

# Chapter 4 – Identification of Alternatives and Evaluation Process



407 TRANSITWAY – WEST OF BRANT STREET TO WEST OF HURONTARIO STREET  
MINISTRY OF TRANSPORTATION - CENTRAL REGION

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## 4. IDENTIFICATION OF ALTERNATIVES AND EVALUATION PROCESS

### 4.1. Rapid Transit Technology

A Rapid Transit Technology evaluation for the entire 407 Transitway was conducted as part of the Transit Project Assessment Process (TPAP) of the Central Section (Highway 400 to Kennedy Road) and approved as part of the TPAP Environmental Project Report filed in February of 2011.

Five candidate technology alternatives were considered in developing a response to the need for inter-regional rapid transit in the ultimate 150 km 407 ETR Corridor.

1. BRT;
2. LRT;
3. Automated Guideway Transit (AGT);
4. Heavy/Commuter Rail; and,
5. Subway.

Each of the above candidate technologies was evaluated against four major criteria reflecting the near and long-term needs and objectives for the 407 Corridor. These included:

- Transit service quality encompassing capacity required, user convenience and comfort, service speed and reliability and network connectivity/interlining;
- Planning considerations addressing infrastructure integration and the system's support of Provincial growth and planning policies;
- Environmental compatibility covering effects on the natural and socio-economic environment and energy consumption; and,
- Implementation considerations including right of way property needs, cost-effectiveness and implementation staging.

From the evaluation, it was evident that BRT would be the preferred technology for the 407 Transitway but that conversion to LRT technology in the future should be protected to respond to the anticipated growth in ridership volumes beyond the 2041 planning horizon. In addition to significant implementation staging flexibility to transition from operation in mixed traffic on the 407 ETR to higher speed service on an exclusive runningway, BRT provides capacity for the projected demand at the desired level of convenience and comfort.

Similar to the other technologies, BRT is low emission and energy efficient vehicle technology. Other important advantages of the BRT system are: i) it provides implementation staging flexibility, allowing the opportunity to build specific segments of runningway while maintaining the 407 Transit operation on 407

- Suitability for efficient construction phasing; and,
- Major constructability issues and cost considerations.

ETR along un-built or under construction segments; and, ii) BRT's capital and operating costs are compatible with the size of the market for rapid transit service in the corridor compared to the other high capital investment technologies. The runningway and station infrastructure can be shared by other bus transit operators providing compatible services.

LRT technology was considered the best candidate technology for later implementation in the 407 Corridor to meet the potential future increase in service demand. Unlike Diesel Multiple Units (DMU) and Heavy Rail, the alignment geometric standards do not limit alignment planning options and it can be implemented with adequate measures to mitigate most natural and socio-economic impacts. Experience around the world indicates that both BRT and LRT technologies can provide the capacities likely to be required in the 407 Corridor both in the medium and long-term provided investment is made in an exclusive, grade separated right of way with passing capability at stations in the case of BRT.

### 4.2. Corridor Assessment

Two Corridor Protection Studies were completed by MTO in 1998 and 2005 which together cover this section of the 407 Transitway. These studies identified an initial alignment, stations and supporting facilities for the 407 Transitway for protection purposes in advance of the required Environmental Assessments being carried out. While the identified initial alignments were used as a basis for the corridor assessment in this Environmental Assessment, both the north and south sides of 407 ETR were assessed further to identify the preferred corridor and associated stations to be carried forward in this study. The analysis and evaluation is described in **Section 4.6** of this Chapter "Screening of Station Sites and Alignment Alternatives".

Major factors considered in identifying potential areas suitable to accommodate the runningway in no particular order included:

- Land availability;
- Avoiding or minimizing environmental impacts of provincial significance;
- Federal, Provincial and Municipal land use and transportation plans and planning policies;
- Connectivity to potential station sites;
- Impacts to private property and development plans;
- Impacts to 407 ETR footprint and operations;
- Impacts to utility facilities such as the Hydro One Corridor and the Parkway Belt Utility Corridor;
- Impact to existing or planned public and private infrastructure;
- Watercourse and floodplain crossings;
- Existing road and rail line crossings;
- Compatibility with MTO-407 Transitway Design Standards;

### 4.3. Evaluation of Alternatives Approach

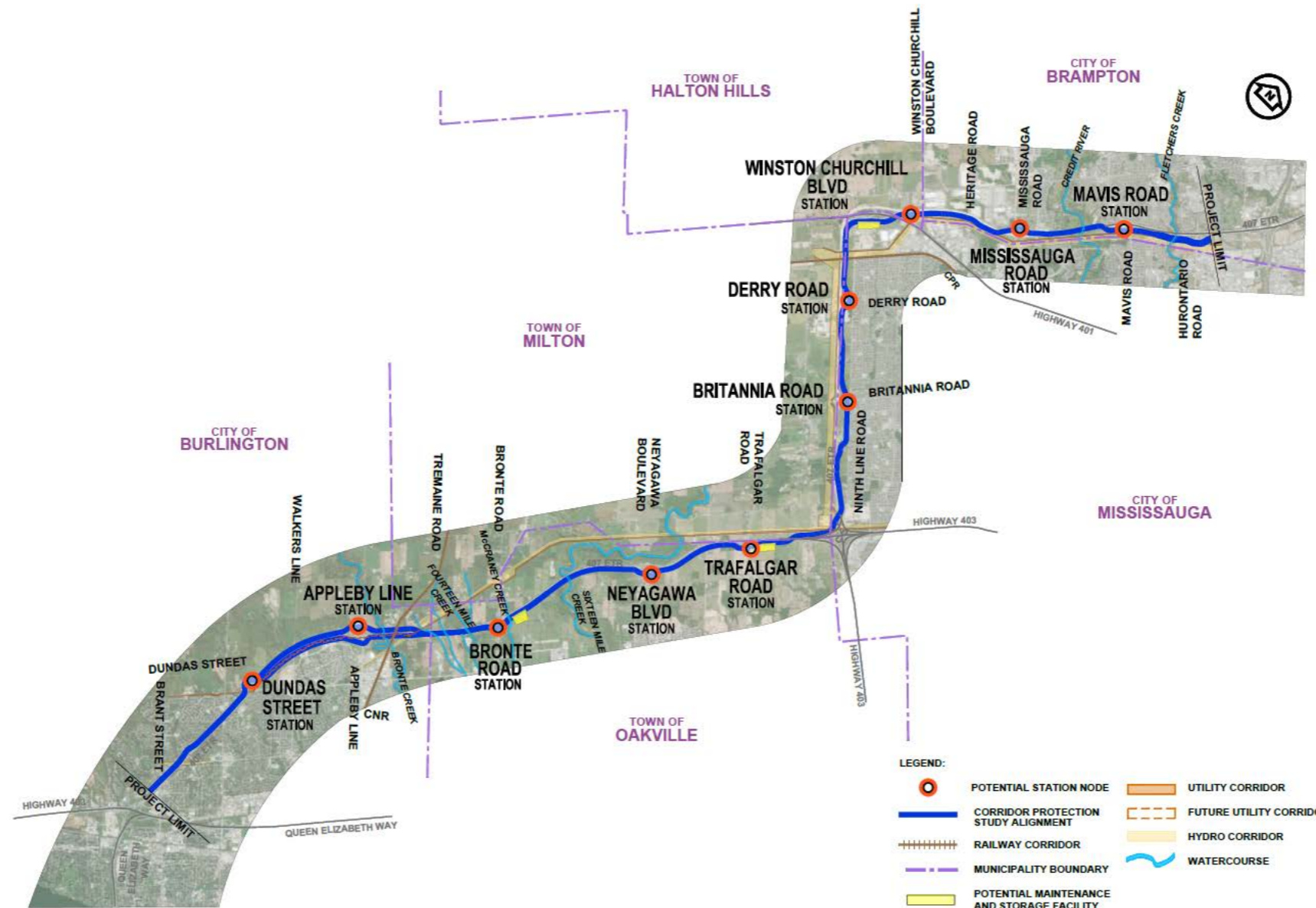
Based on the complexity of this segment of the 407 Transitway, the approach to developing the preferred alignment, station locations, and maintenance and storage facility locations consisted of three steps:

- Step 1:** Screening of station nodes.
- Step 2:** Screening of maintenance and storage facility locations.
- Step 3:** Evaluation of station sites and alignment alternatives.

