

# Columbia Way Environmental Assessment (EA) Study (Highway 50 to Caledon King Townline)

Project File Report

Final

October 13, 2021

Prepared for:





October 13, 2021

RVA 195072

Town of Caledon  
6311 Old Church Road  
Caledon, ON L7C 1JG

**Attention: Arash Olia, Ph.D., P.Eng.**

Re: Columbia Way Environmental Assessment (EA) Study (Highway 50 to  
Caledon King Townline)  
**Project File Report – Final**

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Please find enclosed the final Project File Report (PFR) for the Columbia Way Environmental Assessment (EA) Study (Highway 50 to Caledon King (Schedule B), completed by R.V. Anderson Associates Limited.

This Class Environmental Assessment was conducted in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA) – Schedule 'B'. As such, we have prepared a Notice of Completion, for distribution to stakeholders and general advertisement inviting the public to review this Project File Report. The public will be invited to provide comments or concerns with this study. If no requests have been received by the Minister of Environment, Conservation and Parks within 60 calendar days of filing of the Notice of Study Completion, the Town may implement the study recommendations, complete the design and proceed to construction.

We appreciate the input received from the Town and collaboration throughout the study. If you have any questions, please do not hesitate to contact the undersigned by email or at 905-685-5049 ext. 4211.

Yours very truly,

**R.V. ANDERSON ASSOCIATES LIMITED**

**Andrew McGregor, MCIP, RPP**  
Senior Planner, EA & Approvals



# Columbia Way Environmental Assessment (EA) Study (Highway 50 to Caledon King Townline)

Project File Report  
Final

Town of Caledon



In Association With:



Callon ⊕ Dietz



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**RVA 195072**

**October 13, 2021**

**Columbia Way Environmental Assessment (EA) Study (Highway 50 to  
Caledon King Townline)**

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## EXECUTIVE SUMMARY

The Town of Caledon is planning for the reconstruction of Columbia Way between Highway 50 and Caledon King Townline. In addressing the need to reconstruct the road, enhance safety, improve traffic operations to better accommodate all users, and drainage improvements were considered.

Various technical studies were completed to assess the existing conditions and potential impacts of the alternatives being considered. Studies included: Transportation and Traffic Study, Natural Environmental Assessment Cultural / Built Heritage Assessment, Stage 1 Archaeological Assessment, Contamination Overview Study, Visual Inspection of the Coventry Bridge Structure, Preliminary Drainage and Stormwater Management Assessment, and Preliminary Geotechnical Investigation. The findings of these studies were incorporated into the evaluation of alternative solutions.

This report summarizes the Class EA that was conducted to select the preferred solutions for the reconstruction of Columbia Way between Highway 50 and Caledon King Townline in the Town of Caledon. The study area is outlined in Figure E1.



**Figure E1 – Study Area**

### EA Phase 1 ~ Problem & Opportunity Statement

Per Phase 1 requirements of the Municipal Class Environmental Assessment process for a Schedule 'B' project, a "Problem and Opportunity Statement" was prepared following the assessment of the existing conditions within the study area to identify the various problems and opportunities to be addressed throughout the study.

The Study Problem & Opportunity Statement developed for the project is comprised of the following key elements:

- Improve traffic conditions and roadway geometrics.
- Address active transportation (walking, cycling) needs through improved safety and connectivity.
- Identify roadway drainage and stormwater management improvements.
- Address slope stability and geotechnical requirements of the roadway.
- Reconstruct the road to address the significantly deteriorated pavement structure.

### EA Phase 2 ~ Alternative Solutions

The evaluation of alternatives was completed in one step, or Phase in accordance with Schedule 'B' class EA requirements. Alternative solutions were reviewed for the Columbia Way urban section, Columbia Way rural section, Mount Hope Road intersection, school access, school pedestrian crossing and s-curve alignment as follows:

#### **Columbia Way Urban Section (Highway 50 to Forest Gate Avenue)**

1. Do Nothing
2. Shared-Use Lanes
3. On-Road Bike Lanes
4. Off-Road Multi-Use Path

#### **Columbia Way Rural Section (Forest Gate Avenue to Caledon King Townline)**

1. Do Nothing
2. Shared-Use Lanes
3. Paved Shoulders

#### **Mount Hope Road Intersection**

1. Do Nothing
2. All Way Stop
3. Roundabout

#### **School Intersection Control**

1. Do Nothing
2. Left Turn Lane
3. New Access via Kingsview Drive Extension

#### **Pedestrian Crosswalk**

1. Do Nothing
2. New Crosswalk at School Driveway
3. New Crosswalk at Westchester Boulevard Intersection
4. New Crosswalk at Trailhead

### **S-Curve Alignment**

1. Do Nothing
2. Eliminate Curve
3. Maintain Curve with Operational Improvements
4. Modify Curve

Based on the comparative evaluation that was undertaken using criteria representing the broad definition of the environment as described in the EA Act and incorporating feedback from the public and agencies, the preferred solutions are identified as follows:

- Reconstruct the urban section of Columbia Way between Highway 50 and the existing trailhead with continuous off-road multi-use path (MUP) on both sides of the roadway.
- Reconstruct the urban section of Columbia Way between the trailhead and Forest Gate Avenue with continuous off-road MUP on the south side of the roadway only.
- Reconstruct the rural portion of Columbia Way between Forest Gate Avenue and the Coventry Bridge structure with a paved shoulder on the south side of the roadway only.
- Reconstruct the rural portion of Columbia Way between the Coventry Bridge structure and Caledon King Townline with shared-use lanes.
- Introduce a new roundabout intersection control at the Mount Hope Road at Columbia Way intersection.
- Introduce a new left-hand turn lane at the school driveway entrance.
- Install an additional pedestrian crosswalk at a new signalized intersection in the vicinity of the existing trailhead.
- Maintain the roadway alignment through the s-curve with operational improvements.

### Impacts, Mitigation & Monitoring

The key impacts associated with the implementation of the proposed solution and general mitigation required have been identified. In addition to the mitigation measures identified in the report, additional work will be required to be completed

following the Class EA, prior to construction. During detailed design, findings from the Class EA will be confirmed through additional investigations, planning and consultation with the public and technical agencies.

#### Construction Timing and Cost Estimates

A preliminary cost estimate has been prepared for the construction of the recommendations. The preliminary cost estimate to complete the reconstruction of the roadway is \$8,603,197. This estimate includes utility relocation, property, lighting, active transportation amenities, road reconstruction, roadway drainage, bridge widening, slope stability improvements, landscaping and engineering fees.

At this time, construction is expected to commence in 2023, subject to budget, utility relocations, and agency approvals.

## 1.0 INTRODUCTION AND BACKGROUND

### 1.1 Introduction

R.V. Anderson Associates Limited (RVA), on behalf of the Town of Caledon, has completed a schedule 'B' Municipal Class Environmental Assessment (EA) for the reconstruction of Columbia Way between Highway 50 and Caledon King Townline, in the Town of Caledon. In addressing the need to reconstruct the road, options to improve the road for all users (motorists, pedestrians and cyclists) including corridor and intersection alternatives, improved pedestrian and cyclist amenities, and improved roadway drainage were considered.

The Class EA was completed in accordance with the requirements of Schedule 'B' of the Municipal Engineers Association (MEA) Municipal Environment Assessment (October 2000, amended in 2007, 2011 & 2015).

### 1.2 Study Area

The study area includes Columbia Way (from Highway 50 to Caledon-King Townline), the surrounding road approaches, as well as adjacent lands and watercourses that may be affected. The study area is outlined in Figure 1.1.



Figure 1.1–Study Area

### 1.3 Background and Previously Completed Studies

As planned development in the Town of Caledon continues, the need to provide safe, reliable transportation and transit throughout the Town has been subject to multiple studies. These studies have identified the measures required to address the long-term transportation requirements of Bolton, Caledon, and the Region of Peel as a whole. Many of these studies have included extensive improvements to Highway 50 and its intersecting roads, including Columbia Way, as described below.

### **1.3.1 Caledon Transportation Needs Study Update, Region of Peel/Town of Caledon – 2009**

The *Caledon Transportation Needs Study Update*, completed in 2009, updated the Caledon Transportation Needs Study completed by the Town of Caledon and the Region of Peel in 2004. The study update assessed and identified potential transportation improvements needed to accommodate future traffic demand in the Town of Caledon.

The *Caledon Transportation Needs Study Update* identified long-term improvements (by 2031) to Columbia Way between Regional Road 50 and Caledon King Townline such as alignment and intersection improvements to ensure reasonable safety and to improve east-west capacity within Bolton.

### **1.3.2 Bolton Transportation Master Plan Study, Region of Peel/Town of Caledon – 2015**

The *Bolton Transportation Master Plan Study* was completed by the Region of Peel and the Town of Caledon in 2015, and identified transportation deficiencies in Bolton, in order to guide the development of transportation infrastructure required to accommodate significant planned future population and employment growth in the area.

The *Bolton Transportation Master Plan Study* recommended improvements to the active transportation facilities in and around the Columbia Way EA Study Area including:

- In-Boulevard (off-road) multi-use trail along Columbia Way from Highway 50 to Kingsview Drive, connecting with the existing off-road trails along Columbia Way between Kingsview Drive and Westchester Boulevard and along Highway 50 south of Columbia Way.
- Paved Shoulder connecting with the existing off-road trail along Columbia Way between Westchester Boulevard and Forest Gate Avenue.
- Signed-Only Bike Route (shared lanes) along Columbia Way from Forest Gate Avenue to Caledon King Townline.
- Connection to a proposed Off-road trail associated with the Cold Creek valleylands adjacent to the study area.
- Proposed buffered paved shoulder along Highway 50 north of Columbia Way, connecting with the recommended off-road trail along Columbia Way.

This study also identified the northwest corner of Columbia Way's intersection with Highway 50 as a recommended location for a major GO Bus stop.

### **1.3.3 Town of Caledon Transportation Master Plan, Town of Caledon – 2017**

Completed by the Town of Caledon in 2017, the *Caledon Transportation Master Plan* is a strategic planning document that identifies and addresses the transportation needs of the Town to the year 2031.

The Plan identified a need to improve the signalized intersection of Columbia Way / Kingsview Drive. Improvements based on 2031 forecast traffic volumes included the addition of dedicated northbound, eastbound and westbound turn lanes to the Columbia Way / Kingsview Drive intersection.

### **1.3.4 Sustainable Transportation Strategy, Region of Peel - 2018**

The *Sustainable Transportation Strategy* completed by the Region of Peel in 2018 outlines the recommended course of required for the Region to address long-term transportation and growth-related issues. The plan identifies the Region's roles and responsibilities relating to sustainable transportation modes including transit, cycling, and walking.

The *Sustainable Transportation Strategy* identified Highway 50 from Columbia Way to 130 meters south of Bolton Heights Drive as a *pedestrian improvement corridor*, a priority area to improve walkability through additional pedestrian infrastructure and a more connected pedestrian network.

Coordination with planned active transportation improvements along Highway 50 adjacent to the Columbia Way EA study corridor were considered in the study.

### **1.3.5 Bolton Queen Street Corridor Study, Town of Caledon - 2019**

The Town of Caledon completed the *Bolton Queen Street Corridor Study* in 2019, which identified land use and design opportunities along the Queen Street/Highway 50 corridor in Bolton to provide a framework for sustainable transportation in Bolton up to the year 2041. This study identified design opportunities to establish formal maintained active transportation pathways (dedicated cycle track) on Highway 50 from Hickman Street, north to Columbia Way.

The *Bolton Queen Street Corridor Study* also suggests the introduction of designated cycle track travels along the north side of Columbia Way before terminating at Kingsview Drive, providing access to future development of the



commercially zoned vacant land at the northwest corner of Columbia Way and Highway 50.

## 1.4 Municipal Class Environmental Assessment

This study was conducted in accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) – Schedule ‘B’, which is an approved process under the Environmental Assessment Act. Figure 1.2 illustrates the framework for the Class EA process which is a legislated planning process comprising of up to five phases with mandatory points of public contact. The focus of the framework is a comprehensive and transparent decision-making process.

The Class EA is broken down into phases, as follows:

- Phase 1 – Identify problem or opportunity;
- Phase 2 – Identify alternative solutions, evaluate and select the preferred solution;
- Phase 3 – Identify alternative design concepts, evaluate and select the preferred design concepts;
- Phase 4 – Complete the Environmental Study Report (ESR) and place it on the public record; and,
- Phase 5 – Project implementation, which is to undertake the contract drawings and tender documents for the project and proceed to construction and operation of the project.

This Schedule ‘B’ study requires the completion of phases 1 and 2 of the Municipal Class Environmental Assessment process, with the final deliverable comprising the documentation of the planning process as provided in this Report. The Project will then proceed to Phase 5.

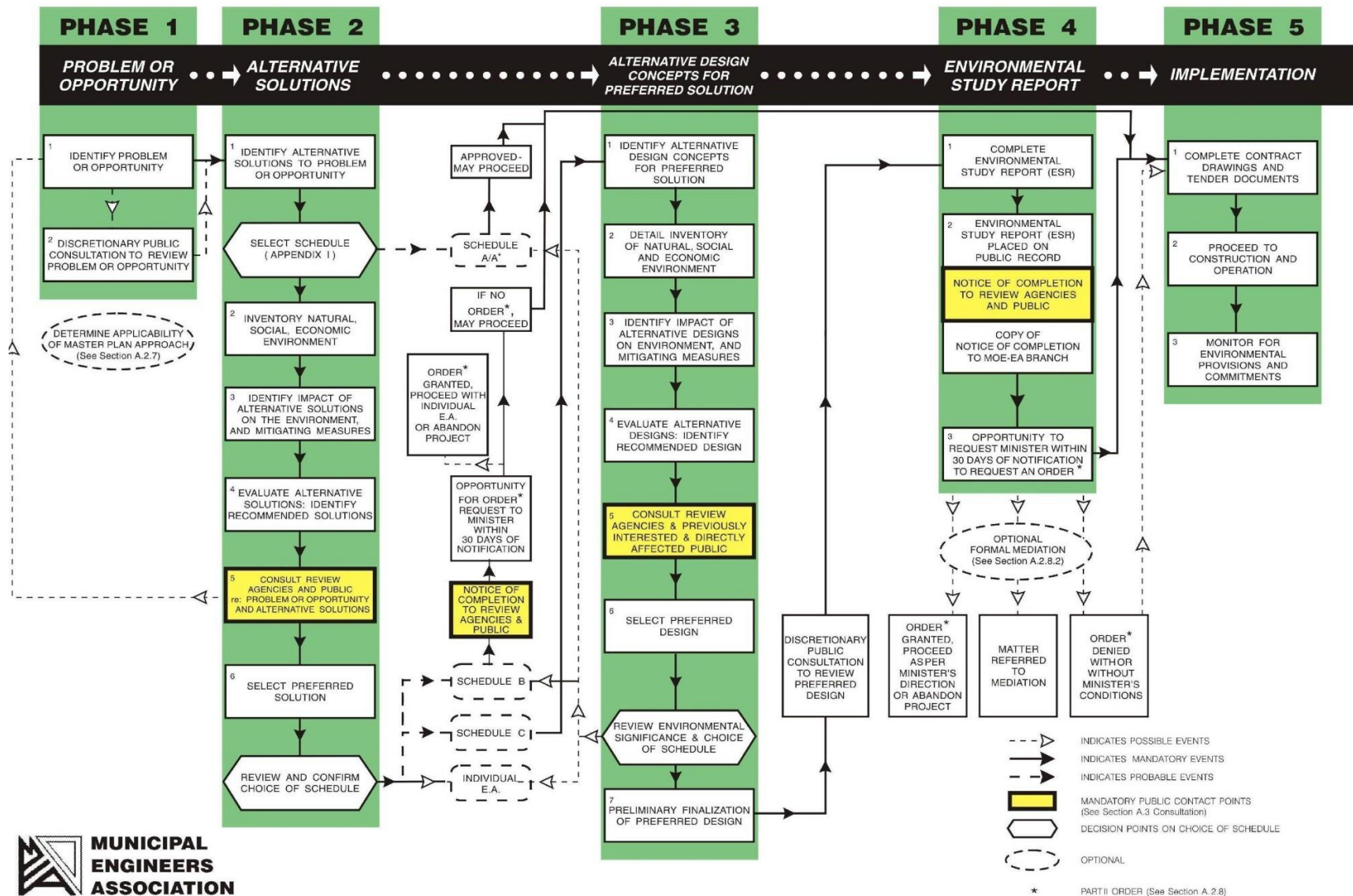


Figure 1.2 - Municipal Class Environmental Assessment Process (Municipal Engineers Association, 2015)

### 1.4.1 Part II Order Requests

Anyone with concerns related to any aspect of the study may express such concerns in writing to the Project Manager at the Town of Caledon within the 30-calendar day review period following the Notice of Study Completion. All comments and concerns should be sent directly to Project Manager at the Town of Caledon.

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](mailto: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](mailto:EABDirector@ontario.ca)

Requests should also be sent to the Town of Caledon by mail or by e-mail.

## 1.5 Study Organization

The Class Environmental Assessment Study was carried out by a consulting team lead by R.V. Anderson Associates Limited (RVA) on behalf of the Town of Caledon. The RVA team consists of several multi-disciplinary specialists. The study team is outlined below:

Town of Caledon:

- Arash Olia – Manager, Transportation Engineering

Consulting Team:

- R.V. Anderson Associates Limited – Lead Consultant, Transportation Planning, Public Consultation, Natural Environment, Drainage and Stormwater Management, Structural and Engineering
- Callon Dietz – Topographic Survey
- Archaeological Services Inc. – Archaeology & Cultural Heritage
- Thurber Engineering Ltd. – Geotechnical & Contaminated Soil Assessment

## 1.6 Study Schedule

The EA study was initiated in March 2020. Key dates throughout the study were as follows:

**Table 1.1 – Study Schedule**

<b>EA Stage</b>	<b>Date</b>
Notice of Study Commencement	March 15, 2019
Notice of PIC	February 8, 2021
Public Information Centre	February 24, 2021
Notice of Study Completion	October 13, 2021

## 1.7 Consultation Requirements

Public Consultation is a key feature of environmental assessment planning projects. Input received from the public and various stakeholder groups, potentially affected Indigenous communities, as well as from provincial ministries, agencies, and authorities can generate meaningful dialogue between the project planners and the public. This consultation allows for the exchange of ideas and the

broadening of the information base, leading to better decision-making during the study.

Various Indigenous communities, government agencies, authorities and interest groups were informed of the Class EA Study commencement, as well as the public information centres and notice of study completion, through local newspaper notices, direct mailings (paper & electronic) to stakeholders and agencies and notices distributed to property owners in the study area.

A complete list of technical agencies, special interest groups and Indigenous communities that were contacted as part of the study is provided in **Appendix 1** of this report.

### **1.7.1 Contact with Stakeholders**

As per the MCEA, notification to the public and stakeholders of study commencement is required, as well as notification of Public Information Centres. Notification of Study Commencement, Notice of Public Information Centre and Notice of Study Completion was provided through several different methods and media, as outlined below.

- **General Public:**
  - All Notices were posted on the Town's project website at [caledon.ca/ColumbiaWay](http://caledon.ca/ColumbiaWay).
  - Notice published in *Caledon Citizen* (local newspaper)
  - Social media posts (Facebook and Twitter)
  
- **Residents & businesses within Study Area:**
  - All Notices were mailed to all property residents within the study area
  
- **Technical Agencies, Local Interest Groups and Indigenous Communities:**
  - Notices sent by email 2 weeks in advance of PIC or by mail if no email was on file for the contact
  - Notice of Completion sent by email or mail
  
- **Project Mailing List (stakeholders who submitted comments during the study or indicated interest in the project):**
  - Notices sent by email two weeks in advance of PIC
  - Notice of Completion sent by email

Refer to **Appendix 1** for copies of the published notifications and the stakeholder list.

## 2.0 EXISTING CONDITIONS

### 2.1 Traffic and Transportation Network

In support of the Class EA, a Transportation and Traffic Study was undertaken to analyze the existing and future needs of the corridor, from a multi-modal operational and safety perspective. The full report is provided in **Appendix 2**.

#### 2.1.1 Roadway Configuration

Columbia Way is an east-west oriented collector road under the jurisdiction of the Town of Caledon, with a posted regulatory speed limit of 40 km/h in the vicinity of the school and 60 km/h for the remainder of the corridor.

Columbia Way has a rural cross-section with one lane per direction, no formal on-street parking, gravel shoulders of varying width throughout the corridor, and shared hydro and illumination poles predominantly on the north side of the roadway. Guide rail systems are incorporated into the right-of-way.

The road has noticeable curves in its horizontal alignment, with a moderate curve between Regional Road 50 and Mount Hope Road, and a significant s-curve between Forest Gate Avenue and Caledon-King Townline.

The vertical alignment of the roadway is generally level between Regional Road 50 and Mount Hope Road, with a noticeable downgrade travelling east from Mount Hope Road through the s-curve, followed by a significant upgrade to Caledon-King Townline.

Columbia Way is not a designated truck route, with truck traffic restricted at Regional Road 50 and at Caledon-King Townline using regulatory signage.

#### 2.1.2 School Traffic Operations

Based on consultation with school staff, and members of the public, short periods of traffic congestion are experienced along Columbia Way fronting St. Michael Catholic Secondary School during peak school arrival/departure periods.

This congestion results in vehicles turning left into the school from Columbia Way being queued on the roadway, blocking eastbound through traffic. Additionally, there are frequent incidents of vehicles stopping in the gravel shoulder on the south side of Columbia Way to pick-up/drop-off students, which is considered both a safety and operational concern.

### **2.1.3 Active Transportation (Pedestrian and Cyclist) Facilities**

Active transportation facilities within the corridor are intermittent through the corridor and include sidewalk on the south side of the road from Regional Road 50 to Kingsview Drive and from Westchester Boulevard to Forest Gate Avenue, and gravel path on the south side of the roadway from Kingsview Drive to Westchester Boulevard. There are no designated bicycle facilities within the study area road network.

There is currently a north-south path network south of Columbia Way, with a connection to Columbia Way approximately midway between the school and Westchester Boulevard, and multiple connections to the surrounding residential neighbourhoods and their respective local roads.

### **2.1.4 Pedestrian Crossing Facilities**

Designated pedestrian crossings within the study area are limited to the signalized intersections at Regional Road 50 and at Kingsview Drive.

Due to the only controlled pedestrian crossings being situated west of the school at Kingsview Drive and at Regional Road 50, there has been an observed tendency for students walking to/from the school to jaywalk across Columbia Way at uncontrolled locations along the corridor.

### **2.1.5 Public Transit**

While no public transit routes service Columbia Way, GO Transit operates Route #38 (Malton GO) on Regional Road 50, with GO Transit stops in both the northbound and southbound directions at the intersection of Regional Road 50 and Columbia Way; service of these routes is not provided on weekends.

### **2.1.6 Traffic Safety**

As part of the Transportation and Traffic Study completed for Columbia Way, a Traffic Safety Audit was completed for the study area corridor.

Along the majority of Columbia Way, no major safety concerns, over representation of particular collision types, or concerns with respect to collision severity (i.e., injuries, fatalities) were identified.

However, Columbia Way between Forest Gate Avenue to Caledon King Townline, which comprises the S-bend, reported 11 collisions over the five-year period. This collision trend is consistent with what would be expected along a section of



roadway with a series of major horizontal curves and a rolling vertical alignment along a rural corridor, with no illumination, potential drainage concerns, and potential wildlife activity.

Additionally, the significant vertical crest in Columbia Way located approximately 80 metres west of the Caledon-King Townline intersection impedes vehicle visibility of the intersection. It is expected that motorists approaching the intersection may not have visibility of the intersection until approximately 100 metres from the intersection. Should there be any queueing present at the intersection Caledon King Townline intersection, the available stopping distance is reduced as a consequence thus creating a potential safety concern.

### **2.1.7 Traffic Speeds**

As part of the Transportation and Traffic Study completed for Columbia Way, a Spot Speed Study was completed to determine current vehicle speeds within the study area.

Based on the results of spot speed surveys, the existing S-bend on Columbia Way is limiting operating speeds, resulting in operating speeds lower than the posted speed limit in the rural section of the Columbia Way.

However, for vehicles travelling through the urban portion of Columbia Way, between Westchester Boulevard and Columbia Way, low compliance to the speed limit was identified, with vehicles travelling between 15-21 km/h above the posted speed limit.

