Cawthra Road from QEW to Eastgate Parkway: Corridor and Intersection Improvements

Class Environmental Assessment (Class EA) Study

Project File Report

November 2020

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1. INTRODUCTION

1.1 Purpose

The Region of Peel completed a Municipal Class Environmental Assessment (Class EA) Study for corridor and intersection improvements on Cawthra Road (Regional Road 17) from the Queen Elizabeth Way (QEW) to Eastgate Parkway in the City of Mississauga. The Study examined the need for improvements on Cawthra Road to address long-term issues related to planned future growth and to enhance safety for all road users. This Project File Report (PFR) documents the planning, design and consultation process that led to the preferred solution for improvements on Cawthra Road.

1.2 Study Area

Cawthra Road (Regional Road 17) is a north-south major arterial road within the City of Mississauga and predominately under the jurisdiction of the Region of Peel. The Study limits include Cawthra Road from the QEW at the south limit to Eastgate Parkway at the north limit for approximately 5.5 kilometres (km). **Figure 1** shows a map of the Study Area.

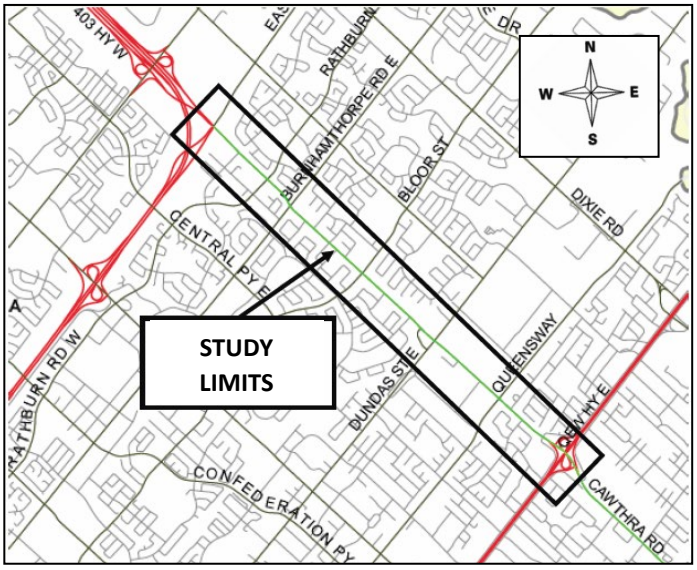


Figure 1: Map of Study Area

Within the Study limits, the designated mid-block right-of-way width on Cawthra Road is:

- 45 metres (m) from the QEW to Dundas Street,
- 36m from Dundas Street to Burnhamthorpe Road, and
- 45m from Burnhamthorpe Road to Eastgate Parkway.

Cawthra Road through the Study limits provides four travel lanes (two northbound and two southbound), except between the QEW and the Queensway where three southbound lanes are available. A centre median or left-turn lane is present in sections throughout the corridor. The posted speed limit through the Study corridor is 50 km/h.

Cawthra Road travels under the Canadian Pacific (CP) Rail and Dundas Street crossings approximately midway through the Study corridor. The grade separation is continuous between these two crossings and is supported by retaining walls.

Cawthra Road also joins two interchanges with the QEW to the south and Highway 403/410 to the north. The sections of Cawthra Road approaching and including these interchanges are under the jurisdiction of the Ministry of Transportation Ontario (MTO). These sections include Cawthra Road from South Service Road to south of Tedwyn Drive and from south of Meadows Boulevard to north of Eastgate Parkway.

At the south Study limit, on- and off-ramps for eastbound and westbound QEW are provided in both directions. At the north Study limit, the eastbound Highway 403 off-ramp forms the west leg of the intersection at Cawthra Road and becomes Eastgate Parkway on the east side. Northbound Cawthra Road leads into the on-ramps for northbound Highway 410 and eastbound Eglinton Avenue.

In addition to the Highway interchanges, Cawthra Road intersects with numerous roadways between the South Service Road and Eastgate Parkway. **Table 1** summarizes the intersections on Cawthra Road within the Study limits.

Table 1: Intersections on Cawthra Road

Intersecting Road	Side of Cawthra Road	Traffic Control
South Service Road	East and West	Traffic Signals
QEW eastbound off-ramp	West	Traffic signals
QEW westbound off-ramp	East	Traffic Signals
North Service Road	East and West	Traffic Signals
Tedwyn Drive	West	Traffic Signals
Melton Drive	East	Stop control on Melton Drive
Queensway	East and West	Traffic Signals
Orwell Street	West	Stop control on Orwell Street
Needham Lane	A four-leg intersection with a private entrance on the east leg	Stop control on Needham Lane
Dundas Street	A four-leg intersection with a private entrance on the east leg	Traffic Signals
Silver Creek Boulevard	West	Traffic Signals
Santee Gate	West	Stop control on Santee Gate
Bloor Street	East and West	Traffic Signals
Schomberg Avenue	East	Stop control on Schomberg Avenue
Hyacinthe Boulevard	West	Stop control on Hyacinthe Boulevard
Breckenridge Road	East and West	Stop control on Breckenridge Road Pedestrian Signals
Runningbrook Drive	East	Stop control on Runningbrook Drive
Hassall Road	West	Stop control on Hassall Road
Burnhamthorpe Road	East and West	Traffic Signals
Rathburn Road	East and West	Traffic Signals
Meadows Boulevard	West	Traffic Signals
Highway 403 off-ramp / Eastgate Parkway	West (off-ramp) / East (Eastgate Parkway)	Traffic Signals

Intersections in proximity to the Highway interchanges fall under the MTO jurisdiction, including the intersections at South Service Road, North Service Road, Meadows Boulevard and Eastgate Parkway. All other intersections fall under Region of Peel jurisdiction. The intersecting roads vary in road function (local, collector, arterial), traffic capacity (multiple traffic lanes) and jurisdiction (City of Mississauga, Region of Peel).

Further to the intersections, numerous property entrances and driveways front onto Cawthra Road.

Off-road transportation facilities include sidewalks on both sides of Cawthra Road throughout most of the Study corridor. A Multi-Use Trail (MUT) exists on the west side of Cawthra Road between Burnhamthorpe Road and Eastgate Parkway.

1.3 Study Team

The Class EA Study was carried out under the direction of the Region of Peel. Supporting technical studies were completed by a consulting team led by IBI Group Inc. (IBI Group). The Region of Peel Project Team included representation from the technical areas of interest outlined in **Table 2**

Table 2: Region of Peel Project Team

Technical Area	Interest
Transportation	• Transportation System Planning • Traffic Operations • Traffic Safety • Traffic Development • Traffic Signals and Streetlighting • Sustainable Transportation • Roads Design and Construction • Roads Operations and Maintenance
Infrastructure	• Stormwater Management • Water and Wastewater
Public Health	• Built Environment • Health Protection
Real Estate	• Property Impacts
Development Services	• Area Development
Engineering Technical Services	• Record of As-Built Drawings • Topographic Survey • Computer Automated Design (CAD) Standards

The technical expertise provided by the Consultant Team is outlined in **Table 3**.

Table 3: IBI Group Consultant Team

Consultant	Technical Expertise
IBI Group	• Traffic and Transportation • Active Transportation • Drainage and Stormwater Management • Noise Assessment • Landscape Design
RiverStone Environmental Solutions Inc.	• Natural Environment • Tree Inventory and Preservation Plan
Archeoworks Inc.	• Archaeological Assessment (Stage 1)
Unterman McPhail Associates	• Cultural Heritage Assessment
Terraprobe Inc.	• Contamination Overview Study • Geotechnical (Pavement Investigation and Design)
T2 Utility Engineers	• Subsurface Utility Engineering

1.4 Schedule

The Class EA Study was initiated in August 2016. With Study completion anticipated in 2020, construction of the proposed road improvements is anticipated in 2025.

2. CLASS ENVIRONMENTAL ASSESSMENT

2.1 Planning and Design Process

This Study followed the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment process (October 2000, as amended in 2007, 2011, and 2015). The MEA Municipal Class EA is a planning and design process for municipal roads, water and wastewater, and transit projects that have a predictable range of environmental impacts that can be mitigated.

The Municipal Class EA process is approved under the Ontario Environmental Assessment Act. The Region of Peel must fulfil the Class EA process to proceed with an undertaking.

Under the Municipal Class EA, projects are categorized into four Schedules:

Schedule A — Projects that involve minor modifications to existing facilities. Environmental effects of these projects tend to be small and are considered pre-approved.

Schedule A+ — Projects that involve minor modifications to existing facilities. Environmental effects of these projects tend to be small and are considered pre-approved. However, the Public must be notified of Schedule A+ projects.

Schedule B — Projects that involve improvements and minor expansions to existing facilities and that have potential for some adverse environmental impacts. The Proponent is required to proceed through a screening process, including consultation with parties that are affected by the project. These projects proceed through Phases 1, 2 and 5 of the Municipal Class EA process as described below.

Schedule C — Projects that involve the construction of new facilities and major expansion of existing facilities. These projects proceed through all five Phases of the Municipal Class EA process as described below.

Subject to the Project Schedule, the Municipal Class EA requires completion of the following five-phase planning and design process:

Phase 1 — Identify the Problem or Opportunity for the project.

Phase 2 — Identify and evaluate Alternative Solutions to address the Problem or Opportunity by considering the existing environment and Public and review agency input.

Phase 3 — Identify and evaluate Alternative Design Concepts for the preferred solution by taking into consideration the existing environment and Public and review agency input.

Phase 4 — Document the Class EA planning, design and consultation process in an Environmental Study Report (ESR) for review by the Public.

Phase 5 — Complete contract drawings and documents and proceed to construction and operation. Monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, monitor the operation of the completed facility.

Figure 2 outlines the MEA Municipal Class EA planning and design process.

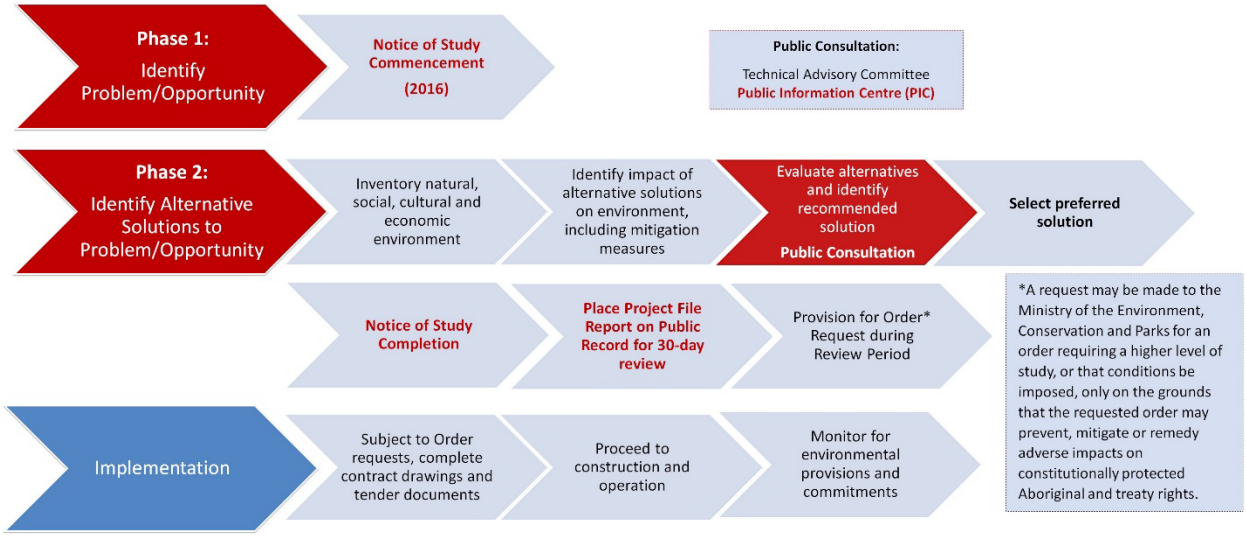


Figure 2: Municipal Class EA Process

Phases 1 and 2 were completed for the Class EA Study on Cawthra Road. The proposed corridor and intersection improvements fall under a Schedule B Project based on the criteria in the MEA Municipal Class EA document.

Table 4 outlines the project descriptions in the MEA document that are applicable to this Study. The highest level of required assessment among the project descriptions is Schedule B with the cost limit of $9.5 million (M) for improvements to traffic control devices. As a result, the Study was initiated as a Schedule B project at the onset of Phase 1 and the proposed corridor and intersection improvements were confirmed as a Schedule B project toward the end of Phase 2.

Table 4: Municipal Class EA Project Descriptions and Schedules

No.	Project Description	Schedule	Cost Limit
General Operation and Maintenance of Linear Paved Facilities and Related Facilities			
3	Construction or removal of sidewalks or multi-purpose paths or cycling facilities within existing or protected rights-of-way	A	No limit
11	Streetscaping (e.g. decorative lighting, sidewalk improvements, benches, landscaping not part of another project)	A	No limit
12a	Construction of localized operational improvements at specific locations	A+	No limit
13	Installation, construction or reconstruction of traffic control devices (e.g. signing, signalization)	B	<9.5M (Schedule B) >9.5M (Schedule C)
19	Reconstruction where the reconstructed road or other linear paved facilities (e.g. HOV lanes) will be for the same purpose, use, capacity and at the same location (e.g. addition or reduction of cycling lanes/facilities or parking lanes, provided no change in the number of motor vehicle lanes)	A+	No limit
22	New construction or removal of sidewalks, multi-purpose paths or cycling facilities including water crossings outside existing right-of-way	A+	No limit
32	Construction of noise barriers, i.e. structures such as walls and berms or a combination of the two	A+	No limit

2.2 Public Review Period

This Project File Report (PFR) serves as documentation for the Cawthra Road Class EA Study. The PFR will be placed on the Public Record for review for a minimum thirty calendar days.

A Notice of Study Completion will be placed in two separate editions of the local newspaper (Mississauga News) to announce the review period. The PFR will be available for Public viewing on the Region's website.

Questions or concerns should be brought to the attention of the Region of Peel Project Manager for resolution during the review period. In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e. requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name for the ministry.

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

The request should be sent in writing or by email to:

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 Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Requests should also be sent to the Region by mail or by e-mail to:

Region of Peel
Attn: Sonya Bubas, MCIP, RPP
Project Manager
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, Ontario L6T 4B9
Phone: 905-791-7800, extension 7801
Email: sonya.bubas@peelregion.ca

If no Order requests are received, the Region of Peel may proceed with detailed design and construction of the recommended works as presented in this PFR.

3. PHASE 1: PROBLEM AND OPPORTUNITY

3.1 Regional Planning Context

Region of Peel Official Plan

The Region of Peel Official Plan (2016) provides direction on land use policies, a sustainable development framework and a long term Regional strategic policy framework for growth. The goals of the Plan are:

- "To create healthy and sustainable regional communities for those living and working in Peel which is characterized by physical, mental, economic and social well being; minimized crime, hunger and homelessness; a recognition and preservation of the Region's natural and cultural heritage; and emphasis on the importance of Peel's future as a caring community";
- "To recognize, respect, preserve, restore and enhance the importance of ecosystem features, functions and linkages, and enhance the environmental well being of air, water, land resources and living organisms";
- "To support growth and development which takes place in a sustainable manner, and which integrates the environmental, social economic and cultural responsibilities of the Region and the Province".

The Regional Official Plan outlines Peel's commitment to creating pedestrian, cyclist and transit supportive infrastructure, which are key components of a healthy community. The predicted outcomes of a healthy community are increased rates of active transportation, improved air quality and greater social connectivity.

Within the Study limits, Cawthra Road and Queensway are Regional Roads identified as "Major Roads" under the Regional Official Plan.

For more information on Regional planning policies, the Region of Peel Official Plan can be viewed at: http://www.peelregion.ca/planning/officialplan/download.htm.

Region of Peel Road Characterization Study

The Region of Peel Road Characterization Study (RCS, 2013) classifies roadways based on adjacent land use, context sensitivity and requirements for existing and future form and function of sections of the roadway. The RCS identifies Cawthra Road as a Suburban Connector from South Service Road to Queensway and from Dundas Street to Highway 403; and as Industrial Connector from Queensway to Dundas Street. According to the RCS, Industrial Connectors are characterized by warehousing/industrial development and truck traffic while Suburban Connectors are generally characterized as a link between strip commercial retail development and suburban housing.

For more information on Regional road characterization, the RCS can be viewed at: https://www.peelregion.ca/pw/transportation/business/peel-road-characters.asp.

Peel Strategic Goods Movement Network Study

The Region of Peel Strategic Goods Movement Network (SGMN) Study (2013) identified truck priority routes for goods movement in Peel. The hierarchy of truck routes shown in the strategic network have been identified as important routes for allowing the safe and efficient movement of goods. This network also informs the Region's Road Characterization Study which developed several categories of roads that can be used for future planning and development.

Under the SGMN Study, Cawthra Road is designated as a Primary Truck Route from the QEW to Dundas Street and as a Connector Truck Route from Dundas Street to Eastgate Parkway. Primary Truck Routes accommodate significant truck volumes and include pedestrian or bike facilities as appropriate. Connector Truck Routes accommodate periodic truck movements, providing access between Primary routes, and include pedestrian or bike facilities as appropriate. Through the Study limits, trucks are restricted on Cawthra Road from 7pm to 7am.

In addition to the SGMN Study, Goods Movement Strategic Plans for 2012-2016 and 2017-2021 were prepared as five-year action plans to support the movement of goods in Peel. One of the ongoing action items between the two 5-year plans is to improve and monitor goods movement infrastructure.

For more information on the Region's Strategic Goods Movement Network, the SGMN Study and Goods Movement Strategic Plan (2017-2021) can be viewed at: https://www.peelregion.ca/pw/transportation/goodsmovement/resources.htm.

Region of Peel Long Range Transportation Plan Update

The Long-Range Transportation Plan (LRTP) serves as the Region of Peel transportation master plan. The 2019 LRTP Update identifies the need for widening Cawthra Road from four to six lanes between the QEW and Queensway.

Future anticipated growth within the Region is expected to have significant impact on travel within Peel, and traffic analysis undertaken shows that road widenings alone will not be able to contain the anticipated congestion along the Region's roadways. The LTRP Update focusses on shifting travel behaviours to relieve the pressures on the Region's transportation network and move towards more sustainable travel choices.

The population level within Peel is anticipated to reach approximately two million and to manage this future anticipated growth, Peel has set a target of achieving a 50% sustainable modal share by 2041. The focus is to develop and promote a sustainable and integrated multimodal transportation system that will move people by other modes than single occupant vehicles, and includes walking, cycling, transit and carpooling.

For more information on the Region's long range transportation planning, the LRTP Update can be viewed at: http://www.peelregion.ca/pw/transportation/residents/long-range-transportation-plan.asp.

Region of Peel Sustainable Transportation Strategy

The Sustainable Transportation Strategy (STS, 2018) builds on the Region of Peel's Active Transportation Plan (2012). The STS outlines policies, programs and infrastructure projects to enable the development

of the Region of Peel's transportation system where at least 50 per cent of peak period trips are made by sustainable modes of transportation, including cycling, walking, transit, carpooling and teleworking, by the year 2041.

The STS identifies improvements to pedestrian facilities and pedestrian improvement corridors. The STS supports the provision of pedestrian facilities on both sides of roads within urban and rural settlement areas, which may consist of sidewalks and/or multi-use trails. Upgrades to pedestrian improvement corridors will vary by corridor, given the roadway context and property considerations. Improvements may include filling gaps in missing sidewalk links; upgrading major intersections by narrowing vehicular lanes approaching the intersection, reducing corner radii and/or investigating the removal of right-turn channels; and upgrading major and minor intersections to standards under the Accessibility for Ontarians with Disabilities Act (AODA). The pedestrian improvement corridor network includes Cawthra Road between Burnhamthorpe Road and Rathburn Road.

The STS is supported by two implementation plans for active transportation and transportation demand management. Both have timelines for 2018-2022 and set out the short-term priorities for the STS, such as the locations of new and upgraded walking and cycling infrastructure and support for cycling and walking to and from schools, transit hubs and other community destinations.

The STS includes a cycling network plan with recommendations for future facilities. Cawthra Road is identified in the proposed long-term cycling network for future cycle tracks from Burnhamthorpe Road south to Lakeshore Road.

For more information on plans for sustainable transportation in Peel, the STS can be viewed at: http://www.peelregion.ca/pw/transportation/residents/sustainable-transportation-strategy.asp.

3.2 Local Planning Context

City of Mississauga Official Plan

The City of Mississauga Official Plan (Part 2, 2015) guides the City's evolution through the management of growth and land development to 2031 and beyond. Chapter 4 of the Official Plan outlines that Mississauga will contain healthy, vibrant communities that provide residents with:

- A range of housing and mobility choices,
- Access to daily needs within close proximity to where they live, work, study, shop, play and congregate, and
- The ability to engage in healthy, safe and active lifestyles.

Chapter 4 also outlines that Mississauga will integrate land use and transportation planning and sustainable design, and the needs of all road users will be considered in the design and management of transportation infrastructure. The City of Mississauga will create a multi-modal city by:

- Developing and promoting an efficient, safe and accessible transportation system for all users,
- Promoting a transportation network that connects nodes with a range of transportation modes to reduce dependency on cars for local trips,
- Promoting transit as a priority for moving people,

- Implementing a viable and safe active transportation network for cyclists and pedestrians of all abilities,
- Encouraging transportation demand management (TDM) practices,
- Exploring and promoting the opportunities for the efficient movements of goods, motorists, rail and air travel, and
- Developing an integrated network of mobility transportation hubs and transit stations.

Seventeen roads under the City's jurisdiction cross or meet Cawthra Road within the Study limits. The Long-Term Road Network in the City's Official Plan identifies Dundas Street, Burnhamthorpe Road and Eastgate Parkway as Arterials; South Service Road, North Service Road, Bloor Street and Rathburn Road as Major Collectors; and all other City roads as Minor Collectors.

The Long-Term Cycling Network in the Official Plan identifies Primary Off-Road cycling routes that cross Cawthra Road within the Study limits, generally to the north of QEW and along Queensway and Eastgate Parkway. Primary On-Road / Boulevard Routes are identified along Bloor Street, Burnhamthorpe Road, and Rathburn Road. Cawthra Road is also shown as a Regional on-road / boulevard cycling route.

For the purpose of Official Plan policy, Cawthra Road is identified as a "Corridor" that falls predominately within the neighbourhood area and within the Employment area between Queensway and Dundas Street. Burnhamthorpe Road is also identified as a "Corridor" and Dundas Street is shown as an "Intensification Corridor".

Mississauga Transportation Master Plan

The vision for the City of Mississauga's Transportation Master Plan is that "everyone and everything will have the freedom to move safely, easily and efficiently to anywhere and at any time" (page v, 2019). The City will advance the freedom to move by pursuing six goals for transportation: safety (freedom from harm), inclusion (freedom from barriers), integration (freedom of choice), connectivity (freedom of access), health (freedom to flourish), and resilience (freedom to evolve). The Plan includes more than 90 action items to guide the future of Mississauga's transportation system to 2041.

