City of Richmond Hill

Red Maple Road Modifications Municipal Class Environmental Assessment

Schedule ‘B’ Project File Report

September 2022

B001113

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City of Richmond Hill

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Municipal Class Environmental Assessment
Project no B001113

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If technical reports are required in an alternative format for accessibility needs, then please contact:

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1 Introduction and Study Area

The City of Richmond Hill has completed a Municipal Class Environmental Assessment study for traffic operations and safety improvements on Red Maple Road. The study area is Red Maple Road between High Tech Road and Highway 7, and includes the intersections of High Tech Road, North driveway, South driveway, GO driveway and Highway 7. The study area is illustrated in **Figure 1**.

Figure 1: Study Area

During peak times drivers at certain intersections experience lengthy delays turning onto Red Maple Road, and consequently take risks which impacts the overall safety performance of the corridor. Conditions for pedestrians and cyclists are poor as well, with no controlled means of crossing Red Maple Road except at either end of the study area.

The North and South driveways provide access for Home Depot and Tim Hortons on the west side of Red Maple Road, and a commercial plaza with Staples and other retail uses on the east side. The GO driveway serves the Langstaff GO Station and North Parking Lot (the South Parking Lot being south of Highway 407). Two minor driveways are to the south on the east side, for a residential sales office and Petro-Canada gas station. Highway 7 and its intersection with Red Maple Road are under the jurisdiction of the Region of York.

Red Maple Road has a four-lane urban section and a statutory speed limit of 50 km/h. There are left-turn lanes on Red Maple Road at High Tech Road, the North driveway

and the South driveway, and dual left-turn lanes at Highway 7, but no northbound left-turn lane at the GO driveway. Sidewalks are present on both sides throughout the corridor. There are no dedicated cyclist facilities.

Also present within the study area is a hydro corridor owned by the province running diagonally from northeast to southwest, with three high voltage transmission towers situated in the GO station parking lot near Red Maple Road.

Red Maple Road lies within the Richmond Hill Centre Secondary Plan area and is east of the planned Yonge Subway Extension, which will have a future multi-modal station on the west side of the current GO Transit railway corridor.

1.1 Study Background

Two prior transportation studies were undertaken of the corridor and surrounding area by LEA Consulting Ltd. The first, *The Red Maple Road and High Tech Road Operations Study*, 2015, recommended that the South driveway be signalized, and that shared access be implemented between the Home Depot and Langstaff GO Station parking lots. A mid-block location for the traffic signals was considered preferred, and it was thought their installation would alleviate delays for drivers accessing Home Depot and Tim Hortons on the west side, Staples and other retail uses on the east side, plus commuters using the GO station. The study further recommended the installation of a centre median on Red Maple Road at the North driveway, to convert access on either side to right-turns-only and reduce the frequency of angle and turning movement collisions at that location.

Unfortunately, an agreement was not able to be reached between DG Group/Metrus Properties, the owners of the Home Depot property, and Metrolinx regarding shared access between the Home Depot and GO station parking lots. This led to a second study, *The Red Maple Road Follow-Up Operations and Safety Review*, 2018. This study looked at the corridor again, and again recommended that the South driveway be signalized even without the shared access. It was thought the gaps in traffic on Red Maple Road created by signals at the South driveway would aid drivers exiting the GO driveway. The study also recommended the centre median at the North driveway.

1.2 Municipal Class Environmental Assessment Process

This study follows the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment process for a Schedule B project (October 2000, as amended in 2007, 2011 and 2015). The Municipal Class Environmental Assessment is an approved planning and design process under the Ontario Environmental

Assessment Act. As illustrated in **Figure 2**, the planning and design process is comprised of five phases:

Phase 1 Identify Problem or Opportunity;

Phase 2 Identify and Evaluate Alternative Solutions to the problem or opportunity;

Phase 3 Identify and Evaluate Alternative Design Concepts for the preferred solution;

Phase 4 Complete and File Environmental Study Report (ESR) for public review; and

Phase 5 Implement the project (Detail Design, Construction, Operation, and Environmental Monitoring).

Transportation improvements are classified into one of the following schedules:

Schedule A Projects are limited in scale, have minimal adverse environmental impacts, and may be implemented without following the full Class EA process.

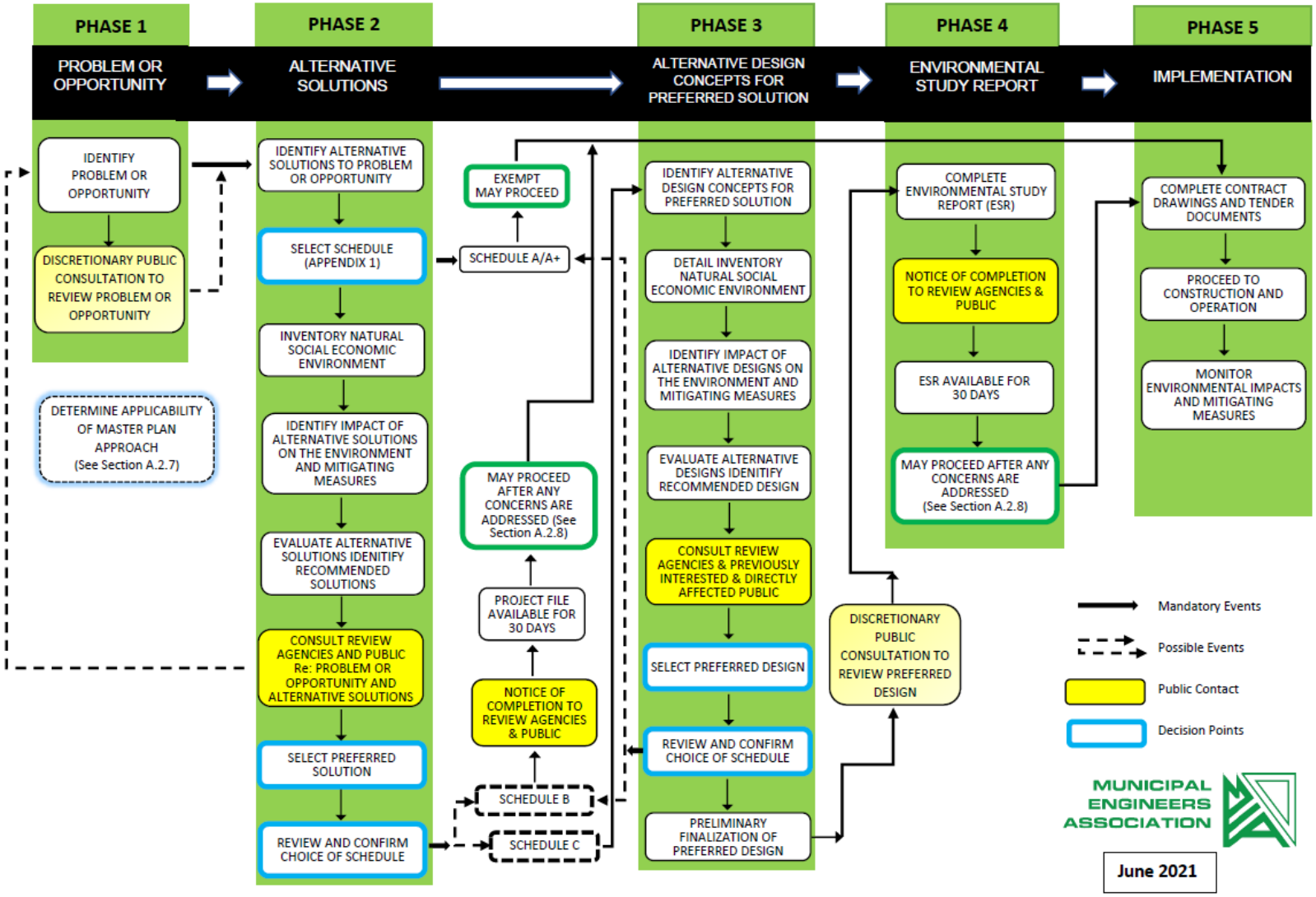
Schedule A+ Projects are limited in scale, have minimal adverse environmental impacts, and may be implemented without following the full Class EA process. However, the public is to be advised prior to implementing the project.

Schedule B Projects may have some adverse environmental impacts. The proponent must undertake a screening process, involving contact with directly affected public and technical/regulatory review agencies to ensure that they are aware of the project and that their concerns are addressed. A Project File is prepared for public review.

Schedule C Projects may have significant environmental impacts. The proponent must follow the full planning, design, and documentation process of the MEA Municipal Class EA document. An Environmental Study Report is prepared for public review.

This study follows Phases 1 and 2 of the planning and design process for Schedule B projects which requires the preparation and filing of this Project File Report.

Figure 2: Municipal Class Environmental Assessment Process



1.2.1 Project File

Phases 1 and 2 of the Schedule B Municipal Class EA process are documented in a Project File (i.e., this report), which includes:

- Study background and related studies;
- Description of existing conditions;
- Study area problems and opportunities;
- Development of alternative solutions;
- Evaluation of alternative solutions and identification of the preferred solutions;
- Anticipated impacts and proposed mitigation measures;
- Public and agency consultation; and
- Supporting technical reports.

The Project File for this study is available for a 30 calendar-day public review period commencing on September 8, 2022 and ending on October 10, 2022.

A Notice of Study Completion was issued on September 8, 2020 to notify the public of the completion of the study and initiate the review period.

1.2.2 Notice of Study Completion

As detailed in the Notice of Study Completion, interested persons may provide written comments to the project team by **October 10, 2022**. All comments and concern should be sent directly to **Tony Chiu** at the City of Richmond Hill.