## **2.2 Socio-Economic Environment**

Within the Town of Caledon, Columbia Way delineates the northern boundary of the 2021 Bolton Settlement Boundary, with Ward 5 (Bolton) to the south, and Ward 4 to the north of the road.

As such, existing land use within the study area consists mainly of institutional (school), prime agricultural lands and fallow fields to the north of Columbia Way, and low and medium-density residential homes backing on to the south of Columbia Way.

St. Michael Catholic Secondary School is situated on the north side of Columbia Way approximately 250 meters east of Regional Road 50. The majority of the remaining lands east of Mount Hope Road to Caledon Kind Townline, as well as the lands adjacent to the Humber River tributary crossing, are designated

Environmental Policy Area (EPA) by the Town of Caledon, with portions of these lands also designated under the Oak Ridges Moraine Conservation Plan Area (ORMCPA) and the Greenbelt Plan Area. As any potential future developments within and adjacent to these environmentally designated lands will be subject to these policies, significant development along most of the corridor is not anticipated.

14245 Highway 50, the northwestern most parcel of land within the study area is currently being utilized as agricultural lands, however it is classified as Bolton North Hill Commercial in the Town of Caledon Official Plan. This land-use designation allows for the development of a food supermarket and ancillary retail and service commercial uses such as apparel, convenience and grocery stores; clinics, limited offices, personal services, pharmacies, banking, hair salons, dry cleaning, and restaurants to serve the existing North Hill neighborhood. At the time of the study, no developments were planned at this location, however access to potential future developments at this location were considered during the study.

## 2.3 Natural Environment

A Natural Heritage Report documenting existing environmental conditions within the study area and potential effects of the proposed project on natural heritage features was prepared by RVA's Ecological Services Team. Findings of their report are summarized in the sections below. The full report is provided in **Appendix 3**.

### 2.3.1 Aquatic Habitats and Communities

The study area is located within the Upper Humber River subwatershed of the Humber River watershed under the jurisdiction of Toronto and Region Conservation Authority (TRCA) and the Ministry of Natural Resources and Forestry (MNR) Aurora District.

Two watercourses, Cold Creek tributary, and Cold Creek are located within the study area. Both watercourses have crossings present within the study area as described below.

#### Cold Creek Tributary

The Cold Creek tributary, located between Kingsview Drive and Westchester Boulevard, is a 2nd order stream which drains a Castlederg Wetland Complex, a Provincially Significant Wetland (PSW), located to the northeast of the Study Area. The Cold Creek tributary is conveyed under Columbia Way through a 2000mm diameter corrugated steel pipe (CSP) culvert.

At the time of the investigations, there was no flow and no connectivity of the Cold Creek tributary with only an isolated pool of water at the culvert inlet, north of the road. Therefore, this tributary may provide seasonal fish habitat and likely provides contributing habitat to Cold Creek. No fish were observed at the Cold Creek tributary crossing.

The watercourse appears to be natural, with no evidence of straightening or hardening. The channel is a vegetated swale primarily extending parallel to the roadsides with no visible channel extending north to the wetlands.

Downstream (south) of the culvert, the watercourse widens into a marsh floodplain, thick with cattails and grasses, bound by an asphalt walking path to the east and steep embankment to the west.

### Cold Creek

The main Channel of Cold Creek, located approximately 0.48 kilometers west of Caledon King Townline, is a 4<sup>th</sup> order, permanent watercourse which converges with the Upper Humber River southeast of the King Street East/Caledon King Townline intersection. Cold Creek is conveyed from north to south, under Columbia Way below the Coventry Bridge.

Based on the species collected and those previously recorded, the fish community in Cold Creek is comprised of generally secure cool to cold water bait, forage and sportfish species.

No records of freshwater mussels were available in the background sources, and no live specimens were observed, however, a targeted survey was not performed. Under the Coventry Bridge, mussel shell fragments were observed, but due to the condition of the shells, species identification was not possible.

Downstream (south) of the Columbia Way bridge, the creek flows along residential properties on the west bank approximately 100 m from the road. These properties have mown the riparian grass buffer into lawn, right up to the creek. The remainder of the creek in the Study Area had forested riparian buffers and predominantly vegetated banks, under the bridge being the exception.

Based on a review of the MNR Natural Heritage Information Centre database, LIO-ARA fish records, DFO Species at Risk mapping, and correspondence with TRCA, a single aquatic Species at Risk (Northern Brook Lamprey) occurs within the study limits. The Northern Brook Lamprey is listed as a Special Concern

species, and therefore permitting under the SARA is not required for potential impacts to this species.

Ministry of Natural Resources and Forestry (MNRF) has indicated that no in-water works are permitted from March 15 to June 30.

### **2.3.2 Vegetation and Vegetation Communities**

A single-season floral inventory and Ecological Land Classification (ELC) confirmation/update was completed for the for the Study Area in reference to the ELC previously completed by TRCA. Field visits were timed to correspond with a summer inventory window to attempt to identify as many plant species as possible.

The Study Area is located in a landscape which is transitioning from a formerly agricultural land use to an urban and residential one, interspersed with preserved natural areas associated with wetlands and watercourses. All vegetation communities identified within the study area are common and secure in the province.

### **2.3.3 Tree Inventory**

A tree inventory was conducted on September 22, 2020 to identify trees within and adjacent to the roadway. Information recorded included tree species, dbh (diameter at breast height) and notes on tree health and condition.

Mississauga of the Credit First Nation (MCFN) Field Liaison Representatives participated in and monitored the tree inventory assessment in accordance with the FLR Participation Agreement as described in Section 877.0.

A total of 182 trees, generally in good condition, were identified and assessed within the study area (focusing on trees within and immediately adjacent to the roadway the right-of-way).

A total of seven Butternut (*Juglans cinerea*) trees, regulated as Endangered under the Ontario Endangered Species Act (ESR), were identified within the study area. Each of the seven butternut trees were located on the southern side of Columbia Way in the vicinity of Cold Creek, including two individuals within the floodplain.. No additional tree species protected under the ESA, or any tree species regulated under the Canada Species at Risk Act (SARA) were observed during site visits.

Some relatively large residential Black Locust (*Robinia pseudoacacia*) growing along the frontage of 9862 Columbia Way were also identified. These residential

Black Locust specimens are in generally good condition but have signs of decline, with a few trees exhibiting rot in the main crotch.

### **2.3.4 Wildlife and Wildlife Habitat**

Based on field observations, 33 species of wildlife (21 birds, 1 herpetofauna, 5 invertebrates, and 6 mammals) could be verified as occurring in the study area. Wildlife and habitats identified during site visits were typical of rural and urbanizing areas of southern Ontario.

The Study Area contains terrestrial habitats that have the potential to support a variety of bird life. A total of 21 species of birds were observed in the study area during field investigations. Several bird species identified within the study area are protected under the Migratory Birds Convention Act (MBCA) and/or the Fish and Wildlife Conservation Act (FWCA).

Six mammal species were identified during field investigations within the study area. Eastern Grey Squirrel (*Sciurus carolinensis*), Muskrat (*Ondatra zibethicus*) and Red Squirrel (*Tamiasciurus hudsonicus*) were observed within the Cold Creek valley and adjacent rural lands. A single road-killed Raccoon (*Procyon lotor*) and Striped Skunk (*Mephitis mephitis*) were observed in the urban section of the Study Area Raccoon. Eastern Cottontail (*Sylvilagus floridanus*) was also identified within and around the urban more portion of the study area. Generally, the mammal species identified within the study area are species commonly encountered in association with local anthropogenic and natural habitats. All mammal species identified within the study area are regulated under the Fish and Wildlife Conservation act (FWCA).

One species of herpetofauna (reptile or amphibian) was observed in the study area during field investigations. Two Gray Treefrogs (*Hyla versicolor*) were noted calling during site investigations, one from the wetland habitat immediately northeast of the Columbia Way bridge over Cold Creek, and another in the Cultural Meadow habitat associated with 9861 Columbia Way. Based on the recording of two Gray Tree Frogs calling in the vicinity of Cold Creek during investigations and their relatively small home range, breeding habitat for this species is present in the general area, though no features were observed within the Study Area.

#### Wildlife Species at Risk

One provincially protected herpetofauna (reptile or amphibian) at-risk species was noted (Blanding's Turtle, *Emydoidea blandingii*), as historically present within the vicinity of the study area, based on records from the Natural Heritage Information

Centre (NHIC) Biodiversity Explorer database (MNR 2019). No Blanding's Turtle, nor any other turtles, were observed during site visits. Large, high quality wetland or aquatic habitat that would serve as a source for Blanding's Turtle was not noted within the Study Area, and due to general lack of habitat there is a low likelihood of encountering this species.

Two additional species of conservation concern (Eastern Wood Pewee, and Monarch) were located during site investigations, while an additional three were not located (Northern Brook Lamprey, Midland Painted Turtle and Snapping Turtle) but are expected to be present in appropriate habitats.

A full list of SAR identified in the background sources with potential to be found in the Study Area, discussion on their habitat preferences, and probability of occurrence as determined following field investigations in the Study Area, and the assessment is presented in **Appendix 3**.

### 2.3.5 Designated Natural Areas

Designated natural areas include areas identified for protection by the Ontario Ministry of Natural Resources and Forestry, Credit Valley Conservation, Regional Municipality of Peel and the Town of Caledon.

No provincially or locally designated parks, conservation areas, reserves, or Areas of Natural or Scientific Interest (ANSI) were identified in the Study Area.

#### Provincial Policy Statement

The Provincial Policy Statement (PPS, Ministry of Municipal Affairs and Housing (MMAH), 2020) sets the policy direction for regulating development and land use planning in the province. Both provincial and local land-use planning decisions build on the PPS and its relevant policies. This report deals specifically with the policies contained in Part V, Section 2.1 (Natural Heritage) of the PPS which is directed at protection and management of natural heritage systems and features. A natural heritage system is defined by the Province of Ontario as:

*“A system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that*

*support hydrologic functions and working landscapes that enable ecological functions to continue.” (MMAH, 2020).*

The Natural Heritage Resource Manual (MNR, 2010) describes natural heritage features of significance, and areas where development and site alteration is not permitted.

#### Oak Ridges Moraine Area

The Oak Ridges Moraine Conservation Plan (ORMCP) (2017) is set out in O. Reg. 140/02 under the *Oak Ridges Moraine Conservation Act, 2001*. It is an ecologically based Plan that provides land use and resource management planning direction on how to protect the Moraine’s ecological and hydrological features and functions. The ORMCP divides the Moraine into four land use designations: Natural Core Areas, Natural Linkage Areas, Countryside Areas, and Settlement Areas. The Plan identifies key natural heritage features (such as wetlands and woodlands) and key hydrologic features (such as kettle lakes and springs). Development near these key natural heritage features and key hydrologic features is only allowed if it will not adversely affect these features.

The general area of Cold Creek, and the natural/successional and low-lying areas that surround the Cold Creek within the Columbia Way Study Area falls under the Oak Ridges Moraine Conservation Plan (ORMCP) Area, as a Natural Linkage Area and are subject to the directives of the ORMCP.

#### Greenbelt Plan Area

The *Greenbelt Act* was introduced in 2005 to help shape the future of the Greater Golden Horseshoe region (GGH). The Greenbelt Plan (2017), together with the Oak Ridges Moraine Conservation Plan (ORMCP), identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological and hydrological features, areas and functions occurring on this landscape. The Greenbelt Plan includes lands within, and builds upon the ecological protections provided by, the ORMCP. The Greenbelt Plan, together with the ORMCP, builds on the Provincial Policy Statement (PPS) to establish a land use planning framework for the GGH that supports a clean and healthy environment.

The general area of Cold Creek, the tributary of Cold Creek, and the natural/successional and low-lying areas that surround these features within the Columbia Way Study Area is located in the Greenbelt Plan Area, Natural Heritage System.

The Greenbelt Plan identifies the following policies as they pertain to the Town's role in undertaking improvements to the study area:

- Towns/Villages are not permitted to expand into the Natural Heritage System

The recommended alternatives and designs are to be developed in accordance with the Greenbelt Plan Area.

#### Town of Caledon Official Plan

The *Town of Caledon Official Plan* identifies the permitted uses within the Town of Caledon Environmental Policy Areas.

The general area of Cold Creek, the tributary of Cold Creek, and the natural/successional and low-lying areas that surround these features within the Columbia Way Study Area are zoned as Environmental Policy Area within the *Town of Caledon Official Plan*.

The recommended alternatives and designs are to be developed in accordance with the *Town of Caledon Official Plan* Environmental Policy Area designations..

#### Peel Region Official Plan

The lands surrounding Cold Creek, generally overlapping the lands designated under the ORCMP as described above, are designated as a "Core Area of the Greenlands System in the Region of Peel Official Plan".

Core Areas of the Greenlands System in Peel are areas that have been identified as providing "ideal conditions for uninterrupted natural systems and provide habitat for many different kinds of wildlife". These areas are afforded protection to ensure that Peel's natural features and their functions will be preserved over time.

The recommended alternatives and designs were developed in accordance with the Peel Region Official Plan.

## 2.4 Cultural Heritage

A Cultural Heritage Resource Assessment of the study area was undertaken to evaluate the cultural heritage significance of the study area and assess impacts of the proposed undertaking in consideration of its determined cultural heritage value. Findings of their report are summarized below. The complete Cultural Heritage Evaluation report is provided in **Appendix 4**.



The results of background historical research and a review of secondary source material, including historical mapping revealed a study area with an agricultural and rural land use history dating back to the early nineteenth century.

Four cultural heritage resources listed on the Caledon Heritage Register were identified within and/or adjacent to the Columbia Way study area. These resources are associated with land use and settlement patterns in the Town of Caledon and more specifically representative of the early settlement of the community of Columbia/Coventry, a small rural community outside of Bolton in the Town of Caledon. The properties listed on the Caledon Heritage Register include two residential properties, one residential property with a cemetery, and one cemetery property, all of which are at the north east end of the study area.

Below is a complete list of the nineteenth-century properties on the Caledon Heritage Register within the Study Area:

- 9850 Columbia Way – 1850-1874 residence
- 9938 Columbia Way – Remains of a nineteenth-century cemetery (Coventry Methodist Cemetery)
- 9948 Columbia Way – 1850-1874 residence
- 9950 Columbia Way – Nineteenth-century cemetery

No properties within the study area are listed on the Ontario Heritage Register or are designated under the Ontario Heritage Act.

Upon completion of ASI's review of cultural heritage resources described above, the Region of Peel, Town of Caledon, MHSTCI, and Ontario Heritage Trust were consulted to determine whether they were aware of any additional cultural heritage resources or concerns within the study area for consideration in preparing the Cultural Heritage Resource Assessment. No additional cultural heritage resources were identified by any of the agencies.

## 2.5 Archaeological Potential

A Stage 1 Archaeological Assessment of the study area was completed to determine the potential for archaeological potential in the study area. Findings of their report are summarized below. The complete Stage 1 Archaeological Assessment report is provided in **Appendix 5**.

Through the assessment, it was determined that the Study Area exhibits archaeological potential including the following areas:

- The undisturbed areas beyond the existing ROW north of Columbia Way, from east of St. Michael Catholic Secondary School to the area surrounding the Cold Creek tributary culvert, and from east of the Cold Creek tributary culvert to Mount Hope Road; and
- And the undisturbed areas beyond the existing ROW in the rural section, from 225 meters east of Forest Gate Avenue, to Caledon Kind Townline, save for areas with low and wet conditions.

Areas that exhibit archaeological potential and are recommended for Stage 2 assessment if they may be impacted are identified in the full report in **Appendix 5**.

The remainder of the study area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, and / or on account of being previously assessed and cleared for archaeological potential. Further archaeological assessment of these areas is not required.

Four properties within the Study Area are Designated or Listed under the Ontario Heritage Act including: 9850 Columbia Way, (neoclassical style home with synthetic exterior, c.1850-1874); 9938 Columbia Way (remains of Coventry Old Methodist Church, pre 1850); 9948 Columbia Way (1 1/2 storey neoclassical style home with one storey addition, c.1850-1874); and 9950 Columbia Way (Coventry Old Methodist Cemetery, c.1850-1874). Twenty-five previously registered archaeological sites are also located within one kilometer of the Study Area (44 Allan Street).

The Coventry Old Methodist Cemetery noted at 9938/9950 Columbia Road and the associated 10 m buffer of the cemetery do not fall within the Study Area and therefore do not require a cemetery investigation as part of this project.

## 2.6 Contaminated Soil Assessment

A Contamination Overview Study (COS) of the study area was completed to identify evidence of actual and/or potential contamination within or adjacent to the study area which may impact the subsurface conditions within the study area and any proposed improvements.

The COS consisted of a desktop review and summary of select available historical records and a reconnaissance of the Study Area from publicly accessible locations. The collective information was used to assess and evaluate past and present uses, and conditions and activities within the Study Area to identify properties with

potential sources of contamination that may directly impact the Site or have the potential for contaminant migration onto the Site.

Findings of their report are summarized below. The complete Contamination Overview Study report is provided in **Appendix 6**.

Based on an evaluation of the COS findings, potential sources of contamination were identified at eight locations on the Site that included:

- suspected fill material/application of de-icing salts;
- potential vehicle releases associated with the use of the road; and
- residual pesticides from past and current agricultural activities.

Additionally, off-Site potential sources of contamination on adjacent properties within the Study Area that may directly impact or have the potential for contaminant migration to impact the proposed the subsurface soil and groundwater conditions underlying the Site were identified including:

- Commercial operations (i.e. a former gas bar/current automotive garage, and storage/maintenance activities associated with an RV centre);
- Industrial activity (Bolton's Works Yard with an above ground storage tank and maintenance garages and stockpiles of various materials) near the west limit of the Site;
- unknown operations of properties located at the northeast corner of Columbia Way/Highway 50 and near the east limit of the Site (9850 Columbia Way); and
- a historical release from vehicles at the Columbia Way/Highway 50 intersection.

The contaminants of potential concern included metals and inorganics, petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and organochlorine (OC) pesticides.

A subsurface investigation involving sampling and analysis of soil and groundwater within the excavation depths for the proposed construction works would be required to confirm or refute the potential for contamination from the identified potential sources of contamination that may impact the Site. The additional investigation was carried out concurrently with the geotechnical investigation described in Section 2.8.

## **2.7 Structural**

### **2.7.1 Coventry Bridge Structure**

Built in 1950, the Coventry Bridge structure is located on Columbia Way 0.48 kilometers west of Caledon King Townline South Princess Street in the Town of Caledon and crosses Cold Creek. The bridge has an east-west orientation and is comprised of a 10.61 m wide cast in place concrete single-span rigid frame structure. The bridge supports two lanes of traffic with a roadway width of 8.57 metres and an overall width of 9.16 metres. The current structure does not meet the Transportation Association of Canada (TAC) standard clearance for travel lane to bridge barrier for an undivided rural road without a sidewalk, which is 1.2 meters. The bridge underwent rehabilitation in approximately 1968 however details of this rehabilitation are unknown.

The structure comprises of a cast in place deck with arched soffit and full-height abutments with wingwalls at all four corners of the bridge. Rigid moment connections are provided at the deck-abutment interfaces, as well as at the abutment-wingwall interfaces. Based on the information available, the bridge does not have any approach slabs.

The bridge is founded on cast-in-place footings atop of timber piles.

### **2.7.2 Coventry Bridge 2019 OSIM Report**

Based on the findings of the 2019 OSIM inspection, the overall Bridge Condition Index (BCI) of 69.4, which is just under the threshold value of 70 which is generally considered to be “good” condition.

The 2019 report indicated that rehabilitation of the Abutment Walls, Wing Walls, and Soffits are estimated to be required within one to five years of the date of the inspection (June 2019). It also noted that the bridge railings required rehabilitation within one year, and the wearing surface at the bridge approached required rehabilitation within two years of the date of the report.

### **2.7.3 Coventry Bridge 2020 Visual Inspection**

In addition to the regular OSIM Inspections, an RVA structural engineer completed a Visual Condition Assessment to determine recommendations for structural rehabilitation / replacement of the Coventry Bridge to be considered as part of the study.

Based on the findings of the 2020 Visual Inspection of the Coventry Bridge Structure, and Lifecycle Cost Analysis structural rehabilitation of this bridge, including the following scope is recommended within 1-5 years:

- Carry out detailed structural analysis for the southwest and southeast wingwalls. If the wall(s) are determined to be structurally adequate, they should be modified or replaced.
- Replace all barriers railings and guiderails. At this time, the end treatments should also be replaced if they have been determined to have sustained impact damage. This would provide the Town an opportunity to use SoftStop or other current standard end treatments.
- Carry out repairs to all spalling of the abutments, wingwall, soffit and fascia.
- Clean all staining from the concrete and steel bridge components and apply sealer.
- Replace railings and barrier/parapet walls as part of the bridge rehabilitation and widening.

Complete replacement of the bridge structure is not required at this time. The complete Visual Inspection report is provided in **Appendix 7**.

#### **2.7.4 Life Cycle Cost Analysis**

Following the findings of the structural reports described above, a Life Cycle Cost Analysis was completed for the structure to determine whether rehabilitation or replacement of the structure is preferred from a lifecycle cost perspective. General arrangement drawings were prepared for both the rehabilitation and replacement alternatives in support of the LCCA.

Based on the LCCA findings, the existing Coventry Bridge is recommended to be rehabilitated and widened. The complete Life Cycle Cost Analysis Technical Memorandum completed for the Coventry Bridge structure is provided in **Appendix 8**.

## **2.8 Geotechnical Investigation**

A preliminary geotechnical investigation was undertaken to explore and document the subsurface conditions in the study area. Findings of their report are included in this section. The complete Preliminary Geotechnical Investigation Report prepared is provided in **Appendix 9**.

A total of nine (9) boreholes were drilled at locations throughout the study area to depths ranging from 3.7 to 15.4 meters. A single borehole was drilled and outfitted with groundwater monitoring wells at key locations along the corridor, including in the vicinity of the tributary culvert, the cut slope, the embankment slope, and the Coventry Bridge structure, in addition to 4 boreholes drilled along the corridor in the roadway pavement.

### **2.8.1 Geo environmental**

Representative samples of the subsoils were recovered from the borings at selected depth intervals and underwent multiple testing. The soil samples were initially examined in the field, then transported to a laboratory for visual, tactile, and olfactory classifications, along with moisture content testing, and tests for metal and inorganic parameters and petroleum hydrocarbons (PHC) Fractions F1 to F4, including benzene, ethylbenzene, toluene and xylenes (BTEX) in accordance with O. Reg. 153/04. It should be recognized and expected that soil conditions will vary between and beyond borehole locations.

### **2.8.2 Pavement Conditions**

It is noted that the pavement was recently resurfaced on this roadway and in that regard, the existing roadway pavement is in excellent condition and did not exhibit any pavement distress manifestations at the time of the review. It is presumed that resurfacing was completed as a holding strategy until reconstruction could be carried out. Images of the roadway prior to resurfacing (Google Street View) indicates that the pavement was previously in fair to poor condition with extensive cracking, rutting, distortion and edge breaks.

### **2.8.3 Slope East of Forest Gate Avenue**

Steep slopes are present locally within the Cold Creek section, including an approximate 10 to 12 m high embankment exhibiting downslope movement of the guiderail approximately 0.7 km east of Mount Hope Road

The approximate 130 m long section of Columbia Way descending into the Cold Creek valley easterly from approximately 350 m east of Forest Gate Avenue appears to have been constructed by partial fill placement and earth cut along the side of a hill. An approximate 10 to 12 m high slope is present along the north (downhill) side of the road and an 8 to 10 m high cut slope is present on the south (uphill) side of the roadway. Downslope movement and tilting of the guiderail is evident along the crest of the north slope.

#### 2.8.4 Cut Slope west of Caledon-King Townline

Immediately west of Caledon King Townline, Columbia Way passes through an approximately 7 to 8 m high eroding cut section. The cut slope on the north side appears to be inclined near 2H:1V and is vegetated by grass. The cut slope on the south side is inclined at 1H:1V to near-vertical and comprises an active eroding slope face in the form of rills and gullies. No ditching is present along the roadsides, and eroded material washes onto the south side of the road. The areas at the top of both slopes appear well vegetated with mature trees, shrubbery and grasses.

### 2.9 Drainage and Stormwater Management

A Preliminary Drainage and Stormwater Management Report documenting existing drainage conditions within the study area for the purpose of developing a stormwater management strategy to address water quantity and quality-related stormwater runoff impacts associated with the proposed improvements was prepared by RVA's Stormwater Management and Hydraulic Analysis Team.

