr)	59.6	75.0	104.6	59.0	76.2	74.9
Total Stops	4896	5549	5820	4914	5535	5343
Fuel Used (l)	482.4	495.3	526.6	474.9	498.6	495.6

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4357	4355	4438	4252	4396	4363
Vehs Exited	4356	4321	4364	4249	4347	4329
Starting Vehs	150	161	160	171	168	162
Ending Vehs	151	195	234	174	217	193
Travel Distance (km)	5827	5774	5865	5670	5823	5792
Travel Time (hr)	175.0	189.2	220.4	171.2	191.4	189.4
Total Delay (hr)	59.6	75.0	104.6	59.0	76.2	74.9
Total Stops	4896	5549	5820	4914	5535	5343
Fuel Used (l)	482.4	495.3	526.6	474.9	498.6	495.6

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	19.8	18.4	44.6	18.5
Average Queue (m)	3.4	3.4	19.0	10.2
95th Queue (m)	13.5	11.7	35.8	17.1
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Waterdown Rd & Railway Rd/Masonry Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	37.4	21.9	54.9	11.4	68.5	75.6	55.0	44.1	51.7
Average Queue (m)	12.0	3.0	25.8	1.8	31.4	37.4	22.8	12.3	20.1
95th Queue (m)	30.3	13.0	45.5	7.6	58.8	68.7	39.7	31.7	44.8
Link Distance (m)	303.8		122.3		322.3	322.3		566.2	566.2
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)		35.0		25.0			30.0		
Storage Blk Time (%)			5		11		4	0	
Queuing Penalty (veh)			1		1		12	1	

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	85.0	286.7	267.9	64.8	113.8	120.6	89.8	185.1	108.7	101.8	73.9
Average Queue (m)	77.6	153.6	136.4	26.9	60.7	72.3	25.7	108.3	65.7	44.5	18.9
95th Queue (m)	101.7	297.5	266.6	59.5	111.5	119.9	76.1	239.4	132.5	76.4	41.9
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)					2	3		1			
Queuing Penalty (veh)					10	13		0			
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	56	12		1	26		1	52		11	0
Queuing Penalty (veh)	242	60		1	29		2	31		21	0

Intersection: 5: Cooke Blvd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (m)	20.7	40.9	47.7	9.2	59.1	63.6	41.1	70.2
Average Queue (m)	8.5	13.7	16.4	1.0	24.6	30.0	17.1	33.0
95th Queue (m)	17.9	31.0	35.0	5.5	50.9	57.8	32.4	60.5
Link Distance (m)		131.3	131.3		125.6	125.6	224.6	80.6
Upstream Blk Time (%)								0
Queuing Penalty (veh)								1
Storage Bay Dist (m)	40.0			50.0				
Storage Blk Time (%)		0			1			
Queuing Penalty (veh)		0			0			

Intersection: 6: Birchwood Ave/Clearview Ave & Plains Rd E

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	T	LTR	LTR
Maximum Queue (m)	4.4	3.0	0.6	15.7	24.4
Average Queue (m)	0.2	0.1	0.0	7.2	10.6
95th Queue (m)	2.2	2.1	0.5	15.3	20.1
Link Distance (m)		125.6	138.2	290.4	306.4
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	50.0				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Plains Rd E & St Matthews Ave

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (m)	8.8	57.7	65.2	49.9	35.4	8.2	9.3
Average Queue (m)	0.5	5.4	7.0	4.9	3.6	1.2	1.4
95th Queue (m)	3.9	28.6	34.4	24.5	19.0	6.0	6.7
Link Distance (m)		138.2	138.2	388.2	388.2		288.6
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	15.0					9.0	
Storage Blk Time (%)		2				5	1
Queuing Penalty (veh)		0				0	0

Zone Summary

Zone wide Queuing Penalty: 426

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:20	4:20	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4907	4728	4814	4828	4880	4830
Vehs Exited	4698	4525	4601	4538	4639	4601
Starting Vehs	268	284	240	286	238	262
Ending Vehs	477	487	453	576	479	491
Travel Distance (km)	6413	6156	6296	6248	6380	6298
Travel Time (hr)	503.0	572.7	469.0	563.6	422.3	506.1
Total Delay (hr)	375.8	450.6	344.4	439.4	295.7	381.2
Total Stops	10122	9580	8601	10804	8684	9555
Fuel Used (l)	807.2	853.5	770.1	850.4	734.0	803.0

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4907	4728	4814	4828	4880	4830
Vehs Exited	4698	4525	4601	4538	4639	4601
Starting Vehs	268	284	240	286	238	262
Ending Vehs	477	487	453	576	479	491
Travel Distance (km)	6413	6156	6296	6248	6380	6298
Travel Time (hr)	503.0	572.7	469.0	563.6	422.3	506.1
Total Delay (hr)	375.8	450.6	344.4	439.4	295.7	381.2
Total Stops	10122	9580	8601	10804	8684	9555
Fuel Used (l)	807.2	853.5	770.1	850.4	734.0	803.0

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	30.8	22.5	40.7	19.8
Average Queue (m)	10.1	5.6	19.9	9.5
95th Queue (m)	23.6	16.7	34.5	16.4
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Waterdown Rd & Railway Rd/Masonry Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	22.5	24.3	58.5	5.8	42.2	47.4	69.4	127.7	143.7
Average Queue (m)	6.5	10.1	27.4	0.3	21.4	25.5	31.7	25.6	36.6
95th Queue (m)	16.7	21.5	45.1	3.1	38.6	43.3	58.7	79.9	92.9
Link Distance (m)	303.8		122.3		322.3	322.3		566.2	566.2
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)		35.0		25.0			30.0		
Storage Blk Time (%)			4		7		7	6	
Queuing Penalty (veh)			2		0		28	24	

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	85.0	585.4	582.3	64.9	137.6	140.4	89.9	347.0	310.1	301.4	75.0
Average Queue (m)	84.9	527.9	521.2	29.5	124.2	124.4	68.8	275.9	206.2	108.4	55.0
95th Queue (m)	85.4	690.8	696.6	71.9	170.2	168.7	120.2	437.0	335.3	273.1	88.8
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)		66	33		16	16		47	9	3	
Queuing Penalty (veh)		0	0		121	125		0	37	13	
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	92	5		0	49		22	85		16	31
Queuing Penalty (veh)	334	19		2	60		62	110		68	58

Intersection: 5: Cooke Blvd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (m)	29.6	51.8	53.4	57.4	136.4	140.4	32.0	71.3
Average Queue (m)	9.5	17.0	21.1	26.6	118.9	121.3	12.5	41.4
95th Queue (m)	20.8	38.4	43.4	68.8	160.5	158.2	26.6	66.7
Link Distance (m)		131.3	131.3		125.6	125.6	224.6	80.6
Upstream Blk Time (%)					22	25		0
Queuing Penalty (veh)					182	203		0
Storage Bay Dist (m)	40.0			50.0				
Storage Blk Time (%)	0	0		0	54			
Queuing Penalty (veh)	0	0		0	24			

Intersection: 6: Birchwood Ave/Clearview Ave & Plains Rd E

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	TR	LTR	LTR
Maximum Queue (m)	5.4	57.2	147.3	145.1	26.1	75.6
Average Queue (m)	0.2	5.7	84.2	86.4	6.4	29.9
95th Queue (m)	2.2	34.0	184.1	183.6	20.6	80.1
Link Distance (m)			138.2	138.2	290.4	306.4
Upstream Blk Time (%)			6	8		
Queuing Penalty (veh)			51	67		
Storage Bay Dist (m)	50.0	50.0				
Storage Blk Time (%)			38			
Queuing Penalty (veh)			4			

Intersection: 7: Plains Rd E & St Matthews Ave

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (m)	17.2	43.2	47.1	271.4	264.9	14.4	14.4
Average Queue (m)	3.8	10.8	13.0	91.3	90.5	5.3	4.7
95th Queue (m)	12.3	32.0	36.9	275.5	270.8	14.0	12.4
Link Distance (m)		138.2	138.2	388.2	388.2		288.6
Upstream Blk Time (%)				2	2		
Queuing Penalty (veh)				0	0		
Storage Bay Dist (m)	15.0					9.0	
Storage Blk Time (%)	2	4				20	10
Queuing Penalty (veh)	10	1				3	2

Zone Summary

Zone wide Queuing Penalty: 1610

Appendix G

TTS Data

Mode Split AM
Sat Jun 29 2024 17:25:45 GMT-0400 (Eastern Daylight Saving Time) - Run Time: 1777ms

Cross Tabulation Query Form - Trip - 2016

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of household - gta06_hhld

RowG:
ColG:(4050-4055)
TblG:

Filters:
2006 GTA zone of household - gta06_hhld In 4050-4055
and
Start time of trip - start_time In 700-959

Trip 2016
Table:

Transit excluding GO rail	26
Cycle	133
Auto driver	5878
GO rail only	87
Joint GO rail and local transit	7
Motorcycle	28
Auto passenger	582
School bus	603
Taxi passenger	17
Walk	253
Total	**7614**

Travel Mode	SOV	HOV	Transit	Cycle	Walk	Total
Modal Split	78%	16%	2%	2%	3%	100%
	Auto Usage	**93%**				
	Non-Auto Reduction	**7%**				

Mode Split PM
Sat Jun 29 2024 17:26:15 GMT-0400 (Eastern Daylight Saving Time) - Run Time: 1832ms

Cross Tabulation Query Form - Trip - 2016

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of household - gta06_hhld

RowG:
ColG:(4050-4055)
TblG:

Filters:
2006 GTA zone of household - gta06_hhld In 4050-4055
and
Start time of trip - start_time In 1600-1859

Transit excluding GO rail	158
Cycle	38
Auto driver	7359
GO rail only	179
Joint GO rail and local transit	15
Motorcycle	28
Auto passenger	1315
School bus	48
Walk	161
Total	**9301**

Travel Mode	SOV	HOV	Transit	Cycle	Walk	Total
Modal Split	79%	15%	4%	0%	2%	100%
	Auto Usage	**94%**				
	Non-Auto Reduction	**6%**				

TTS Trip Distribution - Residential

Corridor	Travel Direction	AM		PM	
		In	Out	In	Out
Plains Rd E	EB	14%	22%	8%	27%
	WB	34%	6%	27%	16%
Waterdown Rd	NB	0%	72%	0%	56%
	SB	53%	0%	65%	0%
		100%	100%	100%	100%

AM IN

Row Labels	Sum of Distribution
PLAINS EB	14%
PLAINS WB	34%
WATERDOWN SB	53%
Grand Total	**100%**

AM OUT

Row Labels	Sum of Distribution
PLAINS EB	22%
PLAINS WB	6%
WATERDOWN NB	72%
Grand Total	**100%**

PM IN

Row Labels	Sum of Distribution
PLAINS EB	8%
PLAINS WB	27%
WATERDOWN SB	65%
Grand Total	**100%**

PM OUT

Row Labels	Sum of Distribution
PLAINS EB	27%
PLAINS WB	16%
WATERDOWN NB	56%
Grand Total	**100%**

AM Inbound

Sat Jun 29 2024 16:58:41 GMT-0400 (Eastern Daylight Saving Time) - Run Time: 2421ms

Cross Tabulation Query Form - Trip - 2016

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(4050-4055)
TblG:

Filters:
2006 GTA zone of destination - gta06_dest In 4050-4055
and
Start time of trip - start_time In 700-959
and
Primary travel mode of trip - mode_prime In D M P U S
and
Trip purpose - trip_purp In 1 2 3
and
Planning district of origin - pd_orig Not In 40

AM Inbound

TAZ/PD	Trips	Distribution	Direction	Assignment
PD 3 of Toronto	7	0%	E	WATERDOWN SB
PD 6 of Toronto	10	0%	E	WATERDOWN SB
Markham	16	1%	NE	WATERDOWN SB
Brampton	37	2%	NE	WATERDOWN SB
Mississauga	119	5%	E	WATERDOWN SB
Milton	20	1%	NE	WATERDOWN SB
Oakville	131	6%	E	WATERDOWN SB
Flamborough	183	8%	NW	WATERDOWN SB
Dundas	160	7%	W	PLAINS EB
Ancaster	150	7%	W	PLAINS EB
Stoney Creek	86	4%	S	PLAINS WB
Hamilton	521	23%	SW	WATERDOWN SB
Hamilton	520	23%	SW	PLAINS WB
Grimsby	110	5%	S	PLAINS WB
St. Catharines	49	2%	S	PLAINS WB
Waterloo	16	1%	NW	WATERDOWN SB
Kitchener	25	1%	NW	WATERDOWN SB
Cambridge	46	2%	NW	WATERDOWN SB
Brant	54	2%	W	WATERDOWN SB
Brantford	8	0%	W	WATERDOWN SB
Total	**2268**	**100%**		

AM Outbound

Sat Jun 29 2024 17:03:56 GMT-0400 (Eastern Daylight Saving Time) - Run Time: 2261ms

Cross Tabulation Query Form - Trip - 2016

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(4050-4055)
TblG:

Filters:
2006 GTA zone of origin - gta06_orig In 4050-4055
and
Start time of trip - start_time In 700-959
and
Primary travel mode of trip - mode_prime In D M P U S
and
Trip purpose - trip_purp In 1 2 3
and
Planning district of destination - pd_dest Not In 40

AM Outbound

TAZ/PD	Trips	Distribution	Direction	Assignment
PD 1 of Toronto	5	0%	E	WATERDOWN NB
PD 4 of Toronto	26	1%	E	WATERDOWN NB
PD 6 of Toronto	18	1%	E	WATERDOWN NB
PD 8 of Toronto	39	1%	E	WATERDOWN NB
PD 9 of Toronto	27	1%	E	WATERDOWN NB
PD 10 of Toronto	7	0%	E	WATERDOWN NB
Vaughan	17	1%	NE	WATERDOWN NB
Caledon	40	2%	NE	WATERDOWN NB
Brampton	39	1%	NE	WATERDOWN NB
Mississauga	299	11%	E	WATERDOWN NB
Halton Hills	35	1%	NE	WATERDOWN NB
Oakville	565	21%	E	WATERDOWN NB
Flamborough	204	8%	NW	WATERDOWN NB
Ancaster	9	0%	W	PLAINS WB
Stoney Creek	140	5%	S	PLAINS WB
Hamilton	473	18%	S	WATERDOWN NB
Hamilton	472	18%	S	PLAINS EB
St. Catharines	45	2%	S	PLAINS EB
Niagara Falls	27	1%	S	PLAINS EB
Port Colborne	34	1%	S	PLAINS EB
Cambridge	34	1%	NW	WATERDOWN NB
City of Guelph	20	1%	N	WATERDOWN NB
Perth	32	1%	NW	WATERDOWN NB
Oxford	29	1%	NW	WATERDOWN NB
Total	**2636**	**100%**		

PM Inbound

Sat Jun 29 2024 17:02:55 GMT-0400 (Eastern Daylight Saving Time) - Run Time: 2620ms

