TempBridge Inc

Nov
2019

TIA Strategy Report

1131 & 1151 Teron Road

PARSONS

1131 & 1151 Teron Road

Transportation Impact Assessment Report

prepared for:
TempBridge Inc
5551 Queen Mary Road, Suite 10
Montreal, QC
H3X 1w1

prepared by:
PARSONS
1223 Michael Street North
Suite 100
Ottawa, ON K1J 7T2

November 27, 2019

477040-01000

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering ☑ or transportation planning ☐.

[1,2] **License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.**

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at Ottawa (City) this 27 day of November, 2019.

Name: Mark Baker, P.Eng.
(Please Print)

Professional Title: Senior Transportation Engineer

Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 1223 Michael Street North, Suite 100
City / Postal Code: Ottawa, Ontario, K1J 7T2
Telephone / Extension: 613-691-1569
E-Mail Address: Mark.Baker@parsons.com

Document Control Page

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PROJECT NAME:	1131 & 1151 Teron Road
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REVIEWER:	Mark Baker, P. Eng
AUTHORIZATION:	
CIRCULATION LIST:	Josiane Gervais, P. Eng
HISTORY:	TIA Step 1 Screening Form – June 7, 2019 TIA Step 2 Scoping Report – June 21, 2019 TIA Step 3 Forecasting Report – July 15, 2019 TIA Step 4 Strategy Report – August 29, 2019 TIA Step 5 Final Report – November 27, 2019

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TIA Report

Parsons has been retained by TempBridge Inc to prepare a Transportation Impact Assessment (TIA) in support of a Site Plan Application (SPA) and a Zoning By-Law Amendment (ZBLA) for a residential development and a mixed-use development located at 1131 Teron Road and 1151 Teron Road, respectively. It is understood that SPA is applicable to the small residential development located at 1131 Teron Road, whereas rezoning is required for the larger mixed-use development located at 1151 Teron Road. The following report represents Step 5 of the TIA process. City comments from the previous submission have been provided in Appendix A.

1. SCREENING FORM

The screening form confirmed the need for a TIA in support of the proposed development based on the Trip Generation, Location and Safety Triggers, as follows: the envisioned land use consist for the combined development consists of approximately 139 residential units, 7,600 ft^2 of commercial space and 3,900 ft^2 of sit-down restaurant; the site is located between the March and Teron Road spine cycling network and within the March Road Transit Oriented Development (TOD) area; and due to the proximity of the Teron Road access point to the existing Steacie/Teron intersection. The screening form has been provided in Appendix B.

2. SCOPING REPORT

2.1. EXISTING AND PLANNED CONDITIONS

2.1.1. PROPOSED DEVELOPMENT

It is our understanding that the proponent is proposing to construct a residential development located at 1131 Teron Road and a mixed-use development at 1151 Teron Road. The development located at 1131 Teron Road, which requires a SPA, will consist of a new 3-storey building with approximately 30 units residential apartment units. The development located at 1151 Teron Road, which requires a ZBLA, will consist of a new 9-storey building with approximately 109 residential apartment units, 7,600 ft^2 of commercial space and 3,900 ft^2 of sit-down restaurant. The proposed site is currently vacant with no driveway access and is composed of two properties which are classified as Residential Fifth Density (R5A) and Open Space (O1).

A two-phased project is proposed. Phase 1 will consist of the 3-storey, 30-unit residential building located at 1131 Teron Road. Phase 2 will consist of the addition of the 9-storey mixed-use building located at 1151 Teron Road. Phase 1 is anticipated to be built by the year 2021 and Phase 2 is anticipated to be built prior to the year 2026. For the purpose of this study, full buildout will be assumed for the year 2021 and the horizon full buildout plus 5 years will be 2026.

The Site Plan proposes two driveway connections composing of a full movement access along the east side of the site off Teron Road and at 1131 Teron Road for Phase 1, and a right-in right-out access on March Road to support the mixed-use development at 1151 Teron Road for Phase 2. The two accesses are proposed to connect within the site via a private roadway. A total of 42 parking sports are proposed for Phase 1. Parking numbers for Phase 2 are still undetermined.

The local context of the site is provided as **Figure 1**, a general Site Plan for 1131 and 1151 Teron Road is provided as **Figure 2**, and proposed Site Plan for 1131 Teron Road provided as **Figure 3.**

Figure 1: Local Context

Figure 2: General Site Plan 1131 & 1151 Teron Road

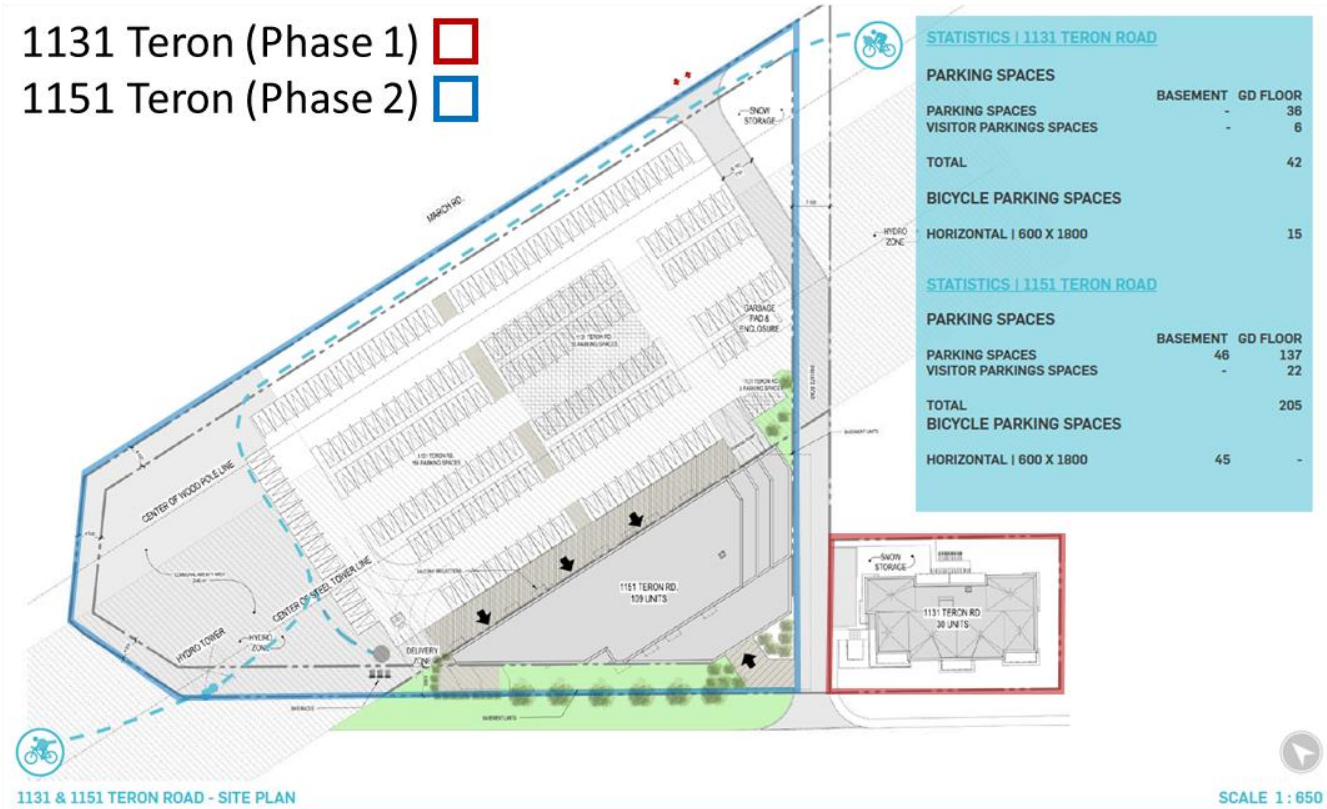


Figure 2: Proposed Site Plan (Phase 1)

SITE PLAN LEGEND

- BUILDING AREA
- SOFT LANDSCAPING. REFER TO LANDSCAPE DRAWINGS
- HARD LANDSCAPING. REFER TO LANDSCAPE DRAWINGS
- ASPHALT. REFER TO LANDSCAPE DRAWINGS
- BUILDING ENTRANCE / EXIT (GROUND FLOOR)
- BUILDING EXIT (GROUND FLOOR)
- TRAFFIC DIRECTION
- R.D. — ROOF DRAIN
- 5 200 / 2 600 — CAR PARKING
  R3 : RESIDENTIAL 1131 TERON RD
  V3 : VISITOR 1131 TERON RD
- 5 200 / 2 400 — BARRIER-FREE PARKING (TYPE B)
- 5 200 / 3 400 — BARRIER-FREE PARKING (TYPE A)

SIGNS

SIGNS SHALL BE PROVIDED FOR ALL VISITOR PARKINGS, BARRIER FREE PARKINGS & FIRE ROUTES
ALL THE SIGNS SHALL FOLLOW THE SPECIFICATIONS OF THE CITY OF OTTAWA

THE PARKING SIGNS WILL BE LABELED AS:
"VISITOR ONLY"
"RESIDENT ONLY"
"ACCESSIBLE PARKING"
AND REINFORCED: "UNAUTHORIZED VEHICLES TOWED AWAY"

GENERAL NOTE:
WHEN RETAINING WALLS ARE GREATER THAN 1 METER IN HEIGHT THE DESIGN WILL BE DONE BY A STRUCTURAL ENGINEER

PARKING, DRIVEWAY, PATHWAY AND TERRACE LIGHTING TO BE PROVIDED WITH LIGHTING FIXTURES LOCATED ON BUILDINGS

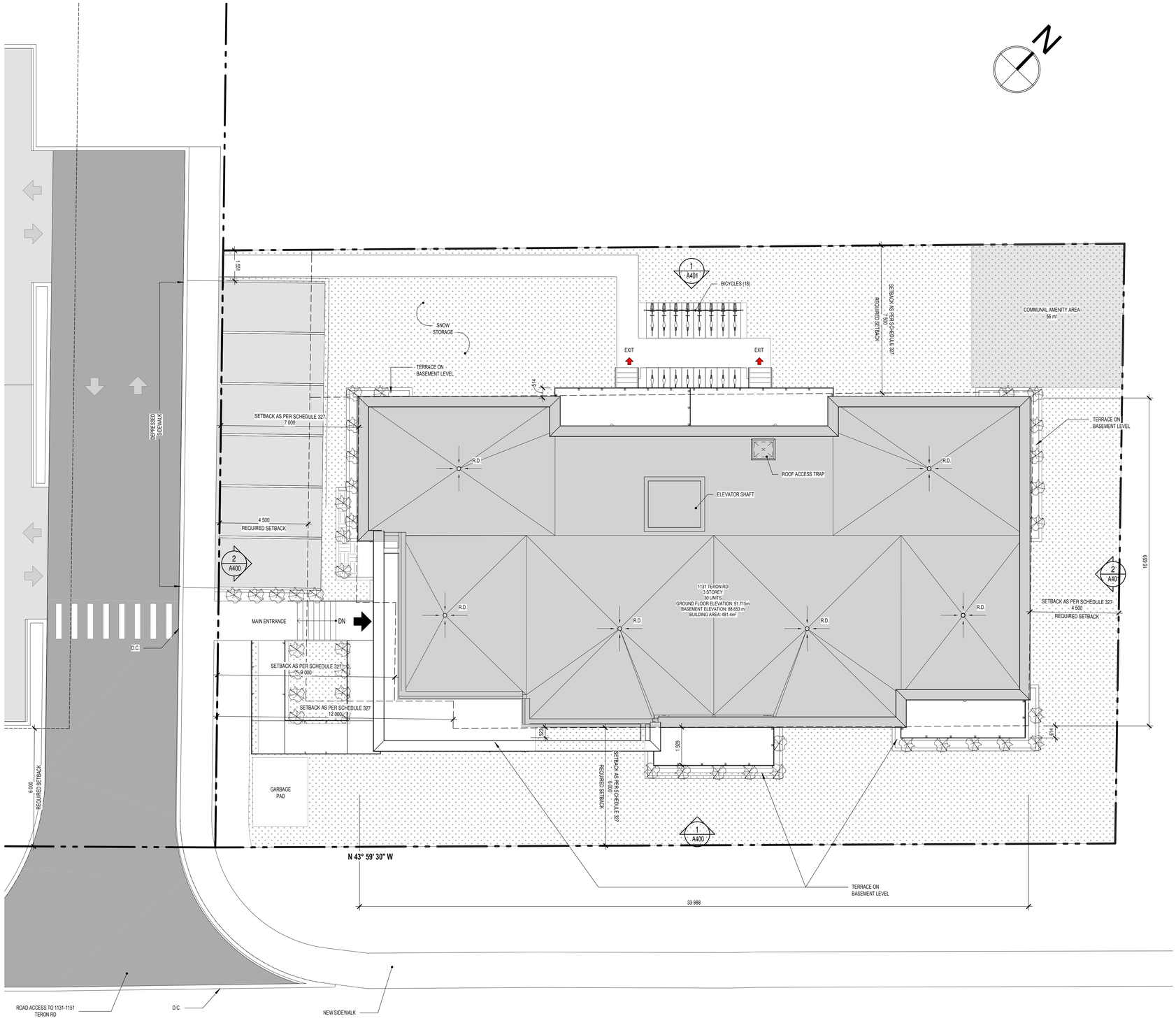
ROOF SCUPERS LOCATED AT A MAXIMUM OF 150mm ABOVE DRAINS

LEGAL DESCRIPTION:
This property is legally described as Part of Lot 5, Concession 4, Geographic Township of March, City of Ottawa

TOPOGRAPHICAL INFORMATION:
Property boundary and topographic lines have been derived from the plan prepared by Fairhall Moffat & Woodland

0 2 m 5 m 10 m

KEY PLAN



SITE PLAN
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PLANNER Planificateur
FOTENN Planning and Urban design
223, McLeod Street, Ottawa, ON K2P 0Z8
T 613 730 5709 fotenn.com

STRUCTURE Structure
FIRM
ADDRESS
PHONE NUMBER

MECHANICAL / ELECTRICAL Électrique / Mécanique
FIRM
ADDRESS
PHONE NUMBER

LANDSCAPE ARCHITECT Architecture de paysage
FIRM
ADDRESS
PHONE NUMBER

CIVIL Civil
FIRM
ADDRESS
PHONE NUMBER

ARCHITECTS Architectes
NEUF architect(e)s
630, René-Lévesque W. Boul. 32e étage, Montréal QC H3B 1S6
T 514 847 1117 NEUFarchitectes.com

SCEAU / Seal

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ARCHITECT(E)S
NEUF ARCHITECTES SENCRL

CLIENT Client
11021028 CANADA INC.
47 Clarence Street Suite 406, Ottawa, ON K1N 9K1

PROJECT Ouvrage
1131 TERON ROAD

LOCATION Emplacement
OTTAWA

NO PROJET No.
12003.00

NO	REVISION	DATE (yy-mm-dd)
1	ISSUED FOR SITE PLAN CONTROL	2019.07.05
2	ISSUED FOR COMMENTS	2019.09.11
3	ISSUED FOR SITE PLAN CONTROL R2	2019.10.16
4	ISSUED FOR SITE PLAN CONTROL R3	2019.10.21

Preliminary
DO NOT USE FOR CONSTRUCTION

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A.CA.

CHECKED BY Vérifié par
Ant.C.

DATE (mm.dd.yy)
18/07/24

SCALE Échelle
Comme indiqué

DRAWING TITLE Titre du dessin
SITE PLAN

REVISION Révision
4

DWG NUMBER No. Dessin
A101
X-XXXXX

X-XXXXX

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Figure 2: Proposed Site Plan (Phase 2)

SITE PLAN LEGEND

- BUILDING AREA
- SOFT LANDSCAPING. REFER TO LANDSCAPE DRAWINGS
- HARD LANDSCAPING. REFER TO LANDSCAPE DRAWINGS
- ASPHALT. REFER TO LANDSCAPE DRAWINGS
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  V5 : VISITOR 1151 TERON RD
  C : COMMERCIAL
- BARRIER-FREE PARKING (TYPE B)
- BARRIER-FREE PARKING (TYPE A)

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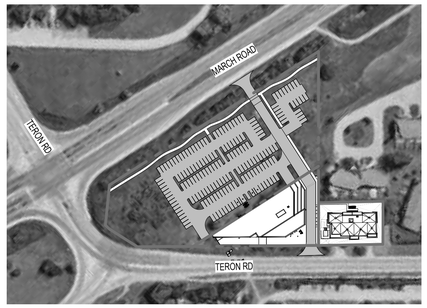
ROOF SCUPERS LOCATED AT A MAXIMUM OF 150mm ABOVE DRAINS



KEY PLAN

LEGAL DESCRIPTION:
This property is legally described as Part of Lot 5, Concession 4, Geographic Township of March, City of Ottawa

TOPOGRAPHICAL INFORMATION:
Property boundary and topographic lines have been derived from the plan prepared by Fairhall Moffat & Woodland

0 2 m 5 m 10 m

PROJECT STATISTICS	
PROPERTY AREA	13 424 sq.m.
BUILDING HEIGHT	30 m
GROSS BUILDING FLOOR AREA	10 005 sq.m.
GROSS COMMERCIAL FLOOR AREA (GROUND FLOOR)	904 sq.m.

UNIT STATISTICS	PROVIDED
BACHELOR	16
1 BEDROOM	53
2 BEDROOMS	40

PARKING	REQUIRED	PROVIDED
APARTMENT BUILDING - 109 UNITS	131 (1.2 RATIO)	46 + 85 = 131
VISITORS	22 (0.2 RATIO)	22
COMMERCIAL	TBD	34
TOTAL (1151 TERON RD)	131 + 22 = 153	187
TOTAL (1131 TERON RD)	42	36 + 6 = 42
GRAND TOTAL ONSITE		229
ACCESSIBLE PARKING	6 (3 TYPE A + 3 TYPE B)	2 + 4 = 6
N74 RESTAURANT - MINIMUM NUMBER OF PARKING SPACES	(10 / 100 sq.m.) 90	TBD
N14 BANK / N27 CONVENIENCE STORE / N78 RETAIL SPACE - MINIMUM NUMBER OF PARKING SPACES	(3.4 / 100 sq.m.) 31	TBD

BICYCLE PARKING	REQUIRED	PROVIDED
APARTMENT BUILDING - 109 UNITS	55 (0.5 RATIO)	64

RESIDENTAL ZONES - R5A RESIDENTIAL FIFTH DENSITY ZONE	REQUIRED	PROVIDED
MINIMUM LOT AREA	540 sq.m.	13 424 sq.m.
MINIMUM LOT WIDTH	18 m	28.8 m
MINIMUM FRONT TARD SETBACK	6 m (SCH. 327)	6 m
MINIMUM CORNER YARD SETBACK	N/A	N/A
MINIMUM INTERIOR SIDE YARD SETBACK	7.5 m (SCH. 327)	7.5 m
MINIMUM REAR YARD SETBACK	0 m (SCH. 327)	0 m
MAXIMUM BUILDING HEIGHT	30 m / 9 storeys (SCH. 327)	30 m / 9 storeys
MINIMUM WIDTH OF DRIVE AISLE FOR PARKING LOT	6.7 m	6.7 m
MAXIMUM PERMITTED PROJECTIONS	2 m	2 m
PERCENTAGE OF LANDSCAPED AREA (SOFT & HARD)	30%	41% (5 546 / 13 424 sq.m.)

AMENITY AREA	REQUIRED	PROVIDED
MINIMUM FOR APARTMENT DWELLING : 6 sq.m./unit	654 sq.m.	3 152 sq.m.
MINIMUM 50% COMMUNAL (AT LEAST ONE AREA >54 sq.m.)	327 sq.m.	2 498 sq.m.
GROUND FLOOR : COMMON EXTERIOR LAND. & AMENITY AREA	-	2 300 sq.m.
GROUND FLOOR : ENTRANCE LOUNGES	-	198 sq.m.
SECOND TO NINTH FLOOR : BALCONIES	-	654 sq.m.

WASTE MANAGEMENT	REQUIRED	PROVIDED
GARBAGE - LOOSE	12.0 c.yd. (0.110 c.yd./UN.)	3 x 4-yard containers
RECYCLING - FEL GLASS METAL PLASTIC	2.0 c.yd. (0.018 c.yd./UN.)	1 x 2-yard container
RECYCLING - FEL FIBER	4.1 c.yd. (0.038 c.yd./UN.)	1 x 2-y. + 1 x 4-y. container
ORGANICS	523L (240L / 50 UNITS)	3 x 240L

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ADDRESS
PHONE NUMBER

LANDSCAPE ARCHITECT Architecture de paysage
FIRM
ADDRESS
PHONE NUMBER

CIVIL Civil
FIRM
ADDRESS
PHONE NUMBER

ARCHITECTS Architectes
NEUF architect(e)s
630, René-Lévesque W. Boul. 32e étage, Montréal QC H3B 1S6
T 514 847 1117 NEUFarchitectes.com

SCEAU / Seal

NEUF
ARCHITECT(E)S
NEUF ARCHITECTES SENCRL

CLIENT Client

PROJECT Ouvrage
1151 TERON ROAD

LOCATION Emplacement
OTTAWA

NO PROJET No.
12003.02

NO	REVISION	DATE (yy-mm-dd)
1	ISSUED FOR COMMENTS	2019.08.22
2	ISSUED FOR COMMENTS	2019.09.11
3	ISSUED FOR SITE PLAN CONTROL	2019.09.18
4	ISSUED FOR SITE PLAN CONTROL R1	2019.10.16
5	ISSUED FOR SITE PLAN CONTROL R2	2019.10.24

DRAWN BY Dessiné par
A.CA.

CHECKED BY Vérifié par
Ant.C.

DATE (mm.dd.yy)
18/07/24

SCALE Échelle
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DRAWING TITLE Titre du dessin
SITE PLAN

REVISION Révision
5

DWG NUMBER No. Dessin
A100

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2.1.2. EXISTING CONDITIONS

Area Road Network

March Road is a north-south arterial roadway, which extends from the Highway 417 in the south (continues as Eagleson south of the highway) to the town of Almonte in the north-west. The cross section within the study area is divided roadway with two travel lanes in each direction and auxiliary left-turn and right-turn lanes at main intersections. March Road is identified as a future bus rapid transit (BRT) corridor. The posted speed limit within the study area is 80 km/h.

Teron Road is a north-south major collector roadway which extends from Campeau Drive in the south to Carling Avenue in the north. The cross section within the study area consists of one lane per direction with auxiliary left and right turn lanes at main intersections and no median. The posted speed limit is 50 km/h.

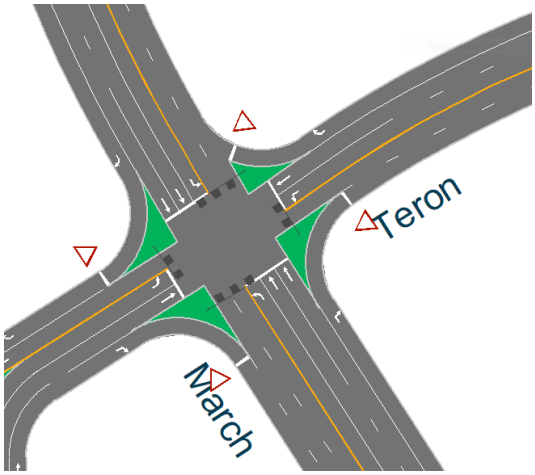
Beaverbrook Road is an east-west collector roadway which extends from Weslock Way in the west to Teron Road in the east and then continues as Penfield Drive which functions as a large crescent collector for a local neighbourhood. The cross section west of Teron Road consists of one travel lane per direction with no residential driveways, while the cross section east of Teron Road (Penfield Drive) consists of a one travel lane per direction with multiple residential driveway accesses. The posted speed limit is 40km/h.

Steacie Drive is an east-west local roadway extending west of Teron Rd and finishing in a cul-de-sac. The cross section consists of a single travel lane in each direction with a multi-use pathway on the south side. The unposted speed limit is assumed to be 50 km/h.

Existing Study Area Intersections

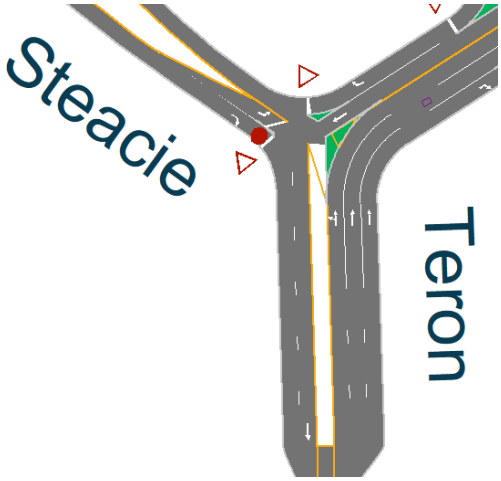
March/Teron

The March/Teron intersection is a signalized four-legged intersection. The eastbound and westbound approaches both consist of a left-turn lane, a through lane and a channelized right-turn lane. The north and southbound approaches both consist of a left-turn lane, two through lanes and a channelized right-turn lane. All movements are permitted at this location.



Steacie/Teron

The Steacie/Teron intersection is a non-signalized three-legged intersection. The eastbound approach consists of a single left-turn lane controlled by a stop sign and a channelized right-turn lane controlled by a yield sign. The northbound approach consists of a left-turn lane and right-turn lane that extends past this intersection into the following March/Teron intersection. The northbound approach also has a through lane. The southbound approach consists of a channelized right-turn and a through lane. All movements are permitted at this location.



Beaverbrook/Teron

The Beaverbrook/Teron intersection is a signalized four-legged intersection. All approaches consist of a single left-turn lane and a shared through/right-turn lane. The south approach has a pedestrian crossing prohibition. All vehicular movements are permitted at this location.

Existing Driveways to Adjacent Developments

There are no private driveways located on the southwest side of March Road between Teron Road and Herzberg Road and there is only one emergency access on the northeast side of March Road. There are two existing driveways on Teron Road between March Road and Bethune Way on the northeast side which belong to a single house. There are no driveways on the southwest side of Teron Road between March Road and Bethune Way.

Existing Area Traffic Management

There are no existing traffic management measures along Teron Road and March Road in the vicinity of the proposed development.

Pedestrian/Cycling Network

Sidewalk facilities in the vicinity of the site are provided along both sides of Teron Road from Beaverbrook Road to Bethune Way, but discontinue on the east side of Teron Road between Bethune Way and March Road (site frontage). March Road and Steacie Drive only provide sidewalk on the south side, and Beaverbrook Road only provides sidewalk on the north side of the roadway.

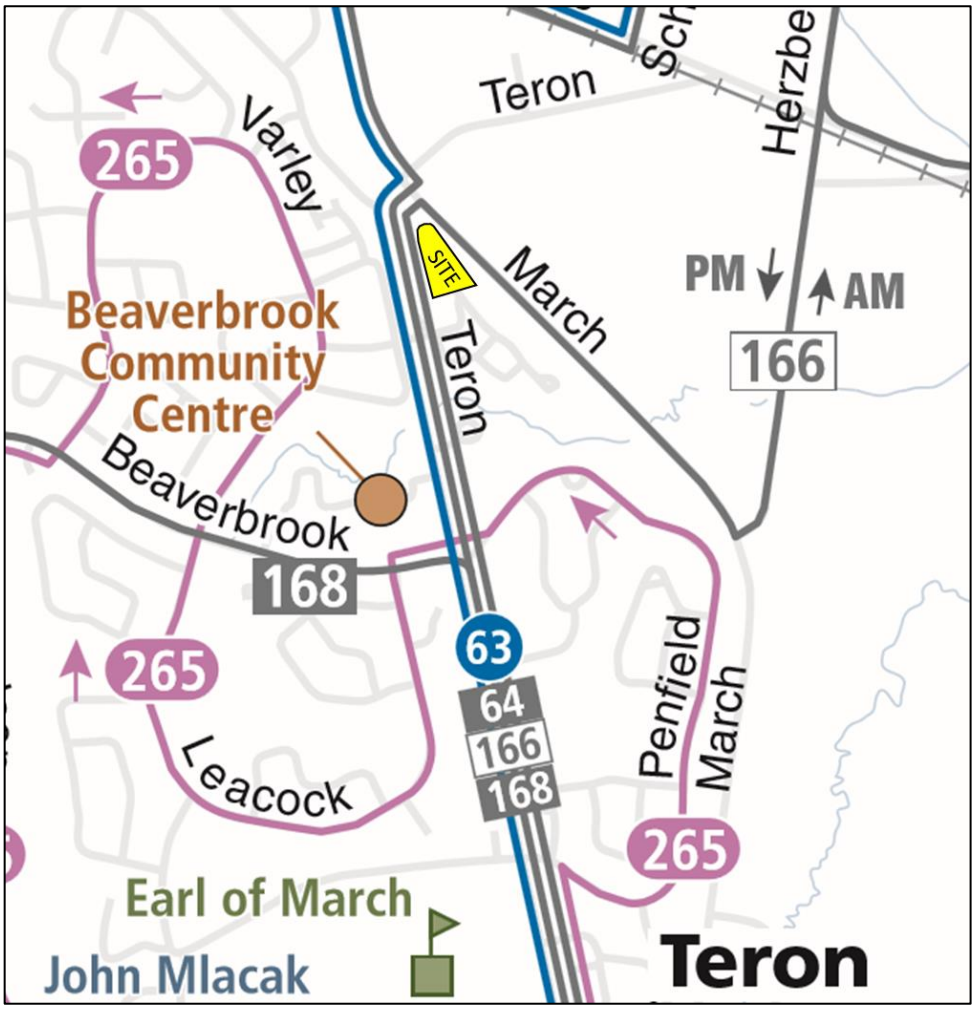
According to the City's Cycling Plan, March Road and nearby Herzberg Road are classified as "Spine Routes." On the west side of March Road, there are major separated pathway which lead to the proposed site but are not continued past this point. Steacie Drive has a major separated pathway on the south side of the road which begins at Teron Road adjacent to the site. Teron Road has a paved shoulder on both sides of the roadway and cycling facilities are proposed for Phase 2 of

the cycling plan between Campeau Drive and Beaverbrook Road. Cycling improvements are also proposed at Beaverbrook Road between Weslock Way and Teron Road and from Teron Road to March Road via the continuation of Beaverbrook Road (Penfield Drive) to the east.