Under existing conditions, roadway drainage is conveyed via roadside grassed ditches throughout the study area. Key drainage features in the area include:

- 1.2-meter diameter Corrugated Steel Pipe (CSP) culvert west of the school;
- 2-meter diameter CSP culvert in area of TRCA trail;
- 450 mm diameter plastic culvert drains to a private pond in area of 9706 Columbia; and
- Cold Creek Crossing (Coventry Bridge).

It is noted that in May 2020, Town of Caledon staff upsized the culvert located in the area of 9706 Columbia Way from a 300 mm diameter plastic culvert to a 450 mm diameter plastic culvert, in response to flooding issues at adjacent properties.

The full report is provided in **Appendix 10**.

### 2.10 Illumination

An analysis of the existing illumination levels along the existing pedestrian amenities, intersections and where existing continuous roadway lighting exists was undertaken to develop recommendations for pedestrian and roadway illumination as part of the study. The complete Illumination Technical Memorandum prepared is provided in **Appendix 11**.

A total of 37 pedestrian level light fixtures are present along the existing intermittent gravel path and sidewalk along the south side of Columbia Way, with the spacing between existing pedestrian lights varying between 45 and 50 meters.

Under existing conditions, continuous roadway lighting exists on the north side of the road, between Regional Road 50 and Kingsview Drive only. East of Kingsview Drive to Caledon King Townline, roadway illumination is present only at intersections.



### 3.0 PROBLEM AND OPPORTUNITY STATEMENT

Per Phase 1 requirements of the Municipal Class Environmental Assessment process for a Schedule 'B' project, a "Problem and Opportunity Statement" was prepared to identify in detail the various problems and opportunities to be addressed throughout the study. In essence, the Problem Statement outlines the need and justification for the overall project and establishes the general parameters, or scope, of the study.

The Problem Statement was developed following the assessment of the existing conditions within the study area, as described in Section 2.0, along with having discussions with Town staff regarding municipal servicing and transportation infrastructure needs; and through consultation with the public and technical agencies undertaken throughout the study.

The Study Problem & Opportunity Statement developed for the project is comprised of the following key elements:

- Improve traffic conditions and roadway geometrics
- Address active transportation (walking, cycling) needs through improved safety and connectivity
- Identify roadway drainage and stormwater management improvements.
- Address slope stability and geotechnical requirements of the roadway
- Reconstruct the road to address the significantly deteriorated pavement structure

## 4.0 ALTERNATIVE SOLUTIONS

Under Phase 2 of the Class EA process, all reasonable solutions to the problem are identified and described, including the “Do Nothing” alternative. After general inventories of the technical, natural, social, cultural and economic environments are prepared and potential environmental impacts are determined for each alternative, the net positive and negative effects are identified, and the alternatives are evaluated resulting in a recommended solution. The recommended solution is then presented to the public, stakeholders and agencies to solicit input into the selection of the “preferred solution”.

### 4.1 Assessment Criteria and Evaluation Methodology

The Project Team considered criteria that represent the broad definition of the environment as described in the EA Act to comparatively evaluate the alternative solutions. The general evaluation criteria used in evaluating the alternative solutions and design concepts are outlined in the table below.

**Table 4.1 – Evaluation Criteria**

<b>CRITERIA</b>	<b>DESCRIPTION</b>
<b>Traffic Operations and Safety</b>	How will the alternative serve the existing and future vehicular, pedestrian and cycling traffic needs? Does the alternative adequately safely address the transportation requirement of the project?
<b>Socio-Economic Environment</b>	What impacts will the alternative have on the local community (e.g. compatibility with area land use, impacts on local businesses, property requirements, access restrictions, etc.)?
<b>Natural Environment</b>	How does the alternative affect existing vegetation, water quality, fisheries/wildlife and habitat? Does the alternative address climate change?
<b>Cultural Heritage</b>	Will the alternative affect archaeological, cultural heritage resources or Indigenous communities?
<b>Costs</b>	What is the capital cost of the alternative? What is the cost for utility relocations and property acquisitions? What are the operation and maintenance costs?

## 4.2 Evaluation Methodology and Ranking System

The project team comparatively ranked each alternative solution from least desirable to most desirable, for each of the criteria described in Section 4.1, to determine the preferred solution(s). Figure 4 demonstrates the rating scale used in the evaluation of alternative solutions described in this Section.

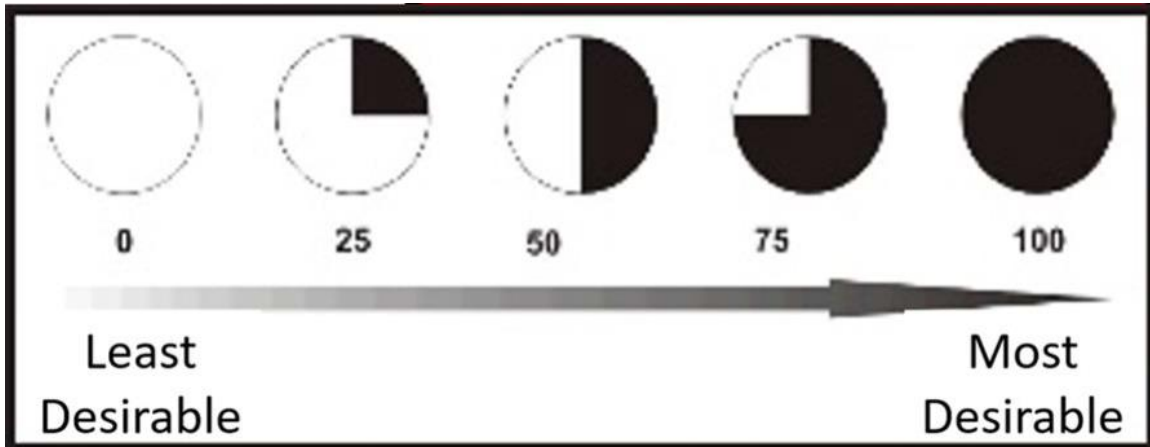


Figure 4 – Alternative Solutions Ranking System

## 4.3 Columbia Way Urban Section

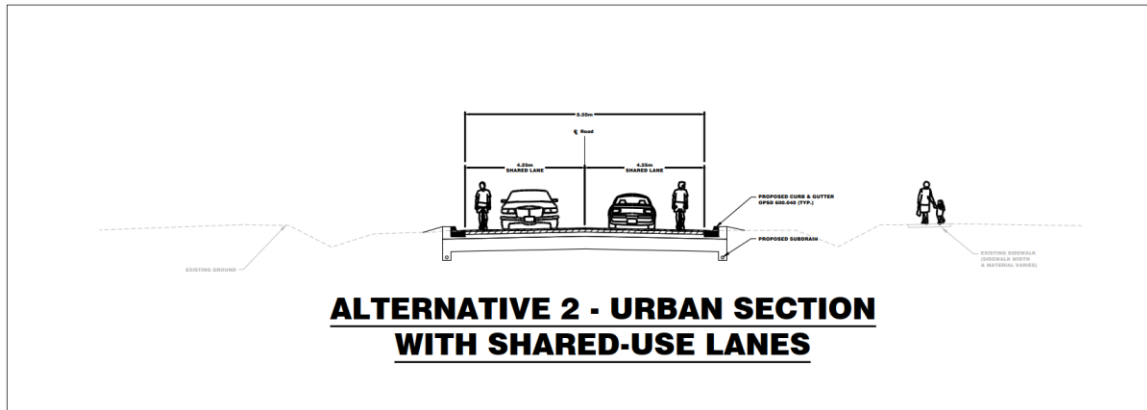
This section documents the options considered to address the identified roadway, safety and traffic operational requirements for the urban section of the Columbia Way corridor within the Study Area (from Highway 50 to approximately 225 meters east of Forest Gate Avenue).

### 4.3.1 Description of Alternative Solutions

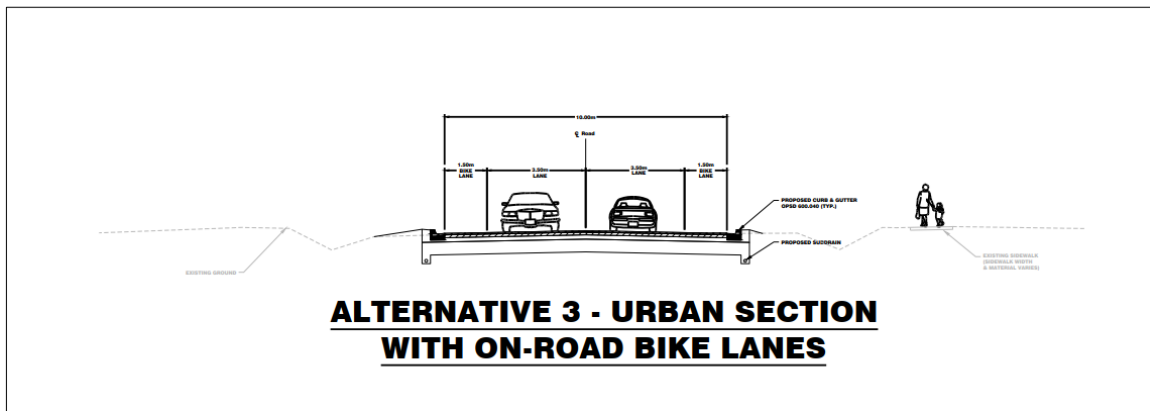
**Alternative 1 – Do Nothing:** The urban portion of the Columbia Way corridor would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

**Alternative 2 – Shared Lanes:** One lane of traffic in each direction (4.25 meters wide) with signage for vehicles and cyclists to share the roadway. The existing intermittent sidewalk and gravel trail along the south side of Columbia Way remains. Drainage improvements are addressed via curb and gutter, with curb

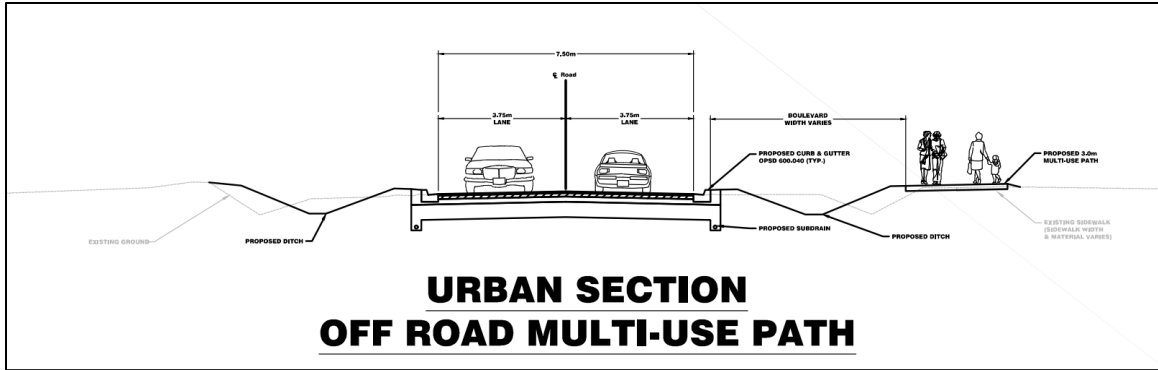
cutouts to grassed ditches, and no significant encroachment towards properties.



**Alternative 3 – On-Road Bike Lanes:** One lane of traffic in each direction (3.5 meters wide) and 1.5-meter-wide bicycle lanes are installed on both sides of the road. Cyclists are accommodated via bicycle lanes, but still share the roadway with vehicles as there is no physical barrier separating cyclists and vehicles. The existing intermittent sidewalk and gravel trail along the south side of Columbia Way remains. Drainage improvements are addressed via curb and gutter, with catch basins to grassed ditches, and no significant encroachment towards properties.



























**Alternative 4 – Off-Road Multi-Use Path:** One lane of traffic in each direction (3.75 meters wide) with a continuous 3-meter-wide off-road multi-use path installed on the south side of the road to accommodate pedestrians and cyclists, replacing the existing intermittent sidewalk and gravel trail in this area. The multi-use path creates a physical separation between pedestrians / cyclists. Drainage improvements are addressed via curb and gutter, with curb cutouts to grassed ditches, and no significant encroachment towards properties.



### 4.3.2 Evaluation

The table below summarizes the evaluation of alternative solutions for the urban portion of Columbia Way based on the criteria presented in Section 4.1, and the evaluation methodology described in Section 4.2.

Table 4.2– Columbia Way Urban Section Alternatives Evaluation

EVALUATION CRITERIA	1. Do Nothing		2. Shared-Use Lanes		3. On Road Bike Lanes		4. Off Road Multi-Use Path	
								
TRAFFIC OPERATIONS & SAFETY		Inconsistent active transportation facilities remain, no improvements to existing conditions. No bicycle facility.		Inconsistent active transportation facilities remain. Cyclists to share road with vehicles.		Inconsistent active transportation facilities remain. Cyclists to be accommodated with bike lane, but no physical separation with vehicles.		Consistent pedestrian and bicycle facility throughout urban portion. Continuous physical barrier separating cyclists and vehicles
SOCIAL ENVIRONMENT		No long-term benefits to local businesses, institutions etc. from increased pedestrian traffic.		No encroachment towards existing properties.		No encroachment towards existing properties.		No encroachment towards existing properties. Property required for daylighting at intersections only.
NATURAL ENVIRONMENT		No negative or positive impacts on the natural environment.		Potential water quality/quantity impacts from additional impervious surface to be mitigated. Loss of small amounts of roadside vegetation, possible impacts to street trees, impacts to rare species and habitat (Cup Plant)		Potential water quality/quantity impacts from additional impervious surface to be mitigated. Loss of small amounts of roadside vegetation, possible impacts to street trees, impacts to rare species and habitat (Cup Plant)		Potential water quality/quantity impacts from additional impervious surface to be mitigated. Loss of small amounts of roadside vegetation, possible impacts to street trees, impacts to rare species and habitat (Cup Plant)
HERITAGE / ARCHAEOLOGICAL / CULTURAL IMPACTS		No impact to archaeological or built heritage resources along the corridor		No impact to archaeological or built heritage resources along the corridor		No impact to archaeological or built heritage resources along the corridor		No impact to archaeological or built heritage resources along the corridor
COST		No capital cost but ongoing costs to maintain infrastructure		Moderate cost to implement. In line with Town's budget.		Moderate cost to implement. In line with Town's budget.		Moderate cost to implement. In line with Town's budget.
OVERALL SCORE	14.0		14.0		16.0		17.0	
EVALUATION SUMMARY	Not Recommended		Not Recommended		Not Recommended		Recommended to be Carried Forward	

4.3.3 Columbia Way Urban Section Preferred Alternative(s)

The preferred solution is to install a continuous off-road multi-use path along the south side of the road (Alternative 4). This solution addresses identified infrastructure requirements as well as operational & safety requirements of road users, creating a physical separation between pedestrians / cyclists and vehicles.

## 4.4 Columbia Way Rural Section

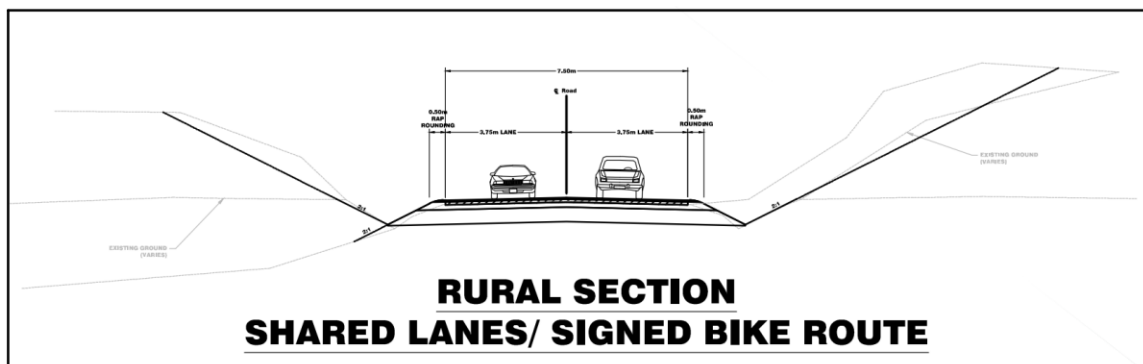
This section documents the options considered to address the identified roadway, safety and traffic operational requirements for the rural section of the Columbia Way corridor within the Study Area (from 225 meters east of Forest Gate Avenue to Caledon King Townline).

### 4.4.1 Description of Alternative Solutions

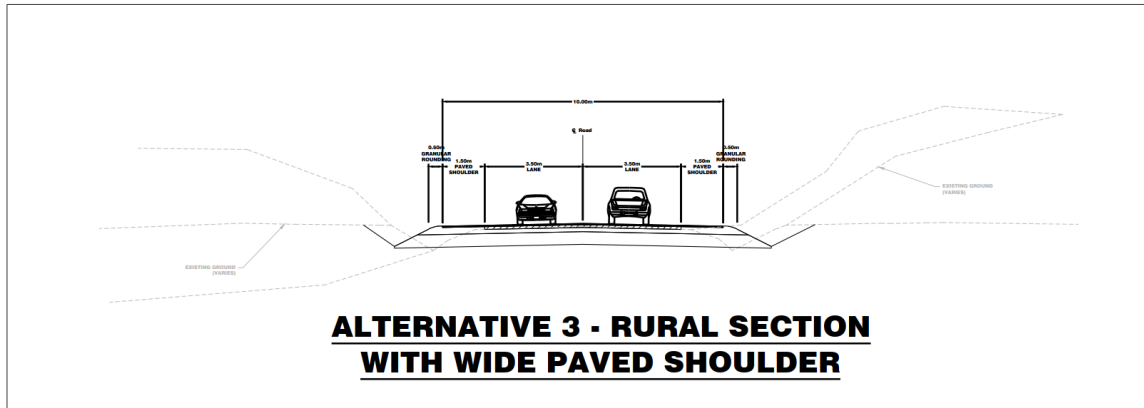
The alternative solutions considered to address the identified deficiencies along the rural portion of Columbia Way (from meters east of Forest Gate Avenue to Caledon King Townline) are described below.

**Alternative 1 – Do Nothing:** The rural portion of the Columbia Way corridor would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

**Alternative 2 – Shared Lanes / Signed Bike Route:** One lane of traffic in each direction (3.75 meters wide) with signage for vehicles and cyclists to share the roadway (single file). Pedestrians are not accommodated along this section of the road. Drainage improvements are addressed via existing grass ditches with no significant encroachment towards properties.



**Alternative 3 – Paved Shoulders:** One lane of traffic in each direction (3.5 meters) and 1.5-meter paved shoulders are installed on both sides of the road. Cyclists and pedestrians are accommodated via the new paved shoulders, but still share the roadway with vehicles as there is no physical barrier separating cyclists and vehicles. Drainage improvements are addressed new grassed ditches, and there is moderate encroachment towards properties associated with the new paved shoulders.



#### 4.4.2 Evaluation

The table below summarizes the evaluation of alternative solutions for the rural portion of Columbia Way based on the criteria presented in Section 4.1, and the evaluation methodology described in Section 4.2.



Table 4-3– Columbia Way Rural Section Alternatives Evaluation

EVALUATION CRITERIA	1. Do Nothing		2. Shared-Use Lanes		3. Paved Shoulders	
<b>TRAFFIC OPERATIONS &amp; SAFETY</b>		Does not address operational & safety requirements of road users. No pedestrian or bicycle facilities.		Cyclists to shared road with vehicles. No designated pedestrian facility. Compatible with AT Master Plan Recommendations.		Cyclists and pedestrians accommodated via paved shoulder adjacent to vehicle lanes. No physical separation from vehicles. Exceeds AT Master Plan Recommendations..
<b>SOCIAL ENVIRONMENT</b>		No encroachment towards existing properties. Cross-section consistent with rural improvements.		No encroachment towards existing properties. Cross-section consistent with rural improvements.		Major encroachment towards existing properties. Cross-section consistent with rural improvements.
<b>NATURAL ENVIRONMENT</b>		No negative or positive impacts on the natural environment.		No additional impacts to TRCA regulated features.		Potential water quality/quantity impacts from additional impervious surface to be mitigated. Anticipated removal of several mature trees and moderate encroachment into TRCA Lands.
<b>HERITAGE / ARCHAEOLOGICAL / CULTURAL IMPACTS</b>		No impact to archaeological or built heritage resources along the corridor		No impact to archaeological or built heritage resources along the corridor		Encroachment towards built heritage resources along the corridor, and
<b>COST</b>		No capital cost but ongoing costs to maintain infrastructure		Moderate cost to implement. In line with Town's budget.		Major cost to implement associated with property requirements and major grading.
<b>OVERALL SCORE</b>	13.0		14.0		8.0	
<b>EVALUATION SUMMARY</b>	Not Recommended		Recommended to be Carried Forward		Not Recommended	

4.4.3 Preferred Alternative(s)

The preferred solution is construct shared-use lanes with signage for vehicles to share the road (Alternative 2). This solution is compatible with previous study recommendations, the rural character of the roadway, and minimizes impacts to adjacent properties. Note that following consultation with the public at the PIC, it was determined that paved shoulder on the south side of the road only, is recommended in the rural portion of the roadway from Forest Gate Avenue to the Coventry Bridge structure.

## 4.5 Mount Hope Road Intersection

This section documents the options considered to address the identified roadway, safety and traffic operational requirements for the Mount Hope Road Intersection.

### 4.5.1 Description of Alternative Solutions

The alternative solutions considered for the Mount Hope Intersection are described below.

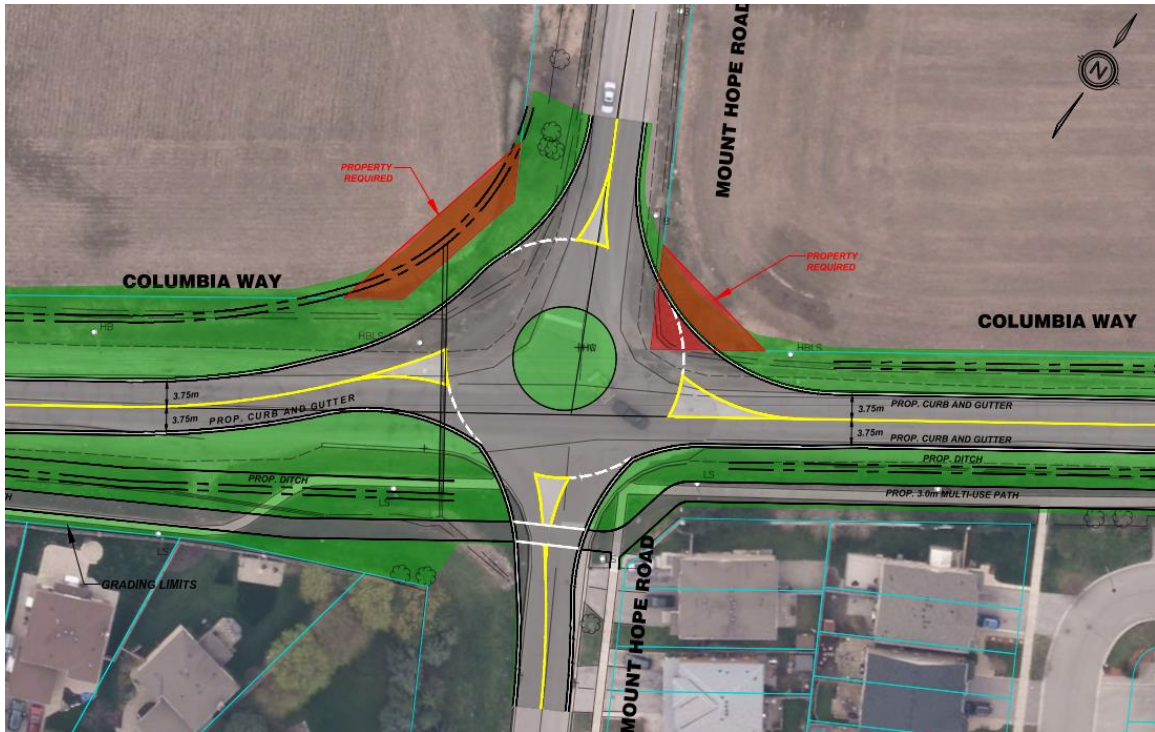
**Alternative 1 – Do Nothing:** The Mount Hope Road at Columbia Way intersection would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

**Alternative 2 – 4-way Stop Intersection:** Columbia Way would be reconstructed with new stop controls for vehicles travelling east / west, in addition to the existing stop controls for vehicles travelling north / south along Mount Hope Road, to create a 4-way stop controlled intersection. This solution addresses would not require property and would provide cyclist crossing along the multi-use trail on the south leg but would provide minimal traffic calming benefits, create potential for low compliance to stop signs and create additional noise and air pollution from increased starts/stops and vehicle idling.



