



**PLANNING BOARD AGENDA
NOTICE OF MEETING**

*Friday, August 23, 2019 at 12:00 p.m.
Parkdale Room, 2nd Floor, City Hall, (199 Queen Street)*

- 1. Call to Order**
- 2. Declaration of Conflicts**
- 3. Approval of Agenda** – Approval of Agenda for Friday, August 23, 2019
- 4. Adoption of Minutes** - Minutes of Planning Board Meeting on Tuesday, August 06, 2019
- 5. Business arising from Minutes**
- 6. Reports:**
 - a) Others**
 1. 320 Capital Drive (PID #387365)
Update on request regarding the queuing for a drive-thru. Recommendations from traffic study.
- 7. Introduction of New Business**
- 8. Adjournment of Public Session**

**PLANNING AND HERITAGE COMMITTEE – PLANNING BOARD MINUTES
TUESDAY, AUGUST 06, 2019, 4:30 P.M.
COUNCIL CHAMBERS, 2nd FLOOR, CITY HALL**

Present: Councillor Greg Rivard, Chair
Deputy Mayor Jason Coady, Vice-Chair
Councillor Bob Doiron
Basil Hambly, RM
Kris Fournier, RM
Reg MacInnis, RM

Rosemary Herbert, RM
Shallyn Murray, RM
Alex Forbes, PHM
Robert Zilke, PII
Ellen Faye Ganga, PH IA/AA

Regrets: Mayor Philip Brown
Councillor Julie McCabe
Bobby Kenny, RM

Greg Morrison, PII
Laurel Palmer Thompson, PII

1. Call to Order

Councillor Rivard called the meeting to order at 4:48 pm.

2. Declaration of Conflicts

Councillor Rivard asked if there are any conflicts. Deputy Mayor Jason Coady declared conflict for Item 4: Reconsideration to rezone Royalty Road & Upton Road (PID #388595).

3. Approval of Agenda

Item 4: Reconsideration to rezone Royalty Road & Upton Road (PID #388595) is taken out of the agenda since Councillor Coady declared conflict of interest and therefore, will not have quorum to vote on this application. This application will be brought up in the next scheduled Planning Board meeting.

Moved by Reg MacInnis, RM and seconded by Basil Hambly, RM, that the agenda for Tuesday, August 06, 2019, with the exclusion of item 4, be approved.

CARRIED

4. Adoption of Minutes

Rosemary Herbert, RM, noted for clarification regarding the July 02, 2019 meeting minutes for the 221 Belvedere Ave application that she would like to see the following changes reflected from “Ms. Herbert commented that she has mixed feelings about this application because the property looks good as it is right now and asked why this property was not designated as a heritage property.” to “Ms. Herbert commented that she has mixed feelings about this application because the property looks like it could be a heritage property and asked why the property was not designated as such.”

Moved by Rosemary Herbert, RM, and seconded by Shallyn Murray, RM, that the minutes of the meeting held on Tuesday, July 02, 2019, with the requested changes, be approved.

CARRIED

5. Business arising from Minutes

There was no business arising from minutes.

6. 221 Belvedere Ave (PID #395087)

This is a request to rezone a portion of the property at 221 Belvedere Ave. from Low Density Residential Zone (R-2) to Parking Zone (P) and amend the Official Plan Map from Low Density Residential to Commercial. Alex Forbes, PHM, presented the application. Staff noted that the Public meeting was held on July 23, 2019. See attached report.

There were concerns raised at the public meeting as outlined in the report. Staff has provided an extensive overview of the application. Although the location of the extension of the existing parking lot is concealed and will not impact the streetscape on Belvedere Avenue, commercial creep will occur in the backyards of adjacent properties. With all the past concerns from previous and current application, staff is recommending that this application be rejected. If this application is approved however, a development agreement should be in place stating that, appropriate landscape buffers must be integrated on the site between the parking lot and the existing residential development.

Councillor Rivard commented that all resident members were at the public meeting and is aware of the concerns raised by residents.

Councillor Bob Doiron commented that the applicant did his due diligence in terms of putting a fence, etc. and is supporting this application.

Councillor Rivard asked for any further comments or questions; there being none, the following resolution was put forward:

Moved by Councillor Bob Doiron, and seconded by Shallyn Murray, RM, that the request to:

- a) Amend Appendix "A" – Future Land Use Map of the Official Plan from Low Density Residential to Commercial; and**
- b) Amend Appendix "G" – Zoning Map of the Zoning & Development Bylaw from Low Density Residential (R-2) Zone to Parking (P) Zone;**

for the property at 221 Belvedere Avenue (PID #395087), be recommended to Council for approval, subject to a development agreement to provide appropriate landscape buffers between the parking lot and adjacent properties.

**CARRIED
(4-3)**

A resident asked about the process and Councillor Rivard responded that the Planning Board is a recommending body and that Council makes a final decision at the next Meeting of Council. The resident then asked when would be the next meeting of Council. Councillor Rivard noted that it will be next Monday, August 13, 2019.

Mr. Zilke also clarified if the application is approved with the conditions on fence, etc. and Councillor Rivard confirmed that the recommendation would include all the conditions that were agreed upon at the Public Meeting.

7. 71 & 73 Upper Prince Street (PID #683748 & PID #359521)

This is a request to rezone both 71 and 73 Upper Prince Street from Low Density Residential (R-2) Zone to the Medium Density (R-3) Zone and to amend the Official Plan Map from Low Density Residential to Medium Density Residential in order to construct six (6) additional apartment units to create a twelve (12) unit apartment building Robert Zilke, Planner II, presented the application. The Public meeting was held on July 23, 2019. See attached report.

At the public meeting, concerns were raised by residents and the department also received letters of objection with the same concerns. The concerns are all outlined in the report and Mr. Zilke provided a summary of these concerns to the Board. A tenant of the property in question spoke in support of the application. On August 6, 2019, the applicant provided a letter to the Department stating his proposals and recommendations to address some of the concerns of the residents. Mr. Zilke provided additional information regarding the capacity of the street and noted that he had a conversation with Public Works on the impact of six additional units on the capacity of the street. It was the opinion of Public Works that the impact of 6 additional units would be minimal to the overall functional operation of the street. Furthermore, most of the traffic and on-street parking resulted from thru traffic avoiding University Ave and residents using the street for free parking during the day. Mr. Zilke explained that this area is similar to the adjacent 500 Lot Area which is experiencing pressure for growth and conversion of larger older homes into apartments, some which has been recommended to be approved by this Board. Due to the low vacancy rate (0.2%) that as a City experiences growth it must accommodate additional development through infill opportunities in existing serviced areas.

Staff recommends that this application be approved with the conditions stated in the attached report.

Before Councillor Rivard opened the floor for questions, he recommended that if this proceeds to Council for approval, he would like to include a development agreement and an option for a design review aside from the four recommendations or conditions stated by staff.

Shallyn Murray, RM, commented that based on the feedback from the residents, most of the concerns were not really particular to the property being rezoned but more on the safety of the streets. Ms. Murray also added that if the recommendation could also include some stipulation with regards to the traffic concerns which may be directed toward the police. The increase of six additional units does not provide a huge impact in that area but the traffic on the street is a real issue. Councillor Rivard also added that the traffic issues are not really issues of the applicant, but more of a general concern in that area. It may be recommended for the streets to be converted into a one way street, but the Fire Department commented that it may hinder them from attending to potential fire or emergencies. The Police Department also felt that turning it into a one-way street may not be the solution to this issue.

Rosemary Herbert, RM, commented that there are a number of concerns to the application from residents who attended the public meeting and wrote letters. The board should be aware of all these concerns. It will be a difficult decision and we have to consider all these inputs and oppositions from the residents.

Reg MacInnis, RM, noted that the slides presented by Mr. Zilke did not provide much information about the residents' issues. Mr. MacInnis expressed that we should listen to the residents' concerns. Adding six more units does not satisfy the 0.2% and it sets a precedent for other properties to rezone their properties to build more units in the future. Mr. MacInnis feels that this particular area has had enough going on and adding six more units may create more problems than anticipated. Mr. MacInnis emphasized that we have to start listening to residents.

Councillor Rivard disagreed with Mr. MacInnis' comment on adding additional six units doesn't impact the 0.2%. Councillor Rivard noted that the additional six units, not necessarily for this application but in general, would make a difference to our current housing crisis.

Council Doiron clarified that the current lot is zoned R-2, but the application is requesting a lot consolidation as well. Mr. Zilke confirmed that the lot consolidation is part of the application since the building has a common property line. Consolidating both lots would result to the property adhering to the requirements of the R-2 zone and the R-3 zone. Councillor Doiron also asked what would an R-2 zone allow since the existing property already has five units. Mr. Zilke responded that early in the 80's, the property was zoned differently. It was zoned as low density but somewhere during this period was converted into an apartment unit. It transitioned from being a house to individual apartment units. Since the applicant wants to put additional units, the additional units may only be accommodated through a rezoning to R-3. Councillor Doiron also clarified that it is in an R-2 zone but has five units now and that the applicants would have asked for the board's approval for the additional units. Mr. Zilke confirmed that the property is a legal non-conforming 5-unit dwelling and based on RAP files, there are numerous properties that are considered non-conforming units that were allowed or approved prior to the amalgamation of the new Bylaw.

Councillor Rivard asked how many units are permitted if the lots were consolidated and Mr. Zilke responded that based on consolidation and rezoning, they would be permitted 15 units as-of-right. Councillor Rivard also noted that the applicant is here to answer any possible questions. Mr. Zilke also added that the applicant came to the office today to submit a letter summarizing their responses to the residents' concerns.

Basil Hambly, RM, also asked if the lots would still be consolidated if the application was not approved and Mr. Zilke responded that the lots could effectively remain as it is today.

Ms. Herbert also asked if this application is approved, would the proposed renovations to the existing building be reviewed by Planning Board. Councillor Rivard responded that we can direct the applicants to go through a design review process. There is a separate design review board that reviews the proposed changes and we also have a design reviewer who also reviews

the application and make recommendations to meet the design criteria requirements. Ms. Herbert asked if the design review is done prior to building or construction and Mr. Rivard confirmed.

Councillor Rivard asked for any further comments or questions; there being none, the following resolution was put forward:

Moved by Shallyn Murray, RM, and seconded by Kris Fournier, RM, that the request to:

- a) Amend Appendix "A" – Future Land Use Map of the Official Plan from Low Density Residential to Medium Density Residential; and***
- b) Amend Appendix "G" – Zoning Map of the Zoning & Development Bylaw from Low Density Residential (R-2) Zone to Medium Density Residential (R-3) Zone,***

for the properties at 71 & 73 Upper Prince Street (PID #683748 & PID #359521), in order to construct six (6) additional apartment units to create an eleven (11) unit apartment building, be recommended to Council for approval, subject to the following conditions:

- 1. That both of the subject properties are consolidated; and***
- 2. The two existing access points be delineated as separate but dedicated ingress/egress access points; and***
- 3. That the rezoning be approved as per the development concept proposed by the owner as presented in Attachment A.***
- 4. The applicant be required to sign a Development Agreement outlining any and all concerns of Council.***

***MOTION LOST
(2-5)***

Councillor Doiron, Councillor Coady, B. Hambly, R. MacInnis, R. Herbert opposed

Moved by Reg MacInnis, RM, and seconded by Basil Hambly, RM, that the request to:

- a) Amend Appendix "A" – Future Land Use Map of the Official Plan from Low Density Residential to Medium Density Residential; and***
- b) Amend Appendix "G" – Zoning Map of the Zoning & Development Bylaw from Low Density Residential (R-2) Zone to Medium Density Residential (R-3) Zone,***

for the properties at 71 & 73 Upper Prince Street (PID #683748 & PID #359521), in order to construct six (6) additional apartment units to create an eleven (11) unit apartment building, be recommended to Council for rejection.

***CARRIED
(5-2)***

S. Murray, K. Fournier opposed

8. 38 Palmers Lane (PID #275156)

This is a request to rezone the property at 38 Palmers Lane from Low Density Residential Zone (R-2) to Medium Density (R-3) and amend the Official Plan Map from Low Density Residential to Medium Density Residential. The purpose is to construct an 18-unit apartment unit. Robert Zilke, Planner II, presented the application. See attached report.