Transit Network

The current transit area network is shown in **Figure 3**. Transit service within the vicinity of the site is currently provided by OC Transpo Routes #63, #64, #166 #168, #265, #660, #674. Routes #63 and #64 provide frequent all-day service. Bus stops for Routes #63, #64, #166, #660 and #674 are located at the Steacie/Teron intersection, which fronts the subject site.

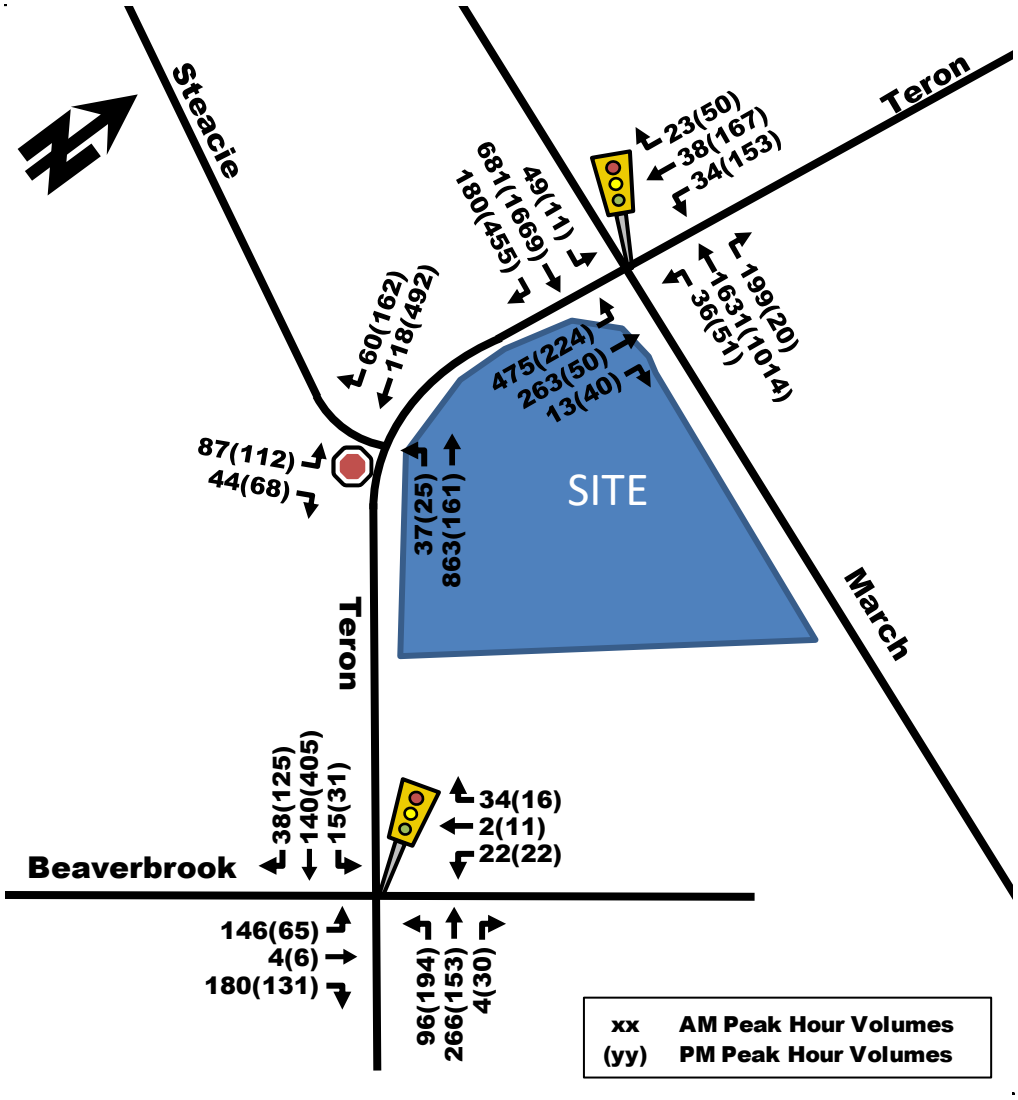
Figure 4: Area Transit Network



Peak Hour Travel Demands

The existing peak hour traffic volumes within the study area were obtained from the City of Ottawa and are illustrated in **Figure 5**. The peak hour traffic volume count data is included as Appendix C.

Figure 5: Existing Peak Hour Traffic Volumes



Existing Road Safety Conditions

Collision history for study area intersections and roads (2013 to 2017, inclusive) was obtained from the City of Ottawa with 76 reported collisions within the 5-year time period. Most collisions (75%) involved only property damage, indicating low impact speeds, and 25% involved personal injuries. The primary causes of collisions cited by police include; rear end (37%), single vehicle (21%) and angle (16%) type collisions.

A standard unit of measure for assessing collisions at an intersection is based on the number collisions per million entering vehicles (MEV). At intersections within the study area, reported collisions have historically take place at a rate of:

- 0.36/MEV at the March/Teron intersection;
- 0.05/MEV at the Steacie/Teron intersection; and,
- 0.31/MEV at the Beaverbrook/Teron intersection.

All study intersections displayed a low to mid MEV value indicating that collisions happen at a low rate compared to other intersections around the City. Within the five-years of recorded collision data there were two collisions involving pedestrians and one involving a cyclist at Beaverbrook/Teron, all resulting in non-fatal injuries. These three collisions involving the

active modes represent one half of all collisions at this intersection. There was one collision involving a pedestrian at March/Teron.

The source collision data as provided by the City of Ottawa and related analysis is provided as Appendix D.

2.1.3. PLANNED CONDITIONS

Planned Study Area Transportation Network Changes

Within the study area, notable transportation network changes are described as follows.

Proposed Road Modifications
Campeau Drive, south of the development is expected to be enhanced with new pedestrian and cycling multi-use pathways (MUPs) from Teron Road to Knudson Drive.

Transit
Within the TMP's affordable network, transit priority (isolated measures) are proposed along March Road, creating a bus rapid transit (BRT) route from Eagleson Station to Terry Fox Station via March Road.

A future bus rapid transit (BRT) route is proposed on March Road, which would have a major station located at the March/Teron intersection.

Other Area Development

According to the City's development application search tool, the following developments are planned within the vicinity of the subject site.

100 Varley Lane
The proposed development is a 5-storey retirement residence. A total of 117 retirement units are proposed. The Transportation Brief (prepared by IBI Group) projects an increase in two-way traffic volumes of approximately 25 to 30 veh/h during peak hours.

329 March Road
Proposed 4,102 ft^2 of commercial, including a restaurant and a coffee shop. The Transportation Brief (prepared by McIntosh Perry) projects an increase in two-way traffic volumes of approximately 40 to 100 veh/h during peak hours.

401 March Road
Proposed one storey commercial plaza containing a gas bar, car wash, two restaurants with drive-thru facilities and a commercial building that would contain a medical facility. The Transportation Impact Assessment (prepared by Burnside) projected an increase in vehicle traffic of approximately 265 and 190 veh/h during both the morning and afternoon peak hours. *Note: Development Apps status date Oct. 13, 2016 identifies agreement registered; however, this development has been open since as early as May 2016.*

2 Parkway
The proposed development is a 7-storey mid-rise apartment building containing 44 units. *Note: this building appears to have been completed prior to 2017.*

2.2. STUDY AREA AND TIME PERIODS

As the proposed site is largely a residential development, the time periods assessed will be the weekday morning and afternoon peak hours. The full build-out horizon year 2021 along with full build-out plus five years, 2026 will be analyzed for Phase 1 and 2. The proposed study area is outlined below and highlighted in **Figure 6**.

- March/Teron intersection;
- Steacie/Teron intersection;
- Beaverbrook/Teron intersection;
- Planned March/Site intersection;
- Planned Teron/Site intersection;
- March Road adjacent to the site;
- Teron Road adjacent to the site.

Figure 6: Study Area

2.3. EXEMPTION REVIEW

The following modules/elements of the TIA process recommended to be exempt in the subsequent steps of the TIA process, based on the City's TIA guidelines and the subject site:

Table 1: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Streets Network	Not required for applications involving site plans.
4.2 Parking	4.2.2 Spillover Parking	The parking is expected to meet By-Law requirements.
4.6 Neighbourhood Traffic Management	All elements	The site relies on arterial roadways for access.
4.8 Review of Network Concept	All elements	The site is not expected to generate 200 trips more than the established zoning. Refer to section 4.7.

3. FORECASTING REPORT

3.1. DEVELOPMENT GENERATED TRAVEL DEMAND

3.1.1. TRIP GENERATION AND MODE SHARES

Phase 1 - 1131 Teron Road

Trip generation rates for Phase 1, 1131 Teron Road, consisting of 30 mid-rise apartment units, were obtained from the City's TRANS Trip Generation Report.

Table 2: Vehicle Trip Generation Rates – 1131 Teron Road

Land Use	Data Source	Size	Trip Rates	
			AM Peak	PM Peak
Mid-Rise Apartments	TRANS (Table 3.18)	30 units	T = 0.29(du)	T = 0.37(du)
Notes: T = Average Vehicle Trip Ends				

Using the TRANS Trip Generation rates, the total amount of vehicle trips generated by the proposed development was calculated and are summarized in **Table 6**.

Table 3: TRANS Vehicle Trip Generation – 1131 Teron Road

Land Use	Data Source	Units	AM Peak (veh/h)			PM Peak (veh/h)		
			In	Out	Total	In	Out	Total
Mid-Rise Apartments	TRANS (Table 3.13)	30	2	7	9	6	5	11

Using the TRANS trip projections in **Table 2** and the mode share percentages from the TRANS Trip Generation Report (Table 3.13), the total projected number of person trips by mode for residential development are summarized in **Table 3**.

Table 4: Residential Site Person Trip Generation – 1131 Teron Road

Travel Mode	AM Mode Share	AM Peak (persons/h)			PM Mode Share	PM Peak (persons/h)		
		In	Out	Total		In	Out	Total
Auto Driver	44%	2	7	9	44%	6	5	11
Auto Passenger	9%	1	0	1	14%	2	1	3
Transit	34%	2	5	7	33%	5	4	9
Non-motorized	13%	1	2	3	9%	1	1	2
Total People Trips	**100%**	**6**	**14**	**20**	**100%**	**14**	**11**	**25**

As seen in **Table 4**, even if all people trips were converted to 100% auto driver mode share for Phase 1 (assumes no one walks, takes transit or is an auto passenger), it would still generate negligible traffic impacts to the study area, with approximately 1 vehicle leaving or entering the site every 2 to 3 minutes during the AM and PM peak hours.

Given the low number of vehicle trips (10 veh/h two-way total) projected to be generated by the proposed development at 1131 Teron Road, the future impact on the existing roadway network is considered negligible. As such, no further transportation assessment is included herein related to 1131 Teron Road in isolation (Phase 1).

Phase 2 - 1131 & 1151 Teron Road

Trip generation rates for Phase 2 for the combined addresses 1131 and 1151 Teron Road, consisting of a total of 139 mid-rise apartment units and approximately 7,600 ft^2 of commercial space plus 3,900 ft^2 of sit-down restaurant were

obtained from appropriate sources (i.e., TRANS or ITE). For the purpose of this study, a variety store and hair salon were used for commercial spaces as they most closely resemble the developer's vision for this site[1]. **Table 5** provides the appropriate trip generation rates for residential and commercial use.

Table 5: Vehicle Trip Generation Rates – 1131 & 1151 Teron Road

Land Use	Data Source	Size	Trip Rates	
			AM Peak	PM Peak
Mid-Rise Apartments	TRANS (Table 3.18)	139 units	T = 0.29(du)	T = 0.37(du)
Variety Store	ITE 841	3,499 ft²	T = 3.18(x)	T = 6.84(x)
Hair Salon	ITE 918	4,126 ft²	T = 1.21(x)	T = 1.45(x)
Quality Restaurant	ITE 931	3,911 ft²	T = 0.73(x)	T = 7.80(x)
Notes: T = Average Vehicle Trip Ends				

Using the TRANS Trip Generation rates, the total amount of vehicle trips generated by the proposed development consisting of 139 units was calculated and are summarized in **Table 6**.

Table 6: TRANS Vehicle Trip Generation – 1131 & 1151 Teron Road

Land Use	Data Source	Units	AM Peak (veh/h)			PM Peak (veh/h)		
			In	Out	Total	In	Out	Total
Mid-Rise Apartments	TRANS (Table 3.13)	139	9	31	40	31	20	51

Using the TRANS trip projections in **Table 6** and the mode share percentages from the TRANS Trip Generation Report (Table 3.13), the total projected number of person trips by mode for residential development were calculated and are summarized in **Table 7**. The person trips were then used to calculate the vehicle trip generated based on mode shares for the Kanata District as extracted from the OD-Survey conducted in 2011 (see **Table 8**).

Table 7: Residential Site Person Trip Generation – 1131 & 1151 Teron Road

Travel Mode	AM Mode Share	AM Peak (persons/h)			PM Mode Share	PM Peak (persons/h)		
		In	Out	Total		In	Out	Total
Auto Driver	44%	9	31	40	44%	31	20	51
Auto Passenger	9%	2	6	8	14%	10	6	16
Transit	34%	8	23	31	33%	24	15	39
Non-motorized	13%	3	9	12	9%	6	4	10
Total People Trips	**100%**	**22**	**69**	**91**	**100%**	**71**	**45**	**116**

Table 8: Residential Site Vehicle Trip Generation Using OD Mode Shares – 1131 & 1151 Teron Road

Travel Mode	AM Mode Share	AM Peak (veh/h)			PM Mode Share	PM Peak (veh/h)		
		In	Out	Total		In	Out	Total
Auto Driver	60%	13	42	55	60%	42	27	69
Auto Passenger	15%	4	10	14	15%	10	7	17
Transit	15%	3	10	13	15%	11	7	18
Non-motorized	10%	2	7	9	10%	7	5	12
Total People Trips	**100%**	**22**	**69**	**91**	**100%**	**70**	**46**	**116**
Total 'New' Residential Auto Trips		**13**	**42**	**55**	-	**42**	**27**	**69**

[1] The permitted uses applicable to the proposed GM Zone are varied. Section 4.7 reviews the most conservative trip generation scenarios using other permitted commercial uses for a land zoned as GM Zone.

As per **Table 8**, the residential units are projected to generated approximately 55 and 70 vehicles in the AM and PM peak hours for Phase 2, respectively. Using the ITE Trip Generation Manual, the vehicle trips for the 7,600 ft² of commercial space and 3,900 ft² of sit-down restaurant were calculated and summarized in **Table 9**. **Table 10** summarizes the combined residential and commercial trips generated in accordance to the mode shares for the Kanata District as extracted from the 2011 OD-Survey.

Table 9: Commercial Vehicle Trip Generation – 1131 & 1151 Teron Road

Travel Mode	AM Mode Share	AM Peak (persons/h)			PM Mode Share	PM Peak (persons/h)		
		In	Out	Total		In	Out	Total
Auto Driver (Total)	60%	9	9	18	60%	27	22	49
Variety Store		*5*	*5*	*10*		*10*	*9*	*19*
Hair Salon		*2*	*2*	*4*		*1*	*5*	*6*
Restaurant		*2*	*2*	*4*		*16*	*8*	*24*
Auto Passenger	15%	2	2	4	15%	7	6	13
Transit	15%	1	1	2	15%	6	5	11
Non-motorized	10%	0	0	0	10%	3	2	5
Total People Trips	**100%**	**12**	**12**	**24**	**100%**	**43**	**35**	**78**
Less Pass-By	0%	0	0	0	53%	-5	-5	-10
Total 'New' Commercial Auto Trips		**9**	**9**	**18**	**-**	**22**	**17**	**39**

Table 10: Full Buildout Site Vehicle Trip Generation Using OD Mode Shares – (Residential and Commercial) – 1131 & 1151 Teron Road

Travel Mode	AM Mode Share	AM Peak (veh/h)			PM Mode Share	PM Peak (veh/h)		
		In	Out	Total		In	Out	Total
Auto Driver	60%	22	51	73	60%	69	49	118
Auto Passenger	15%	6	12	18	15%	17	13	30
Transit	15%	4	11	15	15%	17	12	29
Non-motorized	10%	2	7	9	10%	10	7	17
Total People Trips	**100%**	**34**	**81**	**115**	**100%**	**113**	**81**	**194**
Less Pass-By	0%	0	0	0	53%	-5	-5	-10
Total 'New' Site Auto Trips		**18**	**47**	**65**	**-**	**52**	**36**	**88**

As per **Table 10**, full buildout of the residential and commercial site is projected to generate approximately 65 and 90 vehicles in the AM and PM peak hours for Phase 2, respectively.

Adjusted Mode Shares

Within the TMP's affordable network, transit priority (isolated measures) are proposed along March Road, creating a bus rapid transit (BRT) route from Eagleson Station to Terry Fox Station via March Road. The mode shares from the OD-Survey 2011 for the Kanata District demonstrate a very conservative transit assumption for local residents. Given the location of the proposed development within 300 meters to future rapid transit station at March/Teron expected at the same timing as Phase 2 of the LRT Expansion (2025), the mode share assumptions for the proposed development were adjusted for residential only to reflect lower auto-driver mode share, and higher transit mode share targets, as shown in **Table 11**.

Table 11: Future Mode Share Targets for Proposed Development

Travel Mode	Mode Share Target	Rationale
Auto Driver	35%	Given the close proximity to transit and commercial services, the driver and passenger mode splits are forecasted to be lower than other areas of the City.
Auto Passenger	5%	
Transit	45%	Development is located in close proximity to future rapid transit station at March/Teron. March Road is in the TMP's affordable network for transit priority with major updates in transit services.
Walking	10%	This is consistent with the City's TMP and existing mode shares.
Biking	5%	

The future mode shares summarized in **Table 11** were applied to the total person-trips for residential uses outlined in **Table 10**, to estimate future trip generation at ultimate buildout for Phase 2, as shown in **Table 12**.

Table 12: Future Trip Generation with Mode Share Targets – Ultimate Buildout – 1131 & 1151 Teron Road

Travel Mode	AM Mode Share	AM Peak (persons/h)			PM Mode Share	PM Peak (persons/h)		
		In	Out	Total		In	Out	Total
Auto Driver	35%	16	34	50	35%	51	38	89
Auto Passenger	5%	4	5	9	5%	10	9	19
Transit	45%	11	32	43	45%	39	24	63
Non-motorized	15%	3	10	13	15%	14	9	23
Total People Trips	**100%**	**34**	**81**	**115**	**100%**	**114**	**80**	**194**
Less Pass-By	0%	0	0	0	53%	-5	-5	-10
Total 'New' Full Buildout Auto Trips		**16**	**34**	**50**	**-**	**46**	**33**	**79**

Assuming the adjusted mode share targets for residential, two-way transit trips were estimated to be approximately 45 to 65 trips per hour and bike/walk trips were estimated to be approximately 15 to 25 trips per hour, in the AM and PM peak hours, respectively, at full buildout Phase 2. The number of 'new' vehicular trips generated by the proposed development at full buildout was projected to be approximately 50 to 80 vehicles per hour during the AM and PM peak hours for Phase 2, respectively.

3.1.2. TRIP DISTRIBUTION

Traffic distribution was based on the existing volume splits at study area intersections for pass-by trips and based on the 2011 OD-Survey, land use types, time of day, and our knowledge of the surrounding area for primary trips, as outlined below:

AM Peak Hour

- 25% to/from the north;
- 5% to/from the south;
- 65% to/from the east.
- 5% to/from the west

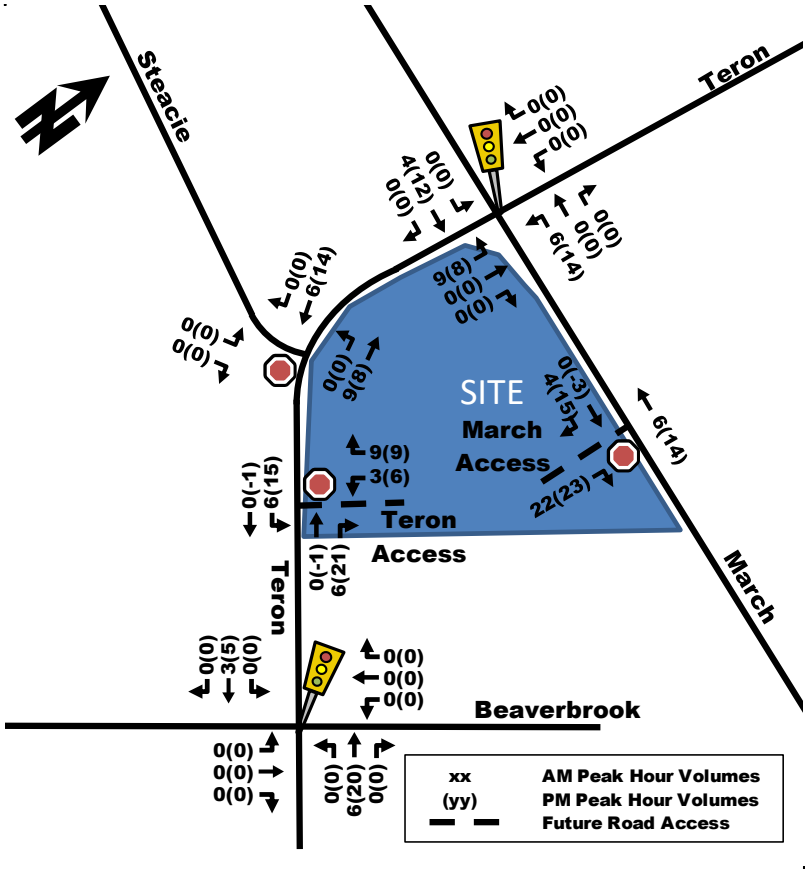
PM Peak Hour

- 25% to/from the north;
- 5% to/from the south;
- 60% to/from the east.
- 10% to/from the west

3.1.3. TRIP ASSIGNMENT

Based on this assumed distribution, site-generated traffic at full buildout for Phase 2 (2021) was assigned to the adjacent network, as shown in **Figure 7**.

Figure 7: Site-Generated Traffic at Full Buildout (Phase 2)



3.2. BACKGROUND NETWORK TRAVEL DEMAND

3.2.1. TRANSPORTATION NETWORK PLANS

The transportation network changes have been discussed within Section 2.1.3., and none were anticipated to impact the transportation analysis for this development.

3.2.2. BACKGROUND GROWTH

The background traffic growth through the immediate study area (summarized in **Table 13**) was calculated based on historical traffic count data (years 2009, 2010, 2011, and 2017) provided by the City of Ottawa at the March/Teron intersection. Detailed analysis of the background growth is included in Appendix E.

Table 13: March/Teron Historical Background Growth (2009 – 2017)

Time Period	Percent Annual Change				
	North Leg	South Leg	East Leg	West Leg	Overall
8 hrs	-0.62%	-1.11%	1.06%	0.39%	**-0.58%**
AM Peak	-1.30%	-3.16%	2.04%	3.13%	**-1.08%**
PM Peak	-1.05%	-0.92%	-1.55%	-1.39%	**-1.07%**

As shown in **Table 13**, in past years March Road and Teron Road have experienced an average annual decrease in traffic volumes ranging from -0.6% to -1.1%. It is important to note however that a positive growth trend was evident between 2009 to 2011, indicating that data from 2017 could have been abnormally low due to many possible factors such as construction, area road closures, nearby events detouring traffic, etc. It is also possible that network changes such as the

expansion of Terry Fox Drive between 2011 and 2017 or changes in mode shares has reduced traffic volumes. For the purpose of this study, a very conservative +2% annual growth rate for vehicle traffic on March Road and Teron Road 'through' movements will be applied in the future analysis.

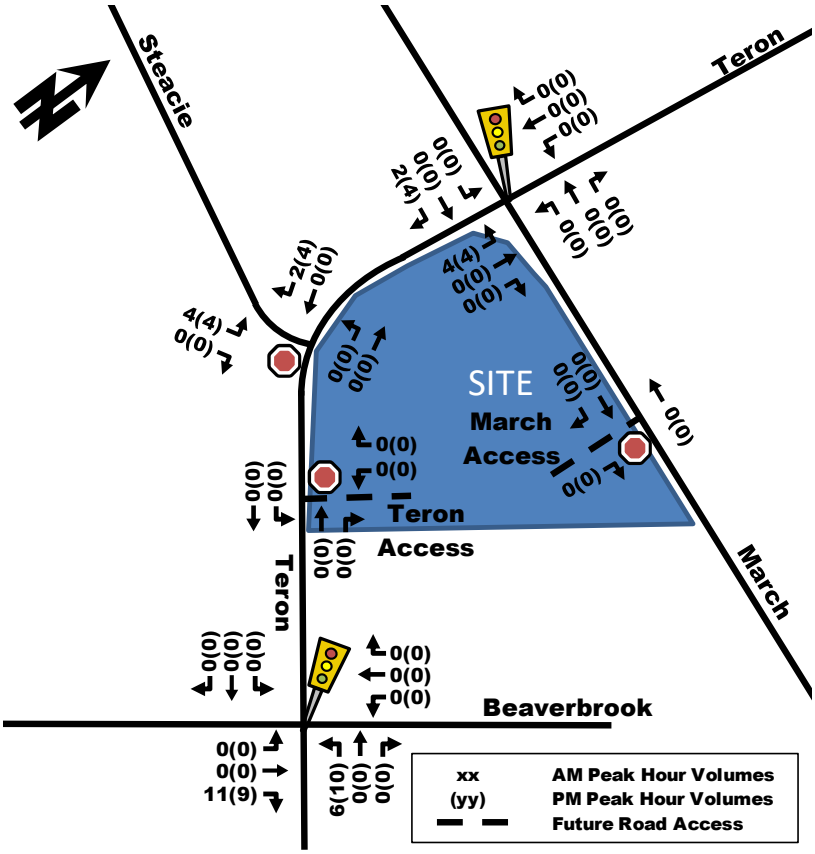
3.2.3. OTHER AREA DEVELOPMENTS

Trips generated by other area developments were accounted within the study area and described below. A summary of each development was provided in Section 2.1.3.

100 Varley Lane

Figure 8 illustrates the projected traffic volumes for 100 Varley Lane located west of Teron Road.

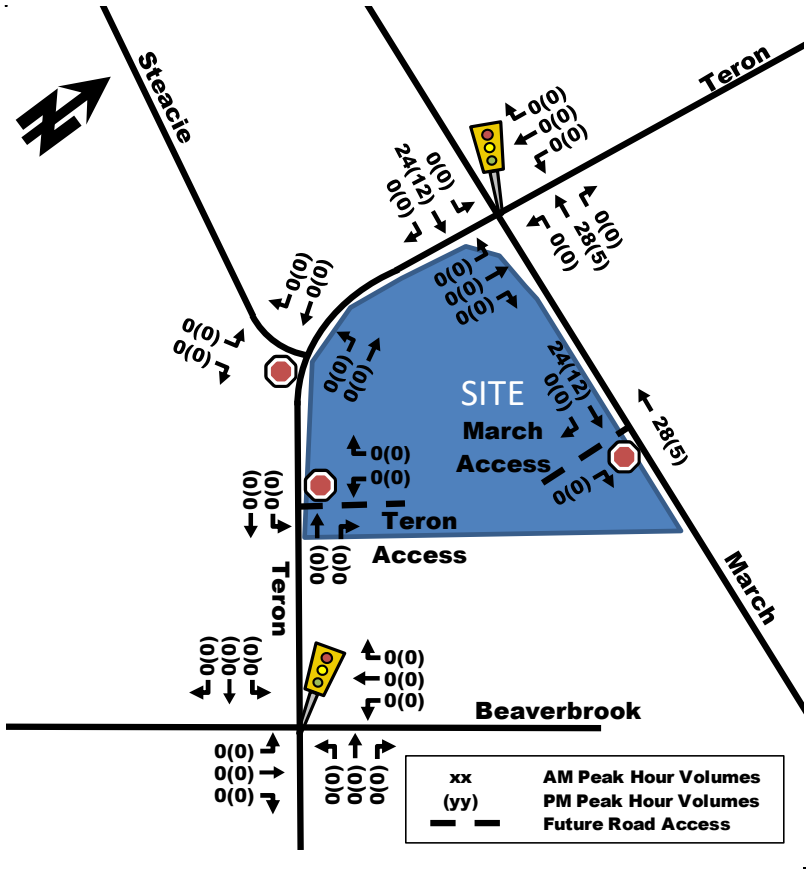
Figure 8: 100 Varley Projected Traffic Volumes



329 March Road

Figure 9 illustrates the projected traffic volumes for 329 March Road located on just north-west of March/Teron intersection.

Figure 9: 329 March Projected Traffic Volumes



3.2.4. BACKGROUND TRAFFIC GROWTH

The future background volumes were calculated by superimposing other area developments on to the network and adding a background growth of 2% along March Road and Teron Road through movements. Background volumes were created for the buildout year 2021 and for buildout year plus five, 2026. The resulting background traffic volumes for 2021 and 2026 are depicted in **Figure 10** and **Figure 11**.