**Alternative 3 – Roundabout Intersection:** Mount Hope Road and Columbia Way would be reconstructed to create a roundabout intersection. This solution
















addresses the traffic and safety requirements of the roadway, provides designated pedestrian and cyclist crossing along the multi-use trail on the south leg, effectively calms traffic speed with no enforcement required, and serves as a gateway into the urban community to the west, but would impact property on the northeast and northwest legs of the intersection (red area shown below).



#### 4.5.2 Evaluation

The table below summarizes the evaluation of alternative solutions for the Mount Hope Road Intersection based on the criteria presented in Section 4.1, and the evaluation methodology described in Section 4.2.

**Table 4-4– Mount Hope Road Intersection Alternatives Evaluation**

EVALUATION CRITERIA	1. Do Nothing		2. All Way Stop		3. Roundabout	
		No change to existing operations. No traffic calming benefits.		Potential safety improvement with some degree of traffic calming, with disruption to traffic flow (and increased delay) on Columbia Way.		Safety improvement as a traffic calming measure, with minimal disruption to traffic flow on Columbia Way and little increase in delays.
TRAFFIC OPERATIONS & SAFETY		Does not require preoperty to implement. No introduction to urban community to the west.		Does not require preoperty to implement. No introduction to urban community to the west.		Minor property impacts to the northeast and southeast corners of the itneresction. Creates gateway feature to urban community to the west.
SOCIAL ENVIRONMENT		No negative or positive impacts on the natural environment		No negative or positive impacts on the natural habitat however increased air and noise pollution from additional stopping vehicles.		Minimal potential water quality/quantity impacts from additional impervious surface mitigated by SWM controls, reduction in vehicle idling.
NATURAL ENVIRONMENT		No impact to archaeological or built heritage resources along the corridor		No impact to archaeological or built heritage resources along the corridor		No impact to archaeological or built heritage resources along the corridor
HERITAGE / ARCHAEOLOGICAL / CULTURAL IMPACTS		No capital cost to implement		Low cost to implement		Moderate cost to implement
COST	16.0		16.0		18.0	
OVERALL SCORE	Not Recommended		Not Recommended		Recommended to be Carried Forward	
EVALUATION SUMMARY	Not Recommended		Not Recommended		Recommended to be Carried Forward	

**4.5.3 Mount Hope Road Intersection Preferred Alternative(s)**

The preferred solution selected for the Mount Hope Road at Columbia Way Intersection is to reconstruct Columbia Way to tie into Mount Hope Road at a roundabout intersection (Alternative 3). This solution addresses the identified traffic operational and safety requirements, will act as an effective traffic calming feature with no enforcement required, and serves as a gateway into the urban community west of Mount Hope Road.

## 4.6 School Access

This section documents the options considered to address the identified roadway, safety and traffic operational requirements for the school access.

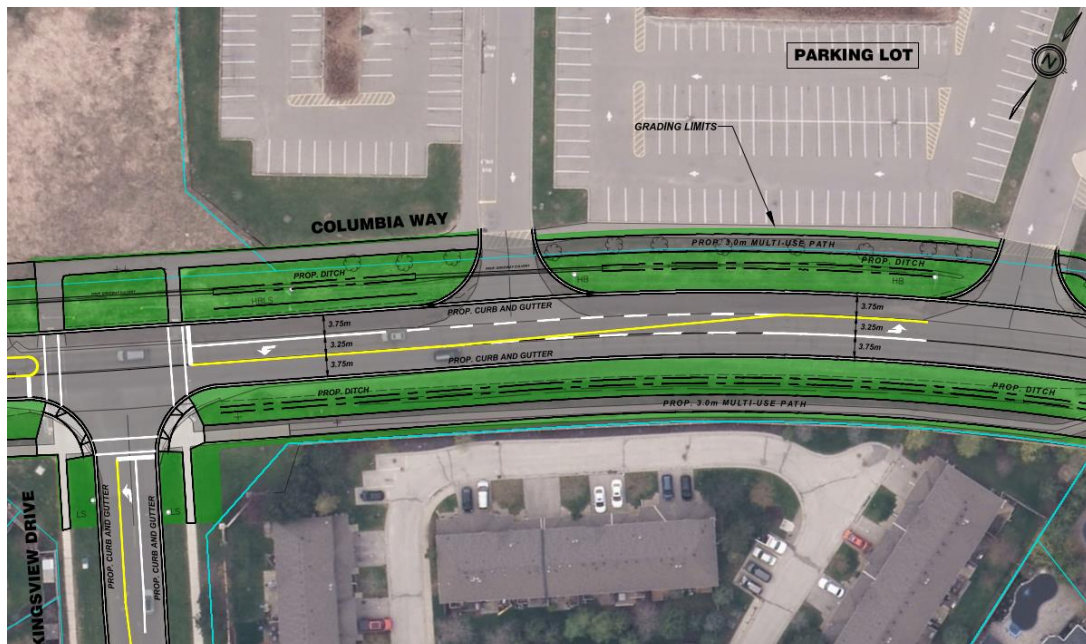
### 4.6.1 Description of Alternative Solutions

The alternative solutions considered for the school access are described below.

**Alternative 1 – Do Nothing:** The vehicle access from Columbia Way to St. Michael Catholic Secondary School would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

**Alternative 2 – New Left Turn Lane into School:** A new left turn lane is provided at the school's primary inbound access (centre driveway) to alleviate congestion during peak school periods. The new left-turn lane would alleviate some of the noted congestion during peak school periods, by separating eastbound vehicles turning left into the school from Columbia Way from eastbound through traffic on Columbia Way.

This alternative would not restrict any future potential extension of Kingsview Drive, if required due to future commercial development at 14245 Highway 50 (timing of extension and access dependent on timing of development).



**Alternative 3 – New Access to School via Future Kingsview Extension:** A new access to the school would be provided via an extension of Kingsview Drive north of Columbia Way. The extension of Kingsview Drive north of Columbia Way would be constructed to serve future developments at 14245 Highway 50 (Bolton North Hill Commercial Area), which would then provide opportunities to improve operations on Columbia Way through providing school access via the new extension. A connection from the Kingsview Drive extension to the school property would allow school bound traffic to be removed from Columbia Way, however it would require significant property.



#### 4.6.2 Evaluation

The table below summarizes the evaluation of alternative solutions for the school access based on the criteria presented in Section 4.1, and the evaluation methodology described in Section 4.2.

Table 4-5– School Access Alternatives Evaluation

EVALUATION CRITERIA	1. Do Nothing		2. Left Turn Lane		3. New Access via Kingsview Extension	
TRAFFIC OPERATIONS & SAFETY	○	Does not address operational / safety requirements. Congestion on Columbia Way during peak school periods continues.	◐	Partially addresses traffic operational/safety requirements. Alleviates some of the noted congestion on Columbia Way during peak school periods.	◑	Addresses traffic operational/safety requirements and alleviates majority of the noted congestion on Columbia Way during peak school periods by removing school bound traffic from Columbia Way.
SOCIAL ENVIRONMENT	◑	No property required however vehicles continue to utilize shoulder to avoid congestion.	●	Compatible with current adjacent land uses, with widening within existing ROW.	○	Not compatible with current adjacent land uses with major property impacts.
NATURAL ENVIRONMENT	●	No impacts to natural environment.	◐	Minor loss of roadside vegetation, possible impacts to rare species and habitat (Cup Plant)	◐	Loss of roadside vegetation and cultural meadow community, impacts to rare species and habitat (Cup Plant)
HERITAGE / ARCHAEOLOGICAL / CULTURAL IMPACTS	●	No impact to archaeological or built heritage resources along the corridor	●	No impact to archaeological or built heritage resources along the corridor	◑	No impact to built heritage resources. Small area required for Stage 2 AA Evaluation.
COST	●	No capital cost	●	Low cost to implement. No property required.	◑	High cost to implement. Significant property required.
OVERALL SCORE	15.0		17.0		9.0	
EVALUATION SUMMARY	Not Recommended		Recommended to be Carried Forward		Not Recommended	

4.6.3 School Access Preferred Alternative(s)

The preferred solution selected for the school access is to provide a new left turn lane for eastbound vehicles at the school’s primary inbound access (Alternative 2). This solution partially addresses the identified congestion during peak school hours, will remove vehicles accessing the school from blocking the eastbound traffic along Columbia Way, and is compatible with the current land uses at 14245 Highway 50, with no property impacts.

## 4.7 School Pedestrian Crossing

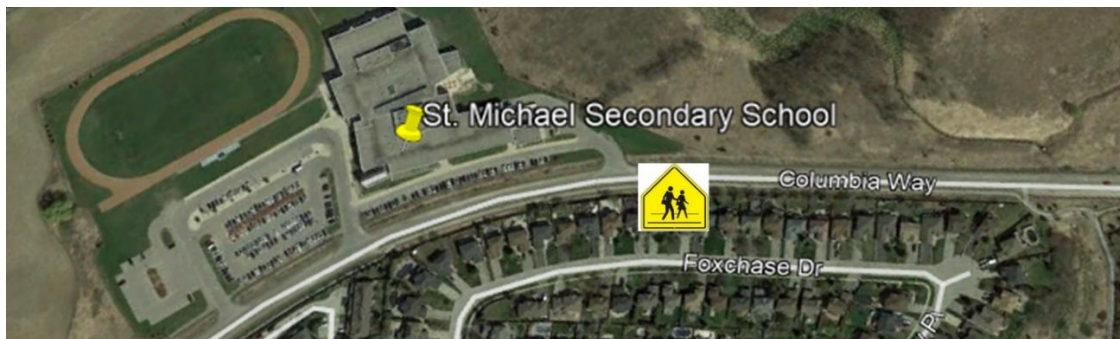
This section documents the options considered to address the identified roadway, safety and traffic operational requirements for the school pedestrian crossing.

### 4.7.1 Description of Alternative Solutions

The alternative solutions considered for the school pedestrian crossing are described below.

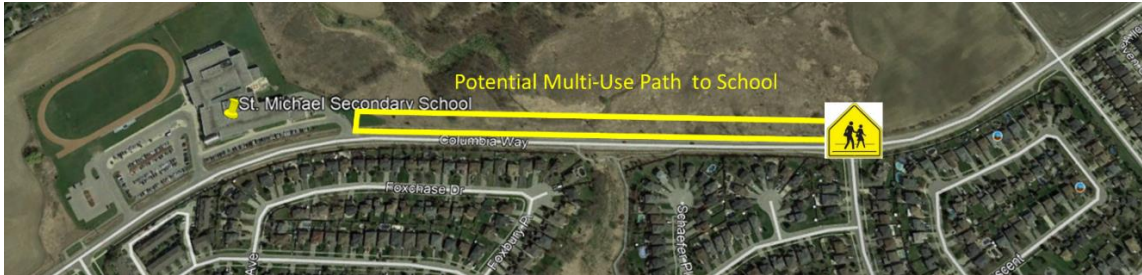
**Alternative 1 – Do Nothing:** The pedestrian crossing facilities along the Columbia Way corridor would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

**Alternative 2 – New Crossing at School Driveway:** A new signalized pedestrian crossing is introduced at the easternmost school driveway. The introduction of a signalized crossing at this location would induce significant additional traffic congestion and disruption to traffic flow in the immediate vicinity of the school. Additionally, installing a new crosswalk at this curve in road would create sightline concerns between crossing pedestrians and vehicles. This crosswalk location provides the closest distance to the school, and is predicted to have a moderate level of use by students.



**Alternative 3 – New Crossing at Westchester Intersection:** The unsignalized 1-way stop t-intersection of Westchester Boulevard at Columbia Way is signalized and a new pedestrian crosswalk is introduced at the intersection. The multi-use path required to connect to the school will impact vegetation including TRCA lands and previously undisturbed areas requiring archaeological investigation. Several students will continue to jaywalk due to distance from school.





**Alternative 4 – New Crossing at Trailhead:** A new signalized pedestrian crossing is introduced at the trailhead approximately 280 meters west of Westchester Boulevard. Students are required to travel along a newly constructed multi-use path along the north side of the roadway to the school property. This crossing location would be effective in reducing the prevalence of student jaywalking, while maintaining an acceptable level of safety along the corridor, and not induce additional traffic congestion or disruption to traffic flow in the vicinity of the school.



**4.7.2 Evaluation**

The table below summarizes the evaluation of alternative solutions for the school pedestrian crossing based on the criteria presented in Section 4.1, and the evaluation methodology described in Section 4.2.

**Table 4-6– School Pedestrian Crossing Alternatives Evaluation**

EVALUATION CRITERIA	1. Do Nothing		2. New Crosswalk at School Driveway		3. New Crosswalk at Westchester Intersection		4. New Crosswalk at Trailhead	
TRAFFIC OPERATIONS & SAFETY	○	No improvements to operations and safety	◐	Crosswalk located at curve in road with sightline concerns, and significantly increased traffic congestion in area of school. Provides closest distance to school and moderate level of use of the crosswalk by students.	◐	Minor improvement to safety with an additional pedestrian conflict point at Westchester intersection introduced. Several students will continue to jaywalk due to distance from school.	●	Noticeable improvement to safety with majority of jaywalking addressed, no sightline concerns, and no additional traffic congestion in vicinity of school.
SOCIAL ENVIRONMENT	◐	No construction impacts to adjacent property but students continue to utilize adjacent properties.	◐	Moderate impacts to adjacent property.	●	No impacts to adjacent property.	◐	Minor impacts to adjacent property.
NATURAL ENVIRONMENT	●	No impacts to natural environment.	◐	Minor impacts to undisturbed area including TRCA Lands	○	Major impacts to undisturbed area including TRCA Lands	◐	Moderate impacts to undisturbed area including TRCA Lands to be mitigated.
HERITAGE / ARCHAEOLOGICAL / CULTURAL IMPACTS	●	No impact to archaeological or built heritage resources along the corridor	◐	No impact to archaeological or built heritage resources along the corridor	◐	No impact to built heritage resources. Large area required for Stage 2 AA Evaluation.	◐	No impact to built heritage resources. Small area required for Stage 2 AA Evaluation.
COST	◐	Increased costs by delaying construction of signal to after reconstruction	◐	Moderate construction and maintenance costs	◐	Largest construction and maintenance cost	◐	Moderate construction and maintenance costs
OVERALL SCORE	12.0		13.0		9.0		14.0	
EVALUATION SUMMARY	Not Recommended		Not Recommended		Not Recommended		Recommended to be Carried Forward	

**4.7.3 School Pedestrian Crossing Preferred Alternative(s)**

The preferred solution is to introduce a new signalized pedestrian crossing at the trailhead approximately 280 meters west of Westchester Boulevard (Alternative 4). This solution addresses the identified jaywalking safety issue, capturing students who utilize the trail as well as the neighbourhoods east of the trail to travel to and from school, is located on a straight, level section of Columbia Way, with no sightline concerns, results in no additional traffic congestion or disruption to traffic flow in the immediate vicinity of the school, and requires a feasible length of MUP construction (approximately 300 metres).

## 4.8 S-Curve Alignment

This section documents the options considered to address the identified roadway, safety and traffic operational requirements for the S-Curve road alignment.

### 4.8.1 Description of Alternative Solutions

The alternative solutions considered for the S-Curve road alignment are described below.

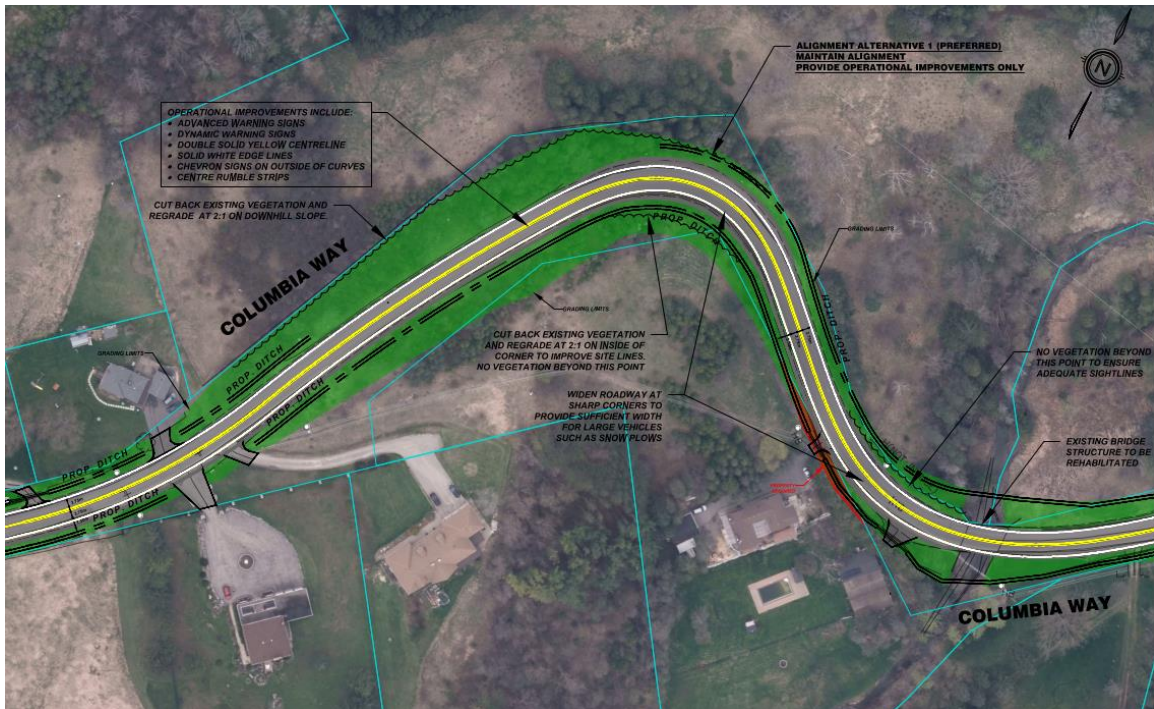
**Alternative 1 – Do Nothing:** The s-curve road alignment would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

**Alternative 2 – Eliminate Curve:** Columbia Way is realigned to eliminate the s-curve. Safety concerns related to vehicles, pedestrians and cyclists navigating the curve are fully addressed, however vehicle speeds are likely to increase. Additionally, significant property impacts are required to accommodate the new roadway alignment, and significant environmental impacts are expected within the Cold Creek valley.



**Alternative 3 – Maintain Curve with Operational Improvements:** The alignment of Columbia Way through the s-curve is maintained, with operational improvements. The natural traffic calming barrier of the s-curve remains fully intact,

and concerns regarding vehicle and pedestrian/cyclists safety are mitigated through improvements including cutting back existing vegetation and regrading the steep slopes on the inside of the curve corners item lines, improved signage and pavement marking, and providing a 1.5 meter wide paved shoulder to accommodate pedestrians. Minor property and environmental impacts required to accommodate the operational improvements can be mitigated.























**Alternative 4 – Modify Curve:** Columbia Way is slightly realigned to reduce the angle of the s-curve. The natural traffic calming barrier of the s-curve partially remains, and concerns regarding vehicle and pedestrian/cyclist’s safety are partially addressed. Moderate property impacts are required to accommodate the new roadway alignment, and moderate environmental impacts are expected within the Cold Creek valley.



#### 4.8.2 Evaluation

The table below summarizes the evaluation of alternative solutions for the s-curve road alignment based on the criteria presented in Section 4.1, and the evaluation methodology described in Section 4.2.

**Table 4.7– S-Curve Alignment Alternatives Evaluation**

EVALUATION CRITERIA	1. Do Nothing		2. Eliminate Curve		3. Maintain Curve with Operational Improvements		4. Modify Curve	
	<b>TECHNICAL</b>	 Natural Traffic Calming barrier remains intact however concerns regarding vehicle and pedestrian/cyclists safety are not addressed.	 Safety concerns related to vehicles, pedestrians and cyclists navigating curve addressed however vehicle speeds likely to increase.	 Natural Traffic Calming barrier remains intact and concerns regarding vehicle and pedestrian/cyclists safety are mitigated.	 Natural Traffic Calming barrier partially remains and concerns regarding vehicle and pedestrian/cyclists safety are partially addressed.			
<b>SOCIAL ENVIRONMENT</b>	 No property requirements.	 Major property requirements, and major encroachment towards existing properties	 No direct property requirements, but some encroachment towards existing properties. Compatible with planned road use.	 Moderate property requirements, and some encroachment towards existing properties. Somewhat compatible with planned road use				
<b>NATURAL ENVIRONMENT</b>	 No additional impacts	 Impacts to Butternut and cultural vegetation, possible impacts to sensitive (cold water) watercourse, work in area regulated by TRCA	 Potential impacts to Butternut and sensitive (cold water) watercourse. Some impacts to cultural vegetation.	 Impacts to Butternut and cultural vegetation, possible impacts to sensitive (cold water) watercourse, work in area regulated by TRCA				
<b>HERITAGE / ARCHAEOLOGICAL / CULTURAL IMPACTS</b>	 No impact to archaeological or built heritage resources along the corridor	 Stage I AA required to confirm Presence of archaeological resources. No impact built heritage resources along the corridor	 No impact to archaeological or built heritage resources along the corridor	 No impact to archaeological or built heritage resources along the corridor				
<b>COST</b>	 Costs of improvements delayed to a later date.	 Significant construction, utility relocations, and property acquisition costs.	 Moderate cost to implement. In line with Town's budget.	 Moderate construction, utility relocations, and property acquisition costs.				
<b>OVERALL SCORE</b>	<b>10.0</b>	<b>5.0</b>	<b>12.0</b>	<b>9.0</b>				
<b>EVALUATION SUMMARY</b>	<b>Not Recommended</b>	<b>Not Recommended</b>	<b>Recommended to be Carried Forward</b>	<b>Not Recommended</b>				

**4.8.3 S-Curve Alignment Preferred Alternative(s)**

The preferred solution is to maintain the general alignment of Columbia Way through the s-curve, with operational Improvements (Alternative 3). This solution mitigates the identified safety concerns, maintains the natural traffic calming barrier, and minimizes impacts to adjacent properties at the Cold Creek valley.

## 5.0 DESCRIPTION OF THE RECOMMENDED SOLUTION(S)

The preliminary preferred solutions were presented to review agencies and the public at a Public Information Centre in order to obtain comment and input prior to confirmation and/or revision of the preferred solution(s). Further details of the consultation completed regarding the preliminary preferred solution, and revisions to the recommended solutions based on these consultations, are described in Section 7.0.

The finalized recommended solution roll plans are provided in **Appendix 12**. Key elements of the preferred solution(s) developed for Columbia Way are described below.

### 5.1 Roadway and Active Transportation Design

#### 5.1.1 Columbia Way Urban Portion (Highway 50 to Kingsview Drive & New Pedestrian Crosswalk to Forest Gate Avenue)

The preferred solution for the reconstruction of Columbia Way from Highway 50 to Kingsview Drive, as well as from the New Pedestrian Crosswalk to Forest Gate Avenue, is to install an off-road multi-use path on the south side of the road, with an urbanized cross section (curb and gutter), and roadside ditches. The typical cross-section for this section of Columbia Way is shown in Figure 5.1

The cross section of the new roadway will be comprised of two vehicle lanes (3.75m wide), barrier curb and gutter, roadside ditches on both sides of the road, and a 3.0m wide multi-use path on the south side of the road. The 3.0-meter-wide multi-use path on the south side of the road will support pedestrian and cyclist use and can accommodate accessible modes of transport, in accordance with AODA standards.

This cross-section provides sufficient vehicle lane width to accommodate vehicles on the roadway and creates safe separation between the pedestrian and cyclist facilities and the roadway.

It is noted that pending future development of 14245 Highway 50 (Bolton North Hill Commercial Area), multi-use path is recommended to be constructed on the north side Columbia Way between Highway 50 and St. Michael Catholic Secondary School. This MUP would connect the proposed MUP on Highway 50 to the west, to the future development of this parcel, as well as the recommended MUP on the north side of the Columbia Way.

As the multi-use path is dependant of any potential future development of 14245 Highway 50, which is not yet approved, construction of the multi-use path on the north side of Columbia Way between Highway 50 and St. Michael Catholic Secondary School is not recommended at this time. It is recommended that the impacts of including multi-use path from Highway 50 to Kingsview Drive on the north side of the road, including potential drainage, natural environmental, and property impacts, are considered at the time of proposed development.