Similar to the City's Official Plan, Cawthra Road is highlighted in the City's Transportation Master Plan as a "Corridor". Although Cawthra Road is under Regional and Provincial jurisdiction, sections of the road are served by municipal transit. Part of the City's vision for Corridors is to shorten the wait times at transit stops and decrease transit travel time.

Land use and transportation plans will be developed for Corridors under the City's jurisdiction. An example is the Dundas Connects Master Plan, which was developed for Dundas Street and is described below. Dundas Street, which crosses over Cawthra Road, is shown in the Master Plan as an "Intensification Corridor".

As with the Official Plan, Cawthra Road falls predominately within the Neighbourhood area and within the Employment area between Queensway and Dundas Street. The City's transportation vision is to support a network of walkways, cycling facilities and transit stops within the neighbourhood area; and to continue working with the Region of Peel on a coordinated approach to goods movement within the Industrial neighbourhoods.

Mississauga Cycling Master Plan

The City of Mississauga's Cycling Master Plan (2018) sets out the City's vision for cycling, four goals to realize that vision, and recommendations and actions that enable the City to achieve those goals. The four goals for the Master Plan are to: (1) improve safety for cycling, (2) build a connected, convenient and comfortable bicycle network, (3) increase the number of cycling trips in the City, and (4) foster a culture of cycling.

The City's existing cycling facilities that cross or meet Cawthra Road within the Study limits are:

- Multi-Use Trail on the south side of Queensway,
- Shared route on Silver Creek Boulevard, and
- Multi-Use Trail on the north side of Burnhamthorpe Road.

The City's proposed cycling facilities that cross or meet Cawthra Road within the Study limits include:

- The Royal Windsor Lakeshore Trail at the North Service Road,
- Shared route on Tedwyn Drive and Breckenridge Road,
- Cycle track or separated bike lane on Dundas Street, Bloor Street and Rathburn Road, and
- Multi-Use Trail at Eastgate Parkway.

Dundas Connects Master Plan

The City of Mississauga's Dundas Connects Master Plan (2018) supports major improvements along the Dundas Street corridor over a period of 35 to 40 years. Some of the key recommendations in the Master Plan include:

- Maintaining four lanes of traffic along Dundas Street,
- Adding Bus Rapid Transit (BRT) along Dundas Street (a median BRT station is proposed at the Dundas Street and Cawthra Road jug handle intersection),
- Providing safe cycling infrastructure along the Dundas Street corridor (a protected cycle track is proposed along Dundas Street in the vicinity of the Cawthra Road jug handle intersection), and
- Enhancing pedestrian space through safe and accessible design and by providing amenities such as street trees, furniture, lighting and wayfinding.

The Master Plan was completed following Phases 1 and 2 of the Municipal Class EA. The recommended improvements are subject to the City completing either Phases 3 to 5 of the Municipal Class EA process or the Transit Project Assessment Process under Ontario Regulation 231/08.

MiWay Five Transit Service Plan

The MiWay Five Transit Service Plan (2015) is a five-year plan for transit network and service improvements within the City of Mississauga. The five-year plan covers the period from 2016 to 2020.

Transit Route 8 serves Cawthra Road between Atwater Road (south of the Study limits) and Bloor Street. Route 8 ultimately connects the Port Credit Transit Hub at Queen Street and Hurontario Street near Lake Ontario to the City Centre Transit Hub southwest of Highway 403 and Hurontario Street.

Under the Transit Service Plan, MiWay proposes to extend Route 8 service on Cawthra Road from Lakeshore Road to the Cawthra Transitway Station north of Eastgate Parkway. The transit route will also be improved by providing frequent service every 11 to 15 minutes.

3.3 Need and Justification

Pre-EA Feasibility Study

IBI Group completed a feasibility study on behalf of the Region of Peel to determine the need for improvements on Cawthra Road and to identify feasible alternative solutions that would address identified transportation issues. The feasibility study (2015) provided background information to Phase 1 of the Class EA process.

Multi-Modal Transportation

Traffic volumes on Cawthra Road are expected to increase to 2031. As demonstrated in **Figure 3**, the current four lanes will approach capacity within the central and northern sections of the Study corridor. The feasibility of road widening to accommodate additional capacity was examined.

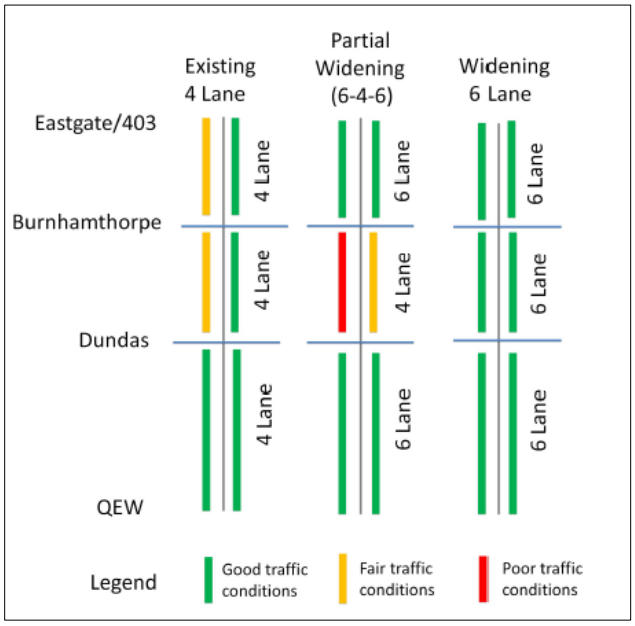


Figure 3: 2031 Traffic Conditions on Cawthra Road

Widening to six lanes throughout the Study corridor would improve traffic operations, however, was found not to be feasible within the central section due to property constraints. Partial widening was considered with six lanes within the southern and northern sections of the corridor and four lanes within the central section. Partial widening would increase demands and worsen operations within the central section of the Study corridor.

The feasibility study concluded that widening Cawthra Road from the QEW to Eastgate Parkway to accommodate additional through lanes was not feasible, mainly due to property constraints within the central section of the Study corridor. Alternatively, the study recommended intersection improvements

and opportunities to enhance active transportation to optimize operational and safety benefits through the corridor for all road users. The potential corridor improvements described below were recommended for further assessment during Phase 2 of the Class EA process.

South Service Road to North Service Road:

- Maintain existing roadway width of approximately 24.5 to 25m across the QEW overpass, including a shoulder of approximately 0.75 to 1m.
- Maintain existing sidewalks of approximately 1.8 to 2m width across the overpass.
- Add raised bike lane or cycle track north and south of the overpass (bike lanes cannot be accommodated on the overpass).

North Service Road to Queensway:

- Provide 21.5m pavement width (five lanes at 3.5m plus 4m flush median).
- Add 1.8m raised bike lanes or cycle tracks. Immediately north and south of Tedwyn Drive, this involves holding the west curb line and widening to the east. It also involves reducing the flush median from 5 to 4m (except at the Tedwyn intersection).
- Remove median island at Melton Drive, reducing median width from 7 to 4m flush and maintaining existing east and west side curbs along Cawthra Road.

Queensway to Dundas Street:

- South of Needham Lane, provide 18m pavement width (four lanes at 3.5m plus 4m flush median), maintain existing centreline, and add 1.8m raised bike lanes or cycle tracks. This would involve reducing the flush median from 5 to 4m (except at intersections).
- Between Needham Lane and Dundas Street, add cycle track within existing paved boulevard and maintain the existing barrier curb.

Dundas Street to Bloor Street:

- Maintain existing centreline and 17.5m pavement width (four lanes at 3.5m plus 3.5m flush median).
- Add 1.8m raised bike lanes or cycle tracks.
- At Mount Peace Cemetery, shift road alignment to the east. This would involve holding the existing curb line along the west side of the road and a 3m flush median.
- Add northbound right-turn lane at Bloor Street.

Bloor Street to Burnhamthorpe Road:

- Maintain existing centreline and 17.5m pavement width (four lanes at 3.5m plus 3.5m flush median).
- Add 1.8m raised bike lanes or cycle tracks.
- Where possible, eliminate bus bays.

Burnhamthorpe Road to Eastgate Parkway:

- Add northbound right-turn lane at Rathburn Road and Eastgate Parkway.

- Maintain MUT on west side of Cawthra Road.

The overall recommendation of the feasibility study was to maintain the existing four travel lanes on Cawthra Road with a centre-turn lane in sections and intersection improvements throughout the corridor.

For more details on the feasibility study, the Pre-Environmental Assessment Multi-Modal Transportation and Technical Feasibility Reports can be found in **Appendix A**.

Cycling Facilities

The two reports prepared as part of the Cawthra Road Pre-EA Feasibility Study were the Multi-Modal Transportation Report and the Technical Feasibility Study Report.

The Multi-Modal Transportation Report recommended the type of cycling facility appropriate for Cawthra Road based on master plans, policies and basic design guidance such as traffic volume, speed and road classification. Based on the basic design guidance for Cawthra Road, a physical separation of motor vehicle and bicycle facility is desirable.

Appropriate treatment includes (but is not limited to):

- Providing a 1.5m on-road bike lane with a 0.5m buffer;
- Providing a 1.8m to 2.0m raised cycle track; or
- Providing a 3.0m to 3.5m multi-use trail in the boulevard.

Building on the recommendations from the Multi-Modal Transportation Report, the Technical Feasibility Study assessed the feasibility of various cycling facilities as demonstrated in **Figure 4.**

Figure 4: Feasibility Evaluation of Cycling Facilities

ALTERNATIVE	NORTH SECTION Eastgate Parkway to Burnhamthorpe	CENTRAL SECTION Burnhamthorpe to Dundas	Dundas Underpass	SOUTH SECTION Dundas to QEW	QEW Overpass (North Service Rd to South Service Rd)
Multi-use trail on west side	RECENTLY CONSTRUCTED - in conjunction with Mississauga City Centre Watermain Construction..	NO - frequent residential driveways (10-30m) and mature trees that obstruct sight lines. South of Bloor St, hydro utility poles obstruct sight lines	NO - History of collision for southbound merging vehicles at Dundas St off-ramp. Appropriate transition treatments required to highlight potential conflict area. No safe crossing (i.e. signalized intersection) available to transition to on-road facility south of the underpass.	NO (north of the Queensway) frequent commercial / industrial driveways (30-100m) and history of collision for left-turning vehicles into commercial driveway on west side MAYBE (south of the Queensway) - backlotted residential, existing curbface sidewalk will require movement of hydro utility poles or road centreline. Connection to existing multi-use trail on south side	MAYBE - curbface sidewalk (2m) across bridge deck. Treatments required to highlight potential vehicles to westbound on-ramp. Curbface sidewalk adjacent to high-speed traffic in diverging lane, physical separation preferred. Will require consultation with MTO
Multi-use trail on east side		NO - frequent residential driveways (10-30m) and mature trees that obstruct sight lines.	NO - No safe crossing (i.e. signalized intersection) available to transition to on-road facility south of the underpass.	NO (north of the Queensway) frequent commercial / industrial driveways (30-100m). South of the Queensway, residential driveways (10 to 150) for 12 fronted-lotted homes, and several mature trees	MAYBE - curbface sidewalk (2m) across bridge deck. Treatments required to highlight potential vehicles to westbound on-ramp. Curbface sidewalk adjacent to high-speed traffic in diverging lane, physical separation preferred. Will require consultation with MTO
Bike lane		NO - not appropriate for speed and volume conditions. May be considered at intersections to provide continuity.	NO - not appropriate for speed and volume conditions. May be considered at intersections to provide continuity.	NO - not appropriate for speed and volume conditions. May be considered at intersections to provide continuity.	NO - cost prohibitive to widen bridge structure, insufficient width for min 1.8m conventional bike lane splitting two travel lanes through high-speed diverging ramp (interim treatment: permit use of sidewalk through the overpass). Will require consultation with MTO
Buffered bike lanes		MAYBE - physical separation is most appropriate for speed and volume conditions, will require road widening.	MAYBE - the constrained environment and high volume through the underpass creates an uncomfortable environment for motorist and cyclists. Physical separation is preferred, will require road widening (sufficient width through underpass to accommodate)	MAYBE - physical separation is most appropriate for speed and volume conditions, will require road widening.	
Segregated bike lanes		MAYBE- physical separation from adjacent traffic is most appropriate for high speed and volumes, function of the street and bicycle route, vehicle mix and available ROW. Frequent openings in separators will be required to accommodate residential driveways on both sides. Will require road widening.	YES - physical separation from adjacent traffic is most appropriate for high speed and volumes, function of the street and bicycle route. Frequent openings in separators will be required to accommodate residential driveways on west side,	MAYBE- physical separation from adjacent traffic is most appropriate for high speed and volumes, function of the street and bicycle route, vehicle mix and available ROW. Frequent openings in separators will be required to accommodate residential driveways on both sides. Will require road widening.	
RECOMMENDED FACILITY TYPE	Sidewalk on west side recently reconstructed to a multi-use trail. Construct transition treatments from multi-use trail to segregated bikeway south of Burnhamthorpe Road	Reconstruct roadway to provide 4 lanes with a centre turn lane and segregated bike lanes*	Reconstruct underpass to provide 4 lanes with raised median and segregated bike lanes*	Reconstruct roadway to provide 4 lanes (5 lanes south of the Queensway) with a centre turn lane and segregated bike lanes*	Reconstruct sidewalk on east side to a multi-use trail and install transition treatments at North Service Rd (e.g. cross-rides, left-turn queue boxes,

*Note: Segregated bike lanes are bike lanes with a painted buffer and separators used to prohibit motorist from driving in the lane; such as raised bike lanes with a bevelled curb.

The Feasibility Study recommended the following cycling infrastructure at the following locations:

- North Service Road to South Service Road: Maintain existing sidewalk on both sides while providing a 0.75m to 1.0m shoulder on the bridge. The raised cycle track and bike lane can only be provided North and South of the bridge due to impacts to the bridge.
- North Service Road to Queensway: Provide 1.8m raised bike lane or cycle track.
- Queensway to Dundas Street: Provide cycle track within the existing paved boulevards.
- Dundas Street to Bloor Street: Provide a 1.8m wide bike lane or cycle track.
- Bloor Street to Burnhamthorpe Road: Provide a 1.8m wide raised bike lane or cycle track.
- Burnhamthorpe Road to Eastgate Parkway: Maintain the multi-use trail recently reconstructed along the west side of Cawthra Road.

Traffic Operations Analysis

IBI Group completed a Traffic Operations Analysis for the Class EA Study. The Analysis examined existing and future traffic conditions on Cawthra Road and potential improvements to mitigate operational and safety concerns, including multi-modal improvements for pedestrians, cyclists, transit users and motorists.

Traffic volumes in the northbound direction between the QEW and Queensway could benefit from an additional northbound through lane. However, the right-of-way within the south section of the Study corridor is constrained and the anticipated traffic demand would cause bottlenecking toward the central portion where the number of northbound lanes would be reduced from three to two. Also, road widening within the south section of the corridor may provide less operational benefits than anticipated. Cawthra Road provides a direct link between the QEW and Highway 403, which may result in induced demands that cause Cawthra Road to continue to operate near or at capacity. Based on these considerations, a third northbound through lane from the QEW to Queensway was not recommended.

By 2031, seven of the 13 signalized intersections within the Study limits will experience poor traffic conditions. These include:

- South Service Road during the morning (AM) peak,
- North Service Road during the evening (PM) peak,
- Queensway during the PM peak,
- Bloor Street during the AM and PM peak,
- Burnhamthorpe Road during the AM and PM peak,
- Rathburn Road during the PM peak, and
- Eastgate Parkway during the AM and PM peak.

The Traffic Operations Analysis recommended the following intersection improvements for further consideration in the Class EA.

Cawthra Road and South Service Road:

- Add exclusive southbound right-turn lane
- Enhance signage on east and west approaches to warn drivers of the sharp curve and signalized intersection ahead

Cawthra Road and North Service Road:

- Add exclusive northbound right-turn lane
- Enhance signage on east and west approaches to warn drivers of the sharp curve and signalized intersection ahead

Cawthra Road and Queensway:

- Provide fully protected dual northbound left-turn lane
- Eliminate channelized right-turn in southeast, northeast and northwest quadrants
- Convert existing right-turn island to "smart channel" in the southwest quadrant
- Provide fully protected dual eastbound left-turn

Cawthra Road and Dundas Street:

- Provide fully protected northbound left-turn phase

Cawthra Road and Silver Creek Boulevard:

- Extend exclusive northbound left-turn lane storage
- Repaint existing median area south of exclusive northbound left-turn lane

Cawthra Road and Bloor Street:

- Add exclusive northbound right-turn lane
- Eliminate channelized right-turn in the northeast, northwest and southwest quadrants
- Update pavement markings

Cawthra Road and Burnhamthorpe Road:

- Provide fully protected northbound left-turn phase

Cawthra Road and Rathburn Road:

- Add exclusive southbound right-turn lane

Cawthra Road and Eastgate Parkway:

- Add exclusive northbound right-turn lane
- Provide fully protected northbound left-turn phase

For more details on the analysis and potential improvements, the Traffic Operations Analysis can be found in **Appendix B**.

Traffic Safety Review

As part of the Traffic Operations Analysis, IBI Group completed a traffic safety review for the Study corridor. The review showed a total of 1,007 collisions reported over the five-year analysis period from January 1, 2008 through December 31, 2012. **Figure 5** shows the proportion of collisions by collision type.

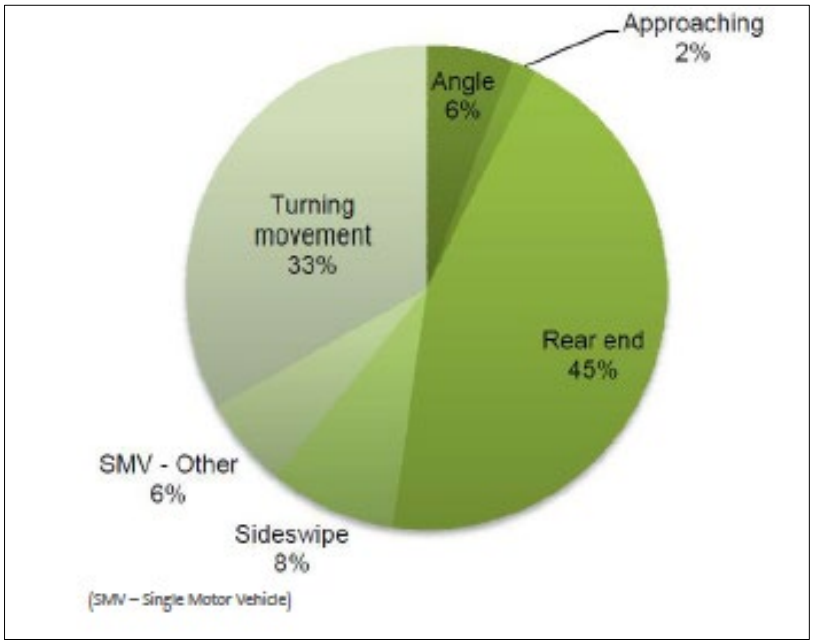


Figure 5: Type of Collisions on Cawthra Road

The majority of collisions were rear-ended and turning movement type, with the highest number of collisions at the Eastgate Parkway, Burnhamthorpe Road, Bloor Street and Queensway intersections. These intersections could benefit from improvements, such as adding dual left and right-turn lanes. Midblock collisions were relatively low except immediately south of Burnhamthorpe Road and north of Queensway.

Several factors may have contributed to collisions at specific locations:

- Collisions at the South and North Service Roads related to drivers misjudging the sharpness of the eastbound and westbound approach curves.
- Southbound rear-end collisions at Cawthra Road and the eastbound QEW off-ramp were likely due to the downhill grade and right-hand bend on the southbound approach.
- Inconsistent lane markings at Cawthra Road and the Dundas Street ramp likely contributed to rear-end collisions caused by drivers misjudging the southbound merge from the right-turn channel.
- Excessive speeding along the Study corridor was a concern, with speeds reaching above 70 km/h at Cawthra Road and Bloor Street. Cawthra Road was found to have speeds reaching 20 km/h above the posted speed limit.
- The midblock segment at 3643 Cawthra Road had a high level of collisions at the plaza entrance, with left-turns into the plaza using a centre left-turn lane.

- Turning movement collisions were found to be the most frequent type of collisions at the Cawthra Road and Burnhamthorpe Road intersection.
- Cawthra Road at Eastgate Parkway/Highway 403 had a high rate of collisions, contributed by a transition from highway to arterial speeds in both the north-south and east-west directions.

The Traffic Operations Analysis includes details of the traffic safety review, which can be found in **Appendix B**.

Active Transportation

IBI Group summarized the planning and design considerations for active transportation on Cawthra Road within the Study limits in a separate report. The report recognized that sidewalks are present on both sides of Cawthra Road from the QEW to Burnhamthorpe Road and a MUT was recently constructed on the west side from Burnhamthorpe Road to Eastgate Parkway.

The report recommended that sidewalks be protected for on the east side of Cawthra Road between Burnhamthorpe Road and Rathburn Road. The report also recommended an extension of the sidewalk from north of Rathburn Road to Eastgate Parkway to provide a continuous pedestrian connection to the Cawthra Transitway Station, which is located east of Cawthra Road on Eastgate Parkway. Given that the MUT was recently constructed within this section of the Study corridor, these improvements could be considered in the longer term as part of future reconstruction. The report also noted significant constraints to providing a sidewalk on the east side, such as steep boulevard grades, hydro poles and mature trees.

Controlled crossing opportunities for pedestrians are generally spaced approximately 400m apart along the Study corridor. The report advised that a target of 400m is considered reasonable, however controlled crossing opportunities between Queensway and Dundas Street are at least 950m apart.

The opportunity to introduce a pedestrian crossing at Needham Lane was reviewed by IBI Group. Based on the guidance of Ontario Traffic Manual (OTM) Book 12 and Book 15, the warrants for a pedestrian signal are not fulfilled and the vehicle volumes along Cawthra Road exceed acceptable thresholds for a pedestrian crossover. The report recommends that the pedestrian demand at Needham Lane and at Orwell Street be monitored should any future redevelopment of this area take place and the need for a pedestrian signal be fulfilled by future conditions.

The report also confirmed the need for separated cycling facilities on Cawthra Road. In-boulevard cycle tracks were recommended to provide a comfortable and attractive cycling facility. Cycle tracks provide a vertical and horizontal separation from motor vehicle traffic (e.g., raised curb and set back). Raised cycle tracks (or raised bike lanes) were recommended at the numerous driveway locations along Cawthra Road and within constrained areas of the right-of-way. Raised cycle tracks provide a vertical separation from motor vehicle traffic and are placed closer to the traffic lane to improve visibility of crossing cyclists.