If the application is successfully rezoned, the lot area would only permit 17 apartment units. The applicant would then have to apply for a variance application for the additional unit. The subject property is bounded to the west and to the north by one and two-unit dwellings. There are apartment units to the east and further to the east are commercial properties. While the proposed development would not be considered a spot zone and technically could be considered to be compatible with the adjoining properties and such development would provide housing choices within the neighbourhood, the main issue remains to be the shifting of a higher density residential zone further into a low density mature neighbourhood. Staff recommendation is not to proceed to public consultation. Greg Munn, representative of the applicant, is here to answer any possible questions.

Mr. Rivard clarified if the adjacent buildings are apartments, including those along the commercial zone and Mr. Zilke confirmed. Mr. Munn provided additional details with regards to the proposed development.

Ms. Herbert clarified that traffic is not an issue along Palmers Lane. Mr. Zilke noted that he is not able to comment on that but the area is a low density area. Mr. Doiron also added that there are two speed bumps along that road and a stop sign in the middle to slow down the speed of traffic. Mr. Doiron then asked what is existing in that property, if it is a single-family dwelling or a duplex. Mr. Forbes responded that is a vacant lot. Mr. Doiron then clarified that the request is to rezone from R-2 to R-3 and Mr. Zilke confirmed. Councillor Rivard added that an R-3 would allow 17 units as-of-right and they are asking for 18 units. Mr. Zilke confirmed. Councillor Rivard asked that if this property was rezoned, would they be willing to drop to 17 or keep it at 18. Mr. Munn said that they can make 17 units work. Mr. Rivard asked Mr. Zilke if staff recommendation is to reject the request to proceed to a public meeting. Mr. Zilke confirmed and this is based on the scale and context of the area, and the transition from low density to medium density.

Mr. Rivard asked if they built a single detached home in that lot, it would have the same effect to the adjacent apartment building that currently exists. Either way, it may create some problems. Building a single detached home adjacent to the apartment will also be out of character. Mr. MacInnis commented that it will not, if you look to the left of the area. Mr. Forbes also added that if one really wants the property/lot, they would not necessarily be concerned with building a single family dwelling beside an apartment building because the apartment building is already there. People who are well established in a neighbourhood are much more concerned about a proposed increase in density. Also, Mr. Forbes noted that there have been previous applications dating back to 2009 to rezone the property to R-4 to be able to construct a 24-unit apartment and the application has gone through public consultation and has heard comments from the residents. Mr. MacInnis asked when this property was bought by the current applicant. Mr. Forbes and Mr. Zilke do not have this information available. Councillor Rivard added that the applicant also owns the apartment units adjacent to it.

Mr. Hambly asked how many units are there in the adjacent apartment units. Mr. Munn responded that there are 12 units each.

Ms. Murray asked that if the process at this time is to recommend to proceed to a public meeting and Mr. Rivard confirmed. Mr. Rivard also added that while there is a housing crisis, we do not want to give the appearance that we are unwilling to even entertain a public meeting. He suggested that we should hear the comments from the public and then Council can make a much more informed decision. Mr. Forbes commented that the decision to reject going to a public meeting should be based upon the fact that the Planning Board and Council have a very good understanding of the anticipated response that they may receive from the residents, or based on recent feedback in the area to a similar application. If residents are known to be strongly opposed to a project because of a recent similar application in the area, the board could recommend not to proceed to a public hearing. If the Board does not know the response in advance, then they may wish to recommend to go to public hearing.

Mr. Doiron added that there is a school in that area and that there are some calls on speeding (it being a cut-through from St. Peters to Mt. Edward Rd.) even there are speed bumps, stop signs and police patrolling the area. Mr. MacInnis asked where the nearest R-3 zone is from that area. Mr. Zilke noted that it is not shown in the current map. Ms. Murray feels that this is not hugely out of scale or context and would like that this proposal proceed to a public meeting.

Councillor Rivard asked for any further comments or questions; there being none, the following resolution was put forward:

Moved by Shallyn Murray, RM, and seconded by Rosemary Herbert, RM, that the request to:

- a) **Amend Appendix “A” the Official Land Use Map of the City of Charlottetown from Low Density Residential to Medium Density Residential; and**
- b) **Amend Appendix “G” – Zoning Map of the Charlottetown Zoning and Development Bylaw from R-2 (Low Density Residential) Zone to R-3 (Medium Density Residential) Zone;**

for the at 38 Palmers Lane (PID #275156), in order to construct an 18-unit apartment building, be recommended to Council to proceed to public consultation.

**CARRIED
(6-1)**

Councillor Doiron opposed

9. 229 Sherwood Road (PID #1007657 and a portion of PID #145961)

This is an application to consolidate 229 Sherwood Road (PID #1007657) and a portion of PID #145961 in order to extend the lands of Island EMS. Alex Forbes, PHM, presented the application. See attached report. Staff recommendation is to approve the application.

Councillor Rivard asked about the setback requirements and Mr. Forbes responded that it is just a consolidation and if they want to expand or build anything further, they would have to come through the department again.

Councillor Rivard asked for any further comments or questions; there being none, the following resolution was put forward:

Moved by Councillor Bob Doiron and seconded by Reg MacInnis, RM, that the request to consolidate 229 Sherwood Road (PID #1007657) and a portion of PID #145961, be recommended to Council for approval, subject to a final pinned survey.

CARRIED

10. 320 Capital Drive (PID #387365)

Alex Forbes, PHM, noted that this application will not be presented this evening and that there are no decisions that have to be made at this time. The applicants anticipated that they would be prepared to present their application this evening but unfortunately, they were unable to have the traffic study completed in time. This application will be presented to the board when the traffic study is ready for this property. A special meeting may be requested at that time. The various fit up building permit applications for this property are on hold until the access point along Maypoint Roint is resolved.

Councillor Rivard asked if there are plans to run that road from Hampton Inn down to North River Road. Mr. Rivard added that the vehicles from the drive thru would go out onto Capital Drive and not onto Maypoint Road which may cause congestion along Beach Grove Road. Mr. Forbes responded that these concerns will be addressed as a part of the traffic study. Mr. Forbes also added that there is an urgency to get the drive-thru approved in order to get all the other permits that are not related to the drive-thru along this property approved.

11. New Business

Alex Forbes, PHM, noted that there is another report to make amendments to the Zoning & Development Bylaw. No decision has to be made at this time but Robert Zilke will provide the board a brief summary of the proposed amendments. These amendments will be presented in detail in the next board meeting.

Mr. Zilke presented the amendments to the Zoning & Development Bylaw as it pertains to 1) Calculation of Numerical Requirements & measurements; 2) Attached Garages and Carports; 3) Non-conforming buildings; and 4) Marijuana Production Facility Parking Space Requirements.

12. Adjournment of Public Session

Moved by Reg MacInnis, RM, and seconded by Deputy Mayor Jason Coady, that the meeting be adjourned. The meeting was adjourned at 5: 45 p.m.

CARRIED

Councillor Greg Rivard, Chair

TITLE: Special Planning Board Meeting FILE: PLAN-2019-23-August-6a-1 Traffic Study Maypoint Road / Capital Drive OWNER: Cordova Realty		
MEETING DATE: August 23, 2019		Page 1 of 4
DEPARTMENT: Planning & Heritage	ATTACHMENTS: A. Property Map B. 2019 Traffic Study prepared by EXP Services Inc. C. Site Plan TIE Comments D. Departmental Comments	
SITE INFORMATION: Context: Proposed Tim Horton’s Drive Thru queuing and stacking plan Ward No: 7 Existing Land Use: Hotel and foundation for proposed drive thru restaurant, convenience store, quick service restaurant and gas bar (8 pumps), and separate car wash. Official Plan: Commercial Zoning: C 2 Highway Commercial		
PREVIOUS APPLICATIONS: 2016 Rezoning Application		

RECOMMENDATION:

The Planning & Heritage Department recommends that Planning Board recommend to Council to approve the request to accept the traffic study prepared for the development on the corner of Maypoint Road and Capital Drive (PID 387365) to permit a drive thru Tim Horton’s restaurant (stacking and queuing spaces) as proposed in the traffic study in Appendix “A” Option 3.

BACKGROUND:

Request

In November 2016 a traffic study was prepared for D. P. Murphy to comment on a proposed 125 room hotel, a gas station with food outlet/convenience store/car wash with a total of 12 fueling stations and a high turnover restaurant. The consultant (Don Good) from EXP Services Fredericton, New Brunswick reviewed the proposed land uses for both properties and outlined where three access points to service the hotel and adjacent commercial development should be located. The consultant identified two access points to Maypoint Road (with full access) and one access point to Capital Drive which was restricted (to right in / right out only).

Since that time the hotel has been constructed with 124 hotel rooms and efforts are underway to develop the adjacent piece of property on the corner of Maypoint and Capital Drive for commercial purposes. The original concept for the adjacent parcel now includes a gas bar /convenience store with 8 fueling stations, car wash and a quick service restaurant and a Tim Horton's with double lane drive thru. Since the original traffic study for the subject property was prepared in 2016 the new roundabout has been constructed and it was determined that the previous traffic study needed to be reviewed to ensure that any and all impacts were identified before proceeding to approve a drive thru at this location. The section below is from the Zoning By-law which indicates that before approving a drive thru that Police and Public Works need to provide input as well as a traffic study where deemed necessary. It was determined that a traffic study was necessary in this case because of the implications for queuing on Maypoint Road and the proximity to the new arterial roundabout.

QUEUING SPACE

Queuing spaces shall be provided in accordance with the following requirements:

Car Wash:

five (5) in-bound queuing spaces Shall be provided the first bay and three (3) spaces for each additional bays; and

out-bound queuing space Shall be provided on the exit side of each service position and this space Shall be located so as not to interfere with service to the next vehicle.

Drive-thru Eating and Drinking Establishment:

Council shall determine stacking requirements after receiving input from the Police and Public Works Departments and/or from a traffic consultant.

Automobile Service Station:

four (4) in-bound spaces Shall be provided; and

three (3) out-bound spaces Shall be provided.

All queuing spaces shall be a minimum of 6.5 m (21.3 ft) long and 3.0 m (9.8 ft) wide, and queuing lanes Shall provide sufficient space for turning and maneuvering and shall not occupy any portion of a Designated fire lane.

LEGISLATIVE REQUIREMENTS:

Notification

Notification is not required on this application. The provision in the Zoning By-law was put in place to ensure that the technical merits associated with the queuing spaces for a drive thru were properly addressed. Upon the recommendation of Council with input from Public Works and Police and in this case a traffic study, approval can be provided.

ANALYSIS:

The attached report provides the required analysis of the implications and impacts from the proposed two lane queuing aisles for the Tim Horton's restaurant. Additional comments from the Province and input from the relevant City departments (Police and Public Works) to determine stacking requirements can be found as follows:

Transportation, Infrastructure and Energy

Trip generation numbers seem reasonable. However, it was noted that the report projects that by 2024 the queuing length for traffic approaching the roundabout from Maypoint Road during peak PM travel periods could be in the order of 35m. This is the approximate length from the access to the proposed development to the roundabout and could potentially cause some issues for southbound traffic and traffic that wants to turn left into the proposed development since there is not a dedicated southbound left turn lane. The traffic report does project that the queuing length for traffic entering the roundabout from Maypoint Road could be reduced to 18m if a dedicated right turn lane was added entering the roundabout. The addition of this lane would require widening and thus additional right-of-way. Analysis on other Tim Horton queuing lanes in the City was provided as follows:

- Grafton St TH has about 105m of queuing length before spilling onto Grafton St.
- Allen St TH has about 67m of queuing length before spilling onto Mt Edward. Additional storage (35+m) is available in parking lot towards Allen St.
- Queens Arms TH has about 120m of queuing length before spilling onto North River Rd.
- Nassau St TH has about 40m of queuing length before spilling onto Nassau. Additional storage (45m) is available in parking lot towards University Ave.
- St. Peters Rd has about 145m of queuing length before spilling onto St. Peters Rd

The proposed Tim Horton queuing lanes would have approximately 108m of queuing in the lineup and over 70m of queuing towards Maypoint and the gas pumps. The proposed development would therefore provide more queuing space than the other five above mentioned developments.

City of Charlottetown Police Services

The traffic study seems to have addressed the concerns pertaining to queuing length. Although the development example referenced in the study from Moncton off Mapleton Road presents some differences. The Mapleton Road development is on the corner of a traffic controlled intersection and not in close proximity to a roundabout but rather has a single access point that is significantly distant from said intersection. In comparison to other local Tim Horton

developments the queuing at peak periods seem to not be an issue now but could be in five years.