### **5.1.2 Columbia Way Urban Portion (Kingsview Drive to New Pedestrian Crosswalk)**

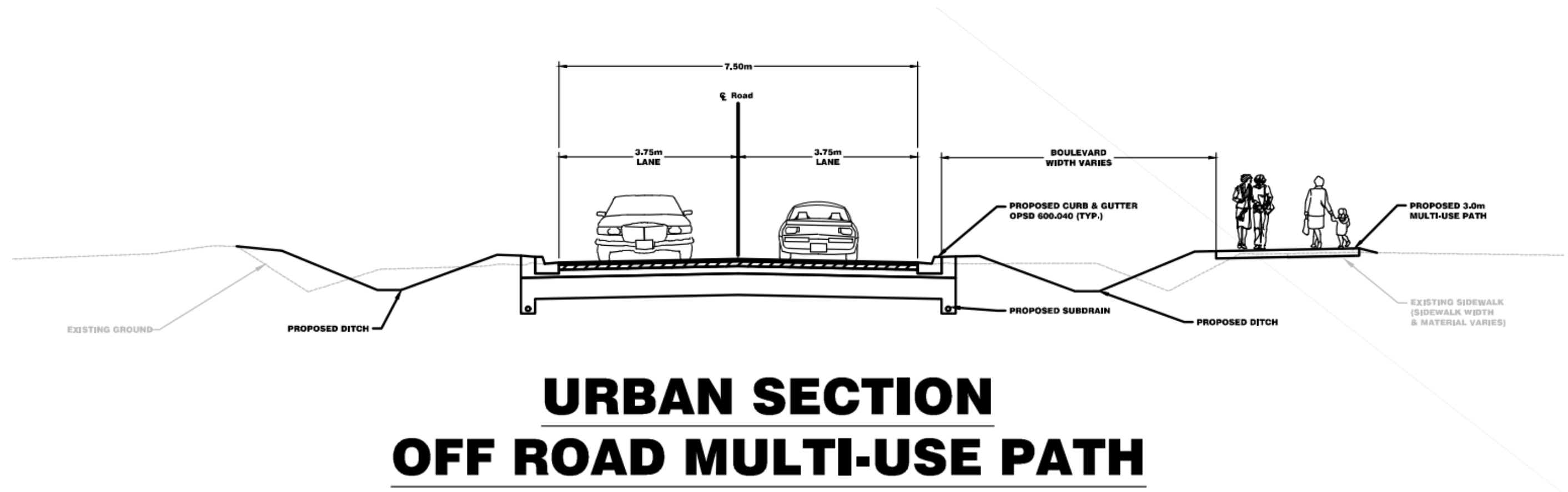
The preferred solution for the reconstruction of Columbia Way from Kingsview Drive to the New Pedestrian Crosswalk is to install an off-road multi-use path on both sides of the road, with an urbanized cross section (curb and gutter), and roadside ditches. The typical cross-section for this section of Columbia Way is shown in Figure 5.2.

The cross section of the new roadway will be comprised of two vehicle lanes (3.75m wide), barrier curb and gutter, roadside ditches, and a 3.0m wide multi-use path on both sides of the road. The 3.0-meter-wide multi-use paths on either side of the road will support pedestrian and cyclist use and can accommodate accessible modes of transport, in accordance with AODA standards.

This cross-section provides sufficient vehicle lane width to accommodate vehicles on the roadway and creates separation between the pedestrian and cyclist facilities and the roadway. Additionally, the provision of a multi-use path on the north side of the road in this area will allow students crossing the roadway at either of the pedestrian crosswalks along Columbia Way to travel directly to the school property via a separated multi-use path.

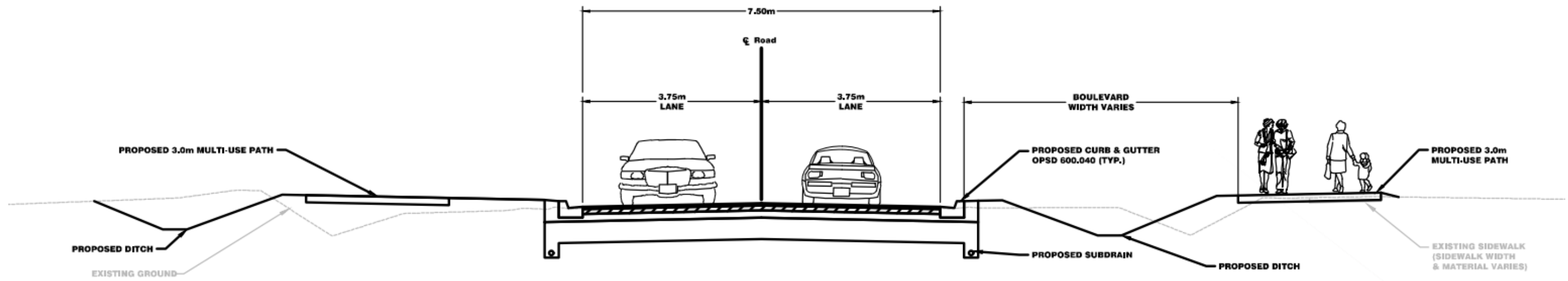
At the east end of this segment of Columbia Way, east of Forest Gate Avenue, the roadway is recommended to transition to a rural cross section as described in Section 5.1.3.





## **URBAN SECTION** **OFF ROAD MULTI-USE PATH**

Figure 5.1 – Columbia Way Urban Section Preferred Solution (Highway 50 to Kingsview Drive & New Pedestrian Crosswalk to Forest Gate Avenue)



## **URBAN SECTION**

# **OFF ROAD MULTI-USE PATH (BOTH SIDES)**

Figure 5.2 – Columbia Way Urban Section Preferred Solution (Kingsview Drive to New Pedestrian Crosswalk)

### **5.1.3 Columbia Way Rural Section (Forest Gate Avenue to Coventry Bridge Structure)**

The preferred solution for the reconstruction of Columbia Way from east of Forest Gate Avenue to the Coventry Bridge Structure is to maintain the rural cross section and roadside ditches, with a new paved shoulder on the south side of the road only. The typical cross-section for this section of Columbia Way is shown in Figure 5.3.

The cross section of the new roadway will be comprised of two vehicle lanes (3.75m wide) with signage for vehicles and cyclists to share the roadway, roadside ditches, and a 1.5m wide paved shoulder on the south side of the road only. The 1.5m wide paved shoulder on the south side of the road will support pedestrian use through the s-curve, and can accommodate accessible modes of transport, in accordance with AODA standards.

This cross-section provides sufficient vehicle lane width to accommodate vehicles on the roadway and maintains the existing rural cross section, compatible with adjacent land uses. Additionally, the provision of a paved shoulder on the south side of the road in this area will accommodate residents travelling throughout the rural portion of Columbia Way through the s-curve, as requested by several residents. However, pedestrians and cyclists will still share the roadway with vehicles as there is no physical barrier provided.

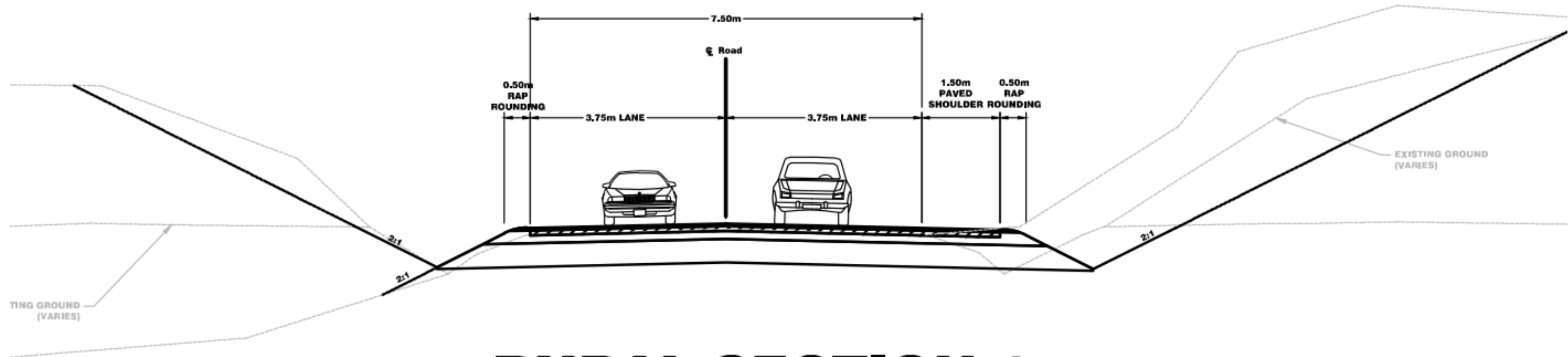
### **5.1.4 Columbia Way Rural Section (Coventry Bridge Structure to Caledon King Townline)**

The preferred solution for the reconstruction of Columbia Way from prior to the Coventry Bridge Structure to Caledon King Townline, is to maintain the rural cross section with roadside ditches. The typical cross-section for this section of Columbia Way is shown in Figure 5.4.

The cross section of the new roadway will be comprised of two vehicle lanes (3.75m wide), with signage for vehicles and cyclists to share the roadway (single file), and roadside ditches. This cross-section provides sufficient vehicle lane width to accommodate vehicles on the roadway and maintains the existing rural cross section, compatible with adjacent land uses.

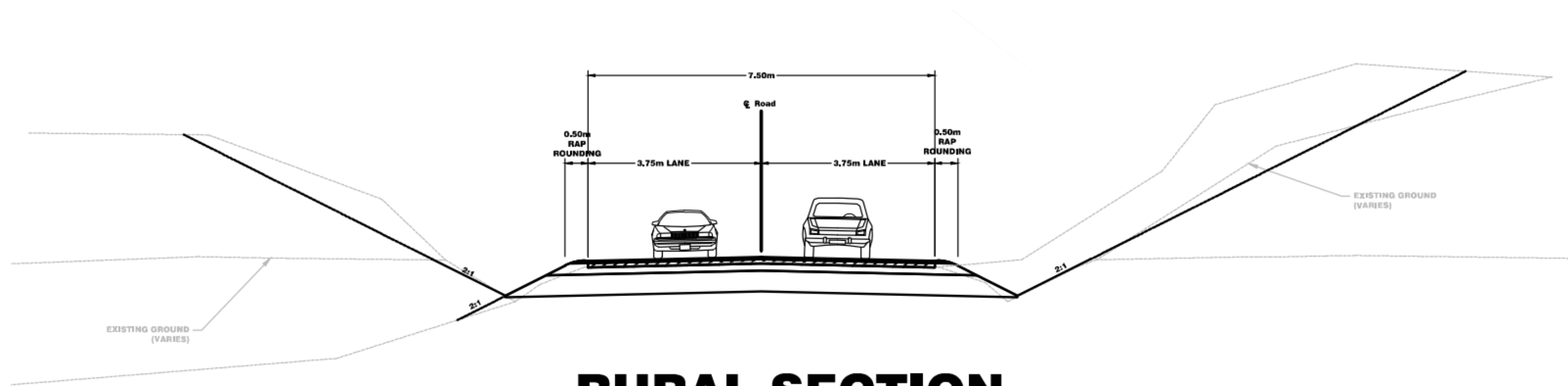
In order to widen the roadway to accommodate a paved shoulder on the north side of Columbia Way through the s-bend, the additional area impacted would be approximately an additional 260m<sup>2</sup>, requiring additional tree clearing for the vast

majority of this area, which is located almost entirely on lands under the jurisdiction of the TRCA. Furthermore, this would require an additional widening of the bridge structure, and associated impacts to the Cold Creek valley and watercourse, and additional bridge rehabilitation costs.



# **RURAL SECTION 1** **SIGNED BIKE ROUTE/ PAVED SHOULDER**

Figure 5.3 – Columbia Way Rural Section Preferred Solution (Forest Gate Avenue to Coventry Bridge)



## **RURAL SECTION** **SHARED LANES/ SIGNED BIKE ROUTE**

Figure 5.4 – Columbia Way Rural Section Preferred Solution (Coventry Bridge to Caledon King Townline)

### **5.1.5 Mount Hope Road Intersection**

The preferred solution for the Mount Hope Road & Columbia Way intersection is to introduce a new roundabout intersection as shown in Figure 5.5.

The proposed roundabout intersection configuration would operate acceptably from a traffic operations perspective, with minimal disruption to traffic flow on Columbia Way and little increase in delays. Furthermore, the roundabout would act as a form of traffic calming for the corridor, requiring approaching traffic to reduce speeds, reducing speeds both approaching the pedestrian crossing and school area to the west of the intersection, and the S-curve to the east of the intersection.

The roundabout intersection would also provide designated pedestrian and cycling crossing facilities for the off-road multi-use path recommended along the south side of the roadway.

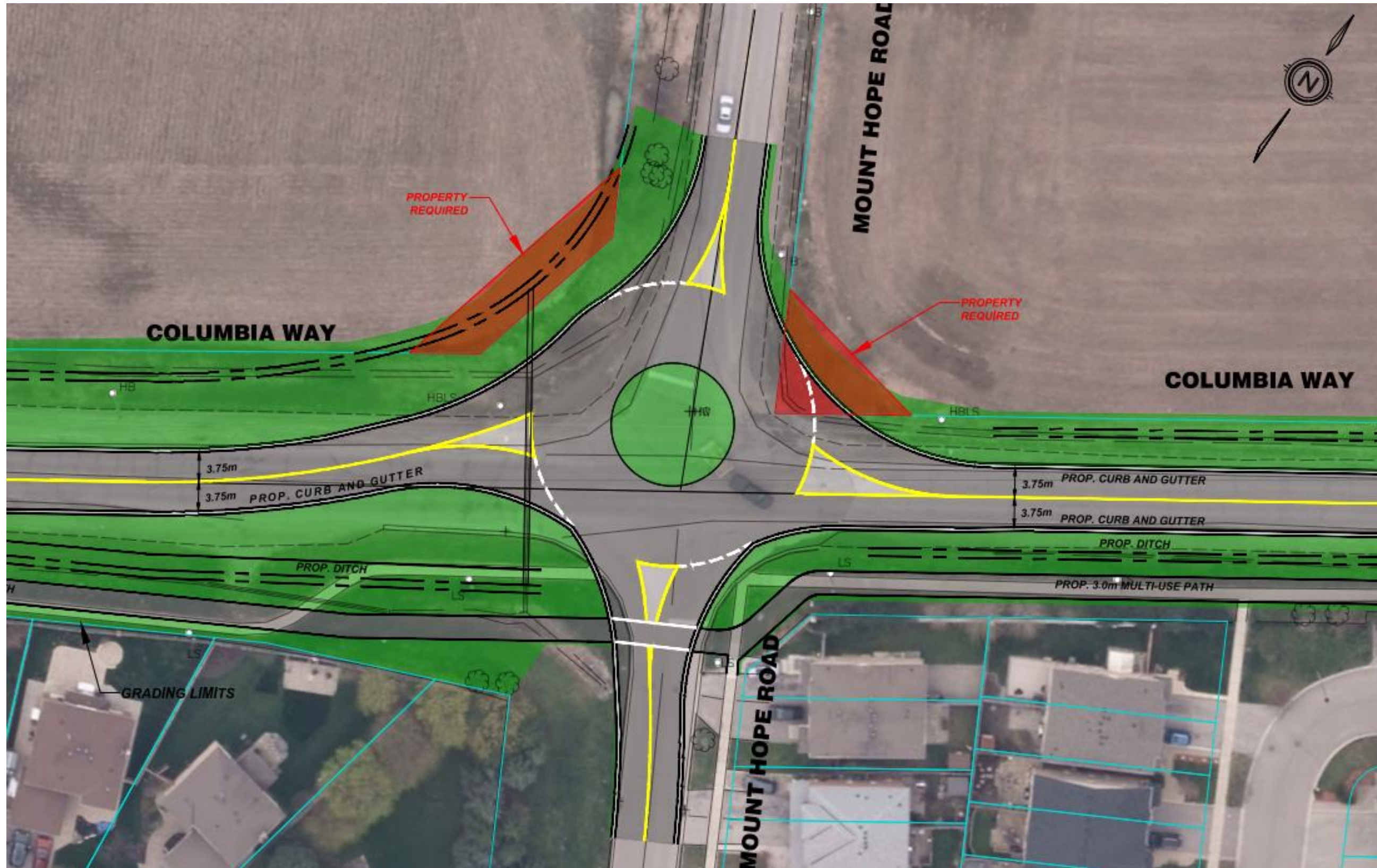


Figure 5.5 – Mount Hope Road Intersection Preferred Solution



### **5.1.6 School Access**

The preferred solution for the school access is to introduce a left-turn lane at the school's primary inbound access (centre driveway) as shown in Figure 5.6.

The recommended left-turn lane would alleviate some of the noted congestion during peak school periods, by separating eastbound vehicles turning left into the school from Columbia Way from eastbound through traffic on Columbia Way.

Should the northeast corner of the intersection of Columbia Way at Regional Road 50 be built-out, it is planned that Kingsview Drive be extended north from its current terminus to serve that development and likely the school. Any future extension of Kingsview Drive North to service future development will most likely result in a re-assessment and reconfiguration of the school's accesses and site layout, which may provide opportunities to improve operations on Columbia Way through access consolidation and/or reconfiguration.

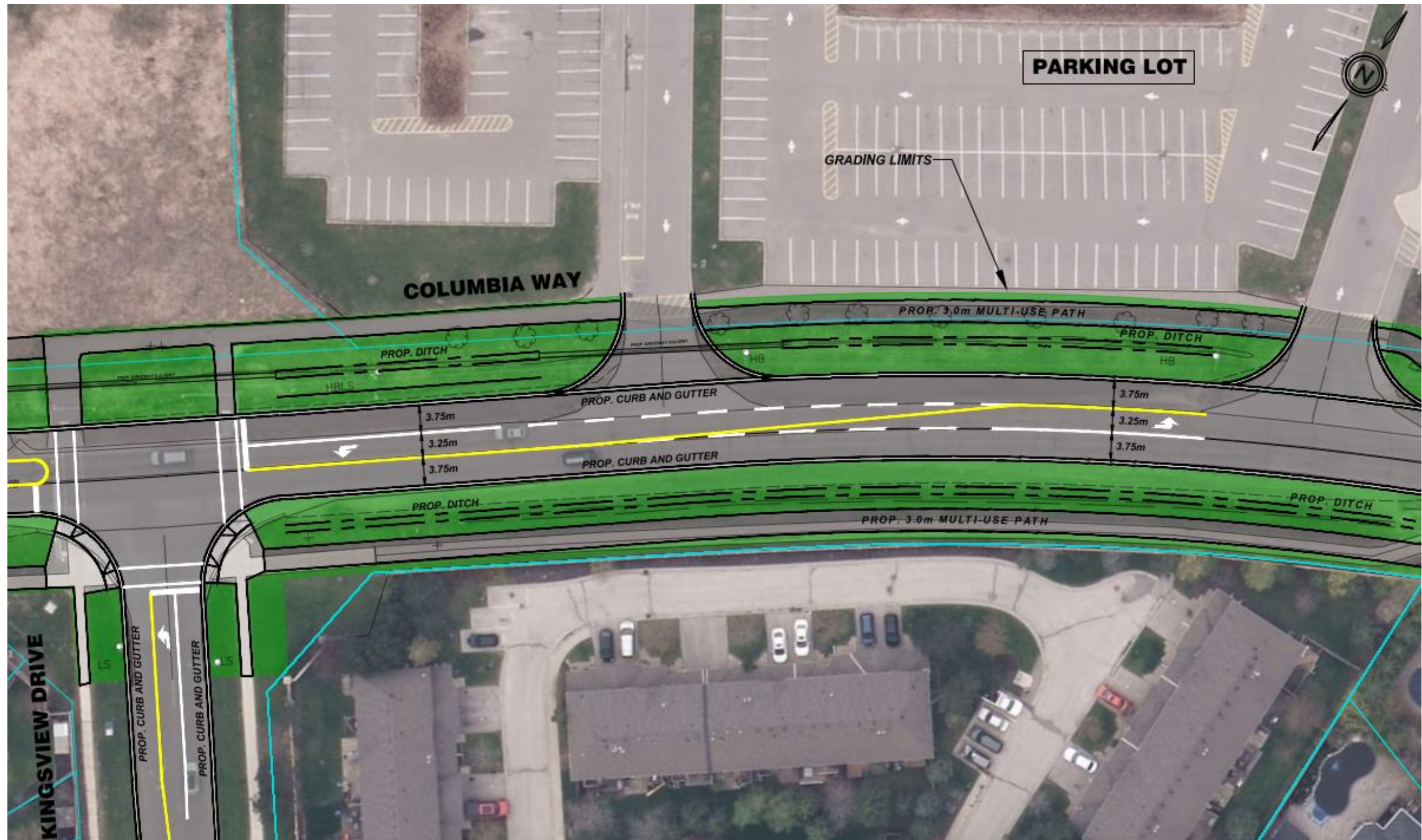


Figure 5.6 – School Access Preferred Solution

### **5.1.7 School Pedestrian Crosswalk**

The preferred solution for the school pedestrian crosswalk access is to introduce a new signalized pedestrian crossing at the trailhead approximately 280 meters west of Westchester Boulevard as shown in Figure 5.7.

This recommended signalized pedestrian crossing would address the majority of the identified jaywalking safety issue, as this crossing location would capture both students who utilize the trail south of Columbia Way, as well as the neighbourhoods east of the trail to travel to and from school.

Approximately 300 meters of new multi-use path is recommended to be installed along the north side of the road from the new crossing location to the school property. This new multi-use path will allow student pedestrians and cyclists to travel along a separated active transportation facility, directly to the school property.

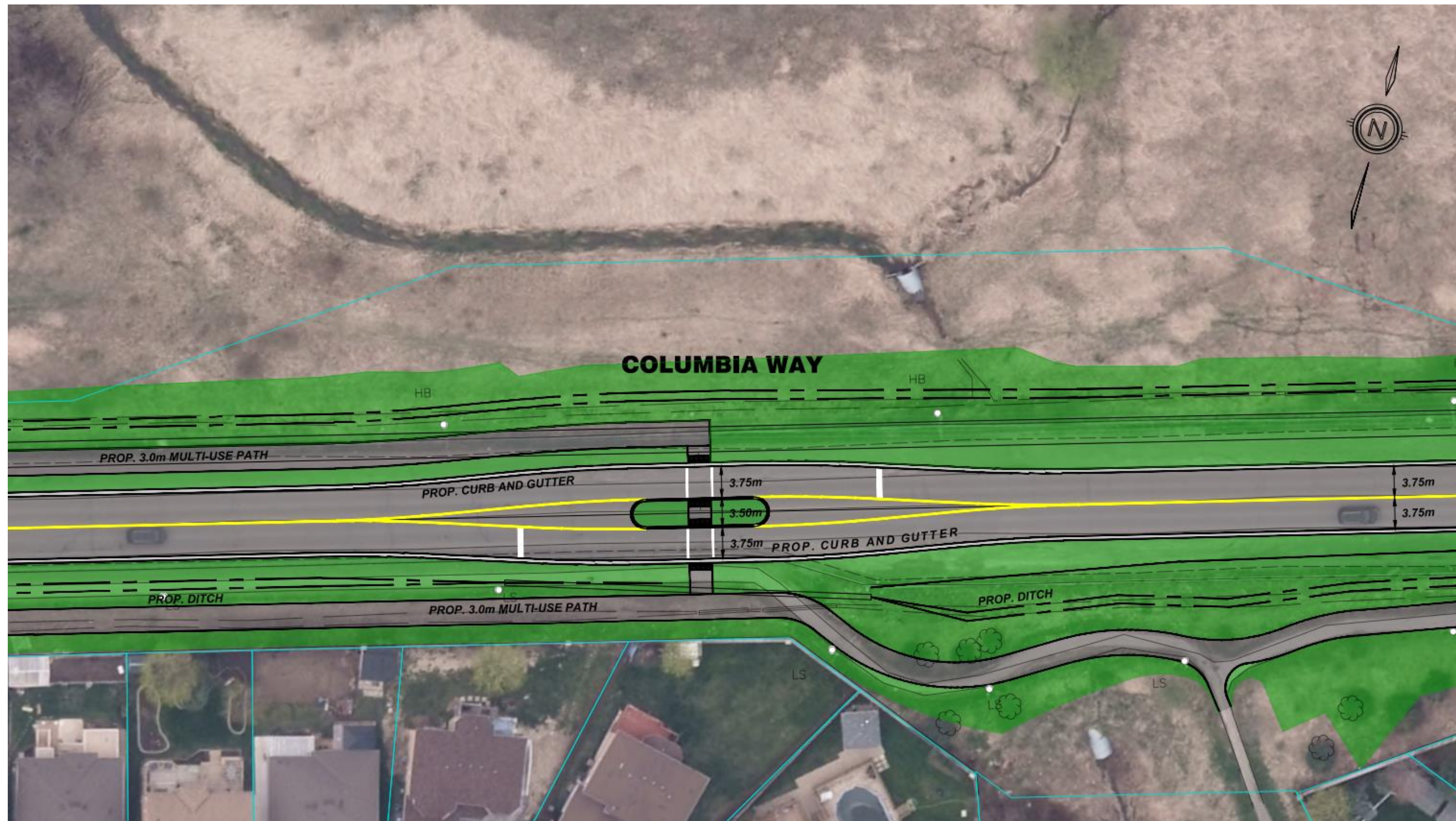


Figure 5.7 – School Pedestrian Crosswalk Preferred Solution

### 5.1.8 S-Curve Road Alignment

The preferred solution for the s-curve road alignment is to maintain the alignment with operational improvements as shown in Figure 5.8.