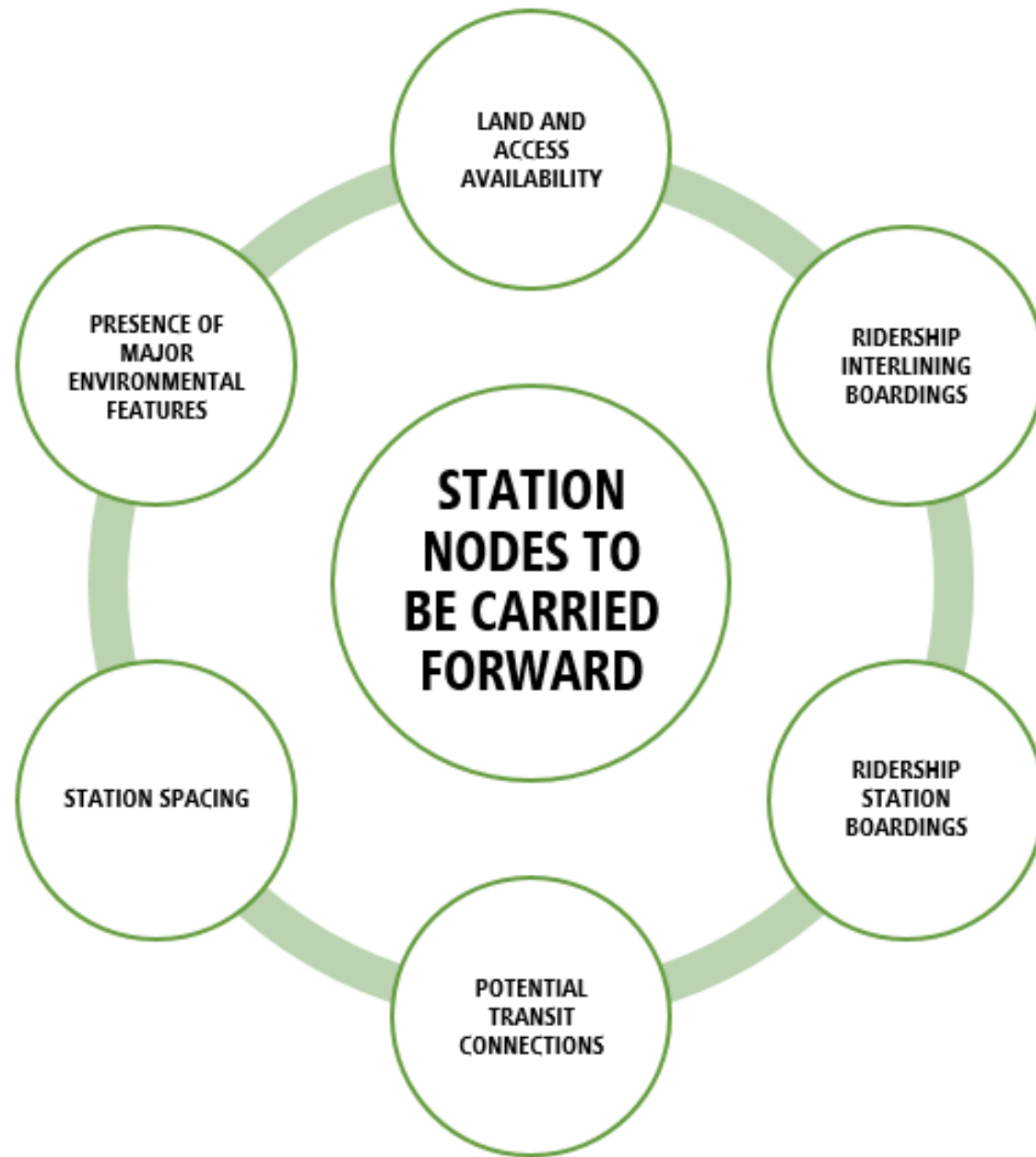
### 4.4. Step 1 - Station Node Screening

As an initial step, all 407 ETR crossings of existing and future arterial roads identified in the 1998 and 2005 Corridor Protection Studies (CPS) described in Chapter 1 of the EPR, were considered potential station locations. These are illustrated in **Figure 4.1**. Each location was individually assessed based on the criteria shown in **Figure 4.2**

**FIGURE 4.1: POTENTIAL STATION NODES**



**FIGURE 4.2: SCREENING OF STATION LOCATIONS**



One of the main objectives of the study is to protect sufficient lands to meet the long-term needs of the 407 Transitway for both the runningway and stations, given that unprotected private land may be developed, and unprotected Provincial land may be released for development. The approach at the planning stage of the project was to initiate the work by screening out station nodes where major constraints were identified, using the assessment criteria shown in **Figure 4.2**.

The station location assessment screening process and results are summarized in **Table 4.1**.

**TABLE 4.1: STATION NODE SCREENING ASSESSMENT**

CRITERIA OF EVALUATION	DUNDAS STREET	APPLEBY LINE	BRONTE ROAD	NEYAGAWA BLVD	TRAFALGAR ROAD	BRITANNIA ROAD	DERRY ROAD	WINSTON CHURCHILL BOULEVARD	MISSISSAUGA ROAD	MAVIS ROAD
<b>PRESENCE OF MAJOR ENVIRONMENTAL FEATURES</b>	Tuck Creek is found in the northern quadrants and the Tributary of Shoreacres Creek is found in the southeast quadrant.	Zimmerman Valley Area of Natural and Scientific Interest, Life Science Provincial is located approximate 200 m east of the Appleby Line (south and northeast quadrants of 407 ETR and Appleby Line Interchange)  Tributary of Sheldon Creek in the west of Appleby Line. Bronte Creek is located to the east.  Timber Rattlesnake (Extirpated, last observed 1950) within 1 km grid. Unlikely to be present.	Tributaries of Fourteen Mile Creek (coldwater, moderate habitat sensitivity) are within the station node.  Small pockets of provincially evaluated wetlands that are part of the North Oakville-Milton West Wetland Complex are found in the northern quadrants and southeast quadrant (surrounding the Tributary of Fourteen Mile Creek).  Northern Bobwhite (Endangered) (last observed 1904) within 1 km grid. Unlikely to be present.	A portion of the Oakville-Milton Wetlands and Uplands Candidate Area of Natural and Scientific Interest, Life Science Provincial is located on the north side of 407 ETR and Neyagawa Boulevard Interchange and 300 m west of Neyagawa Boulevard (Southwest quadrant of 407 ETR and Neyagawa Boulevard interchange).  Further west of the node and on the north side of 407 ETR is the Trafalgar Moraine.  Small tributaries of the East Sixteen Mile Creek are found on the northern side of 407 ETR.	A portion of the Oakville-Milton Wetlands and Uplands Candidate Area of Natural and Scientific Interest, Life Science Provincial is located 300 m west of Trafalgar Road (Southwest quadrant of 407 ETR and Trafalgar Road interchange).  Tributary of Joshua's Creek travels south starting from the northwest quadrant through the southwest quadrant and then to the southeast quadrant of the 407 ETR and Trafalgar Road interchange.	Drumquin Wetlands (evaluated – not provincially) is located west of 407 ETR.  Tributaries of East Sixteen Mile Creek are within all quadrants.  Existing floodplain issues being assessed in a City of Mississauga project.	Tributary of East Sixteen Mile Creek runs north-south direction, parallel to 407 ETR and Ninth Line.  Existing floodplain issues being assessed in a City of Mississauga project.	No environmental features within station node.	Levi's Creek is in the northeast and south east quadrant.  Eastern Meadowlark (Threatened, last seen in 2002). Potential impacts to Eastern Meadowlark habitat in existing meadow areas within the station node.  Environmentally Significant Area (CVC) in the southwest quadrant of the node.	No major environmental features within station node.
<b>LAND AND ACCESS AVAILABILITY</b>	Potential sites accessible. West site would require property acquisition. East side on provincial lands.	Potential site available and accessible.	Potential sites accessible. South/west site would require property acquisition. South/east site on provincial lands.	Potential site would require property acquisition.	Site already protected and owned by MTO. Existing access.	Potential sites accessible. Both sites would require partial property acquisition.	Potential sites accessible. South site would require property acquisition.	Major access issues from 407 ETR, and local road network to only potential site. Limited land availability, partially located in Hydro Corridor with bus access/service restrictions. Site constrained by Bram West Parkway plans.	Potential site accessible. South side site withing Hydro Corridor with bus access/sevice restrictions.	No direct access from the 407 ETR-Mavis Interchange to potential site. Constrained site within Hydro Corridor with with bus access/service restrictions.
<b>STATION BOARDINGS EASTBOUND</b>	160	100	130	180	870	250	290	640	530	30
<b>INTERLINING BOARDINGS EASTBOUND</b>	1,030	-	-	-	360	60	-	-	-	-
<b>DISTANCE TO ADJACENT STATIONS</b>	4-km to Appleby Line	4-km to Dundas Street 4.5-km to Bronte Road	4.5-km to Appleby Line 4.5-km to Neyagawa Blvd	4.5-km to Bronte Road 3.5-km to Trafalgar Road	3.3-km to Neyagawa Blvd 7-km to Britannia Road	7-km to Trafalgar Road 3.5-km to Derry Road	3.5-km to Britannia Road 4-km to Winston Churchill Blvd	4-km to Derry Road 2.5-km to Mississauga Road	2.5-km to Winston Churchill Blvd 4-km to Mavis Road	4-km to Mississauga Road 1.5-km to Hurontario Road
<b>POTENTIAL TRANSIT CONNECTIONS</b>	Burlington Transit, GO Bus, Oakville Transit.	Burlington Transit.	GO Bus.	No local transit service.	GO Bus.	MiWay.	GO Bus, MiWay.	Züm, Brampton Transit, MiWay.	Züm, Brampton Transit, MiWay.	Brampton Transit, MiWay.
<b>CARRIED FORWARD STATIONS</b>	<b>CARRIED FORWARD TO STEP 2.</b>	<b>CARRIED FORWARD TO STEP 2.</b>	<b>CARRIED FORWARD TO STEP 2.</b>	<b>NOT CARRIED FORWARD.</b>	<b>CARRIED FORWARD TO STEP 2.</b>	<b>CARRIED FORWARD TO STEP 2.</b>	<b>CARRIED FORWARD TO STEP 2.</b>	<b>NOT CARRIED FORWARD.</b>	<b>CARRIED FORWARD TO STEP 2.</b>	<b>NOT CARRIED FORWARD.</b>

#### 4.4.1. Summary of Results of the Station Node Screening

Below is a summary of the station node evaluation and the reasons for selecting each node to be carried forward. Nodes which present unfavourable results, and/or there are obstacles or restrictions to the success or feasibility of a station facility as noted in the evaluation criteria above, were not carried forward.