Cross Tabulation Query Form - Trip - 2016

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(4050-4055)
TblG:

Filters:
2006 GTA zone of destination - gta06_dest In 4050-4055
and
Start time of trip - start_time In 1600-1859
and
Primary travel mode of trip - mode_prime In D M P U S
and
Trip purpose - trip_purp In 1 2 3
and
Planning district of origin - pd_orig Not In 40

PM Inbound

TAZ/PD	Trips	Distribution	Direction	Assignment
PD 1 of Toronto	44	1%	E	WATERDOWN SB
PD 6 of Toronto	18	1%	E	WATERDOWN SB
PD 8 of Toronto	13	0%	E	WATERDOWN SB
PD 9 of Toronto	74	2%	E	WATERDOWN SB
PD 13 of Toronto	13	0%	E	WATERDOWN SB
Markham	18	1%	NE	WATERDOWN SB
Vaughan	52	1%	NE	WATERDOWN SB
Brampton	14	0%	NE	WATERDOWN SB
Mississauga	346	10%	E	WATERDOWN SB
Halton Hills	23	1%	N	WATERDOWN SB
Milton	62	2%	NE	WATERDOWN SB
Oakville	499	14%	E	WATERDOWN SB
Flamborough	256	7%	NW	WATERDOWN SB
Dundas	113	3%	W	PLAINS EB
Ancaster	187	5%	W	PLAINS EB
Glanbrook	52	1%	S	WATERDOWN SB
Glanbrook	51	1%	S	PLAINS WB
Stoney Creek	192	5%	S	PLAINS WB
Hamilton	606	17%	S	WATERDOWN SB
Hamilton	605	17%	S	PLAINS WB
St. Catharines	32	1%	S	PLAINS WB
Niagara Falls	32	1%	S	PLAINS WB
Port Colborne	34	1%	S	PLAINS WB
Cambridge	59	2%	NW	WATERDOWN SB
City of Guelph	48	1%	N	WATERDOWN SB
Perth	18	1%	NW	WATERDOWN SB
Brantford	100	3%	W	WATERDOWN SB
Total	**3561**	**100%**		

PM Outbound

Sat Jun 29 2024 17:03:36 GMT-0400 (Eastern Daylight Saving Time) - Run Time: 2284ms

Cross Tabulation Query Form - Trip - 2016

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(4050-4055)
TblG:

Filters:
2006 GTA zone of origin - gta06_orig In 4050-4055
and
Start time of trip - start_time In 1600-1859
and
Primary travel mode of trip - mode_prime In D M P U S
and
Trip purpose - trip_purp In 1 2 3
and
Planning district of destination - pd_dest Not In 40

PM Outbound

TAZ/PD	Trips	Distribution	Direction	Assignment
PD 7 of Toronto	25	1%	E	WATERDOWN NB
Markham	16	1%	NE	WATERDOWN NB
Brampton	8	0%	NE	WATERDOWN NB
Mississauga	56	2%	E	WATERDOWN NB
Halton Hills	22	1%	NE	WATERDOWN NB
Milton	78	3%	NE	WATERDOWN NB
Oakville	253	9%	E	WATERDOWN NB
Flamborough	319	11%	NW	WATERDOWN NB
Dundas	48	2%	W	PLAINS WB
Ancaster	145	5%	W	PLAINS WB
Glanbrook	34	1%	S	WATERDOWN NB
Glanbrook	34	1%	S	PLAINS EB
Stoney Creek	291	10%	S	PLAINS WB
Hamilton	582	20%	S	WATERDOWN NB
Hamilton	582	20%	S	PLAINS EB
St. Catharines	49	2%	S	PLAINS EB
Fort Erie	76	3%	S	PLAINS EB
West Lincoln	66	2%	S	PLAINS EB
Kitchener	25	1%	NW	WATERDOWN NB
Cambridge	24	1%	NW	WATERDOWN NB
City of Guelph	23	1%	N	WATERDOWN NB
Guelph/Eramosa	31	1%	N	WATERDOWN NB
Brant	28	1%	W	WATERDOWN NB
Brantford	149	5%	W	WATERDOWN NB
Total	**2964**	**100%**		

Appendix H

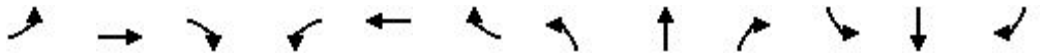
Future Total Intersection Capacity Analysis



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	16	11	137	164	8
Future Volume (Veh/h)	14	16	11	137	164	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	17	12	149	178	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				101		
pX, platoon unblocked						
vC, conflicting volume	356	182	187			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	356	182	187			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	99			
cM capacity (veh/h)	641	865	1399			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	32	161	187
Volume Left	15	12	0
Volume Right	17	0	9
cSH	743	1399	1700
Volume to Capacity	0.04	0.01	0.11
Queue Length 95th (m)	1.1	0.2	0.0
Control Delay (s)	10.1	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	10.1	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

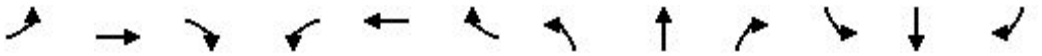


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	275	82	34	130	0	126	21	67	0	52	41
Future Volume (Veh/h)	53	275	82	34	130	0	126	21	67	0	52	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	61	316	94	39	149	0	145	24	77	0	60	47
Pedestrians		1			10			2			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		145										
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	154			412			792	719	375	816	766	155
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154			385			774	699	347	799	747	155
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			97			36	93	89	100	81	95
cM capacity (veh/h)	1433			1154			227	329	673	232	308	892

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	471	188	246	107
Volume Left	61	39	145	0
Volume Right	94	0	77	47
cSH	1433	1154	298	433
Volume to Capacity	0.04	0.03	0.83	0.25
Queue Length 95th (m)	1.1	0.8	55.1	7.7
Control Delay (s)	1.4	1.9	55.4	16.0
Lane LOS	A	A	F	C
Approach Delay (s)	1.4	1.9	55.4	16.0
Approach LOS			F	C

Intersection Summary				
Average Delay	16.2			
Intersection Capacity Utilization	52.4%	ICU Level of Service	A	
Analysis Period (min)	15			

3: Waterdown Rd & Railway Rd/Masonry Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	0	14	11	0	281	8	933	33	245	594	21
Future Volume (vph)	24	0	14	11	0	281	8	933	33	245	594	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	35.0		0.0	25.0		0.0	30.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			20.0			35.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		1.00			1.00	1.00		1.00	1.00	
Frt		0.951			0.850			0.995			0.995	
Flt Protected		0.969		0.950			0.950			0.950		
Satd. Flow (prot)	0	1426	0	1785	1597	0	1594	3417	0	1733	3406	0
Flt Permitted		0.327		0.730			0.395			0.204		
Satd. Flow (perm)	0	481	0	1368	1597	0	661	3417	0	372	3406	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76			341			4			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		318.9			144.8			350.0			576.8	
Travel Time (s)		23.0			10.4			25.2			41.5	
Confl. Peds. (#/hr)			2	2			3		4	4		3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	56%	0%	8%	0%	0%	0%	12%	4%	0%	3%	3%	38%
Adj. Flow (vph)	26	0	15	12	0	309	9	1025	36	269	653	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	12	309	0	9	1061	0	269	676	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes				
Headway Factor	0.85	0.85	0.85	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		11.0	36.0	
Total Split (s)	40.0	40.0		40.0	40.0		42.0	42.0		18.0	60.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		42.0%	42.0%		18.0%	60.0%	
Maximum Green (s)	33.0	33.0		33.0	33.0		35.0	35.0		15.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag							Lag	Lag		Lead		

3: Waterdown Rd & Railway Rd/Masonry Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		15.0	15.0			15.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)		10.0		10.0	10.0		58.2	58.2		80.0	76.0	
Actuated g/C Ratio		0.10		0.10	0.10		0.58	0.58		0.80	0.76	
v/c Ratio		0.35		0.09	0.66		0.02	0.53		0.54	0.26	
Control Delay		10.6		40.2	10.4		12.9	15.3		7.4	4.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		10.6		40.2	10.4		12.9	15.3		7.4	4.1	
LOS		B		D	B		B	B		A	A	
Approach Delay		10.6			11.6			15.3			5.0	
Approach LOS		B			B			B			A	
Queue Length 50th (m)		0.0		2.3	0.0		0.7	61.4		8.7	15.8	
Queue Length 95th (m)		3.2		7.3	17.1		4.0	110.8		25.0	31.5	
Internal Link Dist (m)		294.9			120.8			326.0			552.8	
Turn Bay Length (m)				35.0			25.0			30.0		
Base Capacity (vph)		209		451	755		384	1989		526	2590	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.20		0.03	0.41		0.02	0.53		0.51	0.26	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 78.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Waterdown Rd & Railway Rd/Masonry Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	0	14	11	0	281	8	933	33	245	594	21
Future Volume (vph)	24	0	14	11	0	281	8	933	33	245	594	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.95		1.00	0.85		1.00	0.99		1.00	0.99	
Flt Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1425		1780	1597		1590	3416		1733	3406	
Flt Permitted		0.33		0.73	1.00		0.39	1.00		0.20	1.00	
Satd. Flow (perm)		481		1369	1597		661	3416		372	3406	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	26	0	15	12	0	309	9	1025	36	269	653	23
RTOR Reduction (vph)	0	37	0	0	278	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	4	0	12	31	0	9	1059	0	269	675	0
Confl. Peds. (#/hr)			2	2			3		4	4		3
Heavy Vehicles (%)	56%	0%	8%	0%	0%	0%	12%	4%	0%	3%	3%	38%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.0		10.0	10.0		58.1	58.1		76.0	76.0	
Effective Green, g (s)		10.0		10.0	10.0		58.1	58.1		76.0	76.0	
Actuated g/C Ratio		0.10		0.10	0.10		0.58	0.58		0.76	0.76	
Clearance Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		48		136	159		384	1984		485	2588	
v/s Ratio Prot					c0.02			0.31		c0.08	0.20	
v/s Ratio Perm		0.01		0.01			0.01			c0.34		
v/c Ratio		0.09		0.09	0.19		0.02	0.53		0.55	0.26	
Uniform Delay, d1		40.8		40.9	41.3		8.9	12.7		5.8	3.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6		0.6	1.3		0.1	1.0		1.4	0.2	
Delay (s)		42.5		41.4	42.6		9.0	13.8		7.2	3.8	
Level of Service		D		D	D		A	B		A	A	
Approach Delay (s)		42.5			42.5			13.7			4.8	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Future Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	0.99		0.99		0.98
Frt		0.978			0.953			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	3377	0	1684	3211	0	1668	1738	0	1716	1824	1536
Flt Permitted	0.142			0.206			0.469			0.196		
Satd. Flow (perm)	259	3377	0	364	3211	0	819	1738	0	351	1824	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			62			12				222
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
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 (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Adj. Flow (vph)	566	976	169	128	561	254	67	293	83	239	298	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	566	1145	0	128	815	0	67	376	0	239	298	222
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	31.0	51.0		12.0	32.0		10.0	34.0		13.0	37.0	37.0
Total Split (%)	28.2%	46.4%		10.9%	29.1%		9.1%	30.9%		11.8%	33.6%	33.6%
Maximum Green (s)	28.0	44.7		9.0	25.7		7.0	27.7		10.0	30.7	30.7
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	61.8	47.1		37.4	25.7		36.0	25.9		42.2	30.9	30.9
Actuated g/C Ratio	0.56	0.43		0.34	0.23		0.33	0.24		0.38	0.28	0.28
v/c Ratio	1.04	0.79		0.57	1.02		0.21	0.90		0.93	0.58	0.38
Control Delay	79.8	32.0		26.4	69.7		22.9	64.6		67.2	39.6	6.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	79.8	32.0		26.4	69.7		22.9	64.6		67.2	39.6	6.2
LOS	E	C		C	E		C	E		E	D	A
Approach Delay		47.8			63.9			58.3			38.5	
Approach LOS		D			E			E			D	
Queue Length 50th (m)	~127.1	117.7		11.0	~97.9		9.3	78.6		37.1	58.0	0.0
Queue Length 95th (m)	#192.9	144.5		27.9	#80.3		18.5	#127.2		#72.1	86.0	17.5
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	544	1457		233	797		323	446		258	519	586
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.04	0.79		0.55	1.02		0.21	0.84		0.93	0.57	0.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 51.1		Intersection LOS: D	
Intersection Capacity Utilization 98.4%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Future Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.95		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	3376		1683	3212		1664	1738		1714	1824	1504
Flt Permitted	0.14	1.00		0.21	1.00		0.47	1.00		0.20	1.00	1.00
Satd. Flow (perm)	260	3376		365	3212		822	1738		354	1824	1504
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	566	976	169	128	561	254	67	293	83	239	298	222
RTOR Reduction (vph)	0	12	0	0	48	0	0	9	0	0	0	160
Lane Group Flow (vph)	566	1133	0	128	767	0	67	367	0	239	298	62
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
Heavy Vehicles (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	57.9	46.5		33.5	25.1		32.1	26.5		39.5	30.9	30.9
Effective Green, g (s)	57.9	46.5		33.5	25.1		32.1	26.5		39.5	30.9	30.9
Actuated g/C Ratio	0.53	0.42		0.30	0.23		0.29	0.24		0.36	0.28	0.28
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	535	1427		211	732		282	418		250	512	422
v/s Ratio Prot	c0.29	0.34		0.05	0.24		0.01	0.21		c0.09	0.16	
v/s Ratio Perm	c0.27			0.14			0.06			c0.26		0.04
v/c Ratio	1.06	0.79		0.61	1.05		0.24	0.88		0.96	0.58	0.15
Uniform Delay, d1	31.5	27.6		28.9	42.5		28.9	40.2		30.4	34.0	29.7
Progression Factor	1.00	1.00		1.01	0.83		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	55.1	4.6		4.5	45.4		0.4	18.4		44.4	1.7	0.2
Delay (s)	86.6	32.2		33.8	80.5		29.3	58.5		74.8	35.7	29.8
Level of Service	F	C		C	F		C	E		E	D	C
Approach Delay (s)		50.2			74.2			54.1			46.3	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	55.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