Public Works

Public Works is satisfied with the review and findings of the study but requires the following to be provided:

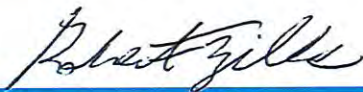
- The new driveway to the proposed development align with the Maypoint strip mall driveway; and
- That additional land along the western portion (Maypoint Road side) from the proposed development be conveyed to the City for the future expansion of a right turn lane into the roundabout.

CONCLUSION:

Based on the 2019 traffic report and comments received from Transportation, Energy and Infrastructure, Police and Public Works the Planning & Heritage Department recommends that Planning Board recommend to Council to approve the request to accept the traffic study prepared for the development on the corner of Maypoint Road and Capital Drive to permit a double drive thru Tim Horton's restaurant (stacking and queuing spaces) as proposed in the traffic study in Appendix "A" Option 3 as per the following conditions:

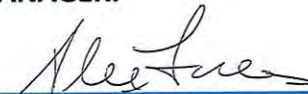
- 1) That the draft 2019 Traffic Impact Study for the Development on Capital Drive prepared by EXP Services Inc. be finalized and submitted to the City of Charlottetown; and
- 2) Subject to the signing of a Development Agreement that in the event that stacking of northbound vehicles leaving the proposed development to the roundabout results in queuing/stacking issues, the owner of the proposed development convey additional land from the western portion (i.e. Maypoint Road side) of subject site to the City at no cost, for the future development of a dedicated right turn lane in order to alleviate queuing congestion along Maypoint Road, as identified in the Traffic Report.

PRESENTER:



Robert Zilke, MCIP
Planner II

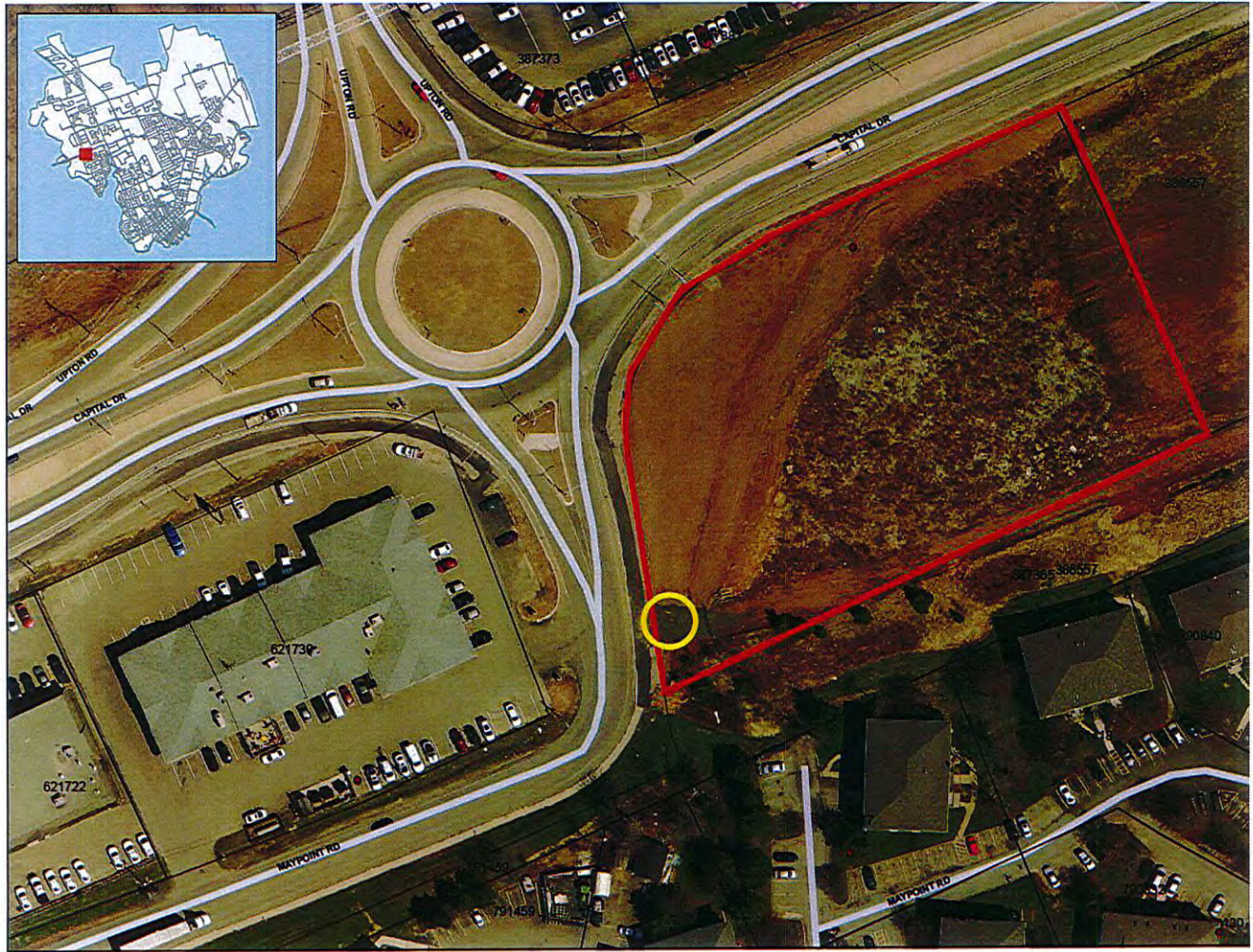
MANAGER:



Alex Forbes, MCIP, MBA
Manager of Planning & Heritage

Attachment A

Subject Property



Update of the Traffic Impact Study for a Development on Capital Drive Charlottetown, PEI

Cordova Realty

Type of Document:
Draft

Project Number:
FRE-00254811-A0

Prepared by:
Don Good, P.Eng.

Reviewed by:
Don Good, P.Eng.

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Date Submitted:
2019-08-20



Legal Notification

This report was prepared by EXP Services Inc. for the account of **Cordova Realty**.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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EXP Quality System Checks	
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1 Introduction

1.1 Background

In November 2016 a draft final report entitled *Traffic Impact Study for Development on Capital Drive – Charlottetown, PEI* was completed for a proposed development in the southeast quadrant of the Capital Drive/Maypoint Road/Upton Road intersection. At that time, the intersection was signalized, although construction had begun on a roundabout.

The November 2016 traffic study was prepared for D.P. Murphy and included a 125-room hotel, a gas station with a food outlet/convenience store/car wash with a total of 12 fuelling stations, and a high turnover rate restaurant totalling 559 m². To support the development, a right-in/right-out access was proposed on Capital Drive, along with a driveway on Maypoint Road opposite the Maypoint Plaza driveway, and an Access Road off Maypoint Road behind the development that would provide various driveways to the proposed and future development. **Appendix A** includes the original site plan that the traffic study used for evaluation.

Since November 2016, a 124-room hotel has been constructed along with the right-in/right-out driveway on Capital Drive and the Access Road. However, the remaining components of the development have changed from the original concept. This new concept, shown in Appendix A, is currently under construction.

Included in the new concept is a gas bar/convenience store with 8 fuelling stations (181.4 m² convenience store), a Quick Service Restaurant (157.9 m²) and a Tim Hortons (92.9 m²). The Tim Hortons is to be a double drive-thru with two order windows.

To support the access to the development, there will be a right-in/right-out driveway on Capital Drive (already constructed), a driveway off Maypoint Road opposite Maypoint Plaza, and an Access Road behind the development (already constructed).

This report is an update of the original November 2016 report. **Figure 1** shows the location of the proposed development in relation to the surrounding street network.

1.2 Study Objectives

The objective of this Traffic Impact Study (TIS) is to update the November 2016 report, identify any impacts associated with the proposed developments and address any traffic issues or concerns that the City of Charlottetown may have relating to the development characteristics and the access locations. The scope of the study includes the following:

- Discussions were held with the City relating to the proposed development, to obtain more details with respect to their issues and concerns.
- Traffic counts for the Capital Drive/Maypoint Road/Upton Road intersection were obtained from the Province. Projected future traffic at the intersection was determined using an annual growth rate.



Figure 1 – Development Location and Study Area

- An operational analysis was performed for existing and horizon year conditions without the development in place. The analysis was performed using Sidra and VisSim traffic simulation software for the roundabout and Synchro 10 software for the right-in/right-out driveway at Capital Drive, the driveway to the development at Maypoint Road, and the intersection of the Access Road with Maypoint Road. The Study Area intersections were evaluated in terms of level of service (LOS), associated vehicle delays, and 95th percentile queue lengths.
- Traffic generated from the proposed development was estimated and assigned to the adjacent road network.
- An operational analysis was performed for the horizon year with development to evaluate the impacts of the generated trips on the adjacent road network in terms of LOS, delay and 95th percentile queue lengths.
- Recommendations to address any operational issues were made.
- The findings were documented in a report.

1.3 Horizon Period

This TIS utilizes the current year 2019 and the horizon year 2024 without the development in place and the horizon year 2024 with the development in place to determine future traffic conditions within the Study Area.

An annual growth rate of 1% has been used to project future background traffic on Capital Drive/ Maypoint Road/Upton Road for the horizon period, as this growth rate was used in a previous evaluation study for the feasibility of the roundabout.

2 Information Gathering

2.1 Existing Traffic Volumes

Existing traffic counts were recently collected for the Capital Drive/Maypoint Road/Upton Road intersection in August 2019 for the AM and PM peak periods and provided by the Prince Edward Island Department of Transportation, Infrastructure and Energy. The traffic count was adjusted to reflect a Friday in June. The 2019 traffic volumes for the AM and PM peak hours are shown in Figure 2.

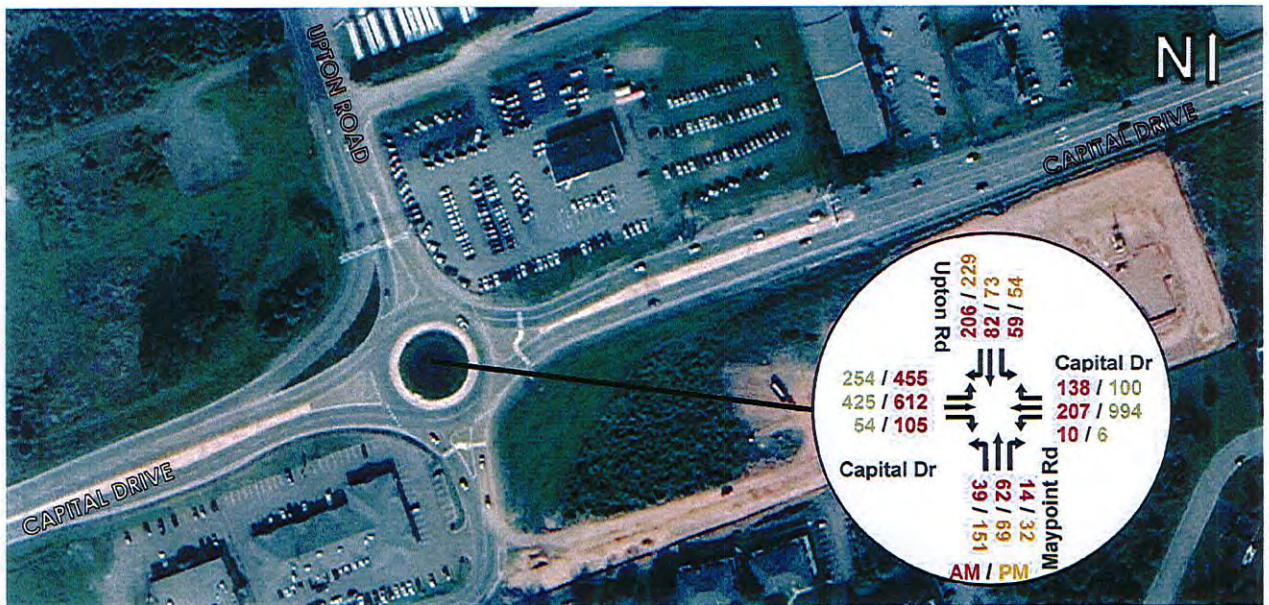


Figure 2 – Existing (2019) Peak Hour Volumes – AM / PM

It should be noted the August 2019 traffic count volumes were lower than the August 2014 volumes (those used in the original traffic study) at the Capital Drive/Maypoint Road/Upton Road intersection. In 2014 the Island celebrated the 150th anniversary of the 1864 Charlottetown Conference where the idea of Canada as a nation was proposed.