Figure 10: 2021 Background Traffic Volumes

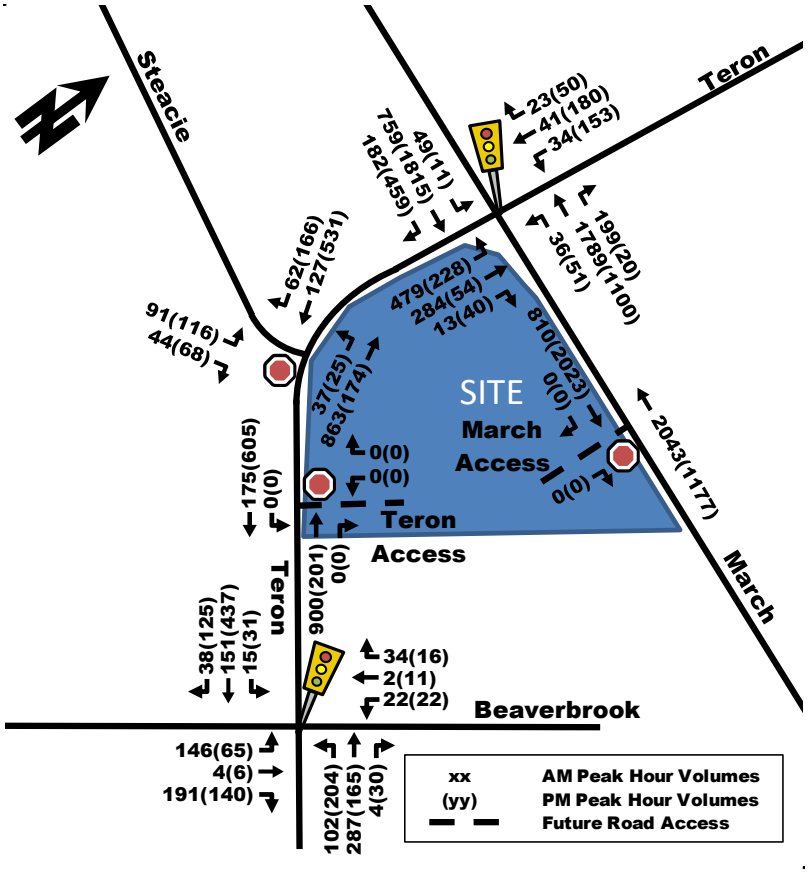
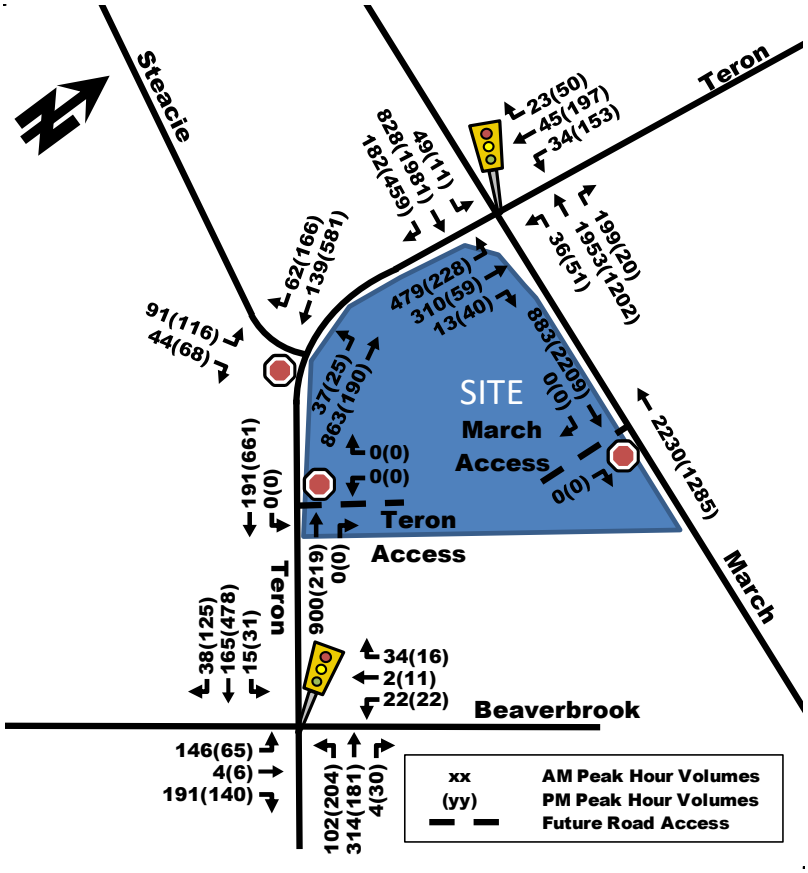


Figure 11: 2026 Background Traffic Volumes



3.3. DEMAND RATIONALIZATION

3.3.1. EXISTING CAPACITY CONDITIONS

The following **Table 14** provides a summary of the existing traffic operations at the study area intersection based on the Synchro (V10) traffic analysis software. The subject intersections were assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for the critical movement(s). The Synchro model outputs of existing conditions are provided within Appendix F.

Table 14: Existing Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
March/Teron	F(F)	1.75(1.01)	EBL(SBT)	81(39)	F(E)	1.11(0.96)
Beaverbrook/Teron	B(D)	0.61(0.90)	NBT(SBT)	13(29)	A(C)	0.44(0.72)
Unsignalized Intersections						
Steacie/Teron	B(C)	13(16)	EB(EB)	2(3)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 0.90 and a saturation flow rate of 1800 veh/h/lane.						

As shown in **Table 14**, Beaverbrook/Teron and Steacie/Teron operate overall at good LoS 'C' or better with critical movements of acceptable LoS 'D' or better. March/Teron operates overall at capacity LoS 'F/E', indicating poor operations.

The eastbound left from Teron Road onto March Road northbound has been identified as a highly congested movement in the AM peak hour. Based on the 2011 OD-Survey for trip origin/destination for the Kanata area, it was determined that approximately 25% of all trips are to/from the north. With high volumes travelling north and limited road alternatives servicing the north through Kanata (March Road, Terry Fox Drive, Goulburn Forced Road and Herzburg Road), it is speculated that some commuters are opting to cut-through the Beaverbrook Community via Teron Road. Efforts to improve this critical movement from Teron Road to March Road are likely to encourage more cut-through behaviour.

Overall, the analysis of existing conditions indicates that there are some capacity constraints in the network for certain movements; however, the development being located in close proximity to the future March Road BRT and site-generated traffic projected to be modest, it is anticipated that the development will not play a large role in worsening network conditions.

4. STRATEGY REPORT

4.1. DEVELOPMENT DESIGN

Location of Transit Facilities

There are existing OC-Transpo bus stops located less than 100 meters from the development site on Teron Road with service for bus routes #63, #64 and #166. A bus rapid transit (BRT) route is proposed for March Road, which when complete, will provide a major rapid transit station less than 300 meters from the site located at the intersection of March/Teron.

Pedestrian Routes and Facilities

Existing sidewalks are provided along the site's frontage on March Road. There are currently no sidewalks built on the site's Teron Road frontage. It is anticipated that when Phase 1 is built, that a sidewalk will be provided along the site's frontage of Teron Road. Note that a potential sidewalk discontinuity of approximately 70 meters would result between the southern edge of the subject property and the existing sidewalk on the east side of Teron Road at Bethune Way.

A multi-use pathway (MUP) is proposed on the north side of the subject property once Phase 2 is built, which would connect the existing MUP east of the site to the MUP south of Steacie Drive. Internal surface sidewalks within the site are proposed, which would offer pedestrian connectivity between both 1131 and 1151 Teron Road as well as connection to March/Teron intersection via a pathway through the parking lot and pedestrian connection through the commercial portion of building.

Bicycle Parking

The proponent is providing bicycle parking spaces at a rate of 0.5 per unit plus 1 for Phase 1, 1131 Teron Road which equates to 16 bicycle parking spaces, meeting the City's By-Law requirements. Bicycle parking spaces will be provided on the backside of the 1131 Teron Road building and are anticipated to be in a secure well-lit area and accessible for residents only. The bicycle parking spaces for 1151 Teron Road have not yet been determined but are anticipated to meet City by-law requirements.

Vehicle Access

A temporary surface parking lot for 1131 Teron Road, containing 36 spaces, is proposed on surface level at 1151 Teron Road (prior to its construction). Once Phase 2 begins with the development at 1151 Teron Road, these temporary surface spots will be replaced with underground, indoor parking for residents of both buildings. An additional 6 visitor parking spots for 1131 Teron Road are proposed at surface.

For Phase 1 of the development, vehicular access will be provided via a single, full movement driveway connection to Teron Road. Given the low projected traffic volumes of approximately 1 vehicle two-way traffic every 4 to 6 minutes during peak hours, no roadway modifications are envisioned at the site driveway connection to Teron Road.

For the larger, mixed-use development at 1151 Teron Road (Phase 2), a secondary access to March Road is also proposed that would be limited to right-in/right-out operation. Although turning movements at this location are considered low, the high travel speeds on March Road and potential for large vehicle activity at this driveway suggest that a southbound auxiliary lane should be considered. This deceleration lane would conflict with the existing acceleration lane serving traffic entering eastbound March Road from the south leg of the signalized upstream intersection at Teron Road. A functional sketch of the proposed right-in/right-out connection is included in Appendix G. Note that within this concept: the existing acceleration lane has been removed (with minimal intervention to the existing right-turn channel from Teron); and cyclists remain on-road through this short stretch (consistent with conditions elsewhere in the corridor).

Surface parking for the commercial aspect of the development (Phase 2) is proposed on the north side of 1151 Teron Road. Surface and underground parking is proposed for residents. It is anticipated that on-site vehicle circulation and parking lot circulation will meet the City's By-Law requirements. Traffic calming features within the internal private roadway are anticipated.

Garbage pick-up will take place on-site.

4.2. PARKING SUPPLY

Based on the City of Ottawa parking bylaws, vehicle and bicycle parking requirements were calculated based on the site's location and are summarized in **Table 15** and **Table 16** respectively.

Table 15: Vehicle Parking Spaces Requirements

Building /Size		Rate (spaces/size)	Required # of Parking Spaces			Proposed # of Parking Spaces
			Residential	Visitor	Total	
1131 Teron Road						
Residential	30 units	1.2/unit	36	6	42	42
1151 Teron Road						
Residential	109 units	1.2/unit	131	22	153	TBD
Commercial	1,000 m^2	3.4/100 m^2	-	34	34	

According to **Table 15**, the development at 1131 Teron Road is required to provide 36 parking spaces for residents, and 6 parking spaces for visitors, for a total of 42 parking spaces. With a total of 42 proposed surface parking spaces, the subject development meets City requirements. Note that this development is anticipated to be within 600 meters of future rapid transit station located at March/Teron which would lower the parking minimum requirements to 18 parking spaces and a maximum of 45 parking spaces. Schedule 2A and 2B did not show March/Teron as a rapid transit station, hence, the rates for 'Area C' were used. It is anticipated that 1151 Teron Road will be designed to meet parking by-law requirements.

Table 16 summarizes bicycle parking requirements as per City of Ottawa Zoning By-Law-Part 4, sections 100-114.

Table 16: Bicycle Parking Requirements

Land Use	Size	# of Bicycle Spaces	
		Required	Proposed
1131 Teron Road			
Residential	30 units	15	16
1151 Teron Road			
Residential	109 units	55	TBD
Commercial	1,000 m^2	4	

According to **Table 16**, the subject development is required to provide 15 bicycle parking spaces. The development at 1131 Teron Road currently proposes 16 bicycle parking spots, which exceeds the minimum requirement of 15 parking stalls. The quantity of bicycle parking stalls for 1151 Teron Road are currently undetermined.

4.3. BOUNDARY STREET DESIGN

The boundary streets for the development are March Road and Teron Road. The existing roadway geometry consists of the following features:

- March Road
  - 2 vehicle travel lanes in each direction;
  - 2m sidewalk with no boulevard on south side of the roadway only; and,
  - More than 3,000 vehicles per day.
- Teron Road
  - 1 vehicle travel lane in each direction;
  - 2m multi-use pathway with boulevard on west side of the roadway – east side of the roadway proposed; and,
  - More than 3,000 vehicles per day.

The multi-modal level of service analysis for the subject road segments adjacent to the site is summarized in **Table 17** with detail analysis provided in Appendix H.

Table 17: MMLOS –Road Segments Adjacent to the Site

Road Segment	Level of Service							
	Pedestrian (PLoS)		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TkLos	Target
March Road adjacent to development	F	A	E	C	D	A	A	D
Teron Road east side (adjacent to development	F	A	C	D	D	D	-	n/a
Teron Road west side (across from development	B	A	C	D	D	D	-	n/a

Pedestrian PLoS targets were not met on any road segment. The addition of a sidewalk on the east side of Teron Road along the site's frontage with a 2-meter or greater boulevard separation would achieve a PLoS of 'B', approaching the target goal. The City should consider providing a 70 metre stretch of sidewalk on the east side of Teron Road south of the subject site to Bethune Way to create a continuous sidewalk network in the area. To reach the target PLoS, the operating speed on Teron Road would have to be reduced to 30km/h or daily traffic volumes reduced to under 3,000 veh/day, a task that might not be achievable for this area. A landscaped and enhanced pedestrian pathway is proposed for Phase 2 through the site parking lot to the March/Teron intersection and pedestrian connection through the commercial portion of building, which would meet MMLOS targets by creating a segregated pathway.

The cyclist BLoS targets were met on both side of Teron Road but were not met on March Road. The proposed physically separated multi-use pathway for Phase 2 on the north end of the development would achieve BLoS targets. The existing on-road cycling facilities on March Road result in a poor level of service for cyclists given the high traffic volumes and speeds. Introducing a short section of a segregated cycling facility along the site's March Road frontage could be considered, however the transition from on-road, to off-road, to on-road cycling facilities over a short stretch is considered to add frustration for avid cyclists and also introduce other safety concerns at the transition points for all road users. As such, the functional plan proposes to maintain the existing on-road facility throughout.

Transit and truck targets were met on all road segments with the exception of March Road for transit. It is anticipated that when the bus rapid transit (BRT) is built on March Road, it will be built to better achieve TLoS targets.

4.4. ACCESS INTERSECTION DESIGN

The 1131 Teron Road (Phase 1) access driveway consists of a full movement, three-way intersection with a stop-control on the minor leg. The driveway would be located approximately 180 meters south of March/Teron intersection on Teron Road. A clear throat length of greater than 8 meters is proposed, thus exceeding minimum requirements for driveways into collector roads and less than 100 units. The grade between the private approach and the roadway is 1.1% which is less than the maximum allowed 2%, the driveway width is of 6.7 meters, and access driveway is less than 9 meters wide, thus all meeting by-law.

The development at 1151 Teron Road would share the proposed full movement driveway proposed on Teron Road with 1131 Teron Road (Phase 1), and also proposes a second driveway for Phase 2 consisting of right-in/right-out operation. The driveway would be located approximately 160 meters east of March/Teron intersection on March Road. A functional sketch illustrating the proposed right-in right-out access for Phase 2 has been provided in Appendix G.

4.5. TRANSPORTATION DEMAND MANAGEMENT

The TDM checklist is attached as Appendix I. Some of the TDM measures that the proponent is providing/considering are as follows:

- A MUP connection is proposed on the north side of the property parcel which would connect the current MUP located on the south side of March Road to the MUP located on the south side of Steacie Drive.
- Sidewalks provided fronting the site with adequate road lighting;
- Internal pathways connecting both buildings and March/Teron intersection;
- Bicycle parking bylaws met, and parking proposed near building access points;
- Priced parking.

Given the type of development and its location, a high amount of non-auto trips is expected to be generated by the proposed development and that transit shares will increase, and auto shares will decrease over time for the subject site.

4.6. ROUTE CAPACITY

It is anticipated that there will be sufficient transit capacity for the 60 to 100 projected transit trips generated by both sites combined (Phase 2) due to high frequency routes #63 and #64 and local route #166 with bus stops located less than 100 meters away. The Phase 1 of the development located at 1131 Teron Road on its own is anticipated to generate negligible transit trips to the network of approximately 1 trip every 6 minutes. Once the BRT is built on March Road, there will be additional capacity and higher frequency anticipated during peak hours.

4.7. REVIEW OF NETWORK CONCEPT

As part of the zoning by-law amendment (ZBLA) for Phase 2, the developer is proposing a change in zoning from Residential Fifth Density (R5A) and Open Space (O1) to General Mixed-Use (GM) zone which allows for the design of residential use mixed with a variety of potential commercial uses. After developer, neighbouring community, Hydro Ottawa and Hydro One communication, it is understood that several clauses have been proposed and will be included in the ZBLA as follows:

- Due to hydro easement located on the north portion of the site, the proposed building footprint is capped and is currently proposed at its largest allowed size
- Application to specify that commercial use is limited to the ground floor only
- Application to specify that no office use be permitted
- Application to specify that the building may not exceed 9-storeys tall and that step backs are required

Based on the above information, it is understood that the residential aspect of the building is likely not going to be any larger than it presently is proposed. As commercial is restricted to ground floor only, and the building footprint is currently proposed at its largest allowed size of approximately 12,750 ft^2, the worst-case volume generator scenario can be estimated and compared to the currently proposed blend of various commercial land uses. **Table 18** compares trip generations for potential developments which could be incorporated within the proposed maximum commercial land use allowed for this site.

Table 18: Trip Generations for Other Permitted Commercial Land Uses

Land Use	ITE Source	Type	AM Peak (veh/h)			PM Peak (veh/h)		
			In	Out	Total	In	Out	Total
Currently Proposed								
Small Retail/Services & Restaurant*	Various	People Trips	12	12	24	43	35	78
		Projected New Auto-Trips	9	9	18	22	17	39
Other Permitted Uses								
Variety Store	814	People Trips	29	23	52	58	54	112
		Projected New Auto Trips	18	14	32	35	33	68
Shopping Center	820	People Trips	125	77	202	72	79	151
		Projected New Auto Trips	75	47	122	27	31	58
Pharmacy no Drive-Thru	823	People Trips	45	25	70	68	71	139
		Projected New Auto Trips	27	15	42	19	21	40
Supermarket	850	People Trips	37	25	62	109	105	214
		Projected New Auto Trips	23	15	38	43	40	83

Note: the maximum allowed area of 12,750 ft^2 for commercial was used for all scenarios
**refer to section 3.1.1 for more details of currently proposed commercial uses*

With a proposed commercial projected person trips of approximately 25 and 80 in the AM and PM peak hours respectively as seen in **Table 9**, no worst-case scenario is expected to produce more than 200 additional person trips in the peak hours compared to the currently proposed ZBLA.

4.8. INTERSECTION DESIGN

There are only approximately 10-15 two-way vehicle trips projected in both peak hours for Phase 1, 1131 Teron Road, which equates to approximately one vehicle every 4 to 6 minutes. Given the low number of vehicle trips projected to be generated by the 1131 Teron Road development (Phase 1), intersection impacts are considered negligible. As such, no further traffic assessment is included herein for this portion of the development.

Traffic operation analysis will only be completed for Phase 2 which includes trip generations from 1131 and 1151 Teron Road developments combined as they will share an access driveway.

4.8.1. MULTI-MODAL LEVEL OF SERVICE FOR INTERSECTIONS

The March/Teron intersection will be within 600 meters of high-frequency BRT transit. The applicable target levels of service for pedestrians and cyclists is PLoS 'A' and BLoS 'C', respectively based on the proximity to rapid transit. The MMLOS analysis for the existing signalized intersection March/Teron within the study area are summarized in **Table 19**, with detailed analyses provided in Appendix J. As stated in the MMLOS Guidelines, only signalized or roundabout intersections are considered for the intersection level of service measures.

Table 19: MMLOS – March/Teron

Intersection	Level of Service							
	Pedestrian (PLoS)		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TkLoS	Target
March/Teron	F	A	F	C	F	A	A	D

As shown in **Table 19**, the pedestrian and bicycle target level of service were not met on March/Teron. Pedestrians have to cross 5 to 7 lanes of traffic when crossing March Road or Teron Road resulting in the poor PLoS 'F'. The lack of bicycle facilities on Teron Road and high operating speeds on March Road, along with cyclists having to cross two vehicle lanes to reach the approach for left turns result in poor BLoS 'F'. If a curb bike lane, cycle track or MUP was built on Teron Road and the right turn lanes were shortened to 50-meter storage or less, the BLoS target could be met for March/Teron intersection, if feasible. Transit TLoS targets were not met for March/Teron due to delays; however, once the BRT is built on March Road, it is expected to have isolated measures which should reduce the delays at the intersection. Truck TkLoS was met.

4.8.2. PROJECTED BACKGROUND 2021 OPERATIONS

The 2021 background volumes from **Section 3.2.4** and **Figure 10** were inputted in Synchro to analyze the 2021 background conditions. Results are summarized in **Table 20** with detailed analyses provided in Appendix K.

Table 20: Projected 2021 Background Operations at Study Area Intersections

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
March/Teron	F(E)	1.72(0.99)	EBL(SBT)	72(36)	F(E)	1.06(0.94)
Beaverbrook/Teron	A(D)	0.60(0.88)	NBT(SBT)	13(28)	A(B)	0.43(0.70)
Unsignalized Intersections						
Steacie/Teron	B(B)	13(15)	EB(EB)	2(3)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.						

As shown in **Table 20**, Beaverbrook/Teron and Steacie/Teron operate overall at good LoS 'B' or better with critical movements of acceptable LoS 'D' or better. March/Teron operates overall at capacity LoS 'F/E'. There are no significant changes between 2021 background and existing intersection operations.

4.8.3. PROJECTED BACKGROUND 2026 OPERATIONS

The 2026 background volumes from **Section 3.2.4** and **Figure 11** were inputted in Synchro to analyze the future ultimate background conditions. Results are summarized in **Table 21** with detailed analyses provided in Appendix K.

Table 21: Projected Background 2026 Operations at Study Area Intersections

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
March/Teron	F(F)	1.65(1.09)	EBL(SBT)	76(51)	F(F)	1.11(1.02)
Beaverbrook/Teron	B(E)	0.63(0.91)	NBT(SBT)	13(30)	A(C)	0.46(0.73)
Unsignalized Intersections						
Steacie/Teron	B(C)	13(17)	EB(EB)	2(3)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.						

As shown in **Table 21**, Beaverbrook/Teron and Steacie/Teron operate overall at good LoS 'B' or better with critical movements of acceptable LoS 'E' or better. March/Teron operates overall at capacity LoS 'F'.

4.8.4. FUTURE PROJECTED 2021 CONDITIONS

Note that the results in this section are for Phase 2 which includes 1131 and 1151 Teron Road combined. Traffic generated from Phase 1, 1131 Teron Road alone, will have negligible impacts to the transportation network with 10-15 two-way vehicle trips projected in both peak hours, equating to approximately 1 car added to the network every 4 to 6 minutes on average.

The future full buildout projected 2021 conditions for Phase 2 were derived by superimposing the 2021 background volumes onto the site-generated volumes and are illustrated in **Figure 12**. Synchro results for study area intersection performance are summarized in **Table 22** with detailed analyses provided in Appendix L.

Figure 12: Future Projected Full Buildout 2021 Conditions

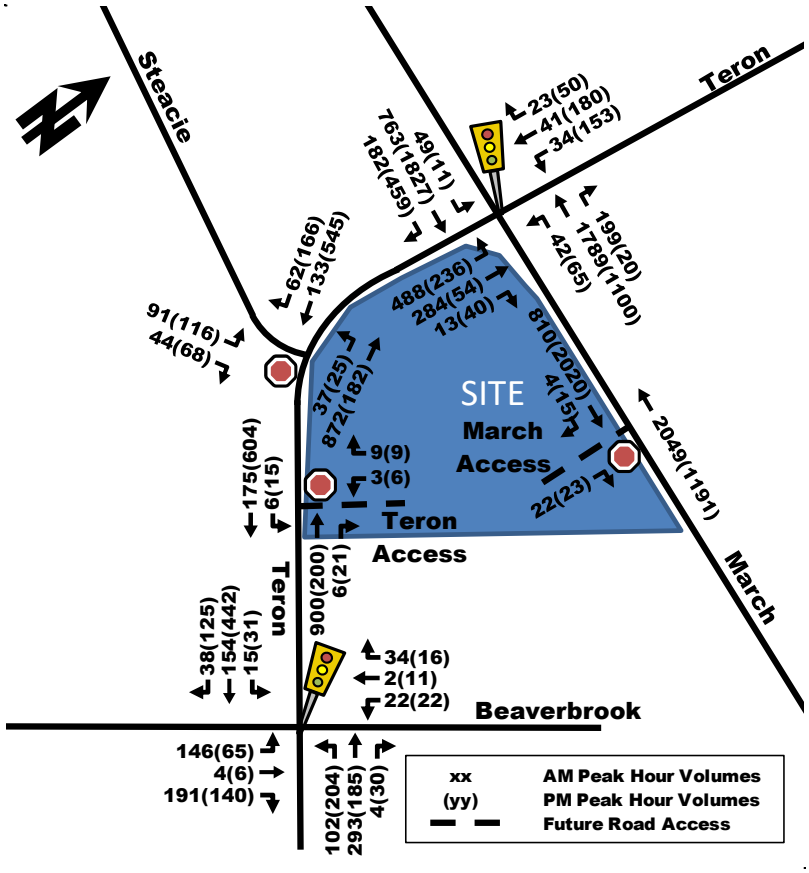


Table 22: Future Projected Full Buildout 2021 Operations at Study Area Intersections

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
March/Teron	F(E)	1.29(0.94)	EBL(EBL)	49(30)	E(E)	0.97(0.89)
Beaverbrook/Teron	A(D)	0.54(0.86)	NBT(SBT)	11(26)	A(C)	0.39(0.68)
Unsignalized Intersections						
Steacie/Teron	B(C)	13(15)	EB(EB)	2(3)	A(A)	-
March RIRO Access	B(C)	11(22)	EB(EB)	1(1)	A(A)	-
Teron Full Access	C(B)	17(12)	EB(EB)	1(1)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.						

As shown in **Table 22**, all the intersections within the subject area are projected to operate 'as a whole' at good LoS 'C' or better during the AM and PM peak hours for Phase 2 with the exception of March/Teron which is expected to approach capacity. All of the 'critical movements' at study area intersections are projected to operate at acceptable LoS 'D' or better during both peak hours with the except of March/Teron eastbound left in the AM which operates at capacity. No significant changes between 2021 background conditions and 2021 future conditions were noted. Timing cycles were optimized to improve intersection performance.

4.8.5. FUTURE PROJECTED 2026 CONDITIONS

Note that the results in this section are for Phase 2 which includes 1131 and 1151 Teron Road combined. Traffic generated from Phase 1, 1131 Teron Road alone, will have negligible impacts to the transportation network with 10-15 two-way vehicle trips projected in both peak hours, equating to approximately 1 car added to the network every 4 to 6 minutes on average.

The future projected ultimate buildout conditions plus 5 years for Phase 2 were derived by superimposing the 2026 background volumes onto the site-generated volumes and are illustrated in **Figure 13**. Synchro results for study area intersection performance are summarized in **Table 23** with detailed analyses provided in Appendix L.

Figure 13: Future Projected 2026 Conditions

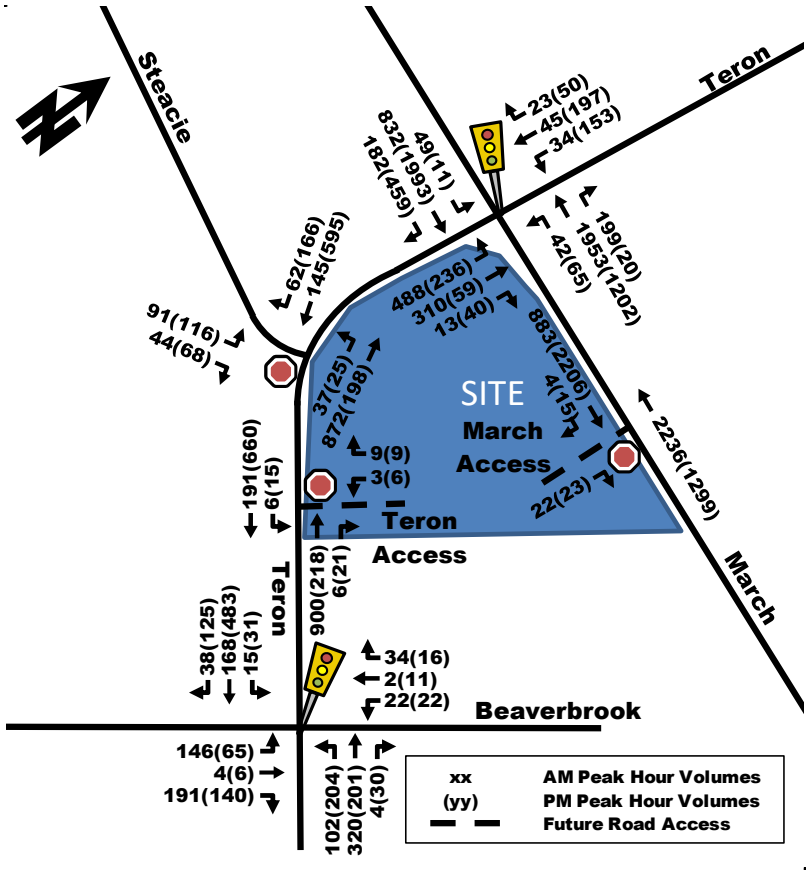


Table 23: Future Projected 2026 Operations at Study Area Intersections

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
March/Teron	F(F)	1.34(1.11)	EBL(EBL)	55(36)	F(E)	1.03(0.95)
Beaverbrook/Teron	A(D)	0.56(0.89)	NBT(SBT)	12(27)	A(C)	0.41(0.71)
Unsignalized Intersections						
Steacie/Teron	B(C)	13(16)	EB(EB)	2(3)	A(A)	-
March RIRO Access	B(C)	12(25)	EB(EB)	1(1)	A(A)	-
Teron Full Access	C(B)	17(13)	EB(EB)	1(1)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.						

As shown in **Table 23**, all the intersections within the subject area are projected to operate 'as a whole' at good LoS 'C' or better during the AM and PM peak hours for Phase 2 with the exception of March/Teron which is expected to operate near or at capacity. All of the 'critical movements' at study area intersections are projected to operate at acceptable LoS 'D' or better during both peak hours with the exception of March/Teron eastbound left in the AM and PM peak hours which operate at capacity. No significant changes between 2026 background conditions and 2026 future conditions were noted. Timing cycles were optimized to improve intersection performance.

Future projected operations, with the addition of background growth combined with projected site traffic from 1131 and 1151 Teron Road, are expected to be similar to existing conditions. The development is not anticipated to have a major influence on the performance of study area intersections.