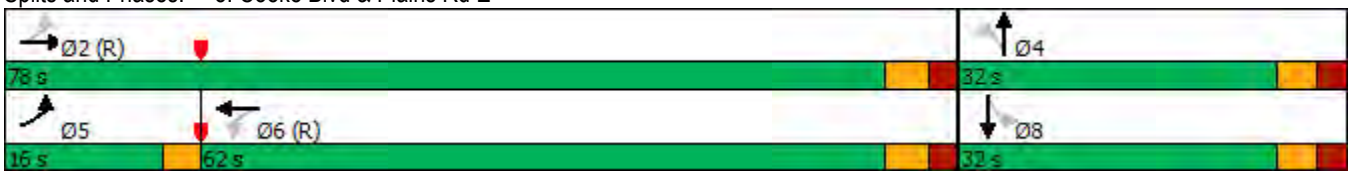
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	1111	26	6	757	78	58	4	28	114	0	66
Future Volume (vph)	66	1111	26	6	757	78	58	4	28	114	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Storage Length (m)	40.0		0.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	0.99			0.99			0.99	
Frt		0.997			0.986			0.958			0.950	
Flt Protected	0.950			0.950				0.969			0.969	
Satd. Flow (prot)	1785	3422	0	1785	3350	0	0	1735	0	0	1782	0
Flt Permitted	0.272			0.222				0.715			0.770	
Satd. Flow (perm)	508	3422	0	415	3350	0	0	1271	0	0	1413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			14			19			60	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		157.2			142.3			238.5			100.6	
Travel Time (s)		9.4			8.5			17.2			7.2	
Confl. Peds. (#/hr)	12		10	10		12	12		3	3		12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	0%	0%	5%	0%	0%	0%	0%	6%	0%	17%
Adj. Flow (vph)	72	1208	28	7	823	85	63	4	30	124	0	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	1236	0	7	908	0	0	97	0	0	196	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.85	0.85	0.85
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	25.0		25.0	25.0		27.9	27.9		27.9	27.9	
Total Split (s)	16.0	78.0		62.0	62.0		32.0	32.0		32.0	32.0	
Total Split (%)	14.5%	70.9%		56.4%	56.4%		29.1%	29.1%		29.1%	29.1%	
Maximum Green (s)	13.0	72.0		56.0	56.0		26.1	26.1		26.1	26.1	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lead/Lag	Lead			Lag	Lag							

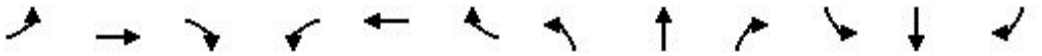
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	84.8	81.8		73.8	73.8			16.3			16.3	
Actuated g/C Ratio	0.77	0.74		0.67	0.67			0.15			0.15	
v/c Ratio	0.15	0.49		0.03	0.40			0.48			0.75	
Control Delay	2.2	2.5		9.7	10.1			40.2			47.9	
Queue Delay	0.0	0.4		0.0	0.0			0.0			0.0	
Total Delay	2.2	2.9		9.7	10.1			40.2			47.9	
LOS	A	A		A	B			D			D	
Approach Delay		2.9			10.1			40.2			47.9	
Approach LOS		A			B			D			D	
Queue Length 50th (m)	1.4	16.3		0.5	45.5			16.2			29.8	
Queue Length 95th (m)	m2.3	m21.6		2.9	75.7			30.8			51.4	
Internal Link Dist (m)		133.2			118.3			214.5			76.6	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	542	2544		278	2252			316			381	
Starvation Cap Reductn	0	679		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.13	0.66		0.03	0.40			0.31			0.51	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

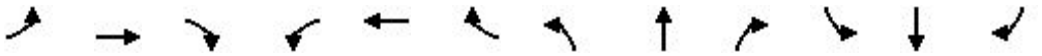
Splits and Phases: 5: Cooke Blvd & Plains Rd E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	1111	26	6	757	78	58	4	28	114	0	66
Future Volume (vph)	66	1111	26	6	757	78	58	4	28	114	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Total Lost time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.99			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1782	3420		1776	3350			1723			1779	
Flt Permitted	0.27	1.00		0.22	1.00			0.72			0.77	
Satd. Flow (perm)	509	3420		415	3350			1272			1412	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	1208	28	7	823	85	63	4	30	124	0	72
RTOR Reduction (vph)	0	1	0	0	5	0	0	16	0	0	51	0
Lane Group Flow (vph)	72	1235	0	7	903	0	0	81	0	0	145	0
Confl. Peds. (#/hr)	12		10	10		12	12		3	3		12
Heavy Vehicles (%)	0%	4%	0%	0%	5%	0%	0%	0%	0%	6%	0%	17%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	81.8	81.8		73.2	73.2			16.3			16.3	
Effective Green, g (s)	81.8	81.8		73.2	73.2			16.3			16.3	
Actuated g/C Ratio	0.74	0.74		0.67	0.67			0.15			0.15	
Clearance Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	443	2543		276	2229			188			209	
v/s Ratio Prot	0.01	c0.36			0.27							
v/s Ratio Perm	0.11			0.02				0.06			c0.10	
v/c Ratio	0.16	0.49		0.03	0.41			0.43			0.69	
Uniform Delay, d1	4.3	5.7		6.3	8.4			42.6			44.5	
Progression Factor	0.46	0.33		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.4		0.2	0.5			1.6			9.5	
Delay (s)	2.1	2.3		6.4	9.0			44.2			54.0	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		2.3			9.0			44.2			54.0	
Approach LOS		A			A			D			D	

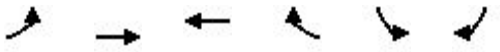
Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1234	4	7	815	12	4	0	34	35	1	16
Future Volume (Veh/h)	2	1234	4	7	815	12	4	0	34	35	1	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	1356	4	8	896	13	4	0	37	38	1	18
Pedestrians		1						9			7	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						1			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		142			179							
pX, platoon unblocked	0.96			0.85			0.87	0.87	0.85	0.87	0.87	0.96
vC, conflicting volume	916			1369			1854	2303	689	1644	2298	462
vC1, stage 1 conf vol							1371	1371		926	926	
vC2, stage 2 conf vol							484	932		719	1373	
vCu, unblocked vol	833			1089			1490	2004	292	1249	1999	362
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	94	86	99	97
cM capacity (veh/h)	773			549			186	203	602	275	199	612

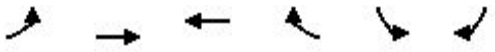
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2	904	456	8	597	312	41	57
Volume Left	2	0	0	8	0	0	4	38
Volume Right	0	0	4	0	0	13	37	18
cSH	773	1700	1700	549	1700	1700	494	330
Volume to Capacity	0.00	0.53	0.27	0.01	0.35	0.18	0.08	0.17
Queue Length 95th (m)	0.1	0.0	0.0	0.4	0.0	0.0	2.2	4.9
Control Delay (s)	9.7	0.0	0.0	11.7	0.0	0.0	12.9	18.2
Lane LOS	A			B			B	C
Approach Delay (s)	0.0			0.1			12.9	18.2
Approach LOS							B	C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	50.7%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	1312	820	1	5	5
Future Volume (vph)	4	1312	820	1	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	9.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	11.0				12.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.99
Frt						0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1785	3466	3400	0	1785	1597
Flt Permitted	0.319				0.950	
Satd. Flow (perm)	598	3466	3400	0	1782	1573
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						5
Link Speed (k/h)		60	60		50	
Link Distance (m)		179.0	398.2		302.2	
Travel Time (s)		10.7	23.9		21.8	
Confl. Peds. (#/hr)	7			7	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	5%	0%	0%	0%
Adj. Flow (vph)	4	1426	891	1	5	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	1426	892	0	5	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Detector Phase	2	2	6		8	8
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	45.0	45.0	45.0		28.0	28.0
Total Split (s)	69.0	69.0	69.0		31.0	31.0
Total Split (%)	69.0%	69.0%	69.0%		31.0%	31.0%
Maximum Green (s)	63.0	63.0	63.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						

7: Plains Rd E & St Matthews Ave

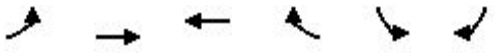


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)	30.0	30.0	30.0		8.0	8.0
Flash Dont Walk (s)	8.0	8.0	8.0		13.0	13.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	95.8	95.8	95.8		8.0	8.0
Actuated g/C Ratio	0.96	0.96	0.96		0.08	0.08
v/c Ratio	0.01	0.43	0.27		0.04	0.04
Control Delay	1.2	1.5	1.0		43.2	26.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	1.2	1.5	1.0		43.2	26.8
LOS	A	A	A		D	C
Approach Delay		1.5	1.0		35.0	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.0	0.0	0.0		1.0	0.0
Queue Length 95th (m)	0.8	53.4	27.4		4.7	3.7
Internal Link Dist (m)		155.0	374.2		278.2	
Turn Bay Length (m)	15.0				9.0	
Base Capacity (vph)	573	3320	3257		428	381
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.01	0.43	0.27		0.01	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 10 (10%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 1.4		Intersection LOS: A	
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: Plains Rd E & St Matthews Ave





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	1312	820	1	5	5
Future Volume (vph)	4	1312	820	1	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		7.0	7.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1780	3466	3399		1785	1573
Flt Permitted	0.32	1.00	1.00		0.95	1.00
Satd. Flow (perm)	598	3466	3399		1785	1573
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1426	891	1	5	5
RTOR Reduction (vph)	0	0	0	0	0	5
Lane Group Flow (vph)	4	1426	892	0	5	0
Confl. Peds. (#/hr)	7			7	1	2
Heavy Vehicles (%)	0%	3%	5%	0%	0%	0%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Actuated Green, G (s)	85.4	85.4	85.4		1.6	1.6
Effective Green, g (s)	85.4	85.4	85.4		1.6	1.6
Actuated g/C Ratio	0.85	0.85	0.85		0.02	0.02
Clearance Time (s)	6.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	510	2959	2902		28	25
v/s Ratio Prot		c0.41	0.26		c0.00	
v/s Ratio Perm	0.01					0.00
v/c Ratio	0.01	0.48	0.31		0.18	0.00
Uniform Delay, d1	1.1	1.8	1.4		48.6	48.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.6	0.3		3.0	0.1
Delay (s)	1.1	2.4	1.7		51.6	48.5
Level of Service	A	A	A		D	D
Approach Delay (s)		2.4	1.7		50.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	2.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

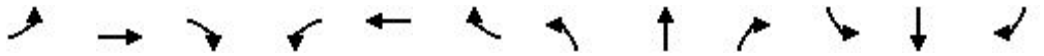
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	24	20	236	229	21
Future Volume (Veh/h)	10	24	20	236	229	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	26	22	257	249	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				101		
pX, platoon unblocked						
vC, conflicting volume	562	260	272			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	562	260	272			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	98			
cM capacity (veh/h)	484	783	1303			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	37	279	272
Volume Left	11	22	0
Volume Right	26	0	23
cSH	661	1303	1700
Volume to Capacity	0.06	0.02	0.16
Queue Length 95th (m)	1.4	0.4	0.0
Control Delay (s)	10.8	0.8	0.0
Lane LOS	B	A	
Approach Delay (s)	10.8	0.8	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	96	136	71	239	0	142	68	46	0	39	29
Future Volume (Veh/h)	174	96	136	71	239	0	142	68	46	0	39	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	196	108	153	80	269	0	160	76	52	0	44	33
Pedestrians		2			11			1			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		145										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	273			262			1064	1010	196	1110	1087	275
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	273			148			1023	965	77	1075	1049	275
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			94			0	59	94	100	74	96
cM capacity (veh/h)	1298			1323			127	187	898	99	167	765

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	457	349	288	77
Volume Left	196	80	160	0
Volume Right	153	0	52	33
cSH	1298	1323	167	251
Volume to Capacity	0.15	0.06	1.72	0.31
Queue Length 95th (m)	4.3	1.5	163.0	10.0
Control Delay (s)	4.4	2.2	395.6	25.6
Lane LOS	A	A	F	D
Approach Delay (s)	4.4	2.2	395.6	25.6
Approach LOS			F	D

Intersection Summary				
Average Delay	101.4			
Intersection Capacity Utilization	69.0%	ICU Level of Service	C	
Analysis Period (min)	15			

3: Waterdown Rd & Railway Rd/Masonry Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	0	15	41	1	391	4	638	25	390	811	13
Future Volume (vph)	13	0	15	41	1	391	4	638	25	390	811	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	35.0		0.0	25.0		0.0	30.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			20.0			35.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt		0.926			0.850			0.994			0.998	
Flt Protected		0.978		0.950			0.950			0.950		
Satd. Flow (prot)	0	1950	0	1785	1597	0	1428	3478	0	1750	3469	0
Flt Permitted		0.189		0.737			0.312			0.323		
Satd. Flow (perm)	0	377	0	1385	1597	0	468	3478	0	594	3469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			361			5			3	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		318.9			144.8			350.0			576.8	
Travel Time (s)		23.0			10.4			25.2			41.5	
Confl. Peds. (#/hr)							2		4	4		2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	25%	2%	0%	2%	2%	46%
Adj. Flow (vph)	14	0	17	46	1	434	4	709	28	433	901	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	46	435	0	4	737	0	433	915	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes				
Headway Factor	0.85	0.85	0.85	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		11.0	36.0	
Total Split (s)	32.0	32.0		32.0	32.0		60.0	60.0		18.0	78.0	
Total Split (%)	29.1%	29.1%		29.1%	29.1%		54.5%	54.5%		16.4%	70.9%	
Maximum Green (s)	25.0	25.0		25.0	25.0		53.0	53.0		15.0	71.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag							Lag	Lag		Lead		