Of the ten potential station nodes, seven were carried forward. A summary of the results of the station node screening is presented below and illustrated in **Figure 4.3**.

##### DUNDAS STREET STATION

Potential station at Dundas Street was **carried forward**. Main characteristics of this node include:

- High demand for transit transfer, park and ride, and pick-up/drop-off parking. Highest forecast demand of all stations;
- Existing GO 407 Express Bus station;
- Municipal vision for a future intermodal hub;
- Future municipal BRT service planned along Dundas Street; and,
- Existing and future employment within walking distance.

##### APPLEBY LINE STATION

Potential station at Appleby Line was **carried forward**. Main characteristics of this node include:

- This station is planned as a future facility when ridership demand warrants implementation, and/or Dundas Street facility is at capacity;
- Relatively low ridership forecast; however, since there is no current local transit service along Appleby Line, demand and transfer opportunity would increase when local transit operates on Appleby Line; and,
- If this station was eliminated, the spacing between the adjacent stations (Dundas Street and Bronte Road) would be more than 9 km.

##### BRONTE ROAD STATION

Potential station at Bronte Road was **carried forward**. Main characteristics of this node include:

- Relatively low ridership forecast with potential to increase when planned widening of Bronte Road is constructed and when municipal transit operates on Bronte Road;
- Opportunity to combine service and intergrade with planned relocated GO bus/park and ride lot; and,
- Opportunity to share access and utilities with 407 Transitway Operation, Maintenance and Storage Yard being proposed adjacent to the station.

##### NEYAGAWA BOULEVARD STATION

Potential station west of Neyagawa Boulevard was **not carried forward**. Main characteristics of this node include:

- Low forecast ridership;
- Potential site on private land with plans for development; and,
- Poor connection and lengthy walking distance to residential subdivision to the east.

##### TRAFALGAR ROAD STATION

Potential station at Trafalgar Road was **carried forward**. Main characteristics of this node include:

- High forecast demand;
- There already is a GO bus station and carpool facility at this location;
- Additional land required for the station is owned and protected by MTO;
- It will provide the public, a larger carpool and a major transit transfer opportunity;
- Potential for convenient staging due to the existing GO bus station and carpool facility at this location; and,
- Future Trafalgar Corridor development planned around the potential station site.

##### BRITANNIA ROAD STATION

Potential station at Britannia Road was **carried forward**. Main characteristics of this node include:

- Moderate forecast demand;
- Station will serve planned residential development in the Ninth Line corridor and large residential development east of Ninth Line;
- Land sufficient for forecast demand; and,
- Potential sites accessible from Ninth Line.

##### DERRY ROAD STATION

Potential station at Derry Road was **carried forward**. Main characteristics of this node include:

- Relatively high forecast demand;
- Station will serve planned residential development in the Ninth Line corridor and large residential development east of Ninth Line;
- Land sufficient for forecast demand; and,
- Potential sites accessible from Ninth Line.

##### WINSTON CHURCHILL BOULEVARD STATION

Potential station at Winston Churchill Boulevard Station was **not carried forward**. Main characteristics of

this node include:

- High forecast demand;
- Major access issues from 407 ETR, and local road network to the only potential site;
- Insufficient land available, partially located in Hydro Corridor. Site constrained by Bram West Parkway plans; and,
- Potential users will have access to the 407 Transitway at Mississauga Road Station, located only 2.5 km away, as an option. The existing Lisgar GO Station has also been identified as a station option when the runningway in this section is built (as explained below).

#### MISSISSAUGA ROAD STATION

Potential station at Mississauga Road was **carried forward**. Main characteristics of this node include:

- Relatively high forecast ridership that will increase due to Winston Churchill Boulevard Station being eliminated;
- One of the site alternatives has good access from Mississauga Road, and good walking accessibility to extensive employment lands immediately north and west of station site;
- Good local transit integration opportunity.

#### MAVIS ROAD STATION

Potential station at Mavis Road was **not carried forward**. Main characteristics of this node include:

- Very low forecast ridership;
- Location too close to Hurontario Station;
- The only site available has no direct access from/to Mavis Road and 407 ETR-Mavis Interchange.

#### CONNECTION TO EXISTING LISGAR GO STATION

With the elimination of the Winston Churchill Boulevard Station due to major land availability and accessibility issues, and assessing the potential opportunity of connecting the 407 Transitway with the existing Metrolinx **Lisgar GO Station**, the 407 Transitway Project Team identified an alignment between the CP Galt Rail Subdivision (GO Milton Line) and Highway 401, along the Hydro Corridor that provides the connection opportunity with the **Lisgar GO Station**. An expanded parking area is being proposed within the Hydro Corridor to accommodate additional 407 Transitway demands, with this being constructed only when the 407 Transitway runningway in this section is built.

### 4.5. Step 2 – Screening of Maintenance and Storage Facility Locations

As indicated in Chapter 2, the site for the main 407 Transitway operations and maintenance facility at Jane Street and Highway 407 was approved by MOECC (now MECP) in February 2012. The 1998 and 2005 Corridor Protection Studies identified three candidate Provincially owned sites for the west support yard which will consist of a minor maintenance facility (washing/cleaning), a storage facility to

garage the vehicle fleet serving the west section of the 407 Transitway, administrative buildings, and surface parking areas. These sites, which are illustrated on **Figure 4.1**, included:

- A site located south of 407 ETR, east of Bronte Road.
- A site located south of 407 ETR, east of Trafalgar Road.
- A site located south of Highway 401, east of Ninth Line.

To confirm feasibility of these three sites, presence of major environmental features, site availability/municipal development plans and functionality and operational costs considerations were assessed with the following outcome:

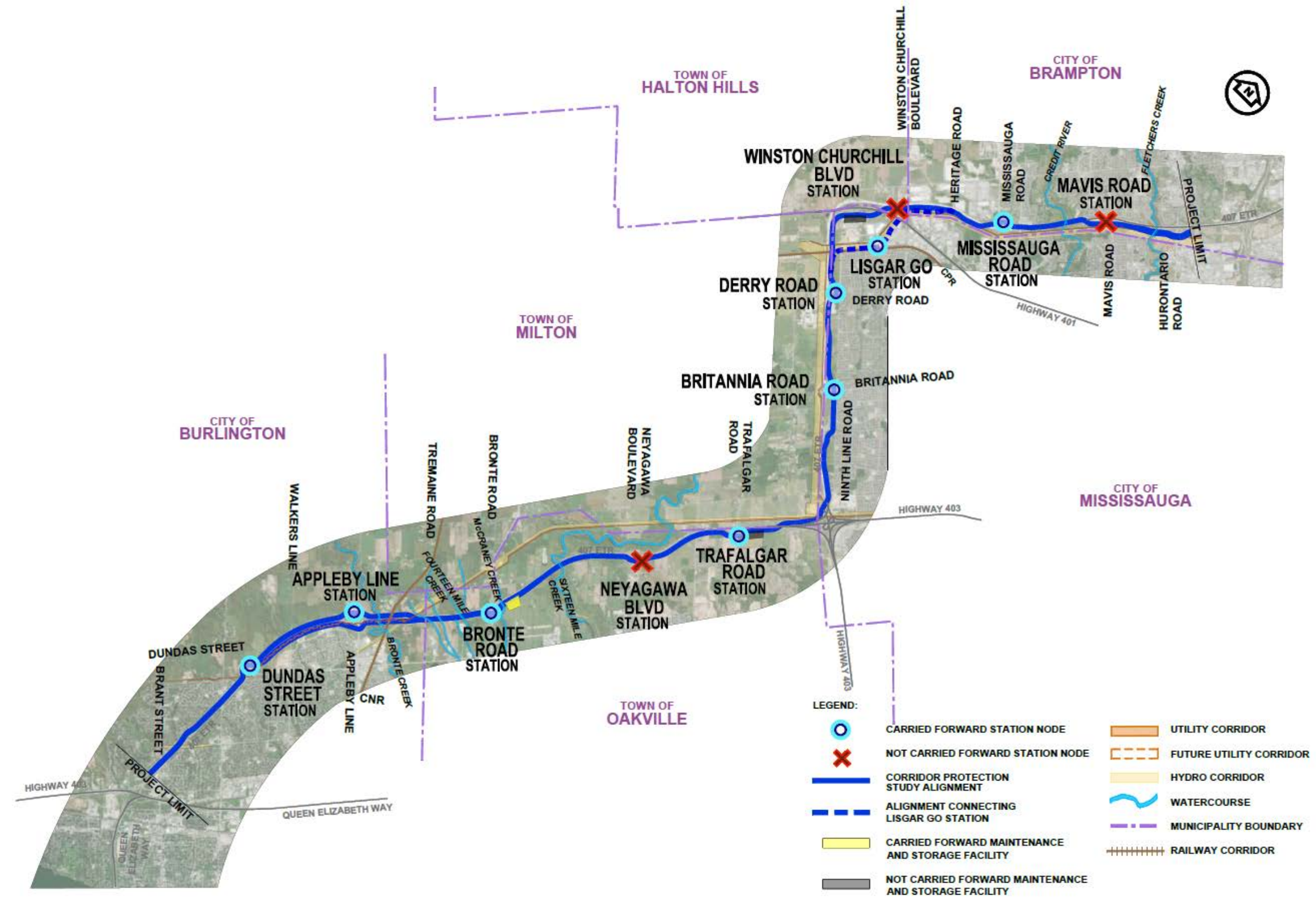
**TABLE 4.2: MAINTENANCE AND STORAGE FACILITY LOCATION ASSESSMENT**

	BRONTE ROAD SITE	TRAFALGAR ROAD SITE	HIGHWAY 401 SITE
<b>PRESENCE OF MAJOR ENVIRONMENTAL FEATURES</b>	Tributary of Fourteen Mile Creek (ephemeral flow, coldwater, moderate habitat sensitivity) Northern Bobwhite (Endangered) (last observed 1904) within 1 km grid. Unlikely to be present.	Three tributaries of Joshua's Creek (ephemeral flow, warmwater, low habitat sensitivity)	Two tributaries of East Sixteen Mile Creek (warmwater, low-moderate habitat sensitivity)
<b>LAND AVAILABILITY/MUNICIPAL DEVELOPMENT PLANS</b>	Located within the Provincial Oakville Land Assembly; compatible with surrounding land use plans, and with the Glenorchy Park Stewardship Agreement between the Province and Conservation Halton which covers this area. Site sufficiently large enough to accommodate a bus maintenance and storage yard, potential future expansion, and an LRT maintenance and storage yard if BRT is converted to LRT in the future.	Site identified for potential development. Not consistent with municipal urban development plans along the Trafalgar Corridor.	Site identified for potential development. Highway expansion project could impact this site. Site remote from preferred runningway alignment for this section.
<b>FUNCTIONALITY AND OPERATIONAL COST CONSIDERATIONS</b>	Site located approx. 25 km from west potential terminus. Being the closest site to the potential terminus, it offers the best functionality and operational cost by minimizing the distance buses will need to travel to start service.	Site located approx. 33 km from west potential terminus. It offers less convenient functionality and greater operational cost than the Bronte Road site, as it is located further to the potential terminus.	Site located approx. 45 km from west potential terminus. It offers the worst operational functionality and greatest operational cost as the distance buses will need to travel to start service is the greatest.
<b>CONCLUSION</b>	<b>CARRIED FORWARD.</b>	<b>ELIMINATED.</b>	<b>ELIMINATED.</b>

The Bronte Road site was selected as the preferred option as it does not present environmental issues of Provincial Significance, it is compatible with land use plans for the area and being the most westerly of the three site options, it offers the most convenient, functionality and least operational costs.



FIGURE 4.3: SCREENED STATION AND MAINTENANCE AND STORAGE FACILITY LOCATION NODES



## 4.6. Step 3 – Screening of Station Sites and Alignment Alternatives

### 4.6.1. Identification of Station Sites and Alignment Alternatives

The identification and assessment of station site and alignment alternatives were conducted in two steps:

**STEP 1:** The station site and alignment alternatives protected through the 1998 and 2005 Corridor Protection Studies (CPS) were first assessed to confirm if a feasible alignment and station facilities could be accommodated within the CPS lands. Aspects that were assessed included:

- Presence of environmental features of Provincial Significance pursuant to the MECP Regulations;
- Provincial, regional or local municipal land use and/or transportation plans, approved or proposed that were not identified/anticipated when the CPS was conducted;
- Significant socio-economic impacts caused by the CPS 407 Transitway facilities;
- The CPS facilities meeting the current MTO 407 Transitway design standards for both BRT and LRT technologies;
- The presence of major utilities located within the CPS lands;
- The CPS facilities impacting Utility and/or Hydro Corridors, or land owned by other government agencies;
- Property or traffic issues preventing feasible accessibility to the station sites protected in the CPS;
- The alignment allowing bus interlining opportunities from/to major urban growth centres;
- The station platform and surface facilities providing adequate transit integration; and,
- Constructability of the CPS alignment being feasible and cost effective.

Note that the station site assessment was conducted only for the station nodes that were carried forward from the Step 1 screening process.

**STEP 2:** Where the CPS alternatives presented issues based on the foregoing analysis, potential alternative alignments and station site options were identified. This included better opportunities to attract users, fewer environmental and social impacts, response to updated municipal plans, fewer disruptions to the public and to the transportation network during construction. **Figure 4.5** to **Figure 4.15** illustrate the alignment alternatives and station options identified.

### 4.6.2. Evaluation of Station Sites and Alignment Alternatives

All identified alternatives were evaluated following the criteria shown in **Figure 4.4**.

This Brant Street to Hurontario Street section was broken down into segments based on 407 Transitway functionality, and/or alignment alternatives as illustrated in **Figures 4.5** to **4.15**, and as described and evaluated in **Tables 4.2** to **4.20**.

*Note:* Along this section of the 407 Transitway (Brant Street to Hurontario Street), the magnetic north direction relative to the 407 corridor varies constantly. To avoid confusion, for purposes of this report, the corridor is referred as follows:

- Traveling west to east from Brant Street to East Lower Base Line.
- Traveling south to north from East Lower Base Line to Derry Road (segment parallel to Ninth Line)
- Traveling west to east from Derry Road to Hurontario Street

#### SEGMENTS

**SEGMENT 1:** WEST OF BRANT STREET TO EAST OF DUNDAS STREET

**SEGMENT 2:** EAST OF DUNDAS STREET TO EAST OF APPLEBY LINE

**SEGMENT 3:** EAST OF APPLEBY LINE TO EAST OF TREMAINE ROAD

**SEGMENT 4:** EAST OF TREMAINE ROAD TO WEST OF SIXTEEN MILE CREEK

**SEGMENT 5:** WEST OF SIXTEEN MILE CREEK TO EAST OF TRAFALGAR ROAD

**SEGMENT 6:** EAST OF TRAFALGAR ROAD TO NORTH OF LOWER BASE LINE

**SEGMENT 7:** NORTH OF LOWER BASE LINE TO NORTH OF BRITANNIA ROAD

**SEGMENT 8:** NORTH OF BRITANNIA ROAD TO NORTH OF DERRY ROAD

**SEGMENT 9:** NORTH OF DERRY ROAD TO WEST OF HERITAGE ROAD

**SEGMENT 10:** WEST OF HERITAGE ROAD TO EAST OF CREDIT RIVER

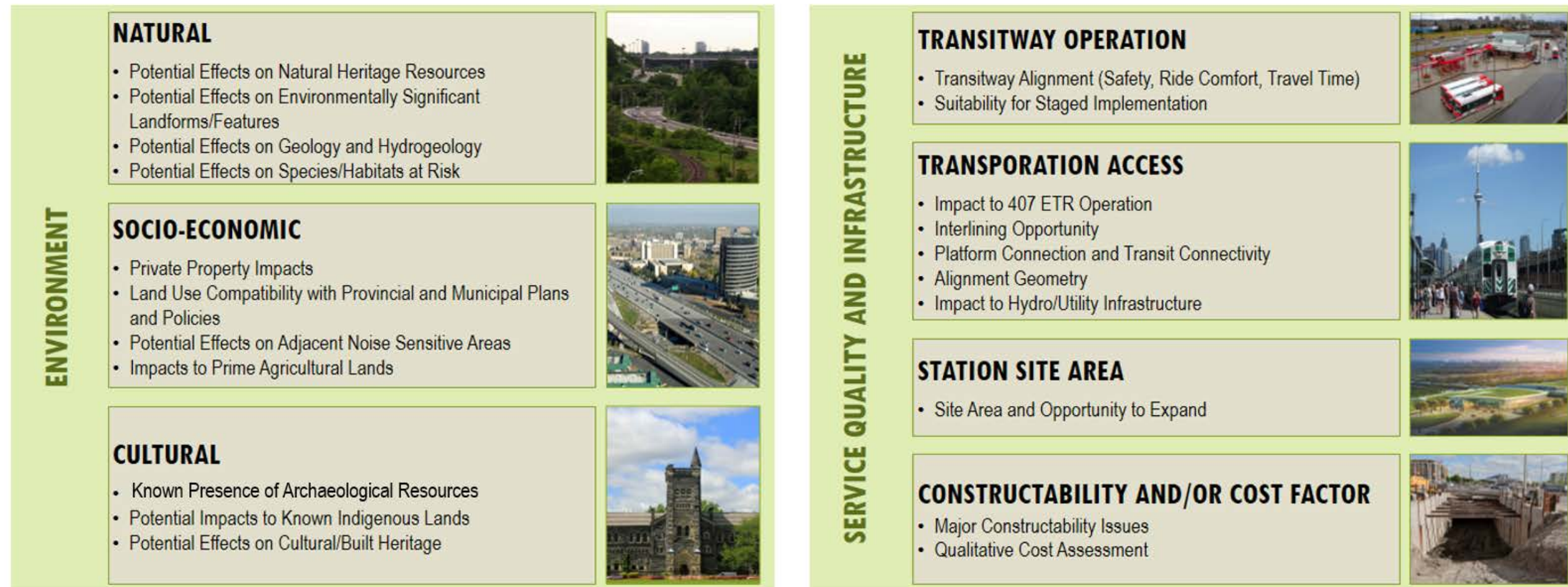
**SEGMENT 11:** EAST OF CREDIT RIVER TO WEST OF HURONTARIO STREET

In each segment, the station site options were evaluated followed by the runningway alignment alternatives and by the profile options of the alignment alternative carried forward. The alternatives identified for each of these components of the 407 Transitway were assessed independently and then compared to each other. The overall result of the assessment of the alternatives evaluated in each segment is summarized at the end of the evaluation section.