Tony Chiu, M.A.Sc., P.Eng.
Traffic Engineer
City of Richmond Hill
225 East Beaver Creek Road
Richmond Hill, ON L4B 3P4
Email: tony.chiu@richmondhill.ca

The Municipal Class EA process includes an appeal provision. The Minister of the Environment, Conservation and Parks has the authority and discretion to make an Order under Section 16 of the Environmental Assessment Act.

A Section 16 Order may require that the proponent of a project going through a Class Environmental Assessment (Class EA) process:

- Submit an application for approval of the project before they proceed. This is generally referred to as an Individual Environmental Assessment (individual EA).

- Meet further conditions in addition to the conditions in the Class EA. This could include conditions for: further study, monitoring and/or consultation

The Minister can also refer a matter in relation to a section 16(6) Order request to mediation.

Before making an Order, the minister must consider the factors set out in section 16(5) of the Environmental Assessment Act. If a Section 16 Order request is made, the project proponent cannot proceed with the project until the Minister makes a decision on the request. If the minister makes a Section 16 Order, the proponent may only proceed with the project if they follow the conditions in the Order.

Note, Section 16 Order requests were previously known as Part II Order requests.

Reasons for Requesting an Order

A concerned party may ask the minister to make a Section 16(6) Order if:

- they have outstanding concerns that a project going through a Class EA process may have a potential adverse impact on constitutionally protected Aboriginal and treaty rights;
- they believe that an Order may prevent, mitigate or remedy this impact.

A Section 16(6) Order request cannot be made to simply delay or stop the planning and implementation of a project that is going through a Class EA process. Prior to making a Section 16(6) Order request, the concerned party should first try to resolve any concerns directly with the project proponent, in this case, the City of Richmond Hill.

Timing for an Order Request

During the 30-day public comment period, anyone can review the documentation, submit any comments or concerns to the proponent, and request a Section 16(6) Order

To request a Section 16 Order for a project, on the grounds that an Order may prevent, mitigate or remedy potential adverse impacts on constitutionally protected, Aboriginal and treaty rights, a concerned party must make the request before the public comment period is complete.

How to make a request

To submit a Section 16(6) Order request, the following information must be provided:

- name, address and email address;
- project name;
- proponent name;

- what kind of Order is being requested i.e., a request for additional conditions or a request for an individual environmental assessment;
- details about the concerns about potential adverse impacts on constitutionally protected Aboriginal or treaty rights and how the proposed Order may prevent, mitigate or remedy the identified adverse impacts;
- whether the concerned party belongs to, represents or has spoken with an Indigenous community whose constitutionally protected Aboriginal or treaty rights may be adversely impacted by the proposed project;
- whether the concerned party has raised their concerns with the proponent, the proponent's response (if any) and why the concerns could not be resolved with the proponent;
- any other information to support the request.

Section 16 Order requests are made to the Minister of Environment, Conservation and Parks and the Director of Environmental Assessment Branch in writing by mail or email:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto, ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, ON M4V 1P5
enviropermissions@ontario.ca

There is no appeal of the Minister's decision with respect to a Section 16 Order. If the request for a Section 16(6) Order is denied by the Minister, the proponent can proceed with the project. If the Minister makes an Order, the proponent may only proceed with the project if they follow the conditions in the Order.

The above discussion is intended as an overview of the process only. For more information and specific instruction, please visit: https://www.ontario.ca/page/class-environmental-assessments-section-16-order

2 Existing Conditions

2.1 Planning and Policy Context

The provincial and municipal policy framework guides infrastructure, land use planning, and strategic investment decisions to support City growth and transportation objectives. This framework was considered in assessing the needs of the study area. The study area problems and opportunities were carried out with consideration of the planning framework to ensure that the Preferred Solution is consistent with the policies and objectives of the various levels of government.

Places to Grow Act (2005) and Growth Plan (2020)

The Places to Grow Act, 2005 provides the legal framework necessary to implement the Province's vision for managing growth within the Greater Golden Horseshoe (GGH). The Act enables the government to plan for population growth, economic expansion and the protection of the environment, agricultural lands and other resources in a coordinated and strategic manner.

The Growth Plan for the Greater Golden Horseshoe was prepared under the Places to Grow Act. Originally prepared in 2006, the Growth Plan was updated in 2020 to reflect growth planning to 2051, guiding decisions on transportation, infrastructure planning, land-use planning, urban form, housing, natural heritage, and resource protection.

To support the achievement of complete communities that are healthier, safer, and more equitable, choices about where and how growth occurs in the GGH are made carefully. Better use of land and infrastructure can be made by directing growth to settlement areas and prioritizing intensification, with a focus on strategic growth areas, including urban growth centres and major transit station areas, as well as brownfield sites and greyfields. Richmond Hill Town Centre is identified as an Urban Growth Centre. Section 2.2.3 of the Growth Plan identifies planning policies to support intensification in these areas.

Growth Plan Section 2.2.3 Urban Growth Centres (UGCs)

- Urban growth centres will be planned:
    - as focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural, and entertainment uses;
    - to accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit;
    - to serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses; and

    - to accommodate significant population and employment growth.
- Urban growth centres will be planned to achieve, by 2031 or earlier, a minimum density target of 200 residents and jobs combined per hectare for Richmond Hill Centre/Langstaff Gateway.

Section 3.2 of the Growth Plan provides the infrastructure policies to support sustainable growth. While the Growth Plan should be considered in its entirety, the policies that are particularly relevant to the Red Maple Road Modifications Class EA are excerpted below:

Growth Plan Section 3.2.1 Integrated Planning

- Planning for new or expanded infrastructure will occur in an integrated manner and will be supported by infrastructure master plans, asset management plans, community energy plans, watershed planning, environmental assessments, and other relevant studies where appropriate.

Growth Plan Section 3.2.2 Transportation – General

- Transportation system planning, land use planning, and transportation investment will be coordinated to implement this Plan.
- The transportation system within the GGH will be planned and managed to:
    - provide connectivity among transportation modes for moving people and for moving goods;
    - offer a balance of transportation choices that reduces reliance upon the automobile and promotes transit and active transportation;
    - be sustainable and reduce greenhouse gas emissions by encouraging the most financially and environmentally appropriate modes for trip-making and supporting the use of zero- and low-emission vehicles; and
    - offer multimodal access to jobs, housing, schools, cultural and recreational opportunities, and goods and services.
- In the design, refurbishment or reconstruction of the existing and planned street network, a complete streets approach will be adopted that ensures the needs and safety of all road users are considered and appropriately accommodated.

Growth Plan Section 4.2.10 Climate Change

- Upper- and single-tier municipalities will develop policies in the official plans to identify actions that will reduce greenhouse gas emissions and address climate change adaptation goals, aligned with the Ontario Climate Change Strategy (2015) and the Climate Change Action Plan (2016) that will include:

- supporting the achievement of complete communities as well as the minimum intensification and density targets in this Plan;
- reducing dependence on the automobile and supporting existing and planned transit and active transportation;
- assessing infrastructure risks and vulnerabilities and identifying actions and investments to address these challenges; and
- undertaking stormwater management planning in a manner that assesses the impacts of extreme weather events and incorporates appropriate green infrastructure and low impact development.

Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) is issued under the Planning Act and supports the Growth Plan in providing policy direction for the use and management of land and infrastructure while protecting the environment and resources. Sections of the PPS that are applicable to the planning of transportation infrastructure include:

- Part IV Vision for Ontario's Land Use Planning System – land development should be optimized to promote efficient use of land, resources and public investment in infrastructure and public service facilities. The supporting transportation infrastructure is to provide choices and promote increased use of active transportation as well as transit before other modes of travel.
- Part V Policies – transportation systems should be safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs. A multimodal transportation system is to provide connectivity within and amongst the transportation systems.

Parkway Belt West Plan (1978)

The Parkway Belt West Plan (PBWP) took effect in 1978 to reserve land for infrastructure, separate urban areas, and connecting open spaces in Halton, Peel, York, Hamilton, and Toronto. Lands south of the study area, along the Highway 407 corridor, are subject to and governed by this plan.

Richmond Hill Official Plan (Update Ongoing)

The City's Official Plan is a policy document that applies to all properties within the municipal boundary. It guides how land is used, and how and where growth and development will take place in the city. The Richmond Hill Official Plan is being updated to implement changes to provincial policies over the last ten years, conform with policies in the York Region Official Plan, respond to current urban issues and conditions, and consider new opportunities for shaping the city to guide land use and development to

2041. At the time of writing, the Official Plan Update is underway, so the 2010 Official Plan is referenced.

Schedule A2 in the Official Plan identifies the study area as partially Utility Corridor and Richmond Hill Centre. Land uses permitted in the Utility Corridor designation include stormwater management works, electrical transformer and distribution stations, heating distribution stations and related facilities, trails and linear parks, existing automotive service commercial uses and parking.

Richmond Hill Centre is an intensification area located around the intersection of Yonge Street and Highway 7. The area is intended to develop into a compact, mixed-use urban centre supported by a high-quality public realm, walkable streets, and transit-oriented development. A Draft Secondary Plan (2021) has been prepared to provide direction for the creation of a future downtown in Richmond Hill Centre and create a balance of people and jobs that is reflective of Provincial and Regional Major Transit Station Area targets for this Urban Growth Centre. The core of the Secondary Plan Area includes the planned High Tech Station as part of the Yonge North Subway Extension.