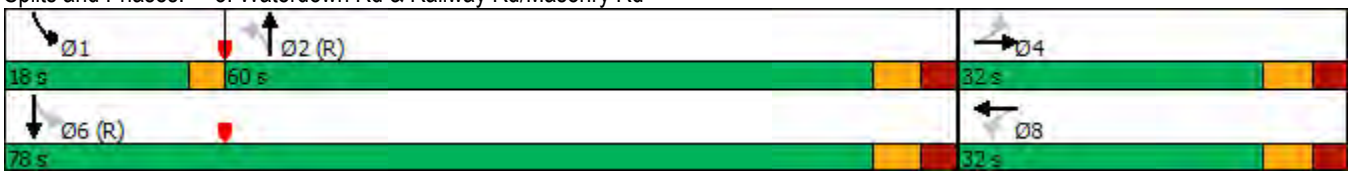
3: Waterdown Rd & Railway Rd/Masonry Rd

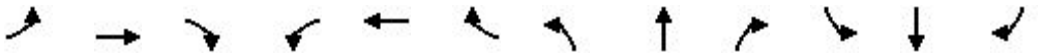
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		15.0	15.0			15.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)		15.4		15.4	15.4		63.6	63.6		84.6	80.6	
Actuated g/C Ratio		0.14		0.14	0.14		0.58	0.58		0.77	0.73	
v/c Ratio		0.28		0.24	0.81		0.01	0.37		0.72	0.36	
Control Delay		6.6		41.8	21.4		21.0	17.6		12.9	6.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		6.6		41.8	21.4		21.0	17.6		12.9	6.6	
LOS		A		D	C		C	B		B	A	
Approach Delay		6.6			23.3			17.6			8.6	
Approach LOS		A			C			B			A	
Queue Length 50th (m)		0.0		9.4	15.4		0.5	52.5		24.0	32.8	
Queue Length 95th (m)		1.1		18.7	49.0		m0.4	m45.8		#55.0	60.3	
Internal Link Dist (m)		294.9			120.8			326.0			552.8	
Turn Bay Length (m)				35.0			25.0			30.0		
Base Capacity (vph)		139		314	641		270	2013		621	2541	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.22		0.15	0.68		0.01	0.37		0.70	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 72 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 85.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Waterdown Rd & Railway Rd/Masonry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	0	15	41	1	391	4	638	25	390	811	13
Future Volume (vph)	13	0	15	41	1	391	4	638	25	390	811	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.93		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1950		1785	1598		1426	3479		1749	3468	
Flt Permitted		0.19		0.74	1.00		0.31	1.00		0.32	1.00	
Satd. Flow (perm)		376		1385	1598		468	3479		594	3468	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	0	17	46	1	434	4	709	28	433	901	14
RTOR Reduction (vph)	0	27	0	0	310	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	4	0	46	125	0	4	735	0	433	914	0
Confl. Peds. (#/hr)							2		4	4		2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	25%	2%	0%	2%	2%	46%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		15.4		15.4	15.4		63.6	63.6		80.6	80.6	
Effective Green, g (s)		15.4		15.4	15.4		63.6	63.6		80.6	80.6	
Actuated g/C Ratio		0.14		0.14	0.14		0.58	0.58		0.73	0.73	
Clearance Time (s)		7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		52		193	223		270	2011		582	2541	
v/s Ratio Prot					c0.08			0.21		c0.09	0.26	
v/s Ratio Perm		0.01		0.03			0.01			c0.45		
v/c Ratio		0.08		0.24	0.56		0.01	0.37		0.74	0.36	
Uniform Delay, d1		41.2		42.1	44.1		9.9	12.4		6.2	5.3	
Progression Factor		1.00		1.00	1.00		1.45	1.25		1.00	1.00	
Incremental Delay, d2		1.4		1.3	5.1		0.0	0.0		5.1	0.4	
Delay (s)		42.6		43.4	49.2		14.4	15.6		11.3	5.7	
Level of Service		D		D	D		B	B		B	A	
Approach Delay (s)		42.6			48.7			15.6			7.5	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

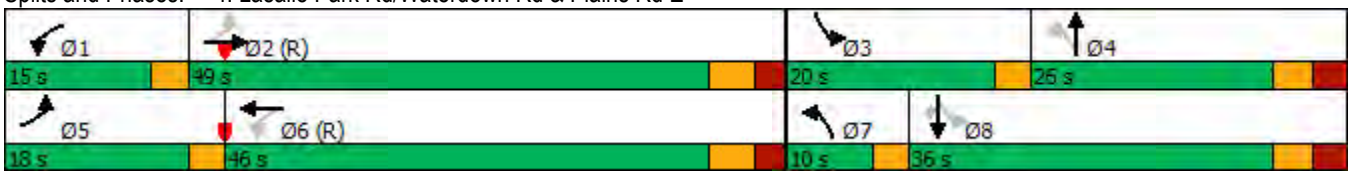
4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Future Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.99		0.98	1.00		1.00		0.97
Frt		0.984			0.975			0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1767	3435	0	1750	3412	0	1767	1777	0	1785	1824	1566
Flt Permitted	0.094			0.264			0.637			0.210		
Satd. Flow (perm)	175	3435	0	484	3412	0	1166	1777	0	393	1824	1515
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			23			10				284
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Adj. Flow (vph)	433	761	92	126	1242	245	133	232	60	300	191	424
Shared Lane Traffic (%)												
Lane Group Flow (vph)	433	853	0	126	1487	0	133	292	0	300	191	424
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	18.0	49.0		15.0	46.0		10.0	26.0		20.0	36.0	36.0
Total Split (%)	16.4%	44.5%		13.6%	41.8%		9.1%	23.6%		18.2%	32.7%	32.7%
Maximum Green (s)	15.0	42.7		12.0	39.7		7.0	19.7		17.0	29.7	29.7
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	62.0	46.4		52.3	39.7		29.5	19.2		42.0	28.7	28.7
Actuated g/C Ratio	0.56	0.42		0.48	0.36		0.27	0.17		0.38	0.26	0.26
v/c Ratio	1.31	0.59		0.37	1.19		0.38	0.92		0.84	0.40	0.70
Control Delay	187.8	26.6		10.0	118.5		27.5	77.1		61.2	39.4	21.8
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	187.8	26.6		10.0	118.6		27.5	77.1		61.2	39.4	21.8
LOS	F	C		A	F		C	E		E	D	C
Approach Delay		80.9			110.1			61.6			38.4	
Approach LOS		F			F			E			D	
Queue Length 50th (m)	~113.2	76.4		4.9	~214.3		19.5	63.1		55.3	28.4	17.0
Queue Length 95th (m)	#177.1	101.7		m9.4	#253.5		33.7	#114.1		#104.7	58.4	72.1
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	331	1458		380	1246		351	326		364	492	616
Starvation Cap Reductn	0	0		0	30		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.31	0.59		0.33	1.22		0.38	0.90		0.82	0.39	0.69

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 135			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.31			
Intersection Signal Delay: 80.9		Intersection LOS: F	
Intersection Capacity Utilization 114.9%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

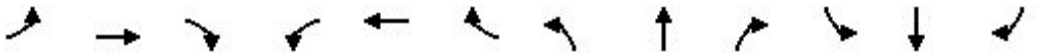
Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Future Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3435		1748	3413		1750	1777		1784	1824	1515
Flt Permitted	0.09	1.00		0.26	1.00		0.64	1.00		0.21	1.00	1.00
Satd. Flow (perm)	174	3435		485	3413		1174	1777		393	1824	1515
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	433	761	92	126	1242	245	133	232	60	300	191	424
RTOR Reduction (vph)	0	8	0	0	15	0	0	8	0	0	0	210
Lane Group Flow (vph)	433	845	0	126	1472	0	133	284	0	300	191	214
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	58.7	46.4		49.0	39.7		26.3	19.3		38.7	28.7	28.7
Effective Green, g (s)	58.7	46.4		49.0	39.7		26.3	19.3		38.7	28.7	28.7
Actuated g/C Ratio	0.53	0.42		0.45	0.36		0.24	0.18		0.35	0.26	0.26
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	324	1448		322	1231		317	311		345	475	395
v/s Ratio Prot	c0.19	0.25		0.03	0.43		0.03	0.16		c0.13	0.10	
v/s Ratio Perm	c0.52			0.14			0.07			c0.18		0.14
v/c Ratio	1.34	0.58		0.39	1.20		0.42	0.91		0.87	0.40	0.54
Uniform Delay, d1	34.2	24.4		18.6	35.1		34.5	44.5		29.1	33.6	35.0
Progression Factor	1.00	1.00		0.64	0.72		1.00	1.00		1.62	1.10	1.29
Incremental Delay, d2	170.9	1.7		0.5	93.9		0.9	29.5		19.4	0.5	1.5
Delay (s)	205.1	26.1		12.4	119.3		35.4	74.0		66.4	37.4	46.6
Level of Service	F	C		B	F		D	E		E	D	D
Approach Delay (s)		86.4			111.0			61.9			51.2	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	85.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	114.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



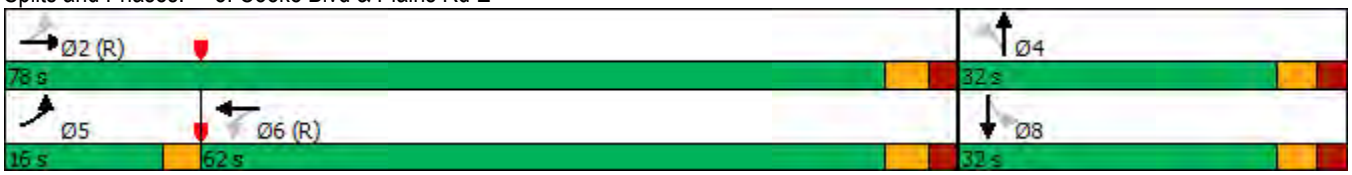
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	977	51	44	1411	171	44	3	14	140	0	113
Future Volume (vph)	82	977	51	44	1411	171	44	3	14	140	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Storage Length (m)	40.0		0.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99	1.00			0.99			0.99	
Frt		0.993			0.984			0.968			0.940	
Flt Protected	0.950			0.950				0.965			0.973	
Satd. Flow (prot)	1785	3502	0	1785	3455	0	0	1748	0	0	1928	0
Flt Permitted	0.078			0.267				0.649			0.815	
Satd. Flow (perm)	147	3502	0	498	3455	0	0	1173	0	0	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			17			13			60	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		157.2			142.3			238.5			100.6	
Travel Time (s)		9.4			8.5			17.2			7.2	
Confl. Peds. (#/hr)	8		12	12		8	4		3	3		4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	1%	3%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	85	1018	53	46	1470	178	46	3	15	146	0	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	1071	0	46	1648	0	0	64	0	0	264	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.85	0.85	0.85
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	25.0		25.0	25.0		27.9	27.9		27.9	27.9	
Total Split (s)	16.0	78.0		62.0	62.0		32.0	32.0		32.0	32.0	
Total Split (%)	14.5%	70.9%		56.4%	56.4%		29.1%	29.1%		29.1%	29.1%	
Maximum Green (s)	13.0	72.0		56.0	56.0		26.1	26.1		26.1	26.1	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lead/Lag	Lead			Lag	Lag							

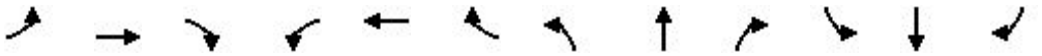
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	81.7	78.7		70.1	70.1			19.4			19.4	
Actuated g/C Ratio	0.74	0.72		0.64	0.64			0.18			0.18	
v/c Ratio	0.39	0.43		0.15	0.75			0.29			0.79	
Control Delay	18.7	5.4		12.5	18.5			33.7			53.4	
Queue Delay	0.0	0.1		0.0	27.4			0.0			0.2	
Total Delay	18.7	5.5		12.5	45.9			33.7			53.6	
LOS	B	A		B	D			C			D	
Approach Delay		6.5			45.0			33.7			53.6	
Approach LOS		A			D			C			D	
Queue Length 50th (m)	4.7	34.8		4.0	130.1			10.0			49.0	
Queue Length 95th (m)	m16.3	m49.7		12.3	201.0			21.5			75.8	
Internal Link Dist (m)		133.2			118.3			214.5			76.6	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	302	2507		317	2209			288			428	
Starvation Cap Reductn	0	403		0	0			0			0	
Spillback Cap Reductn	0	0		0	639			2			11	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.28	0.51		0.15	1.05			0.22			0.63	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 96 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 78.8% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

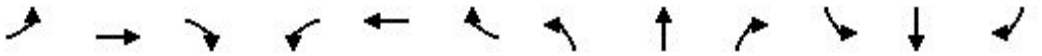
Splits and Phases: 5: Cooke Blvd & Plains Rd E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	977	51	44	1411	171	44	3	14	140	0	113
Future Volume (vph)	82	977	51	44	1411	171	44	3	14	140	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
Total Lost time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.97			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1785	3501		1771	3454			1746			1923	
Flt Permitted	0.08	1.00		0.27	1.00			0.65			0.81	
Satd. Flow (perm)	147	3501		498	3454			1173			1610	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	85	1018	53	46	1470	178	46	3	15	146	0	118
RTOR Reduction (vph)	0	3	0	0	6	0	0	11	0	0	49	0
Lane Group Flow (vph)	85	1068	0	46	1642	0	0	53	0	0	215	0
Confl. Peds. (#/hr)	8		12	12		8	4		3	3		4
Heavy Vehicles (%)	0%	1%	0%	0%	1%	3%	0%	0%	0%	0%	0%	3%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	78.7	78.7		69.6	69.6			19.4			19.4	
Effective Green, g (s)	78.7	78.7		69.6	69.6			19.4			19.4	
Actuated g/C Ratio	0.72	0.72		0.63	0.63			0.18			0.18	
Clearance Time (s)	3.0	6.0		6.0	6.0			5.9			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	196	2504		315	2185			206			283	
v/s Ratio Prot	0.02	c0.31			c0.48							
v/s Ratio Perm	0.29			0.09				0.05			c0.13	
v/c Ratio	0.43	0.43		0.15	0.75			0.26			0.76	
Uniform Delay, d1	12.5	6.4		8.2	14.1			39.1			43.1	
Progression Factor	2.74	0.71		1.00	1.00			1.00			1.13	
Incremental Delay, d2	1.2	0.4		1.0	2.4			0.7			10.6	
Delay (s)	35.4	4.9		9.1	16.6			39.8			59.5	
Level of Service	D	A		A	B			D			E	
Approach Delay (s)		7.2			16.4			39.8			59.5	
Approach LOS		A			B			D			E	

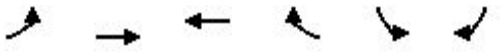
Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1114	9	11	1616	50	3	1	12	8	1	18
Future Volume (Veh/h)	3	1114	9	11	1616	50	3	1	12	8	1	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	3	1137	9	11	1649	51	3	1	12	8	1	18
Pedestrians								10			9	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		142			179							
pX, platoon unblocked	0.80			0.88			0.86	0.86	0.88	0.86	0.86	0.80
vC, conflicting volume	1709			1156			2022	2888	583	2292	2868	859
vC1, stage 1 conf vol							1158	1158		1706	1706	
vC2, stage 2 conf vol							865	1731		587	1162	
vCu, unblocked vol	1385			902			1229	2236	250	1543	2212	322
tC, single (s)	4.1			4.1			8.2	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)							7.2	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			98			98	99	98	93	99	97
cM capacity (veh/h)	397			664			194	140	659	117	145	516

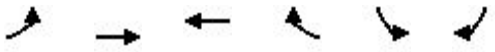
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	758	388	11	1099	601	16	27
Volume Left	3	0	0	11	0	0	3	8
Volume Right	0	0	9	0	0	51	12	18
cSH	397	1700	1700	664	1700	1700	392	245
Volume to Capacity	0.01	0.45	0.23	0.02	0.65	0.35	0.04	0.11
Queue Length 95th (m)	0.2	0.0	0.0	0.4	0.0	0.0	1.0	2.9
Control Delay (s)	14.1	0.0	0.0	10.5	0.0	0.0	14.6	21.5
Lane LOS	B			B			B	C
Approach Delay (s)	0.0			0.1			14.6	21.5
Approach LOS							B	C

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	56.3%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1107	1651	19	20	17
Future Volume (vph)	24	1107	1651	19	20	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	9.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	11.0				12.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.98
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1785	3535	3524	0	1785	1597
Flt Permitted	0.115				0.950	
Satd. Flow (perm)	216	3535	3524	0	1782	1562
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2			18
Link Speed (k/h)		60	60		50	
Link Distance (m)		179.0	398.2		302.2	
Travel Time (s)		10.7	23.9		21.8	
Confl. Peds. (#/hr)	7			7	1	7
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	6%	0%	0%
Adj. Flow (vph)	25	1153	1720	20	21	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	1153	1740	0	21	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Detector Phase	2	2	6		8	8
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	45.0	45.0	45.0		28.0	28.0
Total Split (s)	69.0	69.0	69.0		31.0	31.0
Total Split (%)	69.0%	69.0%	69.0%		31.0%	31.0%
Maximum Green (s)	63.0	63.0	63.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						