2.2 Horizon Year Traffic Volumes

Projected background 2024 AM and PM peak hour traffic volumes were required to evaluate future traffic conditions without the proposed development. Projected volumes were estimated using a 1% per annum growth rate, which was applied to all approaches of the intersecting roadways. Figure 3 shows the projected background 2024 AM and PM peak hour traffic volumes without the proposed development in place.

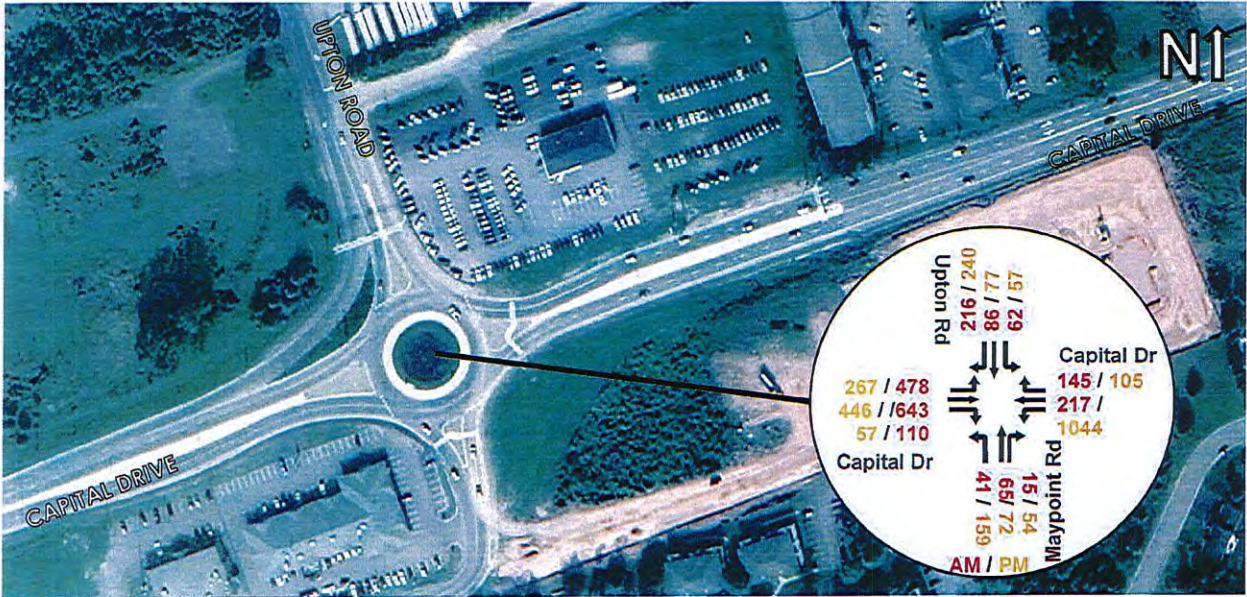


Figure 3 – Projected 2024 Horizon Year Traffic Volumes without Development – AM / PM

2.3 Street and Intersection Characteristics

Capital Drive is classified as an arterial road within the Study Area. The section to the west of the intersection with Maypoint Road/Upton Road is part of the Trans-Canada Highway Route 1. The roadway has a 4-lane cross-section and is posted at a speed limit of 70 km/h. The posted speed limit changes to 60 km/h on Capital Drive just east of the development site. There is an advisory 30 km/h speed limit through the roundabout.

Maypoint Road is classified as a collector road within the Study Area. This roadway is to the south of the intersection with Capital Drive and provides access to residential areas. It has a 2-lane cross-section and is posted at a speed limit of 50 km/h.

Upton Road is classified as arterial road within the Study Area and is part of the Trans-Canada Highway Route 1. The roadway is to the north of the intersection with Capital Drive. It has a 2-lane cross-section and has a posted speed limit of 60 km/h. Upton Road provides a connection to the Charlottetown Perimeter Highway.

The existing Capital Drive/Maypoint Road/Upton Road intersection is a 4-leg roundabout. The eastbound and westbound approaches have two lanes, one through/right-turn lane and one through/left-turn lane. The northbound approach has one shared through/right-turn/left-turn lane. The southbound approach has one shared through/left-turn lane with a separate right-turn bypass lane.

2.4 Development Characteristics

The proposed development is expected to be in operation in 2019 and will include the following components:

- Gas bar/convenience store (181.4 m²) with 8 fuelling stations,
- A Quick Service Restaurant (157.9 m²), and
- A Tim Hortons (92.9 m²) with a double drive-thru.

There is a new 124-room hotel which is now open for business on the development site.

3 Existing and Future Background Traffic Operations

3.1 Introduction

Existing and horizon year operational conditions were established to determine how the street network within the Study Area is currently functioning and how it will function by the 2024 horizon year without the proposed development. Traffic operations within the Study Area were evaluated using current traffic volumes with the roundabout configuration at the Capital Drive/Maypoint Road/Upton Road intersection. The roundabout performance and the proposed driveway on Maypoint Road were measured using a combination of the traffic simulation software VisSim and the roundabout software package Sidra. Results from VisSim and Sidra were used to determine an average delay for the AM and PM peak hours for each movement (used to determine LOS) and a 95th percentile queue on each approach. The other proposed access points to the development were evaluated using Synchro 10 software in terms of LOS, delay and 95th percentile queue lengths.

The intersection operations were primarily evaluated in terms of the LOS. Level of Service is a common measure of the quality of performance at an intersection and is defined in terms of vehicular delay. This delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. LOS is expressed on a scale of A through F, where LOS A represents very little delay (i.e., less than 10 seconds per vehicle) and LOS F represents very high delay (i.e., greater than 50 seconds per vehicle for a stop sign controlled intersection/roundabout and greater than 80 seconds per vehicle for a signalized intersection).

Usually LOS D or better is considered acceptable in urban areas before improvements are considered, although some communities accept LOS E. The LOS criteria for signalized and stop sign controlled intersections/roundabouts are shown in **Table 1**. A description of traffic performance characteristics is included for each LOS.

Table 1 – Level of Service Criteria for Intersections

LOS	LOS Description	Control Delay (seconds per vehicle)	
		Signalized	Stop Controlled / Roundabout
A	Very low delay; most vehicles do not stop (Excellent)	less than 10.0	less than 10.0
B	Higher delay; more vehicles stop (Very Good)	between 10.0 and 20.0	between 10.0 and 15.0
C	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping (Good)	between 20.0 and 35.0	between 15.0 and 25.0
D	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (Satisfactory)	between 35.0 and 55.0	between 25.0 and 35.0
E	Vehicles must often wait through more than one red light; considered by many agencies to be the limit of acceptable delay (Marginal)	between 55.0 and 80.0	between 35.0 and 50.0
F	This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (Unacceptable)	greater than 80.0	greater than 50.0

3.2 Existing and Horizon Year (2024) Levels of Service without Development



The roundabout operational analysis for existing and projected 2024 horizon year traffic volumes for the AM and PM peak periods without development are presented in **Table 2** below. LOS, delay, and 95th percentile queue are included for each lane and represent the output from Sidra; however, the VisSim results were very similar.

Under existing 2019 traffic volumes, all movements at the Capital Drive/Maypoint Road/Upton Road roundabout are operating at overall very good LOS B or better, with average vehicle delays of 12 seconds or less during both the AM and PM peak periods. The 95th percentile queue lengths at each approach are 30 m or less during both the AM and PM peak periods. On the Maypoint Road approach the 95th percentile queue is 17 m in the PM peak.

Marginal changes at the Capital Drive/Maypoint Road/Upton Road roundabout are projected by the 2024 horizon year without development. The roundabout is projected to operate at very good levels of service B or better.

No operational deficiencies are expected for the Capital Drive/Maypoint Road/Upton Road roundabout for the existing 2019 traffic volumes as well as for the 2024 horizon year without the development.

Table 2 – Operational Analysis for Existing (2019) and 2024 Horizon Year Conditions without Development

North South Street @ East West Street	Traffic Control	Time Period	Eastbound		Westbound		North- bound	Southbound	
			TL ↶↑	TR ↑↷	TL ↶↑	TR ↑↷	TLR ↶↑↷	TL ↶↑	R ↷
Existing (2019) Conditions									
Maypoint/ Upton @ Capital Dr		AM Peak	A 5 [29]	A 9 [29]	A 7 [11]	A 8 [10]	B 11 [8]	A 5 [8]	A 7 [5]
		PM Peak	A 4 [16]	A 9 [16]	B 10 [52]	B 11 [50]	B 12 [17]	A 9 [19]	B 10 [9]
Projected 2024 Horizon Year Conditions without Development									
Maypoint/ Upton @ Capital Dr		AM Peak	A 5 [32]	A 10 [32]	A 7 [12]	A 8 [11]	B 12 [10]	A 5 [8]	A 7 [5]
		PM Peak	A 4 [18]	A 9 [17]	B 12 [63]	B 13 [60]	B 13 [21]	B 10 [23]	B 11 [11]

4 Development Traffic Generation and Assignment

4.1 Trip Generation

In order to estimate the amount of traffic that will be generated to one from the development site, a combination of trips produced by an existing development with similar characteristics and trip generation rates were utilized for the proposed retail development components. These trip generation rates are documented in the TripGen 2014 software and are based on the 9th edition of the *Trip General Manual*, published by the Institute of Transportation Engineers (ITE).

The proposed development includes a 124-room hotel (already in operation), a gas bar/convenience store with 8 fuelling stations and car wash, a Quick Service Restaurant and a Tim Hortons with a double drive-thru with two order windows.

There is a development in Moncton, NB on Mapleton Road that has a gas bar and convenience store with 8 fuelling stations and a Tim Hortons. As part of this study, a traffic count was completed at this existing facility to determine the number of trips generated to and from the site in the AM and PM peak travel periods.

Table 3 shows the estimated traffic generation by the hotel, the Quick Service Restaurant (QSR) and the car wash for the AM and PM peak hours. **Table 4** summarizes the estimated traffic associated with the gas bar/convenience store and Tim Hortons. These AM and PM peak hours are based on a recent count.

Table 3 – Estimated Trip Generation for Hotel, QSR and Car Wash

Development	Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Hotel ITE Land Use #310	124 rooms	39	27	66	38	36	74
Car Wash ITE Land Use #948	135.1 m ²	0	0	0	7	7	14
QSR ITE Land Use #933	157.9 m ²	26	18	44	13	13	26
Totals		65	45	110	58	56	114

Table 4 – Estimated Trip Generation for Gas Bar/Convenience Store and Tim Hortons*

Development	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Gas Bar/Convenience Store with 8 Fuelling Stations and a Tim Hortons	176	169	344	111	108	219
Pass-by Traffic	111	106	217	70	68	130
Net	65	63	128	41	40	81

*These trip volumes are based on a count completed at a similar development on Mapleton Road in Moncton, NB.

The total traffic generated by a development is comprised of new trips, diverted trips, and pass-by trips. New traffic is generated by a new development being constructed and in operation. This is traffic that would not have been on the adjacent street network without the new development and needs to be added to the adjacent street and intersection approaches. Diverted traffic is traffic that has been diverted from other nearby areas as a result of the development and also increases the traffic on adjacent streets and intersection approaches. Pass-by traffic is traffic that is already on the adjacent street and intersection approaches and makes an intermediate trip to the development as part of some overall trip. This traffic is not new to the adjacent street network. The percentage of pass-by trips varies between different types of developments. Based on results from the ITE Trip Generation rates, a 63% pass-by trip percentage is assumed for the AM and PM peak periods for traffic generated from the proposed gas bar/convenience store and Tim Hortons. A 0% pass-by trip percentage is assumed for traffic generated from the proposed hotel, QSR and car wash.

4.2 Trip Assignment

The generated trips have been assigned to the Study Area streets and intersections based on existing traffic distribution on Capital Drive, Maypoint Road and Upton Road during the peak periods. For traffic generated from the hotel, it was assumed that exiting vehicles would travel back towards the direction they entered from (i.e., returning home). Traffic generated from the gas bar/convenience store/Tim Hortons and QSR was assumed to exit using the existing distributions.