Richmond Hill Transportation Master Plan (Update Ongoing)

The City of Richmond Hill is updating its Transportation Master Plan to identify the City's future vision for all modes of travel within the city to the year 2051. The Plan will guide the future of the City's road, walking, and cycling networks including recreational trails. For more information visit the City's website: https://www.richmondhill.ca/en/find-or-learn-about/transportation-master-plan.aspx

2.2 Traffic Operations

A traffic operations review was conducted to summarize transportation findings for the study area and recommend modifications to address the identified operational and safety issues. The Transportation Report is available as **Appendix G**.

AM and PM peak hour volumes, and 8-hour volumes, were collected through traffic counts at High Tech Road and Highway 7 in April 2019. These were balanced and used as the through volumes on Red Maple Road at the North driveway, South driveway and GO driveway. The 2013 peak hour volumes from *The Red Maple Road Follow-Up Operations and Safety Review*, 2018, were used as the turning movement volumes at these driveways.

The turning movement volumes from 2013 (northbound left or NBL, westbound right or WBR, etc.) were used as they were, since no new developments have occurred along Red Maple Road to justify an increase in traffic. The 2019 counts were then used to balance the study area along Red Maple Road (through movements only). The only

"imbalance" is because of the two minor driveways on the east side between Highway 7 and the GO driveway, for the residential sales office and Petro-Canada gas station. Therefore, some trips were assigned there.

These volumes were modelled in Synchro 9.0 under Highway Capacity Manual (HCM) 2000 methodology in order to have a point of comparison to potential changes in the study area. **Table 1** provides a summary of results for volume-to-capacity (v/c) ratio and level of service (LOS) and identifies critical movements (v/c ratio greater than or equal to 0.85).

Table 1: Analysis Results - Existing Conditions

Location	Movement	V/C Ratio	LOS
High Tech Road (signalized)	Overall	0.45 (0.44)	B (B)
North Driveway (unsignalized)	EB L/T/R WB L/T/R	0.92 (0.87) 0.02 (0.16)	F (F) D (C)
South Driveway (unsignalized)	EB L/T WB L/T/R	0.34 (1.36) 0.11 (1.57)	E (F) C (F)
GO Driveway (unsignalized)	EB L	0.73 (1.41)	F (F)
Highway 7 (signalized)	EB L SB L Overall	0.73 (1.13) 0.57 (0.55) 0.73 (1.06)	C (F) D (D) B (C)

Legend: AM (PM)

According to the analysis there are no critical movements at the intersection of Red Maple Road and High Tech Road. At the North driveway, the critical movement is eastbound only during both peak hours. At the South driveway it is eastbound and westbound during the PM peak hour. At both the GO driveway and at Highway 7 it is the eastbound left turn during the PM peak hour.

The results do not necessarily match observations from a field investigation conducted along Red Maple Road for the AM peak period on Wednesday July 31, 2019, and PM peak period on Thursday June 6 and Thursday September 5, 2019. During the field investigation, long vehicle queues were only observed at the GO driveway (northbound during the AM peak hour and eastbound during the PM peak hour). Some queuing was observed eastbound at Highway 7 during the PM peak hour, but no significant delays or queues were observed at the North and South driveways.

2.3 Pedestrians

A number of pedestrians crossing Red Maple Road mid-block between the South driveway and the GO driveway were observed during the field investigation. Some originated from or were destined to the GO station. None appear to have been GO commuters parked on the east side of Red Maple Road. The crossing activity suggests that traffic signals at either the South driveway or the GO driveway would benefit pedestrians.

A multi-modal level-of-service (MMLOS) analysis of existing conditions was conducted using York Region's Transportation Mobility Plan Guidelines. Intersections and segments between intersections were analyzed. The full MMLOS assessment is available in Appendix G (Transportation Report **Appendix E**).

Sidewalks are present on the north and south sides of High Tech Road and Highway 7, and east and west sides of Red Maple Road. They are approximately 1.5 metres in width, which complies with AODA requirements. No sidewalks are present along the minor streets at the unsignalized driveways.

2.4 Signal Justification Analysis

Given the recommendations of the prior transportation studies by LEA Consulting Ltd, a signal warrant or justification analysis was conducted for the North driveway, South driveway and GO driveway in accordance with the procedure in Ontario Traffic Manual (OTM) Book 12.

The procedure consists of six justifications: 1) minimum 8-hour vehicle volume, 2) delay to cross traffic, 3) combination (of the first two), 4) minimum 4-hour vehicle volume, 5) collision experience, and 6) pedestrian volume. For a traffic signal installation to be technically justified, at least one of the justifications must be met. Typically, installation would not proceed otherwise, as the traffic signals could result in an overall increase in intersection delay or negative impact on intersection safety.

Because 8-hour volumes were not available at the North, South and GO driveways, they were estimated by taking the percentage that the AM and PM peak hour volumes are of the 8-hour volume at High Tech Road and applying that percentage to the AM and PM peak hour volumes at the driveways.

The results show that traffic signals are only justified at the North driveway, and then only because of Justification 2 (delay to cross traffic) and Justification 3 (combination). Traffic signals are not technically justified at the South driveway and GO driveway. Signal justification forms are provided in **Appendix G** (Transportation Report **Appendix C**).

As mentioned, during the field investigation long vehicle queues were observed at the GO driveway (northbound during the AM peak hour and eastbound during the PM peak hour). Significant queuing was not observed at the North or South driveways. According to the capacity analysis, peak hour v/c ratios, although high eastbound, are lower overall at the North driveway than at the South and GO driveways. It is likely that the North driveway exhibits more consistent volumes of traffic throughout the day compared to the other two driveways.

Despite the results of the signal justification analysis, there does not appear to be as much peak hour operational benefit to traffic signals at the North driveway. Also, the queue storage distance between the North driveway and High Tech Road is only about 95 metres. Therefore, the installation of traffic signals was not pursued further at the North driveway.

2.5 Traffic Safety

According to the motor vehicle accident reports provided by the City, a total of 55 collisions occurred within the study area between 2013 and 2018. Of them 40 were property-damage-only (PDO) or non-reportable collisions and 15 were non-fatal injury collisions. No fatal collisions were reported.

Collisions were reported at the following locations along Red Maple Road:

- 8 at High Tech Road
- 22 at the North driveway
- 7 at the South driveway
- 6 at the GO driveway
- 0 at the residential sales office driveway
- 4 at the Petro-Canada gas station driveway
- 6 at an unspecified private driveway
- 2 mid-block

No collision reports were available for the Highway 7 intersection, although it is possible these records were provided to the Region of York.

Most of the collisions (75%) were classified as angle or turning movement.

Of the 55 collisions 22 (40%) were located at the North driveway, which provides frontage access to Home Depot on the west side of Red Maple Road and Staples and other retail uses on the east side. Most of the collisions (91%) were classified as angle or turning movement.

The findings at the North driveway support the recommendation in the previous studies of a centre median on Red Maple Road, to convert access on either side to right-turns-only and reduce the frequency of collisions at that location.

2.6 Cultural Environment

The study corridor has been previously disturbed by recent development. Everything within the study area has been constructed within the last 40 years.

2.7 Natural Environment

A desktop tree survey along Red Maple Road was undertaken in May 2020 to show existing trees near the work areas and illustrate locations where Tree Protection Fencing should be considered during construction. There are no trees in the vicinity of the work that are Species At Risk. The tree survey is provided as **Appendix H**.

Due to the built-up nature of the corridor, no other natural environment assessments were required or undertaken.

2.8 Stormwater Management

Existing drainage from Red Maple Road flows to the stormwater management pond at Yonge Street and Highway 7, and outlets to Pomona Creek. Redside Dace is present in the Don River East Branch upstream of Helen Avenue, but since the project drainage outlet is located in Pomona Creek (i.e., not the Don River East Branch) no impact to Redside Dace is anticipated due to any works on Red Maple Road. The stormwater management report is provided as **Appendix I**.

2.9 Source Water Protection

The Red Maple Road study area is within the jurisdiction of the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Protection Region. The Ministry of Environment, Conservation and Parks' Source Protection Information Atlas was queried to identify any potential sensitivities of the Red Maple Road study area with respect to source water protection and potential for drinking water threats. The results are summarized in **Table 2**.

The Ministry of Environment, Conservation and Parks' Source Protection Information Atlas indicated the only vulnerable area present in the study area is highly vulnerable aquifer. Under existing conditions, the study area is fully urbanized with curb, gutter, catch basins, and storm sewers. Existing runoff from Red Maple Road is conveyed via storm sewer and is not a significant threat to the aquifer, in general.

It is noted that the water supply for the area is taken from Lake Ontario and that the study area sensitivities and risks are low. Therefore, specific Source Water Protection policies were not elaborated upon here. Further information about vulnerable areas and policies design to protect municipal sources of drinking water in the area can be found in the CTC Source Protection Plan.

CTC Source Protection Plan: https://ctcswp.ca/protecting-our-water/the-ctc-source-protection-plan/

Table 2: Source Water Protection Areas

Vulnerable Areas	Within Study Area?
Wellhead Protection Area	No
Wellhead Protection Area E (GUDI)	No
Intake Protection Zone	No
Issue Contributing Area	No
Significant Groundwater Recharge Area	No
Highly Vulnerable Aquifer	Yes Note: the study area is urbanized with curb, gutter catch basins and storm sewers. Existing runoff from Red Maple Road is conveyed via the storm sewer system and therefore does not permeate to aquifer.
Event Based Area	No
Wellhead Protection Q1	No
Wellhead Protection Q2	No
Intake Protection Zone Q	No

2.10 Problem and Opportunity

Traffic operational problems exist along Red Maple Road, particularly at the GO station driveway, and there is a relatively high collision frequency at the North driveway. Additionally, there are no controlled pedestrian crossings of Red Maple Road except at the very north and south limits of the study area, at High Tech Road and at Highway 7.