7: Plains Rd E & St Matthews Ave

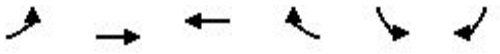


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)	30.0	30.0	30.0		8.0	8.0
Flash Dont Walk (s)	8.0	8.0	8.0		13.0	13.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	87.3	87.3	87.3		8.1	8.1
Actuated g/C Ratio	0.87	0.87	0.87		0.08	0.08
v/c Ratio	0.13	0.37	0.57		0.15	0.13
Control Delay	4.2	2.7	4.0		45.2	20.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	4.2	2.7	4.0		45.2	20.5
LOS	A	A	A		D	C
Approach Delay		2.7	4.0		33.8	
Approach LOS		A	A		C	
Queue Length 50th (m)	1.0	30.0	60.3		4.1	0.0
Queue Length 95th (m)	3.4	39.2	78.0		11.6	7.0
Internal Link Dist (m)		155.0	374.2		278.2	
Turn Bay Length (m)	15.0				9.0	
Base Capacity (vph)	188	3086	3076		428	388
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.37	0.57		0.05	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 3.9		Intersection LOS: A	
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Plains Rd E & St Matthews Ave





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1107	1651	19	20	17
Future Volume (vph)	24	1107	1651	19	20	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		7.0	7.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1784	3535	3525		1785	1562
Flt Permitted	0.11	1.00	1.00		0.95	1.00
Satd. Flow (perm)	216	3535	3525		1785	1562
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	25	1153	1720	20	21	18
RTOR Reduction (vph)	0	0	0	0	0	17
Lane Group Flow (vph)	25	1153	1740	0	21	1
Confl. Peds. (#/hr)	7			7	1	7
Heavy Vehicles (%)	0%	1%	1%	6%	0%	0%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Actuated Green, G (s)	82.1	82.1	82.1		4.9	4.9
Effective Green, g (s)	82.1	82.1	82.1		4.9	4.9
Actuated g/C Ratio	0.82	0.82	0.82		0.05	0.05
Clearance Time (s)	6.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	177	2902	2894		87	76
v/s Ratio Prot		0.33	c0.49		c0.01	
v/s Ratio Perm	0.12					0.00
v/c Ratio	0.14	0.40	0.60		0.24	0.01
Uniform Delay, d1	1.8	2.4	3.2		45.8	45.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.7	0.4	0.9		1.4	0.1
Delay (s)	3.5	2.8	4.1		47.2	45.3
Level of Service	A	A	A		D	D
Approach Delay (s)		2.8	4.1		46.3	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

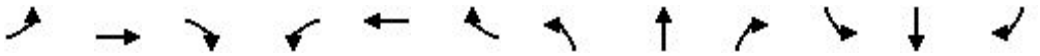
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	275	82	34	130	0	126	21	67	0	52	41
Future Volume (vph)	53	275	82	34	130	0	126	21	67	0	52	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			0.99	
Frt		0.973						0.958			0.941	
Flt Protected		0.994			0.990			0.971				
Satd. Flow (prot)	0	1746	0	0	1860	0	0	1641	0	0	1751	0
Flt Permitted		0.946			0.882			0.758				
Satd. Flow (perm)	0	1661	0	0	1657	0	0	1280	0	0	1751	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36						50			47	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		144.8			575.6			247.4			374.5	
Travel Time (s)		10.4			41.4			17.8			27.0	
Confl. Peds. (#/hr)	5		2	2		5	1		10	10		1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	18%	0%	0%	0%	8%	0%	2%	0%	0%	0%
Adj. Flow (vph)	61	316	94	39	149	0	145	24	77	0	60	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	471	0	0	188	0	0	246	0	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	29.0	29.0		29.0	29.0		21.0	21.0		21.0	21.0	
Total Split (%)	58.0%	58.0%		58.0%	58.0%		42.0%	42.0%		42.0%	42.0%	
Maximum Green (s)	25.0	25.0		25.0	25.0		17.0	17.0		17.0	17.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		29.5			29.5			12.5			12.5	
Actuated g/C Ratio		0.59			0.59			0.25			0.25	
v/c Ratio		0.47			0.19			0.69			0.23	
Control Delay		7.0			6.5			23.2			9.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.0			6.5			23.2			9.4	
LOS		A			A			C			A	
Approach Delay		7.0			6.5			23.2			9.4	
Approach LOS		A			A			C			A	
Queue Length 50th (m)		20.1			7.1			16.0			4.3	
Queue Length 95th (m)		41.9			17.4			30.2			11.4	
Internal Link Dist (m)		120.8			551.6			223.4			350.5	
Turn Bay Length (m)												
Base Capacity (vph)		996			978			468			626	
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		0.47			0.19			0.53			0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 52.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Cooke Blvd & Masonry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	275	82	34	130	0	126	21	67	0	52	41
Future Volume (vph)	53	275	82	34	130	0	126	21	67	0	52	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.96			0.94	
Flt Protected		0.99			0.99			0.97			1.00	
Satd. Flow (prot)		1744			1859			1640			1751	
Flt Permitted		0.95			0.88			0.76			1.00	
Satd. Flow (perm)		1660			1657			1280			1751	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	61	316	94	39	149	0	145	24	77	0	60	47
RTOR Reduction (vph)	0	15	0	0	0	0	0	38	0	0	35	0
Lane Group Flow (vph)	0	456	0	0	188	0	0	209	0	0	72	0
Confl. Peds. (#/hr)	5		2	2		5	1		10	10		1
Heavy Vehicles (%)	0%	0%	18%	0%	0%	0%	8%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		29.5			29.5			12.5			12.5	
Effective Green, g (s)		29.5			29.5			12.5			12.5	
Actuated g/C Ratio		0.59			0.59			0.25			0.25	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		979			977			320			437	
v/s Ratio Prot											0.04	
v/s Ratio Perm		c0.27			0.11			c0.16				
v/c Ratio		0.47			0.19			0.65			0.16	
Uniform Delay, d1		5.8			4.7			16.8			14.7	
Progression Factor		0.86			1.00			1.00			1.00	
Incremental Delay, d2		1.5			0.4			4.7			0.2	
Delay (s)		6.5			5.2			21.5			14.8	
Level of Service		A			A			C			B	
Approach Delay (s)		6.5			5.2			21.5			14.8	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

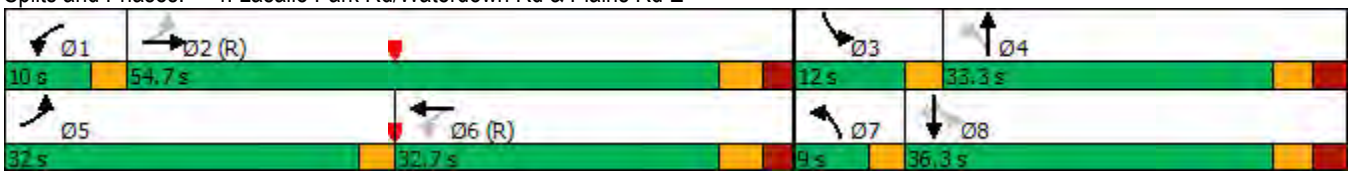
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Future Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	0.99		0.99		0.98
Frt		0.978			0.953			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	3377	0	1684	3211	0	1668	1738	0	1716	1824	1536
Flt Permitted	0.139			0.236			0.462			0.193		
Satd. Flow (perm)	253	3377	0	417	3211	0	807	1738	0	346	1824	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			63			12				222
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
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 (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Adj. Flow (vph)	566	976	169	128	561	254	67	293	83	239	298	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	566	1145	0	128	815	0	67	376	0	239	298	222
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	32.0	54.7		10.0	32.7		9.0	33.3		12.0	36.3	36.3
Total Split (%)	29.1%	49.7%		9.1%	29.7%		8.2%	30.3%		10.9%	33.0%	33.0%
Maximum Green (s)	29.0	48.4		7.0	26.4		6.0	27.0		9.0	30.0	30.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	63.0	49.7		36.8	26.4		35.0	25.7		41.0	30.5	30.5
Actuated g/C Ratio	0.57	0.45		0.33	0.24		0.32	0.23		0.37	0.28	0.28
v/c Ratio	1.02	0.75		0.58	1.00		0.22	0.91		0.99	0.59	0.39
Control Delay	74.7	28.5		24.7	62.4		24.1	66.3		86.3	40.3	6.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	74.7	28.5		24.7	62.4		24.1	66.3		86.3	40.3	6.3
LOS	E	C		C	E		C	E		F	D	A
Approach Delay		43.8			57.3			59.9			44.8	
Approach LOS		D			E			E			D	
Queue Length 50th (m)	~123.3	110.2		10.3	92.2		9.6	79.3		38.1	58.6	0.0
Queue Length 95th (m)	#189.1	135.1		23.6	#75.5		19.0	#129.9		#77.5	86.8	17.6
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	553	1536		222	818		303	435		241	507	578
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.02	0.75		0.58	1.00		0.22	0.86		0.99	0.59	0.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 49.1		Intersection LOS: D	
Intersection Capacity Utilization 98.4%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Future Volume (vph)	504	869	150	114	499	226	60	261	74	213	265	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.95		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	3376		1683	3212		1664	1738		1714	1824	1504
Flt Permitted	0.14	1.00		0.24	1.00		0.46	1.00		0.19	1.00	1.00
Satd. Flow (perm)	253	3376		419	3212		810	1738		348	1824	1504
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	566	976	169	128	561	254	67	293	83	239	298	222
RTOR Reduction (vph)	0	13	0	0	48	0	0	9	0	0	0	160
Lane Group Flow (vph)	566	1132	0	128	767	0	67	367	0	239	298	62
Confl. Peds. (#/hr)	4		6	6		4	7		18	18		7
Heavy Vehicles (%)	3%	3%	2%	6%	6%	4%	7%	4%	3%	4%	3%	4%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	59.1	49.0		32.9	25.8		31.1	26.3		38.3	30.5	30.5
Effective Green, g (s)	59.1	49.0		32.9	25.8		31.1	26.3		38.3	30.5	30.5
Actuated g/C Ratio	0.54	0.45		0.30	0.23		0.28	0.24		0.35	0.28	0.28
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	543	1503		206	753		266	415		232	505	417
v/s Ratio Prot	c0.29	0.34		0.04	0.24		0.01	0.21		c0.08	0.16	
v/s Ratio Perm	c0.27			0.15			0.06			c0.27		0.04
v/c Ratio	1.04	0.75		0.62	1.02		0.25	0.88		1.03	0.59	0.15
Uniform Delay, d1	31.4	25.5		29.3	42.1		29.6	40.4		32.5	34.3	30.0
Progression Factor	1.00	1.00		0.91	0.82		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	50.1	3.5		5.3	36.3		0.5	19.5		67.1	1.8	0.2
Delay (s)	81.5	29.0		31.9	70.8		30.1	59.8		99.6	36.2	30.1
Level of Service	F	C		C	E		C	E		F	D	C
Approach Delay (s)		46.4			65.6			55.3			54.4	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	53.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

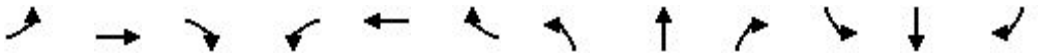
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	96	136	71	239	0	142	68	46	0	39	29
Future Volume (vph)	174	96	136	71	239	0	142	68	46	0	39	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			0.99	
Frt		0.955						0.976			0.942	
Flt Protected		0.979			0.989			0.973				
Satd. Flow (prot)	0	1635	0	0	1858	0	0	1772	0	0	1752	0
Flt Permitted		0.741			0.840			0.785				
Satd. Flow (perm)	0	1235	0	0	1578	0	0	1428	0	0	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75						23			33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		144.8			575.6			247.4			374.5	
Travel Time (s)		10.4			41.4			17.8			27.0	
Confl. Peds. (#/hr)	4		1	1		4	2		11	11		2
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%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	196	108	153	80	269	0	160	76	52	0	44	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	457	0	0	349	0	0	288	0	0	77	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	20.0		20.0	20.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	26.0	26.0		26.0	26.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		28.7			28.7			13.3			13.3	
Actuated g/C Ratio		0.57			0.57			0.27			0.27	
v/c Ratio		0.62			0.39			0.73			0.16	
Control Delay		11.4			8.3			26.1			9.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.4			8.3			26.1			9.1	
LOS		B			A			C			A	
Approach Delay		11.4			8.3			26.1			9.1	
Approach LOS		B			A			C			A	
Queue Length 50th (m)		20.5			16.3			21.5			3.0	
Queue Length 95th (m)		50.3			33.1			40.7			9.8	
Internal Link Dist (m)		120.8			551.6			223.4			350.5	
Turn Bay Length (m)												
Base Capacity (vph)		741			905			472			583	
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		0.62			0.39			0.61			0.13	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 69.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cooke Blvd & Masonry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	96	136	71	239	0	142	68	46	0	39	29
Future Volume (vph)	174	96	136	71	239	0	142	68	46	0	39	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			1.00			0.98			0.94	
Flt Protected		0.98			0.99			0.97			1.00	
Satd. Flow (prot)		1632			1857			1769			1753	
Flt Permitted		0.74			0.84			0.78			1.00	
Satd. Flow (perm)		1235			1578			1427			1753	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	196	108	153	80	269	0	160	76	52	0	44	33
RTOR Reduction (vph)	0	32	0	0	0	0	0	17	0	0	24	0
Lane Group Flow (vph)	0	425	0	0	349	0	0	271	0	0	53	0
Confl. Peds. (#/hr)	4		1	1		4	2		11	11		2
Heavy Vehicles (%)	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		28.7			28.7			13.3			13.3	
Effective Green, g (s)		28.7			28.7			13.3			13.3	
Actuated g/C Ratio		0.57			0.57			0.27			0.27	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		708			905			379			466	
v/s Ratio Prot											0.03	
v/s Ratio Perm		c0.34			0.22			c0.19				
v/c Ratio		0.60			0.39			0.72			0.11	
Uniform Delay, d1		6.9			5.8			16.6			13.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.7			1.2			6.3			0.1	
Delay (s)		10.7			7.1			22.9			14.0	
Level of Service		B			A			C			B	
Approach Delay (s)		10.7			7.1			22.9			14.0	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