FIGURE 4.4: STEP 2 STATION SITES AND ALIGNMENT ALTERNATIVES EVALUATION APPROACH AND CRITERIA.

**STEP 1:** Identify all possible station sites in the areas of the selected nodes, and alignments linking the station site alternatives.

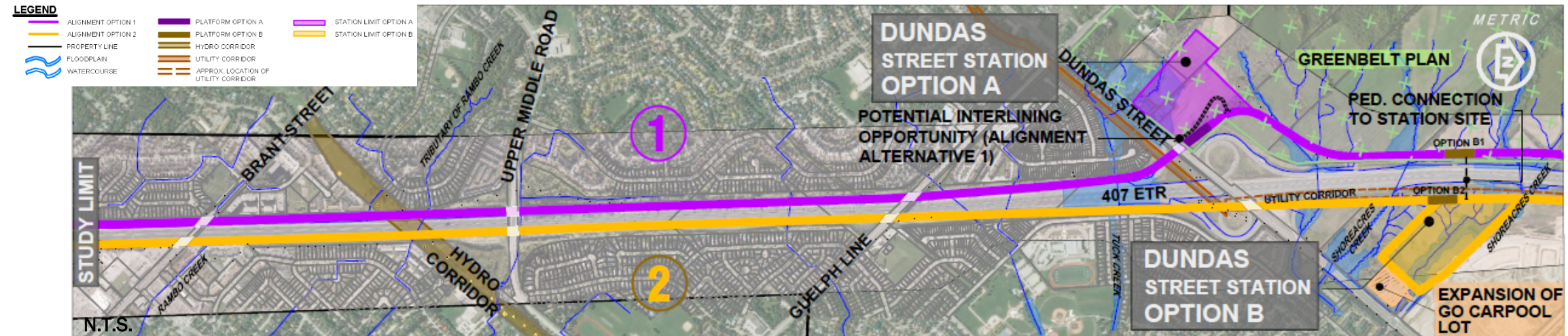
**STEP 2:** Evaluate all planning alternatives based on Service Quality and Infrastructure Considerations and on Environmental Impacts.



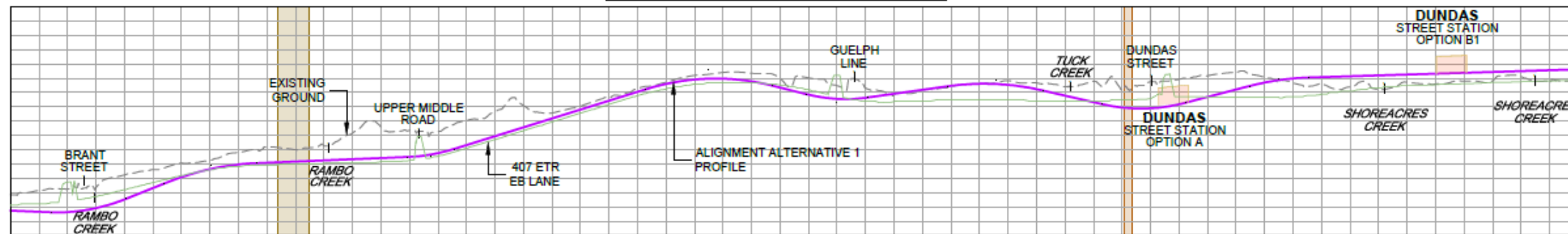
### SEGMENT 1: WEST OF BRANT STREET TO EAST OF DUNDAS STREET

This entire segment is bounded by residential development on either side of 407 ETR. The runningway alignment crossing Brant Street, will tie into the alignment to the west, to be completed under a separate study, which will connect the runningway with the southwest terminus of the 407 Transitway. The Dundas Street Station will be located within this segment. The forecast ridership at Dundas Street Station is high and the City of Burlington is planning a multimodal transit hub at Dundas Street. Shoreacres Creek crosses Dundas Street Station; a realigning of the creek is being proposed to mitigate the issue.

FIGURE 4.5: SEGMENT S1, WEST OF BRANT STREET TO EAST OF DUNDAS STREET



ALIGNMENT ALTERNATIVE 1: PROFILE



ALIGNMENT ALTERNATIVE 2: PROFILE

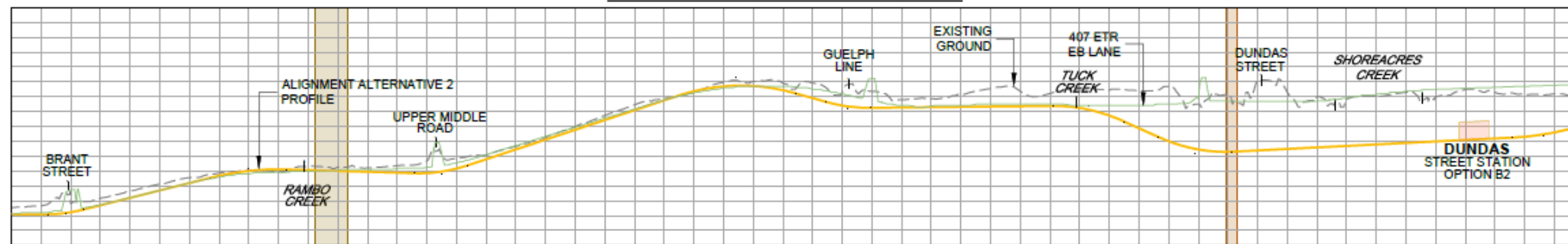


TABLE 4.3: SEGMENT S1, WEST OF BRANT STREET TO EAST OF DUNDAS STREET – DUNDAS STREET STATION OPTIONS

CRITERIA/INDICATORS		OPTION A	OPTION B
LOCATION		Located at the northeast quadrant of the 407 ETR and Dundas Street Interchange.	<p><b>Option B1</b> Station located at the southeast quadrant and platforms located at the northeast quadrant of the 407 ETR and Dundas Street Interchange. This option is applicable if Alignment Alternative 1 is selected. It includes a pedestrian bridge connecting the 407 Transitway platforms with the station facility.</p> <p><b>Option B2</b> Station and platforms located at the southeast quadrant of the 407 ETR and Dundas Street Interchange. This option is applicable if Alignment Alternative 2 is selected.</p>
NATURAL ENVIRONMENT	Potential Effects on Natural Heritage Resources	<p><b>Vegetation Removals:</b> Manicured (1.6 ha), Agricultural (7.7 ha), Hedge (0.22 ha), and Cultural Thicket (CUT1, 0.29 ha). Total removals equal 9.84 ha.</p> <p><b>Impacts to one Watercourse:</b> Watercourse located within the southwest portion of the station, a tributary of Tuck Creek (warmwater, low habitat sensitivity) and its floodplain (2.12 ha).</p>	<p><b>Vegetation Removals:</b> Cultural Meadow (CUM1-1, 6.94 ha), Cultural Thicket (CUT1, 0.21 ha), and Thicket Swamp (SWT, 0.77 ha). Total removals equal 8.59 ha.</p> <p><b>Impacts to two Watercourses:</b> Tributary of Shoreacres Creek (warmwater, low habitat sensitivity). The tributary is located at the centre of the station, dividing it into two areas. Flood plain impacts are 2.81 ha.</p>
	Potential Effects on Environmentally Significant Landforms/Features	There are no environmentally significant landforms/features.	There are no environmentally significant landforms/features.
	Potential Effects on Geology and Hydrogeology	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	Potential Effects on Species/Habitats at Risk	<p><b>MNRF, NHIC Database Records:</b> Butternut (Endangered) (last observed 2003) within 1 km grid. Treed portions of site provide modest opportunity for bat species at risk habitat.</p>	<p><b>MNRF, NHIC Database Records:</b> Butternut (Endangered) (last observed 2003) within 1 km grid. Treed portions of site provide modest opportunity for bat species at risk habitat.</p>
	Waste and Contamination	No properties of potential concern.	No properties of potential concern.
CULTURAL ENVIRONMENT	Known Presence of Archaeological Resources	<p><b>Within:</b> None.</p> <p><b>Within 50m:</b> AiGx-75 and AiGx-63.</p>	<p><b>Within:</b> AiGw-317, AiGw-512, AiGw-513, AiGw-515, and AiGw-516.</p> <p><b>Within 50m:</b> AiGw-174, AiGw-318, AiGw-511, AiGw-514, and AiGw-518.</p>
	Potential Impacts to Known Indigenous Lands	No known impacts.	No known impacts.
	Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes	no built heritage resources or cultural heritage landscapes. No impacts.	No built heritage resources or cultural heritage landscapes. No impacts.
SOCIO-ECONOMIC ENVIRONMENT	Potential Effects on Adjacent Noise Sensitive Areas	Dundas Street separates station site from residential subdivision.	Station site located directly adjacent to residential subdivision. Area around station site is planned for residential development. Impacts include increased station generated traffic and noise.
	<p><b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b></p> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Halton Official Plan</li> <li>City of Burlington Official Plan</li> </ul>	<p><b>Greenbelt Plan:</b> Protected Countryside, Natural Heritage System. Permitted under Policy 4.2.1. Niagara Escarpment Plan Area: Partially within Escarpment Rural Area and Escarpment Protection Area and is a permitted use.</p> <p><b>Halton Region:</b> Regional Natural Heritage System.</p> <p><b>City of Burlington:</b> Agricultural Rural Area.</p>	<p><b>Partially within the Parkway Belt West Plan, Utility Corridor:</b> Station facilities to be located outside of the Utility Corridor.</p> <p><b>Halton Region:</b> Urban Area and Employment Area. Regional Natural Heritage Area on both sides of watercourse.</p> <p><b>City of Burlington:</b> Business Corridor.</p> <p>Station site occupies provincial land planned for residential development and disposal. Adjacent to existing GO park and ride and carpool facility which is being expanded. Municipal plans for a transit hub at this location have been identified. Note: Would need to be moved and incorporated into approved 407 Transitway station site when the 407 Transitway is implemented.</p>