This project will examine opportunities to address these conditions.

3 Alternative Solutions

Phase 1 of the Municipal Class EA process involves the identification of transportation problems and opportunities to be addressed by the study and is detailed in Chapter 2. The following section describes Phase 2 of the Municipal Class EA process, which involves the identification of a range of alternative solutions to address the problems and opportunities and a detailed assessment and evaluation to establish the preferred solution.

3.1 Description of Alternative Solutions

In response to the identified problem, three alternative solutions have been developed for the corridor:

- Alternative 1 – Traffic Signals at South Driveway
- Alternative 2 – Traffic Signals at South Driveway, Plus Shared Access
- Alternative 3 – Traffic Signals at GO Driveway

Alternative 1 includes restricting the North driveway to right-turns-only via a centre median, for which it is assumed that all left-turn traffic would redistribute to the South driveway. This should significantly reduce the potential for turning movement and angle type collisions at this location.

Similarly, Alternative 2 includes restricting the North driveway to right-turns-only via a centre median, for which it is assumed that all left-turn traffic would redistribute to the South driveway. It was also assumed that some traffic from the GO station will redistribute to the South driveway given the shared access between the Home Depot and GO station parking lots. For the traffic operations analysis, values of 50% of northbound left turns and 50% of eastbound left turns at the GO driveway were used to redistribute to the South driveway.

Alternative 3 includes restricting the North driveway to right-turns-only via a centre median, but no left-turn traffic was taken to redistribute to the GO driveway because it is not internal to the Home Depot site.

The alternative solutions are illustrated in **Figure 4** through **Figure 6**.

3.2 Analysis and Evaluation of Alternative Solutions

Each of the alternatives were evaluated using the following factors:

- Traffic Operations
- Traffic Safety

- Natural Environment
- Tree Impacts
- Stormwater Management
- Climate Change
- Constructability

The evaluation scale used for ranking each of the alternatives is illustrated in **Figure 3**. The evaluation itself is summarized in **Table 3**.

Figure 3: Evaluation Scale

Very Low Impact (Most Positive)	Fairly Low Impact	Medium/Ambivalent Impact	Fairly High Impact	Very High Impact (Least Positive)