The following summarizes the assumptions utilized for assigning new traffic to the development for the AM and PM peak hours:

- Traffic generated from the north: 16% (AM) and 28% (PM);
- Traffic generated from the south: 5% (AM) and 9% (PM);
- Traffic generated from the east: 17% (AM) and 32% (PM); and
- Traffic generated from the west: 62% (AM) and 31% (PM).

It is assumed that 70% of the traffic generated from the gas bar/convenience store will enter the development using the Maypoint Road driveway – a full turn driveway aligned with the new Maypoint Plaza entrance. For traffic generated from the hotel and QSR, eastbound traffic was assumed to enter the developments using the right-in/right-out access on Capital Drive, while all other traffic was assumed to use the Access Road behind the development.

Figure 4 shows the trips generated at the Study Area intersections during the AM and PM peak periods. **Figure 5** shows the AM and PM traffic volumes at the Study Area intersections with the development in place for the 2024 horizon year.

For analysis of the Maypoint Road/Development Driveway/Maypoint Plaza entrance intersection, ITE Trip Generation was used to estimate trips entering and exiting from the Maypoint Plaza. It was assumed that the Maypoint Plaza was classified as a shopping centre according to ITE with a gross floor area of 1837 m². It was also assumed that 50% of these trips would use the access to the east of the Plaza and 50% would use the access to the south of the Plaza. Note that these trips were not added to the overall network, as they would already be included in the traffic counts at the Capital Drive/Maypoint Road/Upton Road intersection.

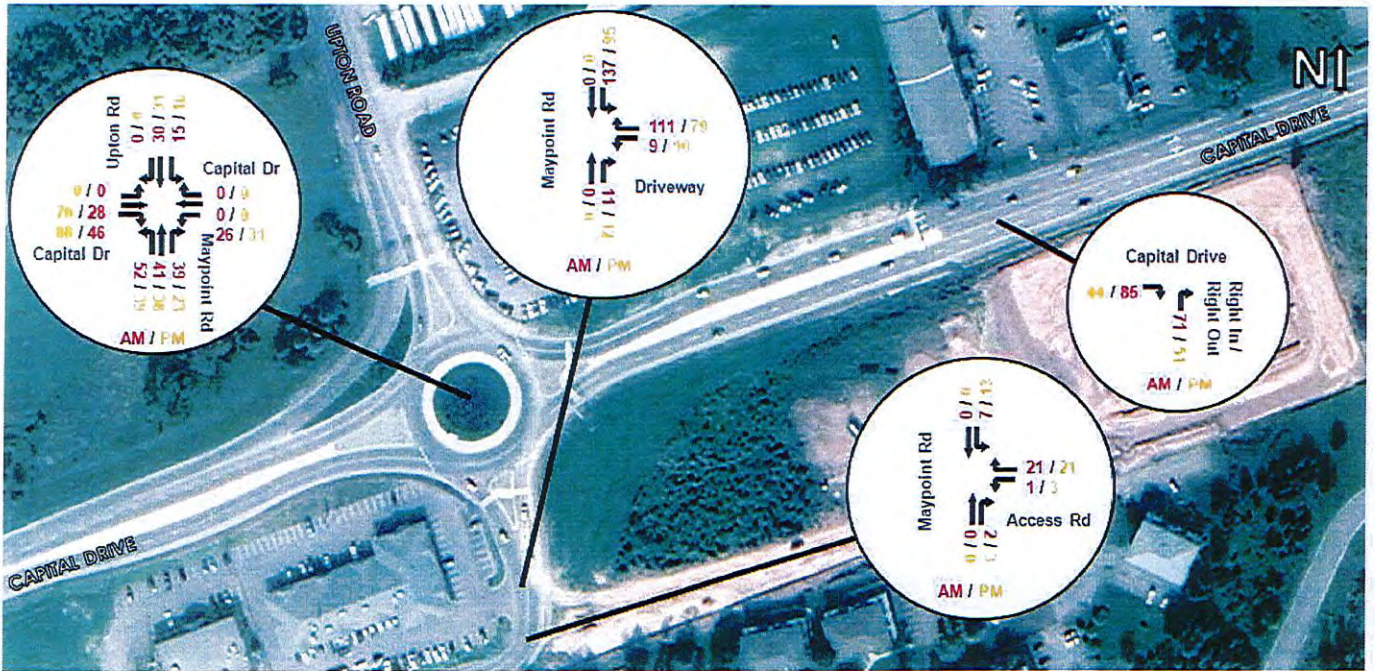


Figure 4 – Generated Trips – AM / PM

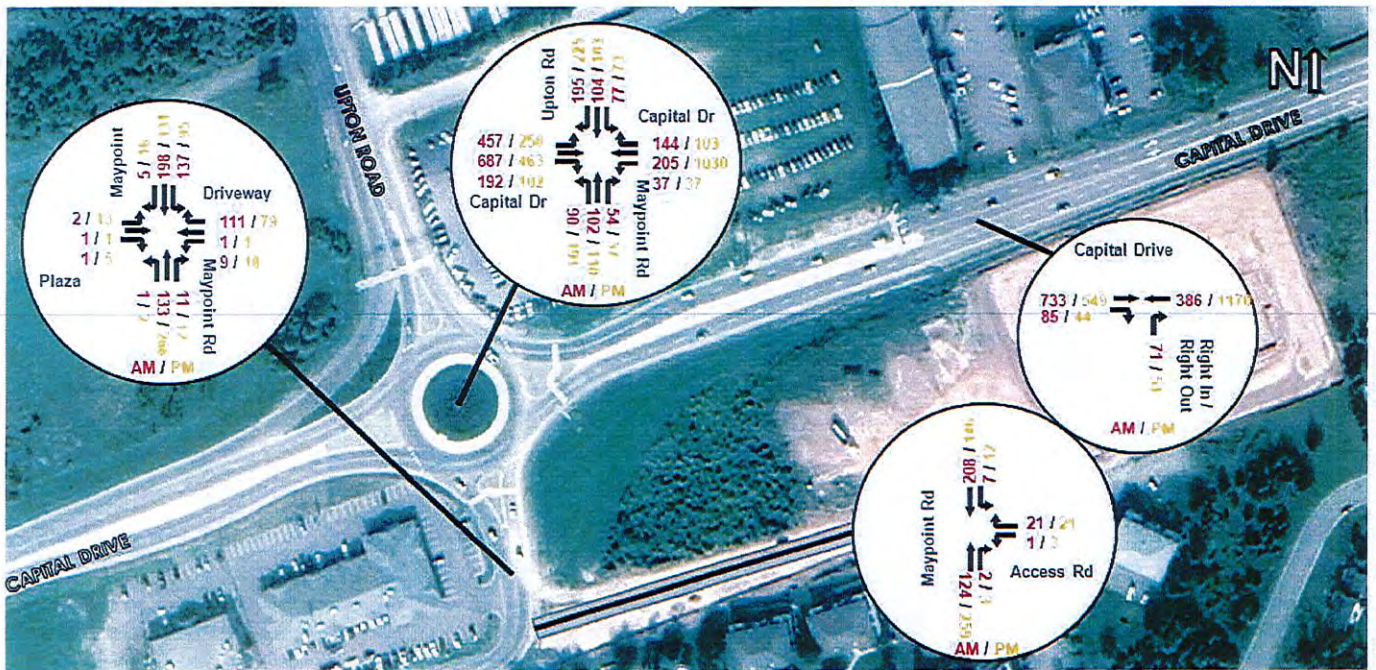



Figure 5 – 2024 Peak Hour Volume with Development – AM / PM

5 Future Traffic Operations with Development

To evaluate the future 2024 traffic conditions with the development in place, both the VisSim model and the Sidra roundabout software package were utilized to measure level of service conditions at the roundabout and the driveway to the development off Maypoint Road. Synchro 10 was also used to evaluate level of service at the Maypoint Road/Driveway/Plaza, Maypoint Road/Access Road, and Capital Drive/Right-in/Right-out Driveway intersections.

The results of the analysis under 2024 traffic conditions are presented in Tables 5 and 6 below. **Table 5** shows the results at the roundabout, while **Table 6** presents the results associated with the other Study Area intersections. Table 5 reflects the results from the Sidra analysis; however, the VisSim results were very similar.

Table 5 - Roundabout Operational Analysis for 2024 Horizon Year with Development

North South Street @ East West Street	Traffic Control	Time Period	Eastbound		Westbound		Northbound	Southbound	
			TL ↶↑	TR ↑↷	TL ↶↑	TR ↑↷	TLR ↶↑↷	TL ↶↑	R ↷
Maypoint/Upton @ Capital Drive		AM Peak	A	A	A	A	B	A	A
			6	10	8	10	18	5	8
			[40]	[40]	[14]	[13]	[29]	[7]	[7]
		PM Peak	A	A	B	B	B	B	B
5	9		15	17	16	10	12		
		[21]	[20]	[82]	[78]	[35]	[22]	[17]	

The roundabout is projected to operate efficiently in 2024 with the development in place during both the morning and evening peak hours. All movements are projected to operate at a very good LOS B or better, with average delays per vehicle at 13 seconds or less. There also would be no substantial queuing on the approaches. The 95th percentile queue length for the Maypoint Road approach to the roundabout would be 29 m in the morning peak and 35 m in the evening peak. These queues would not extend back to the development driveway and block access.

The VisSim queue results are also similar. Based on the calculated 95th percentile queue lengths, queues are not expected to exceed the approximate 40 m queue storage along Maypoint Road to the driveway. These results suggest that no traffic flow and queuing issues are anticipated between the existing roundabout and the new driveway. This includes left turn movements into and out of the development driveway.

At the Capital Drive/Right-in/Right-out intersection, the right-turn out is projected to operate at a very good LOS B during both peak periods with average delay per vehicle of 12 seconds or less. Queuing would not be an issue. These results are presented in Table 6.

The Maypoint Road/Development Driveway/Plaza Driveway intersection is projected to operate efficiently with the critical turning movements at a good LOS C or better during the peak periods. There would also be no substantial queuing on the approaches. (See Table 6.)

Table 6 also shows the Maypoint Road/Access Road intersection would operate efficiently. Volumes are low and the turn movements would operate at LOS B or better.

Table 6 - Stop Sign Controlled Operational Analysis for 2024 Horizon Year with Development

North South Street @ East West Street	Traffic Control	Time Period	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Capital Drive Access (RI/RO)	STOP	AM Peak	Free Flow									B		
		PM Peak	Free Flow									B		
Maypoint @ Driveway / Plaza	STOP	AM Peak	shared	C 16 [1]	shared	shared	B 11 [5]	shared	shared	A 0 [0]	shared	shared	A 4 [3]	shared
		PM Peak	shared	C 16 [2]	shared	shared	B 12 [4]	shared	shared	a 0 [0]	shared	shared	A 4 [2]	shared
Maypoint @ Access Road	STOP	AM Peak				shared	A 9 [1]	shared	shared	A 0 [0]	shared	shared	A 0 [0]	shared
		PM Peak				shared	B 10 [1]	shared	shared	A 0 [0]	shared	shared	A 1 [0]	shared

No operational deficiencies are projected at the Study Area intersections in the horizon year with the development in place.

Should queue lengths continue to grow beyond the 2024 planning horizon and create long-term operational concerns, then a second northbound entry lane, for right turns, can be added. The sensitivity assessment carried out using the Sidra software suggests that a new northbound right turn auxiliary lane with only a 20 m length (plus taper) would provide additional capacity that is expected to reduce northbound queues from 35 m (single-lane entry) to 18 m (two-lane entry) during the PM peak.



6 Driveway Access Characteristics

The driveway analysis assumed all three driveways associated with the proposed development would be stop sign controlled. For the two driveway intersections on Maypoint Road it was assumed there would be no separate turn lanes on the intersection approaches. The results show that operational characteristics are very good with this assumption. At the existing right-in/right-out only driveway on Capital Drive, operational conditions are very good and will continue to be so in 2024 with the development in place.

It is recommended the driveway to the development on Maypoint Road be located directly opposite the Maypoint Plaza driveway to maximize the distance between the development driveway and the Access Road.

7 Tim Hortons Drive-Thru

The proposed development includes a Tim Hortons with a double drive-thru format. There will be approximately 8 seats provided within the restaurant. The double drive-thru will have 2 order windows, and these order windows will be staffed separately. See the layout in Appendix A.