4.8.6. FUTURE PROJECTED 2026 IF TOD TARGETS NOT MET

Impacts to the existing network were analysed and summarized in **Table 24** in the event that TOD targets are not met and existing mode shares were used, based on the OD-Mode Share Survey. The vehicle trip generation for Phase 2 was extracted from **Table 10**. A detailed analysis is provided in Appendix L.

Figure 14:Future Projected 2026 Conditions if TOD Targets Not Met

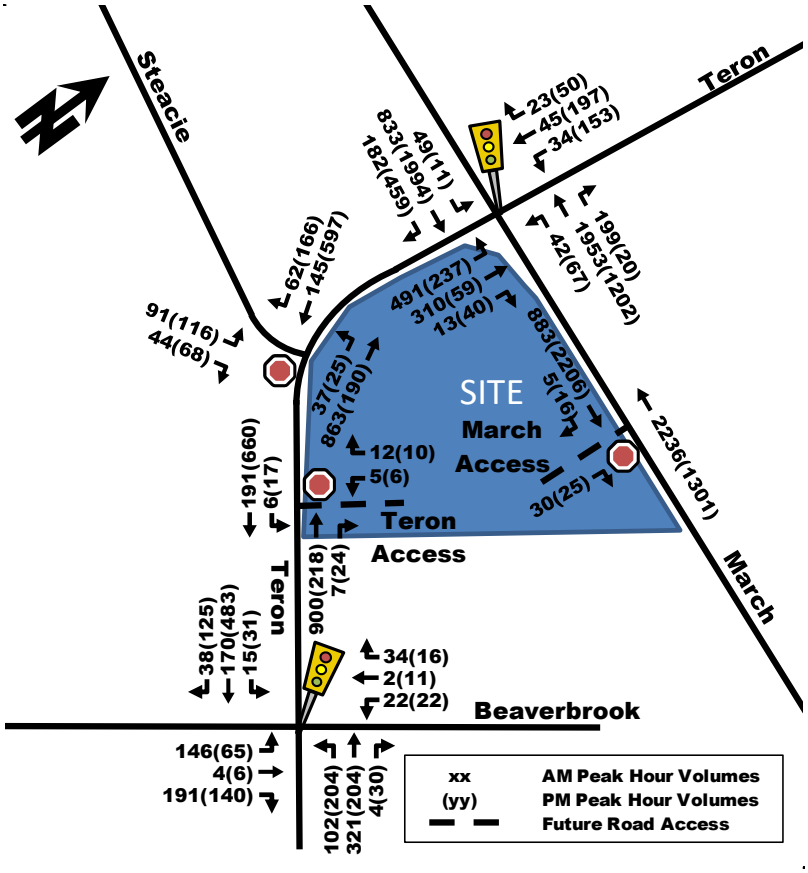


Table 24: Future Projected 2026 Operations if TOD Targets Not Met

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
March/Teron	F(F)	1.35(1.11)	EBL(EBL)	55(36)	F(E)	1.03(0.95)
Beaverbrook/Teron	A(D)	0.57(0.89)	NBT(SBT)	12(27)	A(C)	0.42(0.71)
Unsignalized Intersections						
Steacie/Teron	B(C)	13(16)	EB(EB)	2(3)	A(A)	-
March RIRO Access	B(D)	12(25)	EB(EB)	1(1)	A(A)	-
Teron Full Access	C(B)	18(13)	EB(EB)	1(1)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.						

As seen in **Table 24**, even if TOD projections are not met, all intersections continue to operate at similar operations as projected 2026 with TOD targets met.

5. SUMMARY OF FINDINGS

Proposed Development

- The proposed development located at 1131 Teron Road consists of 30 residential units;
- The proposed development located at 1151 Teron Road consists of 109 residential units, approximately 7,600 ft^2 of commercial and 3,900 ft^2 of sit-down restaurant;
- This report is in support of a Site Plan Application (SPA) for 1131 Teron Road and a Zoning By-Law Amendment (ZBLA) for 1151 Teron Road;
- The site is currently a vacant lot on the south-east corner of March/Teron intersection with site property frontage on the south side of March Road and east side of Teron Road; and
- For the purpose of this study, the SPA considers 1131 Teron Road on its own as Phase 1. The ZBLA for 1151 Teron Road incorporates trip generation from both development parcels as they will share an access driveway and is referred to as Phase 2. For both scenarios, an occupancy date of 2021 is assumed although it is anticipated that 1131 Teron Road will be built prior to 1151 Teron Road.

Existing Conditions

- Beaverbrook/Teron and Steacie/Teron intersections operate overall at good LoS 'C' or better with critical movements of LoS 'D' or better for both AM and PM peak hours;
- March/Teron intersection operates overall close to capacity, or at capacity, with critical movements operating poorly for both AM and PM peak hours; and
- The eastbound left turn on Teron Road has been flagged by the City as a pinch point where commuters headed north in Kanata will often attempt to shortcut traffic on March Road by taking Teron Road, creating congestion for this movement during the AM peak.

Background Conditions

- A conservative 2% annual growth rate was applied to March Road and Teron Road through movements;
- Other area developments noted in the study included:
  - 100 Varley Lane (25-30 veh/h)
  - 329 March Road (100-40 veh/h)
- The other area developments were accounted for separately in the traffic analysis.

Phase 1 - 1131 Teron Road

Trip Generation and Parking

- Full buildout for Phase 1 of the proposed development at 1131 Teron Road is expected to generate approximately 10 to 15 vehicle trips during the weekday morning and afternoon peak hours, respectively;
- The subject development will provide a total of 46 surface vehicle parking spaces, which meets City parking bylaws;
- The subject development will provide a total of 16 bicycle parking spaces, which meets City bicycle parking bylaws.

Projected Conditions

- 1131 Teron Road development alone will have negligible impacts to the transportation network with 10-15 two-way vehicle trips projected in both peak hours, equating to approximately 1 car added to the network every 4 to 6 minutes on average;
- The MMLOS road segment analysis showed pedestrian level of service targets (PLoS) were not met on March Road nor Teron Road. Cyclists levels-of-service targets (BLoS) were met on Teron Road but not on March Road. If the proposed internal pedestrian pathway and MUP proposed for Phase 2 are built, both pedestrian and cyclist level of service targets would be met within the site as a result of the segregated facilities;
- The MMLOS intersection analysis showed pedestrian and cyclist level of service targets (PLoS and BLoS respectively) were not met on March/Teron intersection as pedestrians have to cross 5 to 7 lanes of traffic and cyclists do not have adequate cycling facilities on Teron Road.

Transit

- Site-generated transit trips at for Phase 1 were approximately 10 two-way trips during the weekday morning and afternoon peak hours which equates to 1 trip every 6 minutes and is considered negligible

Site Access, Circulation and Connectivity

- The proposed development will make use of a single full movement access to Teron Road. The driveway will access at grade parking spaces located at 1151 Teron Road, which will be relocated underground once 1151 Teron Road is built during Phase 2;
- The proposed Site Plan is considered supportive of pedestrian connectivity by providing internal surface sidewalks within the site. The developer is proposing a sidewalk along the site's frontage on Teron Road, however a 70-metre discontinuity between the site's proposed sidewalk and the existing sidewalk south of Bethune Way will occur;
- The proposed site plan is considered supportive of cycling connectivity by providing a MUP connection on the north side of the property parcel, which would connect the current MUP located on the south side of March Road to the MUP located on the south side of Steacie Drive once Phase 2 is complete.

Phase 2 - 1151 Teron Road

Note - impacts of 1131 Teron Road included within analysis of 1151 Teron Road development

Trip Generation and Parking

- 1151 Teron Road is anticipated to be built after 1131 Teron Road is complete (Phase 1). For the purpose of this study, Phase 2 was assumed to be built at a similar time to 1131 Teron Road, with a proposed build out year of 2021;
- Phase 2 of the proposed development is expected to generate approximately 50 to 80 vehicle trips during the weekday morning and afternoon periods respectively;
- The subject development is anticipated to meet both vehicle and bicycle parking by-law requirements once built.

Projected Conditions

- Phase 2 full buildout plus 5 years (2026) traffic conditions are projected to operate similar to existing traffic conditions. The development is not anticipated to have a major influence on the performance of study area intersections.
- The worst-case scenario trip generator is not expected to generate more than 200 person trips than the land uses currently proposed;
- The MMLOS road segment analysis showed pedestrian level of service targets (PLoS) were not met on March Road nor Teron Road. Cyclists levels-of-service targets (BLoS) were met on Teron Road but not on March Road. If the proposed internal pedestrian pathway and MUP were built, both pedestrian and cyclist level of service targets would be met as a result of providing a segregated facility;
- The MMLOS intersection analysis showed pedestrian and cyclist level of service targets (PLoS and BLoS respectively) were not met on March/Teron intersection as pedestrians have to cross 5 to 7 lanes of traffic and cyclists do not have adequate cycling facilities on Teron Road.

Transit

- Site-generated transit trips at full buildout for Phase 2 were approximately 45 to 65 during the weekday morning and afternoon peak hours;
- The estimated transit trips could be accommodated by high frequency routes #63, #64 and local route #166;
- Once the BRT is built on March Road, there will be additional capacity and higher frequency anticipated during peak hours.

Site Access, Circulation and Connectivity

- The proposed development will make use of a full movement access to Teron Road and a right-in/right-out access to March Road for Phase 2. An internal roadway will link both driveways and will provide access to both underground parking below the building and surface parking north of the development;
  - A functional sketch of the proposed right-in/right-out connection is included in Appendix G. Note that within this concept: the existing acceleration lane has been removed (with minimal intervention to the existing right-turn channel from Teron); and cyclists remain on-road through this short stretch (consistent with conditions elsewhere in the corridor);
- The proposed Site Plan is considered supportive of pedestrian connectivity by providing internal surface sidewalks within the site which offers pedestrian connectivity between both 1131 and 1151 Teron Road as well as connection to March/Teron intersection via a pathway through the parking lot and pedestrian connection through the commercial portion of building. The developer is proposing a sidewalk along the site's frontage on Teron Road, however a 70-metre discontinuity between the site's proposed sidewalk and the existing sidewalk south of Bethune Way will occur;
- The proposed Site Plan is considered supportive of cycling connectivity by providing a MUP connection on the north side of the property parcel which would connect the current MUP located on the south side of March Road to the MUP located on the south side of Steacie Drive

Based on the foregoing, the proposed development is recommended from a transportation perspective.

Prepared By:

Juan Lavin, E.I.T.

Reviewed By:

Mark Baker, P.Eng.
Senior Transportation Engineer

Appendix A

City Comments

Responses to City Comments related to 1131 Teron Road, received on October 3, 2019 can be seen in red below:

Transportation Engineering Services

1. Provide the anticipated number of car and bike parking spaces to be provided for 1151 Teron Road (Phase 2). Noted, will be discussed in Phase 2 Site Plan Application.
2. The proposed road modifications for Phase 2 access is supported. Sidewalk must be replaced within the construction area and be continuous across the access. Noted.
3. Curb returns must be provided at the accesses with radii that can accommodate the largest vehicle accessing the site. Aprons may be required for larger infrequent users. Noted. Proponent advised.
4. A minimum width of 6.7 m is required for the proposed two-way access, and accesses cannot exceed 9m in width at the property line. Noted, discussed in section 4.4
5. The access road should provide a pedestrian and cycling facility. Cycling facilities are provided on a proposed multi-use pathway on the north side of the site. A pedestrian zebra marked pathway is proposed on the middle of the parking lot with access to commercial
6. For the proposed measures indicated on both TDM checklists, including bike parking and their locations provide descriptions of the measures and reference them on the site plan, as appropriate. Noted, included in Appendix I
7. Review sightlines for all access and illustrate them on drawings. See attached figures.

Figure 1: Phase 1: Sight Lines

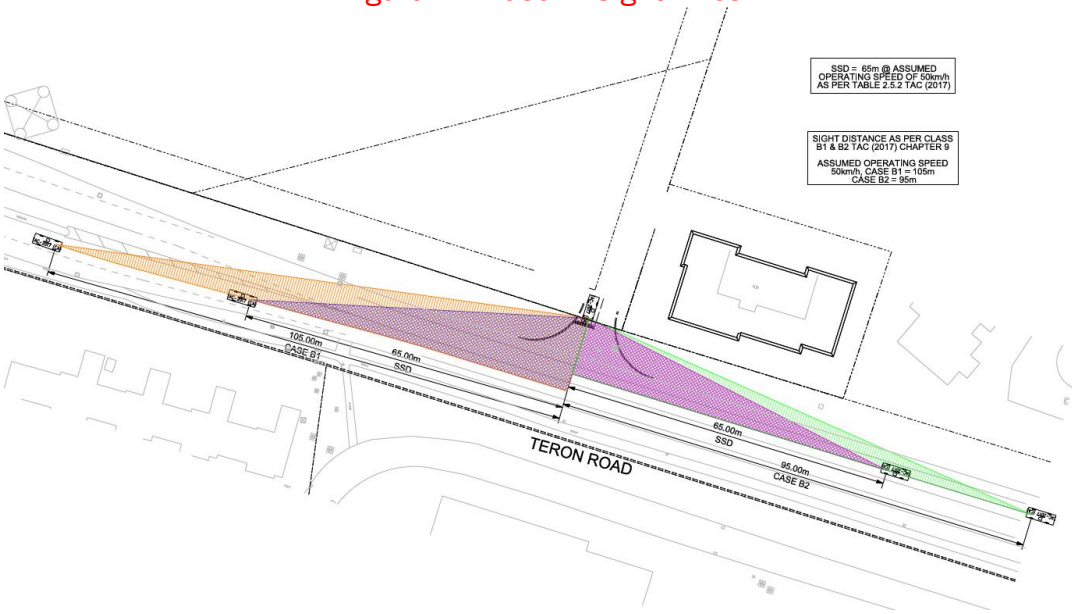
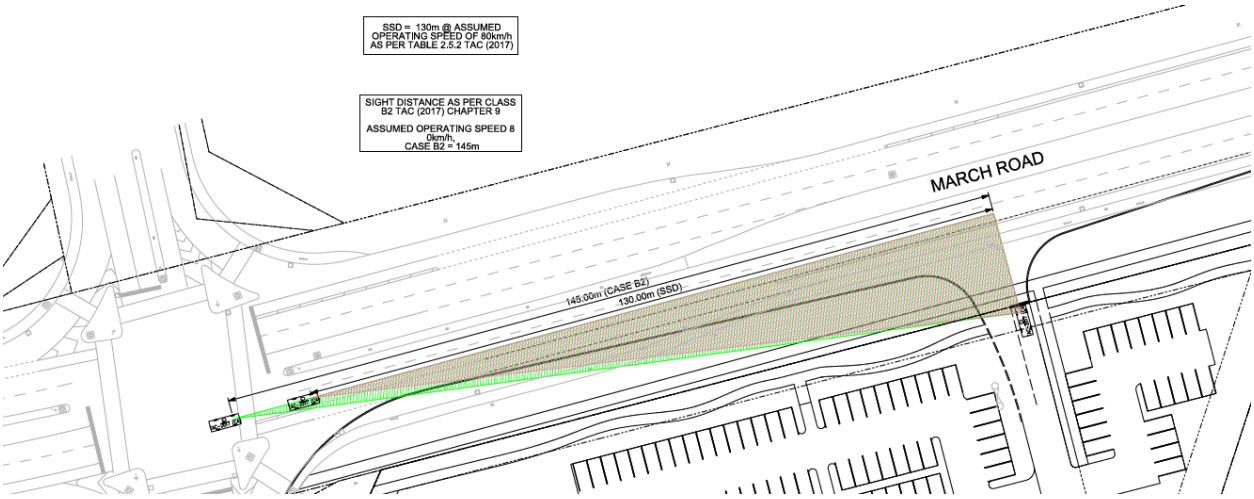


Figure 2: Phase 2 (Concept): Sight Lines



Traffic Signal Operations

1. No comments. Noted.

Traffic Signal Design

1. Due to the proposed changes in the existing roadway geometry (new access road E of Teron Road on March Road), there is existing underground traffic infrastructure/live communication interconnect duct that will be impacted by proposed construction. In addition, underground traffic plant at SE quadrant of Teron Road and March Road, as well, that will be impacted by proposed geometry modifications. The City of Ottawa Traffic Operations Unit is required to assess the impact and complete a traffic signal plant relocation design.
2. If the proposed roadway modifications are approved for installation, and RMA approved, please forward an approved geometry detail design drawings (dwg digital format in NAD 83 coordinates) including base mapping, existing and new underground utilities/sewers, new/existing catch basins locations, Turn-Radius Modeling and approved pavement markings drawings in separate files for detail traffic plant design lay out.
3. Please send all digital (CADD) design files to Peter.Grajcar@ottawa.ca 613-580-2424 ext. 23035. Noted.

Transit Services

1. No comments for this circulation of the TIA. Transportation Services reserves the right to make future comments based on subsequent submissions. Noted.

Street Lighting

1. No comments with initial TIA for this circulation. Street Lighting reserves the right to make future comments based on subsequent submissions. Noted.
2. Future considerations are as follows:
    a. If there are any proposed changes to the existing roadway geometry, the City of Ottawa Street Light Asset Management Group is required to provide a full street light design. Upon completion of proposed roadway geometry design changes, please submit digital Micro Station drawings with proposed roadway geometry changes to the Street Lighting Department, so that we may proceed with the detailed street light design and coordination with the Street Light maintenance provider and all necessary parties. Be advised that the applicant

will be 100% responsible for all costs associated with any Street Light design as a result of the roadway geometry change.

b. Alterations and/or repairs are required where the existing street light plant is directly, indirectly or adversely affected by the scope of work under this circulation, due to the proposed road reconstruction process. All street light plant alterations and/or repairs must be performed by the City of Ottawa's Street Light maintenance provider.

c. Be advised that the applicant will be 100% responsible for all costs associated with any relocations/modifications to the existing street light plant. Noted.

Development Review – Transportation Engineering Services

1. Remove draft watermark. Report updated.
2. Include Consultant Qualification letter. Report updated.
3. Concrete sidewalk constructed to city standards will be required along all frontages. Noted.
4. Developer will be responsible for construction the missing link sidewalk on Teron from the south property boundary to the Bathuen Way. Noted.

Plot Date: 11/27/2019 3:45:17 PM
Last Saved: 11/27/2019 3:55:01 PM
Consultant's Information: H:\ISO\477040\2000\DWGS\00-SKETCHES\477040-SIGHT.Dgn

MARCH ROAD

TERON ROAD

SSD = 65m @ ASSUMED OPERATING SPEED OF 50km/h AS PER TABLE 2.5.2 TAC (2017)

SIGHT DISTANCE AS PER CLASS B1 & B2 TAC (2017) CHAPTER 9

ASSUMED OPERATING SPEED 50km/h, CASE B1 = 105m CASE B2 = 95m

105.00m CASE B1

65.00m SSD

65.00m SSD

95.00m CASE B2

PARSONS

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

1131 TERON ROAD

SIGHTLINES

PHASE 1

Client: Ottawa

Project Number:	Dwn.	Dwg. No.
477040	M.J.P.	001
Date: NOVEMBER 27th, 2019	Sheet 1 of 2	

Scale: HORIZONTAL 0m 5 10 20

477040-SIGHT.dgn 11/27/2019 3:56:43 PM

Plot Date: 11/27/2019 3:56:43 PM

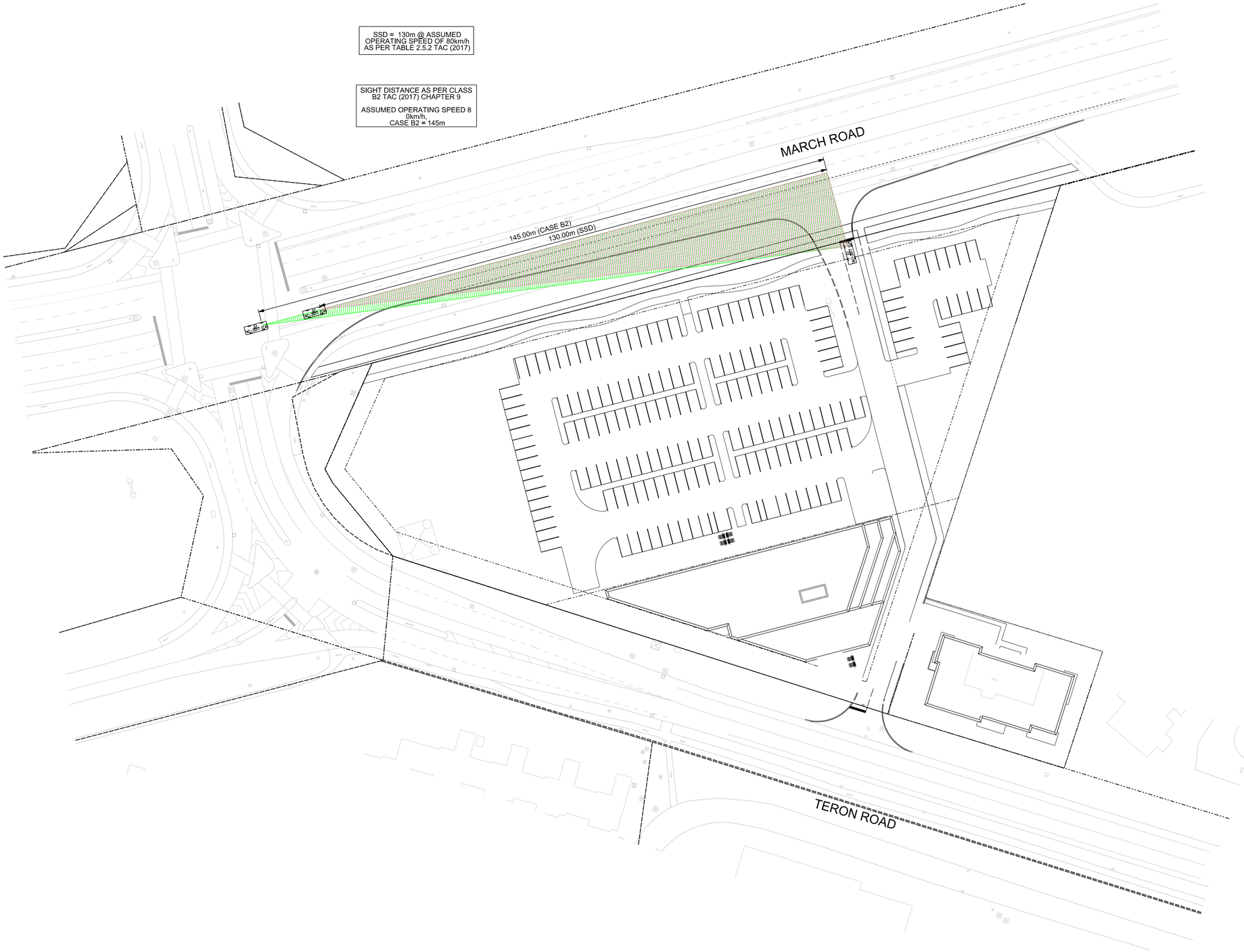
Last Saved: 11/27/2019 3:55:01 PM

Consultant's Information: H:\ISO\477040\2000\DWGS\00-SKETCHES\477040-SIGHT.Dgn

SSD = 130m @ ASSUMED OPERATING SPEED OF 80km/h AS PER TABLE 2.5.2 TAC (2017)

SIGHT DISTANCE AS PER CLASS B2 TAC (2017) CHAPTER 9

ASSUMED OPERATING SPEED 80km/h,
CASE B2 = 145m



PARSONS

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

1151 TERON ROAD

SIGHTLINES

PHASE 2

Client: Ottawa

Project Number:	Dwn.	Dwg. No.
477040	M.J.P.	002
Date: NOVEMBER 27th, 2019	Sheet 2 of 2	

Scale: HORIZONTAL 0m 5 10 20

Appendix B

Screening Form

PARSONS

1223 Michael Street, Suite 100, Ottawa, Ontario, K1J 7T2
P: +1 613.738.4160 l F: +1 613.739.7105 l www.parsons.com

City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	5-Jun-19
Project	1131 Teron Road
Project Number	477040

Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	Yes
Development Satisfies the Location Trigger	Yes
Development Satisfies the Safety Trigger	Yes

Module 1.1 - Description of Proposed Development	
Municipal Address	1131 & 1151 Teron Road
Description of location	Currently a vacant lot, located between Teron Road to the southwest and March Road to the north.
Land Use	Proposed 4-storey and 9-storey Residential + Commercial
Development Size	130 Residential Units + 1000sq m. Commercial
Number of Accesses and Locations	Proposed access right-in right-out to March Road and full movement access to Teron Road
Development Phasing	Multi-Phased
Buildout Year	2022
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	130	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers		
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	Yes	Teron Road and March Road are both Spine Bicycle Network according to TMP Map1
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes	Property parcel within March Road Transit Oriented Development
Location Trigger Met?	Yes	

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	80km/h March, 50km/h Teron
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	Yes	Sight triangles on March/Teron required for final plan
A proposed driveway is within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions) or within auxiliary lanes of an intersection;	Yes	The access on Teron Road is less than 150m from the Teron Road/Steacie Drive intersection
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	No	
The development includes a drive-thru facility	No	
Safety Trigger Met?	Yes	

Appendix C

City of Ottawa Traffic Data

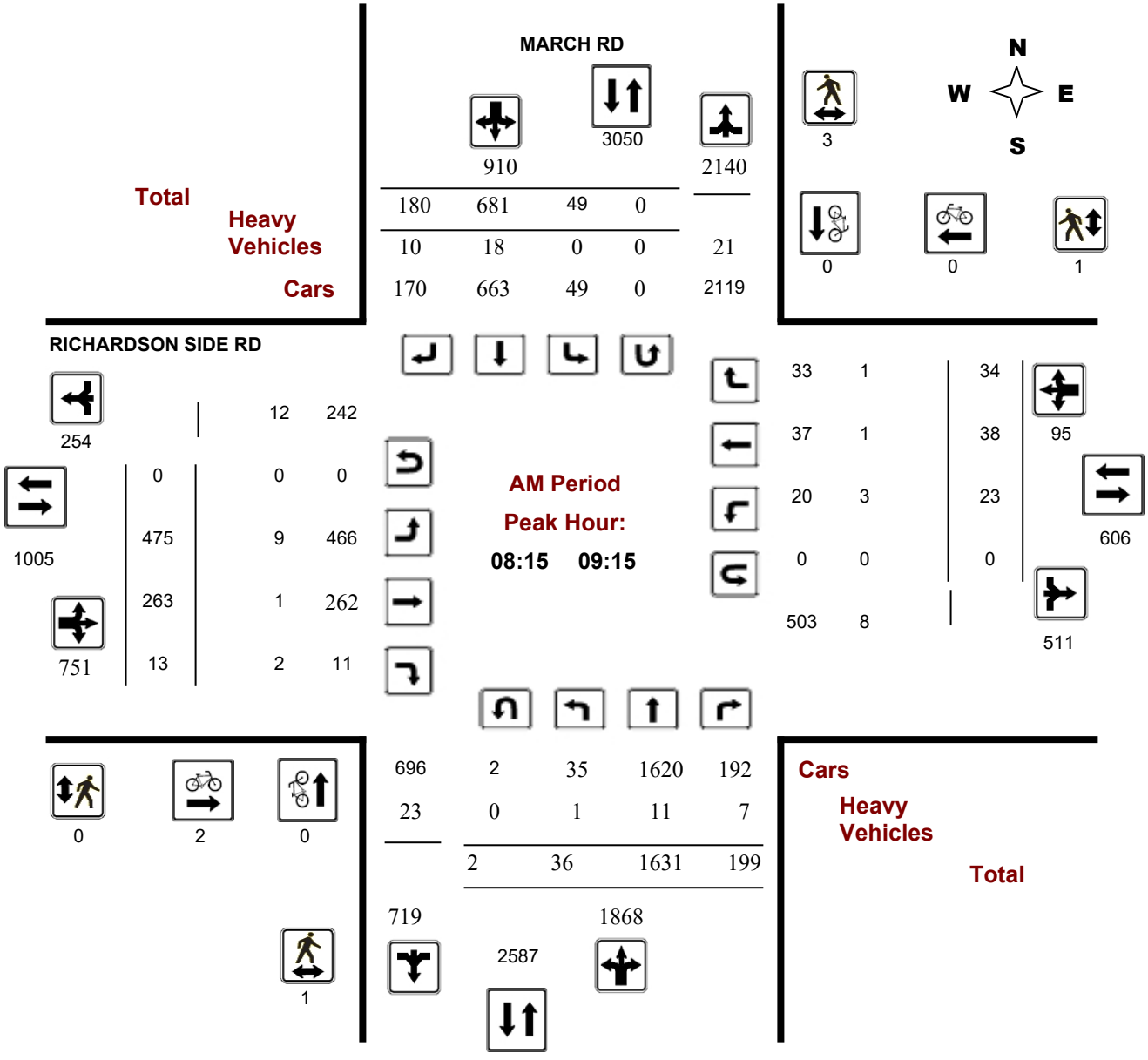
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MARCH RD @ RICHARDSON SIDE RD