The recommended operational improvements include cutting back existing vegetation and regrading the steep slopes on the inside of the curve corners at 2:1 to improve site lanes, widening the roadway at the sharp corners to provide sufficient width for large vehicles such as snowplows, and provide a 1.5-meter-wide paved shoulder to accommodate pedestrians.

Additional operational improvements in the area of the s-curve are recommended to include:

- Advanced warning signs;
- Dynamic warning signs;
- Double solid yellow centreline;
- Solid white edge lines;
- Chevron signs on outside of curves; and
- Centre rumble strips.

By maintaining the alignment of the s-curve, impacts to adjacent properties will be minimized, the traffic calming properties of the existing curve will be maintained, and natural environmental impacts to the Cold Creek valley will be largely avoided, whilst improving the safety of the s-curve for all road users.



### 5.1.9 Vertical Crest at Caledon King Townline at Columbia Way

To address the potential visibility issues related to the noticeable crest in Columbia Way's vertical profile in close proximity to the Caledon King Townline at Columbia Way intersection, it is recommended that Be Prepared to Stop warning signage with flashing beacons is installed approximately 225 metres in advance of the intersection, facing eastbound traffic, per OTM guidelines.

## 5.2 Structural Recommendations

Based on the findings of the Bridge Condition Surveys and Life Cycle Cost Analysis described in Section 2.7, and the most recent OSIM inspection, the Coventry Bridge is recommended to be rehabilitated and widened as part of the Columbia Way Road reconstruction. Complete replacement of the bridge structure is not recommended at this time from a structural, hydraulic, or cost point of view.

Structural rehabilitation of this bridge, including the following scope is recommended:

- Carry out detailed structural analysis for the southwest and southeast wingwalls. If the wall(s) are determined to be structurally adequate, they should be modified or replaced.
- Replace the southwest guiderail and all other guiderails that have sustained damage at the time of the rehabilitation work. At this time, the end treatments should also be replaced if they have been determined to have sustained impact damage. This would provide the Town an opportunity to use SoftStop or other current standard end treatments.
- Carry out repairs to all spalling of the abutments, wingwall, soffit and fascia. Clean all staining from the concrete and steel bridge components and apply sealer.
- Clean and touch up any corrosion on existing railings with zinc rich primer or replace railings with bicycle-height railings.

In addition to the structural rehabilitation of the Coventry Bridge Structure, widening of the bridge deck is required to meet TAC requirement of 1.2 meter of clearance from the travel lane to barrier. The bridge deck widening is recommended to be completed via a cantilever from the deck to a maximum of 1700 mm beyond the existing edge of the bridge deck.

The wingwalls on the south side of the bridge will also need to be raised to accommodate the widened roadway footprint and should be further investigated during detailed design.

Further details regarding the bridge deck widening, including a general arrangement drawing of the recommended rehabilitation work, is provided in **Appendix 13**.

### **5.3 Geotechnical Recommendations**

Preliminary geotechnical recommendations for the design and construction of the roadway improvements were developed based on the subsurface soil and groundwater conditions encountered during the preliminary geotechnical investigation described in Section 2.6.

#### **5.3.1 Roadway Pavement**

Considering the condition of the pavement prior to resurfacing and the plan to urbanize the majority of the roadway, complete reconstruction of the pavement structure is recommended.

#### **5.3.2 Slope East of Forest Gate Avenue**

The following remedial measures are recommended to stabilize the slope and guiderail, Flatten the steep section of the downhill slope by placement of additional fill to establish an inclination no steeper than 2H:1V. This option would require removal of the existing vegetation and benching of the existing slope prior to placement of the additional fill.

For preliminary design, standard slope inclinations no steeper than 2H:1V may be assumed for sections of reconstructed slopes. Mid-height berms comprising 2 m wide benches must be incorporated along the length of embankments with heights exceeding 6 m. Cut or fill slopes must be provided with erosion protection in accordance with OPSS.PROV 804. To minimize the potential for erosion, surface water should be directed away from the embankment slopes and conveyed down the slope in appropriately designed drainage channels.

#### **5.3.3 Cut Slope west of Caledon-King Townline**

Based on the borehole findings and site examination, roadway improvements through the cut section should include provision of drainage ditches at the toe of slope along both sides of the road and re-establishment of the cut slopes at an



inclination no steeper than 2H:1V. A cut slope inclination steeper than 2H:1V is not recommended in view of the potential for ongoing erosion and the difficulty in establishing vegetation.

Additional boreholes should be drilled from the top of the slopes during detailed design to confirm the assumed stratigraphy, and slope stability analyses completed to confirm the stability of the recommended slope inclination.

The cut slopes must be provided with erosion protection in accordance with OPSS.MUNI 804. Typically, this will comprise a vegetation cover established on all exposed earth surfaces. Surface water runoff at the slope crest should be directed away from the slope face.

Alternatives to a 2H:1V slope should be considered during detailed design, including the potential to implementing a retaining wall foundation, whether armour stone, segmental block or reinforced concrete.

#### **5.3.4 Additional Geotechnical and Geoenvironmental Investigations**

Additional investigation will be required during the detailed design stage to supplement the subsurface information and confirm the preliminary recommendations including:

- A detailed pavement investigation including additional boreholes within the existing roadway pavement and widening areas to further define the subgrade conditions and confirm the pavement design recommendations.
- Boreholes within the envelope of all bridge foundation units to confirm the subsurface conditions at the structure location and develop detailed geotechnical recommendations for design and construction of the bridge foundations. This should include further investigation of the potential artesian groundwater condition.
- Additional investigation and stability analysis of the slopes to the east of Forest Gate Avenue and west of Caledon-King Townline.
- Further assessment of dewatering requirements and the need for a PTTW.
- Supplemental chemical testing to confirm the requirements for reuse or disposal of excavated material.

#### **5.4 Stormwater Management Recommendations**

The stormwater management plan prepared in support of the proposed Columbia Way Class EA study assessed the impacts of the proposed road and infrastructure

upgrades on stormwater quantity, quality and erosion control measures and presents a stormwater management plan to mitigate these impacts in accordance with the regulatory requirements.

Under proposed conditions, there will be six outlets located at approximately the same location as existing. Some culverts and sections of ditches will also need to be removed, relocated, or extended based on the new road design configurations.

The recommended stormwater management plan consists of the following components:

- The existing roadside ditches will be maintained and improved under proposed conditions and will be used for the purpose of water quantity, quality, and erosion control measures for the project area.
  - Full height concrete curbs, narrow gutters, and intermittent curb cuts to provide surface runoff outlets into the ditches will be provided for all the urban section of Columbia Way.
  - The existing ditches' bottom width will be improved and modified to be at least 1m to be used as enhanced swales and provide further treatment.
  - Check dams will be installed within the ditch cross-sections where velocity exceeds the recommended upper limit of 0.5m/s for a 4 hour 25 mm Chicago storm event and where the longitudinal slope is greater than 3%.

The implementation of the proposed stormwater Management systems will control the site's runoff in accordance with the Region of Peel, TRCA, and Town of Caledon's stormwater management requirements.

Each of the culvert crossings as well as the bridge structure along Columbia Way are sufficient to convey existing and future flows and will not require additional capacity as part of the road improvements.

While outside the scope of the study, as part of the Columbia Way Stormwater Pond rehabilitation and improvement works scheduled for 2021, the Town plans to construct an access road from the pond, with access to Columbia Way. Detailed design of the Columbia Way improvements, including drainage system, should include access for the planned maintenance road access off Columbia Way.

## **5.5 Illumination Recommendations**

Preliminary pedestrian and roadway illumination recommendations were developed based on the analysis of the existing illumination levels present along

Columbia Way discussed in Section 2.9, and the proposed roadway and active transportation improvements.

More information is provided in the complete Technical Memo in **Appendix 10**.

### **5.5.1 Pedestrian Illumination Recommendations**

Lighting is required for the proposed pedestrian facilities. Based on the recommended active transportation facilities, with 30m spacing and a minimum of 57 Pedestrian Lights. Assuming all 37 existing Pedestrian lights and poles are in good condition, an additional 20 Ped lights would be required.

### **5.5.2 Roadway Illumination Recommendations**

A warrant analysis was completed for all roadway segments to determine if continuous roadway lighting was warranted. With reference to the results of the analysis, roadway segments were broken into:

- Segment 1 – Regional Road 50 to Kingsview Drive
- Segment 2 – Kingsview Drive to Mount Hope Road
- Segment 3 – Mount Hope Road to Forest Gate Avenue

Based on the analysis, neither segments 1, 2, nor 3 warranted continuous roadway lighting.

Segment 2, Kingsview Drive to Mount Hope Road was marginally below the Warranting Condition and should be re-assessed at the time of detailed design.

### **5.5.3 Intersection Illumination Recommendations**

A warrant analysis was completed for the intersections within the study area including:

- Intersection 1 – Columbia Way @ Kingsview Drive
- Intersection 2 – Columbia Way @ Westchester Boulevard
- Intersection 3 – Columbia Way @ Mount Hope Road
- Intersection 4 – Columbia Way @ Forest Gate Avenue

As full Illumination is always warranted for signalized and roundabout intersections, Intersection 1 and Intersection 3 will require full illumination. In addition, for Intersection 2 (Columbia Way @ Westchester Boulevard), it is recommended that the existing lighting at the intersection be upgraded in compliance with the minimum RP-8 requirements.

Finally, for Intersection 4 (Columbia Way @ Forest Gate Avenue), the existing Delineation lighting at the intersection may remain, however, it is recommended that another warrant analysis be performed at the time of detailed design to determine if the warranting condition changes.

## **5.6 Preliminary Cost Estimate and Estimated Timing**

A preliminary cost estimate has been prepared for the construction of the recommendations. The preliminary cost estimate to complete the reconstruction of the roadway is \$8,603,197. This estimate includes utility relocation, property, lighting, active transportation amenities, road reconstruction, roadway drainage, bridge and widening, slope stability improvements, landscaping and engineering fees.

At this time, construction is expected to commence in 2023, subject to budget, utility relocations, and agency approvals.

## **6.0 POTENTIAL IMPACTS, MITIGATION AND MONITORING**

The text below summarizes the key impacts associated with the implementation of the recommended solution(s) and general mitigation required. In addition to the mitigation measures identified in the report, additional work will be required to be completed following the Class EA, prior to construction. During detailed design, findings from the Class EA will be confirmed through additional investigations, planning and consultation with the public and technical agencies.

### **6.1 Transportation Environment**

#### **6.1.1 Disruption to Vehicular Traffic, Pedestrians and Cyclists**

With the implementation of the recommended alternatives, minor disruption to the transportation environment will be caused. Construction will be staged in a way that at least one lane of traffic will be open at all times.

#### **6.1.2 Temporary Impacts on Access to School**

The recommended works and necessary road closures has the potential to impact access to St. Michael Catholic Secondary School negatively.

The school board and student transportation are to be notified well in advance of the start of construction to minimize impacts to school access. To this end, every effort will be made to keep school entrances open for as long as possible during construction, with at least one access to the school remaining open at all times.

The Town /contractor will work with the school board to ensure construction activities and schedules are identified well in advance of any disruption so that this information can be passed on to the students, parents, and teachers. During the detail design phase of the study, the project team will meet with the school board to further discuss their concerns.

### **6.2 Socio-Economic Environment**

#### **6.2.1 Property Requirements**

The reduction of property requirements was a key criterion in the identification and evaluation of the alternative solutions & designs developed by the project team. Nevertheless, implementation of the preferred design concept will require some property.

Specifically, implementation of the preferred design concepts will require approximately 145.2 m<sup>2</sup> of property frontage from 9797 Columbia Way. Under current conditions, the roadside ditch crosses onto the resident's private property, which is typically not preferred. Additionally, obtaining this property is required to accommodate the recommended 1.5-meter-wide paved shoulder on the south side of the road through the s-curve.

Additionally, approximately 136.2 m<sup>2</sup> of property from 0 Mount Hope Road (northeast corner of Mount Hope Road intersection), and 172.7 m<sup>2</sup> of property from 9408 Columbia Way (northwest corner of Mount Hope Road intersection) is required to implement the recommendation of a roundabout at the Mount Hope Road at Columbia Way intersection.

For any property to be acquired, the owner would be reimbursed by the Town for the required land at fair market value. An independent appraisal would be completed for the land to determine fair market value. Any lands disturbed as a result of construction would be restored to their current state. Negotiations with the impacted property owner to secure lands required to implement the preferred design will be initiated during the detailed design phase of the study.

**Anticipated preliminary property requirements to implement the study recommendations are summarized in**

Table 6.1.

**Table 6.1– Property Impact Summary**

<b>PROPERTY ADDRESS</b>	<b>ESTIMATED PROPERTY REQUIRED</b>	<b>DESCRIPTION</b>
9408 Columbia Way	172.7 m <sup>2</sup>	Property required at the northwest corner of the Mount Hope Road at Columbia Way intersection in order to implement a roundabout intersection.
0 Mount Hope Road	136.2 m <sup>2</sup>	Property required at the northeast corner of the Mount Hope Road at Columbia Way intersection in order to implement a roundabout intersection.
9797 Columbia Way	145.2 m <sup>2</sup>	Property frontage required for Town to acquire roadside ditching, in addition to accommodating a 1.5-meter-wide paved shoulder through the s-curve
9842 Columbia Way	20.4 m <sup>2</sup>	Property frontage required immediately North of the existing Coventry Bridge Structure to accommodate mandatory clearance.
9784 Columbia Way	26.3 m <sup>2</sup>	Property frontage required immediately North of the existing Coventry Bridge Structure to accommodate mandatory clearance.
<b>TOTAL</b>	<b>500.8 m<sup>2</sup></b>	

Although anticipated preliminary property requirements to implement the study recommendations have been identified, actual requirements are to be confirmed during detailed design, following the completion of a legal survey by an Ontario Land Surveyor and confirmation of existing and proposed property boundaries.

### 6.2.2 Noise and Air Quality Impacts During Construction

Although no long-term air quality impacts from the proposed works are anticipated, dust and/or emissions during construction have the potential to degrade air quality



in the short term. Measures to minimize these impacts should include dust/debris control measures such as the application of water or non-chloride based compounds; covering of soil and other material storage piles to prevent wind erosion; and, covering of fine particulate materials during transportation to and from site. The contractor should use new or well-maintained equipment and machinery, preferably ones fitted with fully functional emission control systems, mufflers, exhaust system baffles and/or engine covers.

Construction may also result in temporary noise impacts. Measures to minimize noise-related impacts during construction include:

- Limit construction to the time periods allowed by local noise control by-laws. If construction activities are required outside of these hours, the applicable permits/exemptions must be obtained through the municipality in advance.
- Maintain construction equipment in an operating condition that prevents unnecessary noise (muffling systems, secured components, lubrication of moving parts).
- Restrict idling equipment to the minimum necessary to perform the specified work.
- Investigate all noise complaints from the public to verify that the required noise control measures are in effect. Persistent complaints will require a contractor to comply with MECP NPC-115 (Guidelines for noise effects from construction equipment). Subject to the results of a field investigation, alternative noise control measures may be required.

### 6.3 Natural Environmental

The following sections describe the impacts and mitigation measures developed to avoid or minimize the potential impacts to the natural environment associated with the proposed improvements. These measures should be considered and elaborated on, as required, during detailed design.

The complete Preliminary Impact Assessment Report and Proposed Mitigation measures are provided in **Appendix 3**.

#### 6.3.1 Soil Disturbance and Potential for Erosion

Vegetation clearing exposes soils and increases the likelihood of erosion and release of sediments into the nearby creek. Release of sediment into Cold Creek and tributaries could have significant detrimental impacts to water quality and fish

habitats. Sediments that enter a watercourse can increase stream turbidity, abrade fish gill membranes (leading to physical stress), cover spawning areas and incubating juvenile fish, cover/smother mussel beds, decrease food production, and smother eggs in nests. Removing riparian vegetation can also decrease watercourse shading, thereby potentially affecting the water temperature of Cold Creek, and can limit the natural shedding of organic materials into the watercourse which may provide food, cover, and nutrients to the aquatic ecosystems.

Grading will be required following bank disturbance due to construction equipment access, and to achieve the new slopes at the S-bend of the roadway. Grading operations, similar to excavation activities, disturb the ground and expose soils, increasing the likelihood of erosion and the potential release of sediments into nearby water features. These activities most likely also require the use of industrial equipment.

The Coventry Bridge will also require minor deck widening to be compliant with current design standards, however, this widening will be accomplished via cantilever deck extension on both sides of the bridge and will not require any changes to the existing abutments or footprint.

A Sediment and Erosion Control Plan will need to be prepared during detailed design. These control measures will include:

- Limiting the geographical extent and duration that soils are exposed to the elements;
- implementing standard erosion and sedimentation control measures in accordance with Ontario Provincial Standard Specification (OPSS) 805 Construction Specification for Temporary Erosion and Sediment Control Measures. These standard measures include: silt fence placed along the margins of areas of soil disturbance; applying conventional seed and mulch and/or erosion control blanket in areas of soil disturbance to provide adequate slope protection and long term slope stabilization;
- moistening dry soils with water as required during construction to mitigate impacts of dust on the surrounding ecosystem; and,
- managing surface water outside of work areas to prevent water from coming in contact with exposed soils.

Monitoring of these erosion and sedimentation control measures during and after construction will be implemented to ensure their effectiveness. These

environmental measures will greatly reduce/minimize adverse environmental impacts.

### **6.3.2 Aquatic Habitats and Communities**

Significant impacts to the Cold-Water Creek and Cold-Water Creek tributary are not expected as part of the proposed improvements. However, there is the potential for effects associated with riparian vegetation removal and potential work in or around Cold Creek to facilitate bridge rehabilitation and widening works.

Should any work associated with the Coventry Bridge rehabilitation and deck widening be required below the high-water mark (often the 2-year storm level), including temporary disturbances not covered by the interim codes of practice, a Request for Review application should be submitted to DFO to review the project for compliance with the Fisheries Act.

Northern Brook Lamprey is listed as a Special Concern species, and therefore permitting under the SARA is not required for potential impacts to this species.

### **6.3.3 Vegetation and Vegetation Communities**

Terrestrial vegetation within the Study Area will be impacted by the proposed road improvement activities through clearing and removals associated with road widening, shoulder and slope grading, as well as to improve sightlines.

Direct impacts to vegetation communities within the rural section of Columbia Way will be more extensive than those in the urban section, as there are a number of safety concerns that require modification to the roadside associated with the 'S-bend' west of Cold Creek. These include sight-line improvements throughout the curve via vegetation clearing as well as regrading and installation of ditches to alleviate slope stability and erosion issues.

Mitigations will therefore focus on the retention and reduction of impacts to adjacent remaining vegetation, invasive species control and revegetation and will include:

- Vegetation clearing requirements in the vicinity of Cold Creek and the S-bend should be reviewed at detailed design with an emphasis on retaining mature trees where slopes are stable and visibility is not impacted.
- Shoulder grading requirements within the regulated area of Cold Creek should be reviewed at detailed design and reduced impacts to vegetation

should be considered, especially the wetland communities immediately north of Columbia Way.

- The impacts of dust on the surrounding ecosystem can be mitigated by moistening dry soils with water as required during construction and adhering to erosion and sediment management measures as described below.

#### **6.3.4 Tree Impacts**

In the western (rural) section of the Study Area, woody and wetland vegetation communities are proposed to be impacted to manage safety and stability issues with the S-curve segment of the roadway.

Most of this area is composed of young, cultural communities, some areas of which are already impacted by failing slopes and ad-hock clearing for visibility improvements. At detailed design, consideration for retaining the mature cedar forest in this area and reducing the small impacts to wetland communities associated with Cold Creek should be considered.

All Butternut trees in this vicinity should be assessed by a certified Butternut Heath Assessor (BHA) to determine appropriate measures to mitigate these impacts through discussion with MECP.

Based on initial review, it is expected that the proposed activities can be accomplished through the registering the impacts to these trees, rather than completing an overall benefit permit. This is based on the three trees proposed to be destroyed being saplings, and the remaining trees either being in poor condition, or, due to their topographic location, their root zones being mostly or entirely out of the area proposed to be graded.

Grading limit revisions to protect mature, residential trees, such as the Black Locusts identified in the rural road section, should be considered at detailed design.

#### **6.3.5 Wildlife and Wildlife Habitat**

Potential impacts to wildlife and their habitats during construction can occur through direct injury and habitat loss as well as indirect impacts such as avoidance of areas of active construction and resulting modification to established daily movement patterns.

The following measures are recommended to reduce these impacts.

- To prevent incidental impacts to nesting birds and bat maternity colonies, woody vegetation clearing should be restricted to outside of the bat maternity and migratory bird nesting seasons, generally April 1 through October 31. If vegetation clearing must occur within this window, a qualified ecological professional should be retained to ensure no birds or bats are incidentally harmed by vegetation removals.
- Grading activities should be limited to the active season for wildlife, typically May 1 through September 30 to prevent entombment within burrows, tunnels or other subterranean features.
- Limiting construction activities to daylight hours will reduce the impacts to behaviour changes (avoidance) of local wildlife in response to the project.

## 6.4 Source Water Protection

Under the MECP 2006 *Clean Water Act*, municipalities are required to conform to Source Protection Plans (SPPs) to protect surface and groundwater sources to municipal drinking water systems. The study area for this project is within the Toronto and Region Source Protection Area (SPA), under the jurisdiction of the Credit Valley-Toronto and Region-Central Lake Ontario Peninsula (CTC) Source Protection Plan (SPR).

The SPR identifies where there is potential for significant threat to the quality and quantity of groundwater through delineation of Wellhead Protection Areas (WHPAs), Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), and Intake Protection Zones (IPZs).

The Columbia Way EA study area is located outside the IPZ and is not considered vulnerable to drinking water threats.

## 6.5 Climate Change

Project impacts and resiliency to climate change were taken into consideration during the study. Considering how a project contributes to climate change, through its greenhouse gas emissions or its effects on the natural environment, is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects. As well, considering how climate change may affect a project, such as through increased flooding or drought, is also critical to the planning process through enabling proponents to make informed decisions around how to design a project to withstand such environmental conditions.

Approaches for considering and addressing climate change in project planning are through 1). Reducing a project's effect on climate change; and 2) Increasing the project's resilience to climate change.

For this Class EA study, key elements that were factored into the reconstruction of Columbia Way, and related infrastructure improvements that could serve to reduce the overall effect on climate change include the provision of active transportation features in the recommendation.

Recommendations developed for the roadway include extensive provision for pedestrians and cyclists, including a continuous multi-use trail on the south side of the road, as well as a multi-use trail on the north side of the road from the existing trailhead to the entrance of St. Michael Catholic Secondary School. The recommended multi-use path will connect with existing and future cyclist infrastructure to provide a safe, continuous cycling network with access to the St. Michael Catholic Secondary School property, Highway 50, Caledon Centre for Recreation and Wellness, and the Town of Caledon designated cycling routes. Encouraging active transportation through increased pedestrian and cyclist facilities supports the reduced use of vehicular traffic and GHG emissions.

With regards to the project's resilience to climate change, the impact of climate change on drainage and stormwater management quality and quantity was a key consideration in the study recommendations. The improvements to stormwater management infrastructure are anticipated to mitigate the impacts of increased severity and frequency of storms.

## 6.6 Archaeological and Cultural Heritage Resources

### 6.6.1 Impacts to Cultural Heritage Resources

Following the selection of the preliminary preferred design, a preliminary impact assessment was undertaken to identify potential impacts to the identified cultural heritage resources described in Section 2.4. The complete Existing Conditions and Preliminary Impact Assessment Report is provided in **Appendix 4**.