Pedestrian and cycling treatments were considered at signalized and unsignalized crossings. At signalized intersections, the following treatments were recommended:

- Compliance with standards under the AODA,
- Ladder crosswalks to maximize visibility of pedestrians,

- Cross-rides to maximize visibility of cyclists and enable cyclists to cross without dismounting,
- Small corner radii, and
- Possible leading or protected pedestrian/cycling intervals.

At unsignalized intersections, the following treatments were recommended:

- Compliance with standards under the AODA,
- Cross-rides and ladder crosswalks at the stop-controlled leg of the intersection, and
- Small corner radii.

For additional details on potential pedestrian and cycling facilities, the Active Transportation Report can be found in **Appendix C**.

3.4 Problem and Opportunity

The foregoing review of existing and future transportation conditions on Cawthra Road identified the following problems and opportunities to be addressed in this Class EA Study:

Problems	Opportunities
• No cycling facilities on Cawthra Road other than the MUT between Burnhamthorpe Road and Eastgate Parkway.	• Consider cycling facilities where feasible with separation from motor vehicle traffic for the comfort of cyclists riding in heavy traffic.
• Traffic congestion at major intersections.	• Consider improvements to traffic operations such as adding new turn lanes. • Consider pedestrian and cyclist safety at intersection crossings.
• Excessive speeding along the Study corridor.	• Consider narrower lane widths to reduce speeds.
• Frequency of collisions associated with left-turning conflicts at major intersections and commercial entrances.	• Consider fully protected left-turn phasing or left-turn restrictions to address safety concerns.

4. ENVIRONMENTAL CONDITIONS

Phase 2 of the Class EA process includes a general inventory of the existing environment. This Section summarizes the existing natural, social, cultural, economic and physical conditions of the Cawthra Road Study Area. Existing environmental conditions serve as a baseline to assess environmental impacts and evaluate alternative solutions for improvements to Cawthra Road.

4.1 Natural Environment

Field surveys were undertaken by Riverstone Environmental Solutions Inc. in 2018 and 2019 to inventory the existing natural environment, including the terrestrial and aquatic features within the Study Area.

Natural Areas

Cawthra Woods is a 22.46-hectare (ha) woodland located south of the QEW and east of Cawthra Road. The woodland is identified as a regional Area of Natural and Scientific Interest, is part of the local Natural Heritage System, and contains a Provincially Significant Wetland (PSW). Refer to **Figure 6** for the location of these Natural Areas.

Vegetation Communities

Areas of natural vegetation communities are shown in **Figure 6** and include:

- Fresh-Moist Sugar Maple Hardwood Deciduous Forest occupying the northern portion of Cawthra Woods at the southeast end of the Study Area.
- Dry-Fresh Deciduous Forest beyond the Cawthra Road right-of-way. The Forest is comprised of Bebb's Willow (*Salix Bebbiana*), Cracking Willow (*Salix Fagilis*) and Trembling Aspen (*Populus tremuloides*).
- Mineral Marsh within roadside drainage ditches near the Eastgate Parkway and Cawthra Road intersection. The Marsh is dominated by Common Reed with Narrow-leaved Cattail.
- Cultural Meadow surrounding the Eastgate Parkway and Cawthra Road intersection. The meadow is dominated by a golden rod species with Reed Canary Grass and pasture grasses.

Tree Inventory

All trees 10 centimetres at breast height (DBH) or greater within the project area were inventoried. A total of 330 trees were assessed and 31 tree species were identified within the study area, with the Norway Maple presenting as the most common along Cawthra Road.

Wildlife Habitat

The following wildlife and wildlife habitat were noted and/or observed:

- Cawthra Woods has the potential to provide woodland breeding habitat for salamanders (the presence of Jefferson's Complex Salamander, an endangered species, has been documented in Cawthra Woods).
- Cawthra Woods has the potential to provide maternal roosting habitat for bats.
- Areas of cultural meadow may provide stopover or staging habitat for migrating waterfowl.

- No anurans were detected within the Study Area.
- A list of breeding birds detected in the Study Area is included in the Natural Environment Report in **Appendix D.**

Fish Habitat

During the field surveys, no aquatic feature (such as watercourses) that could function as fish habitat was observed.

For more information, the Natural Environment Report and Tree Inventory can be viewed in **Appendix D and E**, respectively.

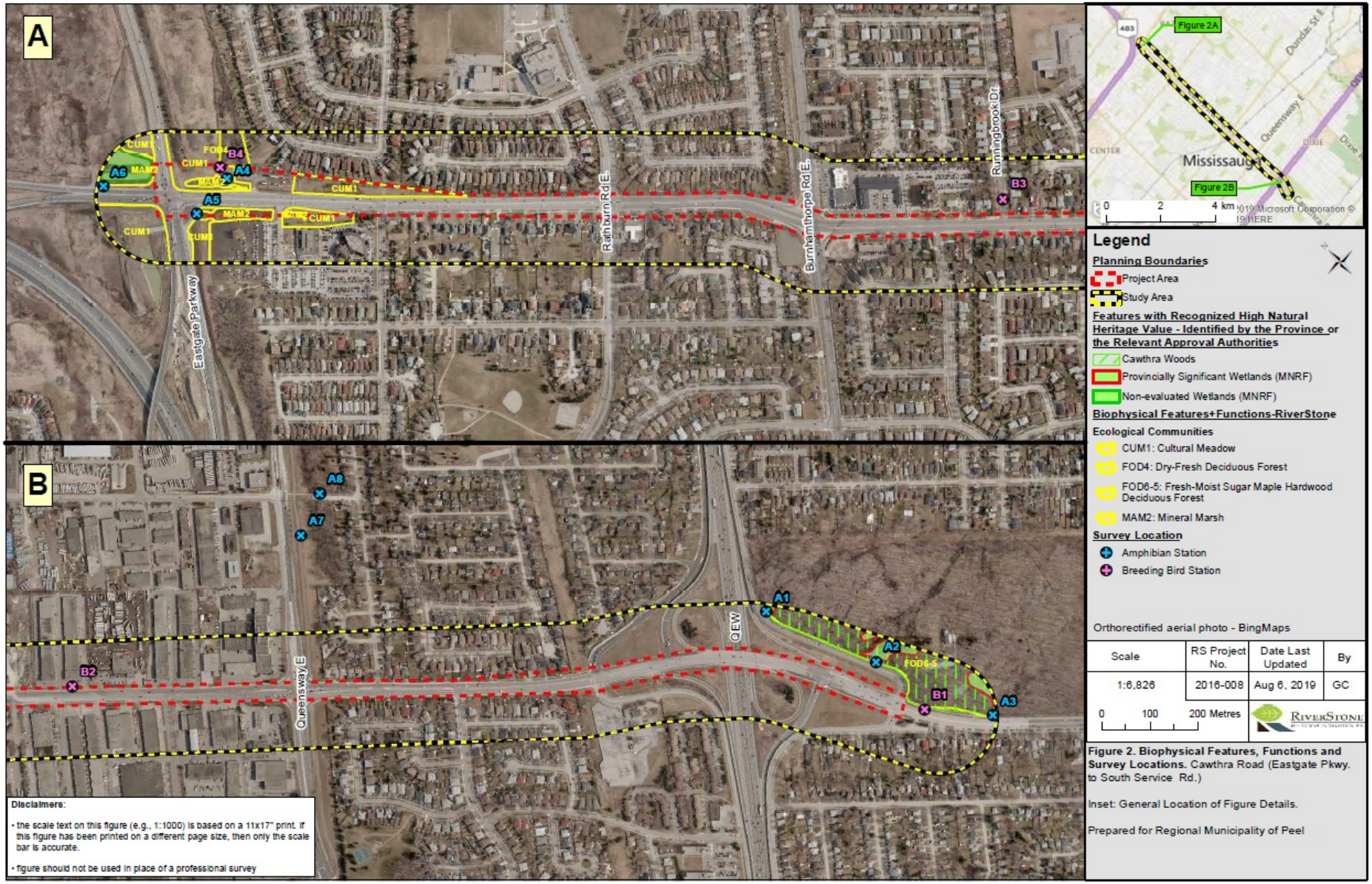


Figure 2. Biophysical Features, Functions and Survey Locations. Cawthra Road (Eastgate Pkwy. to South Service Rd.)

Inset: General Location of Figure Details.

Prepared for Regional Municipality of Peel

Figure 6: Natural Areas and Vegetation Communities within the Study Area

4.2 Social Environment

Socio-Demographics

Peel Public Health provides health status data by geographic zones. The profiles for each zone are indicative of the demographics in the Study Area. For example, the Study corridor lies on a border separating Peel Health Data Zones (PHDZs) M6 and M7 from PHDZ M8. PHDZ M8 includes a portion of Mississauga to the east from beyond the South Service Road to Burnhamthorpe Road; and to the east and west from Burnhamthorpe Road to Eastgate Parkway. PHDZ M8 has a higher proportion of the population aged 60 years and older compared to Peel. PHDZ M7 includes a portion of the city to the west from beyond the South Service Road to Dundas Street. PHDZ M7 has a higher proportion of the population aged 65 years and older compared to Peel. PHDZ M6 includes a portion of Mississauga to the west from Dundas Street to Burnhamthorpe Road. PHDZ M6 has a higher proportion of the population aged 25-29 years and 70-79 years compared to Peel.

The PHDZs M6, M7 and M8 can be viewed at: http://www.peelregion.ca/health/statusdata/Datazone/.

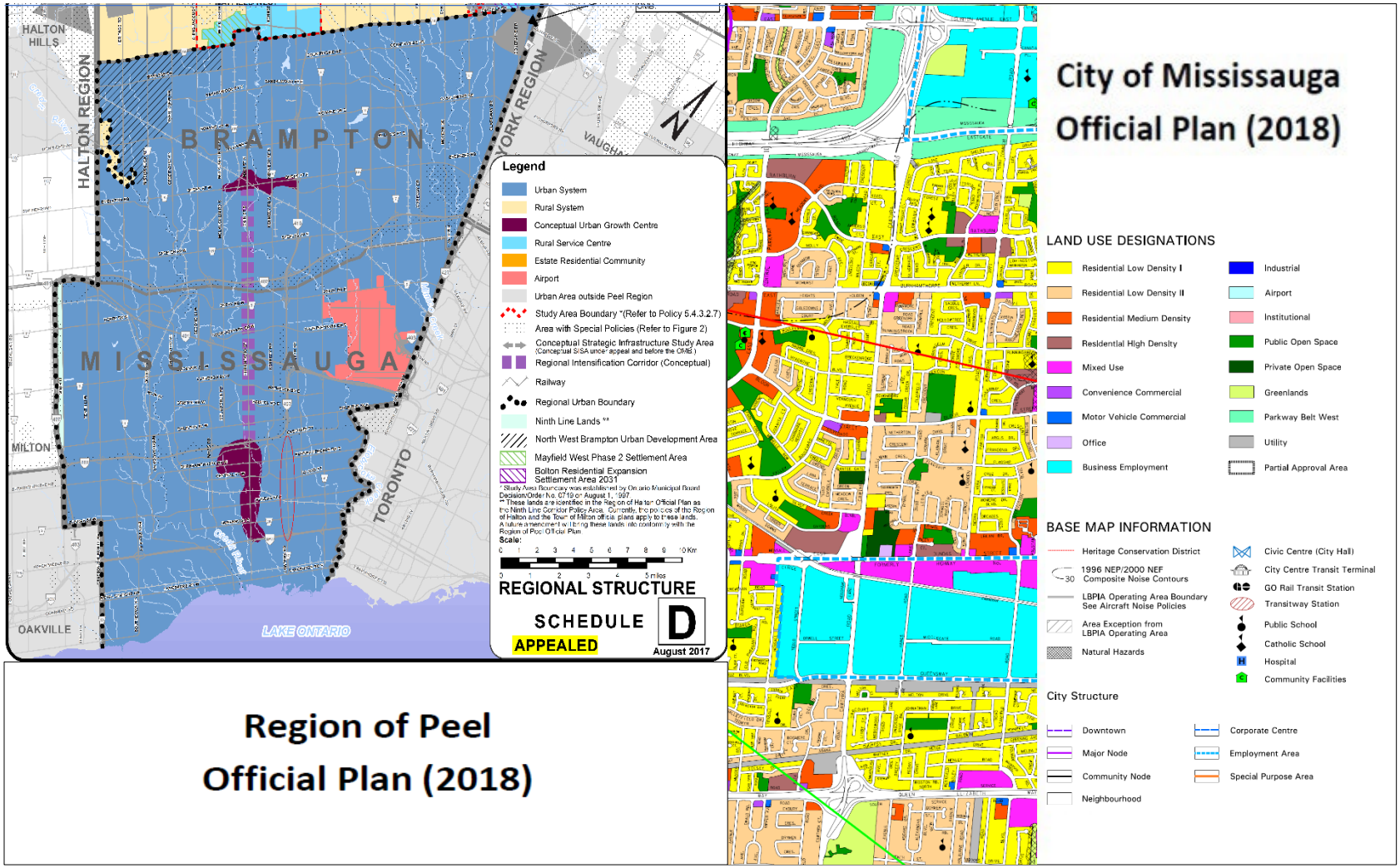
Existing Land Use

Lands adjacent to Cawthra Road between the QEW and Queensway are predominately residential with mostly rear-facing lots. Adjacent lands between Queensway and Dundas Street serve a mix of industrial and commercial uses ranging from an aggregate supplier to food services. Land uses between Dundas Street and Eastgate Parkway are primarily residential with mostly front-facing lots. Several institutional uses (e.g., schools, places of worship, and cemeteries) and commercial uses (e.g., plazas) are scattered throughout this section of corridor.

Designated Land Use

The Region of Peel Official Plan outlines an Urban System that consists of a variety of communities including diverse living, cultural and working opportunities. The Urban System is shown in Schedule D of the Official Plan and includes lands identified and protected as part of the natural environment, the Lester B. Pearson International Airport, urban growth centres and regional intensification corridors. The limits of the Cawthra Road Study corridor fall within the Urban System as shown in **Figure 7.**

Figure 7: Land Use Designations



Schedule 10 of the City of Mississauga Official Plan details the land use information for the city. The limits of the Study corridor include the land use designations shown in **Figure 7.** Most of the adjacent lands from the QEW to Queensway and from Dundas Street to Eastgate Parkway are designated residential of mostly medium to low density. Adjacent lands between Queensway and Dundas Street are designated Business Employment. Exceptions include mixed uses south of Dundas Street, Silver Creek Boulevard and Burnhamthorpe Road as well as motor vehicle commercial uses at major intersections and some pockets of open space north of Dundas Street. Also, the transportation corridor along the Highway 403 off-ramp and Eastgate Parkway at the north Study limit forms part of the Parkway Belt West (lands reserved by the Provincial government for infrastructure corridors, https://www.ontario.ca/page/provincial-land-use-development-plans).

Future Planned Development

Currently taking place is the redevelopment of two residential parcels of land located along the east side of Cawthra Road at the intersection of Silver Creek Boulevard. The proposal is for a townhouse complex comprised of approximately 40 units. With this proposed development coming to implementation, it is anticipated to have an impact, though not substantial, to the existing transportation system in and around the vicinity.

In addition, less intense redevelopment of several single residential homes located along the west side of Cawthra Road just north of Arbor Road is expected to have minimal impact to the existing transportation system.

It can be expected that over the coming years, similar redevelopment applications within the corridor will come to fruition, and collectively they would impose more effects to Mississauga's transportation network.

Noise Levels and Attenuation

IBI Group completed a noise assessment for the Cawthra Road Study corridor, which described the existing outdoor living area (OLA) sound levels for unmitigated conditions to be 66 A-weighted decibels (dBA). Noise attenuation using noise walls are considered for OLAs for existing residential properties when noise levels are predicted to be above 60dBA.

Based on the Region of Peel's noise wall inventory and IBI Group's review of aerial imagery, the existing noise walls and fences on Cawthra Road include approximately:

- 820m of private noise walls,
- 1,820m of Regional noise walls, and
- 160m of privacy fences, which are not considered to effectively reduce noise.

The location of existing noise walls can be viewed in **Appendix F**.

4.3 Cultural Environment

Archaeology

Archeoworks Inc. completed a Stage 1 Archaeological Assessment for the Study Area, which identified the following areas with potential for archaeological resources:

- The strip of land between the Dixie Union Chapel and Cemetery property fence and the Cawthra Road underpass retaining wall. The extant grassed margin is presumed to encompass the limits of burial plots and remnants of a buried structure.
- Land within 10m of the existing Mount Peace Roman Catholic Cemetery property limit for the possibility that burials may extend outside the fenced limit.
- Grassed frontages with no signs of extensive sub-surface disturbance.

All other portions of the Study corridor, which have been previously assessed, or determined to retain low or no archaeological potential, including lands which formed part of the old Cherry Hill House at the northwest corner of Dundas Street and Cawthra Road, were found to be of no further archaeological concern and no further work was recommended for these areas.

For more information, the Stage 1 Archaeological Assessment can be viewed in **Appendix G**.

Built Heritage and Cultural Heritage Landscapes

Unterman McPhail Associates completed a Cultural Heritage Assessment for the Study Area. Four properties adjacent to the Study corridor were identified as cultural heritage resources and are listed on the City of Mississauga Heritage Register:

- Knox Presbyterian Church at 3065 Cawthra Road
- Dixie Union Cemetery and Chapel at 707 Dundas Street (designated under the Ontario Heritage Act)
- St. Mary's Ukrainian Catholic Church at 3625 Cawthra Road
- Mount Peace Cemetery at 3204 Cawthra Road

An Ontario Heritage Trust commemorative plaque can be found at 707 Dundas Street East, on the northeast corner of the Cawthra Road intersection.

There are three types of cultural heritage landscapes: designated landscapes, evolved landscapes and associative landscapes. Three sections of Cawthra Road from the QEW to Queensway, from north of Dundas Street to Bloor Street, and from Bloor Street to Burnhamthorpe Road are identified as "evolved" or twentieth century residential streetscapes that are continuing to change.

The Cawthra Estate located adjacent to the southern limit of the Study corridor at 1507 Cawthra Road has historical, architectural and contextual value and is listed in the City's landscape inventory. The Cherry Hill House located adjacent to the Study corridor at 680 Silver Creek Boulevard, north of Dundas Street, is listed on the Mississauga Heritage Register.

The residence at 3317 Cawthra Road was built in the 1960s and contributes to the overall 1960's and 70's character of the Cawthra Road streetscape. This property is not yet assessed as a heritage property by the City.

For more information, the Cultural Heritage Assessment Report can be viewed in **Appendix H.**

4.4 Economic Environment

Business Community

The City of Mississauga Official Plan indicates that Mississauga is well represented in sectors such as the manufacturing, professional, scientific and technical services, wholesale trade, transportation and warehousing companies. The City is also home to over 60 Fortune 500 head offices.

The University of Toronto and Sheridan College, Mississauga campuses, are situated in downtown Mississauga. These institutions enable residents to gain access to develop skills and knowledge to meet the needs of the business community, which is critical to the City's economic success.

The Urban System also supports the business community by promoting office and employment uses within the Intensification Areas. Employment opportunities are concentrated within the downtown, corporate centres, Major Nodes and Employment Areas.

The section of Cawthra Road between Queensway and Dundas Street falls within the Dixie Employment Area. The Dixie Employment Area encompasses the general area from west of Cawthra Road to the east City boundary and from Queensway to Dundas Street. The Dixie Employment Area includes 1,410 businesses, representing 6.6% of the total business in Mississauga (City of Mississauga Data – Employment Profile, 2018). Data regarding businesses in the City of Mississauga can be found on the Mississauga Economic Development website at https://www.thefutureisunlimited.ca/resources/data-centre/.

Goods Movement

The Region of Peel is a major freight hub for Canada and a strategic location for national distribution. An estimated $1.8 billion worth of goods travel to, from and through the Region of Peel each day making goods movement a major component of the local economy. Four out of every nine jobs are also related to these shipments.

The Region of Peel Long Range Transportation Plan Update is a 25-year plan to guide Peel's transportation policy to 2041. With Peel's expected future population growth, it is important for Peel to be prepared to support the delivery of goods and services to a growing population. The 2017 Goods Movement Strategic Plan works with the Long-Range Transportation Plan Update to support the goods movement industry and integrate it with the community.

The Pearson Airport, five 400-series highways and several major distribution centres are in the City of Mississauga. The presence of the Canadian National (CN) and CP railyards moving goods between train and truck also make the city an important hub for the logistics industry.

The City of Mississauga Transportation Master Plan notes the changing role of deliveries: "the GTHA's population is growing, which means demand for people's everyday goods needs will also grow. The rise of online shopping means more home deliveries. Truck traffic is an inescapable part of both. It's in everyone's interest to ensure goods movement can operate safely and efficiently within Mississauga."

Within the Study limits, Cawthra Road is a truck route. However, truck traffic is restricted from 7pm to 7am.

4.5 Physical Environment

Drainage and Stormwater Management

The Stormwater Management Report completed by IBI Group summarizes the existing drainage conditions within the Study Area. Drainage is influenced by the topography, land cover and grade changes along Cawthra Road. Drainage within the Study Area consists of roadside curbs, stormwater drains and limited ditching. Along the northern section of the Study Area, roadside ditching on the east and west sides of Cawthra Road direct flow into Common Reed marshes. Roadside ditches are also present at the northwest and southwest corners of the Cawthra Road and Eastgate Parkway intersection. There are no watercourse crossings within the Study Area. The drainage outlets in the Study Area discharge to existing municipal storm sewers which convey runoff westerly and discharge to Cooksville Creek.

The Stormwater Management Report can be viewed in **Appendix I.**

Pavement Structure and Soils

A pavement investigation and design study was completed by Terraprobe Inc. to assess the pavement condition and explore the subsurface conditions on Cawthra Road within the Study limits. The pavement investigation found that overall pavement conditions were good with some cracking and spalling due to deterioration. However, asphalt from the QEW to north of Dundas Street will require repaving. Full depth asphalt replacement will likely be required north of Dundas Street and this will be confirmed during detailed design. For more information, the Pavement Investigation and Design Report can be viewed in **Appendix J**.

The Contaminant Overview Study, also completed by Terraprobe Inc., found 20 potential contaminating activities associated with adjacent commercial and industrial operations within the Study corridor. Environmental Site Assessments, including additional soil and groundwater investigations, will be completed during detailed design. For more details regarding potential contaminating activities, refer to the Contaminant Overview Study Report in **Appendix K**.

Utilities and Municipal Infrastructure

The Study limits include the following utilities and municipal infrastructure:

- Alectra and Hydro One electric power (overhead and underground)
- Bell, Cogeco, Rogers and Telus telecommunications (Overhead, above ground and underground)
- Enbridge natural gas mains (above ground and underground)
- TransNorthern natural gas/oil pipelines (underground)

- Region of Peel watermains (underground) and water hydrants
- Region of Peel sanitary and storm sewers (underground)

The location of underground utilities and municipal infrastructure are shown in drawings contained in the Subsurface Utility Engineering Services Report in **Appendix L**.