Survey Date: Thursday, November 02, 2017 **WO No:** 37345

Start Time: 07:00 **Device:** Miovision



Comments

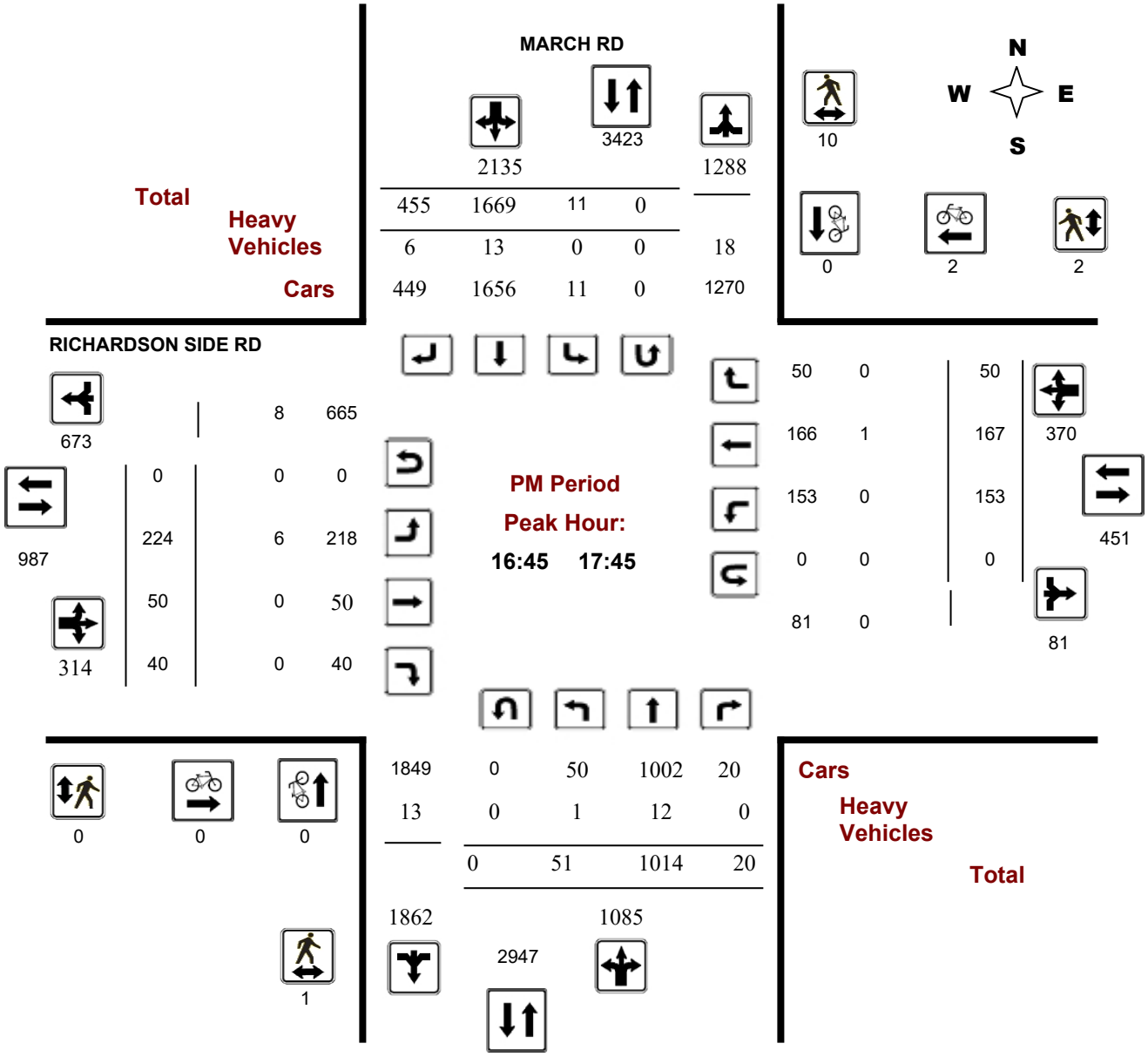
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MARCH RD @ RICHARDSON SIDE RD

Survey Date: Thursday, November 02, 2017 **WO No:** 37345

Start Time: 07:00 **Device:** Miovision



Comments

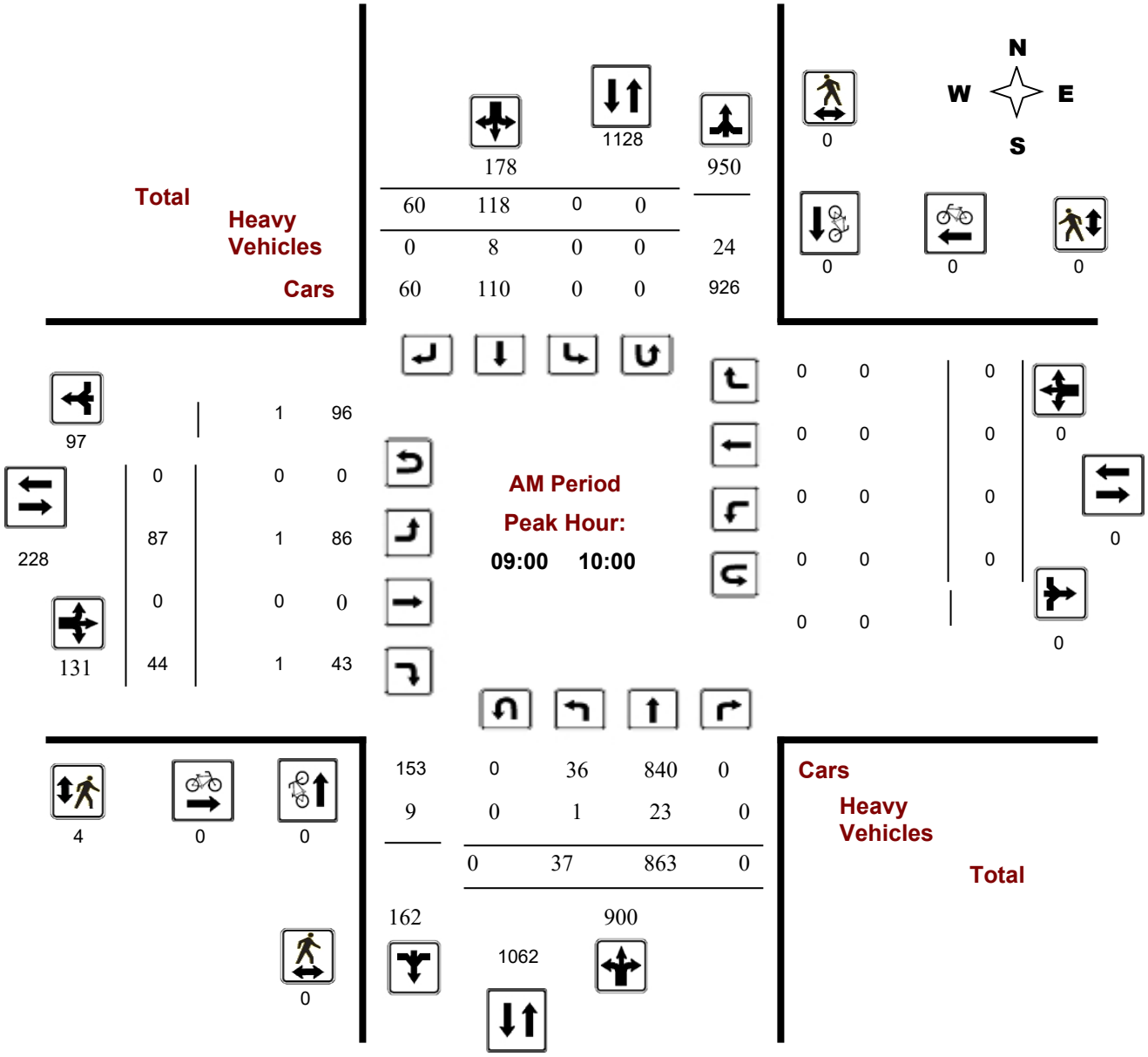
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

RICHARDSON SIDE RD/TERON RD @ STEACIE DR

Survey Date: Monday, November 27, 2017 **WO No:** 37344

Start Time: 07:00 **Device:** Miovision



Comments

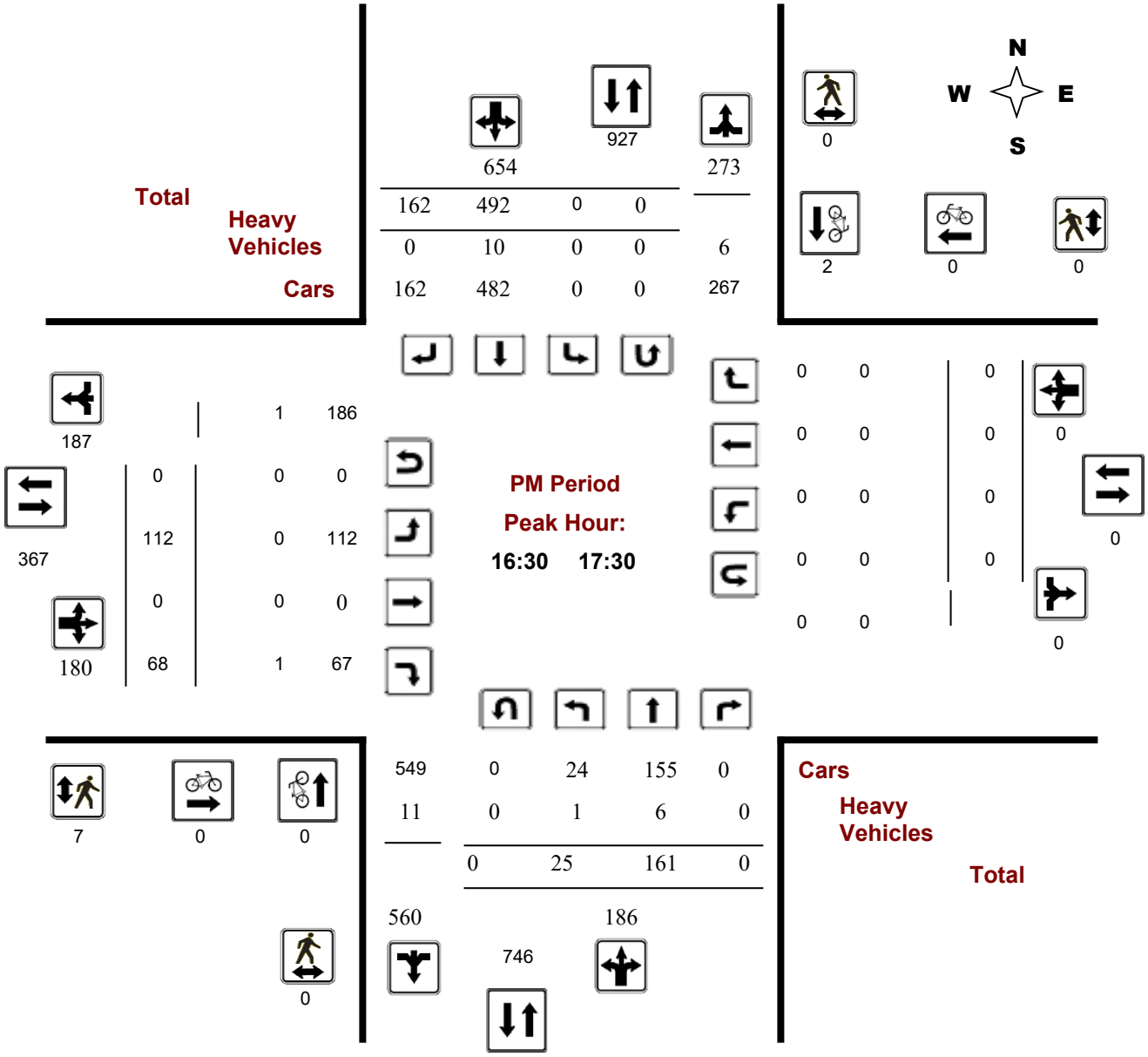
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

RICHARDSON SIDE RD/TERON RD @ STEACIE DR

Survey Date: Monday, November 27, 2017 **WO No:** 37344

Start Time: 07:00 **Device:** Miovision



Comments

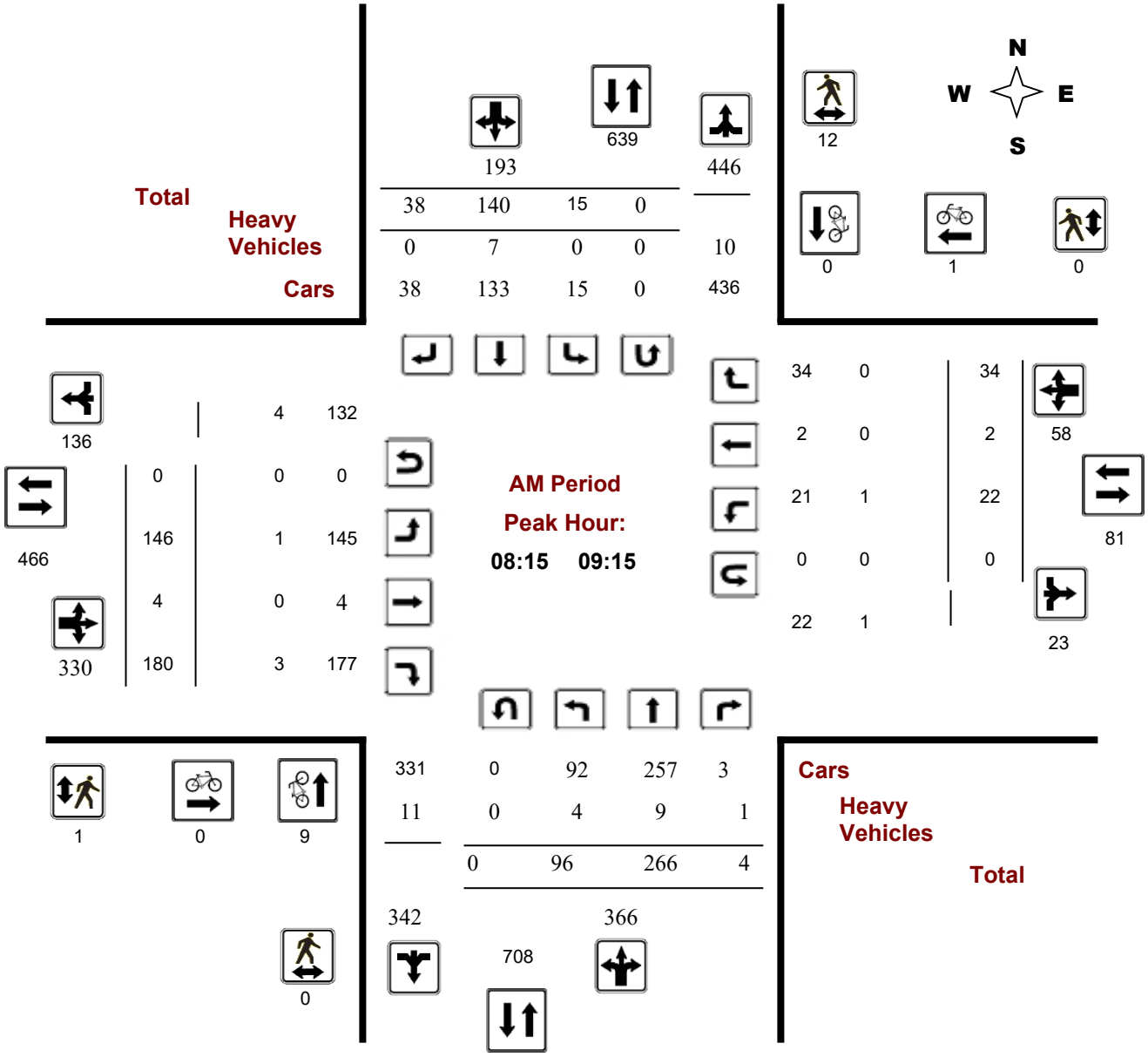
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TERON RD @ BEAVERBROOK RD/PENFIELD DR N

Survey Date: Wednesday, August 10, 2016 **WO No:** 36159

Start Time: 07:00 **Device:** Miovision



Comments

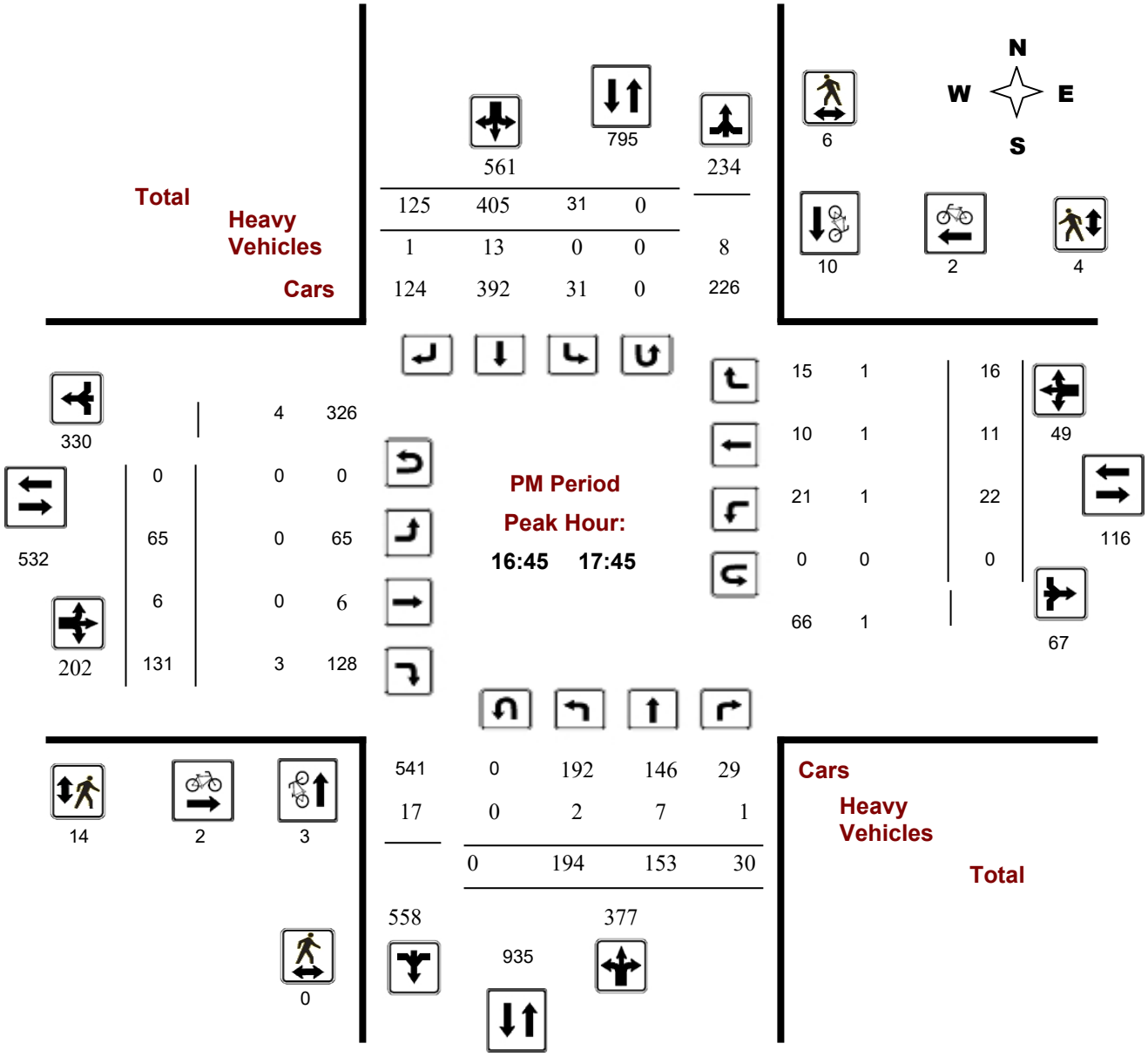
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TERON RD @ BEAVERBROOK RD/PENFIELD DR N

Survey Date: Wednesday, August 10, 2016
Start Time: 07:00

WO No: 36159
Device: Miovision



Comments

Appendix D

City of Ottawa Collision Data

Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	23	6	6	11	0	11	0	0	57	75%
Non-fatal injury	5	6	1	1	1	5	0	0	19	25%
Fatal Injury	0	0	0	0	0	0	0	0	0	0%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**28**	**12**	**7**	**12**	**1**	**16**	**0**	**0**	**76**	100%
	#1 or 37%	#3 or 16%	#5 or 9%	#3 or 16%	#6 or 1%	#2 or 21%	#7 or 0%	#7 or 0%		

MARCH RD / RICHARDSON SIDE RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	27	40,617	1825	**0.36**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	8	5	4	2	0	1	0	0	20	74%
Non-fatal injury	2	3	0	1	0	1	0	0	7	26%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**10**	**8**	**4**	**3**	**0**	**2**	**0**	**0**	**27**	100%
	37%	30%	15%	11%	0%	7%	0%	0%		

HERZBERG RD / MARCH RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	32	41,897	1825	**0.42**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	12	0	2	5	0	6	0	0	25	78%
Non-fatal injury	2	2	1	0	0	2	0	0	7	22%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**14**	**2**	**3**	**5**	**0**	**8**	**0**	**0**	**32**	100%
	44%	6%	9%	16%	0%	25%	0%	0%		

TERON RD / BEAVERBROOK RD/PENFIELD DR N

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	6	10,559	1825	**0.31**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	0	0	2	0	1	0	0	3	50%
Non-fatal injury	0	1	0	0	0	2	0	0	3	50%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1**	**0**	**2**	**0**	**3**	**0**	**0**	**6**	100%
	0%	17%	0%	33%	0%	50%	0%	0%		

BETHUNE CRT / TERON RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	1	10,200	1825	**0.05**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	1	0	0	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	100%	0%	0%	0%	0%	0%	0%	0%		

RICHARDSON SIDE RD/TERON RD / STEACIE DR

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	1	12,074	1825	**0.05**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	1	0	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	0%	100%	0%	0%	0%	0%	0%	0%		

Segments

MARCH RD /twn RICHARDSON SIDE RD & HERZBERG RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	6	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	1	0	0	0	0	3	0	0	4	67%
Non-fatal injury	1	0	0	0	1	0	0	0	2	33%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**2**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**6**	100%
	33%	0%	0%	0%	17%	50%	0%	0%		

TERON RD /twn CHISHOLM CRT & BEAVERBROOK LANE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	1	0	0	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	100%	0%	0%	0%	0%	0%	0%	0%		

TERON RD /twn BEAVERBROOK LANE & BEAVERBROOK RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
5	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	0	0	1	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	100%
	0%	0%	0%	100%	0%	0%	0%	0%		

Appendix E

Background Growth Analysis

Teron/March
8 hrs

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2009	Tues July 14	10195	10467	9220	9616	1221	1559	3011	2405	47694
2010	Thurs Aug 12	11632	12297	10911	10631	1446	1611	3432	2882	54842
2011	Tues June 21	11215	14819	13681	10670	1798	2154	3514	2565	60416
2017	Thurs Nov 2	10160	11305	9977	8851	1563	1734	3085	2895	49570

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	10467	10195	20662	47694				
2010	12297	11632	23929	54842	17.5%	14.1%	15.8%	15.0%
2011	14819	11215	26034	60416	20.5%	-3.6%	8.8%	10.2%
2017	11305	10160	21465	49570	-23.7%	-9.4%	-17.6%	-18.0%

Regression Estimate	2009	12369	11046	23415
Regression Estimate	2017	11942	10331	22273
Average Annual Change		**-0.44%**	**-0.83%**	**-0.62%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	3011	2405	5416	47694				
2010	3432	2882	6314	54842	14.0%	19.8%	16.6%	15.0%
2011	3514	2565	6079	60416	2.4%	-11.0%	-3.7%	10.2%
2017	3085	2895	5980	49570	-12.2%	12.9%	-1.6%	-18.0%

Regression Estimate	2009	3312	2572	5884
Regression Estimate	2017	3162	2906	6068
Average Annual Change		**-0.58%**	**1.54%**	**0.39%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	1559	1221	2780	47694				
2010	1611	1446	3057	54842	3.3%	18.4%	10.0%	15.0%
2011	2154	1798	3952	60416	33.7%	24.3%	29.3%	10.2%
2017	1734	1563	3297	49570	-19.5%	-13.1%	-16.6%	-18.0%

Regression Estimate	2009	1737	1438	3176
Regression Estimate	2017	1816	1638	3454
Average Annual Change		**0.56%**	**1.64%**	**1.06%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	9220	9616	18836	47694				
2010	10911	10631	21542	54842	18.3%	10.6%	14.4%	15.0%
2011	13681	10670	24351	60416	25.4%	0.4%	13.0%	10.2%
2017	9977	8851	18828	49570	-27.1%	-17.0%	-22.7%	-18.0%

Regression Estimate	2009	11113	10409	21522
Regression Estimate	2017	10631	9050	19682
Average Annual Change		**-0.55%**	**-1.73%**	**-1.11%**

Teron/March
AM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2009	Tues July 14	1123	1902	1990	1084	32	412	580	157	7280
2010	Thurs Aug 12	1366	2324	2242	1274	99	418	579	270	8572
2011	Tues June 21	1220	2707	2672	1102	78	702	726	185	9392
2017	Thurs Nov 2	910	2140	1868	719	95	511	751	254	7248

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	1902	1123	3025	7280				
2010	2324	1366	3690	8572	22.2%	21.6%	22.0%	17.7%
2011	2707	1220	3927	9392	16.5%	-10.7%	6.4%	9.6%
2017	2140	910	3050	7248	-20.9%	-25.4%	-22.3%	-22.8%

Regression Estimate	2009	2275	1269	3544
Regression Estimate	2017	2256	936	3191
Average Annual Change		**-0.11%**	**-3.74%**	**-1.30%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	580	157	737	7280				
2010	579	270	849	8572	-0.2%	72.0%	15.2%	17.7%
2011	726	185	911	9392	25.4%	-31.5%	7.3%	9.6%
2017	751	254	1005	7248	3.4%	37.3%	10.3%	-22.8%

Regression Estimate	2009	603	196	799
Regression Estimate	2017	766	256	1022
Average Annual Change		**3.04%**	**3.40%**	**3.13%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	412	32	444	7280				
2010	418	99	517	8572	1.5%	209.4%	16.4%	17.7%
2011	702	78	780	9392	67.9%	-21.2%	50.9%	9.6%
2017	511	95	606	7248	-27.2%	21.8%	-22.3%	-22.8%

Regression Estimate	2009	490	63	553
Regression Estimate	2017	550	100	651
Average Annual Change		**1.46%**	**5.92%**	**2.04%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	1990	1084	3074	7280				
2010	2242	1274	3516	8572	12.7%	17.5%	14.4%	17.7%
2011	2672	1102	3774	9392	19.2%	-13.5%	7.3%	9.6%
2017	1868	719	2587	7248	-30.1%	-34.8%	-31.5%	-22.8%

Regression Estimate	2009	2306	1205	3511
Regression Estimate	2017	1977	738	2715
Average Annual Change		**-1.90%**	**-5.94%**	**-3.16%**

Teron/March
PM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2009	Tues July 14	2043	1398	1180	1625	329	80	370	602	7627
2010	Thurs Aug 12	2164	1848	1505	1995	420	165	585	666	9348
2011	Tues June 21	1989	1992	1820	1884	569	150	429	781	9614
2017	Thurs Nov 2	2135	1288	1085	1862	370	81	314	673	7808

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	1398	2043	3441	7627				
2010	1848	2164	4012	9348	32.2%	5.9%	16.6%	22.6%
2011	1992	1989	3981	9614	7.8%	-8.1%	-0.8%	2.8%
2017	1288	2135	3423	7808	-35.3%	7.3%	-14.0%	-18.8%

Regression Estimate	2009	1760	2061	3821
Regression Estimate	2017	1386	2125	3511
Average Annual Change		**-2.94%**	**0.39%**	**-1.05%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	370	602	972	7627				
2010	585	666	1251	9348	58.1%	10.6%	28.7%	22.6%
2011	429	781	1210	9614	-26.7%	17.3%	-3.3%	2.8%
2017	314	673	987	7808	-26.8%	-13.8%	-18.4%	-18.8%

Regression Estimate	2009	475	672	1147
Regression Estimate	2017	328	698	1025
Average Annual Change		**-4.54%**	**0.48%**	**-1.39%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2009	80	329	409	7627				
2010	165	420	585	9348	106.3%	27.7%	43.0%	22.6%
2011	150	569	719	9614	-9.1%	35.5%	22.9%	2.8%
2017	81	370	451	7808	-46.0%	-35.0%	-37.3%	-18.8%

Regression Estimate	2009	133	431	564
Regression Estimate	2017	92	405	498
Average Annual Change		**-4.44%**	**-0.76%**	**-1.55%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2009	1180	1625	2805	7627				
2010	1505	1995	3500	9348	27.5%	22.8%	24.8%	22.6%
2011	1820	1884	3704	9614	20.9%	-5.6%	5.8%	2.8%
2017	1085	1862	2947	7808	-40.4%	-1.2%	-20.4%	-18.8%

Regression Estimate	2009	1507	1813	3320
Regression Estimate	2017	1188	1896	3084
Average Annual Change		**-2.93%**	**0.56%**	**-0.92%**

Appendix F

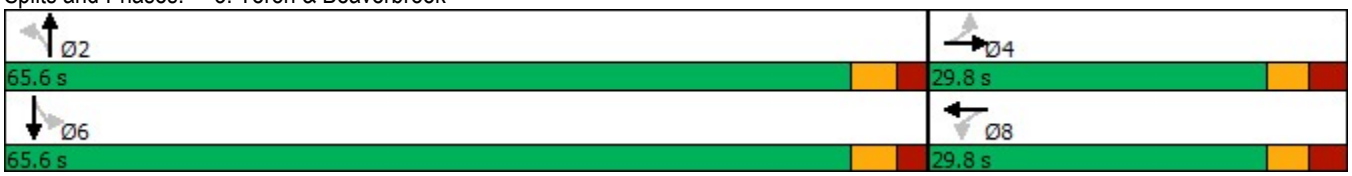
SYNCHRO Capacity Analysis: Existing Conditions

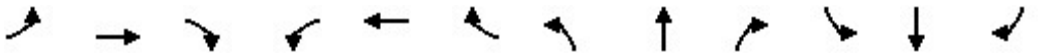
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	4	180	22	2	34	96	266	4	15	140	38
Future Volume (vph)	146	4	180	22	2	34	96	266	4	15	140	38
Satd. Flow (prot)	1695	1522	0	1695	1529	0	1695	1781	0	1695	1727	0
Flt Permitted	0.731			0.630			0.633			0.514		
Satd. Flow (perm)	1304	1522	0	1124	1529	0	1129	1781	0	917	1727	0
Satd. Flow (RTOR)		200			38			1			27	
Lane Group Flow (vph)	162	204	0	24	40	0	107	300	0	17	198	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		25.6	25.6		25.6	25.6	
Total Split (s)	29.8	29.8		29.8	29.8		65.6	65.6		65.6	65.6	
Total Split (%)	31.2%	31.2%		31.2%	31.2%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Act Effct Green (s)	24.1	24.1		24.1	24.1		13.7	13.7		13.7	13.7	
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.28	0.28		0.28	0.28	
v/c Ratio	0.25	0.24		0.04	0.05		0.34	0.61		0.07	0.40	
Control Delay	9.7	2.7		8.2	3.8		17.2	20.9		13.1	14.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.7	2.7		8.2	3.8		17.2	20.9		13.1	14.6	
LOS	A	A		A	A		B	C		B	B	
Approach Delay		5.8			5.5			19.9			14.5	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	7.2	0.2		1.0	0.1		7.4	22.3		1.1	11.8	
Queue Length 95th (m)	19.9	8.8		4.4	4.0		17.1	40.5		4.4	24.5	
Internal Link Dist (m)		594.0			268.4			124.5			613.0	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	638	847		550	767		1129	1781		917	1727	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.24		0.04	0.05		0.09	0.17		0.02	0.11	