CRITERIA/INDICATORS		OPTION A	OPTION B
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"> <li>• Class 1 No significant limitations in use for crops.</li> <li>• Class 2 moderate limitations on use for crops.</li> <li>• Class 3 moderately severe limitations on use for crops.</li> <li>• Class 4 Severe limitations on use for crops.</li> <li>• Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>• Class 6 Natural grazing only; no improvements feasible.</li> <li>• Class 7 No capability for agriculture.</li> </ul>	Station site located on active agricultural land. <b>Impacted Soils:</b> CLI Class 1 – 6 ha and Class 3 – 0.7 ha.	Station site located on a meadow field, no perceived agricultural activity. <b>Impacted Soils:</b> CLI Class 1 – 6.2 ha and Class 3 – 2.07 ha.
	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	<b>Station Site Impacts:</b> Two agricultural properties, partial acquisitions. Residential property, full acquisition. Residential property, partial acquisition. Commercial property (gas station), full acquisition.	No impacts to private property.
INFRASTRUCTURE AND OPERATIONS	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No potential impacts.	Potential impact to Utility Corridor; facility to be located just off of designated area.
	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	All movement access off Dundas Street. Active transportation connectivity between residential development south of Dundas Street and station site, via Guelph Line/Dundas Street. Potential future additional vehicular access off Guelph Line.	Viable site access via existing collector road (Palladium Way, opposite Northampton Blvd). Convenient walking distance to residential area with potential walkway crossing at Palladium Way.
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	Convenient access from/to 407 ETR.	Access located far from 407 ETR ramps.
	<b>Site Area and Opportunity to Expand</b>	Complete site on private property. Potential site expansion by acquiring additional farm land north and west of the proposed site.	Station site (8 ha) to accommodate forecast 407 Transitway, municipal transit and carpool demand, all on Provincial land. Lands around station site to be developed, limiting potential expansion.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of CURRENT connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	Convenient walking distance from 407 Transitway platforms to station facility and to Dundas Street. Bus stops for 3 routes at Dundas Street and Guelph Line (located 300m from 407 Transitway station).	As described in the Segment S1 Alignment Alternatives table below, the preferred alignment (Alternative 1) does not have direct connection to the station site; consequently, a pedestrian bridge over 407 ETR will be required (Option B2).
CONSTRUCTABILITY AND COST	<b>Constructability and/or Cost Consideration</b>	No major issues.	No major issues.
<b>SUMMARY OF FINDINGS</b>			
<b>NATURAL ENVIRONMENT</b>		More vegetation removals than Option B. One less watercourse crossing.	Fewer vegetation removals than Option A. One additional watercourse crossing.
<b>CULTURAL ENVIRONMENT</b>		Fewer presence of known archaeological resources. There are two registered archaeological sites within 50 m of the station.	More presence of known archaeological resources. There are five registered archaeological sites within the station location and five within 50 m of the station location.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>		Acquisition of private property is required.	Station site is located on provincial land.

CRITERIA/INDICATORS	OPTION A	OPTION B
<b>INFRASTRUCTURE AND OPERATIONS</b>	As described in the Segment S1 Alignment Alternatives table below, the preferred alignment (Alternative 1) connects to Station Site Option A. Convenient vehicular accessibility from 407 ETR and Dundas Street. Station facilities would be remote from current transit hub being planned by Halton Region and the City of Burlington.	As described in the Segment S1 Alignment Alternatives table below, the preferred alignment (Alternative 1) does not have direct connection to station site Option B; consequently, a pedestrian bridge over 407 ETR would provide a connection between the 407 Transitway platforms and station site Option B/transit hub.
<b>CONSTRUCTABILITY AND COST</b>	No major issues.	No major issues.

SEGMENT 1 CARRIED FORWARD STATION SITE:

## OPTION B1

Carried forward due to Provincial land availability and Halton Region and City of Burlington plans to implement a major transit hub at this location.

**TABLE 4.4: SEGMENT S1, WEST OF BRANT STREET TO EAST OF DUNDAS STREET ALIGNMENT ALTERNATIVES**

CRITERIA/INDICATORS	ALTERNATIVE 1	ALTERNATIVE 2	
<b>DESCRIPTION</b>	<b>The runningway alignment is located on the north side of 407 ETR. It runs parallel to the highway, within 407 ETR right of way. The profile of the runningway follows the elevation of 407 ETR, crossing under Brant Street, Upper Middle Road, Guelph Line and Dundas Street. This profile avoids significant visual impact to adjacent residential developments.</b>	<b>The runningway alignment is located on the south side of 407 ETR. It runs parallel to the highway, within 407 ETR right of way. The profile of the runningway follows the elevation of 407 ETR, crossing under Brant Street, Upper Middle Road, Guelph Line and the ETR/Dundas Interchange. This profile avoids significant visual impact to adjacent residential developments.</b>	
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b> Minor impacts to wildlife and vegetation. Impacts will be minimized to the extent possible through the construction of retaining walls. <b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 6.17 ha), agricultural (1.26 ha), cultural thicket (CUT1, 0.21 ha), deciduous forest (FOD 0.33 ha), hedge (0.22 ha), and manicured (0.23 ha). Total removals equal 8.42 ha. <b>Impacts to nine Watercourses:</b> There are nine watercourse crossings for this alignment. Alignment crosses Rambo Creek and two of its tributaries (warmwater, low habitat sensitivity), Tuck Creek and one of its tributaries twice (warmwater, low habitat sensitivity), and three tributaries of Shoreacres Creek (warmwater, low habitat sensitivity). The alignment crosses approximately 200m of designated floodplain in the Tuck Creek and Shoreacres Creek areas.	Minor impacts to wildlife and vegetation. Impacts will be minimized to the extent possible through the construction of retaining walls. <b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 7.83 ha), cultural thicket (CUT1, 0.08 ha), and hedge (0.026 ha). Total removals equal 7.95 ha. <b>Impacts to nine Watercourses :</b> There are nine watercourse crossings for this alignment. Alignment crosses Rambo Creek and two of its tributaries (warmwater, low habitat sensitivity) and its tributaries, Tuck Creek and one of its tributaries twice (warmwater, low habitat sensitivity), and three tributaries of Shoreacres Creek (warmwater, low habitat sensitivity). One tributary of Rambo Creek and one Tributary of Tuck Creek flow parallel to the 407 ETR within the 407 ETR right of way. The alignment crosses approximately 280m of designated floodplain in the Tuck Creek and Shoreacres Creeks areas.	
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	There are no environmentally significant landforms/features. No impacts.	There are no environmentally significant landforms/features. No impacts.
	<b>Potential Effects on Geology and Hydrogeology</b>	West of Guelph Line to Dundas Street, Source Protection Area, Halton Region. Intake Protection Zone 2 (score 5.6). Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	West of Guelph Line to Dundas Street, Source Protection Area, Halton Region. Intake Protection Zone 2 (score 5.6). Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> Timber Rattlesnake (Extirpated, last observed 1950). Unlikely to be present. Treed portions of site provide modest opportunity for SAR bat habitat (Upper Middle Road area and east of Dundas Street).	<b>MNRF, NHIC Database Records:</b> Timber Rattlesnake (Extirpated, last observed 1950). Unlikely to be present. Treed portions of site provide modest opportunity for SAR bat habitat (Upper Middle Road area and east of Dundas Street).
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b> <b>Within:</b> None. <b>Within 50m:</b> AiGx-63, AiGx-74, AiGx-75, AiGw-315, and AiGw-316.	<b>Within:</b> AiGw-318 and AiGw-513. <b>Within 50m:</b> AiGw-124, AiGw-126, AiGw-174, AiGw-317, AiGw-383, AiGw-510, AiGw-511, AiGw-516, and AiGw-518.	
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes. No impacts.	No built heritage resources or cultural heritage landscapes. No impacts.