5. CONSULTATION

Phase 1 and 2 of the Class EA process include optional and mandatory points of contact with the Public. This Section summarizes the consultation undertaken with the Public and external agencies during the Class EA Study. Public and agency input was invited for the identification of problems/opportunities and evaluation of alternative solutions.

5.1 Study Contact List

Table 5 lists the agencies (Federal, Provincial and Local) and Indigenous communities contacted during the Study.

Table 5: Study Contact List

Study Contact List as of April 2020		
Federal Agencies	**Local Agencies**	**Provincial Agencies**
• Canadian Pacific Railway • Environment and Climate Change Canada • Fisheries and Oceans Canada • Infrastructure Ontario • Parks Canada, Historic Site and Monument Board • Transport Canada	• City of Mississauga • Credit Valley Conservation • Dufferin-Peel Catholic District School Board • Mississauga Cycling Advisory Committee (c/o City of Mississauga) • Mississauga Fire Department • MiWay Transit • Peel District School Board • Peel Regional Police • Region of Peel Ambulance Service • Toronto and Region Conservation Authority	• GO Transit • Metrolinx • Ministry of Aboriginal Affairs (now Ministry of Indigenous Affairs) • Ministry of Community Safety and Corrections • Ministry of Heritage, Sport, Tourism and Culture Industries • Ministry of Municipal Affairs and Housing • Ministry of Natural Resources and Forestry • Ministry of Rural Affairs • Ministry of the Environment, Conservation and Parks • Ministry of Transportation Ontario

Study Contact List as of April 2020 (continued)	
Indigenous Communities	**Utilities**
• Alderville First Nation • Beausoleil First Nation • Belmont Equity Partners • Chippewas of Georgina Island • Chippewas of Mnjikaning (Rama) • Chippewas of RAMA First Nation • Credit River Metis Council • Curve Lake First Nation • Haudenosaunee Six Nations Confederacy Council (c/o Haudenosaunee Confederacy Development Institute) • Hiawatha First Nation • Mississaugas of Scugog First Nation • Mississaugas of the Credit First Nation • Nation Huronne-Wendat • Peel Aboriginal Network • Six Nations of the Grand River Territory • The Metis Nation of Ontario • Williams Treaties First Nation	• Alectra Utilities • Bell Canada / Bell Canada Municipal Operations Centre • Blink Communications Inc. • Cogeco / Cogeco Data Services Inc. • Enbridge Gas Distribution Inc • Enersource Hydro Mississauga • Greater Toronto Airports Authority (GTAA) / GTAA Toronto Pearson International Airport • GT Fiber Services Inc • Hydro One / Hydro One Telecom / Hydro One Network Services • Rogers Cable (Mississauga) • Telus / Telus Network • TransNorthern Pipeline • Union Gas • Zayo

Agency contact information can be viewed in **Appendix N**. Also included is a map of adjacent properties whose owners were included in the Study Mailing List. Personal contact information is not included to respect the Municipal Freedom of Information and Protection of Privacy Act.

5.2 Study Notification

Notice of Study Commencement

A Notice of Study Commencement, detailing the Study Area and objectives of the Study, was published in the Mississauga News on August 18 and 25, 2016. The Notice was also mailed to adjacent property owners, agencies, stakeholders and organizations on August 15, 2016. The Notice that was mailed to agencies was accompanied by a reply-back form to confirm their preference to stay informed of the ongoing EA. Of those contacted, the Peel District School Board and Scugog First Nation responded with an interest to be kept informed of the Study and/or to remain on the contact list. The Notices of Study Commencement and correspondence received in response to the Notices can be viewed in **Appendix M.**

Notice of Public Information Centre

A Notice was prepared for the Public Information Centre (PIC) described in **Section 5.5**. The Notice invited Public review and input on the Study. Several methods were used to inform the Public of the PIC and opportunity to comment, including:

- Advertisements in the Mississauga News on November 14 and 21, 2019.
- Notices mailed or emailed to adjacent property owners, agencies, stakeholders, organizations and Indigenous communities, depending on the mode of communication preferred.
- Mobile Signs on Cawthra Road (south of QEW) and on Eastgate Parkway (east of Tomken Road) from November 11 to 28, 2019. The Notice on the Mobile sign read: "Join us for a Public Info Centre on Nov 27th – 7 to 9 pm @ Burnhamthorpe Comm Centre".
- Twitter (Region of Peel Tweets) on November 25 and 27, 2019. Copies of the Tweets can be seen in **Appendix M**.
- Project Website Notice in advance of the PIC. Information on display at the PIC was made available for viewing on the website.

The Notices of PIC can be viewed in **Appendix M**. Additional information regarding the PIC is provided below.

Notice of Study Completion

Upon completion of this Study, a Notice detailing the preferred solutions and availability of the Project File Report for Public review will be published in two separate editions of the Mississauga News. The Notice will also be mailed to adjacent property owners, agencies, stakeholders, organizations, Indigenous communities, and other members of the Public who have expressed an interest in the Study or requested to be included in the Study mailing list. The Draft Notice of Study Completion can be viewed in **Appendix M**. A copy of the final Notice will be retained for the project file upon issue.

5.3 Agency Consultation

Technical Advisory Committee

Agency representatives who were invited to technical review meetings formed the Technical Advisory Committee (TAC) for this EA Study. Agency representation is listed in **Table 6**.

Table 6: Technical Advisory Committee

Agencies on TAC Invitation List as of April 2020
• City of Mississauga • Credit Valley Conservation • Infrastructure Ontario • Ministry of Natural Resources and Forestry • Ministry of the Environment, Conservation and Parks • Ministry of Transportation Ontario • MiWay Transit • Region of Peel • Toronto and Region Conservation Authority • Utilities

Project Kick-off Meeting

A project kick-off meeting was held with external agencies and Region of Peel Staff on May 27, 2016. The purpose of the meeting was to inform external agencies and technical Staff of the EA Study, exchange information and discuss key issues. The following key areas of interest were raised for consideration in the Study and were factored into the existing conditions where applicable (see **Section 3** and **4**):

- Development along the corridor,
- Drainage,
- Dundas Connects initiative,
- Existing traffic conditions,
- MiWay transit service,
- Other Regional projects in the Study Area, and
- Pavement conditions.

The minutes and presentation for this meeting, including TAC attendance and correspondence can be viewed in **Appendix N**.

MiWay Transit

The Region of Peel and IBI Group met with MiWay Transit in a joint meeting with the City of Mississauga on August 16, 2018. Discussions included opportunities to integrate MiWay's proposed changes to bus stop locations, and transit priority and signal improvements along the Study corridor.

MiWay confirmed that the current Cawthra Road transit route is anticipated to travel North along Cawthra Road to Eastgate Parkway with more frequent service. The Region reviewed MiWay's request for changes to existing stops and protection of future stops on Cawthra Road. Plans for bus stops within the Study limits that were considered feasible were incorporated into the preferred design.

As a result of these discussions, the pedestrian crossings at Needham Lane and Santee Gate were assessed for pedestrian signals. The assessment determined that a pedestrian crossing signal at these locations was not warranted.

Appendix N includes the minutes for this meeting and correspondence with MiWay.

City of Mississauga

The Region of Peel and IBI Group met with the City of Mississauga in a joint meeting with MiWay Transit on August 16, 2018. In addition, the Region met with the City of Mississauga's Project Managers for the Dundas Street Bus Rapid Transit (BRT) EA on April 22, 2020. Discussions focused on active transportation design and coordination with City of Mississauga projects.

As a result, the following improvements were incorporated or retained in the preliminary preferred design:

- The City standard for cycle tracks was applied to the design where appropriate.
- A cycling crossing on the east leg of the Queensway and Cawthra Road intersection is included in the design. A cycling crossing on the south leg is not proposed due to the constraint of the southwest channel with hydro pole.
- A Multi-Use Trail is provided along the west side of Cawthra Road from the North Service Road to approximately 100m north for continuity with an existing pathway entering the corridor from the west neighbourhood. Separated cross-rides are provided on the north and west legs of the Cawthra Road and North Service Road intersection. On the north leg, the cross-ride was moved to the opposite side of the crosswalk to better line up with the future trail proposed by the City on the east side, parallel to the North Service Road. Crossings on the north and south legs of the North Service Road were also pulled back so they line up with the sidewalks and become shorter.
- The design shows the concept of the City's proposed cycle track along Bloor Street and its integration with Cawthra Road. The Bloor Street-specific elements of this intersection are subject to the City's future study of Bloor Street.
- The design shows the City's plans for a walkway/Multi-Use Trail from Forest Fire Lane to the intersection of Cawthra Road and Eastgate Parkway. Coordination for the design and construction of the Multi-Use Trail connection at the southeast corner of this intersection is required to minimize the risk of building and reconstructing the pedestrian landing area.
- Markings for pedestrian ladder crosswalks and cross-rides at controlled side street crossings are included in the design.

In addition, the following comments were noted:

- The City supports the concept of reducing the curb radii where possible.
- The suggestion to add a cross-ride at Dundas Street for the southbound cycle track through the intersection may be subject to possible future amendment to the Highway Traffic Act that would permit the use of cross-rides with crossovers at channelized islands.

- The suggestion to route the trail on the northwest corner of Burnhamthorpe Road and Cawthra Road so it runs completely behind the bus stop, then bends into the existing trail going westward, is subject to property impacts.
- The City advised against using permeable paving on cycling infrastructure as this type of pavement tends to be rougher than typical asphalt.
- The City is interested in coordination with the Hurontario Light Rail Transit (LRT) project to best manage area traffic during construction.
- The City is planning to initiate the Dundas Street BRT EA in 2020, following the Transit Project Assessment Process (TPAP) jointly with Metrolinx. The Region informed the City of Public comments regarding pedestrian and cycling links between Dundas Street and Cawthra Road for consideration during the BRT EA.

Appendix N includes the minutes for these meetings and correspondence with the City.

Technical Advisory Meeting

External agencies and technical Staff from the Region of Peel were invited to attend a Technical Advisory Committee (TAC) meeting on October 30, 2019. The purpose of the meeting was to provide an update on the EA study, provide technical findings to date and review information to be shared with the Public at the Information Centre on November 27, 2019. Meeting materials were circulated to all TAC members.

The following comments were noted and addressed during the EA as follows:

- Potential access restrictions as a result of the proposed extended median on the north leg of the Queensway intersection could be addressed as part of future redevelopment.
- Consider how the City of Mississauga Dundas Street EA Study might connect with Cawthra Road. The EA Study for Dundas Street was not active during this Study. However, the Region and City discussed comments received concerning coordination of pedestrian and cycling links between Dundas Street and Cawthra Road. The City will consider these comments and consult with the Region during the Dundas Street EA.
- A 4-leg intersection at Silver Creek Boulevard is being considered as part of a development application for a residential condominium building. The improvements proposed in the Class EA Study were considered in the Region's review of this application.
- Improvements to the southern entrance to the plaza south of Burnhamthorpe Road (on the east side) could be addressed through future redevelopment. At the time of this Class EA Study, the Study Team was not aware of any plans for future redevelopment at this location.
- Consider monitoring the southern entrance to the plaza south of Burnhamthorpe Road (on the east side) for improvements (such as a right-in right-out entrance). The traffic assessment identified traffic safety issues with the left-turn movement into the entrance. A right-in right-out only entrance was found to be effective only with a raised centre median on Cawthra Road. However, the median would conflict with the northbound left-turn configuration at Burnhamthorpe Road and restrict access to properties on the west side.
- The City of Mississauga plans to build a trail through lands southeast of Eastgate Parkway and Cawthra Road. The potential location of this trail up to Eastgate Parkway was included on the

preliminary preferred design plan at the Public Information Centre to demonstrate potential connectivity with proposed active transportation through the Study corridor.

The following comments were considered for the preliminary preferred design where feasible:

- Consider the height of the cycle tracks / raised bike lanes as snow plough operators may find it difficult to plough if these tracks were too high. Since the height of the cycling facility is higher and physically separated from the travel lanes, a smaller maintenance vehicle such as a skid steer/bobcat would be required to clear the snow onto the boulevards.
- Combined cross-rides are not to Regional standard and should be separated.
- Crosswalks should not overlap with the curb to ensure compliance with the AODA.
- At Silver Creek Boulevard, consider applying WB-15 rather than WB-20 as the design template for trucks, and straighten the proposed northbound crosswalk. WB-20 was considered to accommodate the anticipated size of trucks turning at Silver Creek Boulevard.
- Shift the south crosswalk at Rathburn Road further to the south.
- Maintain existing bus bay location on the northbound far side stop at Rathburn Road.
- Within the northern limits, adjust the alignment of proposed cross-ride(s) to line up with the trail.

The following comments were noted for consideration during detailed design:

- Follow newly created Region of Peel standards and specifications for tree replanting.
- Consider truck aprons in colour to help avoid potential accidents between pedestrians and travelling trucks.
- Consider possible future amendment to the Highway Traffic Act that would permit the use of cross-rides with crossovers at channelized islands.
- At Queensway, consider placing the hydro pole on the southwest corner channel underground. Confirm the placement and size of the channelized island at this location (possible preference for a slightly larger island).
- Confirm the placement and size of the channelized island in the southwest corner of the Dundas Street intersection (possible preference for reduced island and/or angle for drivers approaching Cawthra Road).

The minutes and presentation for this meeting, including TAC attendance and correspondence can be viewed in **Appendix N**.

Ministry of Transportation

The Ministry of Transportation Ontario (MTO) was contacted for their comments on the proposed improvements. Of note are the following comments that were incorporated into the preferred design or in the summary of EA commitments:

- The Ministry requires a 3.5m lane width within its right-of-way.
- The Ministry will review the Low Impact Development (LID) / infiltration system for use within their jurisdiction during the detailed design stage.
- If edge lines are proposed on the QEW bridge, consider carrying out structural evaluation and further consultation with MTO during the detailed design phase to verify the minor changes in

the live load does not impose any structural impacts on the Cawthra Road structure. Edge lines may introduce minor live load changes resulting from lane shifts.

- Consult with MTO during the detailed design phase regarding updates to the traffic signal drawings (PHM 125) for the North Service Road intersection.

Appendix N includes a summary table of all comments provided by the Ministry and how their comments were addressed.

Infrastructure Ontario

The Study Team is aware of one property within the Study limits that is owned by Infrastructure Ontario. The Region does not anticipate that the Project will impact this property. The proposed improvements adjacent to the property are within the Regional right-of-way.

During the Class EA Study, Infrastructure Ontario was informed of the Study Commencement, Public Information Centre, Technical Advisory Meeting and proposed works adjacent to their land. At the time of preparing this report, no comments had been raised by Infrastructure Ontario in response to the Project. Infrastructure Ontario will be further notified of Study Completion.

Technical Report Circulations

In addition to meetings, draft technical reports were circulated to relevant agencies for review and comment as outlined in **Table 7**.

Table 7: Summary of Technical Reports Reviewed by Agencies

Technical Report	Review Agency
Traffic Operations and Safety Analysis	Ministry of Transportation Ontario
Natural Environment	Ministry of Natural Resources and Forestry Ministry of Transportation Ontario Credit Valley Conservation Toronto and Region Conservation Authority
Tree Inventory and Preservation Plan	Ministry of Natural Resources and Forestry Ministry of Transportation Ontario Credit Valley Conservation Toronto and Region Conservation Authority
Stage 1 Archaeological Assessment	Ministry of Heritage, Sport, Tourism and Culture Industries
Cultural Heritage Assessment	Ministry of Heritage, Sport, Tourism and Culture Industries Ministry of Transportation Ontario City of Mississauga

Technical Report	Review Agency
Noise Study	Ministry of Transportation Ontario
Stormwater Management	Ministry of Transportation Ontario Credit Valley Conservation Toronto and Region Conservation Authority City of Mississauga

Agency review comments on the reports and the Study Team's responses are included in **Appendix N**.

5.4 Indigenous Consultation

The Ministry of the Environment, Conservation and Parks (MECP) advised the Study Team to consult with the following Indigenous communities throughout the Project (see **Appendix O** for correspondence with the MECP):

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River
- Haudenosaunee Confederacy Chiefs Council
- Huron-Wendat Nation

The Study Team included a comprehensive listing of Indigenous communities for consultation. The listing included the above recommended communities and additional communities identified by the Study Team (see **Table 5** for the complete list of communities).

Following the mail-out of the Notice of Public Information Centre, a follow-up phone call was made to each of the Indigenous communities to ensure receipt of the Notice. The Indigenous Communities Call Log in **Appendix O** shows the follow-up calls made after each mail-out.

Further, the Study Team forwarded the draft Stage 1 Archaeological Assessment report to the Huron-Wendat First Nation and the Mississaugas of the Credit First Nation for review and comment, as it was generally understood that these First Nations have protocols or interest in reviewing Stage 1 Archaeological Assessments. The Huron-Wendat First Nation had no concerns about the Stage 1 report and expressed an interest to be kept updated on the Stage 2 Archaeological Assessment timing and results. The Mississaugas of the Credit First Nation indicated their preference to see a Stage 2 archaeological assessment to field test and confirm the level of disturbance in the area.

In their follow-up correspondence, the Mississaugas of the Credit First Nation noted that additional materials related to known Mississauga sites within the City of Mississauga, such as the Cherry Hill site, are known to be in the vicinity of historic Mississauga encampments and would like to see these areas as part of a Stage 2 investigation.

Archeoworks Inc. reviewed these comments and updated the report as follows:

- Additional Stage 2 assessment is recommended in the vicinity of two cemeteries and for lands with no apparent signs of extensive sub-surface disturbance, and
- Additional information is provided for lands which formed part of the Cherry Hill House at the northwest corner of Dundas Street and Cawthra Road. The affected area does not retain archaeological potential due to heavy modification over the years. Previous reporting on the area also suggested that the best area to investigate lies to the west of the old Cherry Hill House location, and not the area fronting Cawthra Road, which lies to the east.

The Stage 1 Archaeological Assessment can be viewed in **Appendix G**. The Indigenous Communities Call Log and correspondence with Indigenous communities can be viewed in **Appendix O**.

5.5 Public Consultation

Affected Property Owners

The owners of four properties potentially impacted by the project attended the Public Information Centre on November 27, 2019. **Table 8, Table 9** and **Appendix M** include verbal and/or written comments received from property owners and the Public during the Study with responses on how comments were addressed.

At the owner's request, the Study Team met with the property owner of 655 Queensway to review traffic issues and possible solutions at the property entrance approximately 90m north of Queensway. Minutes of the meeting with the property owner can be viewed in **Appendix M**.

General Public

The Study Team received a Public comment via the Project Website regarding the safety of westbound right-turn movements at the South Service Road and Cawthra Road intersection. The concern was motorists travelling northbound on Cawthra Road, in the right lane, frequently change lanes in the intersection, into the receiving lane for motorists turning right onto Cawthra Road from the South Service Road.

Collision history at this intersection did not indicate a frequent issue between northbound through and westbound right-turn movements; and changes to the lane configuration through the intersection would likely require additional right-of-way with potential impacts to an environmentally sensitive area in the southeast quadrant (Cawthra Woods). Although the Class EA Study did not identify a need for improvements related to the right-turn movement, this comment was forwarded to the MTO for further consideration as the intersection falls under the Ministry's jurisdiction.

Public Information Centre

A Public Information Centre (PIC) was held on Wednesday, November 27, 2019 from 7:00 p.m. to 9:00 p.m. at the Burnhamthorpe Community Centre, Fleetwood Village Room, 1500 Gulleden Drive, Mississauga. Notification of the PIC is described above.

The PIC was hosted by representatives from the Region of Peel along with the consulting team from IBI Group. The PIC followed an open house drop-in format with display boards and roll plans detailing the

progress of the Project and the preliminary preferred design plan. Twenty three (23) attendees signed the PIC registry.

Display boards were prepared to summarize the following:

- Study Area
- Why Improve Cawthra Road?
- EA Process
- Traffic Conditions
- Traffic Operations and Safety
- Problem and Opportunity
- Alternative Solutions
- Natural Heritage
- Tree Inventory and Protection
- Cultural Heritage
- Designated Land Use
- Noise Analysis
- Soil and Pavement Condition
- Drainage and Stormwater Management
- Evaluation Criteria
- Assessment of Alternative Solutions
- Summary of Evaluation
- Preliminary Preferred Solution
- Typical Cross-Sections
- Preliminary Preferred Design Plan
- Next Steps

The PIC boards and preliminary preferred design plan were available on the Region of Peel's Project Website at: http://www.peelregion.ca/pw/transportation/construction/environmental-assessment/cawthra-road.asp and a copy can be found in **Appendix M**.

Participants browsed the display boards and preliminary preferred design plan and discussed issues with members of the Study Team. Participants were encouraged to provide written comments and the Study Team noted discussion items. PIC attendees could provide feedback on the Project by filling-out and submitting a comment sheet on-site or by mail, fax or email by December 13, 2019. Comment forms were also available on the Project Website.

Table 8 and **Table 9** summarize the written and verbal comments received in response to the PIC, and how these comments were addressed. The Study Team received 11 Comment Sheets and responded to 10 by letter or email. One comment sheet did not include contact details (phone number, email address or home address) and is therefore addressed in this report. Additional comments were received by letter, email and phone. Copies of all written comments and responses are included in **Appendix M**.

Table 8: Summary of Written PIC Comments and Responses

Comment	Response
• Full access on Cawthra Road is critical to business at Queensway. • There is a solution to make the traffic turning safer. • Requested a meeting with Region of Peel Staff to discuss further.	• The traffic analysis for the Class EA identified speeding and turning movements as an issue in the midblock section of the Study limits, particularly north of Queensway, which have resulted in a high incidence of accidents. Extending the centre median on the north leg of the Queensway and Cawthra Road intersection is proposed to resolve the traffic safety issues.
• Dundas Connects seems to be missing for future project consideration. • Would like to know if and how the Region of Peel and the City of Mississauga are cooperating on improving the pedestrian links between Cawthra Road and Dundas Street, given the proposed cycle track and cycle track/bike lanes to be added as part of Dundas Connects.	• Dundas Connects was identified as a future project that may need to be coordinated with improvements on Cawthra Road. • The City of Mississauga was consulted as a member of the Technical Advisory Committee for the Cawthra Road EA Study and was further contacted to review comments regarding pedestrian and cycling links between Cawthra Road and Dundas Street for consideration during the Dundas Street BRT EA.
• The current stairway connection is narrow, poorly lit and covered in bird excrement and need significant improvements.	• Regarding the stairway connection between Dundas Street and Cawthra Road, the City of Mississauga completed some repairs to the stairs in 2019. • The City will continue to maintain the cleanliness and lighting of the stairs while improvements to the connection and lighting will be considered during the design of any future bridge works.
• At Mount Peace Cemetery, request that the existing location of the sidewalk remain where it is or be moved further away from the existing chain link fence.	• The proposed road design maintains the existing sidewalk location at Mount Peace Cemetery and shifts the road alignment at this location approximately 2.5m to the east to accommodate new active transportation infrastructure on both sides of Cawthra Road while avoiding impacts to the Cemetery. • Additionally, the alignment shift will introduce a new 1.0m splashpad behind the curb for snow storage.
• At Mount Peace Cemetery, the existing conditions have limited sightlines to traffic coming south on Cawthra Road. The sightlines should be considered for any bike lane that might be constructed on the west side of Cawthra Road.	• With the road alignment shifted to the east, south of Santee Gate, drivers exiting the Cemetery should have improved sightlines of southbound vehicles at a further distance. • However, it is important that the vegetation and chain link fence on private property is well maintained so that these features do not obstruct the view for drivers, pedestrians and cyclists approaching the entrance.