Intersection Summary
Cycle Length: 95.4
Actuated Cycle Length: 49.2
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 56.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Teron & Beaverbrook





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	263	13	34	38	23	36	1631	199	49	681	180
Future Volume (vph)	475	263	13	34	38	23	36	1631	199	49	681	180
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.623			0.325			0.307			0.058		
Satd. Flow (perm)	1112	1784	1517	580	1784	1517	548	3390	1517	103	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	528	292	14	38	42	26	40	1812	221	54	757	200
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	12.0	38.0		12.0	38.0		12.0	68.0		12.0	68.0	
Total Split (%)	9.2%	29.2%		9.2%	29.2%		9.2%	52.3%		9.2%	52.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.6		6.1	6.6		6.4	6.3		6.4	6.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	31.0	25.8	130.0	28.3	24.1	130.0	76.4	71.3	130.0	76.7	71.5	130.0
Actuated g/C Ratio	0.24	0.20	1.00	0.22	0.19	1.00	0.59	0.55	1.00	0.59	0.55	1.00
v/c Ratio	1.75	0.83	0.01	0.22	0.13	0.02	0.11	0.97	0.15	0.39	0.41	0.13
Control Delay	379.2	69.0	0.0	34.1	41.4	0.0	12.4	46.4	0.2	22.5	20.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	379.2	69.0	0.0	34.1	41.4	0.0	12.4	46.4	0.2	22.5	20.0	0.2
LOS	F	E	A	C	D	A	B	D	A	C	C	A
Approach Delay		264.2			28.7			40.8			16.2	
Approach LOS		F			C			D			B	
Queue Length 50th (m)	~199.3	71.9	0.0	7.0	8.9	0.0	3.9	~269.4	0.0	5.3	63.3	0.0
Queue Length 95th (m)	#255.0	99.5	0.0	14.6	18.1	0.0	9.7	#324.2	0.0	14.0	84.3	0.0
Internal Link Dist (m)		42.6			349.6			93.8			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	302	430	1517	177	430	1517	376	1860	1517	138	1863	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.75	0.68	0.01	0.21	0.10	0.02	0.11	0.97	0.15	0.39	0.41	0.13

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.75

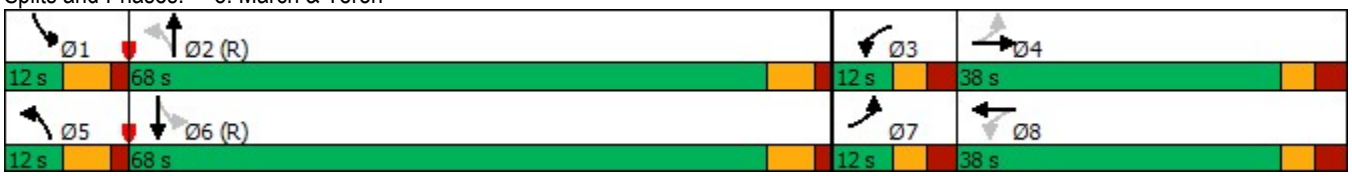
Intersection Signal Delay: 80.6	Intersection LOS: F
Intersection Capacity Utilization 92.8%	ICU Level of Service F
Analysis Period (min) 15	

Description: NOTE: March Road treated as north-south

~ 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: 8: March & Teron



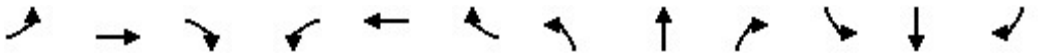
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	87	44	37	863	118	60
Future Vol, veh/h	87	44	37	863	118	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	49	41	959	131	67

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	597	131	131	0	-	0
Stage 1	131	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	478	918	1453	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	449	918	1453	-	-	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	565	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1453	-	449	918	-	-
HCM Lane V/C Ratio	0.028	-	0.215	0.053	-	-
HCM Control Delay (s)	7.5	0.1	15.2	9.1	-	-
HCM Lane LOS	A	A	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	0.2	-	-



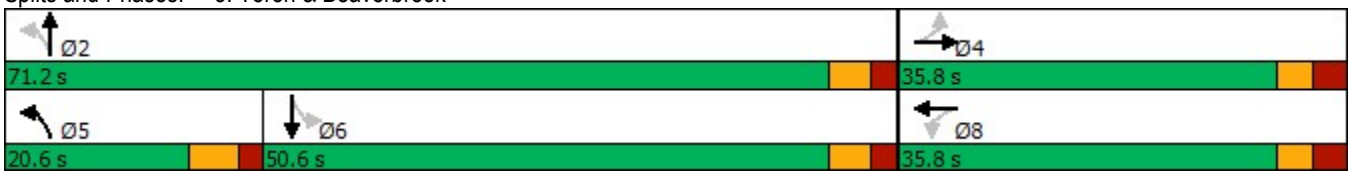
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	6	131	22	11	16	194	153	30	31	405	125
Future Volume (vph)	65	6	131	22	11	16	194	153	30	31	405	125
Satd. Flow (prot)	1695	1529	0	1695	1624	0	1695	1741	0	1695	1722	0
Flt Permitted	0.738			0.645			0.130			0.630		
Satd. Flow (perm)	1317	1529	0	1151	1624	0	232	1741	0	1124	1722	0
Satd. Flow (RTOR)		146			18			17			18	
Lane Group Flow (vph)	72	153	0	24	30	0	216	203	0	34	589	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		11.0	25.6		25.6	25.6	
Total Split (s)	35.8	35.8		35.8	35.8		20.6	71.2		50.6	50.6	
Total Split (%)	33.5%	33.5%		33.5%	33.5%		19.3%	66.5%		47.3%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.0	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		6.0	5.6		5.6	5.6	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	Max	Max		Max	Max		Max	Min		Min	Min	
Act Effct Green (s)	30.2	30.2		30.2	30.2		57.8	58.2		37.4	37.4	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.58	0.58		0.37	0.37	
v/c Ratio	0.18	0.27		0.07	0.06		0.62	0.20		0.08	0.90	
Control Delay	29.7	7.1		28.4	16.7		22.2	9.2		19.6	45.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.7	7.1		28.4	16.7		22.2	9.2		19.6	45.9	
LOS	C	A		C	B		C	A		B	D	
Approach Delay		14.3			21.9			15.9			44.5	
Approach LOS		B			C			B			D	
Queue Length 50th (m)	10.6	1.0		3.4	1.7		18.7	15.6		4.2	102.3	
Queue Length 95th (m)	23.1	15.7		10.2	8.7		41.4	25.8		10.3	#150.8	
Internal Link Dist (m)		594.0			268.4			124.5			613.0	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	398	564		348	503		349	1156		509	790	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.27		0.07	0.06		0.62	0.18		0.07	0.75	

Intersection Summary
Cycle Length: 107
Actuated Cycle Length: 99.8
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 75.3%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 3: Teron & Beaverbrook



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	50	40	153	167	50	51	1014	20	11	1669	455
Future Volume (vph)	224	50	40	153	167	50	51	1014	20	11	1669	455
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.551			0.584			0.056			0.181		
Satd. Flow (perm)	983	1784	1517	1042	1784	1517	100	3390	1517	323	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	249	56	44	170	186	56	57	1127	22	12	1854	506
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	17.0	35.0		17.0	35.0		12.0	66.0		12.0	66.0	
Total Split (%)	13.1%	26.9%		13.1%	26.9%		9.2%	50.8%		9.2%	50.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.6		6.1	6.6		6.4	6.3		6.4	6.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	27.6	18.3	130.0	31.4	18.8	130.0	79.4	76.2	130.0	74.9	70.2	130.0
Actuated g/C Ratio	0.21	0.14	1.00	0.24	0.14	1.00	0.61	0.59	1.00	0.58	0.54	1.00
v/c Ratio	0.93	0.22	0.03	0.52	0.72	0.04	0.39	0.57	0.01	0.05	1.01	0.33
Control Delay	83.5	49.4	0.0	43.7	68.5	0.0	21.0	20.0	0.0	11.5	55.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.5	49.4	0.0	43.7	68.5	0.0	21.0	20.0	0.0	11.5	55.3	0.6
LOS	F	D	A	D	E	A	C	B	A	B	E	A
Approach Delay		67.5			49.0			19.7			43.4	
Approach LOS		E			D			B			D	
Queue Length 50th (m)	54.1	12.9	0.0	35.0	46.1	0.0	5.3	80.2	0.0	1.1	~271.6	0.0
Queue Length 95th (m)	#77.9	24.2	0.0	51.5	67.4	0.0	14.7	141.4	0.0	4.1	#343.3	0.0
Internal Link Dist (m)		42.6			349.6			93.8			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	268	389	1517	325	389	1517	148	1987	1517	248	1829	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.14	0.03	0.52	0.48	0.04	0.39	0.57	0.01	0.05	1.01	0.33

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 121 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 39.3	Intersection LOS: D
Intersection Capacity Utilization 86.9%	ICU Level of Service E
Analysis Period (min) 15	

Description: NOTE: March Road Treated as north-south

~ 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: 8: March & Teron

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	112	68	25	161	492	162
Future Vol, veh/h	112	68	25	161	492	162
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	76	28	179	547	180

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	675	547	547	0	-	0
Stage 1	547	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	434	536	1020	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	421	536	1020	-	-	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	544	-	-	-	-	-
Stage 2	845	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.5	1.2	0
HCM LOS	C		

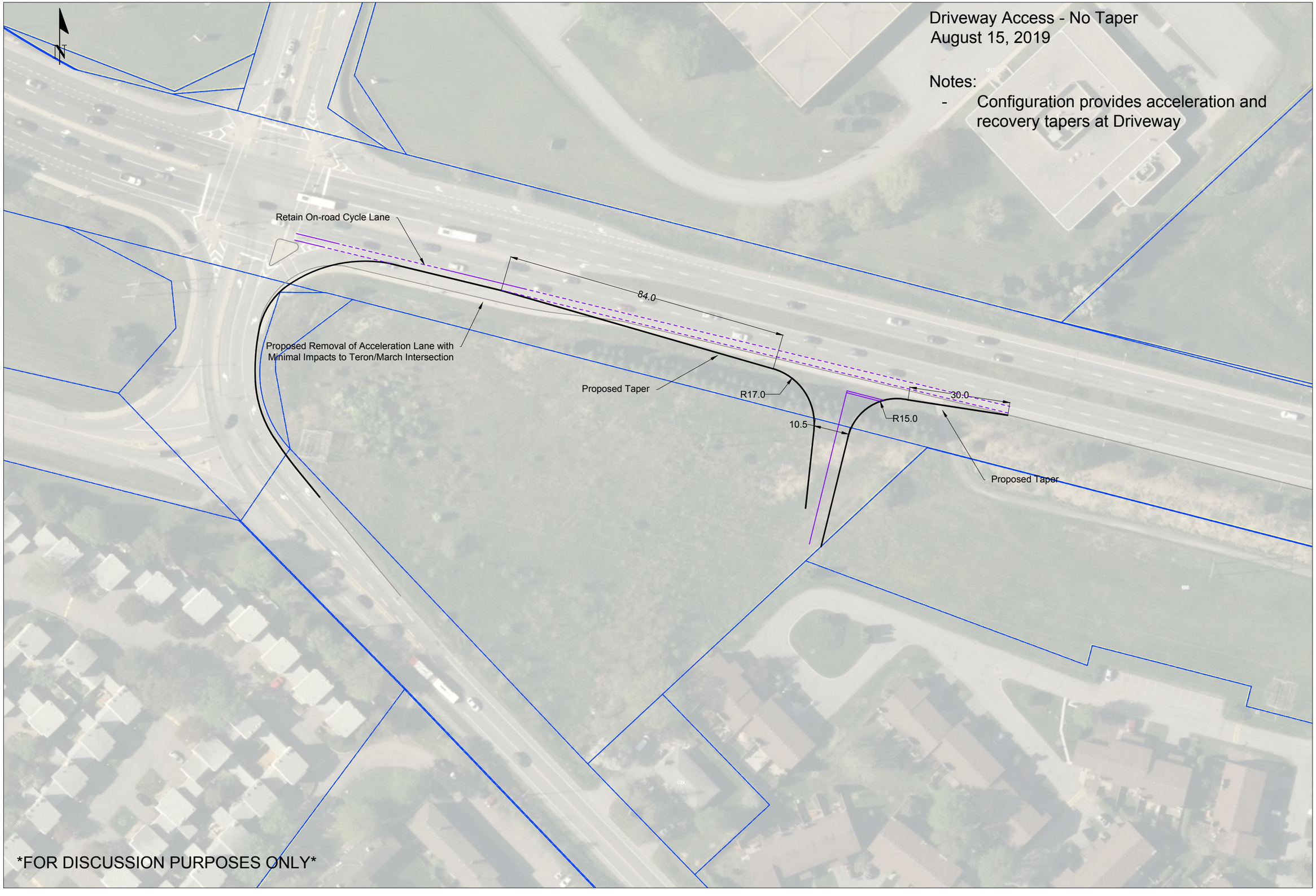
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1020	-	421	536	-	-
HCM Lane V/C Ratio	0.027	-	0.296	0.141	-	-
HCM Control Delay (s)	8.6	0.1	17.1	12.8	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.2	0.5	-	-

Appendix G

Functional Sketch Right-in Right-out March Road

Driveway Access - No Taper
August 15, 2019

Notes:
- Configuration provides acceleration and recovery tapers at Driveway



FOR DISCUSSION PURPOSES ONLY

Driveway Access - No Taper (WB-20 Templates)
August 15, 2019

Notes:
- Configuration provides acceleration and recovery tapers at Driveway

Retain On-road Cycle Lane

Proposed Removal of Acceleration Lane with Minimal Impacts to Teron/March Intersection

84.0

Proposed Taper

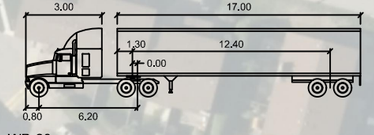
R17.0

10.5

3.0

R15.0

Proposed Taper



WB-20

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 28.2
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

FOR DISCUSSION PURPOSES ONLY

Appendix H

MMLOS Segment Analysis

Multi-Modal Level of Service - Segments Form

Consultant	Parsons	**Project**	1131 Teron
Scenario	Segments	**Date**	31-Jul-19
Comments			

SEGMENTS		Street A	Section March	Section Teron East	Section Teron West	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
Pedestrian	Sidewalk Width Boulevard Width	F	≥ 2 m < 0.5	no sidewalk n/a	≥ 2 m > 2 m						
	Avg Daily Curb Lane Traffic Volume		> 3000	> 3000	> 3000						
	Operating Speed On-Street Parking		> 60 km/h no	> 30 to 50 km/h no	> 30 to 50 km/h no						
	Exposure to Traffic PLoS		**F**	**F**	**B**	-	-	-	-	-	-
	Effective Sidewalk Width		2.0 m		2.0 m						
	Pedestrian Volume		250 ped/hr		250 ped/hr						
	Crowding PLoS		**B**	-	**B**	-	-	-	-	-	-
	Level of Service		**F**	-	**B**	-	-	-	-	-	-
Bicycle	Type of Cycling Facility	E	Curbside Bike Lane	Curbside Bike Lane	Physically Separated						
	Number of Travel Lanes		2 ea. dir. (w median)	2 ea. dir. (no median)							
	Operating Speed		> 70 km/h	>50 to 70 km/h							
	# of Lanes & Operating Speed LoS		**E**	**C**	-	-	-	-	-	-	-
	Bike Lane (+ Parking Lane) Width		≥ 1.8 m	≥1.5 to <1.8 m							
	Bike Lane Width LoS		**A**	**B**	-	-	-	-	-	-	-
	Bike Lane Blockages		Rare	Rare							
	Blockage LoS		**A**	**A**	-	-	-	-	-	-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge							
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes							
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h							
	Unsignalized Crossing - Lowest LoS		**A**	**A**	~~A~~	-	-	-	-	-	-
	Level of Service		**E**	**C**	**A**	-	-	-	-	-	-
Transit	Facility Type	D	Mixed Traffic	Mixed Traffic	Mixed Traffic						
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8						
	Level of Service		**D**	**D**	**D**	-	-	-	-	-	-
Truck	Truck Lane Width	A	≤ 3.5 m								
	Travel Lanes per Direction		> 1								
	Level of Service		**A**	-	-	-	-	-	-	-	-

Appendix I

TDM Checklist

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend ✓

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☑
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑ *A landscaped and enhanced pedestrian pathway proposed through the parking lot to March/Teron intersection. Pedestrian connection through the commercial portion of building.*
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑ A MUP connection is proposed on the north side of the property parcel which would connect the current MUP located on the south side of March Road to the MUP located on the south side of Steacie Drive.
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑ Street lighting provided on March Road and west side of Teron Road
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☑ MUP proposed on north side of development
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☑
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑ Bike parking proposed on the north edge of the structure for Phase 1
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑ Proposed 8 horizontal and 8 vertical spaces for Phase 1
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☐ Not applicable for 1131 Teron Road
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☑ Proposed parking for visitors, residents and commercial use
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		1. TDM PROGRAM MANAGEMENT	
		1.1 Program coordinator	
BASIC	★ 1.1.1	Designate an internal coordinator, or contract with an external coordinator	☑
		1.2 Travel surveys	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2. WALKING AND CYCLING	
		2.1 Information on walking/cycling routes & destinations	
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☑
		2.2 Bicycle skills training	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		3.	**TRANSIT**	
		3.1	**Transit information**	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑
BETTER		3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2	**Transit fare incentives**	
BASIC	★	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☐
BETTER		3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3	**Enhanced public transit service**	
BETTER	★	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4	**Private transit service**	
BETTER		3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4.	**CARSHARING & BIKESHARING**	
		4.1	**Bikeshare stations & memberships**	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2	**Carshare vehicles & memberships**	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☐
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	☐
		5.	**PARKING**	
		5.1	**Priced parking**	
BASIC	★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☐
BASIC	★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☑

TDM measures: *Residential developments*				Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

Appendix J

MMLOS Intersection Analysis

Multi-Modal Level of Service - Intersections Form

Consultant	**Parsons**	**Project**	**1131 Teron**
Scenario	**March/Teron Intersection**	**Date**	**31-Jul-19**
Comments			

Unlocked Rows for Replicating

INTERSECTIONS		March/Teron				Intersection B				Intersection C			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	5	5	7	7								
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m								
	Conflicting Left Turns	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive								
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control								
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed								
	Ped Signal Leading Interval?	No	No	No	No								
	Right Turn Channel	Conventional with Receiving Lane	Conventional with Receiving Lane	Conventional with Receiving Lane	Conventional with Receiving Lane								
	Corner Radius	>25m	>25m	15-25m	15-25m								
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings								
	PETSI Score	**35**	**35**	**3**	**3**								
	Ped. Exposure to Traffic LoS	**E**	**E**	**F**	**F**	-	-	-	-	-	-	-	-
	Cycle Length	35	35	66	66								
	Effective Walk Time	28	28	19	19								
	Average Pedestrian Delay	**1**	**1**	**17**	**17**								
	Pedestrian Delay LoS	**A**	**A**	**B**	**B**	-	-	-	-	-	-	-	-
	Level of Service	**E**	**E**	**F**	**F**	-	-	-	-	-	-	-	-
		F				**-**				**-**			
Approach From		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Pocket Bike Lane	Pocket Bike Lane								
	Right Turn Lane Configuration	≤ 50 m	≤ 50 m	> 50 m Introduced right turn lane	> 50 m Introduced right turn lane								
	Right Turning Speed	≤ 25 km/h	≤ 25 km/h	>25 to 30 km/h	>25 to 30 km/h								
	Cyclist relative to RT motorists	**D**	**D**	**D**	**D**	-	-	-	-	-	-	-	-
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**	-	-	-	-	-	-	-	-
	Left Turn Approach	One lane crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed								
	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h	≥ 60 km/h								
	Left Turning Cyclist	**D**	**D**	**F**	**F**	-	-	-	-	-	-	-	-
	Level of Service	**D**	**D**	**F**	**F**	-	-	-	-	-	-	-	-
		F				**-**				**-**			
Transit	Average Signal Delay	> 40 sec	≤ 30 sec	> 40 sec	≤ 20 sec								
	Level of Service	**F**	**D**	**F**	**C**	-	-	-	-	-	-	-	-
		F				**-**				**-**			
Truck	Effective Corner Radius	> 15 m	> 15 m	> 15 m	> 15 m								
	Number of Receiving Lanes on Departure from Intersection	≥ 2	≥ 2	≥ 2	≥ 2								
	Level of Service	**A**	**A**	**A**	**A**	-	-	-	-	-	-	-	-
		A				**-**				**-**			
Auto	Volume to Capacity Ratio												
	Level of Service	**-**				**-**				**-**			

Appendix K

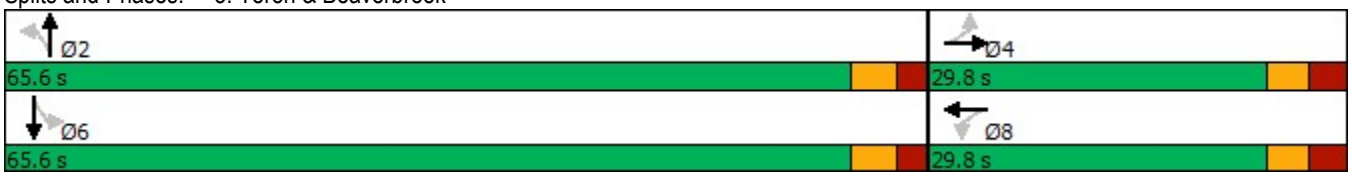
SYNCHRO Capacity Analysis: Background Conditions

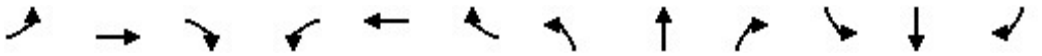
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	4	191	22	2	34	102	287	4	15	151	38
Future Volume (vph)	146	4	191	22	2	34	102	287	4	15	151	38
Satd. Flow (prot)	1695	1522	0	1695	1531	0	1695	1781	0	1695	1731	0
Flt Permitted	0.734			0.635			0.639			0.528		
Satd. Flow (perm)	1310	1522	0	1133	1531	0	1140	1781	0	942	1731	0
Satd. Flow (RTOR)		191			34			1			26	
Lane Group Flow (vph)	146	195	0	22	36	0	102	291	0	15	189	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		25.6	25.6		25.6	25.6	
Total Split (s)	29.8	29.8		29.8	29.8		65.6	65.6		65.6	65.6	
Total Split (%)	31.2%	31.2%		31.2%	31.2%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Act Effct Green (s)	24.1	24.1		24.1	24.1		13.5	13.5		13.5	13.5	
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.28	0.28		0.28	0.28	
v/c Ratio	0.23	0.23		0.04	0.05		0.33	0.60		0.06	0.38	
Control Delay	9.3	2.6		8.0	3.9		17.0	20.7		13.0	14.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.3	2.6		8.0	3.9		17.0	20.7		13.0	14.5	
LOS	A	A		A	A		B	C		B	B	
Approach Delay		5.5			5.5			19.7			14.4	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	6.3	0.2		0.9	0.1		7.0	21.5		0.9	11.2	
Queue Length 95th (m)	17.7	8.6		4.2	3.7		16.3	39.5		4.0	23.6	
Internal Link Dist (m)		594.0			268.4			124.5			613.0	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	644	845		557	770		1140	1781		942	1731	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.23		0.04	0.05		0.09	0.16		0.02	0.11	

Intersection Summary
Cycle Length: 95.4
Actuated Cycle Length: 49
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.60

Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 58.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Teron & Beaverbrook





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	479	284	13	34	41	23	36	1789	199	49	759	182
Future Volume (vph)	479	284	13	34	41	23	36	1789	199	49	759	182
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.589			0.353			0.318			0.056		
Satd. Flow (perm)	1051	1784	1517	630	1784	1517	567	3390	1517	100	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	479	284	13	34	41	23	36	1789	199	49	759	182
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	12.0	38.0		12.0	38.0		12.0	68.0		12.0	68.0	
Total Split (%)	9.2%	29.2%		9.2%	29.2%		9.2%	52.3%		9.2%	52.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.6		6.1	6.6		6.4	6.3		6.4	6.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	29.4	25.3	130.0	25.6	21.4	130.0	79.1	74.2	130.0	80.8	76.9	130.0
Actuated g/C Ratio	0.23	0.19	1.00	0.20	0.16	1.00	0.61	0.57	1.00	0.62	0.59	1.00
v/c Ratio	1.72	0.82	0.01	0.20	0.14	0.02	0.09	0.93	0.13	0.35	0.38	0.12
Control Delay	369.7	68.6	0.0	35.0	43.1	0.0	11.8	37.4	0.2	19.7	17.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	369.7	68.6	0.0	35.0	43.1	0.0	11.8	37.4	0.2	19.7	17.6	0.2
LOS	F	E	A	C	D	A	B	D	A	B	B	A
Approach Delay		253.3			30.2			33.3			14.5	
Approach LOS		F			C			C			B	
Queue Length 50th (m)	~177.7	70.0	0.0	6.3	8.7	0.0	3.5	~260.7	0.0	4.8	62.8	0.0
Queue Length 95th (m)	#230.8	96.6	0.0	13.5	17.7	0.0	8.8	#318.0	0.0	12.4	84.4	0.0
Internal Link Dist (m)		42.6			349.6			93.8			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	278	430	1517	172	430	1517	398	1934	1517	140	2004	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.72	0.66	0.01	0.20	0.10	0.02	0.09	0.93	0.13	0.35	0.38	0.12

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.72

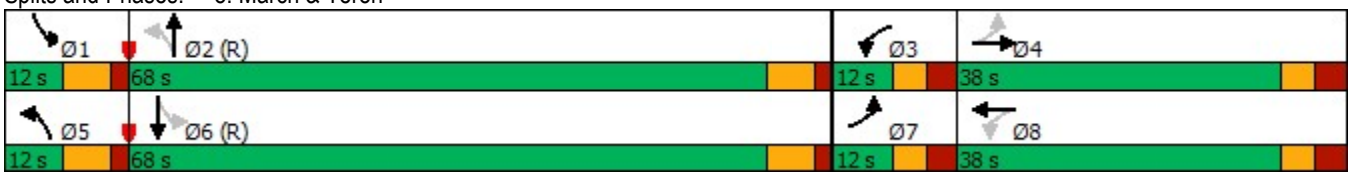
Intersection Signal Delay: 72.3	Intersection LOS: E
Intersection Capacity Utilization 97.6%	ICU Level of Service F
Analysis Period (min) 15	

Description: NOTE: March Road treated as north-south

~ 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: 8: March & Teron



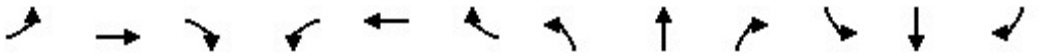
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	44	37	863	127	62
Future Vol, veh/h	91	44	37	863	127	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	44	37	863	127	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	546	127	127	0	-	0
Stage 1	127	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	509	923	1458	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	484	923	1458	-	-	-
Mov Cap-2 Maneuver	484	-	-	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	598	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1458	-	484	923	-	-
HCM Lane V/C Ratio	0.025	-	0.188	0.048	-	-
HCM Control Delay (s)	7.5	0.1	14.2	9.1	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.1	-	-

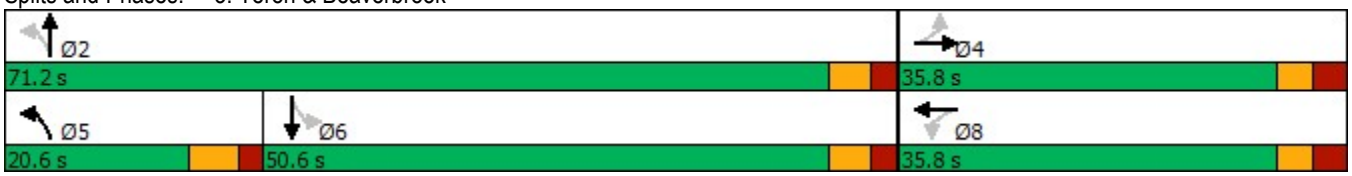


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	6	140	22	11	16	204	165	30	31	437	125
Future Volume (vph)	65	6	140	22	11	16	204	165	30	31	437	125
Satd. Flow (prot)	1695	1527	0	1695	1626	0	1695	1743	0	1695	1725	0
Flt Permitted	0.740			0.660			0.141			0.635		
Satd. Flow (perm)	1320	1527	0	1178	1626	0	252	1743	0	1133	1725	0
Satd. Flow (RTOR)		140			16			16			17	
Lane Group Flow (vph)	65	146	0	22	27	0	204	195	0	31	562	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		11.0	25.6		25.6	25.6	
Total Split (s)	35.8	35.8		35.8	35.8		20.6	71.2		50.6	50.6	
Total Split (%)	33.5%	33.5%		33.5%	33.5%		19.3%	66.5%		47.3%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.0	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		6.0	5.6		5.6	5.6	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	Max	Max		Max	Max		Max	Min		Min	Min	
Act Effct Green (s)	30.2	30.2		30.2	30.2		55.9	56.3		35.6	35.6	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.57	0.57		0.36	0.36	
v/c Ratio	0.16	0.26		0.06	0.05		0.57	0.19		0.08	0.88	
Control Delay	28.9	7.0		27.8	16.9		18.5	9.3		19.7	44.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	7.0		27.8	16.9		18.5	9.3		19.7	44.5	
LOS	C	A		C	B		B	A		B	D	
Approach Delay		13.7			21.8			14.0			43.2	
Approach LOS		B			C			B			D	
Queue Length 50th (m)	9.1	0.8		3.0	1.5		17.6	14.9		3.8	95.2	
Queue Length 95th (m)	21.3	15.2		9.5	8.2		35.3	24.9		9.6	138.7	
Internal Link Dist (m)		594.0			268.4			124.5			613.0	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	406	567		363	512		360	1179		523	806	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.26		0.06	0.05		0.57	0.17		0.06	0.70	