Figure 4: Alternative 1 – Traffic Signals at South Driveway

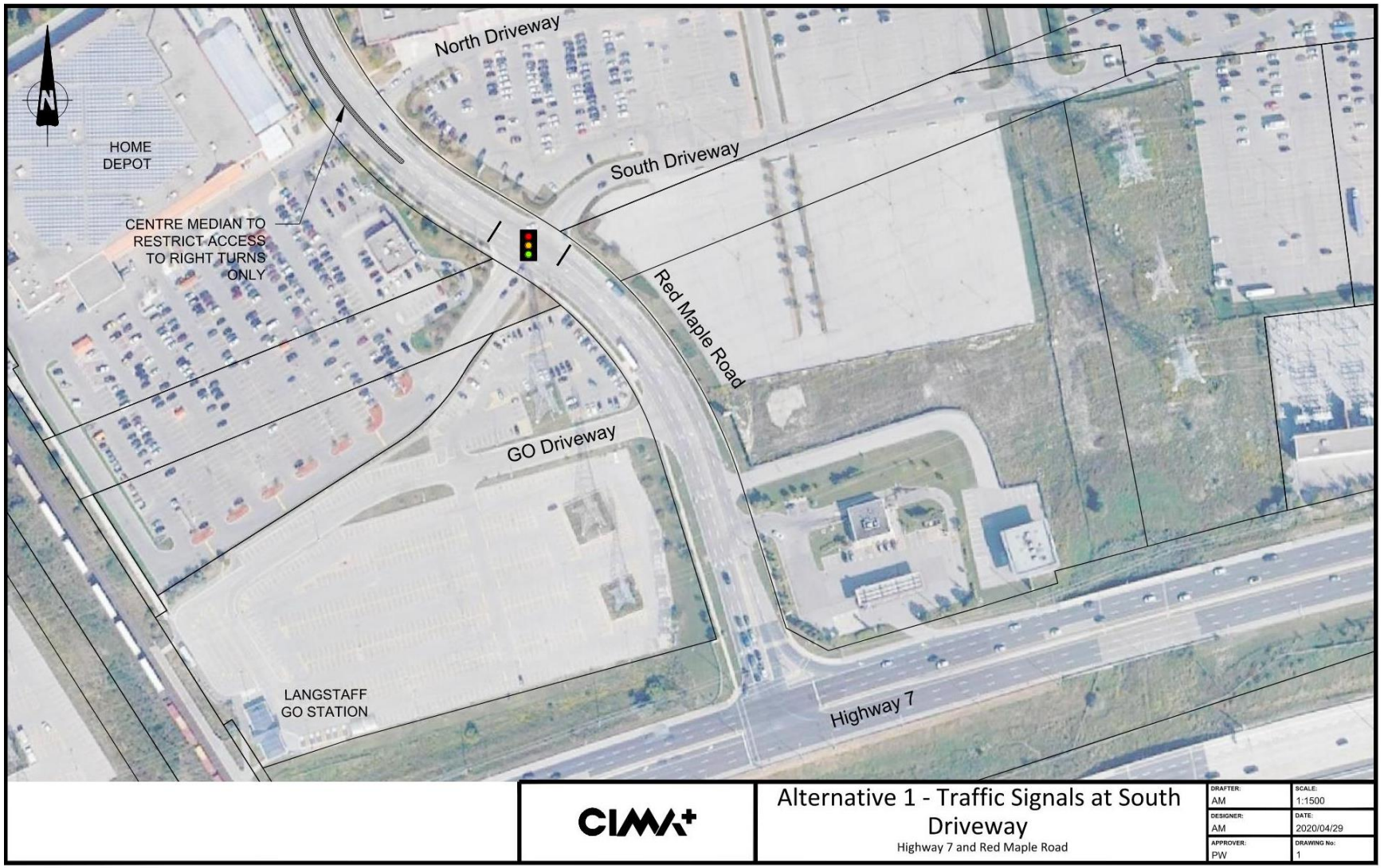


Figure 5: Alternative 2 – Signals at South Driveway Plus Shared Access

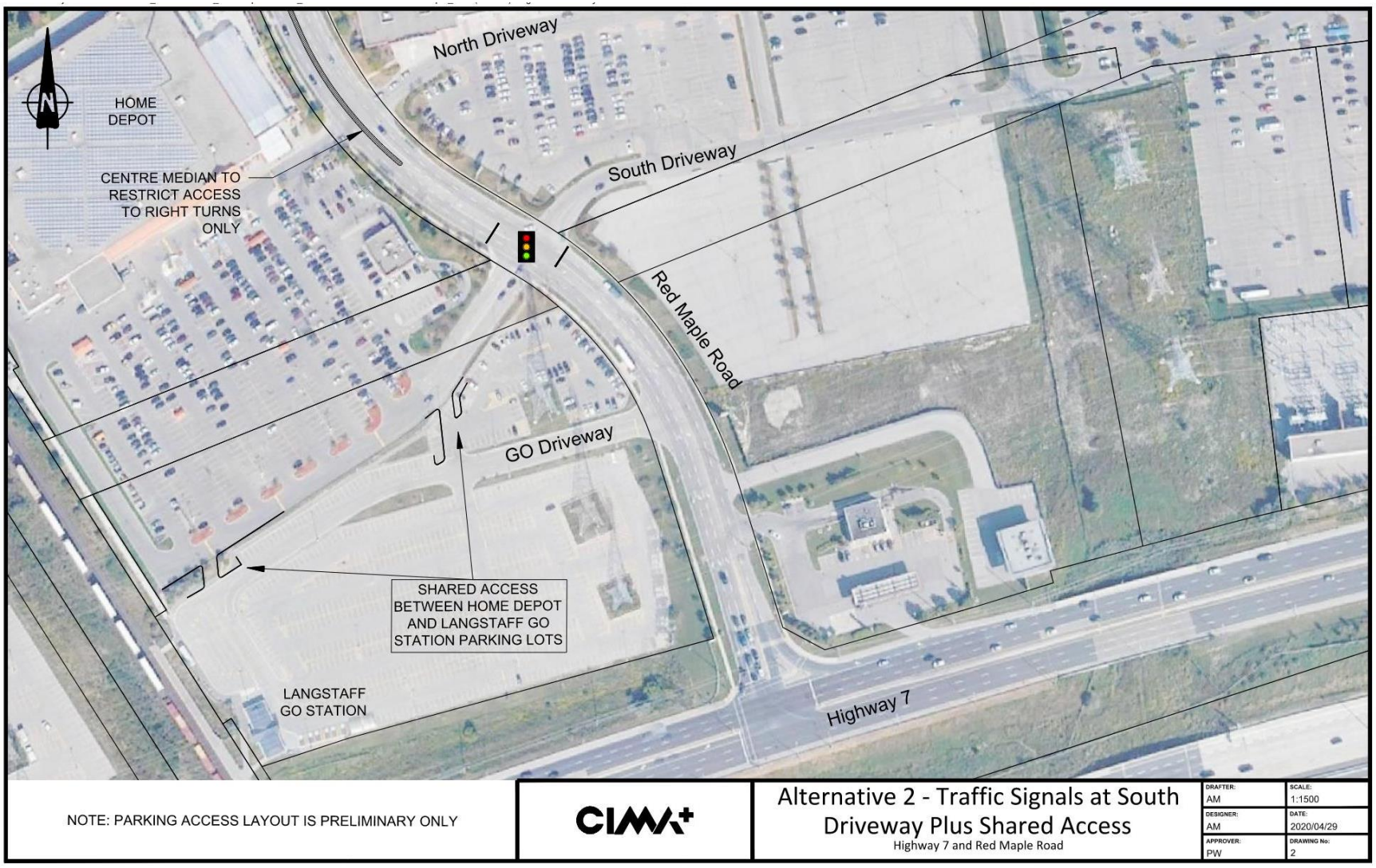


Figure 6: Alternative 3 – Traffic Signals at GO Driveway

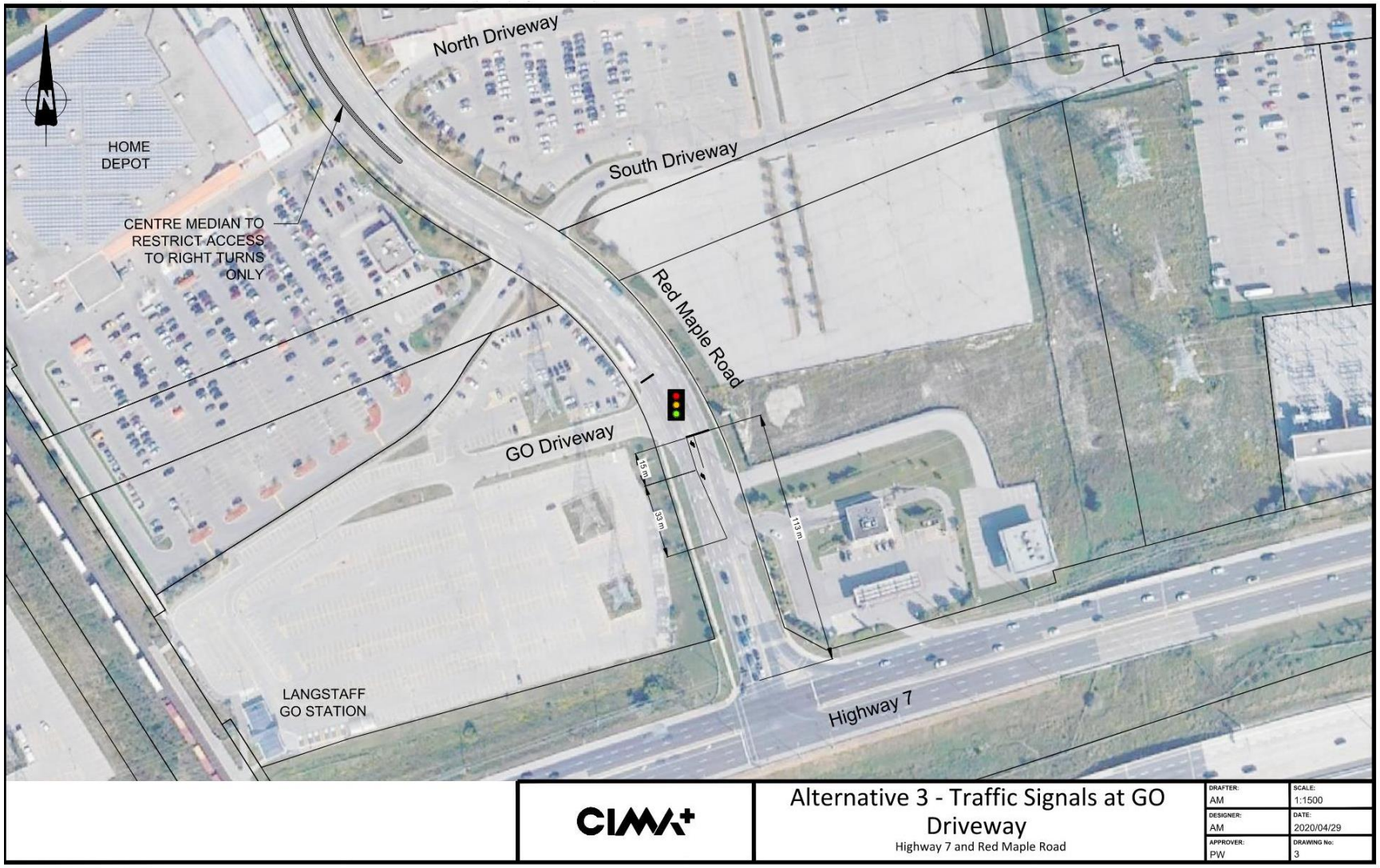


Table 3: Analysis and Evaluation of Alternative Solutions

Criteria	Do Nothing	Alternative 1: Traffic Signals at South Driveway	Alternative 2: Traffic Signals at South Driveway Plus Shared Access for GO Transit	Alternative 3: Traffic Signals at GO Driveway
Traffic Operations	No opportunity to provide a traffic signal on Red Maple Road and improve delays. No opportunities to improve queuing at GO driveway. ○	Provides a traffic signal at the South driveway. Signals are equally-spaced between High Tech Road and Highway 7. Can absorb some redistribution of traffic from North driveway. Does not address traffic congestion at the GO driveway during the arrival of GO trains during the weekday PM period. ◑	Provides a traffic signal at the South driveway. Signals are equally-spaced between High Tech Road and Highway 7. Can absorb some redistribution of traffic from North driveway. Addresses traffic congestion at GO driveway by allowing commuters to utilize signals at South driveway. Meets justification for traffic signals. ●	Provides a traffic signal at the GO driveway. Signals are at location of recurring traffic congestion during arrival of GO trains during weekday PM period, but are too close to existing signals on Highway 7 and could result in potential queue spillback to Highway 7. Requires reassignment of a second southbound left-turn lane to northbound left turn. ◔
Traffic Safety	No opportunities to improve sightline issues at GO Transit driveway for traffic exiting this driveway. Conditions for pedestrians and cyclists remain poor, with no controlled means of crossing Red Maple Road except at either end of the study area. ○	Does not address sightline issue at GO driveway without removal of parking. Turning movements at the North driveway are restricted to right turns only to reduce the risk of turning movement and angle type collisions. Provides a controlled pedestrian crossing across Red Maple Road. ◕	Does not address sightline issue at GO driveway without removal of parking. Turning movements at the North driveway are restricted to right turns only to reduce the risk of turning movement and angle type collisions. Provides a controlled pedestrian crossing across Red Maple Road. ◕	Addresses sightline issue at GO driveway for traffic exiting this driveway. Turning movements at the North driveway are restricted to right turns only to reduce the risk of turning movement and angle type collisions. Provides a controlled pedestrian crossing across Red Maple Road. ●
Natural Environment	No impact to natural heritage features. ●	Redside Dace is present in the Don River East Branch upstream of Helen Avenue. The project drainage outlet is located in Pomona Creek downstream of the known Redside Dace habitat and therefore no impact is anticipated. ●	Redside Dace is present in the Don River East Branch upstream of Helen Avenue. The project drainage outlet is located in Pomona Creek downstream of the known Redside Dace habitat and therefore no impact is anticipated. ●	Redside Dace is present in the Don River East Branch upstream of Helen Avenue. The project drainage outlet is located in Pomona Creek downstream of the known Redside Dace habitat and therefore no impact is anticipated. ●
Tree Impacts	No impact to trees. ●	No impact to trees anticipated. ●	No impact to trees anticipated. ●	No impact to trees anticipated. ●
Stormwater Management	No impact to stormwater management. ●	The proposed drainage conditions for the proposed intersection improvements will	The proposed drainage conditions for the proposed intersection improvements will	The proposed drainage conditions for the proposed intersection improvements will

		result in minimal increases in roadway imperviousness at the intersection. No major changes to the drainage patterns. However, storm sewers at the intersection may be impacted by the improvements and will require modifications including relocating catch basin inlets.	result in minimal increases in roadway imperviousness at the intersection. No major changes to the drainage patterns. However, storm sewers at the intersection may be impacted by the improvements and will require modifications including relocating catch basin inlets.	result in minimal increases in roadway imperviousness at the intersection. No major changes to the drainage patterns. However, storm sewers at the intersection may be impacted by the improvements and will require modifications including relocating catch basin inlets.
Climate Change	No opportunity to contribute to climate change mitigation.	The alternative will not significantly help to relieve existing and future traffic congestion on Red Maple Road. Thus, the project will not positively contribute towards climate change.	The alternative will help to relieve existing and future traffic congestion on Red Maple Road, and thereby reduce idling that is currently experienced in the study area. Thus, the project will positively contribute towards climate change.	The alternative will help to relieve existing and future traffic congestion on Red Maple Road but may result in additional queuing at Highway 7. Thus, the project will likely contribute towards climate change in a positive manner overall.
Constructability	No impact.	Somewhat more constructable than Alternative 2 in that there is less property requirement and does not depend on cooperation from third parties.	The least constructable as it has the greatest property requirement and will be dependent on cooperation from third parties (i.e., Metrus and Metrolinx). The construction will also have greater impact on the existing parking lot operation.	Somewhat more constructable than Alternative 2 in that there is less property requirement and does not depend on cooperation from third parties.
Summary and Recommendation	Doing nothing would not address delays and queuing observed at the GO driveway, address safety concerns at the North driveway, nor improve conditions for pedestrians and cyclists. Not Recommended	**Alternative 1** would not address delays and queuing observed at the GO driveway. Not Recommended	**Alternative 2** would address this issue as GO commuters could utilize the traffic signals at the South driveway via the shared access between the Home Depot and GO station parking lots, and this alternative is balanced in terms of the other evaluation criteria. **Recommended**	**Alternative 3** would address delays and queuing observed at the GO driveway, but the location is too close to Highway 7 and signals there would not be supported by York Region. Not Recommended

A primary benefit of Alternatives 1 and 2 is that the signalized intersection would be mid-block, roughly equally-spaced between High Tech Road and Highway 7, and not cause operational issues at Highway 7. The signals could also potentially absorb some redistribution of traffic caused by the introduction of a centre median at the North driveway, which will eliminate left turns into and out of the Home Depot and Staples sites and convert the driveway to right-turns-only.