• Trying to enter Cawthra Road from an east-west cross street, such as Schomberg Avenue, at most times of the day can be daunting and risky because of the speeding vehicles moving north and south on Cawthra.
• The focus should be Dixie Road to handle more traffic. Dixie is wide from 401 to the Q.E. It has mostly businesses on the east-west side. Cawthra has solid housing on both sides from Eastgate to Dundas. Take traffic from Cawthra, move it to Dixie.
	• Widening Cawthra Road was found not to be the best alternative to accommodate traffic demands and other road users such as cyclists and pedestrians mainly due to the residential property constraints within the central section of the corridor. The EA Study recommends the following improvements to address traffic growth and speeding on Cawthra Road between QEW and Eastgate Parkway:
	  • Intersection improvements, such as additional turning lanes where warranted, for traffic operational and safety benefits.
	  • Reduced lane widths to encourage motorists to slow down.
	• Diverting traffic from Cawthra Road to Dixie Road is not expected to address traffic demand on Cawthra Road. Cawthra Road is a busy connector route between two Provincial Highways (403 to the north and QEW to the south). Given the traffic volumes served by these two major highways, Cawthra Road would likely continue to serve high traffic volumes following efforts for traffic diversion.

• Concern with the difficulty of getting in and out of the plaza parking lot, on the east side of Cawthra Road, south of Burnhamthorpe Road. • The common right-of-way with the adjoining plaza presents difficulty to turn left onto Burnhamthorpe Road to travel southbound onto Cawthra Road. • Unsuccessfully approached the nearby church to help resolve the problem.	• Traffic signals were considered; however, this option is not feasible due to the proximity of the access to the signalized Burnhamthorpe Road intersection. • Right-in and right-out only access with a raised centre median on Cawthra Road was considered, however this option is also not feasible due to the space required for the northbound left-turn lane approaching Burnhamthorpe Road and a median would restrict access to properties on the west side of Cawthra Road. • A right-in and right-out access without a raised centre median on Cawthra Road would not be as effective in restricting left-

Comment	Response
	turn movements. • Site access alternatives or restrictions to the Plaza entrance may be addressed through future redevelopment of the site.
• The intersection of Cawthra Road and Burnhamthorpe Road has numerous accidents weekly due to traffic volumes. • Would like to know what will be put into place to reduce accidents with the higher volumes of traffic.	• The traffic analysis for the EA Study showed that turning movement collisions was the dominant collision type at the intersection of Cawthra Road and Burnhamthorpe Road. • A reduced radius at the intersection is proposed to provide greater visibility to drivers of pedestrians crossing and to encourage vehicles to slow down when making a right-turn. • In addition, it is proposed to provide fully protected northbound and southbound left-turn signal phases and extend green signal time available.
• Ensure residents of Willowbank area are invited to future meetings.	• Notices regarding this Study are mailed to property owners adjacent to Cawthra Road within the Study limits. • The Region also reaches out to others who may be interested in the Study by advertising Notices in the Mississauga News, tweeting announcements @regionofpeel, and updating the above Project Website. • Details regarding the Public Information Centre were also advertised on mobile signs placed within the study area.
• Landscaping shrubs on the west side of Cawthra Road, north of Rathburn Road. • Would like to see safety intersection improvements as well as beautification. • Would like the noise levels on Cawthra Road to be managed. • Would like to see painted intersection (cross marks), lighting at all times, truck restrictions along Cawthra Road from 7p.m. to 7a.m., and the pathway from Grey Cedar Crescent to Burnhamthorpe Road upgraded.	• A landscape plan was developed for this Class EA, and although no improvements were recommended north of Burnhamthorpe Road due to the area having been recently reconstructed, landscaping and beautification within the north limits can be further considered during detailed design. • A southbound right-turn lane is proposed at the Rathburn Road intersection as part of recommended safety improvements. • The noise assessment completed for this Study recommended that noise walls be constructed at the limits of the Cawthra Road Right-of-Way for residential properties backing onto Cawthra Road. The location of noise walls will be verified during detailed design. • Crosswalks will be re-painted with construction. • Comments regarding lighting will be forwarded to Regional Staff in the area of traffic signals and streetlighting for consideration. • Trucks are currently restricted on Cawthra Road from 7pm to 7am. Comments will be forwarded to Peel Regional Police for review. • Comments requesting an upgraded pathway from Grey Cedar Crescent to Burnhamthorpe Road will be forwarded to the City of Mississauga for consideration.
• Be careful of connections to high schools, especially the Catholic senior school, at Rathburn Road and Cawthra Road. • The need for signage at various driveways for both drivers and cyclists (e.g. hidden driveway at the gas station). • Would like to see an exit to the southbound traffic along Cawthra Road from Eastgate/Forest Fire Lane to allow an easier access to Meadows Boulevard. • Minimize the ramps/raises for cyclists under the bridge at Dundas Street, it is very hard to bike up at times. • Maybe try 5 lanes on Cawthra Road with the middle lane being changed in direction, depending on the day, for example, 3 lanes northbound in the AM rush, 3 lanes southbound in the PM rush (similar to Parc Avenue in Montreal, or Jarvis Road in Toronto).	• Connections to high schools near Cawthra Road and Rathburn Road, such as John Cabot Secondary School, were noted. • The Region will review the need for signage at driveways where sightlines could be affected by existing fencing and/or vegetation during the detailed design phase of the Project. • As shown at the Public Information Centre, the City of Mississauga is proposing a multi-use trail connection from Forest Fire Lane to Eastgate Parkway which will allow easier access to the existing multi-use trail on the west side of Cawthra Road to Meadows Boulevard. Comments were forwarded to the City of Mississauga for information. • The proposed cycling infrastructure currently follows the existing grade adjacent to the road. Installing retaining walls to raise the grade of the proposed cycling infrastructure for minimizing the incline for cyclists is not feasible at this time. The grade separation south of Dundas Street serves both the Dundas Street and CP railway crossings. This grade separation spans wider than the traditional standard grade separation and is therefore not as steep compared to other standard grade separations. • Re-purposing the centre median lane is not recommended at this time due to the potential impact on traffic flow, for example:

Comment	Response
	• The centre two-way left-turn lane facilitates access to numerous residential and business properties along the corridor. By removing or re-purposing the centre two-way left-turn lane, vehicles travelling through the corridor would have to wait for left-turning vehicles to complete their movement, which could increase the risk of rear-end collisions. • Accommodating an interchangeable lane as suggested in the comments would be very difficult at intersections and conflict with designated left-turn lanes.
• Like the safety improvements and planning for future projects on crossroads.	• Comment noted.
• The speed limit is 50 km/h. This should be monitored with more police patrols. The safety of the residences and pedestrians is of grave concern with the high speed the cars are travelling on Cawthra Rd.	• The EA Study recognizes speeding on Cawthra Road as an issue and recommends reduced lane widths within the Project limits to encourage motorists to slow down. The Study also recommends removal/replacement of channelized islands with smart channels or traditional right-turn lanes. Smart channels improve the visibility of oncoming vehicles and pedestrians for drivers and encourages motorists to slow down at the channel. In addition to these recommendations, the suggestion for monitoring the 50km/h speed limit on Cawthra Road was forwarded to Peel Regional Police for consideration. • The EA Study also recommends a number of safety measures for cyclists. At traditional crosswalks, cyclists have to dismount and cross the intersection by walking their bikes. Cross-rides are proposed to allow cyclists to ride their bike within the crossing without dismounting. A separated cross-ride would provide a dedicated space for cyclists, which in turn would provide additional safety for both cyclists and pedestrians.

• Concerned about bike lane safety and the safety of the cyclists, given how busy the street is.	• Regarding the safety of cyclists, the EA Study recommends the following:
	  • Cycle tracks throughout the corridor to provide dedicated space for cyclists that is separated from vehicles on the roadway by a raised curb and boulevard.
	  • Raised bike lanes closer to the roadway at driveway crossings to maintain the visibility of cyclists for motorists exiting their driveway, and to maintain the quality of ride for cyclists crossing numerous driveways (raised bike lanes are separated from vehicles on the roadway by a raised curb).
	• Cross-rides at intersections to allow cyclists to ride their bike within the crossing without dismounting. A separated cross-ride provides a dedicated space for cyclists, which in turn provides additional safety for cyclists and pedestrians.

• Would like to know how the bike lanes would affect garbage pickup. Concerned if the garbage truck would be able to reach the containers or if residents have to put the garbage on the bike lanes. • Would like to know where the location for the garbage bins will be.	• The proposed design for Cawthra Road will have minimal impact to garbage collection. For garbage collection following construction, residents will be able to place the garbage bin on the boulevard next to the cycling infrastructure.
• Concern for widening in a residential area that would destroy the value of property.	• Widening Cawthra Road for additional through lanes within the Project limits is not recommended at this stage of the EA Study. • The EA Study currently recommends corridor and intersection improvements, such as cycle tracks / raised bike lanes throughout and additional turning lanes at intersections where warranted.
• Would like an old abandoned streetlight to be removed from the property.	• The Region contacted the City of Mississauga and the City's contractors removed the cables that run from the front of the property to the pole on the boulevard. The pole and the attached signs will remain on the boulevard.
• Would like to be kept informed on the project. Did not receive a letter for the PIC.	• Contact information was added to the mailing list to receive future notices on this Study. Information about the Study is also available on the Project Website at: http://www.peelregion.ca/pw/transportation/construction/environmental-assessment/cawthra-road.asp.
• Hydro One has existing high voltage Transmission facilities within the study area and must be consulted on the project.	• At this stage of the EA, the Region's proposed road design does not show any impacts to existing Hydro One infrastructure (high voltage transmission lines or facilities). For this reason, the Region does not anticipate that this Project will result in an

Comment	Response
• The transmission corridor may have provisions for future lines or already contain secondary land uses (i.e. pipelines, watermains, parking, etc.). Please take this into consideration in the planning. • Should the project (Cawthra Road from Queen Elizabeth Way to Eastgate Parkway) result in a Hydro One station expansion or transmission line replacement and/or relocation, an environmental assessment (EA) will be required as described under the Class Environmental Assessment for Minor Transmission Facilities (Hydro One, 2016). Hydro One will need to rely on studies and/or reports completed as part of the EA for the project. • Developments should not reduce line clearances or limit access to Hydro One facilities at any time in the study area. Any construction activities must maintain the electrical clearance from the transmission line conductors as specified in the Ontario Health and Safety Act for the respective line voltage. • Hydro One must be consulted during all stages of the project. Please ensure that all future communications about the project are sent to Hydro One electronically.	EA as described under the Class Environmental Assessment for Minor Transportation Facilities (Hydro One, 2016). • Hydro One Networks Inc. will continue to be consulted during each stage of the Project. Per request, future communications regarding this Project will be sent electronically. Information on the EA Study will also be available on the Project Website at: http://www.peelregion.ca/pw/transportation/construction/environmental-assessment/cawthra-road.asp.
• Advised only a small section of the study area is within TRCA's jurisdiction. • Requested coordination with the City of Mississauga regarding a proposed off-road trail that intersects with the study area. • Provided TRCA's commenting roles, areas of interest, recommended contact points and submission requirements for this EA. • Requested that The Living City Policy be considered.	• Comments noted. • The City of Mississauga's proposed trails within the Study limits were considered in the EA Study. • The Region of Peel consulted with TRCA during key stages of the EA, which included review of relevant draft technical reports. • The Living City Policy was considered in the Natural Environment assessment.

Table 9: Summary of Verbal PIC Comments and Responses

Comment	Response
At Cawthra Road and south of Tedwyn Drive: • Can [the centre median lane] be used as a refuge area? • Want to close driveway access on Cawthra and have one on the local road.	• The centre median at this location is not intended to be used as a refuge area although currently it may be used to turn left into properties fronting Cawthra Road. • Relocation of a driveway access from Cawthra Road to a local road behind the property requires approval from the City Mississauga for the new access to the local road.
At Cawthra Road and Bloor Street: • Property close to traffic. • Concern for traffic moving closer to property at the intersection.	• Property impacts were assessed in the evaluation of alternative solutions. Property will be required to accommodate the proposed northbound right-turn lane at Bloor Street.
At Cawthra Road and Dundas Street: • Stair connection between Dundas Street and Cawthra Road due to grade separation.	• Regarding the stairway connection between Dundas Street and Cawthra Road, the City of Mississauga completed some repairs to the stairs in 2019. The City will continue to maintain the cleanliness and lighting of the stairs while improvements to the connection and lighting will be considered during the design of any future bridge works.
At Cawthra Road and Breckenridge Road: • If these signals were actuated to stay red, then it would create gap for vehicles turning left into the plaza.	• The lights at Breckenridge Road are pedestrian activated. Increasing red light frequency and/or timing would not result in a gap in traffic at the Plaza entrance.
At Cawthra Road and Runningbrook Drive: • Stopping to make the turn for cyclist and stopping cars. • Waste pick up.	• A cross-ride is proposed at Runningbrook Drive and Cawthra Road, which will improve visibility of cyclists. • The proposed design for Cawthra Road will have minimal impact to garbage collection. For garbage collection following construction, residents will be able to place the garbage bin on the boulevard next to the cycling infrastructure.
At Cawthra Road and Burnhamthorpe Road: • Concern with skewed intersection/sightlines. • Do narrowed lane widths help? • Parking trespassing issue at Plaza south of Burnhamthorpe on east side. • Signals at southern entrance to Plaza south of Burnhamthorpe on east side. • Red lights at Breckenridge Road as a potential solution for the southern entrance to Plaza south of Burnhamthorpe on east side. • Pedestrian connection. • Consider MUT behind the bus stop at northwest corner of Cawthra Road and Burnhamthorpe Road.	• A reduced radius at the intersection is proposed to provide greater visibility to drivers of pedestrians crossing and to encourage vehicles to slow down when making a right-turn. In addition, it is proposed to provide fully protected northbound and southbound left-turn signal phases and extend green signal time available. • Reduced lane widths are recommended to encourage motorists to slow down. • Trespassing issues are outside the scope of the EA Study. • Traffic signals were considered at this location; however, this option is not feasible due to the proximity of the access to the signalized Burnhamthorpe Road intersection. • The lights at Breckenridge Road are pedestrian activated. Increasing red light frequency and/or timing would not result in a gap in traffic at the Plaza entrance. • Sidewalks to the south and the MUT to the north will be maintained for pedestrians. • Location of MUT is subject to property impacts.
At Cawthra Road and Rathburn Road: • Beautify/landscape. Like trees. • Noticed increase in traffic [due to] 401/403 – increase in noise. • Truck restriction not enforced.	• Tree preservation and landscape plans were developed for the EA. Although no improvements were recommended north of Burnhamthorpe Road due to the area having been recently reconstructed, landscaping and beautification in the vicinity of this intersection can be further considered during detailed design. • The noise assessment completed for this Study recommended that noise walls be constructed at the limits of the Cawthra Road Right-of-Way for residential properties backing onto Cawthra Road. The location of noise walls will be verified during detailed design. • Trucks are currently restricted on Cawthra Road from 7pm to 7am. Comments will be forwarded to Peel Regional Police for review.

Comment	Response
At Cawthra Road and Eastgate Parkway: • A request was made for a gateway feature.	• The Region will review the opportunity for a gateway feature with the City and MTO during detailed design.
Other: • Highway/overpass between QEW and Highway 403. • Request for sanitary connection to property. • Garbage disposal at bike lane entrance. • [Implementation timing for future] bus stops [and] routing. • [Sightlines at] gas station [entrance].	• An overpass connecting the Highway interchanges on Cawthra Road was considered not feasible due to highly constrained corridor and construction complexity. • Installation of a sanitary sewer connection to property on Cawthra Road can be done as part of a Local Improvement process, which requires Regional Council approval. The property owner would be responsible for the cost of construction. • The proposed design for Cawthra Road will have minimal impact to garbage collection. For garbage collection following construction, residents will be able to place the garbage bin on the boulevard next to the cycling infrastructure. • Future bus stops and routing are planned by MiWay Transit. The proposed transit improvements were identified within MiWay's 5-year plan for the period 2016 to 2020. • The Region will review the need for signage at driveways where sightlines could be affected by existing fencing and/or vegetation during the detailed design phase of the Project (such as at the gas station at Rathburn Road).
• Wondered if widening of Cawthra Road was being proposed. • Thought bike lanes were a waste of time and money because nobody rides their bike along Cawthra Road. • Suggested an overpass at Eastgate Parkway and Cawthra Road because most of the traffic was there. • Will review the proposed plans when they are available on the website and submit written comments or call back with questions.	• Widening Cawthra Road for additional through lanes within the Project limits is not recommended at this stage of the EA Study. The EA Study currently recommends corridor and intersection improvements, such as cycle tracks / raised bike lanes throughout and additional turning lanes at intersections where warranted. • One of the objectives of the EA Study is to maximize the use of the corridor for all road users, including cyclists. • The intersection at Eastgate Parkway is under the jurisdiction of the MTO. The Ministry reviewed the EA recommendations for the intersection and provided comment. The Region is not aware of any plans by the Ministry to consider major improvements such as an overpass at this location.
• Problems accessing PIC information on the Project Website and request for assistance.	• The contact was informed that the PIC materials were in the process of being uploaded to the Project Website. Materials were uploaded to the Website after the PIC.

6. PHASE 2: ALTERNATIVE SOLUTIONS

6.1 Review of Problem and Opportunity

Review of comments received during the Public Consultation process generally supported the need to address the following problems and opportunities in this Class EA Study:

Problems	Opportunities
No cycling facilities on Cawthra Road other than the MUT between Burnhamthorpe Road and Eastgate Parkway.	Consider cycling facilities where feasible with separation from motor vehicle traffic for the comfort of cyclists riding in heavy traffic. *One Public comment indicated non-support for cycling infrastructure and other comments were concerned for the safety of cyclists on a busy street. The benefits and implications of including active transportation in the Project were factored into the subsequent evaluation of alternative solutions and in the preliminary design for the preferred solution.*
Traffic congestion at major intersections.	Consider improvements to traffic operations such as adding new turn lanes.
Pedestrian and cyclist safety at intersection crossings.	Tighten intersection radii and consider removing channelized islands to improve visibility of pedestrians and cyclists crossing the intersection while slowing motorists when approaching the intersection.
Excessive speeding along the Study corridor.	Consider narrower lane widths to reduce speeds. *During Public consultation, some were interested to know if or how narrow lane widths would help.*
Frequency of collisions associated with left-turning conflicts at major intersections and commercial entrances.	Consider fully protected left-turn phasing or left-turn restrictions to address safety concerns. *Consideration of left-turn restrictions to at least one commercial entrance was necessary to address safety concerns. Potentially affected property access was factored into the subsequent evaluation of alternative solutions.*

In addition to the above, consultation with agencies introduced the following opportunities for consideration in the EA Study:

- Linkages to the surrounding active transportation network, including existing or proposed multi-use trails and cycle tracks crossing Cawthra Road, and
- Provisions for future transit stops north of Bloor Street.

6.2 Description of Alternative Solutions

The following alternative solutions were considered to address the problems and opportunities outlined above:

Alternative 1: Do Nothing

- No improvement to Cawthra Road

Alternative 2: Widen road for additional lanes

- Widen Cawthra Road for additional through lanes to accommodate increased travel demand, including enhanced active transportation infrastructure throughout the corridor.

Alternative 3: Improve operations and safety throughout the corridor

- Add traffic calming measures to address speeding, such as reduced lane widths; and enhance active transportation infrastructure to improve safety for pedestrians and cyclists throughout the corridor (i.e., design the corridor for all modes of transportation, including walking, cycling, taking transit, carpooling, and driving).

Alternative 4: Improve operations and safety at intersections and commercial entrances

- Address traffic congestion at intersections through local operational and safety improvements, such as additional dual left-turn lanes, exclusive right-turn lanes, adjustments to turning lane storage and/or fully protected signal phasing.
- Improve safety for all road users through removal/replacement of channelized islands, reduced turning radii and improved pavement markings/signage. Under this alternative, channelized islands at intersections would be replaced with smart channels or traditional right-turn lanes. Smart Channels improve visibility of oncoming vehicles and pedestrians for drivers turning right (drivers do not have to turn their head as much to the left as they would at a traditional channel). This encourages vehicles to slow down at the channel since the vehicle would have to make a sharper turn. Examples of channelized islands, smart channels and traditional right-turn lanes are shown in the PIC display in **Appendix M**.
- Improve safety of pedestrians and cyclists by providing appropriate crossing treatments at intersections, such as crosswalks and cross-rides. At traditional crosswalks, cyclists dismount and cross the intersection by walking their bike. A cross-ride allows cyclists to ride their bike within the crossing without dismounting. A separate cross-ride provides separate space for cyclists and pedestrians. An example of a cross-ride is shown in the PIC display in **Appendix M**.
- Left-turn restrictions may also be considered under this alternative to address any identified safety concerns at commercial entrances.

6.3 Assessment of Alternative Solutions

Each alternative solution was assessed for net positive and negative impacts (i.e., impacts with mitigation in place) under each set of the technical (transportation and engineering), natural, social, cultural, and economic criteria outlined in **Table 10**. The 'Do Nothing' alternative served as a benchmark to compare alternatives. In the end, a rationale-based approach was used to evaluate the alternatives and select a preliminary preferred solution, subject to Public consultation.

Table 10: Evaluation Criteria

Criteria	Indicator
Transportation	• Ability to address problem and opportunity • Consistent with municipal planning policies and plans (Peel and Mississauga Official Plans, Long Range Transportation Plans (LRTPs), and Active Transportation Plans)
Engineering Environment	• Potential impact on drainage and stormwater management • Potential impact on soils and pavement structure • Potential impact on utilities and municipal water/wastewater infrastructure
Natural Environment	• Potential impact on natural heritage features • Potential opportunity to adapt to or mitigate effects of climate change (Reduce Greenhouse Gas (GHG) emissions, Incorporate Low Impact Development (LID) in stormwater management)
Social Environment	• Compatible with existing and planned future land uses, including property impact • Promotes healthy, age-friendly and accessible environments • Potential noise impacts
Cultural Environment	• Potential impact on built heritage and cultural heritage landscapes • Potential impact on archaeological resources
Economic Environment	• Consistent with Region of Peel Goods Movement Strategic Network • Supports economic sustainability, including access to businesses • Anticipated cost within financing capacity of the Region of Peel

Table 11 summarizes the assessment and evaluation of alternative solutions. The assessment was updated following Public consultation as shown in italics. No comments received during the EA Study affected the outcome of the evaluation.