Intersection Summary
Cycle Length: 107
Actuated Cycle Length: 98
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.88

Intersection Signal Delay: 28.1 Intersection LOS: C
Intersection Capacity Utilization 77.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Teron & Beaverbrook



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	54	40	153	180	50	51	1100	20	11	1815	459
Future Volume (vph)	228	54	40	153	180	50	51	1100	20	11	1815	459
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.565			0.586			0.056			0.191		
Satd. Flow (perm)	1008	1784	1517	1046	1784	1517	100	3390	1517	341	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	228	54	40	153	180	50	51	1100	20	11	1815	459
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	17.0	35.0		17.0	35.0		12.0	66.0		12.0	66.0	
Total Split (%)	13.1%	26.9%		13.1%	26.9%		9.2%	50.8%		9.2%	50.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.6		6.1	6.6		6.4	6.3		6.4	6.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	27.3	18.0	130.0	31.0	18.4	130.0	79.9	76.7	130.0	75.3	70.6	130.0
Actuated g/C Ratio	0.21	0.14	1.00	0.24	0.14	1.00	0.61	0.59	1.00	0.58	0.54	1.00
v/c Ratio	0.85	0.22	0.03	0.48	0.72	0.03	0.34	0.55	0.01	0.04	0.99	0.30
Control Delay	70.2	49.6	0.0	42.3	68.6	0.0	18.3	19.4	0.0	11.3	48.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	49.6	0.0	42.3	68.6	0.0	18.3	19.4	0.0	11.3	48.3	0.5
LOS	E	D	A	D	E	A	B	B	A	B	D	A
Approach Delay		58.0			49.1			19.0			38.5	
Approach LOS		E			D			B			D	
Queue Length 50th (m)	49.0	12.4	0.0	31.3	44.6	0.0	4.7	76.6	0.0	1.0	~258.9	0.0
Queue Length 95th (m)	68.8	23.6	0.0	46.8	65.5	0.0	12.4	135.5	0.0	3.8	#331.9	0.0
Internal Link Dist (m)		42.6			349.6			93.8			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	269	389	1517	322	389	1517	148	1998	1517	259	1842	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.14	0.03	0.48	0.46	0.03	0.34	0.55	0.01	0.04	0.99	0.30

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 121 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 35.5	Intersection LOS: D
Intersection Capacity Utilization 92.1%	ICU Level of Service F
Analysis Period (min) 15	

Description: OTE: March Road treated as north-south

~ 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: 8: March & Teron

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	68	25	174	531	166
Future Vol, veh/h	116	68	25	174	531	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	68	25	174	531	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	651	531	531	0	-	0
Stage 1	531	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	447	547	1034	-	-	-
Stage 1	570	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	435	547	1034	-	-	-
Mov Cap-2 Maneuver	435	-	-	-	-	-
Stage 1	555	-	-	-	-	-
Stage 2	853	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	1.2	0
HCM LOS	B		

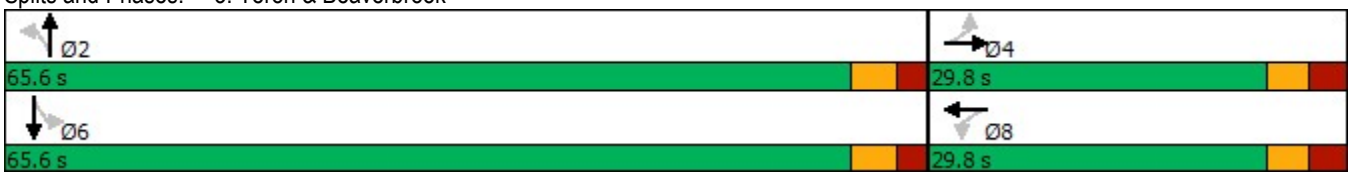
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1034	-	435	547	-	-
HCM Lane V/C Ratio	0.024	-	0.267	0.124	-	-
HCM Control Delay (s)	8.6	0.1	16.3	12.5	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	4	191	22	2	34	102	314	4	15	165	38
Future Volume (vph)	146	4	191	22	2	34	102	314	4	15	165	38
Satd. Flow (prot)	1695	1522	0	1695	1531	0	1695	1781	0	1695	1734	0
Flt Permitted	0.734			0.635			0.630			0.487		
Satd. Flow (perm)	1310	1522	0	1133	1531	0	1124	1781	0	869	1734	0
Satd. Flow (RTOR)		191			34			1			23	
Lane Group Flow (vph)	146	195	0	22	36	0	102	318	0	15	203	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		25.6	25.6		25.6	25.6	
Total Split (s)	29.8	29.8		29.8	29.8		65.6	65.6		65.6	65.6	
Total Split (%)	31.2%	31.2%		31.2%	31.2%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Act Effct Green (s)	24.1	24.1		24.1	24.1		14.2	14.2		14.2	14.2	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.29	0.29		0.29	0.29	
v/c Ratio	0.23	0.23		0.04	0.05		0.32	0.63		0.06	0.40	
Control Delay	9.8	2.7		8.5	4.1		16.5	21.2		12.9	14.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.8	2.7		8.5	4.1		16.5	21.2		12.9	14.8	
LOS	A	A		A	A		B	C		B	B	
Approach Delay		5.8			5.7			20.1			14.7	
Approach LOS		A			A			C			B	
Queue Length 50th (m)	6.6	0.2		0.9	0.1		7.0	23.9		1.0	12.5	
Queue Length 95th (m)	18.4	8.9		4.3	3.9		16.3	43.1		4.0	25.5	
Internal Link Dist (m)		594.0			268.4			124.5			613.0	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	634	836		548	759		1124	1781		869	1734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.23		0.04	0.05		0.09	0.18		0.02	0.12	

Intersection Summary
Cycle Length: 95.4
Actuated Cycle Length: 49.7
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Teron & Beaverbrook



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	479	310	13	34	45	23	36	1953	199	49	828	182
Future Volume (vph)	479	310	13	34	45	23	36	1953	199	49	828	182
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.586			0.314			0.285			0.056		
Satd. Flow (perm)	1046	1784	1517	560	1784	1517	509	3390	1517	100	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	479	310	13	34	45	23	36	1953	199	49	828	182
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	12.0	38.0		12.0	38.0		12.0	68.0		12.0	68.0	
Total Split (%)	9.2%	29.2%		9.2%	29.2%		9.2%	52.3%		9.2%	52.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.6		6.1	6.6		6.4	6.3		6.4	6.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	30.7	26.7	130.0	26.7	22.5	130.0	77.9	73.1	130.0	79.3	75.7	130.0
Actuated g/C Ratio	0.24	0.21	1.00	0.21	0.17	1.00	0.60	0.56	1.00	0.61	0.58	1.00
v/c Ratio	1.65	0.85	0.01	0.21	0.15	0.02	0.10	1.02	0.13	0.36	0.42	0.12
Control Delay	339.8	70.2	0.0	34.4	42.4	0.0	12.3	57.0	0.2	20.8	18.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	339.8	70.2	0.0	34.4	42.4	0.0	12.3	57.0	0.2	20.8	18.7	0.2
LOS	F	E	A	C	D	A	B	E	A	C	B	A
Approach Delay		230.1			30.2			51.1			15.6	
Approach LOS		F			C			D			B	
Queue Length 50th (m)	~174.1	76.4	0.0	6.2	9.4	0.0	3.6	~313.3	0.0	5.0	72.6	0.0
Queue Length 95th (m)	#231.1	106.1	0.0	13.5	19.2	0.0	8.8	#363.4	0.0	12.4	93.9	0.0
Internal Link Dist (m)		42.6			349.6			93.8			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	290	430	1517	166	430	1517	359	1906	1517	135	1974	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.65	0.72	0.01	0.20	0.10	0.02	0.10	1.02	0.13	0.36	0.42	0.12

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.65

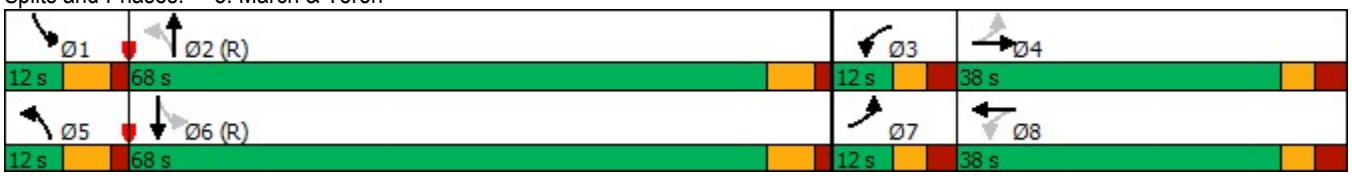
Intersection Signal Delay: 76.1	Intersection LOS: E
Intersection Capacity Utilization 102.4%	ICU Level of Service G
Analysis Period (min) 15	

Description: Note: March Road treated as north-south

~ 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: 8: March & Teron



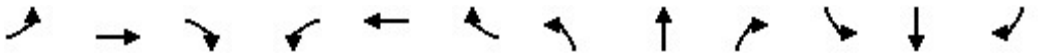
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	44	37	863	139	62
Future Vol, veh/h	91	44	37	863	139	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	44	37	863	139	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	558	139	139	0	-	0
Stage 1	139	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	501	909	1443	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	476	909	1443	-	-	-
Mov Cap-2 Maneuver	476	-	-	-	-	-
Stage 1	811	-	-	-	-	-
Stage 2	598	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1443	-	476	909	-	-
HCM Lane V/C Ratio	0.026	-	0.191	0.048	-	-
HCM Control Delay (s)	7.6	0.1	14.3	9.2	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.2	-	-

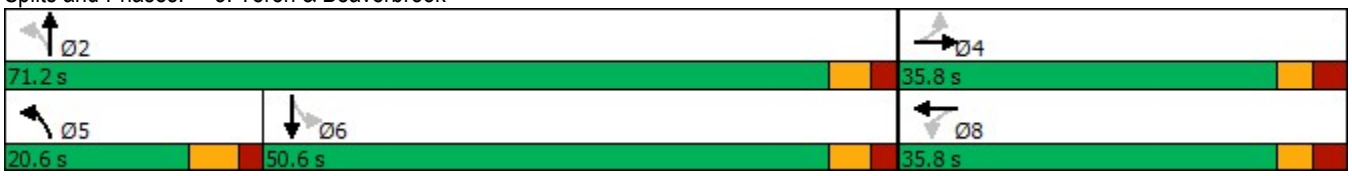


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	6	140	22	11	16	204	181	30	31	478	125
Future Volume (vph)	65	6	140	22	11	16	204	181	30	31	478	125
Satd. Flow (prot)	1695	1527	0	1695	1626	0	1695	1747	0	1695	1729	0
Flt Permitted	0.740			0.655			0.123			0.626		
Satd. Flow (perm)	1320	1527	0	1169	1626	0	219	1747	0	1117	1729	0
Satd. Flow (RTOR)		140			16			14			15	
Lane Group Flow (vph)	65	146	0	22	27	0	204	211	0	31	603	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		11.0	25.6		25.6	25.6	
Total Split (s)	35.8	35.8		35.8	35.8		20.6	71.2		50.6	50.6	
Total Split (%)	33.5%	33.5%		33.5%	33.5%		19.3%	66.5%		47.3%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.0	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		6.0	5.6		5.6	5.6	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	Max	Max		Max	Max		Max	Min		Min	Min	
Act Effct Green (s)	30.2	30.2		30.2	30.2		58.6	59.0		38.2	38.2	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.58	0.59		0.38	0.38	
v/c Ratio	0.16	0.26		0.06	0.05		0.60	0.21		0.07	0.91	
Control Delay	29.8	7.1		28.5	17.2		21.6	9.4		19.5	47.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.8	7.1		28.5	17.2		21.6	9.4		19.5	47.1	
LOS	C	A		C	B		C	A		B	D	
Approach Delay		14.0			22.3			15.4			45.7	
Approach LOS		B			C			B			D	
Queue Length 50th (m)	9.7	0.9		3.2	1.6		17.6	16.6		3.8	106.4	
Queue Length 95th (m)	21.3	15.2		9.5	8.2		39.6	27.3		9.7	#165.7	
Internal Link Dist (m)		594.0			268.4			124.5			613.0	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	395	555		350	498		342	1150		502	785	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.26		0.06	0.05		0.60	0.18		0.06	0.77	

Intersection Summary
Cycle Length: 107
Actuated Cycle Length: 100.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.91

Intersection Signal Delay: 30.1 Intersection LOS: C
Intersection Capacity Utilization 80.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Teron & Beaverbrook



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	59	40	153	197	50	51	1202	20	11	1981	459
Future Volume (vph)	228	59	40	153	197	50	51	1202	20	11	1981	459
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.525			0.584			0.057			0.154		
Satd. Flow (perm)	937	1784	1517	1042	1784	1517	102	3390	1517	275	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	228	59	40	153	197	50	51	1202	20	11	1981	459
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	17.0	35.0		17.0	35.0		12.0	66.0		12.0	66.0	
Total Split (%)	13.1%	26.9%		13.1%	26.9%		9.2%	50.8%		9.2%	50.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.6		6.1	6.6		6.4	6.3		6.4	6.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	28.3	19.0	130.0	32.2	19.6	130.0	78.4	75.4	130.0	74.4	69.7	130.0
Actuated g/C Ratio	0.22	0.15	1.00	0.25	0.15	1.00	0.60	0.58	1.00	0.57	0.54	1.00
v/c Ratio	0.85	0.23	0.03	0.46	0.74	0.03	0.35	0.61	0.01	0.05	1.09	0.30
Control Delay	70.1	48.7	0.0	40.8	68.3	0.0	19.3	21.5	0.0	12.0	80.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.1	48.7	0.0	40.8	68.3	0.0	19.3	21.5	0.0	12.0	80.9	0.5
LOS	E	D	A	D	E	A	B	C	A	B	F	A
Approach Delay		57.7			49.3			21.1			65.5	
Approach LOS		E			D			C			E	
Queue Length 50th (m)	48.4	13.4	0.0	30.9	48.9	0.0	4.8	90.1	0.0	1.0	~309.8	0.0
Queue Length 95th (m)	67.5	24.9	0.0	46.0	70.6	0.0	12.7	157.9	0.0	3.9	#378.3	0.0
Internal Link Dist (m)		42.6			349.6			93.8			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	267	389	1517	332	389	1517	145	1966	1517	222	1816	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.15	0.03	0.46	0.51	0.03	0.35	0.61	0.01	0.05	1.09	0.30

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 121 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 50.8	Intersection LOS: D
Intersection Capacity Utilization 97.9%	ICU Level of Service F
Analysis Period (min) 15	

Description: Note: March Road treated as north-south

~ 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: 8: March & Teron

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	68	25	190	581	166
Future Vol, veh/h	116	68	25	190	581	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	68	25	190	581	166

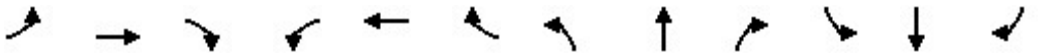
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	707	581	581	0	-	0
Stage 1	581	-	-	-	-	-
Stage 2	126	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	417	513	991	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	405	513	991	-	-	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	526	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	991	-	405	513	-	-
HCM Lane V/C Ratio	0.025	-	0.286	0.133	-	-
HCM Control Delay (s)	8.7	0.1	17.4	13.1	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.2	0.5	-	-

Appendix L

SYNCHRO Capacity Analysis: Future Projected Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	488	284	13	34	41	23	42	1789	199	49	763	182
Future Volume (vph)	488	284	13	34	41	23	42	1789	199	49	763	182
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.606			0.429			0.298			0.056		
Satd. Flow (perm)	1081	1784	1517	765	1784	1517	532	3390	1517	100	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	488	284	13	34	41	23	42	1789	199	49	763	182
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	18.0	40.5		12.1	34.6		11.4	66.0		11.4	66.0	
Total Split (%)	13.8%	31.2%		9.3%	26.6%		8.8%	50.8%		8.8%	50.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	-2.1	-2.6		-2.1	-2.6		-2.4	-2.3		-2.4	-2.3	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	36.8	29.6	130.0	26.4	20.9	130.0	81.9	74.9	130.0	82.1	75.0	130.0
Actuated g/C Ratio	0.28	0.23	1.00	0.20	0.16	1.00	0.63	0.58	1.00	0.63	0.58	1.00
v/c Ratio	1.29	0.70	0.01	0.16	0.14	0.02	0.10	0.92	0.13	0.29	0.39	0.12
Control Delay	186.4	55.3	0.0	31.6	44.5	0.0	11.4	36.1	0.2	15.9	18.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	186.4	55.3	0.0	31.6	44.5	0.0	11.4	36.1	0.2	15.9	18.2	0.2
LOS	F	E	A	C	D	A	B	D	A	B	B	A
Approach Delay		135.9			29.6			32.0			14.8	
Approach LOS		F			C			C			B	
Queue Length 50th (m)	~152.1	68.0	0.0	6.1	9.0	0.0	3.9	~240.3	0.0	4.5	61.1	0.0
Queue Length 95th (m)	#200.3	91.4	0.0	12.7	17.9	0.0	9.9	#317.0	0.0	11.9	84.6	0.0
Internal Link Dist (m)		42.6			349.6			159.0			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	378	500	1517	213	419	1517	411	1953	1517	169	1956	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.57	0.01	0.16	0.10	0.02	0.10	0.92	0.13	0.29	0.39	0.12

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.29

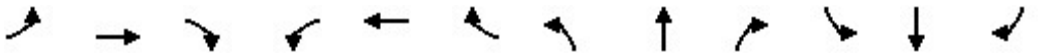
Intersection Signal Delay: 48.5	Intersection LOS: D
Intersection Capacity Utilization 94.1%	ICU Level of Service F
Analysis Period (min) 15	

Description: Note: March Treated as north south

~ 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: 1: March & Teron

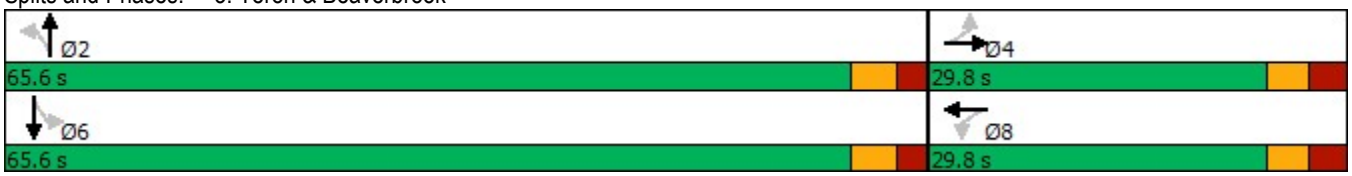


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	4	191	22	2	34	102	293	4	15	154	38
Future Volume (vph)	146	4	191	22	2	34	102	293	4	15	154	38
Satd. Flow (prot)	1695	1522	0	1695	1531	0	1695	1781	0	1695	1731	0
Flt Permitted	0.734			0.635			0.635			0.476		
Satd. Flow (perm)	1310	1522	0	1133	1531	0	1133	1781	0	849	1731	0
Satd. Flow (RTOR)		191			34			1			26	
Lane Group Flow (vph)	146	195	0	22	36	0	102	297	0	15	192	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		25.6	25.6		25.6	25.6	
Total Split (s)	29.8	29.8		29.8	29.8		65.6	65.6		65.6	65.6	
Total Split (%)	31.2%	31.2%		31.2%	31.2%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.8	-1.8		-1.8	-1.8		-1.6	-1.6		-1.6	-1.6	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Act Effct Green (s)	25.9	25.9		25.9	25.9		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31		0.31	0.31	
v/c Ratio	0.21	0.22		0.04	0.04		0.29	0.54		0.06	0.35	
Control Delay	8.2	2.3		7.1	3.5		15.0	17.8		11.9	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.2	2.3		7.1	3.5		15.0	17.8		11.9	12.9	
LOS	A	A		A	A		B	B		B	B	
Approach Delay		4.8			4.9			17.1			12.8	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	5.8	0.2		0.8	0.1		6.6	20.8		0.9	10.8	
Queue Length 95th (m)	16.5	8.1		3.9	3.5		15.5	37.9		3.8	22.6	
Internal Link Dist (m)		594.0			268.4			124.5			518.6	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	690	892		596	822		1133	1781		849	1731	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.22		0.04	0.04		0.09	0.17		0.02	0.11	

Intersection Summary
Cycle Length: 95.4
Actuated Cycle Length: 49.2
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.54

Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 54.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Teron & Beaverbrook



Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	44	37	872	133	62
Future Vol, veh/h	91	44	37	872	133	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	44	37	872	133	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	556	133	133	0	-	0
Stage 1	133	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	503	916	1451	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	595	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	478	916	1451	-	-	-
Mov Cap-2 Maneuver	478	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1451	-	478	916	-	-
HCM Lane V/C Ratio	0.025	-	0.19	0.048	-	-
HCM Control Delay (s)	7.5	0.1	14.3	9.1	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	22	0	2049	810	4
Future Vol, veh/h	0	22	0	2049	810	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	0	2049	810	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	407	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	593	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	593	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	593	-	-
HCM Lane V/C Ratio	-	0.037	-	-
HCM Control Delay (s)	-	11.3	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

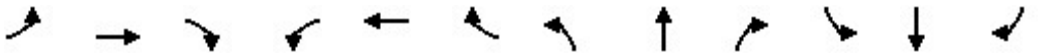
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	9	900	6	6	175
Future Vol, veh/h	3	9	900	6	6	175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	9	900	6	6	175

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1090	903	0	0	906	0
Stage 1	903	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	238	336	-	-	751	-
Stage 1	396	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	236	336	-	-	751	-
Mov Cap-2 Maneuver	236	-	-	-	-	-
Stage 1	392	-	-	-	-	-
Stage 2	845	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	304	751	-
HCM Lane V/C Ratio	-	-	0.039	0.008	-
HCM Control Delay (s)	-	-	17.3	9.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	54	40	153	180	50	65	1100	20	11	1827	459
Future Volume (vph)	236	54	40	153	180	50	65	1100	20	11	1827	459
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.471			0.626			0.053			0.194		
Satd. Flow (perm)	840	1784	1517	1117	1784	1517	95	3390	1517	346	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	236	54	40	153	180	50	65	1100	20	11	1827	459
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	15.0	35.6		14.0	34.6		11.4	69.0		11.4	69.0	
Total Split (%)	11.5%	27.4%		10.8%	26.6%		8.8%	53.1%		8.8%	53.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	-2.1	-2.6		-2.1	-2.6		-2.4	-2.3		-2.4	-2.3	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	29.9	21.4	130.0	31.9	20.9	130.0	85.2	81.0	130.0	81.6	75.0	130.0
Actuated g/C Ratio	0.23	0.16	1.00	0.25	0.16	1.00	0.66	0.62	1.00	0.63	0.58	1.00
v/c Ratio	0.89	0.18	0.03	0.46	0.63	0.03	0.36	0.52	0.01	0.04	0.94	0.30
Control Delay	76.4	45.9	0.0	41.7	60.1	0.0	18.6	16.5	0.0	9.4	37.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.4	45.9	0.0	41.7	60.1	0.0	18.6	16.5	0.0	9.4	37.1	0.5
LOS	E	D	A	D	E	A	B	B	A	A	D	A
Approach Delay		62.2			44.9			16.4			29.7	
Approach LOS		E			D			B			C	
Queue Length 50th (m)	50.9	12.0	0.0	31.3	43.5	0.0	5.4	68.8	0.0	0.9	227.2	0.0
Queue Length 95th (m)	#72.8	22.8	0.0	46.8	63.8	0.0	17.1	125.8	0.0	3.5	#316.3	0.0
Internal Link Dist (m)		42.6			349.6			159.0			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	265	433	1517	336	419	1517	179	2112	1517	302	1954	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.12	0.03	0.46	0.43	0.03	0.36	0.52	0.01	0.04	0.94	0.30

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

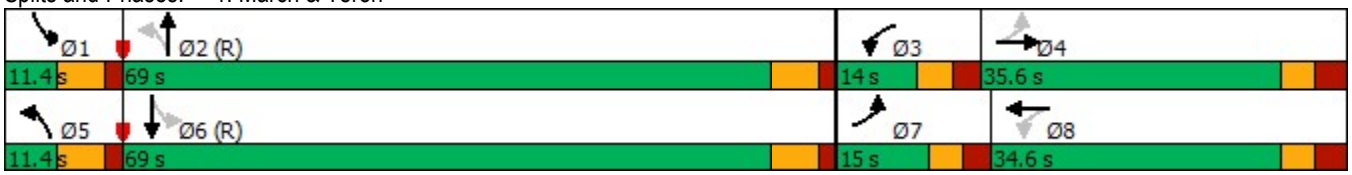
Maximum v/c Ratio: 0.94

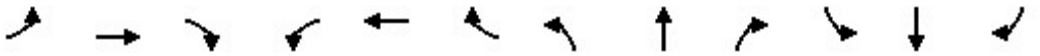
Intersection Signal Delay: 29.9	Intersection LOS: C
Intersection Capacity Utilization 90.8%	ICU Level of Service E
Analysis Period (min) 15	

Description: Note: March Treated as north south

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

Splits and Phases: 1: March & Teron



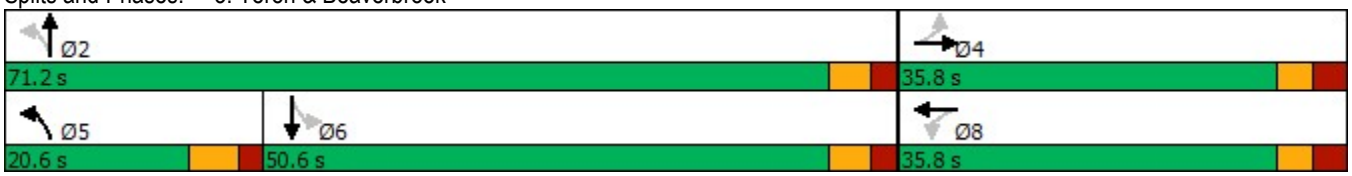


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	6	140	22	11	16	204	185	30	31	442	125
Future Volume (vph)	65	6	140	22	11	16	204	185	30	31	442	125
Satd. Flow (prot)	1695	1527	0	1695	1626	0	1695	1747	0	1695	1725	0
Flt Permitted	0.740			0.631			0.146			0.624		
Satd. Flow (perm)	1320	1527	0	1126	1626	0	261	1747	0	1113	1725	0
Satd. Flow (RTOR)		140			16			15			17	
Lane Group Flow (vph)	65	146	0	22	27	0	204	215	0	31	567	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		11.0	25.6		25.6	25.6	
Total Split (s)	35.8	35.8		35.8	35.8		20.6	71.2		50.6	50.6	
Total Split (%)	33.5%	33.5%		33.5%	33.5%		19.3%	66.5%		47.3%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.0	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.8	-1.8		-1.8	-1.8		-2.0	-1.6		-1.6	-1.6	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	Max	Max		Max	Max		None	Min		Min	Min	
Act Effct Green (s)	32.2	32.2		32.2	32.2		55.4	55.4		36.0	36.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.58	0.58		0.38	0.38	
v/c Ratio	0.15	0.24		0.06	0.05		0.54	0.21		0.07	0.86	
Control Delay	27.0	6.5		26.3	16.0		16.3	9.0		18.8	40.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.0	6.5		26.3	16.0		16.3	9.0		18.8	40.6	
LOS	C	A		C	B		B	A		B	D	
Approach Delay		12.8			20.6			12.6			39.5	
Approach LOS		B			C			B			D	
Queue Length 50th (m)	8.6	0.8		2.8	1.4		16.6	16.1		3.7	93.8	
Queue Length 95th (m)	20.7	14.8		9.3	8.0		32.6	26.5		9.4	136.6	
Internal Link Dist (m)		594.0			268.4			124.5			518.6	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	444	606		379	558		402	1246		548	859	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.24		0.06	0.05		0.51	0.17		0.06	0.66	

Intersection Summary
Cycle Length: 107
Actuated Cycle Length: 95.7
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 73.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Teron & Beaverbrook



Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	68	25	182	545	166
Future Vol, veh/h	116	68	25	182	545	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	68	25	182	545	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	668	545	545	0	-	0
Stage 1	545	-	-	-	-	-
Stage 2	123	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	438	537	1022	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	426	537	1022	-	-	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	850	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1022	-	426	537	-	-
HCM Lane V/C Ratio	0.024	-	0.272	0.127	-	-
HCM Control Delay (s)	8.6	0.1	16.6	12.7	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	0.4	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	0	1191	2020	15
Future Vol, veh/h	0	23	0	1191	2020	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	23	0	1191	2020	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1018	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	235	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	235	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	235	-	-
HCM Lane V/C Ratio	-	0.098	-	-
HCM Control Delay (s)	-	22	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

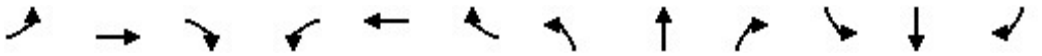
Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	9	200	21	15	604
Future Vol, veh/h	6	9	200	21	15	604
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	9	200	21	15	604