The City has expressed concern with the Tim Hortons drive-thru with respect to the potential queuing extending back to block the development driveway at Maypoint Road, as well as the driveway off the Access Road. The double drive-thru was proposed to alleviate this concern.

As part of this study, the operational characteristics of a similar development was observed. There is an Irving gas bar/convenience store, along with a Tim Hortons on Mapleton Road in Moncton, NB. The Irving has 8 fuelling stations, the same as the proposed Ultramar development, and the Tim Hortons is slightly larger than the proposed one for this development.

During the morning peak (0700 to 0900 hrs), the maximum queue observed at the drive-thru was 9 vehicles (4 in one ordering line and 5 in the other). They have two people taking orders, and this results in faster service. The evening peak period (1600 to 1800 hrs) had less queuing.

If the proposed Tim Hortons in the Capital Drive development has the same setup, then queuing on site or out on Maypoint Road should not be an issue.

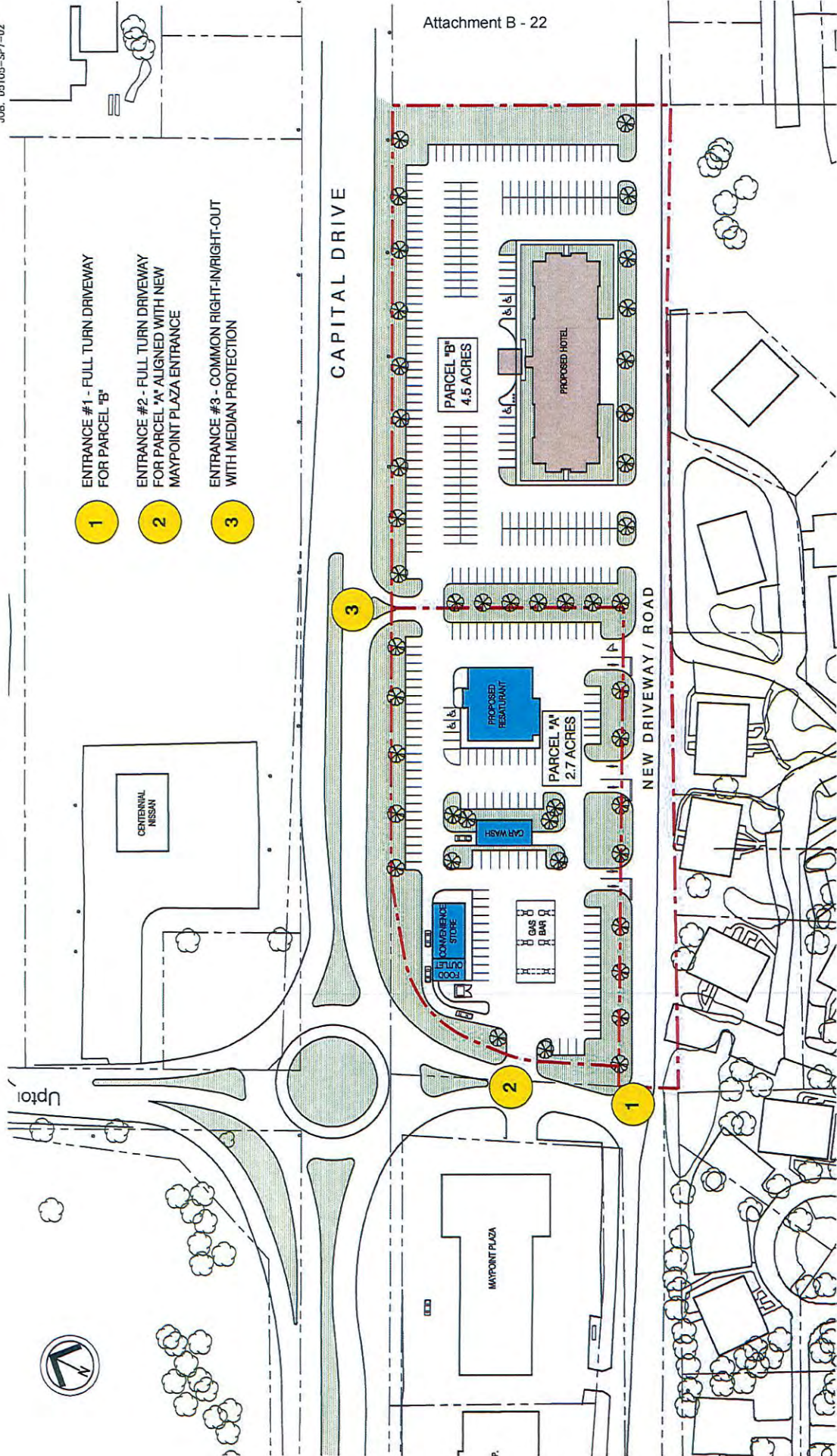
8 Summary of Findings

Summarized below are the results/findings derived from an evaluation of the traffic-related impacts associated with the proposed development project.

- Under existing 2019 conditions and projected 2024 conditions without the development in place, the roundabout at Capital Drive/Maypoint Road/Upton Road is operating and will continue to operate efficiently. Turn movements are operating and will continue to operate at a very good LOS B or better with little delay or queuing.
- With the development in place, 2024 operational conditions in the AM and PM peaks will continue to be efficient at the roundabout. All movements are projected to operate at a very good LOS B or better with no significant delays. The 95th percentile queue lengths on the Maypoint Road approach in the AM and PM peak would be 29 and 35 m, respectively, and this would not result in back up to the development driveway.
- The VisSim queue results are also similar. Based on the calculated 95th percentile queue lengths, queues are not expected to exceed the approximate 40 m queue storage along Maypoint Road. These results suggest that no traffic flow and queuing issues are anticipated between the existing roundabout and the new driveway. This includes left turn movements into and out of the development driveway.
- The Capital Drive/Right-in/Right-out intersection would operate at a very good LOS B with the development in place during both peak periods.
- The critical movements at the Maypoint Road/Development Driveway/Plaza Driveway would operate at a good LOS C or better with no significant queuing.
- The critical movements at the Maypoint Road/Access Road intersection are projected to operate at a very good LOS B or better for the peak periods with very little queuing.
- It is recommended the Development Driveway be located directly opposite the Plaza Driveway.
- With a double drive-thru for the Tim Hortons restaurant, queueing should not extend to Maypoint Road. A similar development in Moncton had queue lengths of 5 and 4 vehicles in the double drive-through during a peak morning time.
- Should queue lengths continue to grow beyond the 2024 planning horizon and create long-term operational concerns, a second northbound entry lane for right turns can be added. The sensitivity assessment carried out using the Sidra software suggests that a new northbound right turn auxiliary lane with only a 20 m length (plus taper) would provide additional capacity that is expected to reduce northbound queues from 35 m (single lane entry) to 18 m (two-lane entry) during the PM peak.