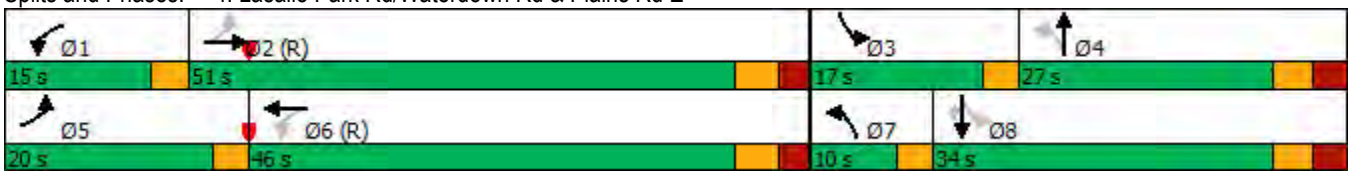
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Future Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	40.0		0.0	40.0		0.0	0.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	40.0			25.0			50.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99	0.99		0.98	1.00		1.00		0.97
Frt		0.984			0.975			0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1767	3435	0	1750	3412	0	1767	1777	0	1785	1824	1566
Flt Permitted	0.094			0.285			0.637			0.222		
Satd. Flow (perm)	175	3435	0	522	3412	0	1166	1777	0	415	1824	1515
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			23			10				312
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		588.3			157.2			350.3			350.0	
Travel Time (s)		35.3			9.4			25.2			25.2	
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Adj. Flow (vph)	433	761	92	126	1242	245	133	232	60	300	191	424
Shared Lane Traffic (%)												
Lane Group Flow (vph)	433	853	0	126	1487	0	133	292	0	300	191	424
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		1	6		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	9.0	27.3		9.0	31.3		9.0	33.3		9.0	33.3	33.3
Total Split (s)	20.0	51.0		15.0	46.0		10.0	27.0		17.0	34.0	34.0
Total Split (%)	18.2%	46.4%		13.6%	41.8%		9.1%	24.5%		15.5%	30.9%	30.9%
Maximum Green (s)	17.0	44.7		12.0	39.7		7.0	20.7		14.0	27.7	27.7
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	3.3		3.0	3.3	3.3
All-Red Time (s)	0.0	2.6		0.0	2.6		0.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		8.0			8.0			10.0			10.0	10.0
Flash Dont Walk (s)		13.0			17.0			17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	63.8	48.4		52.2	39.7		30.2	19.9		40.2	26.9	26.9
Actuated g/C Ratio	0.58	0.44		0.47	0.36		0.27	0.18		0.37	0.24	0.24
v/c Ratio	1.21	0.56		0.36	1.19		0.37	0.89		0.92	0.43	0.70
Control Delay	145.6	24.8		9.9	118.5		28.3	71.0		74.5	43.3	22.0
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	145.6	24.8		9.9	118.6		28.3	71.0		74.5	43.3	22.0
LOS	F	C		A	F		C	E		E	D	C
Approach Delay		65.5			110.1			57.6			43.6	
Approach LOS		E			F			E			D	
Queue Length 50th (m)	~105.4	73.5		4.9	~214.3		20.2	62.3		56.2	29.2	13.2
Queue Length 95th (m)	#169.2	98.1		m9.4	#253.5		34.9	#110.2		#98.3	62.1	73.5
Internal Link Dist (m)		564.3			133.2			326.3			326.0	
Turn Bay Length (m)	45.0			40.0			40.0					45.0
Base Capacity (vph)	359	1518		394	1246		357	342		326	459	614
Starvation Cap Reductn	0	0		0	30		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.21	0.56		0.32	1.22		0.37	0.85		0.92	0.42	0.69

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 135			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 77.0		Intersection LOS: E	
Intersection Capacity Utilization 114.9%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Future Volume (vph)	420	738	89	122	1205	238	129	225	58	291	185	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3435		1747	3413		1750	1777		1783	1824	1515
Flt Permitted	0.09	1.00		0.28	1.00		0.64	1.00		0.22	1.00	1.00
Satd. Flow (perm)	174	3435		524	3413		1174	1777		417	1824	1515
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	433	761	92	126	1242	245	133	232	60	300	191	424
RTOR Reduction (vph)	0	8	0	0	15	0	0	8	0	0	0	236
Lane Group Flow (vph)	433	845	0	126	1472	0	133	284	0	300	191	188
Confl. Peds. (#/hr)	15		9	9		15	17		8	8		17
Heavy Vehicles (%)	1%	2%	0%	2%	1%	4%	1%	2%	2%	0%	3%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	60.5	48.3		48.9	39.7		26.9	19.9		36.9	26.9	26.9
Effective Green, g (s)	60.5	48.3		48.9	39.7		26.9	19.9		36.9	26.9	26.9
Actuated g/C Ratio	0.55	0.44		0.44	0.36		0.24	0.18		0.34	0.24	0.24
Clearance Time (s)	3.0	6.3		3.0	6.3		3.0	6.3		3.0	6.3	6.3
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	353	1508		335	1231		323	321		313	446	370
v/s Ratio Prot	c0.20	0.25		0.03	0.43		0.03	0.16		c0.12	0.10	
v/s Ratio Perm	c0.47			0.14			0.07			c0.20		0.12
v/c Ratio	1.23	0.56		0.38	1.20		0.41	0.88		0.96	0.43	0.51
Uniform Delay, d1	34.5	23.0		18.5	35.1		34.0	43.9		31.2	35.1	35.9
Progression Factor	1.00	1.00		0.69	0.72		1.00	1.00		1.53	1.15	1.50
Incremental Delay, d2	124.6	1.5		0.5	93.9		0.9	23.8		38.2	0.6	1.1
Delay (s)	159.1	24.5		13.2	119.3		34.8	67.7		86.0	40.8	54.9
Level of Service	F	C		B	F		C	E		F	D	D
Approach Delay (s)		69.8			111.0			57.4			62.2	
Approach LOS		E			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	82.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	114.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4566	4522	4339	4450	4395	4454
Vehs Exited	4547	4553	4349	4402	4371	4444
Starting Vehs	191	222	180	165	160	178
Ending Vehs	210	191	170	213	184	194
Travel Distance (km)	6050	6054	5758	5926	5813	5920
Travel Time (hr)	220.5	202.8	171.3	194.8	178.1	193.5
Total Delay (hr)	100.4	82.7	57.2	77.4	62.8	76.1
Total Stops	6463	6091	4872	5699	4928	5608
Fuel Used (l)	539.5	525.3	479.2	508.5	488.2	508.1

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4566	4522	4339	4450	4395	4454
Vehs Exited	4547	4553	4349	4402	4371	4444
Starting Vehs	191	222	180	165	160	178
Ending Vehs	210	191	170	213	184	194
Travel Distance (km)	6050	6054	5758	5926	5813	5920
Travel Time (hr)	220.5	202.8	171.3	194.8	178.1	193.5
Total Delay (hr)	100.4	82.7	57.2	77.4	62.8	76.1
Total Stops	6463	6091	4872	5699	4928	5608
Fuel Used (l)	539.5	525.3	479.2	508.5	488.2	508.1

Intersection: 1: Cooke Blvd & Site Access

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	11.6	11.3	8.1
Average Queue (m)	5.6	0.7	0.3
95th Queue (m)	12.9	5.3	5.7
Link Distance (m)	284.5	80.6	227.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	18.3	24.9	40.5	19.8
Average Queue (m)	3.5	3.6	20.2	10.5
95th Queue (m)	13.2	14.7	34.7	17.6
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Waterdown Rd & Railway Rd/Masonry Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	35.7	12.6	60.0	22.4	77.1	91.8	53.8	53.8	70.8
Average Queue (m)	11.4	3.2	27.0	1.8	38.7	44.1	26.1	15.1	25.9
95th Queue (m)	29.3	11.1	47.2	11.7	70.1	79.3	45.1	37.8	55.0
Link Distance (m)	303.8		122.3		322.3	322.3		566.2	566.2
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)		35.0		25.0			30.0		
Storage Blk Time (%)			5	0	16		6	1	
Queuing Penalty (veh)			1	0	1		18	1	

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	85.0	291.6	274.0	64.9	113.6	114.8	89.7	147.2	123.7	98.0	69.4
Average Queue (m)	79.9	172.1	155.4	31.1	67.5	77.8	18.3	71.4	59.4	45.1	24.3
95th Queue (m)	99.0	337.6	316.0	65.9	124.1	130.6	53.6	125.8	119.3	80.3	55.6
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)					2	3					
Queuing Penalty (veh)					8	15					
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	59	12		1	30		0	40		12	0
Queuing Penalty (veh)	258	60		3	35		0	24		24	1

Intersection: 5: Cooke Blvd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (m)	19.4	39.4	40.3	9.2	59.4	61.7	38.5	70.5
Average Queue (m)	8.6	11.3	15.8	1.8	24.8	31.2	17.5	34.4
95th Queue (m)	18.6	27.8	34.7	7.6	49.2	58.3	32.6	61.1
Link Distance (m)		131.3	131.3		125.6	125.6	224.6	80.6
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	40.0			50.0				
Storage Blk Time (%)					1			
Queuing Penalty (veh)					0			

Intersection: 6: Birchwood Ave/Clearview Ave & Plains Rd E

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	L	TR	LTR	LTR
Maximum Queue (m)	5.8	1.6	3.2	2.3	3.3	18.2	30.4
Average Queue (m)	0.3	0.1	0.1	0.1	0.1	7.6	10.6
95th Queue (m)	2.6	1.2	2.2	1.6	2.4	16.2	21.4
Link Distance (m)		125.6	125.6		138.2	290.4	306.4
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	50.0			50.0			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 7: Plains Rd E & St Matthews Ave

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (m)	15.6	44.4	49.2	37.8	31.9	10.0	10.4
Average Queue (m)	0.9	5.5	6.3	4.1	4.0	1.7	1.7
95th Queue (m)	6.7	25.8	28.6	19.6	18.5	7.3	7.5
Link Distance (m)		138.2	138.2	388.2	388.2		288.6
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	15.0					9.0	
Storage Blk Time (%)	0	2				8	1
Queuing Penalty (veh)	0	0				0	0

Zone Summary

Zone wide Queuing Penalty: 450

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:20	4:20	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4864	4919	4785	4865	4922	4869
Vehs Exited	4660	4684	4650	4657	4646	4659
Starting Vehs	242	282	265	294	232	258
Ending Vehs	446	517	400	502	508	470
Travel Distance (km)	6334	6379	6303	6302	6368	6337
Travel Time (hr)	512.4	504.4	596.1	495.8	497.8	521.3
Total Delay (hr)	386.5	377.7	470.4	370.4	370.8	395.2
Total Stops	10734	10707	8214	8756	10139	9711
Fuel Used (l)	814.0	810.3	883.2	794.6	801.4	820.7

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4864	4919	4785	4865	4922	4869
Vehs Exited	4660	4684	4650	4657	4646	4659
Starting Vehs	242	282	265	294	232	258
Ending Vehs	446	517	400	502	508	470
Travel Distance (km)	6334	6379	6303	6302	6368	6337
Travel Time (hr)	512.4	504.4	596.1	495.8	497.8	521.3
Total Delay (hr)	386.5	377.7	470.4	370.4	370.8	395.2
Total Stops	10734	10707	8214	8756	10139	9711
Fuel Used (l)	814.0	810.3	883.2	794.6	801.4	820.7

Intersection: 1: Cooke Blvd & Site Access

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	14.0	14.3	9.2
Average Queue (m)	6.1	1.4	0.5
95th Queue (m)	13.1	8.0	5.8
Link Distance (m)	284.5	80.6	227.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	30.9	21.6	48.0	19.5
Average Queue (m)	11.7	5.9	21.5	10.4
95th Queue (m)	26.0	17.4	37.3	17.4
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Waterdown Rd & Railway Rd/Masonry Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	16.5	39.7	64.8	12.2	41.2	47.8	78.3	135.3	139.1
Average Queue (m)	5.0	10.8	29.7	1.3	19.5	24.2	35.3	26.3	37.7
95th Queue (m)	13.0	26.3	51.1	7.3	35.7	41.7	64.9	99.6	109.3
Link Distance (m)	303.8		122.3		322.3	322.3		566.2	566.2
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)		35.0		25.0			30.0		
Storage Blk Time (%)		1	5		4		9	7	
Queuing Penalty (veh)		4	2		0		36	26	

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	85.0	588.0	582.0	64.9	137.3	141.6	89.9	326.4	256.1	229.4	75.0
Average Queue (m)	84.8	532.7	525.5	32.6	124.7	125.9	57.4	195.0	159.3	102.2	56.3
95th Queue (m)	86.3	688.5	691.3	76.7	169.1	166.1	113.3	383.5	313.0	256.0	88.7
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)		66	34		16	16		25	7	2	
Queuing Penalty (veh)		0	0		124	124		0	30	9	
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	91	4		0	49		14	77		18	28
Queuing Penalty (veh)	336	16		3	60		40	99		73	52

Intersection: 5: Cooke Blvd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (m)	30.7	41.2	49.4	57.3	135.0	137.2	25.3	78.8
Average Queue (m)	10.5	17.6	23.0	26.9	119.7	122.2	11.0	44.7
95th Queue (m)	23.6	36.9	44.6	68.3	159.9	157.0	22.1	71.9
Link Distance (m)		131.3	131.3		125.6	125.6	224.6	80.6
Upstream Blk Time (%)					25	28		1
Queuing Penalty (veh)					208	233		2
Storage Bay Dist (m)	40.0			50.0				
Storage Blk Time (%)	0	0		0	56			
Queuing Penalty (veh)	0	0		0	25			

Intersection: 6: Birchwood Ave/Clearview Ave & Plains Rd E

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	TR	LTR	LTR
Maximum Queue (m)	7.3	47.1	144.9	146.1	34.9	122.9
Average Queue (m)	0.8	6.9	96.1	99.4	17.2	55.0
95th Queue (m)	4.2	37.5	192.8	193.5	62.3	143.2
Link Distance (m)			138.2	138.2	290.4	306.4
Upstream Blk Time (%)			10	13		
Queuing Penalty (veh)			85	109		
Storage Bay Dist (m)	50.0	50.0				
Storage Blk Time (%)			46			
Queuing Penalty (veh)			5			

Intersection: 7: Plains Rd E & St Matthews Ave

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (m)	21.1	50.6	50.4	288.8	288.8	15.9	14.6
Average Queue (m)	4.6	10.5	13.9	185.2	184.5	5.1	3.6
95th Queue (m)	13.7	32.7	40.0	459.3	457.8	14.1	11.6
Link Distance (m)		138.2	138.2	388.2	388.2		288.6
Upstream Blk Time (%)				24	22		
Queuing Penalty (veh)				0	0		
Storage Bay Dist (m)	15.0					9.0	
Storage Blk Time (%)	2	4				17	11
Queuing Penalty (veh)	9	1				3	2