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	845	211	0	0	221	0
Stage 1	211	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	333	829	-	-	1348	-
Stage 1	824	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	327	829	-	-	1348	-
Mov Cap-2 Maneuver	327	-	-	-	-	-
Stage 1	810	-	-	-	-	-
Stage 2	529	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	514	1348	-
HCM Lane V/C Ratio	-	-	0.029	0.011	-
HCM Control Delay (s)	-	-	12.2	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	488	310	13	34	45	23	42	1953	199	49	832	182
Future Volume (vph)	488	310	13	34	45	23	42	1953	199	49	832	182
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.611			0.332			0.271			0.055		
Satd. Flow (perm)	1090	1784	1517	592	1784	1517	484	3390	1517	98	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	488	310	13	34	45	23	42	1953	199	49	832	182
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	15.0	38.5		11.1	34.6		11.4	69.0		11.4	69.0	
Total Split (%)	11.5%	29.6%		8.5%	26.6%		8.8%	53.1%		8.8%	53.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	-2.1	-2.6		-2.1	-2.6		-2.4	-2.3		-2.4	-2.3	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	36.2	29.6	130.0	27.0	22.4	130.0	82.5	75.9	130.0	82.6	75.9	130.0
Actuated g/C Ratio	0.28	0.23	1.00	0.21	0.17	1.00	0.63	0.58	1.00	0.64	0.58	1.00
v/c Ratio	1.34	0.77	0.01	0.19	0.15	0.02	0.11	0.99	0.13	0.30	0.42	0.12
Control Delay	206.8	59.4	0.0	32.8	43.1	0.0	11.0	46.1	0.2	16.1	18.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	206.8	59.4	0.0	32.8	43.1	0.0	11.0	46.1	0.2	16.1	18.0	0.2
LOS	F	E	A	C	D	A	B	D	A	B	B	A
Approach Delay		147.1			29.9			41.2			14.8	
Approach LOS		F			C			D			B	
Queue Length 50th (m)	~154.0	74.3	0.0	6.1	9.5	0.0	4.0	~301.2	0.0	4.6	69.2	0.0
Queue Length 95th (m)	#210.1	102.5	0.0	13.2	19.4	0.0	9.4	#351.4	0.0	11.6	89.6	0.0
Internal Link Dist (m)		42.6			349.6			159.0			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	364	473	1517	182	419	1517	383	1978	1517	163	1980	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.66	0.01	0.19	0.11	0.02	0.11	0.99	0.13	0.30	0.42	0.12

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.34

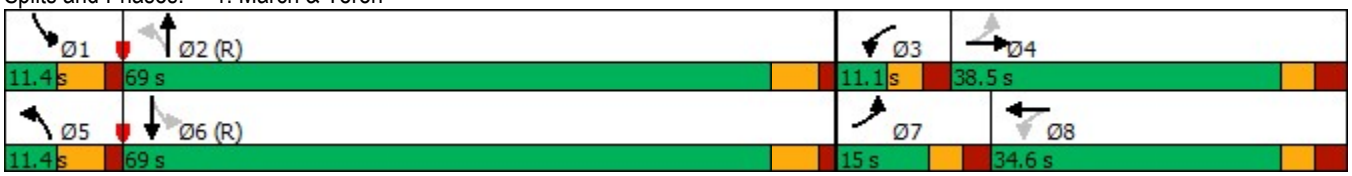
Intersection Signal Delay: 54.8	Intersection LOS: D
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

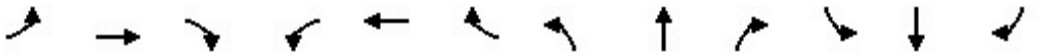
Description: Note: March Treated as north south

~ 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: 1: March & Teron



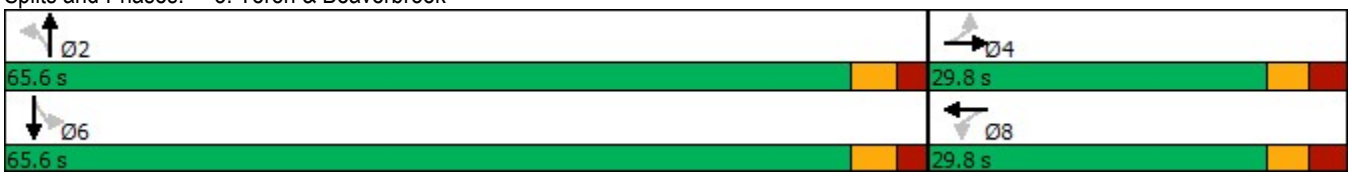


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	4	191	22	2	34	102	320	4	15	168	38
Future Volume (vph)	146	4	191	22	2	34	102	320	4	15	168	38
Satd. Flow (prot)	1695	1522	0	1695	1531	0	1695	1781	0	1695	1734	0
Flt Permitted	0.734			0.635			0.614			0.444		
Satd. Flow (perm)	1310	1522	0	1133	1531	0	1096	1781	0	792	1734	0
Satd. Flow (RTOR)		191			34			1			24	
Lane Group Flow (vph)	146	195	0	22	36	0	102	324	0	15	206	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		25.6	25.6		25.6	25.6	
Total Split (s)	29.8	29.8		29.8	29.8		65.6	65.6		65.6	65.6	
Total Split (%)	31.2%	31.2%		31.2%	31.2%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.8	-1.8		-1.8	-1.8		-1.6	-1.6		-1.6	-1.6	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Act Effct Green (s)	25.9	25.9		25.9	25.9		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.32	0.32		0.32	0.32	
v/c Ratio	0.22	0.22		0.04	0.04		0.29	0.56		0.06	0.36	
Control Delay	8.9	2.5		7.8	3.8		14.6	18.0		11.6	13.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.9	2.5		7.8	3.8		14.6	18.0		11.6	13.0	
LOS	A	A		A	A		B	B		B	B	
Approach Delay		5.2			5.3			17.2			12.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	6.1	0.2		0.8	0.1		6.6	23.2		0.9	11.9	
Queue Length 95th (m)	18.0	8.6		4.2	3.8		15.5	41.3		3.7	24.2	
Internal Link Dist (m)		594.0			268.4			124.5			518.6	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	677	879		586	808		1096	1781		792	1734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.22		0.04	0.04		0.09	0.18		0.02	0.12	

Intersection Summary
Cycle Length: 95.4
Actuated Cycle Length: 50.1
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.56

Intersection Signal Delay: 11.7 Intersection LOS: B
Intersection Capacity Utilization 55.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Teron & Beaverbrook



Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	44	37	872	145	62
Future Vol, veh/h	91	44	37	872	145	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	44	37	872	145	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	568	145	145	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	495	902	1436	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	595	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	470	902	1436	-	-	-
Mov Cap-2 Maneuver	470	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1436	-	470	902	-	-
HCM Lane V/C Ratio	0.026	-	0.194	0.049	-	-
HCM Control Delay (s)	7.6	0.1	14.5	9.2	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	22	0	2236	883	4
Future Vol, veh/h	0	22	0	2236	883	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	0	2236	883	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	444	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	561	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	561	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	561	-	-
HCM Lane V/C Ratio	-	0.039	-	-
HCM Control Delay (s)	-	11.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

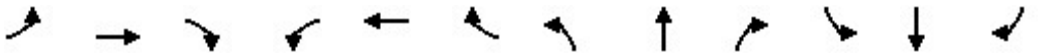
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	9	900	6	6	191
Future Vol, veh/h	3	9	900	6	6	191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	9	900	6	6	191

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1106	903	0	0	906	0
Stage 1	903	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	233	336	-	-	751	-
Stage 1	396	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	231	336	-	-	751	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	392	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.4	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	302	751	-
HCM Lane V/C Ratio	-	-	0.04	0.008	-
HCM Control Delay (s)	-	-	17.4	9.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	59	40	153	197	50	65	1202	20	11	1993	459
Future Volume (vph)	236	59	40	153	197	50	65	1202	20	11	1993	459
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.462			0.597			0.051			0.170		
Satd. Flow (perm)	824	1784	1517	1065	1784	1517	91	3390	1517	303	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	236	59	40	153	197	50	65	1202	20	11	1993	459
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	11.1	34.6		11.1	34.6		11.4	72.9		11.4	72.9	
Total Split (%)	8.5%	26.6%		8.5%	26.6%		8.8%	56.1%		8.8%	56.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	-2.1	-2.6		-2.1	-2.6		-2.4	-2.3		-2.4	-2.3	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	26.2	21.6	130.0	30.1	22.2	130.0	87.5	83.7	130.0	84.6	78.0	130.0
Actuated g/C Ratio	0.20	0.17	1.00	0.23	0.17	1.00	0.67	0.64	1.00	0.65	0.60	1.00
v/c Ratio	1.11	0.20	0.03	0.51	0.65	0.03	0.37	0.55	0.01	0.04	0.98	0.30
Control Delay	136.7	46.0	0.0	46.4	59.7	0.0	19.3	15.8	0.0	8.5	42.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	136.7	46.0	0.0	46.4	59.7	0.0	19.3	15.8	0.0	8.5	42.7	0.5
LOS	F	D	A	D	E	A	B	B	A	A	D	A
Approach Delay		104.4			47.2			15.7			34.7	
Approach LOS		F			D			B			C	
Queue Length 50th (m)	~53.3	13.1	0.0	32.2	47.6	0.0	5.1	73.1	0.0	0.8	~283.6	0.0
Queue Length 95th (m)	#91.1	24.2	0.0	48.2	68.7	0.0	17.6	136.9	0.0	3.3	#348.1	0.0
Internal Link Dist (m)		42.6			349.6			159.0			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	213	419	1517	299	419	1517	174	2182	1517	285	2033	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.14	0.03	0.51	0.47	0.03	0.37	0.55	0.01	0.04	0.98	0.30

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

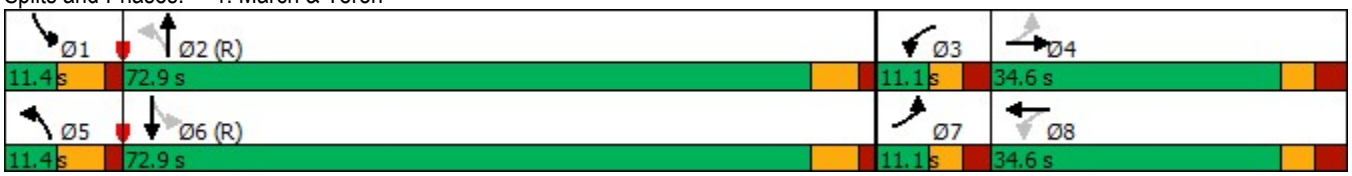
Intersection Signal Delay: 35.6	Intersection LOS: D
Intersection Capacity Utilization 92.9%	ICU Level of Service F
Analysis Period (min) 15	

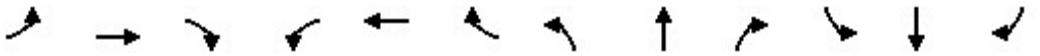
Description: Note: March Road treated as north south

~ 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: 1: March & Teron



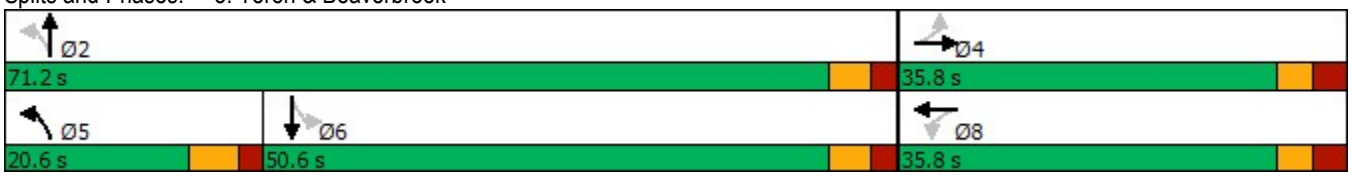


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	6	140	22	11	16	204	201	30	31	483	125
Future Volume (vph)	65	6	140	22	11	16	204	201	30	31	483	125
Satd. Flow (prot)	1695	1527	0	1695	1626	0	1695	1750	0	1695	1729	0
Flt Permitted	0.740			0.626			0.127			0.615		
Satd. Flow (perm)	1320	1527	0	1117	1626	0	227	1750	0	1097	1729	0
Satd. Flow (RTOR)		140			16			14			15	
Lane Group Flow (vph)	65	146	0	22	27	0	204	231	0	31	608	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		11.0	25.6		25.6	25.6	
Total Split (s)	35.8	35.8		35.8	35.8		20.6	71.2		50.6	50.6	
Total Split (%)	33.5%	33.5%		33.5%	33.5%		19.3%	66.5%		47.3%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.0	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.8	-1.8		-1.8	-1.8		-2.0	-1.6		-1.6	-1.6	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	Max	Max		Max	Max		None	Min		Min	Min	
Act Effct Green (s)	32.2	32.2		32.2	32.2		58.0	58.0		38.5	38.5	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.59	0.59		0.39	0.39	
v/c Ratio	0.15	0.25		0.06	0.05		0.56	0.22		0.07	0.89	
Control Delay	27.9	6.6		27.0	16.3		18.8	9.0		18.5	43.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.9	6.6		27.0	16.3		18.8	9.0		18.5	43.1	
LOS	C	A		C	B		B	A		B	D	
Approach Delay		13.2			21.1			13.6			41.9	
Approach LOS		B			C			B			D	
Queue Length 50th (m)	9.2	0.8		3.0	1.5		16.6	17.7		3.7	104.8	
Queue Length 95th (m)	20.7	14.8		9.3	8.0		37.0	28.5		9.4	152.0	
Internal Link Dist (m)		594.0			268.4			124.5			518.6	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	432	594		365	543		384	1215		526	837	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.25		0.06	0.05		0.53	0.19		0.06	0.73	

Intersection Summary
Cycle Length: 107
Actuated Cycle Length: 98.2
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.89

Intersection Signal Delay: 27.4 Intersection LOS: C
Intersection Capacity Utilization 76.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Teron & Beaverbrook



Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	68	25	198	595	166
Future Vol, veh/h	116	68	25	198	595	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	68	25	198	595	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	724	595	595	0	-	0
Stage 1	595	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	408	503	979	-	-	-
Stage 1	533	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	396	503	979	-	-	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	844	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	979	-	396	503	-	-
HCM Lane V/C Ratio	0.026	-	0.293	0.135	-	-
HCM Control Delay (s)	8.8	0.1	17.8	13.3	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.2	0.5	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	0	1299	2206	15
Future Vol, veh/h	0	23	0	1299	2206	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	23	0	1299	2206	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1111	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	204	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	204	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	204	-	-
HCM Lane V/C Ratio	-	0.113	-	-
HCM Control Delay (s)	-	24.9	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-

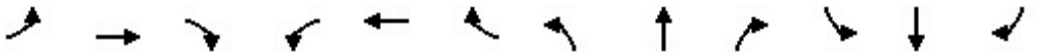
Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	9	218	21	15	660
Future Vol, veh/h	6	9	218	21	15	660
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	9	218	21	15	660

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	919	229	0	0	239	0
Stage 1	229	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	301	810	-	-	1328	-
Stage 1	809	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	296	810	-	-	1328	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	498	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	1328	-
HCM Lane V/C Ratio	-	-	0.031	0.011	-
HCM Control Delay (s)	-	-	12.8	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	310	13	34	45	23	42	1953	199	49	833	182
Future Volume (vph)	491	310	13	34	45	23	42	1953	199	49	833	182
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.611			0.332			0.270			0.055		
Satd. Flow (perm)	1090	1784	1517	592	1784	1517	482	3390	1517	98	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	491	310	13	34	45	23	42	1953	199	49	833	182
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	15.0	38.5		11.1	34.6		11.4	69.0		11.4	69.0	
Total Split (%)	11.5%	29.6%		8.5%	26.6%		8.8%	53.1%		8.8%	53.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	-2.1	-2.6		-2.1	-2.6		-2.4	-2.3		-2.4	-2.3	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	36.2	29.6	130.0	27.0	22.4	130.0	82.5	75.9	130.0	82.6	75.9	130.0
Actuated g/C Ratio	0.28	0.23	1.00	0.21	0.17	1.00	0.63	0.58	1.00	0.64	0.58	1.00
v/c Ratio	1.35	0.77	0.01	0.19	0.15	0.02	0.11	0.99	0.13	0.30	0.42	0.12
Control Delay	210.1	59.4	0.0	32.8	43.1	0.0	11.0	46.1	0.2	16.1	18.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	210.1	59.4	0.0	32.8	43.1	0.0	11.0	46.1	0.2	16.1	18.0	0.2
LOS	F	E	A	C	D	A	B	D	A	B	B	A
Approach Delay		149.4			29.9			41.2			14.8	
Approach LOS		F			C			D			B	
Queue Length 50th (m)	~155.6	74.3	0.0	6.1	9.5	0.0	4.0	~301.2	0.0	4.6	69.3	0.0
Queue Length 95th (m)	#212.2	102.5	0.0	13.2	19.4	0.0	9.4	#351.4	0.0	11.6	89.7	0.0
Internal Link Dist (m)		42.6			349.6			159.0			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	364	473	1517	182	419	1517	382	1978	1517	163	1980	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.66	0.01	0.19	0.11	0.02	0.11	0.99	0.13	0.30	0.42	0.12

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.35

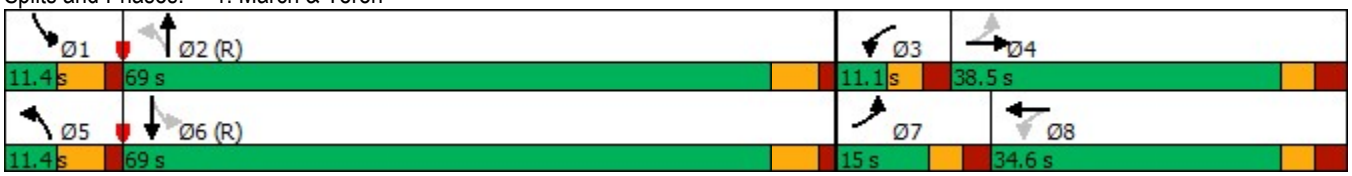
Intersection Signal Delay: 55.3	Intersection LOS: E
Intersection Capacity Utilization 99.0%	ICU Level of Service F
Analysis Period (min) 15	

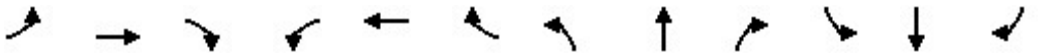
Description: Note: March treated as north-south

~ 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: 1: March & Teron



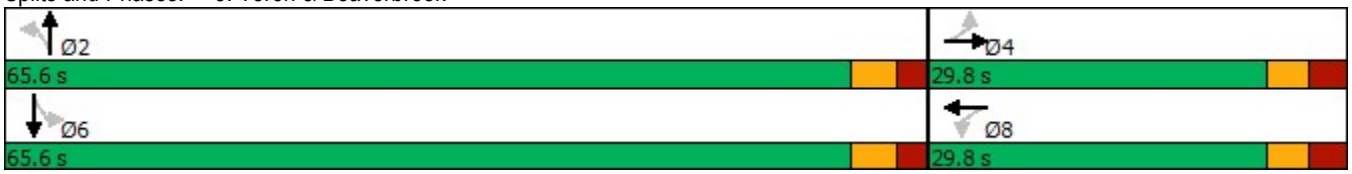


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	4	191	22	2	34	102	321	4	15	170	38
Future Volume (vph)	146	4	191	22	2	34	102	321	4	15	170	38
Satd. Flow (prot)	1695	1522	0	1695	1531	0	1695	1781	0	1695	1736	0
Flt Permitted	0.734			0.635			0.611			0.442		
Satd. Flow (perm)	1310	1522	0	1133	1531	0	1090	1781	0	789	1736	0
Satd. Flow (RTOR)		191			34			1			24	
Lane Group Flow (vph)	146	195	0	22	36	0	102	325	0	15	208	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		25.6	25.6		25.6	25.6	
Total Split (s)	29.8	29.8		29.8	29.8		65.6	65.6		65.6	65.6	
Total Split (%)	31.2%	31.2%		31.2%	31.2%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.8	-1.8		-1.8	-1.8		-1.6	-1.6		-1.6	-1.6	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Act Effct Green (s)	25.9	25.9		25.9	25.9		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.32	0.32		0.32	0.32	
v/c Ratio	0.22	0.22		0.04	0.04		0.29	0.57		0.06	0.36	
Control Delay	8.9	2.5		7.8	3.8		14.7	18.0		11.6	13.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.9	2.5		7.8	3.8		14.7	18.0		11.6	13.0	
LOS	A	A		A	A		B	B		B	B	
Approach Delay		5.2			5.3			17.2			12.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	6.1	0.2		0.8	0.1		6.6	23.3		0.9	12.1	
Queue Length 95th (m)	18.0	8.6		4.2	3.8		15.5	41.4		3.7	24.3	
Internal Link Dist (m)		594.0			268.4			124.5			518.6	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	677	879		586	808		1090	1781		789	1736	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.22		0.04	0.04		0.09	0.18		0.02	0.12	

Intersection Summary
Cycle Length: 95.4
Actuated Cycle Length: 50.1
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.57

Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 55.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Teron & Beaverbrook



Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	44	37	863	145	62
Future Vol, veh/h	91	44	37	863	145	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	44	37	863	145	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	564	145	145	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	498	902	1436	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	474	902	1436	-	-	-
Mov Cap-2 Maneuver	474	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	598	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1436	-	474	902	-	-
HCM Lane V/C Ratio	0.026	-	0.192	0.049	-	-
HCM Control Delay (s)	7.6	0.1	14.4	9.2	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	30	0	2236	883	5
Future Vol, veh/h	0	30	0	2236	883	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	30	0	2236	883	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	444	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	561	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	561	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	561	-	-
HCM Lane V/C Ratio	-	0.053	-	-
HCM Control Delay (s)	-	11.8	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	12	900	7	6	191
Future Vol, veh/h	5	12	900	7	6	191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	12	900	7	6	191

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1107	904	0	0	907	0
Stage 1	904	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	233	335	-	-	750	-
Stage 1	395	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	231	335	-	-	750	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	391	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	296	750	-
HCM Lane V/C Ratio	-	-	0.057	0.008	-
HCM Control Delay (s)	-	-	17.9	9.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	59	40	153	197	50	67	1202	20	11	1994	459
Future Volume (vph)	237	59	40	153	197	50	67	1202	20	11	1994	459
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	3390	1517	1695	3390	1517
Flt Permitted	0.462			0.597			0.051			0.170		
Satd. Flow (perm)	824	1784	1517	1065	1784	1517	91	3390	1517	303	3390	1517
Satd. Flow (RTOR)			188			188			188			188
Lane Group Flow (vph)	237	59	40	153	197	50	67	1202	20	11	1994	459
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.1	34.6		11.1	34.6		11.4	25.3		11.4	25.3	
Total Split (s)	11.1	34.6		11.1	34.6		11.4	72.9		11.4	72.9	
Total Split (%)	8.5%	26.6%		8.5%	26.6%		8.8%	56.1%		8.8%	56.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.8	3.3		2.8	3.3		1.8	1.7		1.8	1.7	
Lost Time Adjust (s)	-2.1	-2.6		-2.1	-2.6		-2.4	-2.3		-2.4	-2.3	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	26.2	21.6	130.0	30.1	22.2	130.0	87.6	83.7	130.0	84.6	78.0	130.0
Actuated g/C Ratio	0.20	0.17	1.00	0.23	0.17	1.00	0.67	0.64	1.00	0.65	0.60	1.00
v/c Ratio	1.11	0.20	0.03	0.51	0.65	0.03	0.39	0.55	0.01	0.04	0.98	0.30
Control Delay	138.1	46.0	0.0	46.4	59.7	0.0	20.2	15.8	0.0	8.5	42.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	138.1	46.0	0.0	46.4	59.7	0.0	20.2	15.8	0.0	8.5	42.8	0.5
LOS	F	D	A	D	E	A	C	B	A	A	D	A
Approach Delay		105.5			47.2			15.8			34.8	
Approach LOS		F			D			B			C	
Queue Length 50th (m)	~53.9	13.1	0.0	32.2	47.6	0.0	5.2	73.1	0.0	0.8	~283.8	0.0
Queue Length 95th (m)	#91.8	24.2	0.0	48.2	68.7	0.0	18.1	136.9	0.0	3.3	#348.6	0.0
Internal Link Dist (m)		42.6			349.6			159.0			234.3	
Turn Bay Length (m)	66.0		66.0			80.0	80.0		90.0	80.0		85.0
Base Capacity (vph)	213	419	1517	299	419	1517	174	2182	1517	285	2032	1517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.14	0.03	0.51	0.47	0.03	0.39	0.55	0.01	0.04	0.98	0.30

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

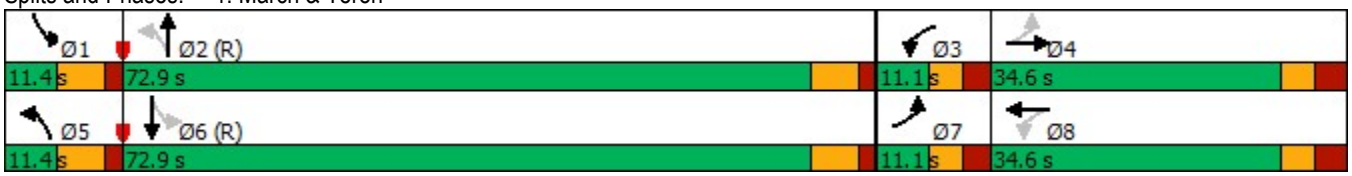
Intersection Signal Delay: 35.7	Intersection LOS: D
Intersection Capacity Utilization 93.6%	ICU Level of Service F
Analysis Period (min) 15	

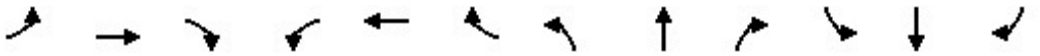
Description: Note: March treated as north south

~ 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: 1: March & Teron



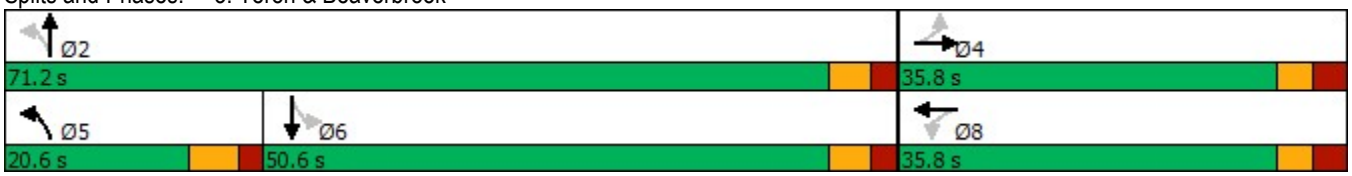


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	6	140	22	11	16	204	204	30	31	483	125
Future Volume (vph)	65	6	140	22	11	16	204	204	30	31	483	125
Satd. Flow (prot)	1695	1527	0	1695	1626	0	1695	1750	0	1695	1729	0
Flt Permitted	0.740			0.626			0.127			0.613		
Satd. Flow (perm)	1320	1527	0	1117	1626	0	227	1750	0	1094	1729	0
Satd. Flow (RTOR)		140			16			13			15	
Lane Group Flow (vph)	65	146	0	22	27	0	204	234	0	31	608	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8		23.8	23.8		11.0	25.6		25.6	25.6	
Total Split (s)	35.8	35.8		35.8	35.8		20.6	71.2		50.6	50.6	
Total Split (%)	33.5%	33.5%		33.5%	33.5%		19.3%	66.5%		47.3%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	3.3		3.3	3.3	
All-Red Time (s)	2.8	2.8		2.8	2.8		2.0	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.8	-1.8		-1.8	-1.8		-2.0	-1.6		-1.6	-1.6	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	Max	Max		Max	Max		None	Min		Min	Min	
Act Effct Green (s)	32.2	32.2		32.2	32.2		58.0	58.0		38.5	38.5	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.59	0.59		0.39	0.39	
v/c Ratio	0.15	0.25		0.06	0.05		0.56	0.23		0.07	0.89	
Control Delay	27.9	6.6		27.0	16.3		18.8	9.1		18.6	43.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.9	6.6		27.0	16.3		18.8	9.1		18.6	43.1	
LOS	C	A		C	B		B	A		B	D	
Approach Delay		13.2			21.1			13.6			41.9	
Approach LOS		B			C			B			D	
Queue Length 50th (m)	9.2	0.8		3.0	1.5		16.6	18.1		3.7	104.8	
Queue Length 95th (m)	20.7	14.8		9.3	8.0		37.0	29.0		9.4	152.0	
Internal Link Dist (m)		594.0			268.4			124.5			518.6	
Turn Bay Length (m)	60.0			15.0			40.0			45.0		
Base Capacity (vph)	432	594		365	543		384	1214		525	837	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.25		0.06	0.05		0.53	0.19		0.06	0.73	

Intersection Summary
Cycle Length: 107
Actuated Cycle Length: 98.2
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.89

Intersection Signal Delay: 27.3 | Intersection LOS: C
Intersection Capacity Utilization 76.1% | ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Teron & Beaverbrook



Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	68	25	190	597	166
Future Vol, veh/h	116	68	25	190	597	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Yield
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	68	25	190	597	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	723	597	597	0	-	0
Stage 1	597	-	-	-	-	-
Stage 2	126	-	-	-	-	-
Critical Hdwy	6.08	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	409	502	978	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	397	502	978	-	-	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	978	-	397	502	-	-
HCM Lane V/C Ratio	0.026	-	0.292	0.135	-	-
HCM Control Delay (s)	8.8	0.1	17.8	13.3	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.2	0.5	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	0	1301	2206	16
Future Vol, veh/h	0	25	0	1301	2206	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	25	0	1301	2206	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1111	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	204	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	204	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.1	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	204	-	-
HCM Lane V/C Ratio	-	0.123	-	-
HCM Control Delay (s)	-	25.1	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	10	218	24	17	660
Future Vol, veh/h	6	10	218	24	17	660
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	10	218	24	17	660

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	924	230	0	0	242	0
Stage 1	230	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	299	809	-	-	1324	-
Stage 1	808	-	-	-	-	-
Stage 2	496	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	293	809	-	-	1324	-
Mov Cap-2 Maneuver	293	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	496	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	487	1324	-
HCM Lane V/C Ratio	-	-	0.033	0.013	-
HCM Control Delay (s)	-	-	12.6	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-