Table 11: Assessment and Evaluation of Alternative Solutions

Environmental Criteria / Indicator	(1) Do Nothing	(2) Widen road for additional lanes	(3) Improve corridor operations & safety	(4) Improve intersection operations & safety
Transportation				
Ability to address problem and opportunity	– Does not address problem and opportunity	+ Does address problem and opportunity in combination with other alternatives, however introduces constraints on the ability to accommodate active transportation facilities	+ Does address problem and opportunity in combination with other alternatives	+ Does address problem and opportunity in combination with other alternatives
Consistent with municipal planning policies and plans	– No action to meet goals and objectives of municipal planning policies and plans	+ Partially consistent with Regional LRTP Update (2019) which shows widening to 6 lanes between QEW and ***Queensway*** by 2041	+ Consistent in combination with other alternatives	+ Consistent in combination with other alternatives
Engineering				
Potential impact on drainage and stormwater management	+ No impact	– Greatest impact of alternatives (relative to Do Nothing) due to introduction of largest impervious area	– Moderate impact in comparison to widening alternative (relative to Do Nothing) due to reduction of impervious area	– Moderate impact in comparison to widening alternative (relative to Do Nothing) due to reduction of impervious area
Potential impact on soils and pavement structure	+ No impact	– Greatest impact of alternatives (relative to Do Nothing) due to largest area of land required and potential for encroaching into areas of potential environmental concern	– Moderate impact in comparison to widening alternative (relative to Do Nothing) due to less land required and potential for encroaching into areas of potential environmental concern	– Moderate impact in comparison to widening alternative (relative to Do Nothing) due to less land required and potential for encroaching into areas of potential environmental concern
Potential impact on utilities and municipal water/wastewater infrastructure	+ No impact	– Greatest potential for displacement/relocation of utilities and municipal infrastructure of alternatives (relative to Do Nothing)	– Moderate potential for displacement/relocation of utilities and municipal infrastructure ***compared to*** widening alternative (relative to Do Nothing)	– Moderate potential for displacement/relocation of utilities and municipal infrastructure ***compared to*** widening alternative (relative to Do Nothing)

Environmental Criteria / Indicator	(1) Do Nothing	(2) Widen road for additional lanes	(3) Improve corridor operations & safety	(4) Improve intersection operations & safety
Natural				
Potential impact on natural heritage features	+ No impact	– Greatest encroachment potential of alternatives (relative to Do Nothing) with impact throughout entire corridor	– Moderate encroachment potential in comparison to widening alternative (relative to Do Nothing) with impact throughout entire corridor	+ Least encroachment potential of alternatives (relative to Do Nothing) as impact is limited to intersections
Potential opportunity to adapt to or mitigate effects of climate change	– No action to address effects of climate change	+ Opportunity for LID – Increased GHG emissions from increased traffic	+ Opportunity for LID throughout corridor + Opportunity to ultimately reduce GHG emissions with a shift from single-occupancy vehicles to sustainable modes of travel	+ Opportunity for LID at intersections
Cultural				
Potential impact on built heritage and cultural heritage landscapes	+ No impact	– Greatest impact of alternatives (relative to Do Nothing) due to area of land required	– Moderate impact in comparison to widening alternative (relative to Do Nothing) due to land required to accommodate active transportation and/or transition to pedestrian/cyclist crossings at intersections	– Moderate impact in comparison to widening alternative (relative to Do Nothing) due to potential land required to accommodate additional turn lanes and/or to improve pedestrian/cyclist movements – 1 property affected at Bloor Street to accommodate northbound right turn lane was identified in Cultural Heritage Assessment to have potential heritage value
Potential impact on archaeological resources	+ No impact	– Greatest impact of alternatives (relative to Do Nothing) due to area of land required – Requires additional archaeological assessments to determine extent of impacts and mitigation for areas outside the right-of-way	+ No significant impact in comparison to widening alternative (relative to Do Nothing) due to less area of land required – ***Stage 2 and 3 archaeological assessments will be undertaken during detailed design for affected areas within the strip of land between the Dixie Union Chapel and Cemetery property fence and the Cawthra Road underpass retaining wall*** – ***Stage 2 and 3 archaeological assessment will be undertaken during detailed design for affected areas within 10m of the current Mount Peace Roman Catholic Cemetery property limit and for grassed frontages with no apparent signs of extensive sub-surface disturbance***	+ No significant impact in comparison to widening alternative (relative to Do Nothing) due to less area of land required

Environmental Criteria / Indicator	(1) Do Nothing	(2) Widen road for additional lanes	(3) Improve corridor operations & safety	(4) Improve intersection operations & safety
Social				
Compatible with existing and planned future land uses, including property impact	+ No impact to land uses and property	– Greatest potential for property requirements of alternatives (relative to Do Nothing) due to widening throughout corridor	– Moderate potential for property requirements of alternatives (relative to Do Nothing), to accommodate active transportation throughout corridor and/or transition to pedestrian/cyclist crossings at intersections – 1 property affected south of *Queensway* due to driveway grading	– Moderate potential for property requirements of alternatives (relative to Do Nothing), to accommodate additional turn lanes and/or improve pedestrian/cyclist movements at intersections – 2 properties affected at Bloor Street to accommodate northbound right turn lane
Promotes healthy, age-friendly and accessible environments	– No opportunity to address effects on public heath	+ Supports active transportation – Wider road crossings for users with limited mobility – Proximity of pedestrians/cyclists to traffic emissions – Increased air emissions due to increased traffic	+ Supports active transportation infrastructure – Proximity of pedestrians/cyclists to traffic emissions	+ Supports improvements for the safety of pedestrians/cyclists crossing at intersections
Potential noise impacts	+ No impact	– Greatest impact of alternatives (relative to Do Nothing) due to increased traffic closer to sensitive land uses	+ Negligible noise impact (relative to Do Nothing)	+ Negligible noise impact (relative to Do Nothing)

Environmental Criteria / Indicator	(1) Do Nothing	(2) Widen road for additional lanes	(3) Improve corridor operations & safety	(4) Improve intersection operations & safety
Economic				
Consistent with Region of Peel Goods Movement Strategic Network	+ No impact	+ Maintains truck restriction from 7PM to 7AM	+ Maintains truck restriction from 7PM to 7AM	+ Maintains truck restriction from 7PM to 7AM + Ability for trucks to turn will be maintained
Supports economic sustainability, including access to businesses	+ No impact	+ Increased traffic exposed to business area	+ Provides enhanced accessibility for variety of sustainable transportation users which could provide more exposure for businesses	– Access to 2 commercial properties *potentially affected*
Anticipated cost within financing capacity of the Region of Peel	+ No construction cost	– Greatest cost of alternatives (relative to Do Nothing) due to greatest extent of new infrastructure to construct and maintain, including costs associated with complexity, utility relocation and property impact	– Moderate cost in comparison to widening alternative (relative to Do Nothing) due to less extent of new infrastructure to construct and maintain	– Moderate cost in comparison to widening alternative (relative to Do Nothing) due to less extent of new infrastructure to construct and maintain

Environmental Criteria / Indicator	(1) Do Nothing	(2) Widen road for additional lanes	(3) Improve corridor operations & safety	(4) Improve intersection operations & safety
Summary	– Does not address problem and opportunity	– Not expected to provide significant benefit	+ Carried forward	+ Carried forward
Recommendation	**Alternative 1 and 2 are not preferred**		**Combination of Alternative 3 and 4 is preferred**	

6.4 Preferred Solution

Based on the assessment of alternatives and Public comments, the preferred solution is a combination of:

Alternative 3: Improve operations and safety throughout the corridor

- Add traffic calming measures to address speeding, such as reduced lane widths; and enhance active transportation infrastructure to improve safety for pedestrians and cyclists throughout the corridor.

Alternative 4: Improve operations and safety at intersections and commercial entrances

- Address traffic congestion at intersections through local operational and safety improvements such as additional turn lanes, signal phasing, removed or modified channels and/or reduced turning radii. Improve safety of pedestrians and cyclists by providing appropriate crossing treatments at intersections, such as crosswalks and cross-rides. Left-turn restrictions may also be considered under this alternative to address any identified safety concerns at commercial entrances.

Provisions for future transit stop locations and connections to the surrounding active transportation network can be accommodated in the design for the preferred solution.

Long-Term Considerations

The Active Transportation Report included in **Appendix C** recommended that sidewalks be protected for on the east side of Cawthra Road between Burnhamthorpe Road and Rathburn Road, and an extension of the sidewalk from north of Rathburn Road to Eastgate Parkway to provide a continuous pedestrian connection to the Cawthra Transitway Station, east of Cawthra Road on Eastgate Parkway. Significant constraints to providing a sidewalk on the east side include steep boulevard grades, hydro poles and mature trees. Given that the MUT was recently constructed within this section of the Study corridor, these improvements will be considered in the longer term as part of future reconstruction beyond the planning horizon of this EA.

7. DESIGN CONSIDERATIONS

7.1 Design Criteria

Table 12 and **Table 13** show the technical design standards used to develop the Preliminary Design for the Preferred Solution. Note the MTO requires a minimum of 3.5m lane width for corridor sections under the Ministry's jurisdiction. Reduced lane widths (e.g., 3.3m turn lanes) were applied to improve intersections under Regional jurisdiction and encourage traffic to slow down.

Table 12: Technical Road Design Criteria

DESIGN PARAMETERS	PRESENT CONDITIONS	DESIGN STANDARDS / MINIMUMS		PROPOSED STANDARDS
		TAC	MTO	
Road Classification	Major Arterial	-	-	Major Arterial
Row Width	36.6m – 45m	-	-	36.6m – 45m
Posted Speed	50km/hr	-	-	50km/hr
Design Speed (D.S.)	60km/hr	-	-	60km/hr
Minimum Stopping Sight Distance	-	85 m	85 m	85 m
Equivalent Minimum 'K' Factor for 60km/hr D.S.	-	15 – 18 Sag 10 – 13 Crest	18 Sag 15 Crest	18 Sag 15 Crest
Minimum Radius for 60km/hr D.S	-	130 m	90m	130 m
Lane Width for 60km/hr D.S.	3.50m Curb Lane 3.35m Inside Lane	3.3m Inside 3.3m Curb lane	-	3.50m Curb Lanes 3.35m Inside Lanes 3.30m Turn lanes
Taper Length	-	15:1 LT Ratio 17:1 RT Ratio	50m LT Taper -	50m Left Turn Taper 60m Right Turn Taper
Clear Zone Width	-	-	0.5m (with barrier curb)	0.5m (with barrier curb)
Minimum/Maximum Grades	-	Min 0.5% Max 5% to 7%	Min 0.3% - 0.5% Max 6%-12%	Minimum 0.5% Maximum 6%

Key: Row – Right-of-Way; TAC – Transportation Association of Canada; LT – Left-turn; RT – Right-turn

Table 13: Technical Design Criteria for Pedestrian and Cycling Facilities

FEATURE	REFERENCE STANDARDS	RECOMMENDED PROJECT STANDARDS
CYCLING DESIGN SPEED	20 -30 km/hr (a) 10-50 km/hr (c) 20 -30 km/hr (d)	**20 km/hr**, with consideration for higher speeds depending on grades
SHARED MULTI-USE PATH WIDTH[3]	3.0m-6.0m; Absolute lower limit 2.4m; Practical lower limit 2.7m (a) 3.0m-4.0m; Constrained minimum = 2.4m (b) 2.7m – 4.1m+ (d)	**Minimum = 3.0m** **Preferred = 4.0m** **Constrained Minimum[4] = 2.4m-2.7m**
UNI-DIRECTIONAL CYCLE TRACK WIDTH	1.8m-2.5m; Practical lower limit = 1.5m (a) 1.5m-2.0m (b) 1.0m-1.5m (c)	**Minimum = 1.8m** **Preferred = 2.0m** **Constrained Minimum[4] = 1.5m**
PEDESTRIAN CLEARWAY[5]	1.8-2.0m; Practical lower limit = 1.5m for peak pedestrian flow rate < 400 ped / 15min (a) 1.2m min – 1.8m pref (c) Minimum 1.5m (e)	**Minimum = 1.5m** **Preferred = 1.8m**
STREET BUFFER[6] BETWEEN CYCLING FACILITY & ADJACENT TRAVEL LANES	0.3m -1.0m (a) 1.0m typical (b) 0.5m (c)	**Minimum = 0.3m** **Preferred = 1.0m+**
HORIZONTAL CLEARANCE TO HAZARDS	Minimum = 0.25m for features between 100mm & 750mm high; Minimum = 0.5m for features > 750mm (a) Minimum 0.25m (b)	**Minimum = 0.25m for features between 100mm & 750mm high** **Minimum = 0.5m for features > 750mm**
VERTICAL CLEARANCE[7]	2.7m - 3.6m (a) 2.5m (b) 2.5min. – 3.0m rec. (c) (d)	**Minimum = 2.5m** **Preferred = 3.0m**
RUNNING SLOPE OF FACILITY	<4% pref. (a) <5% for pedestrians; <8% for cycling (c) <5% recommended; up to 1:12 (8.3%) can be accommodated if landings are provided at intervals of no more than 9.0m (d) No steeper than 1:20 (5%) (e)	**For Pedestrians: Preferred = <1:25 (4%)** **Maximum = 1:20 (5%); unless slope of roadway is greater** **Constrained Maximum = 1:12 (8.3%) with level landings spaced at ≤ 9.0m** **For Cyclists: <5% preferred, <8% maximum**
CROSS SLOPE OF FACILITY	Concrete – 1.5% - 2.0%; Asphalt – 2% - 4% (a) 2% (d) 1:20 (5%) max. 1:50 (2%) pref.(e)	**Preferred = 2.0 - 4.0%** **Maximum = 5%**

(a) TAC Geometric Design Guide for Canadian Roads; Chapter 5 – Bicycle Integrated Design (2017)
(b) OTM Book 18 (2013)
(c) VeloQuebec's Planning & Design for Pedestrians and Cyclist (2010)
(d) City of Toronto Multi-Use Trail Design Guidelines (2014)
(e) GAATES Illustrated Technical Guide to the Accessibility Standard for the Design of Public Spaces (2014)

[3] TAC suggests that separate bicycle and pedestrian facilities should be provided where there are greater than 20% pedestrian users and total volumes are greater than 33 persons per hour per metre of path width; or where there are less than 20% pedestrian users and total volumes are greater than 50 persons per hour per metre of path width
[4] These minimums are generally suitable only for short sections which are highly constrained; for example, across a bridge deck or through an underpass. These widths may also be applied to slow cyclists over short stretches, for example, in the vicinity of a transit stop or near intersections.
[5] Defined as the width of the pedestrian facility available for circulation (excluding frontage & edge zones).
[6] Defined as the buffer strip between the face of curb of the closest adjacent vehicular lane and the edge of the pedestrian and/or cycling facility; these references are for the street buffer adjacent a cycle track / protected bike lane.
[7] Measured from surface of active transportation facility to lowest edge of any vertical element above the facility (including signage).

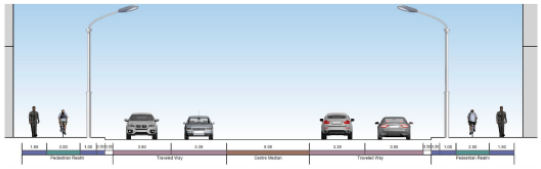
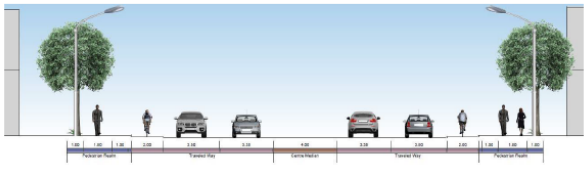
7.2 Typical Cross-Sections

The Class EA Study assessed two typical cross-sections for the design of the proposed corridor and intersection improvements, which incorporated feasible cycling infrastructure:

(1) Reconstruct the corridor to accommodate cycle tracks
(2) Reconstruct the corridor to accommodate raised bike lanes

Table 14 shows the cross-sections for each option and how they compare.

Table 14: Typical Cross-Sections

Reconstruct to accommodate cycle tracks in non-constrained areas	Reconstruct to accommodate raised bike lanes in constrained areas
	
Set back significantly from the roadway	Adjacent to vehicular lanes and vertically separated from motor vehicle traffic
- Requires more boulevard width than raised bike lanes	- Not as much horizontal and vertical separation compared to cycle tracks
+ Improves comfort for cyclists - Frequent driveway entrances may cause bumpy cycling experience	- May not be comfortable along roadways with speeds greater than 50 km/hr + Drivers exiting or entering the driveway have better visibility of cyclists
- Cost prohibitive to widen QEW bridge structure between South Service Road and North Service Road + Multi-use trail was recently constructed on the west side from Burnhamthorpe Road to Eastgate Parkway	

Based on the recommendations of the Pre-EA Feasibility Study, and further assessment during the Class EA Study, a combination of cycle tracks, raised bike lanes and Multi-Use Paths are recommended for the Study limits. Cycle tracks are preferred for improved cyclist safety and comfort. Raised bike-lanes are proposed in constrained areas with numerous driveways to improve visibility of cyclists for drivers exiting or entering the driveway. A Multi-Use Path is proposed on the west side of Cawthra Road from the North Service Road to 100m north to provide continuity with the existing pathway entering the corridor from the west neighbourhood. The recently constructed Multi-Use Trail on the west side of Cawthra Road, north of Burnhamthorpe Road, will be maintained. Cross-rides will be provided for continuity between the proposed cycle tracks and Multi-Use Trail at Burnhamthorpe Road.

7.3 Preliminary Design

The preliminary design for the preferred solution is shown in **Appendix P** and described in **Section 8**. In summary, the preferred solution and preliminary design will:

- Rehabilitate the Cawthra Road pavement between the Project limits from Station 9+960 (South Service Road) to Station 15+460 (Eastgate Parkway).
- Maintain 4 lanes (5 lanes south of Queensway) within the Project limits.
- Maintain centre turn lane or median in sections throughout the Project limits.

- Provide cycle tracks or raised bike lanes throughout most of the Project limits.
- Install cross-rides at intersections (see Preliminary Design for location of proposed cross-rides).
- Remove or replace channelized islands with smart channels or traditional right-turn lanes at intersections with no major utility constraints (see Preliminary Design for locations of proposed removals/replacements).
- Add dual left-turn and exclusive right-turn lanes at intersections (see Preliminary Design for location of proposed turning lanes); Note property impact was identified at one intersection.
- Extend exclusive northbound left-turn lane storage at Silver Creek Boulevard.
- Provide fully protected northbound left-turn signal phase at Dundas Street, Burnhamthorpe Road and Eastgate Parkway; and fully protected southbound left-turn signal phase and extended green signal time at Burnhamthorpe Road.
- Provide fully protected dual eastbound left-turn signal phase at Queensway.
- Repaint existing median area south of exclusive northbound left-turn lane at Silver Creek Boulevard.
- Update pavement markings at Bloor Street.
- Enhance signage on east and west approaches to the South Service Road to warn drivers of the sharp curve and signalized intersection ahead.
- Enhance signage on east and west approaches to the North Service Road to warn drivers of the sharp curve and signalized intersection ahead.

To mitigate potential impacts and further support multi-modal transportation, the Project will:

- Provide landscaping within the Project limits.
- Provide noise walls at the right-of-way limit (Region of Peel property line) for residential properties backing onto Cawthra Road within the Project limits.
- Upgrade and improve the condition of storm sewers within the Project limits (see Stormwater Management Report for location of storm sewers in need of improvements).
- Support provisions for transit (bus) services throughout the Project limits.

7.4 Construction Schedule and Cost Estimate

Subject to completion of the Class EA Study in 2020 and Regional Council approval of the annual Capital Program, construction of the proposed improvements on Cawthra Road is anticipated in 2025.

The estimated cost of construction is $26 million. **Table 15** provides the estimated cost breakdown. This estimate does not include costs for detailed design, contract administration and property requirements.

Table 15: Estimated Cost Breakdown

Component/Category	Item Description	Total
Utility Relocation	Hydro Pole Hydro Transformer Bell, Gas	$220,000
Construction	Granular Asphalt Excavation/Earthworks Install curb and gutter, barrier curb, subdrains and medians Contingency (10%)	$13,371,469
Intersections	Additional turning lane (extra lanes and Municipal split) Driveway Reinstatement	$315,000
Streetlights	Light Standards	$199,800
Traffic Signals	Intersection improvements/upgrades	$1,230,000
Storm Sewers	LIDs proposed, Oil/Grit Separators (OGS), storage chambers, manholes, etc.	$3,776,410
Noise Walls	Installation & Removal of existing wall	$1,669,080
Landscaping/ Sidewalks	Sidewalk Trees and shrubs	$241,500
Contingency		$5,390,052
	TOTAL	**$26,413,311**

7.5 Class EA Project Schedule Review

The proposed corridor and intersection improvements were confirmed as a **Schedule B Project** based on the highest level of assessment required under the criteria in the MEA Municipal Class EA document. **Table 16** outlines the requirements that support the Project and Class EA Schedule.