Alternative 1 would not directly address the delays and queuing observed at the GO driveway. Alternative 2 would address queuing by allowing GO commuters to utilize the traffic signals at the South driveway via the shared access between the Home Depot and GO station parking lots. Additionally, with the redistribution of some traffic to the South driveway from the GO driveway, traffic signals would be justified at the South driveway under Alternative 2 because of minimum volume and delay to cross traffic.

Alternative 3 would directly address the delays and queuing observed at the GO driveway and would also mitigate a sight distance issue that was observed for eastbound left-turning drivers at the GO driveway. However, it would cause operational issues at Highway 7.

3.3 Technically Preferred Solution

Based on the analysis and evaluation of alternative solutions, the technically preferred solution is Alternative 2, traffic signals at the South driveway plus shared access between the Home Depot and Langstaff GO Station parking lots. This is consistent with the recommendation in the original 2015 LEA Consulting Ltd. study. This includes a centre median at the North driveway to restrict movements to right turns only. With this it is recommended that DG Group/Metrus Properties, the owners of the Home Depot property, and Metrolinx, continue to have discussions to establish a vehicle connection between the Home Depot and GO station parking lots, since they were unable to reach an agreement regarding it previously.

Alternative 2 requires Metrolinx remove the row of parking in the GO station lot along the Red Maple Road frontage to provide adequate intersection sight distance for eastbound left-turning drivers exiting the GO driveway. The loss of parking should amount to a maximum of 16 spaces.

It is also recommended that the City of Richmond Hill consider enhanced cycling facilities in the area as part of the Transportation Master Plan (TMP) update and the Richmond Hill Centre Secondary Plan.

It is also recommended that Metrus Properties introduce 1.5 metre wide sidewalks internal to the Home Depot and Staples sites with their redevelopment, such that they would connect to the municipal sidewalk system at the Red Maple Road, and that the installation of cyclist facilities to connect to Red Maple Road be explored as well.

4 Consultation

4.1 Keys Points of Contact

External agencies, residents, business owners and Indigenous communities were contacted directly at key milestones during the Municipal Class EA study to provide input and feedback on the decision-making process. Key points of contact are listed in **Table 4-1**.

At the outset of the study, a direct mailing list of relevant agencies, stakeholders, and residents and businesses within a defined catchment area was assembled. Project notices emailed and/or mailed directly to the individuals on the mailing list. The mailing list was updated throughout the study based on feedback received.

A dedicated project webpage was established through the City of Richmond Hill's website. Project updates were uploaded to the webpage as the study progressed.

Project webpage: https://www.richmondhill.ca/en/find-or-learn-about/environmental-assessment-studies.aspx

Table 4: Key Points of Contact

Date	Notification	Purpose
Notice of Study Commencement **April 23, 2020**	• Notice mailed to property owners – week of April 20, 2020 • External Agencies and Stakeholders – April 23, 2020 • Indigenous Communities – April 23, 2020 • Streamlined EA Form submitted to MECP – April 23, 2020	To introduce and invite participation in the study and request preliminary comments.
Online Public Information Centre **November 9 to November 30, 2020**	• Notice mailed to property owners – week of October 26, 2020 • External Agencies and Stakeholders – October 29, 2020 • Indigenous Communities – November 9, 2020	To notify and invite interested parties to view and participate in the online Public Information Centre held

Notice of Study Completion September 2022	• Notice mailed to property owners – week of September 8, 2022 • Newspaper – September 8 and September 15, 2022 • External Agencies and Stakeholders – September 8, 2022 • Indigenous Communities – September 8, 2022	To announce completion of the Class EA Study and notify interested parties of the 30-day review period for the Project File Report.

4.2 Public Information Centre (PIC)

The Notice of Online Public Information Centre (PIC) was prepared to inform the public and agencies of the opportunity to review the project progress at an online virtual PIC. The PIC was advertised via an advertising sign on the northeast corner of High Tech Road and Red Maple Road. The notice was e-mailed to 22 agency representatives and stakeholders on October 29, 2020. The notice was also mailed to residents within the study area. A copy of the notice is provided in **Appendix C**.

Due to COVID-19 and public gathering restrictions in place by the provincial government, an online virtual PIC was held in place of a traditional in-person meeting. PIC display material was available on the City's website for viewing beginning on November 9, 2020. An online survey was available on the project website for members of the public to submit their comments to the project team. All comments were requested by November 30, 2020.

A total of 7 comments from the public were received through advertisement of the Notice of Online PIC, and a total of 62 responses were received to the online survey. A copy of the PIC material is available in **Appendix C**. Comments received from the public are contained in **Appendix D**.

The online survey attempted to gain an understanding of travel behaviour along Red Maple Road through a series of questions:

- How often do you typically travel on Red Maple Road between High Tech Road and Highway 7 (pre- and post March 2020)?
- What mode(s) of transportation do you typically use to travel on Red Maple Road?
- Have your travel patterns changed since March 2020?

- Which of the following traffic issue(s) is the most critical on Red Maple Road (i.e. traffic delay, traffic collision, speeding, lack of dedicate bicycle facility, lack of pedestrian crossing facility)?
- Which of the following road improvements would you address the traffic issue(s) selected in the previous question (i.e., new traffic signal, turn prohibition, dedicated bicycle facilities, mid-block pedestrian crossing)?
- Based on your review of the public consultation presentation, which of the following alternatives do you support (Alternative 1, 2 or 3)?

Most respondents typically drove a motor vehicle along Red Maple Road 5 or more times per week, saw traffic delay, traffic collisions, speeding and lack of a pedestrian crossing facility as issues, and considered a new traffic signal, turn prohibition and a mid-block pedestrian crossing as possible treatments. Alternative 1 received 10% of the votes, Alternative 2 received 46%, Alternative 3 received 25%, and no alternative ("none") received 19%.

4.3 External Agency and Stakeholder Consultation

A list of relevant agencies and stakeholders was assembled at the beginning of the study. External 'agencies' and stakeholders were first notified of the project via an email informing them of the commencement of the study and soliciting their comments.

The following agencies and stakeholders were consulted throughout the study. Key correspondence is summarized in **Table 5**.

- Provincial Agencies
    - Ministry of the Environment, Conservation and Parks (MECP)
    - Infrastructure Ontario (IO)
    - Metrolinx
    - Hydro One
- Municipalities
    - York Region
    - City of Markham
- Interested Stakeholders
    - Potentially Impacted Property Owners

Three stakeholder meetings were held throughout the project to provide information and updates about the study and seek input on specific components of the project. A summary of the meetings in included below. Meeting minutes are included in **Appendix B.**

1. Internal Stakeholder Meeting
    - Date: May 25, 2020
    - Attendees: Project Team and City of Richmond Hill staff
    - Format: Virtual Zoom Meeting
    - Purpose: Introduce study, review traffic operations, and obtain input on evaluation of alternative planning solutions from staff in various departments.
2. External Stakeholder Meeting
    - Date: June 3, 2020
    - Attendees: Project Team, Metrolinx, Infrastructure Ontario, Metrus Properties
    - Format: Virtual Zoom Meeting
    - Purpose: Introduce study, review traffic operations, and alternative developed for the corridor, and discuss key issues.
    - Key Input:
        - Metrus Properties noted that the issue with shared access is the existing lease agreement, and that the agreement would need to be amended to reflect the shared access in Alternative 2 (Traffic Signals at South Driveway, Plus Shared Access).
        - Infrastructure Ontario advised that Hydro One should be consulted as this is a hydro corridor and there may be heigh restrictions for the signal poles.
3. External Stakeholder Meeting
    - Date: November 18, 2021
    - Attendees: Project Team, Metrolinx, Metrus Properties
    - Format: Virtual Zoom Meeting
    - Purpose: Review the advantages and disadvantages of the alternative solutions and discuss the recommendation of Alternative 2 as the preferred solution
    - Key Input:
        - Discussion about modifications to Alternative 1, property requirements, and the removal of parking spaces at the GO Station.

Table 5: Summary of Key Agency and Stakeholder Correspondence

Agency / Stakeholder	Key Correspondence	Course of Action
Ministry of the Environment, Conservation and Parks	• Provided expectations of study process for Schedule 'B' MEA Class EA in a letter dated June 8, 2020	• Schedule 'B' MEA Class EA process followed for the study.
Infrastructure Ontario (IO)	• Attended stakeholder meeting on June 3, 2020, and provided input related to IO involvement if additional property is required for road widening and advised to consult with Hydro One	• Preliminary design of the technically preferred solution circulated to IO and Hydro One for comment on September 21, 2021
Metrolinx	• Attended stakeholder meeting on June 3, 2020, and provided input related to parking issues and utilization • Attended stakeholder meeting on November 18, 2021, and provided input related to potential impacts to the GO Station	• Preliminary design of the technically preferred solution circulated to IO for comment on September 21, 2021
Hydro One	• Letter from Hydro One dated October 6, 2021	• Preliminary design of the technically preferred solution circulated to Hydro One for comment on September 21, 2021 • Further consultation with Hydro One is required to obtain approval for proposed works
Metrus Properties	• Attended stakeholder meeting on June 3, 2020, and noted that the key issue with shared access is the existing lease agreement. The lease agreement would need to be amended to reflect the shared access. • Attended stakeholder meeting on November 18, 2021, and noted current lease agreement with Home Depot specifies that parking be separate from the GO Station	• Preliminary design of the technically preferred solution circulated to IO and Hydro One for comment on September 21, 2021

4.4 Indigenous Community Engagement

At the onset of the study the Ministry of Environment, Conservation and Parks (MECP) was contacted to identify Indigenous Communities that may have interest in this study. In correspondence dated June 8, 2020, the MCEP identified the following Communities to be engaged for this study.