It was determined that no direct impacts to identified cultural heritage resources are anticipated as a result of implementing the preferred alternative.

Indirect impacts associated with construction related vibrations associated with the implementation of the study recommendations may have an indirect impact on the

structures on the properties at 9850 Columbia Way (CHR 1), 9948 Columbia Way (CHR 3), 9950 Columbia Way (CHR 4).

To ensure that these structures are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structures on any of the identified properties will be subject to vibrations, a vibration monitoring plan should be prepared and implemented.

Additional mitigation measures developed for each potentially indirectly impacted cultural heritage resource include establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage resource.

### **6.6.2 Impacts to Archaeological Resources**

Based on the Stage 1 archaeological assessment, implementation of the study recommendations could impact several areas that may have archaeological potential including:

- The undisturbed areas beyond the existing ROW north of Columbia Way, from east of St. Michael Catholic Secondary School to the area surrounding the Cold Creek tributary culvert, and from east of the Cold Creek tributary culvert to Mount Hope Road; and
- And the undisturbed areas beyond the existing ROW in the rural section, from 225 meters east of Forest Gate Avenue, to Caledon Kind Townline, save for areas with low and wet conditions.

The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance and low and wet conditions. These lands do not require further archaeological assessment.

Prior to construction, areas identified as have archaeological potential will require a Stage 2 archaeological assessment to determine if those areas exhibit archeological resources and warrant further assessment, or if they can be considered clear of archaeological potential.

In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MHSTCI should be immediately notified. that construction activities impacting the archaeological resources will stop and an archaeologist licensed under the Ontario Heritage Act will be engaged to assess the site.

More information is provided in the complete Stage 1 Archaeological Assessment report in **Appendix 5**.

## **6.7 Drainage and Stormwater Management**

The Preliminary Stormwater Management Report (PSR) provided in **Appendix 9** provides an assessment and comparison between the existing drainage conditions and proposed drainage improvements.

The proposed road improvements will increase impervious areas that might contribute to storm runoff in two areas. The first area change is generated by the addition of a 3m wide and 260m length multi-use pathway between the St. Michael Catholic Secondary School entrance and a trail on the north side of the roadway. The second change in catchment runoff is generated by the addition of a roundabout at the intersection of Columbia Way and Mount Hope Road. However, the proposed road width decreases in some areas due to eliminating the existing gravel surfaced shoulders, which are considered as impervious areas for the existing runoff calculations.

The recommended drainage and stormwater management improvements described in Section 5.4 ensure that the proposed road improvements neutralize the increase in impervious surface and control the site's runoff in accordance with the Region of Peel, TRCA, and Town of Caledon's stormwater management requirements.

## **6.8 Municipal Infrastructure and Utilities**

All utility impacts, including location, depths, and relocation requirements are to be confirmed early in the subsequent detailed design phase of the study in direct consultation with the affected utility companies.

## **6.9 Utilities**

Based on the study recommendations, street lighting / utility pole conflicts are expected along the majority of the corridor in order to implement the recommended multi-use paths and roadside ditches.



Table 6.2 for implement the preferred solution.

**Table 6.2 – Preliminary Utility Impact Summary**

<b>ROAD SEGMENT</b>	<b>UTILITY TYPE</b>	<b>DESCRIPTION</b>
Regional Road 50 to Kingsview Drive	Hydro Poles	All poles on North side of road and will require relocation due to proposed multi-use path and ditch.
	Light Standard Poles	All light standards are on South Side of road and will require relocation due to proposed multi-use path.
Kingsview Drive to Westchester Boulevard	Hydro Poles	All poles on North side of road and will require relocation due to proposed multi-use path and ditch.
	Light Standard Poles	All light standards are on South Side of road and will require relocation due to proposed multi-use path.
Westchester Boulevard to Mount Hope Road	Hydro Poles	All poles on North side of road and will require relocation due to proposed road and ditch.
	Light Standard Poles	All light standards are on South Side of road and will require relocation due to proposed multi-use path and ditch.
Mount Hope Road to Forest Gate Avenue	Hydro Poles	All poles on North side of road and will require relocation due to proposed ditch.
	Light Standard Poles	All light standards are on South Side of road and will require relocation due to proposed multi-use path and ditch.
Forest Gate Avenue to Bridge	Hydro Poles	All poles on North side of road and will require relocation due to proposed ditch.
	Light Standard Poles	No Light Standards
Bridge to Caledon King Townline S.	Hydro Poles	All poles on North side of road and will require relocation due to proposed ditch.
	Light Standard Poles	No Light Standards

All utility impacts, including location, depths, and relocation requirements are to be confirmed early in the subsequent detailed design phase of the study in direct consultation with the affected utility companies.

## **6.10 Monitoring During Construction**

The mitigation measures identified in this report shall be written into the contract specifications. During construction, the contract administrator will ensure that full-time monitoring/inspection of the project works is undertaken to ensure that all environmental commitments identified in the Environmental Study Report are adhered to by the contract team. Following completion of construction (i.e. post construction), an inspection should be undertaken to ensure the effectiveness of the identified mitigation measures

## 7.0 CONSULTATION

Schedule 'B' EA projects are subject to four out of the five phases in the planning process, skipping phase 3 in accordance with the Municipal Class Environmental Assessment (October 2000, amended in 2007, 2011 & 2015). As such, extensive public and technical agency consultation play a key role in developing the study recommendations.

Per the MCEA, notification to the public and stakeholders was provided in advance of key consultation opportunities.

### 7.1 Key Stakeholders, Interest Groups & Technical Agencies

Various First Nation communities, government agencies, authorities and interest groups were informed of the EA Study, as well as the Public Information Centres (PIC) via direct electronic mailings or regular mailing. A complete list of stakeholders who were contacted is provided in **Appendix 1**.

During the course of the EA study, correspondence was received from various technical agencies, as outlined in Table 7-1 and included in **Appendix 1**. Comments from technical agencies and interest groups received at the Public Information Centre are discussed in Section 967.2

**Table 7-1– Comments received from Technical Agencies and Key Stakeholders**

AGENCY/ GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
Dufferin Peel Catholic School Board (DPCDSB) and St. Michael Catholic Secondary School (SMCSS)	DPCDSB provided preliminary information in response to the Notice of Study Commencement including: <ul style="list-style-type: none"> <li>The DPCDSB has an existing secondary school, St. Michael CSS, on the north side of Columbia Way, east of Highway 50.</li> <li>DPCDSB supports active transportation and safe pedestrian connections. Our primary concern regarding the EA will be the impacts on the school operations/pedestrian safety during the construction.</li> <li>The access to the school cannot be blocked off and sidewalks are relied upon for students walking to school.</li> </ul> Requested St. Michael CSS Principal and Vice-Principals be forwarded the Notice of Commencement.	2020-04-03	Options for implementing active transportation facilities and pedestrian facilities, with a focus of safe connectivity to the school was evaluated throughout the EA. Project Team requested contact information of SMCSS principal to provide Notice of Commencement, as the school was closed due to the Covid-19 Pandemic shortly before the mailing of the Notice of Study Commencement.
	DPCDSB provided SMCSS Principapl and Vice Prinicial contact information to be included in the study consultation.	2020-04-08	Notice of Study Commencement forwarded to St. Michael CSS (SMCSS) Principal and Vice Principal of SMCSS.
	SMCSS Principal provided preliminary information in response to the Notice of Study Commencement including: <ul style="list-style-type: none"> <li>Add a crosswalk at one of the crossing points closer to the school for the safety of students and community members who reside on the east side of the school.</li> <li>Addition of cyclist amenities</li> </ul>	2020-04-19	Meeting scheduled with DPCDSB and SMCSS Principal to further discuss improvements to Columbia Way as they relate to SMCSS.
	The project team met with SMCSS and DPCDSB to discuss improvements to Columbia Way and goals for the EA as they relate to to the school. Outcomes of this meeting included: <ul style="list-style-type: none"> <li>Request for an additional pedestrian crossing to the school be incorporated into the roadway design to reduce ongoing jaywalking.</li> <li>Improve the safety of students of students walking and cycling to and from the school through multi-use path</li> <li>School board does not support roundabouts directly adjacent to schools due to pedestrian crossing conflicts with vehicles.</li> </ul> DPCDSB requested to review alternative solutions and PIC boards prior to being presented to the public at the PIC.	2020-05-05	Project team determined that an additional pedestrian crossing to the east of the existing pedestrian crossing located at the Kingsview Drive traffic signal is warranted. Alternative pedestrian crossing solutions considered during the study to best address the concerns identified and improve the safety of pedestrians and cyclists accessing the school. Preliminary alternative solutions and PIC boards were provided to DPCDSB and SMCSS for review prior to being presented to the public at the PIC.
	DPCDSB Trustee contacted the project team to inquire on the input collected from the school perspective and or the board planning department during the EA.	2020-10-29	Project Team summarized the consultation with SMCSS and DPCDSB completed to date as descibed above and invited additional comments. The Project Team also confirmed the Trustee has been included in the study stakeholder list, and received the Notice of Study Commencement.

AGENCY/ GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
	<p>Additional requests made by the Trustee included:</p> <ul style="list-style-type: none"> <li>• Consideration to include curb appeal/beautification adjacent to the school</li> <li>• Retain and extend existing guardrail west to protect pedestrians and students utilizing the sidewalk.</li> </ul>	2021-04-29	<p>Consideration for landscaping to be provided during Detailed Design.</p> <p>It was determined that, with the improved crossing and active transportation facilities, the guide rail would no longer be required. DPCDSB Trustee remained on stakeholder list to be included in future communications and notices.</p>
	<p>DPCDSB Planner provided their comments in review of the study recommendations prior to presentation to the public at the PIC.</p> <p>DPCDSB had no serious concerns with the recommendations, noting the study recommendations are generally aligned to what was discussed in the 2020-05-05 meeting by having a left turn lane onto the school site and pedestrian crossing at trailhead.</p> <p>The DPCDSB also added that while the pedestrian crossing is not entirely ideal, they understand there are many constraints to consider.</p>	2021-02-24	<p>Consultation with DPCDSB in developing the Class EA recommendations completed.</p> <p>Consultation with DPCDSB to continue through detailed design and construction.</p>
Hydro One	<p>Following our preliminary assessment, we confirm there are no existing Hydro One Transmission assets in the subject area.</p>	2020-04-08	<p>No follow-up required. Hydro One removed from stakeholder list.</p>
Hydro One Telecom	<p>Confirmed Hydro One Telecom has existing infrastructure in the study area and provided an underground network drawing.</p>	2020-04-03	<p>Hydro One telecom Infrastructure considered in recommended design plans.</p>
Toronto and Region Conservation Authority (TRCA)	<p>The TRCA provided the project team with findings of a preliminary review of the EA study area and identified the following TRCA regulated areas adjacent to the study area:</p> <ul style="list-style-type: none"> <li>• Watercourse and wetland crossing between Kingsview Drive and Westchester Boulevard</li> <li>• Watercourse and wetland crossing, and TRCA property west of Caledon King Townline</li> </ul>	2020-04-08	<p>Meeting with TRCA scheduled to discuss the EA study as it relates to TRCA regulated areas adjacent to the Columbia Way roadway.</p> <p>Impacts to regul</p>
	<p>Coordination meeting held with TRCA to discuss the evaluation of existing conditions and any potential impacts to TRCA regulated watercourses adjacent to the roadway.</p> <p>Outcomes of the meeting included:</p> <ul style="list-style-type: none"> <li>• TRCA provided the project team with the Crossings Guideline for Valley and Stream Corridors Guidelines and the Evaluation, Classification and Management of Headwater Drainage Features Guidelines to be used during the natural heritage assessments.</li> </ul>	2020-06-17	<p>Impacts to the natural environment, including stormwater quantity and quality considered through the Drainage and SWM analysis to meet TRCA requirements.</p> <p>Preliminary preferred design and PIC boards were provided to the TRCA for review, prior to being presented to the public at PIC #1</p>

AGENCY/ GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
	TRCA staff requested to review the Draft PFR, once available and to schedule a meeting upon completion of the Draft PFR.	2021-03-23	Project team to provide TRCA with the Draft PFR for review and comment, and meet with TRCA to discuss the PFR prior to finalizing.
	TRCA staff provided extensive comment on the draft Project File Report and supporting study documentation including comments regarding Stormwater Management, Vegetation Removals and Compensation, Geotechnical, TRCA Property, Archaeological Assessment, and General comments.	2021-09-10 through 2021-09-22	Project team provided responses to TRCA comments as outlined in <b>Appendix 1</b> . Project team inquired whether the comments provided were to a level
	TRCA to provide comments item #s 1 – 5 once available. TRCA staff stated that they are ok with the commitments and the responses to comment item #s 6 -10.	2021-10-04	RVA to address any additional comments received from TRCA, following the placement of the Project File Report for public review, during the mandatory 30-day review period, as the project progresses through detailed design.
Huron-Wendat First Nation	The Huron-Wendat Nation expressed interest in any archaeological assessments being completed as part of the EA, requesting to receive a copy of the draft Stage 1 AA report once available, and to be updated on any potential Stage 2 AA.	2020-04-17	The project team notified the Huron-Wendat First Nation that a Stage 1 Archaeological Assessment will be completed as part of the study, offering to provide the draft report for review prior to finalization. Draft Stage 1 Archeological Assessment Report was provided for review and comment on November 13, 2020 prior to finalization.
	After review we do not have any specific comments on the report. However please note that the Huron-Wendat Nation is insisting to have a representative on field for any upcoming archaeological fieldwork related to this project.	2021-02-04	Stage 1 Archaeological Assessment Report finalized and submitted for review to the MHSTCI. In the event a Stage 2 archaeological Assessment is required during Detailed Design, Huron-Wendat First Nation is to be notified prior to undertaking any fieldwork.
Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI)	General information related to the MHSTCI's interests in the study as they relate to the conservation of Ontario's cultural heritage, and the proponent's responsibility to determine a project's potential impact on cultural heritage resources. Requested that MHSTCI be advised whether any technical cultural heritage studies will be completed for this EA project, and provide them to MHSTCI before issuing a Notice of Completion or commencing any work on the site.	2020-04-23	The project team advised the MHSTCI that the study will include a Stage 1 Archaeological Assessment as well as a Cultural Heritage Resource Assessment. Project team consulted the MHSTCI after preliminary review of Cultural Heritage Inventories, to determine if the Ministry has any additional cultural heritage resources or concerns within the study area to bring to our attention for consideration in preparing the Cultural Heritage Assessment.

AGENCY/ GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
	<p>MHSTCI confirmed that to date, no properties within the study area have been designated under the Ontario Heritage Act as being of cultural heritage value by the Minister.</p> <p>MHSTCI also confirmed that at this time, they are not aware of any provincial heritage properties within or adjacent to the study area.</p> <p>MHSTCI requested any technical cultural heritage studies (e.g. Cultural Heritage Assessment Report, Cultural Heritage Evaluation Report, Heritage Impact Assessment) be sent for MHSTCI review.</p>	2020-07-08	<p>Stage 1 Archaeological Assessment Report was submitted to the MHSTCI to be entered into the archaeological register on February 12, 2021. An expedited review was requested, at this time.</p> <p>The Cultural Heritage Evaluation Report and Preliminary Impact Assessment was submitted to the MHSTCI for their review and comment on April 29, 2021.</p>
	<p>MHSTCI stated that in review of Based on the Stage 1 Archaeological Assessment Report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences, and therefore the report has been entered into the Ontario Public Register of Archaeological Reports.</p>	2021-05-23	No further consultation required.
	<p>MHSTCI provided minor comments in review of the Cultural Heritage Evaluation Report and Preliminary Impact Assessment Report including:</p> <ul style="list-style-type: none"> <li>• Assessment of built heritage resources and cultural heritage landscapes relies on qualified individuals with relevant expertise. As such, the Project Personnel section should briefly describe the qualifications of the staff involved in the preparation of the report, and describe their role in it.</li> <li>• It might be helpful to have an image like Figure 9 within the body of the report, e.g. in Section 5</li> </ul>	2021-06-18	<p>Minor revisions made prior to submitting the Final Report to Town of Caledon Heritage Planner for their records.</p> <p>No further consultation required.</p>
Region of Peel	<p>Region of Peel Sustainable Transportation project manager requested a discussion with the Columbia Way EA project team regarding timing of the Region of Peel's construction works on Highway 50 as it relates to Columbia Way improvements.</p>	2020-04-16	<p>Project team discussed with Region of Peel Sustainable Transportation PM regarding the timing of the construction on Highway 50, and it's impacts on Columbia Way. Region of Peel Regional PM was advised that the date of construction for Columbia Way is yet to be determined as it depends on the finding from the EA study and detail design, e.g., land acquisitions, permits, etc.</p>
Region of Peel	<p>Region of Peel staff provided preliminary information and Regional data to support the Class EA including:</p> <ul style="list-style-type: none"> <li>• Permitted uses on the currently undeveloped parcel at the northeast corner of Highway 50 and Columbia Way.</li> <li>• Traffic data including collision history, and signal timing plans for the study intersections</li> <li>• Regional Water/wastewater infrastructure as-built drawings within the study area.</li> </ul>	2020-04-24 through 2020-07-29	<p>Study recommendations developed in consideration of Regional input and infrastructure.</p> <p>Columbia Way recommendations tie into the existing paved shoulders on both sides of Highway 50 and includes provisions for the future cycle track planned for Highway 50.</p>





AGENCY/ GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
	<ul style="list-style-type: none"> <li>Coordination is required with the Region's Highway 50 EA which also includes this intersection and will be providing the ultimate AT recommendation. This may affect how Caledon decides to tie Columbia Way into Hwy 50.</li> </ul>		<ul style="list-style-type: none"> <li>Detailed design to ensure that required infrastructure setbacks are implemented into the design. Further coordination to be with Region water/wastewater staff to be completed during detailed design.</li> <li>Further coordination should be completed with the Region's Infrastructure Planning during the detailed design to tie into the ultimate AT recommendation along Highway 50 at the Columbia Way intersection. The study recommendations include provisions for a connection of the Multi-use trail along Columbia Way to future active transportation infrastructure at the Highway 50 intersection.</li> </ul>
<p>Ministry of the Environment, Conservation and Parks (MECP)</p>	<p>General information provided on the Class EA process, MECP technical review issues and Aboriginal consultation.</p> <p>Identified the following aboriginal communities as potentially affected by the proposed project:</p> <ul style="list-style-type: none"> <li>Mississaugas of the Credit First Nation</li> <li>Six Nations of the Grand River</li> <li>Haudenosaunee Confederacy Chiefs Council</li> <li>Huron-Wendat Nation, if there are potential archaeological impacts</li> </ul> <p>MECP requested to review the draft Project File Report prior to the report being published for public review.</p>	<p>2020-05-13</p>	<p>The project team incorporated the input into the study as required. The project team-initiated consultation with each of the Indigenous communities identified by MECP as described in this table.</p> <p>MECP staff was provided the draft PFR and recommended design plans for review and comment prior to issuing the Notice of Study Completion.</p>
	<p>The MECP stated that they were satisfied with the report and generally agree with the conclusions and recommendations, with the following comments offered for consideration:</p> <ol style="list-style-type: none"> <li>The runoff coefficient for gravel shoulders is usually about 0.50 – 0.70. However, in the report the runoff coefficient of 0.95 was used for the existing runoff calculations. It is recommended that a runoff coefficient of 0.50 – 0.70 be used for the existing runoff calculations, or a rationale for the use of a runoff coefficient be provided.</li> <li>The report says that gravel shoulders will be eliminated, which will decrease the total impervious area. However, it is not specified what will replace the gravel shoulders along the road. As such, it is unclear whether a decrease or minor increase in impervious area should be expected. A minor increase would be unlikely to have a significant impact on the local stormwater quantity and quality. Nevertheless, the report should specify what type of surface will replace the gravel shoulders along the road for the reviewer to understand the expected change in pervious surface area.</li> <li>Sections 2.6 and 5.3 of the PFR refer to the geotechnical investigation described in Section 0. This should be changed to Section 2.8.</li> </ol>	<p>2021-09-08</p>	<p>The project team provided the following responses to the MECP:</p> <ol style="list-style-type: none"> <li>The road sub-catchments under existing conditions include asphalt and gravel areas that have the same runoff coefficient as per the Town of Caledon design guideline (Standard No.103). Since MECP has asked to reduce the runoff for gravel areas, we calculated weighted runoff for one sample sub-catchment that includes the highest percentage of gravel area (Please see table below) and generated runoff coefficient of 0.83, which is equivalent to Total Imperviousness of 90% (TIMP = (RC-0.2)/0.7). As such, the TIMP for the road sub-catchments in the hydrologic model has been modified to represent 90% as requested.</li> </ol>

AGENCY/ GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA												
			<table border="1" data-bbox="2200 344 2632 530"> <thead> <tr> <th>Sub catchment</th> <th>Area (ha)</th> <th>RC</th> </tr> </thead> <tbody> <tr> <td>Gravel shoulder area</td> <td>0.052</td> <td>0.7</td> </tr> <tr> <td>Asphalt area</td> <td>0.058</td> <td>0.95</td> </tr> <tr> <td>Total area</td> <td>0.11</td> <td>0.83</td> </tr> </tbody> </table> <p data-bbox="2013 552 2868 903">                     2. According to the proposed road configuration, the gravel shoulder area along the road has not been entirely replaced by asphalt. In fact, the remainder gravel area will be covered by pervious surface as a result of the roadside ditches improvement. As mentioned in the report existing roadside ditches will be widened, improved, and used as bioswales to provide water quality control as well. As requested, the note has been added to the report indicating the type of surface that will replace the gravel shoulders.                      3. The PFR has been updated accordingly.                 </p>	Sub catchment	Area (ha)	RC	Gravel shoulder area	0.052	0.7	Asphalt area	0.058	0.95	Total area	0.11	0.83
Sub catchment	Area (ha)	RC													
Gravel shoulder area	0.052	0.7													
Asphalt area	0.058	0.95													
Total area	0.11	0.83													
	MECP provided confirmation that they are satisfied with the responses provided by the project team, and that they have no further comments or concerns at this time.	2021-09-28	No further consultation with MECP required.												
Mississauagas of the Credit First Nation (MCFN)	MCFN inquired whether any Archaeological and/or Natural Heritage Assessments were being completed as part of EA, and requested that MCFN staff be present for archaeological digs, as well as natural environmental field work being completed as part of the study.	2020-07-29	The project team provided information regarding the natural environmental and archaeological assessments being completed as part of the study												
	MCFN provided an agreement for the MCFN's technical review of the archaeological assessments, and a Field Liaison Representative (FLR) Participation Agreement for MCFN FLRs to participate in and monitor natural environmental and archaeological field work to be completed by the Town.	2020-07-31	Town of Caledon executed the MCFN FLR Participation Agreement & DOCA Archaeological Review Agreement on August 31, 2020. Draft Stage 1 Archeological Assessment Report was provided to MCFN for review and comment prior to finalization.												
	MCFN and Project Team coordinated the attendance of a MCFN FLR to participate in and monitor the upcoming roadside tree inventory natural heritage investigation. The field work consisted of identifying trees adjacent to the roadway for consideration in the roadway improvements.	2020-09-01 – 2020-09-21	MCFN FLRs participated in and monitored the tree inventory assessment completed on September 22, 2020 in accordance with the FLR Participation Agreement.												
	MCFN Field Archaeologist notified the project team that after completing the review, MCFN does not have any concerns with the report or the recommendations made within the Stage 1 Archaeological Assessment Report.	2020-10-20	Stage 1 Archeological Assessment Report finalized and submitted for review to the MHSTCI. In the event a Stage 2 archaeological Assessment is required during Detailed Design, MCFN is to be notified prior to undertaking any fieldwork.												