Table 16: Confirmation of Class EA Project Schedule

Proposed Improvements	MEA Project Description	Class EA Schedule
Road Projects		
• Rehabilitate the Cawthra Road pavement between the Project limits	• Urban: Resurfacing with no change to horizontal alignment	Schedule A (A+ with patching and frost heave treatment)
• Maintain 4 lanes (5 lanes south of Queensway) within the Project limits • Maintain centre turn lane or median in sections throughout the Project limits	• Reconstruction where the reconstructed road or other linear paved facilities (e.g. HOV lanes) will be for the same purpose, use, capacity and at the same location (e.g. addition or reduction of cycling lanes/facilities or parking lanes, provided no change in the number of motor vehicle lanes)	Schedule A+
• Provide cycle tracks or raised bike lanes throughout most of the Project limits • Install cross-rides at intersections (see Preliminary Design for location of proposed cross-rides)	• Construction or removal of sidewalks or multi-purpose paths or cycling facilities within existing or protected rights-of-way	Schedule A
• Remove or replace channelized islands with smart channels or traditional right-turn lanes at intersections with no major utility constraints (see Preliminary Design for locations of removals/replacements) • Add dual left-turn and exclusive right-turn lanes at intersections (see Preliminary Design for location of proposed turning lanes); Note property impact was identified at one intersection • Extend exclusive northbound left-turn lane storage at Silver Creek Boulevard	• Construction of localized operational improvements at specific locations	Schedule A+
• **Provide fully protected northbound left-turn signal phase at Dundas Street, Burnhamthorpe Road and Eastgate Parkway**	• **Installation, construction or reconstruction of traffic control devices (e.g. signing, signalization), with a cost estimate of less than**	**Schedule B (estimated cost of traffic signals are**

Proposed Improvements	MEA Project Description	Class EA Schedule
• **Provide fully protected dual eastbound left-turn signal phase at Queensway**	**$9.5 million.**	**$1,230,000)**
• Repaint existing median area south of exclusive northbound left-turn lane at Silver Creek Boulevard • Update pavement markings at Bloor Street • Enhance signage on east and west approaches to the South Service Road to warn drivers of the sharp curve and signalized intersection ahead • Enhance signage on east and west approaches to the North Service Road to warn drivers of the sharp curve and signalized intersection ahead	• Normal or emergency operation and maintenance of linear paved facilities, cycling lanes/facilities & multi-purpose paths, sidewalks, parking lots and related facilities located within or outside existing rights-of-way.	Schedule A
• Landscape within the Project limits	• Streetscaping (e.g. decorative lighting, sidewalk improvements, benches, landscaping not part of another project)	Schedule A
• Provide noise walls at the right-of-way limit (Region of Peel property line) for residential properties backing onto Cawthra Road within the Project limits	• Construction of noise barriers, i.e. structures such as walls and berms or a combination of the two	Schedule A+
Water and Wastewater Projects		
• Upgrade and improve the condition of storm sewers within the Project limits (see Stormwater Management Report for location of storm sewers in need of improvements)	• Establish, extend, or enlarge a sewage collection system and all necessary works to connect the system to an existing sewage or natural drainage outlet, provided all such facilities are in either an existing road allowance or an existing utility corridor, including the use of Trenchless Technology for water crossings.	Schedule A+
Transit Provisions		
• Support provisions for transit (bus) services throughout the Project limits	• New, extended or expanded transit stops (including roadside shelters, on road bays, and platforms).	Schedule A+

Proposed Improvements	MEA Project Description	Class EA Schedule
	• Construction of localized operational improvements at specific locations (i.e. stopping lanes, access lanes, turning lanes, queue jump lanes, and roadway access ramps etc.).	

8. PROJECT DESCRIPTION

The Preliminary Design for improvements to Cawthra Road from the South Service Road to Eastgate Parkway is included in **Appendix P**. The Project limits extend from Station 9+960 (South Service Road) to Station 15+460 (Eastgate Parkway). The following sections describe key features of the Preliminary Design.

Road Improvements

Cawthra Road is a four-lane north-south arterial road with a centre auxiliary lane connecting Eastgate Parkway to Lakeshore Road in Mississauga. The section between Queensway and QEW accommodates three southbound lanes and two northbound lanes with a centre auxiliary turning lane.

The preferred design recommends boulevard improvements with raised bike lanes or cycle tracks on both sides of Cawthra Road from the North Service Road to Burnhamthorpe Road. To accommodate these improvements, the location of the sidewalk will be relocated further within the boulevard.

Cawthra Road has 3.5m through lanes and 3.5m to 4.0m flush or painted medians. The proposed typical cross-section reduces the through lanes that are not adjacent to the curb lines to 3.35m while maintaining the right-most through lane at 3.5m. The exception is under MTO's right-of-way where a minimum 3.5m lane width is required by the Ministry.

The minor reduction in lane widths are achieved through edge line pavement markings leaving the excess buffer space for the right-most lane to encourage traffic calming throughout the corridor. The lane width improvements will occur between the North Service Road and Burnhamthorpe Road.

In order to maintain the cross-section and avoid impacts to the property at Mount Peace Catholic Cemetery, the proposed road alignment at the Cemetery will be shifted approximately 2.5m to the east from approximately 200m north of Silver Creek Boulevard (Station 12+740) to Santee Gate (Station 12+900).

Figure 8 and **Figure 9** illustrate the typical cross-sections for Cawthra Road within the Project limits.

Figure 8: Typical Cross-section with Cycle Tracks

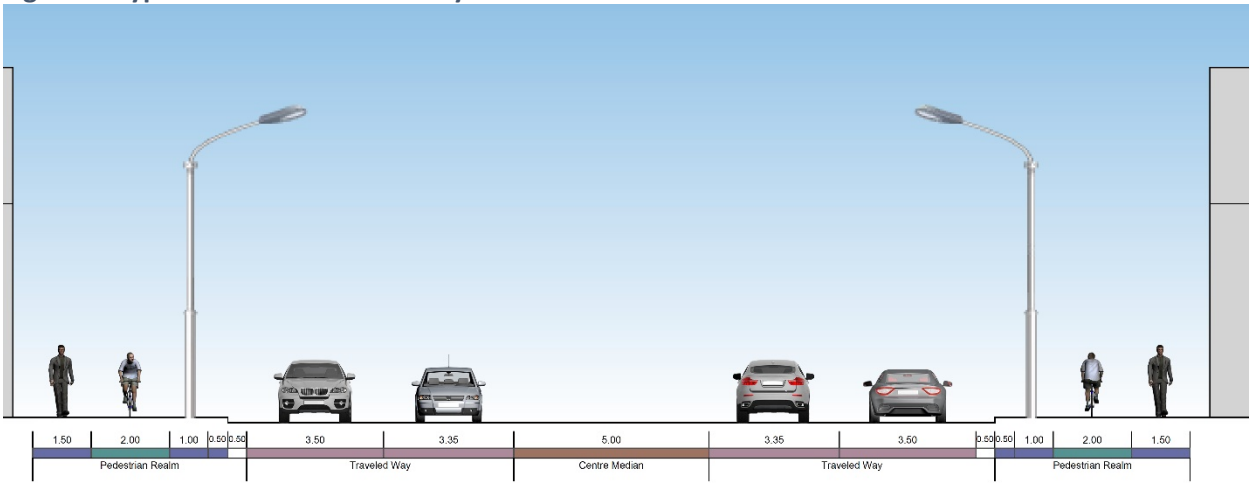
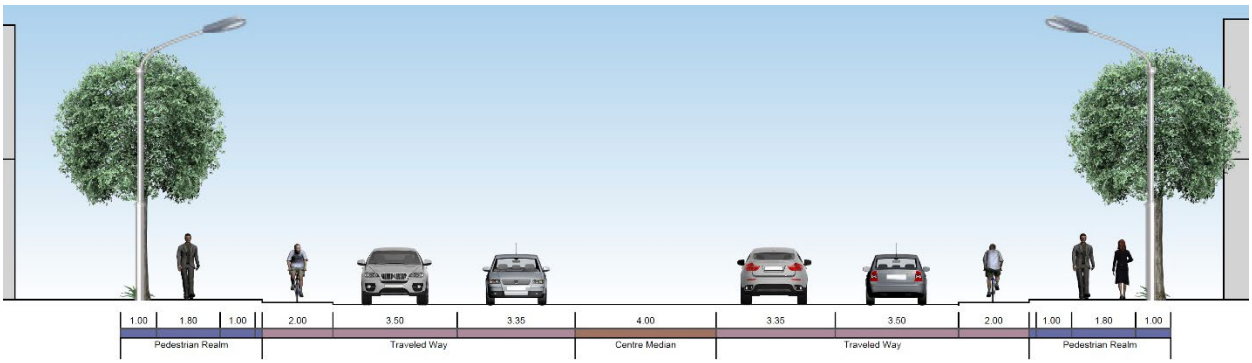


Figure 9: Typical Cross-section with Raised Bike Lanes



Intersection Improvements

Table 17 summarizes the improvements planned for intersections within the Project limits.

Table 17: Intersection Improvements within Project Limits

Improvement	Intersection with Cawthra Road
Additional Turning Lanes	
Exclusive southbound right-turn lane	• South Service Road • Rathburn Road
Exclusive northbound right-turn lane	• North Service Road • Bloor Street • Eastgate Parkway
Fully protected dual northbound left-turn lane	• Queensway
Fully protected dual eastbound left-turn lane	• Queensway
Traffic Signal Phasing	
Fully protected northbound left-turn signal phase	• Dundas Street • Burnhamthorpe Road • Eastgate Parkway
Fully protected southbound left turn signal phase	• Burnhamthorpe Road
Turning Lane Storage	
Extend exclusive northbound left-turn lane storage	• Silver Creek Boulevard
Channelized Island Removal/Replacement	
Eliminate channelized right-turn	• Bloor Street (northeast, northwest and southwest quadrants only) • Queensway (southeast, northeast and northwest quadrants only); Replacement by either a traditional right-turn or smart channel will be verified during detailed design based on the Region's ongoing review of traffic conditions at this intersection.
Convert existing right-turn island to "smart channel"	• Queensway (southwest quadrant only)
Pavement Markings and Signage	
Improve pavement markings	• Silver Creek Boulevard (repaint existing median area south of exclusive northbound left-turn lane) • Dundas Street (update pavement markings)
Improve signage	• South Service Road (enhanced signage on east and west approaches to warn drivers of the sharp curve and signalized intersection ahead) • North Service Road (enhanced signage on east and west approaches to warn drivers of the sharp curve and signalized intersection ahead)

Active Transportation Infrastructure

Throughout Corridor

The Preliminary Design shown in **Appendix P**:

- Maintains the Multi-Use Path recently reconstructed along the west side of Cawthra Road from Burnhamthorpe Road to Eastgate Parkway,
- Provides a combination of 1.8m wide raised bike lane and cycle track on both sides of Cawthra Road from the North Service Road to Burnhamthorpe Road, and
- Maintains existing sidewalk on both sides of Cawthra Road from South Service Road to Burnhamthorpe Road.

At Intersections

Cycling protected intersections with separated cross-rides are proposed at Burnhamthorpe Road, Bloor Street and Queensway to provide connectivity with existing east-west Multi-Use Paths while designating a safe crossing facility for all users coming into the intersection.

A reduced and tighter intersection curb radius is proposed to encourage right-turning vehicles to slow down when approaching the intersection while increasing visibility of nearby cyclists and pedestrians. The proposed cycling and pedestrian infrastructure is pulled further back to improve visibility for turning vehicles.

At Driveways

Cycle tracks crossing residential driveways are kept adjacent to the roadway (raised bike lanes) to ensure maximum visibility for vehicles crossing the cycle track while allowing for consistent grading and alignment of the cycle track. Elephant feet markings, bike symbol and arrows are used to remind motorists that the area is designated for cyclists.

Elephant feet markings and painted green conflict zone markings are provided for higher volume commercial driveways. Where possible, the cycle track will be bent away from the adjacent roadway to provide enough space for vehicles to cross the cycle track and then wait to enter the roadway outside of the path of the cycle track and sidewalk.

Transit Provisions

Cawthra Road is currently served by MiWay Transit. Within the Project limits, Bus Route 8 includes Cawthra Road from the South Service Road to Bloor Street. MiWay Transit is planning to extend the bus route on Cawthra Road from Bloor Street to Eastgate Parkway near the existing Cawthra Transitway Station. The preliminary road design accommodates the existing transit stops and protects for future transit stops north of Bloor Street. The proposed bus stop configurations will be integrated with the cycling infrastructure based on the recommended guidelines from the City of Mississauga Standard Drawings (see **Appendix P**).

Table 18 summarizes the proposed transit infrastructure. The locations of transit stops are shown on the Preliminary Design in **Appendix P**.

Table 18: Proposed Transit Infrastructure

Intersection	Northbound/Southbound	Bus Bay	Farside/Nearside	Shelter
North Service Road	Northbound	Yes	Farside	Yes
North Service Road	Southbound	No	Nearside	Yes
Tedwyn Drive	Northbound	No	Nearside	Yes
Tedwyn Drive	Southbound	No	Nearside	Yes
Queensway East	Northbound	No	Farside	Yes
Queensway East	Southbound	No	Nearside	Yes
Needham Lane	Northbound	No	Nearside	Yes
Needham Lane	Southbound	No	Farside	Yes
Dundas Street	Northbound	No	Nearside	Yes
Dundas Street	Southbound	No	Nearside	Yes
Silver Creek Boulevard	Northbound	No	Nearside	Yes
Silver Creek Boulevard	Southbound	No	Nearside	Yes
Santee Gate	Northbound	No	Nearside	Yes
Santee Gate	Southbound	No	Nearside	Yes
Bloor Street	Northbound	No	Nearside	Yes
Bloor Street	Southbound	No	Farside	Yes
Breckenridge Road	Northbound	No	Nearside	Yes
Breckenridge Road	Southbound	No	Nearside	Yes
Burnhamthorpe Road East	Northbound	Yes	Farside	Yes
Burnhamthorpe Road East	Southbound	No	Nearside	Yes
Rathburn Road East	Northbound	Yes	Farside	No
Rathburn Road East	Southbound	No	Farside	Yes
Meadows Boulevard	Northbound	No	Nearside	Yes
Meadows Boulevard	Southbound	No	Nearside	Yes

Pavement Design

The structural capacity of the existing pavement was analyzed by Terraprobe Inc. and designs were carried out for a service life extension of 15 years. Various rehabilitation techniques were considered with the understanding that raising the grade was not considered to be beneficial to the overall design. Thus, the only feasible and practical rehabilitation strategies were:

- Mill/remove existing 105mm asphalt overlay and repave with 105mm new Hot Mix Asphalt (HMA) for rigid pavement.
- Carry out full depth reconstruction or consider rehabilitation techniques such as mill and overlay and/or full depth replacement for flexible pavements. Full depth reconstruction is the only rehabilitation alternative that would provide a 15-year design life for the design traffic. Full depth asphalt replacement and 100mm milling and overlay would extend the anticipated service lifespan of 10 and 5 years, respectively.

Since full depth reconstruction for flexible pavement is a large expenditure, the preferred rehabilitation strategy of 100mm milling and overlay is considered. Although the designs suggest that a service life extension of 5 years can be achieved through the 100mm mill and overlay option, based on the Region's observations of the existing pavement performance (the existing pavement is over 10 years old and still performing acceptably), this rehabilitation option could provide a service life extension of up to 10 years to reach its terminal serviceability limit. Replacing the entire pavement envelope now will be very disruptive and will, in all likelihood still end in the pavement reaching its terminal serviceability over the next 10+ years.

Retaining Walls

The design and construction of the proposed improvements to Cawthra Road introduce an opportunity to coordinate with the Region’s programming for improvements to retaining walls within the Project limits. The 2018 Ontario Structural Inspection Manual (OSIM) reports for the Dundas Street bridge (170390N) and CPR grade separation (170370) recommended rehabilitation of associated retaining walls in 6-10 years. In 2016, an evaluation of retaining wall conditions recommended repair of delaminated and spalled concrete for the retaining wall at the CPR grade separation. A life-cycle cost analysis for the retaining walls will be completed in coordination with the detailed design for Cawthra Road, and any recommended repairs or rehabilitation will be coordinated with construction on Cawthra Road.

Drainage and Stormwater Management

The existing drainage patterns will be maintained under the proposed drainage conditions. The proposed condition and general direction of roadway overland flow is shown in **Appendix I**.

As part of the minor drainage system, stormwater will continue to be collected by a network of catch basins and conveyed into the current storm sewers with eventual discharge to the existing outlets as shown in **Appendix I**. The existing catch basins will require minor adjustment or relocation where curb lines are to be shifted or adjusted as part of the proposed design.

Infiltration chambers and superpipes are proposed to offset the anticipated increase in flows as a result of the proposed road improvements. These mitigation measures will control post-development flows to pre-development levels. The locations of these measures are shown in **Appendix I**.

Water quality treatment will be provided using oil/grit separators, underground infiltration chambers and existing roadside ditches. Capacity deficiencies in some sections of the existing storm sewer will require replacement and upsizing as will those sections of the system requiring replacement due to structural deficiencies. See **Appendix I** for details regarding water quality treatments and storm sewer replacements.

Low Impact Development

Infiltration chambers and superpipes are proposed for Low Impact Development (LID). As described above, these measures are proposed to offset the anticipated increase in flows as a result of the proposed road improvements and will control post-development flows to pre-development levels. The locations of these LID measures are shown in **Appendix I**.

Municipal Infrastructure

The Region of Peel owns and maintains watermains, storm sewers and sanitary sewers along Cawthra Road. Aside from the storm sewer improvements described in the previous section, no major impacts on watermains and sanitary sewers are anticipated since the proposed work will not impact the current road grade. The proposed cycling infrastructure and sidewalk will likely affect some of the water hydrants within the corridor, which would require relocation.

A 1500mm trunk sanitary sewer installation project between Dundas Street and Burnhamthorpe Road is currently underway. Some minor details relating to the location of the sanitary manhole was coordinated with the EA to ensure that the ultimate location of the manhole does not conflict with the preliminary road design.

Utility Relocation Plan

Although the proposed design does not include additional through lanes, it does include the installation of raised bike lanes/cycle tracks, additional right-turn lanes, provisional bus shelters and minor alignment shifts, all in which would impact above ground and subsurface utilities mostly within the boulevard.

The existing hydro poles are located on the west side of Cawthra Road from the southern limit to Burnhamthorpe Road and on the east side from Burnhamthorpe Road to the northern limit of the Project.

For intersections where hydro poles are on top of an existing channelized island, careful considerations were made to consider the feasibility of relocating individual hydro poles. For example, the hydro pole at Queensway and Cawthra Road would likely incur significant property impacts thus the alternative to improve the channelized intersection into a smart channel is preferred. For Bloor Street and Cawthra Road, the preferred option was to relocate the pole from the northwest channelized island onto the boulevard of a new intersection quadrant where the channelized island is replaced with a right-turn lane.

Other utility relocations include telecom pedestals, utility boxes and water hydrants which will be relocated further toward the boulevard and away from the roadway, sidewalk and cycling infrastructure. Where channelized islands are to be removed, covers of utility infrastructure that were previously on the channelized islands will have to be adjusted and improved.

Noise Attenuation

The noise assessment completed by IBI Group recommends the following mitigation measures for noise sensitive Outdoor Living Areas as per the Region of Peel construction noise guidelines:

1. Noise walls should be constructed at the right-of-way limit (Region of Peel property line) for residential properties backing onto Cawthra Road.
2. At the time of road design, the location of noise walls should be verified. Cost sharing and maintenance responsibilities should also be identified.
3. Construction noise and equipment should adhere to the City of Mississauga noise by-law requirements.

Details regarding the proposed noise walls can be found in **Appendix F**.

Tree Preservation Plan

The tree inventory completed by Riverstone Environmental Solutions Inc. identified 106 trees within approximately 10m of the limit of disturbance that are likely to be negatively impacted by grading, construction and other activities associated with implementation of the proposed plan. Of these 106 trees, 58 trees were identified for removal. In keeping with the City of Mississauga's Tree Preservation By-law, 60 trees are required to replace these 58 trees. Riverstone Environmental Solutions Inc. recommends that the replacement trees be a native species, such as the Sugar Maple, American Mountain Ash, Service Berry, or Showy Mountain Ash. In addition, the Region of Peel is creating new standards and specifications for tree replanting, which should be followed during the detailed design and construction stages of this EA.

Refer to the Tree Preservation Plan in **Appendix E** for the location of trees to be removed or retained within the Study limits.

Landscape Plan

In order to provide a comfortable and welcoming cycling corridor, it is important to consider planting trees in the boulevard to provide shade for pedestrians and cyclists while offering separation from the vehicular traffic where possible.

Cawthra Road has plenty of existing mature trees that provide a positive contribution to the Public realm. During detailed design, effort should be made to protect and preserve as many existing trees as possible by modifying sidewalk or cycling infrastructure to pass around the existing tree where feasible, without creating a sharp bend.

A copy of the Preliminary Landscape Plan is included in the **Appendix P**.

Property Impact Plan

Some property requirements will be necessary to accommodate the proposed road improvements. Since the proposed design does not include widening for additional through lanes, the potential for property impacts were kept to a minimum, and the remaining impacts are limited to:

- The Cawthra Road and Bloor Street intersection where a new right-turn lane, raised bike lane and protection for bus shelters are proposed. Two residential properties (3317 and 3333 Cawthra Road) in the southeast quadrant of this intersection will be directly impacted.
- The Cawthra Road and Queensway intersection where grading will be required from the new sidewalk and raised bike lane onto a driveway. One residential property (2263 Cawthra Road) on the southeast corner of this intersection will be temporarily impacted.

Access Management

3643 Cawthra Road (Plaza Driveway 120 metres south of Burnhamthorpe Road)

The midblock segment at 3643 Cawthra Road (plaza entrance 120 metres south of Burnhamthorpe Road) was found to have a high frequency of collisions with left-turns into the plaza entrance using a centre left-turn lane. Several options were explored to improve traffic safety at this location and were found to be constrained, mainly by proximity to the Burnhamthorpe Road intersection and existing access conditions, and therefore not feasible. The option to restrict access to right-in and right-out was considered not to be an effective solution without a raised centre median, which is constrained by proximity to the intersection and would further restrict access to properties on the west side. Therefore, site access alternatives or restrictions to the Plaza entrance will need to be addressed through future redevelopment of the site. The Region will continue to monitor the south access to the Plaza parking lot for potential ongoing operation and safety concerns.

655 Queensway (Gas Station / Plaza Driveway on Cawthra Road, 90m north of Queensway)

The centre raised median on the north leg of the Queensway and Cawthra Road intersection will be extended northerly. The purpose of this extension is to address traffic safety issues associated with left-turn movements to/from the Gas Station / Plaza entrance approximately 90m north of Queensway. With the median extended, the commercial entrance will be restricted to right-in and right-out only. Consultation with the Property Owner was ongoing at the time of preparing this report. Any refinements to the proposed design as a result will be addressed during the detailed design stage where possible.

Mitigation Plan

The preferred solution and preliminary design for Cawthra Road were developed to avoid environmental impacts and to reduce impacts where avoidance is not technically possible. In the end, the Project will result in relatively minor impacts that can be mitigated as outlined in the Summary of Environmental Impacts, Concerns and Commitments in **Section 9**. All anticipated environmental permits and approvals to be obtained during detailed design are included in **Table 19**.

9. ENVIRONMENTAL COMMITMENTS

Table 19 outlines the environmental impacts, concerns and commitments for the Project. This table will be referenced during the next Phase of the Class EA, which will include contract drawings (detailed design) and documents, construction, operations, and monitoring for environmental provisions.

Table 19: Summary of Environmental Impacts, Concerns and Commitments

No.	Potential Impacts or Concerns	Concerned Agencies*	Commitments to Mitigation/Protection/Monitoring	Required Approvals/Permits/Authorization
1. Detailed Design				
1.1	Potential impact to areas regulated by the local conservation authority	CVC TRCA	• Maintain existing hydroperiod of the wetland at the Cawthra Road/Eastgate Parkway intersection, including the southeast corner (where a right-turn lane is proposed). • Review potential impact to the above wetland feature(s). • Avoid encroachment into the above wetland feature(s) to the extent possible. Restoration and compensation may be required if impacts are unavoidable. • Provide TRCA with an erosion and sediment control plan to protect the above wetland features from the proposed works (refer to the 2019 Erosion and Sediment Control Guide for Urban Construction at https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2020/01/30145157/ESC-Guide-for-Urban-Construction_FINAL.pdf)	• Obtain a Permit for works in areas regulated by CVC under O. Reg. 160/06: Regulation for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses • Obtain a Permit for works in areas regulated by TRCA under O. Reg. 166/06: Regulation for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses
1.2	Potential to encounter soil contamination	MECP RoP	• Conduct Environmental Site Assessments (including soil and ground water investigations) at locations surrounded by land uses identified as high risk and within lands where expropriation is required.	