APPENDIX A

Site Plans

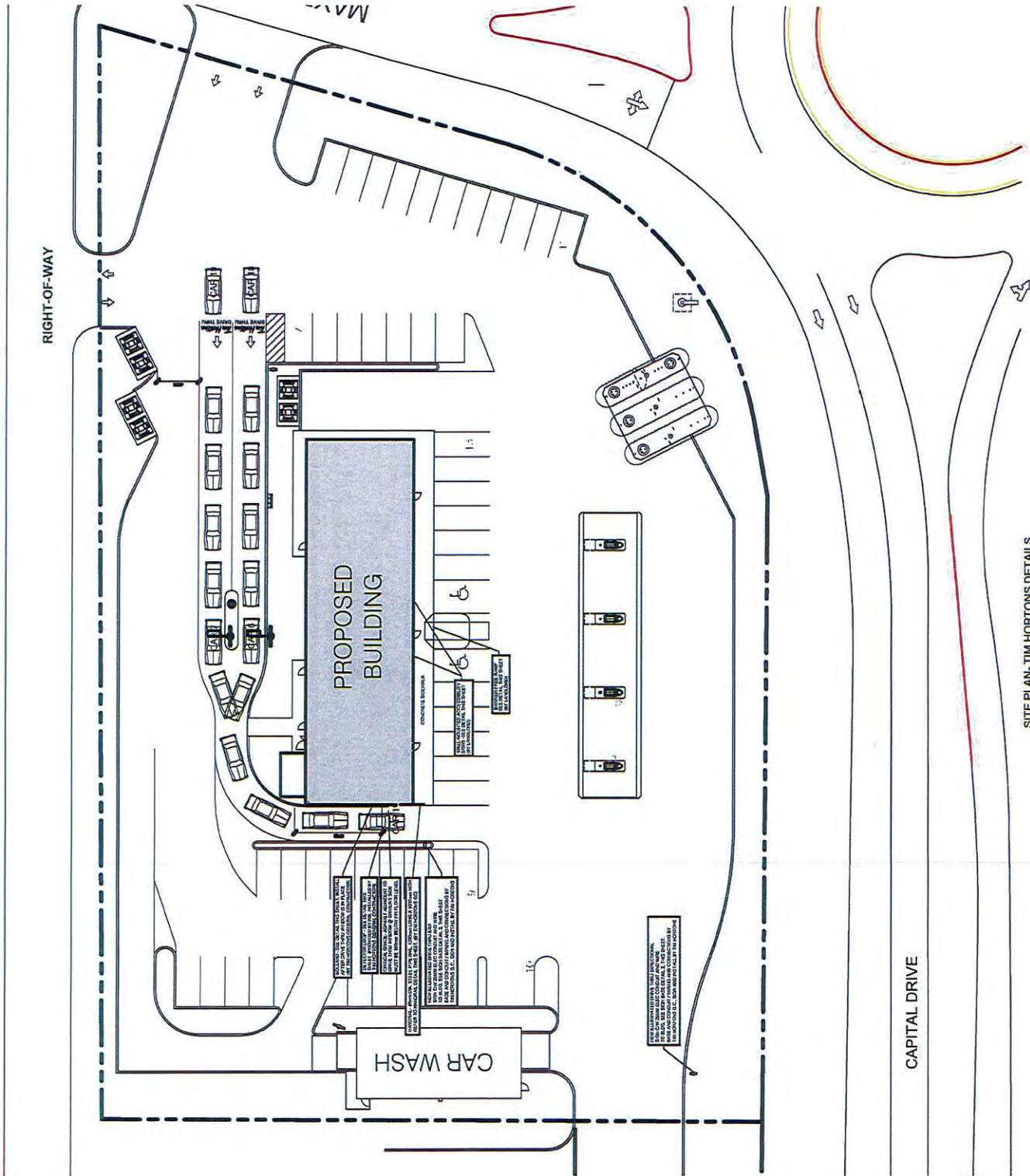


SITE PLAN N.T.S.
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SITE PLAN - TIM HORTONS DETAILS
SCALE: 1:200

DDT OPTION 3

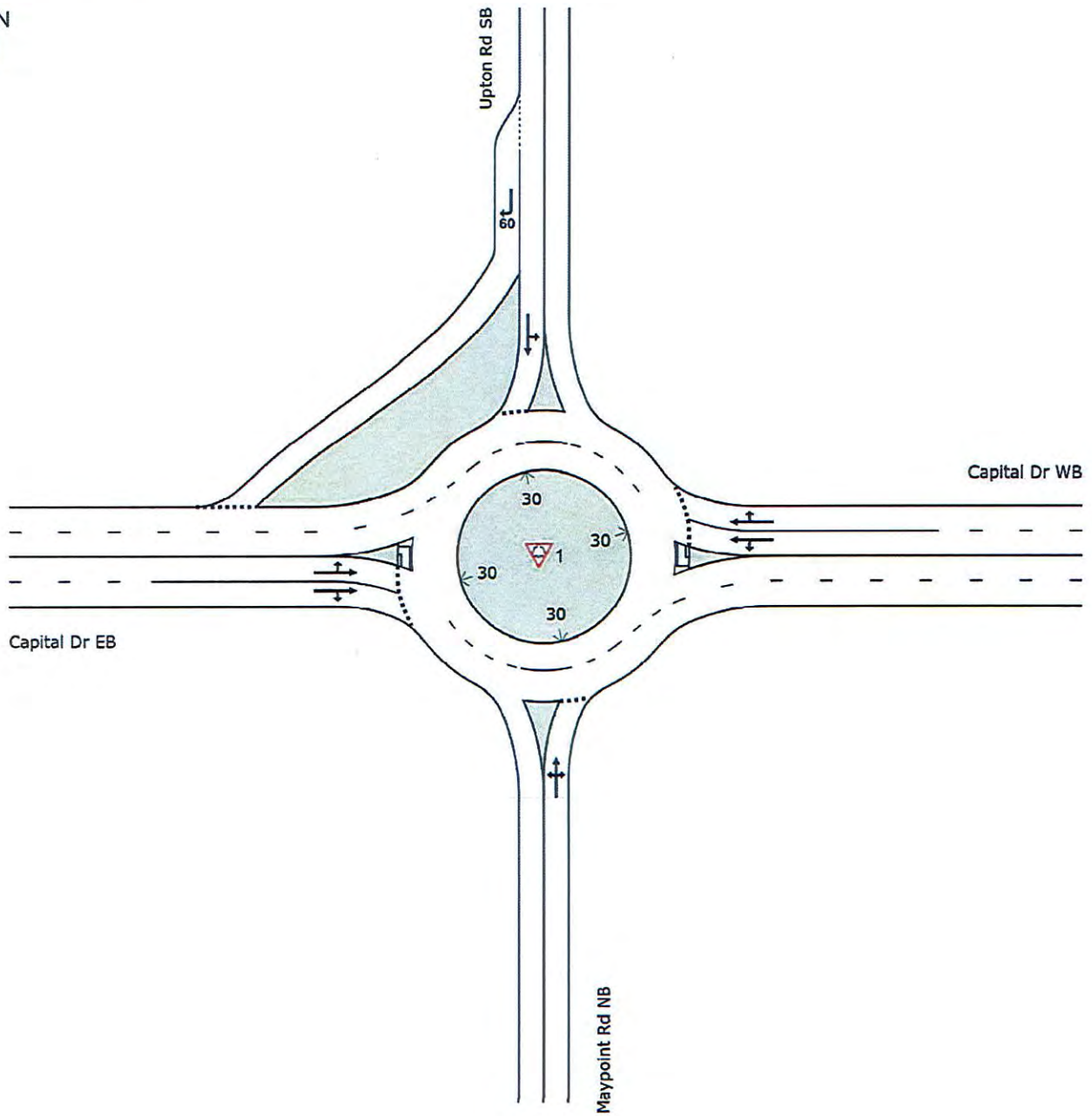
APPENDIX B

Sidra Computer Output for Existing (2019) and 2024 Roundabout Travel Conditions without Development

SITE LAYOUT

Site: 1 [2019 AM: Capital - Maypoint Rdbt]

Capital Dr - Maypoint Rd
2019 Existing - AM Peak Hr
Existing Geometry
Site Category: (None)
Roundabout



LANE SUMMARY

Site: 1 [2019 AM: Capital - Maypoint Rdbt]

Capital Dr - Maypoint Rd
2019 Existing - AM Peak Hr
Existing Geometry
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist m				
South: Maypoint Rd NB													
Lane 1 ^d	121	5.0	453	0.267	100	11.1	LOS B	1.1	8.0	Full	500	0.0	0.0
Approach	121	5.0		0.267		11.1	LOS B	1.1	8.0				
East: Capital Dr WB													
Lane 1	175	5.0	753	0.233	100	7.8	LOS A	1.4	10.2	Full	500	0.0	0.0
Lane 2 ^d	198	5.0	853	0.233	100	7.1	LOS A	1.5	10.7	Full	500	0.0	0.0
Approach	374	5.0		0.233		7.4	LOS A	1.5	10.7				
North: Upton Rd SB													
Lane 1 ^d	148	5.0	975	0.152	100	7.1	LOS A	0.7	5.0	Full	500	0.0	0.0
Lane 2	217	5.0	983	0.221	100	4.6	LOS A	1.1	7.7	Short	60	0.0	NA
Approach	365	5.0		0.221		5.6	LOS A	1.1	7.7				
West: Capital Dr EB													
Lane 1	589	5.0	1177	0.500	100	9.4	LOS A	3.9	28.7	Full	500	0.0	0.0
Lane 2 ^d	645	5.0	1288	0.500	100	4.7	LOS A	4.0	29.1	Full	500	0.0	0.0
Approach	1234	5.0		0.500		6.9	LOS A	4.0	29.1				
Intersection	2094	5.0		0.500		7.0	LOS A	4.0	29.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

LANE SUMMARY

Site: 1 [2019 PM: Capital - Maypoint Rdbt]

Capital Dr - Maypoint Rd
 2019 Existing - PM Peak Hr
 Existing Geometry
 Site Category: (None)
 Roundabout

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %						Veh	Dist m				
South: Maypoint Rd NB													
Lane 1 ^d	265	5.0	590	0.450	100	12.3	LOS B	2.3	16.5	Full	500	0.0	0.0
Approach	265	5.0		0.450		12.3	LOS B	2.3	16.5				
East: Capital Dr WB													
Lane 1	547	5.0	833	0.656	100	11.1	LOS B	6.9	50.1	Full	500	0.0	0.0
Lane 2 ^d	611	5.0	931	0.656	100	10.1	LOS B	7.1	51.5	Full	500	0.0	0.0
Approach	1158	5.0		0.656		10.6	LOS B	7.1	51.5				
North: Upton Rd SB													
Lane 1 ^d	134	5.0	511	0.262	100	10.3	LOS B	1.3	9.2	Full	500	0.0	0.0
Lane 2	241	5.0	514	0.469	100	9.4	LOS A	2.6	19.3	Short	60	0.0	NA
Approach	375	5.0		0.469		9.7	LOS A	2.6	19.3				
West: Capital Dr EB													
Lane 1	371	5.0	1174	0.316	100	8.5	LOS A	2.2	15.9	Full	500	0.0	0.0
Lane 2 ^d	401	5.0	1271	0.316	100	4.3	LOS A	2.2	16.2	Full	500	0.0	0.0
Approach	772	5.0		0.316		6.3	LOS A	2.2	16.2				
Intersection	2569	5.0		0.656		9.4	LOS A	7.1	51.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 1 [2024 AM Bkgd: Capital - Maypoint Rdbt]

Capital Dr - Maypoint Rd
2024 Background - AM Peak Hr
Existing Geometry
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist m				
South: Maypoint Rd NB													
Lane 1 ^d	127	5.0	432	0.295	100	11.6	LOS B	1.3	9.2	Full	500	0.0	0.0
Approach	127	5.0		0.295		11.6	LOS B	1.3	9.2				
East: Capital Dr WB													
Lane 1	184	5.0	725	0.253	100	8.2	LOS A	1.6	11.4	Full	500	0.0	0.0
Lane 2 ^d	209	5.0	826	0.253	100	7.4	LOS A	1.6	11.9	Full	500	0.0	0.0
Approach	393	5.0		0.253		7.8	LOS A	1.6	11.9				
North: Upton Rd SB													
Lane 1 ^d	156	5.0	964	0.162	100	7.1	LOS A	0.7	5.4	Full	500	0.0	0.0
Lane 2	227	5.0	972	0.234	100	4.7	LOS A	1.1	8.2	Short	60	0.0	NA
Approach	383	5.0		0.234		5.7	LOS A	1.1	8.2				
West: Capital Dr EB													
Lane 1	618	5.0	1166	0.530	100	9.6	LOS A	4.3	31.5	Full	500	0.0	0.0
Lane 2 ^d	678	5.0	1278	0.530	100	4.8	LOS A	4.4	32.0	Full	500	0.0	0.0
Approach	1296	5.0		0.530		7.1	LOS A	4.4	32.0				
Intersection	2199	5.0		0.530		7.2	LOS A	4.4	32.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

LANE SUMMARY

Site: 1 [2024 PM Bkgd: Capital - Maypoint Rdbt]

Capital Dr - Maypoint Rd
 2024 Background - PM Peak Hr
 Existing Geometry
 Site Category: (None)
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist m				
South: Maypoint Rd NB													
Lane 1 ^d	300	5.0	574	0.523	100	13.0	LOS B	2.9	20.9	Full	500	0.0	0.0
Approach	300	5.0		0.523		13.0	LOS B	2.9	20.9				
East: Capital Dr WB													
Lane 1	573	5.0	811	0.707	100	12.8	LOS B	8.3	60.3	Full	500	0.0	0.0
Lane 2 ^d	643	5.0	910	0.707	100	11.7	LOS B	8.6	62.5	Full	500	0.0	0.0
Approach	1216	5.0		0.707		12.2	LOS B	8.6	62.5				
North: Upton Rd SB													
Lane 1 ^d	141	5.0	480	0.294	100	10.6	LOS B	1.4	10.6	Full	500	0.0	0.0
Lane 2	253	5.0	483	0.524	100	10.4	LOS B	3.1	22.6	Short	60	0.0	NA
Approach	394	5.0		0.524		10.5	LOS B	3.1	22.6				
West: Capital Dr EB													
Lane 1	389	5.0	1164	0.334	100	8.6	LOS A	2.4	17.2	Full	500	0.0	0.0
Lane 2 ^d	421	5.0	1260	0.334	100	4.4	LOS A	2.4	17.6	Full	500	0.0	0.0
Approach	811	5.0		0.334		6.4	LOS A	2.4	17.6				
Intersection	2720	5.0		0.707		10.3	LOS B	8.6	62.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

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Organisation: GRIFFIN TRANSPORTATION GROUP | Processed: August 13, 2019 11:31:01 AM

Project: C:\Users\Jamie Copeland\Desktop\GRIFFIN\Projects\2019\1916 - PEI Roundabout Assessment\Analysis

\CapitalMaypoint_ExistGeometry.sip8

APPENDIX C

Synchro and Sidra Computer Output for 2024 Travel Conditions with Development

LANE SUMMARY

Site: 1 [2024 AM Total: Capital - Maypoint Rdbt]

Capital Dr - Maypoint Rd
 2024 Total - AM Peak Hr
 Existing Geometry
 Site Category: (None)
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist m				
South: Maypoint Rd NB													
Lane 1 ^d	259	5.0	395	0.656	100	17.7	LOS B	4.0	29.2	Full	500	0.0	0.0
Approach	259	5.0		0.656		17.7	LOS B	4.0	29.2				
East: Capital Dr WB													
Lane 1	189	5.0	666	0.283	100	9.8	LOS A	1.8	13.2	Full	500	0.0	0.0
Lane 2 ^d	218	5.0	768	0.283	100	8.1	LOS A	1.9	13.8	Full	500	0.0	0.0
Approach	406	5.0		0.283		8.9	LOS A	1.9	13.8				
North: Upton Rd SB													
Lane 1 ^d	191	5.0	923	0.206	100	7.5	LOS A	1.0	7.0	Full	500	0.0	0.0
Lane 2	205	5.0	950	0.216	100	4.8	LOS A	1.0	7.3	Short	60	0.0	NA
Approach	396	5.0		0.216		6.1	LOS A	1.0	7.3				
West: Capital Dr EB													
Lane 1	670	5.0	1092	0.613	100	9.9	LOS A	5.4	39.7	Full	500	0.0	0.0
Lane 2 ^d	736	5.0	1201	0.613	100	5.5	LOS A	5.4	39.7	Full	500	0.0	0.0
Approach	1406	5.0		0.613		7.6	LOS A	5.4	39.7				
Intersection	2467	5.0		0.656		8.6	LOS A	5.4	39.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

LANE SUMMARY

Site: 1 [2024 PM Total: Capital - Maypoint Rdbt]

Capital Dr - Maypoint Rd
 2024 Total - PM Peak Hr
 Existing Geometry
 Site Category: (None)
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist m				
South: Maypoint Rd NB													
Lane 1 ^d	377	5.0	551	0.684	100	15.7	LOS B	4.7	34.6	Full	500	0.0	0.0
Approach	377	5.0		0.684		15.7	LOS B	4.7	34.6				
East: Capital Dr WB													
Lane 1	577	5.0	745	0.775	100	17.2	LOS B	10.7	77.8	Full	500	0.0	0.0
Lane 2 ^d	655	5.0	845	0.775	100	15.4	LOS B	11.2	81.7	Full	500	0.0	0.0
Approach	1232	5.0		0.775		16.2	LOS B	11.2	81.7				
North: Upton Rd SB													
Lane 1 ^d	185	5.0	447	0.414	100	12.0	LOS B	2.3	16.6	Full	500	0.0	0.0
Lane 2	237	5.0	464	0.511	100	10.3	LOS B	3.0	21.9	Short	60	0.0	NA
Approach	422	5.0		0.511		11.0	LOS B	3.0	21.9				
West: Capital Dr EB													
Lane 1	415	5.0	1068	0.389	100	8.8	LOS A	2.8	20.3	Full	500	0.0	0.0
Lane 2 ^d	451	5.0	1159	0.389	100	4.9	LOS A	2.8	20.7	Full	500	0.0	0.0
Approach	866	5.0		0.389		6.8	LOS A	2.8	20.7				
Intersection	2897	5.0		0.775		12.6	LOS B	11.2	81.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