AGENCY/ GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
Six Nations of the Grand River	<p>Six Nations of the Grand River provided a letter in response to the Class EA Notice of Commencement, stating that the aspect of any project that concerns them the most is the impacts on the natural environment.</p> <p>As the Notice of Commencement does not describe impacts to the natural environment or archeological impacts to the study area (to be determined through EA) the Six Nations of the Grand River stated they will be in a better position to comment on the project once they have this information</p>	2020-07-27	<p>The project team notified the Six Nations of the Grand River that a Stage 1 Archaeological Assessment and Natural Environment Report are being completed as part of the EA to determine impacts to the environment, and offered to provide these reports to the community for review upon completion..</p>
	<p>Six Nations of the Grand River that the community would like to review a copy of the Stage 1 Archaeological Assessment and Natural Environment Reports.</p>	2020-07-28	<p>Draft Stage 1 Archeological Assessment Report was provided to Six Nations of the Grand River for review and comment on November 13, 2020 prior to finalization.</p>
	<p>Our Archaeology Supervisor, Tanya Hill-Montour has read the report and she is pleased with the methodology employed and has not expressed any concerns regarding this project. She has indicated that we would like to be involved with the Stage 2 process. Staff inquired about the submission of the Draft Natural Environment Assessment Report.</p>	2021-02-05	<p>Stage 1 Archeological Assessment Report finalized and submitted for review to the MHSTCI.</p> <p>In the event a Stage 2 archaeological Assessment is required during Detailed Design, Six Nations of the Grand River is to be notified prior to undertaking any fieldwork.</p> <p>Draft Natural Heritage Report was provided to Six Nations of the Grand River for review and comment on March 30, 2021 prior to finalization. No comments received.</p>
Ministry of Natural Resources and Forestry (MNRF)	<p>The Ministry of Natural Resources and Forestry (MNRF) has reviewed the Columbia Way EA Public Meeting materials and offers the following comments:</p> <ul style="list-style-type: none"> <li>• The study area crosses:an external connection of the Greenbelt Planpart of the Greenbelt Natural Heritage System (NHS)</li> <li>• Oak Ridges Moraine Conservation Plan Natural Linkage Area</li> </ul> <p>EA alternatives should be evaluated by how they meet the specific policy requirements from each of these provincial plans.</p> <p>There is a small unevaluated riverine wetland south of Columbia Way. There may also be additional riverine wetlands along the same watercourse both north and south of the existing bridge crossing. These should be mapped and evaluated in order to determine the boundaries of the wetlands and the appropriate buffers.</p> <p>Any in water works (including studies and construction) may require authorizations under the Fish and Wildlife Conservation Act.</p>	2021-02-09	<p>Study recommendations developed in accordance with the Greenbelt Plan and Oak Ridges Moraine Conservation Plan.</p> <p>Impacts to natural features within the study area including the wetland feature identified by the MNRF were considered in the development of the recommended solution.</p>

## 7.2 Public Information Centre

One Public Information Centre (PIC) was held during the EA study, during Phase 2 of the MCEA process.

Given the ongoing COVID-19 pandemic, associated restrictions on public gatherings, and in the interest of public health, the PIC was held online. The PIC was held on February 24, 2021 from 5 p.m. to 7 p.m. through a Virtual Public Meeting format hosted on the Town of Caledon's WebEx account. Residents were invited to call-in to the meeting or watch the presentation live-stream on the Town's website.

The PIC included a 1-hour presentation of the study completed to date, including existing conditions, the evaluation of alternative solutions, and preliminary recommendations, followed by a 1-hour question and answer period. Residents were encouraged to submit their questions in advance of, and during the PIC to [transportation@caledon.ca](mailto:transportation@caledon.ca). Submitted questions were read aloud to the project team by an RVA moderator and answered during the meeting by the RVA technical staff.

Following the PIC, the recording of the PIC, presentation slides, and the preliminary recommended design were available for review and comment until March 11, 2021 on the Town's project website.

A total of 26 comments on various topics were provided and the following trends were found among the comments received:

- Road safety improvements at intersections and the "S" bend are strongly desired.
- Residents desire pedestrian and cyclist accommodation throughout the corridor, including through the "S" bend of the roadway.
- Roundabout intersections and additional traffic calming measures are supported.
- Drainage must be adequately accommodated in any improvements.
- General support for improvements to Columbia Way.

A detailed summary of comments received regarding the material presented at the PIC is presented in Table 7-2.

**Table 7-2– PIC Comments Received**

<b>KEY STUDY ELEMENT</b>	<b>COMMENT SUMMARY</b>	<b>CONSIDERATION OF COMMENTS IN CLASS EA</b>
<p>Vehicle Operations &amp; Safety</p>	<p>Residents support the proposed intersection improvements at the school and Mount Hope Road intersections, however some residents desire additional improvements at other intersections along Columbia Way including at Westchester Boulevard, Forest Gate Avenue and Mount Hope Road.</p>	<p>The Mount Hope Road intersection was selected as the preferred roundabout location, compared to Westchester Boulevard or Forest Gate Avenue, as this intersection represents a more centre position within the corridor between the S-bend to the east (natural traffic calming feature) and the proposed signalized pedestrian crosswalk to the west at the trailhead (which will include a raised centre island a deflection of lanes around the island as a traffic calming feature).</p> <p>With the Westchester Boulevard intersection being situated in close proximity to the proposed roundabout to the east and the proposed pedestrian crosswalk to the west, this T-intersection is expected to benefit from both improvements to reduced operating speeds and improved safety.</p>
	<p>Residents stated their desire for additional traffic calming along the roadway and their concern with existing vehicle speeds, however some residents prefer reduced speed limits in the school zone to be limited to school hours.</p>	<p>No changes to the posted regulatory speed limit were incorporated into the study recommendations.</p>
	<p>Request for lay-by parking at the Trailhead adjacent to the new recommended pedestrian crossing.</p>	<p>Formalized parking at this location was not included in the study recommendations due to concerns related to the proximity to the proposed signalized pedestrian crosswalk.</p>

KEY STUDY ELEMENT	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
	Request for improvements at the “blind hill” west of Caledon King Townline as well as slope stability improvements.	Study recommendations include a be prepared to stop flashing beacon in lieu of lowering the vertical profile of the road in advance of the Mount Hope Road intersection.
	Recommendations should consider future potential development of the corridor, specifically at the northwest corner of the study area, and it’s potential impacts on vehicle operations and pedestrian safety, including consideration for the extension of Kingsview Drive beyond it’s current north terminus	<p>Study recommendations were developed in consideration of potential future development at this site.</p> <p>The extension of Kingsview Drive north of Columbia Way would be constructed to serve future developments at 14245 Highway 50 (Bolton North Hill Commercial Area), which would then provide opportunities to improve operations on Columbia Way through providing school access via the new extension.</p> <p>The study recommendations would not restrict any future potential extension of Kingsview Drive, if required due to future commercial development at 14245 Highway 50 (timing of extension and access dependent on timing of development).</p>
Active Transportation Accommodation & Safety	Residents are concerned with the existing pedestrian, cyclist, and vehicle safety through the “S” bend, and desire safe passage through this area, including to and from the community mailbox located on Forest Gate Avenue.	<p>1.5-meter-wide paved shoulder on the south side of the road through the s-bend was incorporated into the study recommendations, following receipt of these comments.</p> <p>Due to significant property, slope, and natural environmental constraints, sidewalk or other</p>

KEY STUDY ELEMENT	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
		separated pedestrian amenities were not feasible to include in the study recommendations.
	Residents expressed a desire for connectivity to existing and planned cyclist / pedestrian infrastructure including along Highway 50, Kingsview Drive, and the future TRCA trails within the Cold Creek Valley.	Columbia Way recommendations tie into the existing paved shoulders on both sides of Highway 50 and includes provisions for the future cycle track planned for Highway 50
	Wide support was received for improving pedestrian & cycling facilities in the urbanized portion of the study area, including improved connectivity to the school.	No further action required.
	Residents inquired about the maintenance of the existing and proposed off-road multi-use paths and litter from ditches.	Maintenance of roadway is responsibility of Town of Caledon.
Utility Services	Residents in the rural residential area east of Forest Gate Avenue have inquired about plans to upgrade utility services during road reconstruction including internet.	Notice sent to utility companies included inquiring of any plans of service upgrades or extensions within the study area.
Property Impacts & Driveway Access	One resident inquired whether their property line and driveway access would be impacted by the proposed improvements.	Awaiting Town's response to resident. Further consultation with impacted property owners to be completed during detailed design.
Natural Environmental Impacts Including Drainage	Recommended improvements must address drainage issues along the corridor.	Road drainage and stormwater management improvements were incorporated into the study recommendations.



<b>KEY STUDY ELEMENT</b>	<b>COMMENT SUMMARY</b>	<b>CONSIDERATION OF COMMENTS IN CLASS EA</b>
	Preservation of the wetlands adjacent to the corridor is desired.	Impacts to natural features within the study area including the wetland feature were considered in the development of the recommended solution
Construction Timeline	Timeline of construction requested.	At this time, construction is expected to commence in 2023, subject to budget, utility relocations, and agency approvals.

**7.2.1 PIC Comments and Meetings – Technical Agencies and Stakeholders**

An email containing the notice and details of the PIC was sent to relevant technical agencies and stakeholders on February 8, 2021. The complete list of Technical Agencies and Stakeholders who received the PIC Notification is provided in **Appendix 1**.

Comments on the PIC display materials were received from several technical agencies and stakeholders including the Region of Peel, Toronto and Region Conservation Authority (TRCA), and the Dufferin-Peel Catholic District School Board (DPCDSB). Table 7-3 summarizes the comments received from various technical agencies during the PIC.

**Table 7-3– Summary of Technical Agency Comments Received at PIC**

AGENCY	COMMENT SUMMARY
<p>Dufferin Peel Catholic School Board (DPCDSB)</p>	<p>DPCDSB staff were provided the PIC Display Boards and a roll plan of the preliminary recommended design prior to presentation to the public at the PIC.</p> <p>DPCDSB staff stated that they had no serious concerns with the recommendations, noting the study recommendations are generally aligned to what was discussed in the 2020-05-05 meeting by having a left turn lane onto the school site and pedestrian crossing at trailhead.</p> <p>The DPCDSB also added that while the pedestrian crossing is not entirely ideal, they understand there are many constraints to consider.</p>
<p>Region of Peel</p>	<p>RVA staff provided Region of Peel staff with a presentation of the study findings to date, including a roll plan of the preliminary recommended design. RVA technical staff provided commentary on key aspects of the recommended design and answering questions posed by Regional Staff as required. Comments provided by Region for consideration in the EA and/or detailed design during the presentation include:</p> <ul style="list-style-type: none"> <li>• Confirm 3.75-meter-wide travel lanes are in line with the goals for the corridor including traffic calming;</li> <li>• Potential to provide continuous active transportation facilities (Multi-use path or sidewalk) in front of school;</li> <li>• Review approach roads at proposed Mount Hope Road intersection roundabout, specifically the</li> </ul>

	<p>westbound approach to ensure traffic calming goals are met;</p> <ul style="list-style-type: none"> <li>• Review recommended interactive warning signage against latest OTM; and</li> <li>• Ensure shared-use lanes are appropriate based on the projected road speeds and volumes, in consideration of latest OTM.</li> <li>• Input from the Region of Peel was incorporated into the study recommendations and preliminary recommended design prior to presentation to the public at the PIC.</li> </ul>
<p>Toronto and Region Conservation Authority (TRCA)</p>	<p>TRCA staff were provided the PIC Display Boards and a roll plan of the preliminary recommended design prior to presentation to the public at the PIC. TRCA did not provide comments on the materials, requesting to meet with the project team following the completion of the draft Profile File Report.</p>

### 7.3 Additional Comments Received

In addition to the consultation activities described above, the contact information of the Project Managers, including email, telephone and mailing address were available to the public on the Project Web Page and on public notices distributed throughout the study.

This provided an ongoing opportunity for members of the public to provide their questions, concerns, and/or comments regarding the study to the project team for consideration in the study.

The general comments and questions received during the study, and how these comments and questions were incorporated into the study are summarized in Table 7-4.

**Table 7-4 – General Comments and Questions Received**

GROUP / MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
<p>Resident (Comments submitted via Email)</p>	<p>Resident provided a map highlighting three areas of concern they wish to be addressed in the EA including:</p> <ol style="list-style-type: none"> <li>1. School Zone – Eastbound cars attempting a left hand turn to the school entrance are being blocked by westbound traffic causing a huge traffic back-up up to Highway 50. Car users are riding on the right lane shoulder to go around the problem which is a safety concern for pedestrians and cyclists.</li> </ol> <p>There is a high number of students trespassing the road and not using the existing pedestrian crossing at the light.</p> <ol style="list-style-type: none"> <li>2. Mount Hope Road at Columbia Way Intersection - At this road curve, there is a bad line of sight with trees on the north west side corner of Mt Hope/Columbia, especially with full tree foliage it is obstructing views looking westbound to the intersection. The stop sign is also not easily visible.</li> </ol> <p>Improvements on the intersection visibility are required in this area to increase user safety.</p> <ol style="list-style-type: none"> <li>3. S-Curve - Issues in this area are blind horizontal and vertical curves, high road</li> </ol>	<p>2020-04-08</p>	<p>The resident was responded to noting that the preferred solutions for the roadway have not yet been identified, and that their comments will be considered in the development and evaluation of the alternative solutions.</p> <p>The recommended solution for the roadway included improvements at the areas identified by the resident including a new left-hand turn lane at the school, a new pedestrian crossing to address ongoing jaywalking, improvements to the Mount Hope Road at Columbia Way intersection in the form of a roundabout, and improvements to the s-curve including a paved shoulder to accommodate pedestrians and cyclists through the area.</p> <p>Road drainage and pavement conditions, traffic calming, and improved signage were implemented into the study recommendations.</p> <p>Enhanced active transportation facilities through a consistent multi-use path placed behind the ditch, and improved pedestrian crossing facilities eliminated the necessity of the guardrail.</p>

GROUP / MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
	<p>grades, dangerous winter driving, poor night visibility, poor drainage causing road shoulder erosion issues, pavement degradation and potholes. Also, we would welcome the addition of bike lanes and sidewalks in the ravine to Caledon King-Townline accessing the TRCA Bolton camp.</p> <p>The resident also provided general observation / suggestions to be considered through the EA including:</p> <ul style="list-style-type: none"> <li>- The guardrail on the south side of Columbia way installed a few years ago to separate pedestrian walkways to traffic is effective, we feel safer walking or biking behind it. More guardrail is welcome</li> <li>- Overall poor road drainage and pavement deterioration all over Columbia way</li> <li>- Speeding and road noise is an issue; need more speed traps, photo radar or other permanent deterrent measures</li> <li>- Increase signage visibility</li> </ul>		
<p>Resident (<i>Comments submitted via Email</i>)</p>	<p>Resident stated that they are looking forward to seeing improvements to Columbia way, and, as an avid cyclist who uses Columbia</p>	<p>2020-04-09</p>	<p>The study considered a range of alternatives to accommodate pedestrians and cyclists along the corridor.</p>

GROUP / MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
	<p>Way to get to various roads, they would like to see an extended shoulder or even a bike lane.</p>		<p>The provision of a continuous multi-use path along the south side of the road in the urban area, and a paved shoulder between Mount Hope Road and the Coventry Bridge are anticipated to improve the active transportation facilities in the study area, contributing to a safe, connected active transportation network in the area.</p>
<p>Resident (Comments submitted via Email)</p>	<p>Resident stated their interest in the study, and identified their primary concerns related to the Columbia Way improvements as protection of the wetland habitat and excessive motor vehicle speeds / pedestrian safety. The resident also stated their preference of a traffic circle as opposed to a signalized intersection.</p>	<p>2020-04-12</p>	<p>The study considered impacts to the natural environment, including the wetland habitats under TRCA jurisdiction adjacent to the corridor. Study recommendations include traffic calming features, including the introduction of a new roundabout at the Mount Hope Road / Columbia Way intersection.</p>
<p>Resident (Comments submitted via Email)</p>	<p>Resident identified ongoing drainage issues due to water backing up at the culvert in the area of 9706 Columbia Way during heavy rainfall, causing flooding to back up behind the culvert onto the north side of the road. The resident also stated that road safety improvements are desired.</p>	<p>2020-04-13</p>	<p>Town of Caledon upsized the culvert in the area of 9706 Columbia Way, from a 300 mm diameter to 450 mm diameter in May 2020, alleviating adjacent flooding issues. Hydraulic assessment completed during the EA determined that each of the culverts, in the study area, including the recently upsized culvert in the area of 9706 Columbia Way crossings, are sufficient to convey existing and future</p>

GROUP / MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
			flows, and will not require additional capacity as part of the road improvements
Resident (Comments submitted via Email)	<p>Resident provided suggestions for the improvements to the roadway, including a sidewalk on the north side of the road to accommodate St Michaels' students, citing safety concerns for students crossing the road.</p> <p>The resident also suggested additional accommodation for cyclists in the form of a paved shoulder, stating that the current gravel path is not used by cyclists.</p>	2020-04-15	<p>The study considered a range of alternatives to accommodate pedestrians and cyclists along the corridor.</p> <p>The provision of a continuous, paved, multi-use path along the south side of the road in the urban area, multi-use path on the north side of the road leading to the school from both pedestrian crossings, and a paved shoulder between Mount Hope Road and the Coventry Bridge are anticipated to improve the active transportation facilities in the study area, contributing to a safe, connected active transportation network in the area.</p> <p>Cyclists are also permitted to utilize the roadway.</p>
Resident (Comments submitted via Email)	<p>Resident inquired how long the study will take and what improvements are being considered as part of the study.</p> <p>Resident voiced concerns over the validity of the study during Covid-19 shutdowns as a result of significantly fewer vehicles travelling to and from the school.</p> <p>Finally, the resident questioned why the 40 km/hr speed limit in the school zone cannot be amended to apply only during school hours.</p>	2020-04-16	<p>The resident was informed that the study will take about 15 months, and will also consider improvements such as sidewalk, multi-use trail, pedestrian crossing, intersection improvement, and drainage issues.</p> <p>Resident was made aware that even though the school is closed, the Town has historical traffic data including left-turn</p>

GROUP / MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
			<p>traffic into the school that will be used to develop study recommendations.</p> <p>There are currently no planned changes to the existing regulatory maximum speed limits on Columbia Way Road</p>
<p>Resident (Comments submitted via Email)</p>	<p>Resident provided suggestions for the improvements to the roadway, in consideration of issues that they have observed including:</p> <ul style="list-style-type: none"> <li>- A left turn lane for St Michael's Secondary School is required. During the school year, there are frequent traffic backups due to vehicles waiting to turn into the school. These backups can stretch back as far as Highway 50.</li> <li>- The sidewalk and streetlights between Kingsview and Highway 50 are in good condition and used by residents. The sidewalks along the rest of Columbia Way are less appealing, a paved asphalt path behind a guardrail.</li> <li>- Bike lanes along the length of Columbia Way. These could be integrated in the road, or there is space to have a separate bike/pedestrian path beside the road.</li> <li>- Plan ahead for the new shopping plaza proposed on the north east corner of Columbia Way and Highway 50. Use the existing lights at Kingsview as one of the</li> </ul>	<p>2020-04-22</p>	<p>The study considered options to improve the operations of vehicles in the area of the school during peak hours.</p> <p>By introducing a left-turn lane into the school, it is expected that the issues with vehicles queuing will be mitigated.</p> <p>The study considered a range of alternatives to accommodate pedestrians and cyclists along the corridor.</p> <p>The provision of a continuous, paved, multi-use path along the south side of the road in the urban area, multi-use path on the north side of the road leading to the school from both pedestrian crossings, and a paved shoulder between Mount Hope Road and the Coventry Bridge are anticipated to improve the active transportation facilities in the study area, contributing to a safe, connected active transportation network in the area.</p> <p>Study recommendations were developed</p>



GROUP / MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
	<p>main entrances to the plaza. This requires widening Columbia Way for a left-turn lane at the lights.</p> <ul style="list-style-type: none"> <li>- Columbia Way used to be 60 km/h the entire length. There is now a 40 km/h zone at the high school. Could this be changed to a timed 40 km/h, so that the reduced speed was only applicable during school times? On evenings and weekends, the 60 km/h speed limit has smoother traffic flow.</li> <li>- The pavement is broken and worn out between Mount Hope Rd and Caledon-King Townline. I'm told that there is a current project to repave this section.</li> <li>- It would be nice to smooth out the curves &amp; hills between Mount Hope &amp; Caledon-King, but this is likely not feasible.</li> <li>- A flashing overhead caution light on Caledon-King Townline would make the intersection more visible at night and in bad weather. There was such a light at the driveway to the former Montessori School (which has finally been disabled over a decade after the school burnt down).</li> </ul>		<p>Study recommendations do not include any revisions to existing posted speed limit.</p> <p>Study recommendations include reconstruction of the deteriorated pavement structure.</p> <p>Study recommendations include a be prepared to stop flashing beacon in lieu of lowering the vertical profile of the road in advance of the Mount Hope Road intersection.</p>
<p>Resident (Comments submitted via Email)</p>	<p>Resident submitted a question regarding the resurfacing of Columbia Way, inquiring why an additional lane to allow eastbound travellers to pass around the vehicles waiting to enter the</p>	<p>2020-05-03</p>	<p>Resident was informed that the resurfacing of Columbia Way is a separate project from the Columbia Way EA study,</p>

GROUP / MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
	school was not implemented in the resurfacing of the roadway.		and improvements to the road are still being considered. A new left-hand turn lane at the school was included in the study recommendations.
Resident (Comments submitted via Email)	Resident inquired how the public comments received at the PIC will be shared with the public.	2021-03-13	Resident was advised that all comments and questions received will be documented in the Project File Report, which will also be available for public review. Resident was notified that comments / questions regarding the project can still be submitted to the project contacts at any time during the study, prior to completion.
	Resident inquired how the public comments received at the PIC will be incorporated into the study recommendations.	2021-04-13	Resident was advised that the project team is reviewing the comments received for incorporation into the recommended design developed for the corridor, and after that, the responses will be sent to residents. The resident was also advised that the Project File Report will include a summary of all comments received throughout the PIC, and how each comment was considered in the EA. Meeting with resident was scheduled for April 29, 2021.

<b>GROUP / MEDIUM</b>	<b>COMMENT SUMMARY</b>	<b>DATE RECEIVED</b>	<b>CONSIDERATION OF COMMENTS IN EA</b>
	Outcomes of meeting scheduled with resident described in notes included in Appendix 1.	2021-04-26	Outcomes of meeting scheduled with resident described in notes included in Appendix 1.
	Resident followed-up from meeting stating concern regarding U-turn movements and safety associated with the recommended lay-by parking in front of the school.	2021-04-29	Explanation of operational and traffic improvements in vicinity of school explained. Further consideration for lay-by parking in front of school in consultation with school board should be given during detailed design.

## **8.0 ADDITIONAL WORK AND APPROVALS**

### **8.1 Detail Design Commitments**

In addition to the mitigation measures described in Section 6.0, additional work is required to be completed following the Class EA. During detailed design the following work is needed to confirm findings from the Class EA phase and to further refine the design:

- Complete a detailed geotechnical investigation to confirm the subsurface conditions.
- Complete a detailed structural evaluation of the Coventry Bridge Structure to confirm rehabilitation requirements.
- Assess any Butternut trees potentially impacted by the recommendations by a Butternut Heath Assessor (BHA) to determine appropriate measures to mitigate these impacts through discussion with MECP.
- Confirm connection to the planned maintenance road access off Columbia Way.
- Undertake vibration monitoring of heritage structures as identified by the Cultural Heritage Resources Assessment Preliminary Impact Assessment.
- Complete Stage 2 Archaeological Assessment (and any subsequent stages of assessment recommended in the Stage 2 report) on the lands identified as requiring Stage 2 archaeological assessment, if impacted, prior to construction.
- Develop a plan to deal with the transportation and disposal/reuse of any excess soils under O.Reg 406/19.
- Continue consultation with utility companies and coordinate utility relocations.
- Confirm construction staging and traffic management plans for the road reconstruction.
- Finalize capital cost estimate, including property requirements.
- Finalize mitigation measures and requirements for construction work.
- Confirm and obtain required approvals and necessary permits as outlined below.

### **8.2 Permits & Approvals**

The following approvals have been identified as potentially being required prior to the implementation of the proposed works.

- A permit under *Ontario Regulation 166/06: TRCA Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* will be required for work within TRCA Regulated areas and will be secured during detail design for all work within TRCA regulated areas.
- A Permit to Take Water will be required from the MECP if dewatering exceeds 50,000 litres per day.
- Should any work associated with the Coventry Bridge rehabilitation and deck widening be required below the high-water mark (often the 2-year storm level), including temporary disturbances not covered by the interim codes of practice, a Request for Review application should be submitted to DFO to review the project for compliance with the Fisheries Act.
- Prior to construction, a letter from MHSTCI will be required clearing the impacted areas from archaeological potential.
- An Environmental Compliance Approval could be required prior to construction to ensure that the proposed works comply with MECP guidelines for the design of sanitary sewage systems, storm sewer systems and/or water systems.