Network Summary

Network wide Queuing Penalty: 1716

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4393	4540	4479	4489	4418	4465
Vehs Exited	4363	4482	4420	4414	4384	4414
Starting Vehs	174	194	181	173	167	175
Ending Vehs	204	252	240	248	201	225
Travel Distance (km)	5822	6050	5921	5905	5858	5911
Travel Time (hr)	182.7	225.8	201.6	185.2	180.3	195.1
Total Delay (hr)	67.4	106.0	84.5	68.0	64.3	78.0
Total Stops	5250	6555	5610	5443	5170	5603
Fuel Used (l)	493.3	545.0	513.7	500.9	492.7	509.1

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4393	4540	4479	4489	4418	4465
Vehs Exited	4363	4482	4420	4414	4384	4414
Starting Vehs	174	194	181	173	167	175
Ending Vehs	204	252	240	248	201	225
Travel Distance (km)	5822	6050	5921	5905	5858	5911
Travel Time (hr)	182.7	225.8	201.6	185.2	180.3	195.1
Total Delay (hr)	67.4	106.0	84.5	68.0	64.3	78.0
Total Stops	5250	6555	5610	5443	5170	5603
Fuel Used (l)	493.3	545.0	513.7	500.9	492.7	509.1

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	56.2	27.3	47.2	29.5
Average Queue (m)	21.2	11.2	23.9	12.3
95th Queue (m)	42.9	23.1	39.8	23.0
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	85.0	231.6	215.4	64.9	124.2	124.9	89.9	192.4	167.5	147.7	66.2
Average Queue (m)	78.4	133.6	118.8	28.7	64.3	72.8	35.4	104.2	85.7	53.0	22.8
95th Queue (m)	98.3	256.1	230.5	61.8	114.8	121.4	94.3	187.0	176.4	117.8	51.2
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)					0	1					
Queuing Penalty (veh)					2	4					
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	54	12		2	28		1	61		11	0
Queuing Penalty (veh)	232	62		5	32		3	37		21	1

Zone Summary

Zone wide Queuing Penalty: 399

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:20	4:20	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4982	4927	5005	4966	4813	4936
Vehs Exited	4432	4402	4789	4649	4535	4562
Starting Vehs	269	318	253	274	270	273
Ending Vehs	819	843	469	591	548	650
Travel Distance (km)	6114	6082	6476	6346	6201	6244
Travel Time (hr)	601.4	725.0	448.7	574.7	533.7	576.7
Total Delay (hr)	480.5	604.7	320.1	448.6	410.6	452.9
Total Stops	12245	11893	11283	11267	9068	11156
Fuel Used (l)	873.1	986.6	764.8	865.9	820.0	862.1

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4982	4927	5005	4966	4813	4936
Vehs Exited	4432	4402	4789	4649	4535	4562
Starting Vehs	269	318	253	274	270	273
Ending Vehs	819	843	469	591	548	650
Travel Distance (km)	6114	6082	6476	6346	6201	6244
Travel Time (hr)	601.4	725.0	448.7	574.7	533.7	576.7
Total Delay (hr)	480.5	604.7	320.1	448.6	410.6	452.9
Total Stops	12245	11893	11283	11267	9068	11156
Fuel Used (l)	873.1	986.6	764.8	865.9	820.0	862.1

Intersection: 2: Cooke Blvd & Masonry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	79.2	231.4	121.4	33.6
Average Queue (m)	31.3	57.0	43.0	11.0
95th Queue (m)	60.7	232.5	128.6	30.4
Link Distance (m)	122.3	567.3	227.1	364.4
Upstream Blk Time (%)		0	2	
Queuing Penalty (veh)		0	5	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Lasalle Park Rd/Waterdown Rd & Plains Rd E

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (m)	85.0	586.4	584.2	64.9	137.3	140.4	89.9	333.8	328.3	334.0	75.0
Average Queue (m)	84.9	508.6	501.1	35.8	123.2	125.5	70.0	241.0	262.4	187.1	51.5
95th Queue (m)	85.0	702.3	707.4	78.9	170.6	165.3	119.3	411.8	389.9	400.7	87.1
Link Distance (m)		573.2	573.2		131.3	131.3		336.5	322.3	322.3	
Upstream Blk Time (%)		64	34		16	16		34	35	18	
Queuing Penalty (veh)		0	0		126	127		0	150	76	
Storage Bay Dist (m)	45.0			40.0			40.0				45.0
Storage Blk Time (%)	90	4		1	49		19	85		13	26
Queuing Penalty (veh)	332	15		4	60		53	110		53	48

Zone Summary

Zone wide Queuing Penalty: 1158

Appendix I

Signal Warrant Analysis

Signal Warrant Calculation

Major Street: Masonry Rd

Minor Street: Cooke Blvd

Comment Future Total Condition

Number of Approaches: 1 [ ] 2 [x]

Tee Intersection Configuration: Yes [ ] No [x]

Flow Condition: Free Fv (Rural) [ ]
Restricted Flow (Urban) [x]

VOLUME	AM	PM	FACTOR *	
1A - All	881	1,040	n/a	481
1B - Minor	307	324	25%	158
2A - Major	574	716	25%	323
2B - Crossi	178	210	25%	97

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

OVERALL WARRANT

150% Satisfied:	Yes [ ]	No [X]	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes [ ]	No [X]	

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
ALL APPROACHES	480	720	600	900	481
	% FULFILLED				53%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MINOR STREET APPROACHES	120	170	120	170	158
	% FULFILLED				93%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [ ]	No [X]

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MAJOR STREET APPROACHES	480	720	600	900	323
	% FULFILLED				36%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
TRAFFIC CROSSING MAJOR STREET	50	75	50	75	97
	% FULFILLED				129%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [ ]	No [X]

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

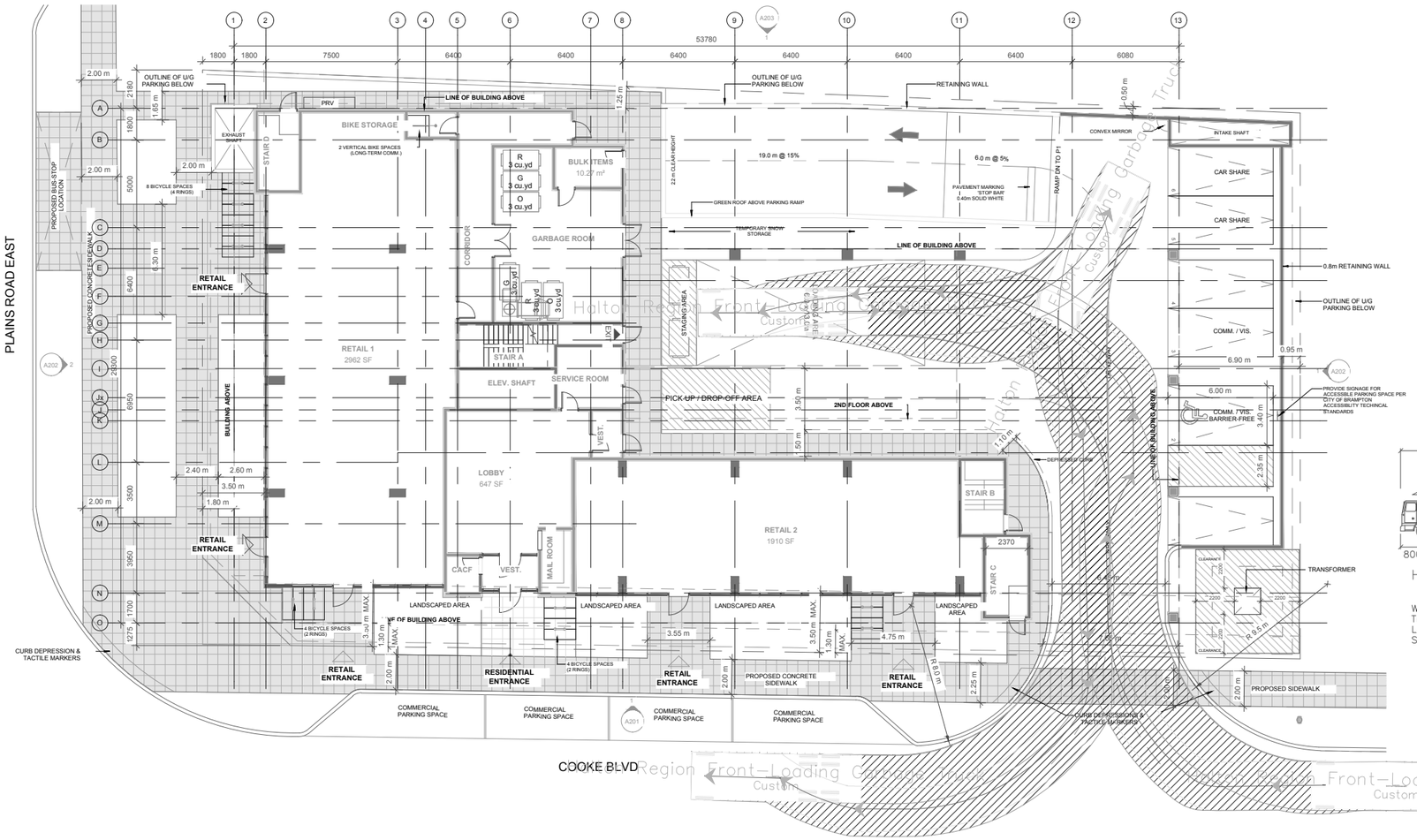
1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

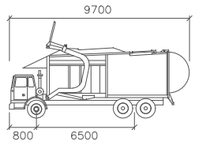
2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Appendix J

Vehicle Movement Diagrams





Halton Region Front–Loading Garbage Truck

mm

Width	: 2700
Track	: 2770
Lock to Lock Time	: 6.0
Steering Angle	: 32.8

KEY PLAN

BENCHMARK

REVISONS

NO	REVISION	DATE	BY

STAMP

nextrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:

Mixed-Use Development

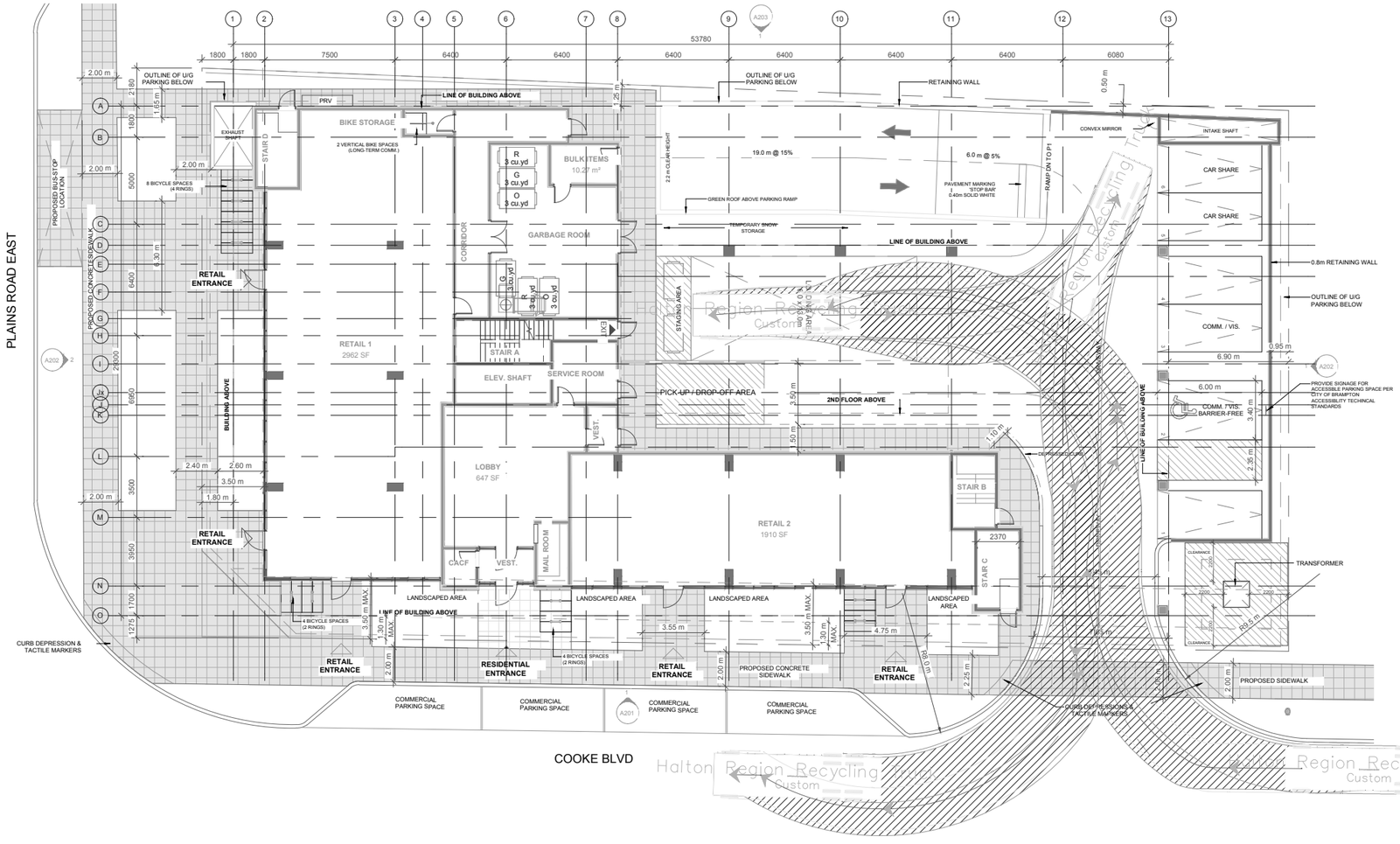
35 Plains Road East

City of Burlington

DRAWING TITLE:

AutoTURN Analysis
Halton Region Front Loading Garbage

DESIGN BY: J.N.	DATE: June 10, 2024
CHECKED BY: R.P.	PROJECT NO. NT-24-095
DRAWN BY: J.N.	
SCALE: 1:300	DRAWING NO. Figure AT-1