- Mississaugas of the Credit First Nation
- Hiawatha First Nation
- Curve Lake First Nation
- Alderville First Nation
- Mississauga's of Scugog Island First Nation
- Huron-Wendat Nation

A summary of correspondence with Indigenous Communities is provided in **Tables 6 and 7**. A copy of the MECP correspondence is included in **Appendix E**. A copy of written correspondence from the Indigenous Communities is included in **Appendix F**.

Table 6: General Correspondence with Indigenous Communities

Indigenous Community	Study Milestone	Key Correspondence
All 6 Communities (Mississaugas of the Credit First Nation, Hiawatha First Nation, Curve Lake First Nation, Alderville First Nation, Mississauga's of Scugog Island First Nation and Huron-Wendat Nation)	Notice of Study Commencement (April 2020)	Project Team emailed Notice of Study Commencement on April 23, 2020
All 6 Communities (Mississaugas of the Credit First Nation, Hiawatha First Nation, Curve Lake First Nation, Alderville First Nation, Mississauga's of Scugog Island First Nation and Huron-Wendat Nation)	Notice of Online PIC (November 2020)	Project Team emailed Notice of PIC on November 9, 2020
All 6 Communities (Mississaugas of the Credit First Nation, Hiawatha First Nation, Curve Lake First Nation, Alderville First Nation, Mississauga's of Scugog Island First Nation and Huron-Wendat Nation)	Notice of Study Completion (September 2022)	Project Team emailed Notice of Study Commencement during week of September 5.

Table 7: Community-Specific Correspondence

Indigenous Community	Study Milestone	Key Correspondence
Curve Lake First Nation	Notice of Study Commencement (April 2020)	• Curve Lake provided a letter via email on June 25, 2020. The letter, dated June 23, 2020, acknowledged receipt of the Notice of Study Commencement, Curve Lake's interest in the study area, and engagement expectations during a Stage 1 Archaeological Assessment. • Project Team provided a description of the preferred solution and a copy of the plan via email on October 20, 2020, for Curve Lake to review. • Curve Lake acknowledged receipt of the email on November 19, 2020, and inquired if any archaeological studies will be completed as part of this study. • Project Team provided a response via email on November 19, 2020, stating the entire corridor has been previously disturbed, so there are no plans to undertake any archaeological studies as part of this project.
Alderville First Nation	Notice of Study Commencement (April 2020)	• Alderville acknowledged receipt of the Notice of Study Commencement via email on April 28, 2020.
Huron-Wendat First Nation	Notice of Online PIC (November 2020)	• Huron-Wendat acknowledged receipt of Notice of Online PIC via email on November 9, 2020, and inquired if any archaeological studies will be completed as part of the project. • Project Team informed Huron-Wendat via email on November 9, 2020, that the entire corridor has been previously disturbed, so there are no plans to undertake any archaeological studies as part of this project.

4.5 Refinement of the Preferred Solution

Following the online PIC, further communication was held with Metrus Properties, in which the landowner informed the City of their concerns regarding the construction of a

centre median at the North driveway. Metrus Properties has indicated that the proposed median would restrict the turning movements at the North driveways currently serving the existing tenants. Metrus Properties also raised questions whether the installation of the centre median is still warranted at this time given the recent downward trend in collision frequency within the study area. Metrus Properties continued to reiterate that they currently do not support shared access between the Home Depot and GO station parking lots but would be willing to continue to discuss this opportunity.

Following the meeting with Metrus Properties, the available traffic data confirmed that the collision frequency has indeed decreased between 2019 and 2021 to levels below what was observed between 2013 and 2018. This trend can likely be attributed to the overall decrease in traffic volumes as a result of the ongoing COVID-19 pandemic. However, it is anticipated that traffic volumes along Red Maple Road and at the North driveway will once again begin to increase back to or beyond previous levels as the pandemic subsides, and daily activities return to normal, and as new high rise residential development north of the subject area is completed. These volume increases may result in collision rates that are once again more consistent with those observed prior to the pandemic.

However, at the same time, it is anticipated that some of the of traffic volume from the North driveway will redirect to the South driveway once the proposed signal is installed at this location, as turning movements would be easier to navigate for motorists under signal control.

Finally, the Home Depot site lies within the Richmond Hill Centre Secondary Plan area, and is directly east of a planned future multi-modal station for the Yonge Subway Extension. It is therefore likely to redevelop in the long term to a higher-density land use.

Given the uncertainties noted above, an opportunity was taken to implement the preferred solution in phases.

It is recommended that the first phase is to implement the traffic signal at the South driveway without the centre median at the North driveway. The City will monitor traffic conditions including collision rates within the study area and implement the median at the North driveway, as the second phase, if the number of collisions per year at the North driveway starts to trend upward or reaches the pre-COVID frequency.

The preferred solution without the centre median at the North driveway may not completely solve the problem statement in that it may not fully mitigate collisions at the North driveway, but it is expected to result in a diversion of the critical inbound and outbound left turn traffic demand from the North driveway to the signalized South driveway.

Nevertheless, the implementation of the traffic signals at the South driveway is expected to improve traffic operations at the South driveway, and assist pedestrians in crossing Red Maple Road. It may further improve operations at the North and GO driveways as well by creating gaps in traffic along Red Maple Road that could potentially assist the eastbound drivers turning left at the North driveway. In addition, the proposed signalization at the South driveway could potentially slow down the through traffic along Red Maple Road during the red phase of the traffic signal.

When the City undertakes detailed design, it is recommended that the centre median be part of the detailed design. The traffic signal would be implemented as part of the first phase and the median would be implemented as part of the second phase if an upward trend of collisions is observed.

It is also recommended that Metrus Properties and Metrolinx continue to engage in discussions regarding an interconnection between the Home Depot and GO station parking lots. Such an interconnection could benefit customers of both sites.

5 Description of Proposed Undertaking

5.1 Traffic Operations

With the implementation of the preferred solution (Alternative 2), traffic signals at the South driveway plus shared access between the Home Depot and Langstaff GO Station parking lots, it was assumed that 50% of northbound left turns and 50% of eastbound left turns at the GO driveway would redistribute to the South driveway. The resulting traffic analysis results are shown in **Table 8**. With this, signals would be justified because of minimum volume and delay to cross traffic.

Table 8: Traffic Analysis Results (with Shared Access)

Location	Movement	V/C Ratio	LOS	Queue (m)	Storage (m)
North Driveway (unsignalized)	EB L/T	0.92 (0.71)	F (E)	49 (28)	20 (within site)
	EB R	0.04 (0.03)	B (A)	- (-)	20 (within site)
	WB L/T	0.09 (0.31)	A (A)	3 (15)	32 (within site)
	WB R	0.00 (0.02)	A (A)	- (-)	32 (within site)
	NB L	0.33 (0.13)	B (A)	10 (9)	25
	SB L	0.00 (0.00)	A (A)	5 (3)	27
South Driveway (signalized)	EB L/T	0.41 (0.82)	C (C)	21 (47)	65 (within site)
	EB R	0.09 (0.08)	C (B)	22 (18)	65 (within site)
	WB L/T/R	0.10 (0.54)	C (C)	12 (34)	45 (within site)
	NB L	0.45 (0.21)	A (B)	35 (16)	55
	SB L	0.01 (0.08)	A (A)	17 (7)	45
GO Driveway (unsignalized)	EB L	0.14 (0.62)	E (E)	14 (22)	70 (within site)
	EB R	0.24 (0.27)	B (B)	17 (17)	70 (within site)
	NB L/T	0.25 (0.27)	A (A)	48 (25)	120
Highway 7 (signalized)	EB L	0.73 (0.98)	C (E)	55 (215)	137
	WB T	0.71 (0.86)	B (C)	130 (166)	450
	Overall	0.73 (0.94)	B (C)	-	-

Legend: AM (PM)

As identified earlier in the assessment of existing conditions, a critical movement is expected to remain eastbound at the North driveway, particularly the eastbound left turn which is expected to exceed available on-site storage. Other movements at the North driveway are expected to operate with low delays. Movements at the South driveway are predicted to operate with low v/c ratios. Delays for motorists at the GO driveway are expected to lessen significantly compared to existing conditions, due to the internal redistribution of northbound and eastbound left turns to the South driveway.

If shared access is not realized between the Home Depot and GO Station parking lots, then traffic is not likely to redistribute from the GO driveway to the South driveway and operations are more likely to be as shown in **Table 9** (which is essentially Alternative 1). Delays for motorists in the eastbound left-turn lane at the GO driveway are expected to continue to be significant during PM peak periods.