1.3	Potential to encounter unmarked burials and other archaeological resources	MHSTCI
		CoM
		HWFN
		MCFN
			• Conduct the following archaeological investigations for the area of impact within the strip of land between the Dixie Union Chapel and Cemetery property fence and the Cawthra Road underpass retaining wall:
			  ○ Stage 2 test pit survey within the grassed margin adjacent to the cemetery prior to mechanical excavation.
			  ○ If no archaeological resources specifically tied to the Dixie Union Chapel and Cemetery are encountered during Stage 2 activities, Stage 3 investigation to proceed directly to mechanical topsoil removal following the length of the grassed margin adjacent to the cemetery. Mechanical excavation must employ a flat-edged bucket. Unless human remains are encountered, mechanical stripping of topsoil is to reach sterile subsoil depths.
			  ○ If archaeological resources tied to the Dixie Union Chapel and Cemetery are encountered, the excavation of a series of one metre by one metre test units in a five-metre grid across the site within the established grid must be pursued. Additional test units, amounting to 20% of the grid unit total, need to be excavated, focusing on areas of interest within the site extent. Should it become evident that the site will result in a recommendation for Stage 4 mitigation of development impacts, the Stage 3 strategy may be amended as per the Standards and Guidelines for Consultant Archaeologists (MHSTC, 2011).
			• Conduct the following archaeological investigations for the area of impact within 10m of the current Mount Peace Roman Catholic Cemetery property limit:
			  ○ In the grassed areas abutting the cemetery fence to the northwest and southeast, a Stage 2 test pit survey within the grassed margin adjacent to the cemetery prior to mechanical excavation.
			  ○ Stage 3 investigation consisting of mechanical topsoil removal following the length of the grassed margin adjacent to the cemetery. Mechanical excavation must employ a flat-edged bucket. Unless human remains are encountered, mechanical stripping of topsoil is to reach sterile subsoil depths.
			• Stage 2 test pit survey for grassed frontages with no apparent signs of extensive sub-surface disturbance prior to any development impacts.
			• Refer to the Stage 1 Archaeological Assessment Report in Appendix G for additional details regarding recommendations, standards and guidelines.
			• Forward a copy of the Stage 1, 2 and 3 Archaeological Assessment reports and clearance letters from the MHSTCI to the City of Mississauga Heritage Planning Staff for their records.
				• Any archaeological investigation to be undertaken immediately adjacent to the Dixie Union and Mount Peace Roman Catholic cemeteries requires that a licensed archaeologist first obtain an Investigation Authorization from the Bereavement Authority of Ontario (BAO) prior to conducting any soil-intrusive work (such as Stage 2, Stage 3 or Stage 4 investigations, or construction monitoring), in accordance with the Registrar's Directive Ref. No. 01-006 (BAO, 2018).
				• No construction activities shall take place within the Study corridor prior to MHSTCI (Archaeology Program Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

No.	Potential Impacts or Concerns	Concerned Agencies*	Commitments to Mitigation/Protection/Monitoring	Required Approvals/Permits/Authorization
1.4	Potential disturbance to archaeological resources beyond assessed limits of Study corridor	MHSTCI CoM HWFN MCFN	• Conduct further archaeological investigation if construction activities, including construction laydown areas, extend beyond the assessed limits of the Study corridor. • Forward a copy of the Archaeological Assessment report and clearance letter from the MHSTCI to the City of Mississauga Heritage Planning Staff for their records.	• No construction activities shall take place within the Study corridor prior to MHSTCI (Archaeology Program Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.
1.5	Potential impacts to built heritage and cultural heritage landscapes	MHSTCI CoM	• Conduct Cultural Heritage Evaluation, Heritage Impact Assessment, Cultural Heritage Documentation, and/or a salvage list as per the Cultural Heritage Assessment Report. Subject to findings, mitigation may include: o Avoid cultural heritage resources, and/or o Develop sympathetic design if a built heritage resource is to be demolished/replaced, and/or o Develop a landscape plan that considers the setting of affected cultural heritage resources. • Undertake Heritage Impact Assessments to understand the direct and indirect impacts to sites 3 (707 Dundas Street East), 4 (3065 Cawthra Road), 11 (3317 Cawthra Road) and 14 (3625 Cawthra Road). • Implement an appropriate landscape plan for Cawthra Road, particularly in areas at or adjacent to identified cultural heritage properties, including built heritage resource at 3569 Cawthra Road, Cawthra Road streetscape from north of Bloor Street to Burnhamthorpe Road, and cemetery at 3204 Cawthra Road. • Forward a copy of any required Heritage Impact Assessments to the City of Mississauga Heritage Planning Staff for review.	• Consult with the City of Mississauga Heritage Staff to determine the requirements for the completion of a Heritage Impact Assessment (HIA) using the City's HIA guidelines. The application of the Criteria for Determining Cultural Heritage Significance or Value under O. Reg. 9/06 of the Ontario Heritage Act will be included in the HIA to evaluate the property and determine if it is a candidate for heritage designation under Part IV of the Act.
1.6	Potential impact of traffic emissions on active transportation users	MTO RoP PPH CoM Public	• Finalize landscape plan for the Project limits • Consider landscaping north of Burnhamthorpe Road, including beautification in the vicinity of the Rathburn Road intersection. • Protect and preserve as many existing trees as possible by modifying sidewalk or cycling infrastructure to pass around the existing tree where feasible, without creating a sharp bend. • Review the opportunity for a gateway feature at the north Project limit with the City and MTO.	
1.7	Potential noise impacts	MECP RoP CoM	• Verify location of recommended noise walls as per the Noise Study. • Identify cost sharing and maintenance responsibilities for noise walls.	
1.8	Potential impacts to drainage and stormwater management	MTO CVC TRCA RoP CoM	• Provide clear representation of the increase in impervious area due to the road reconstruction and a risk assessment on the downstream receiving watercourses. • Review the detailed design for Stormwater Management and Low Impact Development (LID) / infiltration system with MTO.	
1.9	Potential impacts to utilities	Alectra, Bell Canada, Enbridge, Hydro One, Rogers, TNP	• Consult with Hydro One Networks Inc. during each stage of the Project. Future communications regarding this Project is to be sent electronically to secondarylanduse@hydroone.com. Developments should not reduce line clearances or limit access to Hydro One facilities at any time within the Project limits. Any construction activities must maintain the electrical clearance from the transmission line conductors as specified in the Ontario Health and Safety Act for the respective line voltage. • At Queensway, consider placing the hydro pole on the southwest corner channel underground. • At Bloor Street, consider shifting the hydro pole further north to replace the northwest channel with a right turn lane. • Conduct detailed Subsurface Utility Engineering (SUE) investigations to confirm conflicts within the Project limits, including: • Chamber investigations for mainline storm and/or sanitary sewers. Where new construction is proposed near existing chamber structures, the size of chamber should be accommodated for in the design to avoid conflicts with the chamber structure. Investigation to include confined space entry (if required) to obtain internal chamber dimensions.	

No.	Potential Impacts or Concerns	Concerned Agencies*	Commitments to Mitigation/Protection/Monitoring	Required Approvals/Permits/Authorization
			• Test holes to confirm size, material and precise horizontal and vertical alignment. Locations may include conflict locations, utility crossings, connection points or where required to confirm record information and alignment shown on the SUE Mapping Drawings. • Test holes to confirm the existing connections present (i.e., bend, elbow, tee cross) or proposed tie-in locations to verify the precise horizontal and vertical alignment. Note that locations may require isolation and de-energizing of the pressurized system where restrained connections or thrust blocks may be disturbed. • Closed-Circuit Television (CCTV) inspections of the sewers may assist in identifying the location of service lateral connections within the main that have not been included in the record information or shown in the wrong location. • Topographic survey of the Project limits south of North Service Road. • Quality Level B (QL-B, field verification) investigations of additional critical areas or the entire Project limits.	
1.10	Potential pavement rehabilitation	RoP MTO	• Conduct detailed geotechnical investigation to confirm the need for full depth asphalt replacement for the Project corridor north of Dundas Street. • Provide detailed pavement design report to MTO.	
1.11	Potential impacts to Provincial infrastructure	MTO	• Carry out structural evaluation and further consultation with MTO if edge lines are proposed on the QEW bridge, to verify the minor changes in the live load do not impose any structural impacts on the Cawthra Road structure (edge lines may introduce minor live load changes resulting from lane shifts). • Consult with MTO regarding updates to traffic signal drawings (PHM 125) for intersections under their jurisdiction (e.g., North Service Road and Eastgate Parkway).	• Obtain an encroachment permit from the MTO for temporary access or to place plant on land owned by the Ministry. • Obtain MTO permits for all works proposed within the MTO permit control limits (up to 800m from MTO's property line).
1.12	Potential opportunities and detailed design considerations to enhance road user safety	MTO RoP CoM Public	• Confirm the placement and size of the channelized island in the southwest corner of the Queensway intersection (possible preference for a larger island). Verify replacement by either a traditional right-turn or smart channel based on the Region's ongoing review of traffic conditions at this intersection. • Confirm the placement and size of the channelized island in the southwest corner of the Dundas Street intersection (possible preference for reduced island and/or angle for drivers approaching Cawthra Road). • Consider truck aprons in colour to help avoid potential accidents between pedestrians and travelling trucks. • Consider possible future amendment to the Highway Traffic Act that would permit the use of cross-rides with crossovers at channelized islands. • Coordinate design of the Dundas Street/Cawthra Road intersection with the Dundas Street BRT EA. • Review the need for signage at driveways where sightlines could be affected by existing fencing and/or vegetation.	
1.13	Coordination with repair/rehabilitation of retaining walls	RoP	• Conduct a life-cycle cost analysis for the retaining walls associated with the Dundas Street bridge (170390N) and CPR grade separation (170370) for recommended repairs or rehabilitation to be coordinated with construction on Cawthra Road.	
1.14	Coordination with Municipal Projects	CoM RoP	• Coordinate design and construction with the City of Mississauga's plans for the multi-use trail connection at the southeast corner of Eastgate Parkway and Cawthra Road to minimize the risk of building and reconstructing the pedestrian landing area. • Coordinate the construction of Cawthra Road with the Hurontario Light Rail Transit (LRT) project to best manage area traffic during construction.	
1.15	Coordination with Imperial Oil	TRCA Imperial Oil	• If required, coordinate proposed works with the potential installation of pipeline along the utility corridor north of the Mississauga Transitway.	
2. Pre-Construction				
2.1	Potential detailed design	CoM	• Adhere to all mitigation, protection and monitoring requirements as a result of the above commitments	• Adhere to requirements of all permits, approvals and authorizations obtained

No.	Potential Impacts or Concerns	Concerned Agencies*	Commitments to Mitigation/Protection/Monitoring	Required Approvals/Permits/Authorization
	commitments	CVC MECP MHSTCI MNRF MTO RoP, TRCA	under Detailed Design. • Keep the City of Mississauga Heritage Planning Staff apprised of property impacts at 3317 Cawthra Road.	during detailed design.
2.2	Potential impact to Provincially Significant Wetlands	CVC MNRF TRCA	• Install sediment fencing at the limit of grading in all areas adjacent to wetland communities. • Apply sediment and erosion control measures as specified below for wetland communities.	
2.3	Potential erosion of unstable soils and movement of sediment and/or other deleterious substances into wetland communities and surrounding land uses	CVC MNRF TRCA	• Apply sediment and erosion control measures consistent with the Erosion and Sediment Control Guidelines for Urban Construction (TRCA, December 2006). • Employ appropriate sediment and erosion control measures to prevent soil erosion and sediment movement into wetland communities. • Apply erosion and sediment control measures prior to the onset of site preparation. • When native soil is exposed, position sediment and erosion control work, in the form of heavy-duty sediment fencing, along the edge of the areas to be developed, graded and otherwise disturbed • Ensure sediment fencing is constructed of heavy material and solid posts and is properly installed (trenched in) to maintain its integrity during inclement weather events. • Inspect and monitor erosion and sediment control measures to ensure that the structural integrity and continued functioning of the sediment control measures is maintained. • Ensure additional sediment fencing and appropriate control measures are available on site so that any breach can be immediately repaired. • Store all stockpiled aggregates in a location that will prevent the movement of sediment laden runoff into the wetland community. • Stabilize all stockpiled topsoil/overburden as quickly as possible to minimize the potential for runoff. • Ensure machinery arrives on site in clean condition. Check and maintain that machinery is free of fluid leaks. • Refuel, wash and service machinery a minimum of 30m from wetlands. • Locate all fuel and other potentially deleterious substances a minimum of 30m from wetlands. Minimize fuels and chemicals stored onsite and ensure a spills management plan and the associated spill response equipment is available on-site for implementation in the event of a spill of deleterious material. • Locate temporary storage of aggregate/fill material no less that 30m from wetlands. This material is to be contained by heavy-duty sediment fencing. • Offload construction and aggregate/fill materials during fair weather conditions.	
2.4	Potential impact to Species of Conservation Interest	CVC MNRF TRCA	• Install barrier fencing between areas of active construction and Cawthra Woods. Fencing is to be entrenched to minimize the potential for Jefferson Salamanders to circumvent the barrier.	
2.5	Potential impact to significant wildlife habitat	MNRF CVC TRCA	• Ensure that the cultural meadow communities located at the northern extent of the Study Area and the area known as Cawthra Woods located at the southern extent of the Study Area are excluded from development and site alteration. Additionally, these areas should not be used for equipment and material storage or staging.	
2.6	Potential impact to avian (bird) species	MNRF	• Avoid tree removal during the primary breeding bird nesting window between April 1 and August 31. • If development and site alteration is to occur during the breeding bird nesting window between April 1 and August 31, retain a qualified avian biologist to conduct a nest survey prior to commencement of construction activities to identify and locate active nests of migratory bird species covered by the Migratory Birds	

No.	Potential Impacts or Concerns	Concerned Agencies*	Commitments to Mitigation/Protection/Monitoring	Required Approvals/Permits/Authorization
			Convention Act. If a nest is located or evidence of breeding is noted, then a mitigation plan should be developed to address any potential impacts on migratory birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.	
2.7	Removal of vegetation	CVC MRNF TRCA	• Avoid vegetation removal (e.g. tree/shrub clearing, grading of open areas, etc.) during the primary breeding bird nesting window between April 1 and August 31. • If vegetation removal is to occur during the primary breeding bird nesting window between April 1 and August 31, retain a qualified biologist within 5 days of commencement of construction activities to conduct a nest survey to identify and locate active nests of bird species (where present) covered by the federal Migratory Birds Convention Act, 1994 or provincial Fish and Wildlife Conservation Act, 1997. If a nest is located or evidence of breeding is noted, a mitigation plan should be developed to avoid any potential impacts on birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.	
2.8	Removal of trees	CoM CVC MNRF RoP TRCA	• As per the Tree Inventory and Preservation Plan and the City of Mississauga Tree Protection By-law (254-12), replace the 58 trees identified for removal with 60 trees at minimum size of 6cm diameter breast height (DBH) for deciduous trees and 180cm DBH for coniferous trees. One replacement tree is required for trees with a DBH 49cm or less while two are required for trees with a DBH 50cm or greater. Replace trees with the same species except for non-native trees. A summary of replacement requirements for individual trees is provided in Appendix 1 of the Tree Inventory and Preservation Plan. • Complete tree removal outside of the primary maternal roosting period for woodland bats (i.e., undertake tree removal between October 15 and April 1). • Follow the new Region of Peel Standards and Specifications for tree replanting. • Region of Peel standard drawings for tree planting can be found in: https://peelregion.ca/public-works/design-standards/drawings/roads/#land within the “landscaping” category.	• Mississauga’s Tree Protection by-law states replacement plantings and/or cash-in-lieu payment may be required as a condition of a permit to damage or remove trees on private property. Suitable areas adjacent to road expansion areas in the study area exist (e.g. mowed grassy area on lawns and in parks) to replace/compensate for the trees to be removed.
2.9	Potential impact to trees recommended for retention	CVC MNRF TRCA	• Install tree protection fencing to protect the root systems at the dripline distance from each tree trunk adjacent to construction activities according to Driplines in Appendix 1 of the Tree Inventory and Preservation Plan. No site alteration activities (e.g. grading, etc.), machinery movement, or storage of any equipment or materials should occur within the tree protection fencing. • In the event of mechanical injury to any trees recommended for retention and/or their branches, or if pruning is required to provide clearance for construction machinery: - Prune damaged limbs cleanly and according to standard arboricultural practices, - Prune damaged roots that have been exposed cleanly and according to standard arboricultural practices, and - Trim loose bark but avoid enlarging any open wounds.	
2.10	Potential noise impacts	CoM MECP	• Verify the location of noise walls. • Identify cost sharing and maintenance responsibilities for noise walls.	
3. During Construction				
3.1	Potential commitments during Pre-construction	CVC MNRF TRCA	• Adhere to all mitigation, protection and monitoring requirements specified above under Pre-Construction.	• Adhere to requirements of all permits, approvals and authorizations obtained during detailed design and pre-construction.
3.2	Potential erosion of unstable soils and movement of sediment and/or other deleterious substances into	CVC MNRF TRCA	• Maintain sediment and erosion control measures in good working order until completion of the Project. An onsite supervisor should be responsible for daily inspections of the sediment and erosion control measures and record the time and date of inspections, the status of the mitigation measures and any repairs undertaken.	

No.	Potential Impacts or Concerns	Concerned Agencies*	Commitments to Mitigation/Protection/Monitoring	Required Approvals/Permits/Authorization
	wetland communities and surrounding land uses			
3.3	Potential impact to Species of Conservation Interest	CVC MNRF TRCA		• If Jefferson Salamander is encountered within the works zone during any stage of construction, all activities that may harm any individuals should temporarily cease. A qualified biologist and/or MECP specialist should then be contacted immediately for direction on how to proceed.
3.4	Potential to encounter archaeological resources	HWFN MCFN MTCS	• Should archaeological resources be uncovered during the Stage 2 or Stage 3 assessment, retain a licensed archaeologist to monitor construction for the remaining balance of the grassed margin adjacent to the Dixie Union Chapel and Cemetery that falls within the deeply disturbed portion of the study area. • Retain a licensed archaeologist to monitor construction within the previously disturbed strip of the Cawthra Road right-of-way fronting the Mount Peace Roman Catholic Cemetery fence.	
3.5	Potential noise impacts	CoM MECP	• Construct noise walls at locations verified during detailed design / pre-construction (i.e., Cawthra Road right-of-way limit (Region of Peel property line) for residential properties backing onto Cawthra Road). • Adhere to the City of Mississauga noise by-law requirements. • Adhere to MECP's NPC-105 for construction equipment.	
4. Post-Construction				
4.1	Potential commitments during Construction	CoM CVC MECP MHSTCI MNRF MTO RoP TRCA	• Adhere to all mitigation, protection and monitoring requirements specified above under Construction.	• Adhere to requirements of all permits, approvals and authorizations obtained during detailed design and pre-construction.
4.2	Potential impact to natural vegetation communities	CVC RoP TRCA	• Stabilize and revegetate any disturbed and/or exposed soil via a native seed mixture suitable to site conditions. The seed mix should be consistent with CVC's Plant Selection Guidelines (May 2015). Prior to applying the seed mix, prepare the areas to be seeded by eliminating uneven areas and low spots, removing weeds to the extent achievable, and removing branches and stones in excess of 50mm. In areas of slopes greater than 3:1, lay jute mat, Bonded Fibre Matrix or equivalent on top of the seed mix to further stabilize disturbed soils. Where slopes are less than 3:1, use seeding and mulch to stabilize disturbed soils.	
4.3	Potential access control at Plaza south of Burnhamthorpe Road on the east side of Cawthra Road	CoM Property Owner RoP	• Monitor the south access to the Plaza parking lot for potential ongoing operation and safety concerns. • Address potential need for site access alternatives or restrictions to the Plaza entrance through future redevelopment of the site.	
4.4	Potential pedestrian signals at Needham Lane and at Orwell Street.	MiWay Transit RoP	• Monitor pedestrian demand at Needham Lane and at Orwell Street for pedestrian signals based on future redevelopment conditions.	
4.5	Winter Operations and Maintenance	RoP CoM	• Discuss and confirm winter maintenance of bile lane area with the City of Mississauga.	

Key: * CoM – City of Mississauga; HWFN – Huron-Wendat First Nations; MCFN – Mississaugas of the Credit First Nation; MECP – Ministry of the Environment, Conservation and Parks; MHSTCI – Ministry of Heritage, Sport, Tourism and Culture Industries; MNRF – Ministry of Natural Resources and Forestry; CVC – Credit Valley Conservation; MTO – Ministry of Transportation Ontario; PPH – Peel Public Health; RoP - Region of Peel; TNP – TransNorthern Pipelines; TRCA – Toronto and Region Conservation Authority

10. REFERENCES

City of Mississauga. 2019. Mississauga Transportation Master Plan.

City of Mississauga. 2019. Official Plan Office Consolidation.

City of Mississauga. Accessed 2020. City of Mississauga Data Centre. https://www.thefutureisunlimited.ca/resources/data-centre/.

City of Mississauga. 2018. Dundas Connects Master Plan.

MiWay. 2015. Executive Summary MiWay Five Transit Service Plan, 2016-2020.

Municipal Engineers Association. 2000 as amended in 2007, 2011 and 2015. Municipal Class Environmental Assessment.

Region of Peel. 2013. Region of Peel's Road Characterization Study.

Region of Peel. 2013. Strategic Goods Movement Network Study Technical Report.

Region of Peel. 2017. Peel Region Goods Movement Strategic Plan 2017 to 2021.

Region of Peel. 2018. Region of Peel Official Plan Office Consolidation.

Region of Peel. 2018. Sustainable Transportation Strategy.

Region of Peel. 2019. Let's Move Peel Long Range Transportation Plan 2019.

Region of Peel. Accessed 2020. Peel Health Data Zone Profiles. http://www.peelregion.ca/health/statusdata/Datazone/.

Appendix A: Pre-EA Feasibility Study

Appendix B: Traffic Operations Analysis

Appendix C: Active Transportation Report

Appendix D: Natural Environment Report

Appendix E: Tree Inventory and Preservation Plan

Appendix F: Environmental Noise Study

Appendix G: Stage 1 Archaeological Assessment

Appendix H: Cultural Heritage Assessment Report

Appendix I: Stormwater Management Report

Appendix J: Pavement Investigation and Design Report

Appendix K: Contaminant Overview Study

Appendix L: Subsurface Utility Engineering Services Report

Appendix M: Public Consultation

Appendix N: Agency Consultation

Appendix O: Indigenous Consultation

Appendix P: Preliminary Design