KEY PLAN

BENCHMARK

REVISONS

NO	REVISION	DATE	BY

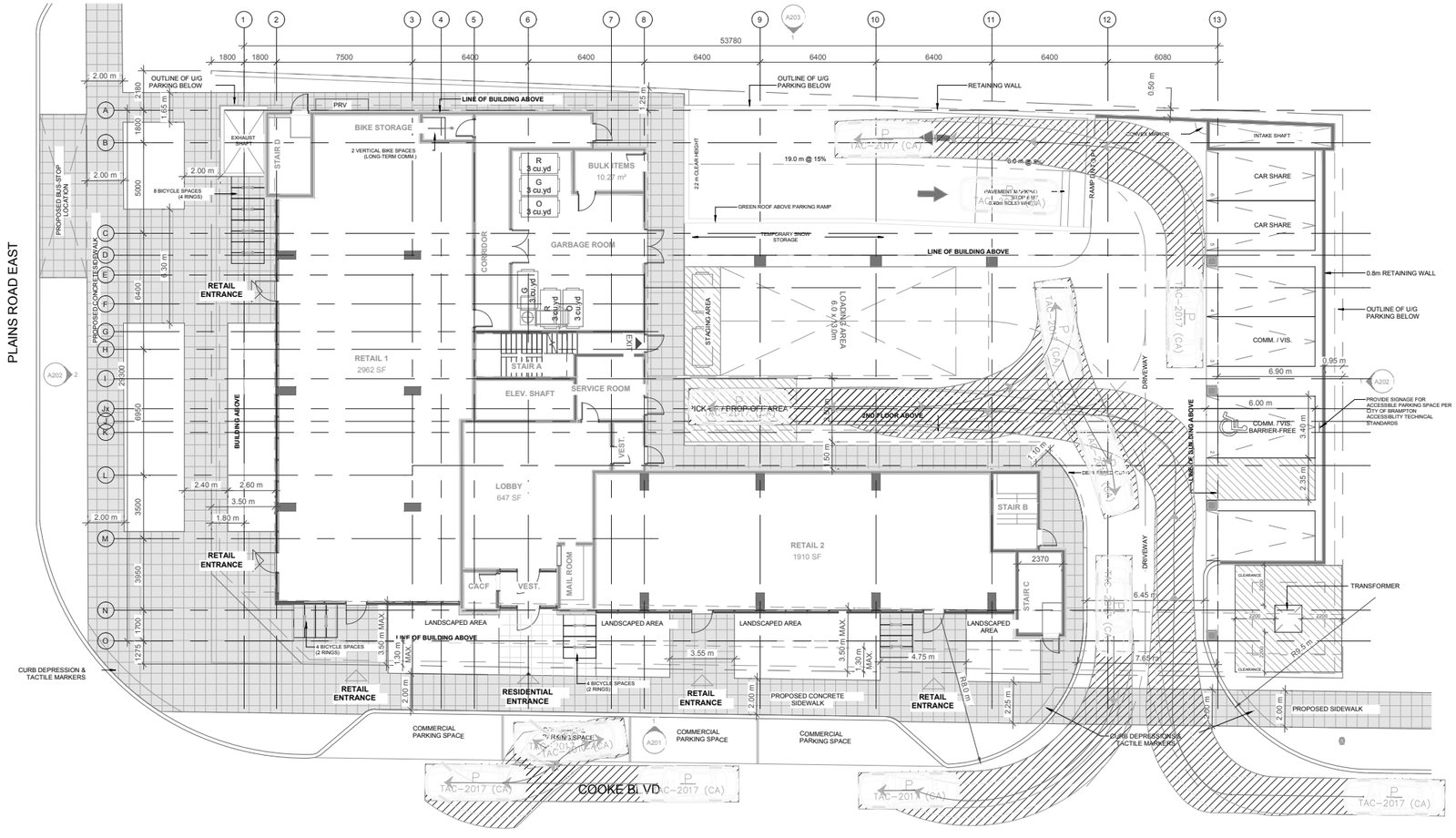
STAMP

nexTrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Mixed-Use Development
35 Plains Road East
City of Burlington

DRAWING TITLE:
AutoTURN Analysis
Halton Region Recycling

DESIGN BY: J.N.	DATE: June 10, 2024
CHECKED BY: R.P.	PROJECT NO. NT-24-095
DRAWN BY: J.N.	
SCALE: 1:300	DRAWING NO. Figure AT-2



KEY PLAN

BENCHMARK

REVISIONS

NO	REVISION	DATE	BY

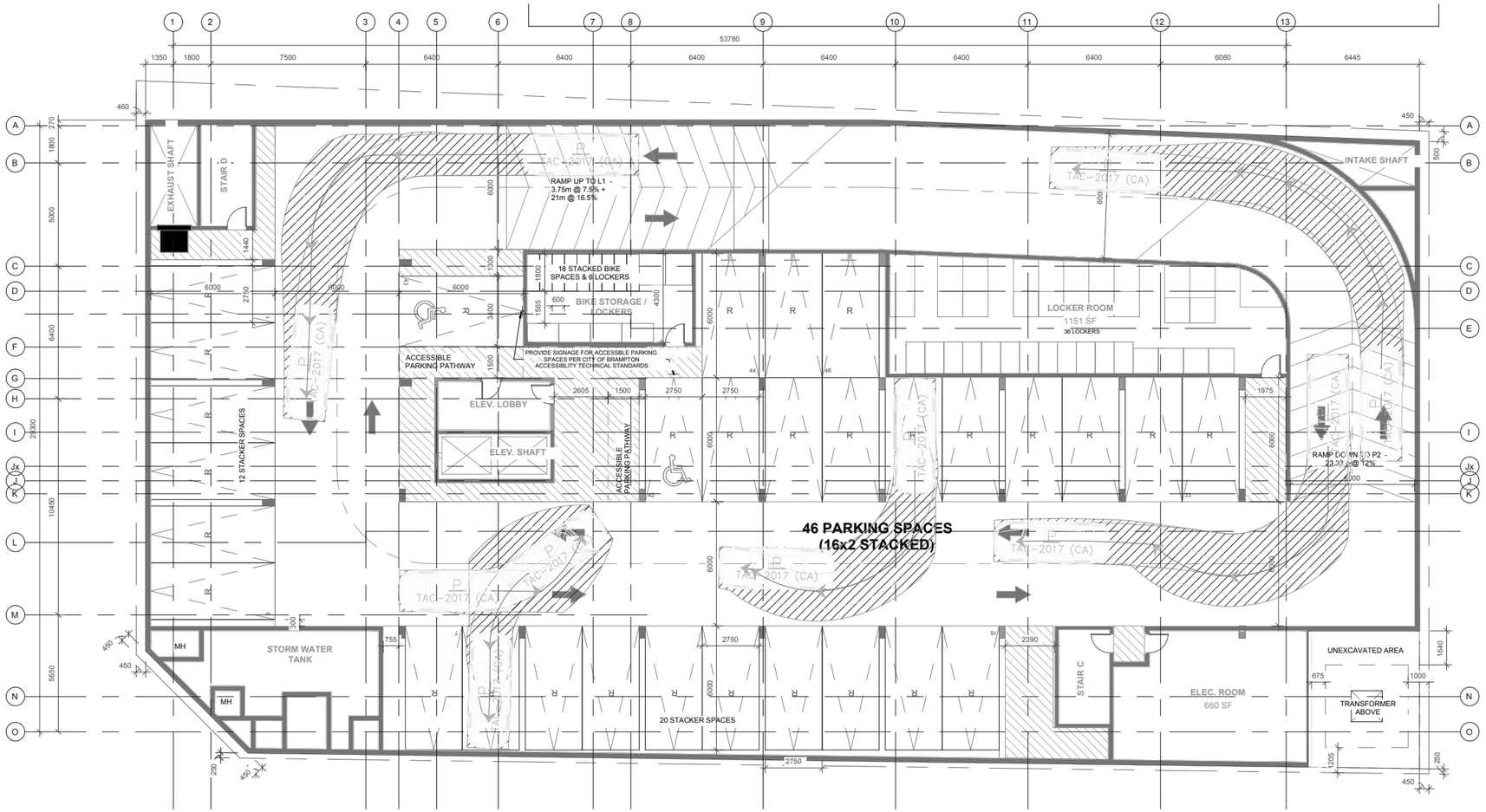
STAMP

nextrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Mixed-Use Development
35 Plains Road East
City of Burlington

DRAWING TITLE:
AutoTURN Analysis
P TAC-2017
L1

DESIGN BY: J.N.	DATE: June 10, 2024
CHECKED BY: R.P.	PROJECT NO. NT-24-095
DRAWN BY: J.N.	
SCALE: 1:300	DRAWING NO. Figure AT-3



P

	mm
Width	: 2000
Track	: 2000
Lock to Lock Time	6.0
Steering Angle	: 35.9

KEY PLAN

BENCHMARK

REVISONS

NO	REVISION	DATE	BY

STAMP

nextrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:

Mixed-Use Development

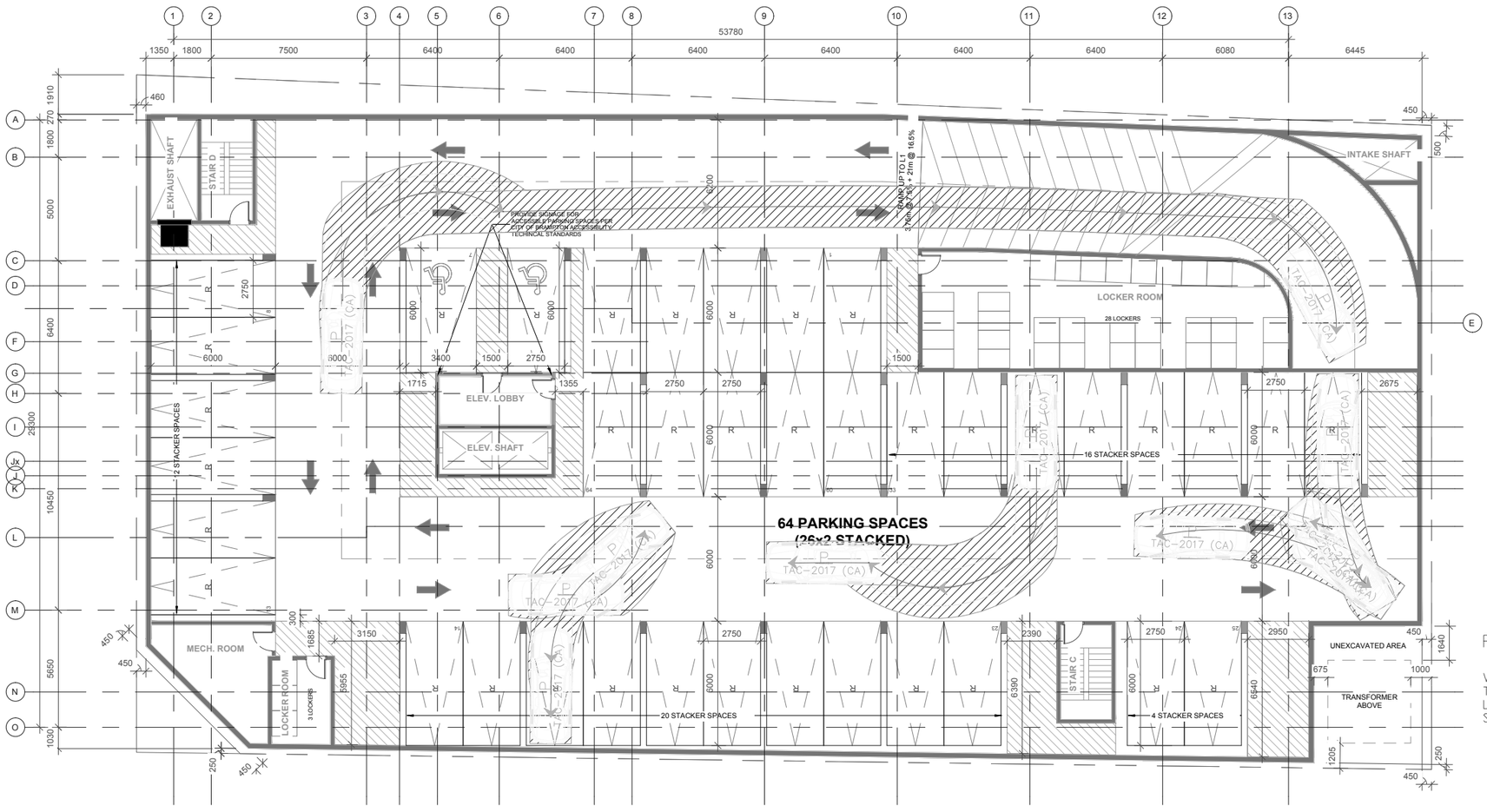
35 Plains Road East

City of Burlington

DRAWING TITLE:

AutoTURN Analysis
P TAC-2017
P1

DESIGN BY: J.N.	DATE: June 10, 2024
CHECKED BY: R.P.	PROJECT NO. NT-24-095
DRAWN BY: J.N.	
SCALE: 1:250	DRAWING NO. Figure AT-4



KEY PLAN

BENCHMARK

REVISONS

NO	REVISION	DATE	BY

STAMP

nexTrans CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:

Mixed-Use Development

35 Plains Road East

City of Burlington

DRAWING TITLE:

AutoTURN Analysis
P TAC-2017
P2

DESIGN BY: J.N.	DATE: June 10, 2024
CHECKED BY: R.P.	PROJECT NO. NT-24-095
DRAWN BY: J.N.	
SCALE: 1:250	DRAWING NO. Figure AT-5

Appendix K

Site-Specific Zoning By-law 2020.384

Exception 470	Zone MXC	Map 3	Amendment 2020.384 PL171346 (LPAT)	Enacted (LPAT) Apr 25/18

1. Regulations for an Apartment Building:

a) Yard abutting Plains Road East:
   i) 1st storey: 3.5 m maximum
   ii) Other storeys: 1.8 m
   iii) Balconies may not encroach into a yard abutting Plains Road East

b) Yard abutting Cooke Boulevard:
   i) 1st storey: 3.5 m maximum
   ii) Other storeys: 1.3 m
   iii) Balconies are permitted within a yard abutting Cooke Boulevard

c) Balcony setbacks abutting Cooke Boulevard:
   i) 2nd storey: 1.3 m
   ii) 3rd to 8th storeys: 0.5 m

d) Distance from the hypotenuse of a daylight triangle for a building or balcony: 0 m

e) Underground parking garage setbacks:
   i) Abutting Cooke Boulevard: 0 m
   ii) Abutting all other lot lines: 0.2 m

f) Number of units: 72 units maximum

g) Floor area ratio: 4.4:1 maximum

h) Commercial floor area: A minimum of 220 m^2 of retail or service commercial must be provided on the ground floor of an apartment building

i) 9th storey: In addition to an outdoor amenity area, a maximum of 275 m^2 of floor area may be used for an indoor amenity area, elevator lobby, stairs, mechanical and/or storage rooms

j) Landscape area abutting a street: 0 m

k) Building height: 9 storeys to 34 m maximum

l) Building height first storey: 6 m

m) Occupant parking spaces: 86 spaces including 4 accessible spaces

n) Visitor and Non-residential parking spaces: 6 shared spaces including 2 accessible spaces

o) Amenity area: 1240 m^2

Exception 470 continued	Zone MXC	Map 3	Amendment 2020.384 PL171346 (LPAT)	Enacted (LPAT) Apr 25/18

2. Community Benefits:

Prior to the issuance of an above grade building permit for the project contemplated by this amendment, the owner shall, at its sole cost and expense, make a cash payment by way of a certified cheque to the City for the sum of TWO HUNDRED AND TWENTY FIVE THOUSAND DOLLARS ($225,000.00) to be placed in a specific reserve fund for the provision of public art, street furnishings and landscaping on Plains Road East in proximity to the lands subject to this amendment.

Except as amended herein, all other provisions of this By-law, as amended, shall apply.