Table 9: Traffic Analysis Results (with no Shared Access)

Location	Movement	V/C Ratio	LOS	Queue (m)	Storage (m)
North Driveway (unsignalized)	EB L/T	0.92 (0.71)	F (E)	49 (28)	20 (within site)
	EB R	0.04 (0.03)	B (A)	- (-)	20 (within site)
	WB L/T	0.09 (0.31)	A (A)	3 (15)	32 (within site)
	WB R	0.00 (0.02)	A (A)	- (-)	32 (within site)
	NB L	0.33 (0.13)	B (A)	10 (9)	25
	SB L	0.00 (0.00)	A (A)	5 (3)	27
South Driveway (signalized)	EB L/T	0.33 (0.69)	C (C)	18 (33)	65 (within site)
	EB R	0.09 (0.08)	C (C)	23 (19)	65 (within site)
	WB L/T/R	0.10 (0.62)	C (C)	12 (42)	45 (within site)
	NB L	0.27 (0.16)	A (A)	15 (41)	46
	SB L	0.01 (0.06)	A (A)	2 (10)	44
GO Driveway (unsignalized)	EB L	0.65 (1.35)	F (F)	26 (75)	70 (within site)
	EB R	0.24 (0.28)	B (B)	17 (17)	70 (within site)
	NB L/T	0.50 (0.27)	B (A)	48 (25)	120
Highway 7 (signalized)	EB L	0.73 (0.98)	C (E)	55 (215)	137
	WB T	0.71 (0.86)	B (C)	130 (166)	450
	Overall	0.73 (0.94)	B (C)	-	-

Legend: AM (PM)

5.2 Traffic Safety

The preferred solution includes removal of parking spaces in the GO station lot to increase available intersection sight distance (ISD) at the GO driveway. In order to achieve sufficient ISD all of the parking spaces along the along the Red Maple Road frontage would need to be removed or relocated. This should involve a maximum of 16 spaces.

Traffic signals at the South driveway, which will include pedestrian signal heads, will provide a controlled crossing of Red Maple Road for pedestrians and cyclists and increase safety for these users. This will be the case regardless of whether an agreement can be reached between Metrus Properties and Metrolinx regarding shared access between the Home Depot and GO Station parking lots.

5.3 Natural Environment

There should be no impact to trees or natural heritage features associated with the preferred solution. Tree Protection Fencing should be considered to protect certain boulevard trees during construction, as detailed in the tree survey in **Appendix H**. There are no trees in the vicinity of the work that are Species At Risk.

5.4 Stormwater Management

There will be a nominal increase in impervious area (up to ~125 m^2) in an already impervious area. Due to the negligibility of the impervious area increase, and the fact that the downstream stormwater management facility (Langstaff West Pond) was constructed considering this drainage area as being impervious, there are no proposed stormwater management recommendations for this study and climate change mitigation measures were not explored. The complete Stormwater Management report is provided as **Appendix I**.

According to the City, the storm sewer system along Red Maple Road is sized for a 100-year storm. However, the catch basins along Red Maple Road do not have the capacity to convey the 100-year storm into the storm sewer system. Major flows will flow to the low point in the roadway, just south of the North driveway. At this low point there is a storm sewer grate (large catch basin) on both sides of the roadway which can accept the flows for the 100-year storm. The proposed centre median will end at this location and flows will be able to pass from either side of the roadway if the centerline is overtopped. A corresponding set of diagrams is also included in **Appendix I**.

5.5 Property

Some additional property will be required to implement the preferred solution for Red Maple Road. The hydro corridor owned by the province runs diagonally from northeast to southwest through the study area and bisects the South driveway. Therefore property requirements are as follows:

- The east leg of the proposed signalized intersection is almost entirely within private property, although a small portion in the southeast corner that will be needed for a daylighting triangle is owned by the province. Permanent property will be required on the east side for the installation of the traffic signal equipment and pavement marking, as well as daylighting triangles.
- The west leg of the proposed signalized intersection will mainly be located within the hydro corridor, on land that is owned by the province, although a small portion in the northwest corner that will be needed for a daylighting triangle is

within private property. Permanent property will be required from both the province and Metrus Properties.

Although not a property requirement, the preferred solution will require removal or relocation of a maximum of 16 parking spaces in the GO station lot along the along the Red Maple Road frontage.

A temporary easement will be required for the City's contractor to work within private properties to establish a vehicle connection between the two parking lots.

5.6 Construction Cost

The estimated construction cost associated with the preferred solution is $2,130,000, the components of which are summarized in **Table 10**. This is based on the preliminary design.

The cost is comprised of traffic signals at the South driveway, 30 m long centre medians on Red Maple Road for the northbound and southbound left turns, associated widening, and internal modifications to facilitate access between the Home Depot and GO station parking lots. For the purposes of determining property acquisition costs it was assumed that 20 metres of driveway would be needed on the east and west legs, plus space for sidewalks and 10 metre daylight triangles, at a property cost of $10 million per acre for commercial.

Table 10: Estimated Construction Costs

Cost Item	Estimated Cost
Traffic Signals	$250,000
Roadworks	$285,000
Engineering and Contingency (32%)	$171,000
Property Acquisition	$1,424,000
Total	**$2,130,000**

The parking lot modifications shown in **Figure 5** are preliminary only, and the actual cost of the modifications will depend on the final layout adopted. Temporary lane closures may be necessary as part of implementing the preferred solution, but no road closures or major utility impacts are anticipated.

6 Proposed Mitigation and Commitments to Further Work

6.1 Third Party Agreement

Implementing the preferred solution will be dependent upon an agreement to be established between Metrolinx, the owners of Langstaff GO Station, and Metrus Properties, the owners of the Home Depot property. It is understood from Metrus Properties that the existing lease agreement with Home Depot would need to be amended in order for shared access between the two parking lots to be permitted.

6.2 Properties and Access

Permanent property would need to be purchased from the province and Metrus Properties for a distance of 30 metres along the east and west sides of the South driveway, plus a small portion of the corners for daylighting triangles, in order to implement the preferred alternative. A temporary easement will also be required for the City's contractor to establish a vehicle connection between the two parking lots.

6.3 Hydro One Approval

The proposed works will require approval from Hydro One, which has three high voltage transmission towers within the study area. At this time, it is anticipated the lines between the towers should be well above the proposed works, but consultation with Hydro One will be required to avoid any possible conflicts.

6.4 Natural Environment

No vegetation or trees would be impacted in order to implement the preferred alternative solution, and therefore no mitigation is required. Tree Protection Fencing should be considered to protect boulevard trees during construction.

6.5 Stormwater Management

As discussed in Section 5.4, there are no proposed stormwater management recommendations for this study, due to the nominal increase in impervious area associated with the preferred solution.

6.6 Source Water Protection

As discussed in Section 2.9, Lake Ontario is the water supply for the City of Richmond Hill and the study area sensitivities are low. There are negligible increases in impervious area and no changes to the existing stormwater management because of the preferred solution. Therefore, the risks to source water associated with this project are low. Best management practices for source water protection will be applied during construction.

6.7 Air Quality, Dust and Noise

The study corridor is in close proximity to Highway 7 and Highway 407 and air quality in the study area is dictated by these major roadways. Considering the nature of the improvements proposed as part of this study relative to air quality impacts of Highway 7 and Highway 407, an Air Quality Assessment was deemed not to be warranted.

In reviewing the study area, there are no nearby noise sensitive areas (e.g., outdoor living area of residential properties), therefore, a Noise Analysis was not carried out as part of the MCEA study. Given the focus of this study is on traffic operational improvements, traffic volumes are not expected to change because of the preferred solution and no additional travel lanes are proposed.

During construction, vehicles/machinery and equipment should be in good repair, equipped with emission controls, as applicable, properly maintained and operated within regulatory requirements. Environment Canada “Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities” should be referred to in the subsequent design phase to recommend mitigation measures for reducing any air quality impacts that may occur during construction.

It is noted that MECP recommends that non-chloride dust suppressants be applied. MECP also recommends referring to the following publication in developing dust control measures: Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Report prepared for Environment Canada, March 2005.

The potential for construction noise issues will be reviewed further during the subsequent design phase. Construction activities will conform to the City of Richmond Hill Noise Control By-Law 43-20. In the Contract Documents, there shall be an explicit indication that Contracts are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-laws is the responsibility of the City for all work done by Contractors.

6.8 Soil Management

All excess soils/waste removed generated as a result of the work should be handled in accordance with O.Reg. 406/19. All excess soils considered waste will be disposed of in accordance with the Environmental Protection Act (EPA) and O.Reg. 347 as amended.

6.9 Climate Change Considerations

As documented in Chapter 3 of this report each alternative solution was assess based in its ability to minimize the generation greenhouse gas emissions by relieving existing and future traffic congestion, reducing idling. The preferred solution (Alternative 2) was selected as it relieves congestion on Red Maple Road and does not adversely result in additional queueing on Highway 7. This solution had the best performance from climate change perspective (minimization of greenhouse gas emissions) compared with the other alternatives. In general, the preferred solution has minimal impacts to the natural environment and minimally increases (at most ~125 m^2) the impervious area within the study area, in an area that is already designated as impervious.

The City of Richmond Hill's Climate Change Framework (2020) and Community Energy and Emissions Plan (2021) examine how local climate change impacts will affect its programs and services, identify opportunities to improve resiliency, and explore mitigation measures to reduce the City's emissions. By implementing the specific adaptation actions outlined in the Framework and Plan, Richmond Hill will be positioned to mitigate, respond, and adapt to the local impacts of climate change, such as the rise of extreme heat and extreme weather events. Goals and adaptations that apply to this project include actions to minimize climate change risk associated with the construction and maintenance of City assets. The City may look for bidders to demonstrate good environment stewardship practices for the management of construction projects.

A

Appendix A: Notice of Study Commencement

B

Appendix B: Stakeholder Meeting Minutes

C

Appendix C: Public Information Centre

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Appendix D: Public Correspondence

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Appendix E: Agency Correspondence

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Appendix F: Indigenous Communities Correspondence

G

Appendix G: Transportation Report

H

Appendix H: Tree Survey

Appendix I: Stormwater Management Report

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