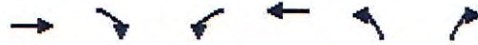
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

HCM Unsignalized Intersection Capacity Analysis
6: Driveway & Capital Dr

08/12/2019



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	549	44	0	1170	0	51
Future Volume (Veh/h)	549	44	0	1170	0	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	597	48	0	1272	0	55
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	383					
pX, platoon unblocked						
vC, conflicting volume			645	1257	322	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			645	1257	322	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	92	
cM capacity (veh/h)			936	163	673	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	398	247	636	636	55	
Volume Left	0	0	0	0	0	
Volume Right	0	48	0	0	55	
cSH	1700	1700	1700	1700	673	
Volume to Capacity	0.23	0.15	0.37	0.37	0.08	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.0	
Control Delay (s)	0.0	0.0	0.0	0.0	10.8	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		10.8	
Approach LOS					B	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			35.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: Maypoint Rd & Plaza/Driveway










08/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1	5	10	1	79	2	266	12	95	131	16
Future Volume (Veh/h)	13	1	5	10	1	79	2	266	12	95	131	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	1	5	11	1	86	2	289	13	103	142	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)											262	
pX, platoon unblocked												
vC, conflicting volume	742	662	150	662	664	296	159			302		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	742	662	150	662	664	296	159			302		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	99	97	100	88	100			92		
cM capacity (veh/h)	274	350	896	349	349	744	1420			1259		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	20	98	304	262								
Volume Left	14	11	2	103								
Volume Right	5	86	13	17								
cSH	336	653	1420	1259								
Volume to Capacity	0.06	0.15	0.00	0.08								
Queue Length 95th (m)	1.4	4.0	0.0	2.0								
Control Delay (s)	16.4	11.5	0.1	3.6								
Lane LOS	C	B	A	A								
Approach Delay (s)	16.4	11.5	0.1	3.6								
Approach LOS	C	B										
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			43.3%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

11: Access Rd & Maypoint Rd

08/12/2019

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	21	259	3	13	146
Future Volume (Veh/h)	3	21	259	3	13	146
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	23	282	3	14	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	366					
pX, platoon unblocked						
vC, conflicting volume	470	284	285			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	470	284	285			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	97	99			
cM capacity (veh/h)	546	755	1277			
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	26	285	173			
Volume Left	3	0	14			
Volume Right	23	3	0			
cSH	723	1700	1277			
Volume to Capacity	0.04	0.17	0.01			
Queue Length 95th (m)	0.8	0.0	0.3			
Control Delay (s)	10.2	0.0	0.7			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	0.7			
Approach LOS	B					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			28.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

6: Driveway & Capital Dr

08/12/2019



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	733	85	0	386	0	71
Future Volume (Veh/h)	733	85	0	386	0	71
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	797	92	0	420	0	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	383					
pX, platoon unblocked						
vC, conflicting volume			889		1053	444
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			889		1053	444
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			758		222	561
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	531	358	210	210	77	
Volume Left	0	0	0	0	0	
Volume Right	0	92	0	0	77	
cSH	1700	1700	1700	1700	561	
Volume to Capacity	0.31	0.21	0.12	0.12	0.14	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	3.6	
Control Delay (s)	0.0	0.0	0.0	0.0	12.4	
Lane LOS						B
Approach Delay (s)	0.0		0.0		12.4	
Approach LOS						B
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			34.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: Maypoint Rd & Plaza/Driveway










08/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	1	9	1	111	1	133	11	137	198	5
Future Volume (Veh/h)	2	1	1	9	1	111	1	133	11	137	198	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	1	1	10	1	121	1	145	12	149	215	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)											262	
pX, platoon unblocked												
vC, conflicting volume	790	674	218	670	671	151	220			157		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	790	674	218	670	671	151	220			157		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	97	100	86	100			90		
cM capacity (veh/h)	244	336	822	340	338	895	1349			1423		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	4	132	158	369								
Volume Left	2	10	1	149								
Volume Right	1	121	12	5								
cSH	323	788	1349	1423								
Volume to Capacity	0.01	0.17	0.00	0.10								
Queue Length 95th (m)	0.3	4.6	0.0	2.7								
Control Delay (s)	16.3	10.5	0.1	3.7								
Lane LOS	C	B	A	A								
Approach Delay (s)	16.3	10.5	0.1	3.7								
Approach LOS	C	B										
Intersection Summary												
Average Delay			4.3									
Intersection Capacity Utilization			43.5%		ICU Level of Service				A			
Analysis Period (min)			15									

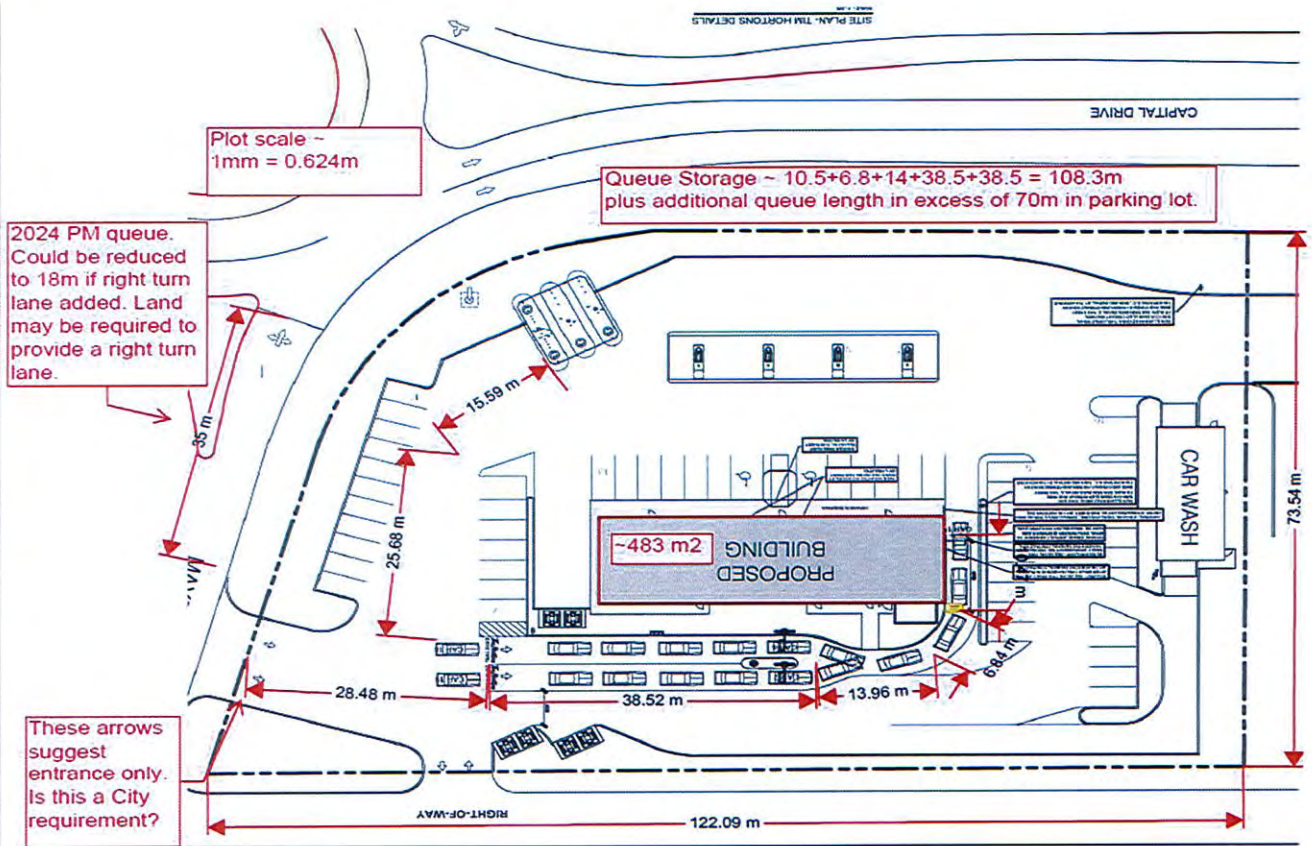
HCM Unsignalized Intersection Capacity Analysis

11: Access Rd & Maypoint Rd

08/12/2019

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	21	124	2	7	208
Future Volume (Veh/h)	1	21	124	2	7	208
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	23	135	2	8	226
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						366
pX, platoon unblocked						
vC, conflicting volume	378	136			137	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	378	136			137	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			99	
cM capacity (veh/h)	620	913			1447	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	24	137	234			
Volume Left	1	0	8			
Volume Right	23	2	0			
cSH	895	1700	1447			
Volume to Capacity	0.03	0.08	0.01			
Queue Length 95th (m)	0.6	0.0	0.1			
Control Delay (s)	9.1	0.0	0.3			
Lane LOS	A		A			
Approach Delay (s)	9.1	0.0	0.3			
Approach LOS	A					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			26.6%		ICU Level of Service	A
Analysis Period (min)			15			

Attachment C



Attachment D

Transportation, Infrastructure and Energy Comments

I have undertaken a quick review of the Draft Traffic Impact Study by EXP Services Inc.

I have not delved deeply into the projected trip generation numbers but seem reasonable. I do note the report projects queuing approaching the roundabout on Maypoint in the 2024 (only 5 yrs away) PM peak could be in the order of 35m. This is just shy of the access (see sketch). EXP does project that this could be reduced to 18m (half) if a right turn lane into the roundabout is added. If queuing for northbound vehicles extends beyond the access to this new development it could have some impact for southbound vehicles leaving the roundabout if a SB vehicle is waiting to turn left into the new development as there is not a dedicated SB left turn lane. The addition of this lane obviously would require widening and thus could require additional right-of-way. The City may wish to consider this in their deliberations.

The study does appear to conclude that queuing on site should not be an issue in comparison to queuing that is being experienced at a similar site in Moncton. I've looked at mapping of other TH's in Charlottetown to determine available queuing lengths and have concluded the following:

- Grafton St TH has about 105m of queuing length before spilling onto Grafton St.
- Allen St TH has about 67m of queuing length before spilling onto Mt Edward. Additional storage (35+m) is available in parking lot towards Allen St.
- Queens Arms TH has about 120m of queuing length before spilling onto North River Rd.
- Nassau St TH has about 40m of queuing length before spilling onto Nassau. Additional storage (45m) is available in parking lot towards University Ave.
- St. Peters Rd has about 145m of queuing length before spilling onto St. Peters Rd

This new TH would have about 108m of queuing in the line up and over 70m of queuing towards Maypoint and the gas pumps. This site would thus seem to provide more queuing space than the other 5 above noted TH's.

Alan A. Aitken, P.Eng
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Attachment D

City of Charlottetown Police Service

Good Morning All,

I have reviewed the information contained in the document provided yesterday. The summary information seems to answer the concerns that we had discussed earlier. I would note that although In section 7 exp has referenced a similar style development in Moncton off Mapleton Rd. there are some differences. The Mapleton Rd property is on the corner of a traffic light controlled intersection and not in close proximity to a round about as is the case with this development. In addition there is only a single access point to the development which is off Lady Ada Blvd and a significant distance from the intersection.

Our concern was with respect to the potential issues of queuing at peak periods. At this point in comparison to other similar set ups it is not an issue, but could be 5 yrs out. Our concern was to ensure that the Province was aware of the potential impacts and this seems to have been addressed in Alan's email.

Paul S.

City of Charlottetown Public Works

Good Afternoon All,

I have quickly read through the report and I am satisfied with the findings. We will require the new driveway to align with the Maypoint strip mall driveway. I also agree with Alan's note that the developer should hand over that additional land to the city as the additional lane will be required at some time in the future. It will be easier and to take ownership now than in 5-10 years from now.

Thank you,

Scott Adams, MEng., P.Eng.

Manager of Public Works