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
SOCIO-ECONOMIC ENVIRONMENT	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	Noise sensitive area (residential subdivision) located adjacent to proposed runningway.	Noise sensitive area (residential subdivision) located adjacent to proposed runningway.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Halton Official Plan</li> <li>City of Burlington Official Plan</li> </ul>	<b>Greenbelt Plan:</b> Protected Countryside, Natural Heritage System. Permitted under Policy 4.2.1. <b>Parkway Belt West Plan:</b> Crosses Parkway Belt Utility Corridor southwest of Dundas Street, which is permitted. <b>City of Burlington:</b> Western limit, north side of 407 ETR and Brant Street. High Density Residential. Middle section, Low and Medium Density Residential. Eastern limit – Agricultural Rural Area.	<b>Greenbelt Plan:</b> Alignment located outside of Greenbelt Plan. <b>Parkway Belt West Plan:</b> Occupies Parkway Belt Utility Corridor southeast and northeast of Dundas Street, which is not permitted. <b>City of Burlington:</b> From Brant Street to Dundas Street, Low and Medium Density Residential. East of Dundas Street, Business Corridor.
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</li> <li>Class 1 No significant limitations in use for Crops</li> <li>Class 2 moderate limitations on use for crops</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	Impact to agricultural lands northeast of Dundas Street. The rest of the impacted areas are open space lands between the 407 ETR and development (including residential). <b>Impacted Soils:</b> CLI Class 1 – 1.55 ha, Class 3 – 0.8 ha.	Located on open space lands between the 407 ETR and development (including residential). No perceived agricultural activity. <b>Impacted Soils:</b> CLI Class 1 – 0.9 ha, Class 3 – 0.8 ha
	<b>Private Property Impacts</b> Requirement for private property (full or partial take)	A portion of two private properties, one east of Dundas Street and one east of the interchange are impacted by the alignment.	Potential need for two or three private residential properties to build the south portal of the tunnel crossing of the 407 ETR-Dundas Street interchange.
INFRASTRUCTURE AND OPERATION	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	The alignment crosses the Hydro Corridor west of Upper Middle Road. No potential impacts to Hydro One infrastructure and/or electromagnetic zone (depressed alignment). The alignment crosses the Parkway Belt Utility Corridor east of Dundas Street, which is permitted. There are potential impacts on three large steel and one large concrete municipal drain pipes in the west of Guelph Line and in the area between Guelph Line and Dundas Street. The profile has been designed with a minimum 1.2m coverage above top of the pipes. However, this shall be confirmed prior to construction.	The alignment crosses the Hydro Corridor west of Upper Middle Road. No potential impacts to Hydro One infrastructure and/or electromagnetic zone (depressed alignment). The alignment impacts (occupies) Parkway Belt Utility Corridor southeast and northeast of Dundas Street, which is not permitted. There are potential impacts on three large steel and one large concrete municipal drain pipes in the west of Guelph Line and in the area between Guelph Line and Dundas Street. The profile has been designed with a minimum 1.2 m coverage above top of the pipes. However, this shall be confirmed prior to construction.
	<b>Impacts to 407 ETR Operation</b>	No impacts to 407 ETR operation.	To avoid impacts to 407 ETR operation, the alignment requires a lengthy bored tunnel under the 407 ETR Dundas Street Interchange.
	<b>Impacts to 407 Infrastructure</b>	Runningway within 407 ETR right of way to avoid impacts to existing residential properties. 407 Transitway alignment allows sufficient space to accommodate 407 ETR's potential (future) one lane expansion.	Runningway alignment within the 407 ETR right-of-way to avoid impacts to existing residential properties. 407 Transitway alignment allows sufficient space to accommodate 407 ETR's potential (future) one lane expansion.
	<b>Location of Adjacent Stations</b>	This alignment alternative will connect to the preferred Dundas Street station site Option B via a pedestrian bridge over 407 ETR.	This alignment alternative connects to the preferred Dundas Street station Option B.
	<b>Alignment Geometry</b> Level of Compliance with MTO 407 Transitway Design Standards Impacts of Geometry on Operation (Travel Time)	Speed reduction to 60-70 km/h is required in Dundas Street area.	Alignment meets 407 Transitway Design Standards.
CONSTRUCTABILITY AND COST	<b>Constructability and/or Cost Consideration</b>	The alignment does not cross the 407 ETR Dundas Street Interchange.	The location of the crossing of the two 407 ETR Dundas Street interchange eastbound ramps could not be staged without impacting operations, eliminating the opportunity for conventional cut and cover construction of the underpass. Consequently, a complex and very costly bored tunnel, which would likely require acquisition of at least two residential properties at the southwest portal location, would need to be built to avoid 407 ETR operation disruption.



CRITERIA/INDICATORS	ALTERNATIVE 1	ALTERNATIVE 2
<b>SUMMARY OF FINDINGS</b>		
<b>NATURAL ENVIRONMENT</b>	Alternative 1 does not impact one tributary of Rambo Creek and one Tributary of Tuck Creek flow parallel to the 407 ETR within the 407 ETR right of way.	Alternative 2 impacts one tributary of Rambo Creek and one Tributary of Tuck Creek flow parallel to the 407 ETR within the 407 ETR right of way.
<b>CULTURAL ENVIRONMENT</b>	There are no registered archaeological sites within and five registered archaeological sites within 50m.	There are two registered archaeological sites within and nine registered archaeological sites within 50m.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	Parkway Belt West Plan. Crosses Parkway Belt Utility Corridor southwest of Dundas Street which is permitted. A portion of two private properties are affected.	Parkway Belt West Plan. Occupies Parkway Belt Utility Corridor southeast and northeast of Dundas Street which is not permitted (swath protected by the Province for under and above ground utilities). To avoid major operational impact to 407 ETR, the underpass crossing the 407 ETR Dundas Interchange would need to be bored tunneled, which would likely require acquisition of at least two private residential properties at the southwest portal location.
<b>INFRASTRUCTURE AND OPERATIONS</b>	This alignment alternative connects to the preferred Dundas Street Station Option B via a pedestrian bridge across 407 ETR. It also avoids any impact on the 407 ETR Dundas Street Interchange. 407 Transitway staging flexibility and interlining would be provided via a ramp connection to Dundas Street.	This alignment alternative connects to the preferred Dundas Street Station Option B. To avoid major visual impact to the adjacent residential development, the runningway would cross under the 407/Dundas Interchange.
<b>CONSTRUCTABILITY AND COST</b>	The alignment does not cross the 407 ETR Dundas Street Interchange. Consequently, the construction cost is much lower than Alternative 2.	The location of the crossing of the two 407 ETR Dundas Street interchange eastbound ramps could not be staged without impacting operations, eliminating the opportunity for conventional cut and cover construction of the underpass. Consequently, a complex and very costly bored tunnel would need to be built to avoid 407 ETR operation disruption.

SEGMENT 1 CARRIED FORWARD ALIGNMENT:

## ALTERNATIVE 1

Carried forward due to much lower construction cost by avoiding tunneling under the 407 ETR – Dundas Street Interchange and avoids conflict with the Parkway Belt Utility Corridor.

## SEGMENT 2: EAST OF DUNDAS STREET TO EAST OF APPLEBY LINE

This segment travels through an area characterised by agricultural lands on the north side of 407 ETR and with a few pockets of commercial development on the south side. The lands north of the 407 ETR are designated Agricultural Rural Area and lands south of the 407 ETR are designated Business Corridor and Residential in the City of Burlington Official Plan. Future residential and commercial development is planned and/or approved between 407 ETR and Palladium Way. MTO has an existing carpool lot in the northwest quadrant of the Appleby Line–407 ETR Interchange. One Transitway station option is integrated with the existing carpool facility. The Halton Region pumping station and reservoir facility is located in the southeast quadrant of the Appleby Line–407 ETR Interchange. This segment does not have any major environmental impacts. However, the segment east of Appleby Line is located within the Bronte Valley ANSI and Greenbelt which is further discussed in Segment 3.

**FIGURE 4.6: SEGMENT S2, EAST OF DUNDAS STREET TO EAST OF APPLEBY LINE**

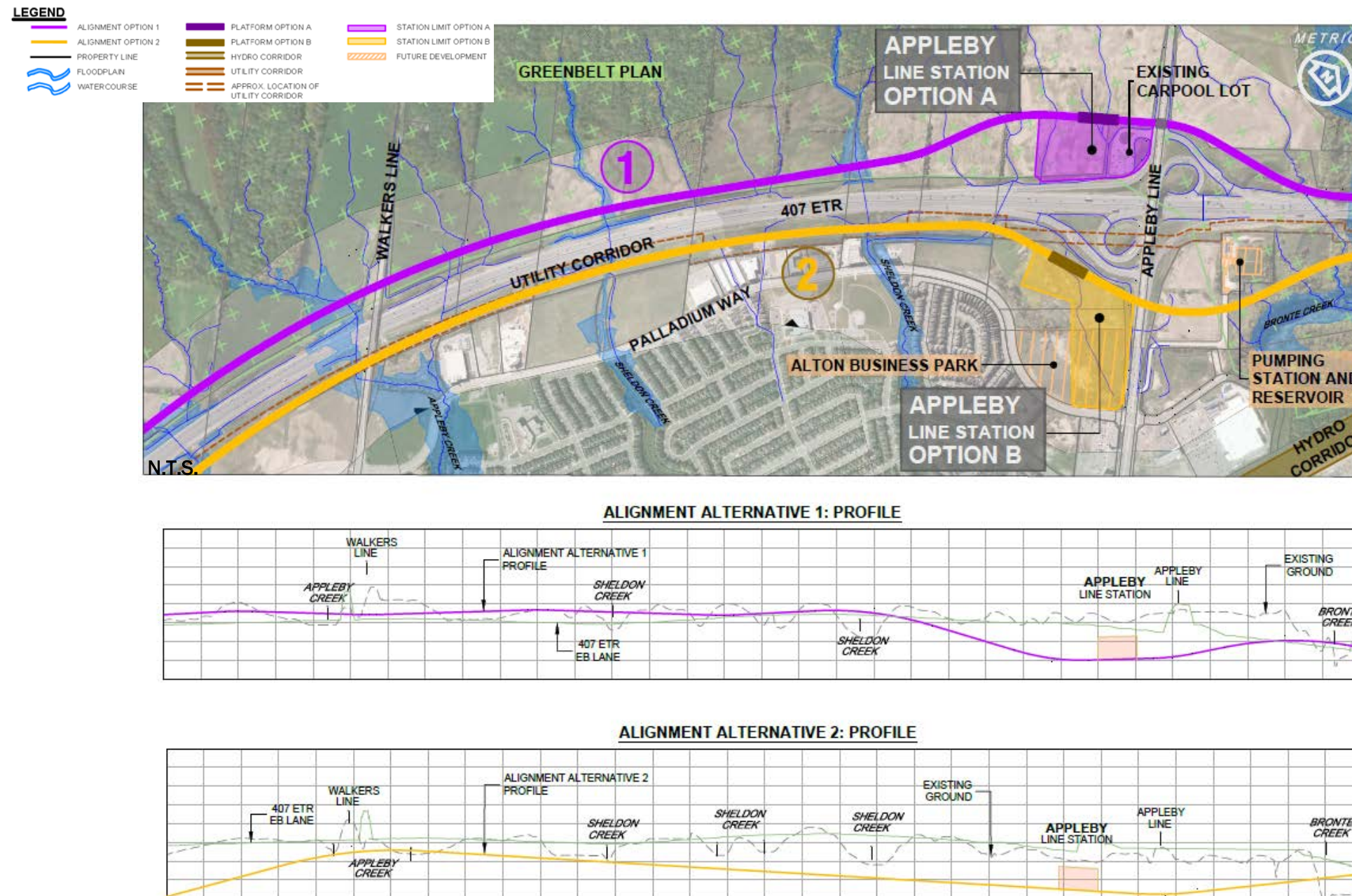


TABLE 4.5: SEGMENT S2, EAST OF DUNDAS STREET TO EAST OF APPLEBY LINE – APPLEBY LINE STATION SITE OPTIONS

CRITERIA/INDICATORS		OPTION A	OPTION B
<b>LOCATION</b>		<b>Northwest quadrant of the 407 ETR-Appleby Line Interchange.</b>	<b>Southwest quadrant of the 407 ETR-Appleby Line Interchange.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agricultural (5.52 ha) and cultural meadow (CUM1-1, 0.66 ha). Total removals equal 6.18 ha. <b>Impacts to one Watercourse and several minor linked ditches:</b> One tributary of Sheldon Creek (warmwater, low habitat sensitivity) is located within the site.	<b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 5.8 ha). <b>Impacts to one Watercourse:</b> One tributary of Sheldon Creek (warmwater, low habitat sensitivity) is located within the site.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	There are no environmentally significant landforms/features.	There are no environmentally significant landforms/features.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> Timber Rattlesnake (Extirpated, last observed 1950). Unlikely to be present.	<b>MNRF, NHIC Database Records:</b> South portion of site has the potential for SAR habitat (grassland birds: Eastern Meadowlark and Bobolink).
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> None. <b>Within 50m:</b> None.	<b>Within:</b> AiGw-134 and AiGw-399. <b>Within 50m:</b> AiGw-136.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes. No impacts.	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No potential impacts.	Potential impacts to existing and future development south of station site including increased station generated traffic and noise.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>• <i>Greenbelt Plan 2017</i></li> <li>• <i>Parkway Belt West Plan 1978 and amendments</i></li> <li>• <i>Region of Halton Official Plan</i></li> <li>• <i>City of Burlington Official Plan</i></li> </ul>	<b>Greenbelt Plan:</b> Protected Countryside, Natural Heritage System (permitted under Policy 4.2.1). <b>Halton Region:</b> Regional Natural Heritage System. <b>City of Burlington:</b> Agricultural Rural Area. Existing Provincial Carpool Lot.	<b>Halton Region:</b> Urban Area and Employment Area. <b>City of Burlington:</b> Business Corridor. Development plans approved on lands north of Palladium Way (Alton Business Park).

CRITERIA/INDICATORS		OPTION A	OPTION B
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"> <li>• Class 1 No significant limitations in use for crops.</li> <li>• Class 2 moderate limitations on use for crops.</li> <li>• Class 3 moderately severe limitations on use for crops.</li> <li>• Class 4 Severe limitations on use for crops.</li> <li>• Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>• Class 6 Natural grazing only; no improvements feasible.</li> <li>• Class 7 No capability for agriculture.</li> </ul>	Impacts to active agricultural lands beyond the existing carpool lot. <b>Impacted Soils:</b> CLI Class 1 – 5.54 ha and Class 3 – 1.34 ha	No impacts to agricultural lands. Station site located on a meadow field, no perceived agricultural activity. <b>Impacted Soils:</b> CLI Class 1 – 6 ha.
	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	Partially located on one private agricultural property.	Located on private property, planned for commercial development (Alton Business Park).
INFRASTRUCTURE AND OPERATIONS	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No potential impacts.	No potential impacts.
	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	Direct access from Appleby Line (existing car pool lot access). Poor pedestrian access. Closest commercial and residential areas located on the south side of 407 ETR.	Site access location limited by planned developments, undesirable access location on reverse curves with poor sightlines. Site access via collector road (Palladium Way). Potential right-in/right-out access on Appleby Line (located 150 m south of W-N/S Off-ramp). Good pedestrian connectivity to residential areas and nearby developments/institutions on Palladium Way.
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	No major access issues to/from 407 ETR.	No major access issues to/from 407 ETR.
	<b>Site Area and Opportunity to Expand</b>	Area of site sufficient to accommodate ultimate forecast demand (approximately 4.20 ha). The existing carpool lot with minor reconfiguration could serve the 407 Transitway as an interim phase.	Area required to accommodate forecast demand is approximately 4.20 ha. Available land north of Alton Business Park (2.70 ha) insufficient to accommodate forecast demand.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of CURRENT connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	No current bus routes serve Appleby Line. Closest bus route runs on Thomas Alton Boulevard.	No current bus routes serve Appleby Line. Closest bus route runs on Thomas Alton Boulevard.
<b>CONSTRUCTIBILITY AND COST</b>	<b>Constructability and/or Cost Consideration</b> For the interim scenario (until ridership demands an expanded station), the 407 Transitway station would occupy a slightly expanded existing carpool facility.	Due to presence of adjacent existing and future development approved by the City, land available for the station facility will be constrained.	

CRITERIA/INDICATORS	OPTION A	OPTION B
<b>SUMMARY OF FINDINGS</b>		
<b>NATURAL ENVIRONMENT</b>	More vegetation removal than Option B. Potential for SAR habitat (grassland birds: Eastern Meadowlark and Bobolink).	Fewer vegetation removals than Option A. Potential for SAR habitat (grassland birds: Eastern Meadowlark and Bobolink).
<b>CULTURAL ENVIRONMENT</b>	No presence of known archaeological resources.	Some presence of known archaeological resources. There are two registered archaeological sites within the site and one registered archaeological site within 50m.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	Proposed site provides sufficient land to accommodate forecast demand. Site not constrained by current or planned development and could be potentially expanded in the future, if required (with necessary approvals).	Available vacant land not sufficient to accommodate forecast demand. This site would sterilize approved Alton Business Park development land.
<b>INFRASTRUCTURE AND OPERATIONS</b>	As an interim solution, the existing carpool lot would only need to be reconfigured to serve the 407 Transitway until the time ridership demand and the implementation of local transit service on Appleby Line, require enlargement of the site. As described in the S2 Alignment Alternatives table, the preferred alignment alternative connects station site Option A.	The site does not provide a viable interim service opportunity like as Option A does. As described in the S2 Alignment Alternatives table, the preferred alignment alternative does not connect to station site Option B.
<b>CONSTRUCTABILITY AND COST</b>	No constructability issues .Expansion of existing facility on Provincial land, so lower cost.	Construction site availability issues. Station would require acquisition of <del>costly</del> private property designated for development.

SEGMENT 2 CARRIED FORWARD STATION SITE:

## OPTION A

Carried forward due to land availability, presence of existing carpool lot to serve as a low-cost interim solution. Option B would sterilize planned Alton Business Park development.

**TABLE 4.6: SEGMENT S2, EAST OF DUNDAS STREET TO EAST OF APPLEBY LINE ALIGNMENT ALTERNATIVES**

CRITERIA/INDICATORS	ALTERNATIVE 1	ALTERNATIVE 2	
<b>DESCRIPTION</b>	<b>The runningway alignment is located on the north side of 407 ETR. It runs adjacent or in close proximity to the 407 ETR right of way. The profile of the runningway mostly follows the elevation of 407 ETR, crossing under Walkers Line and Appleby Line.</b>	<b>The runningway alignment is located on the south side of 407 ETR. It runs adjacent or in close proximity to the 407 ETR right of way. The profile of the runningway mostly follows the elevation of 407 ETR, crossing under Walkers Line and Appleby Line.</b>	
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agricultural (3.7 ha), cultural meadow. (CUM1-1, 0.87 ha), deciduous forest (FOD, 0.14 ha), hedge (0.044 ha), and storm pond (0.01 ha). Total removals equal 4.68 ha. <b>Impacts to six Watercourses:</b> Alignment crosses Appleby Creek and one of its tributaries (warmwater, low habitat sensitivity), and four tributaries of Sheldon Creek (unknown thermal regime). East of Appleby Line the alignment is located closely to the 407 ETR before the crossing the Zimmerman Valley Area of Natural and Scientific Interest, Life Science Regional. Although there are impacts associated to crossing a natural area, the impacts are being minimized by locating the alignment closer to the 407 ETR compared to Alternative 2. The alignment crosses approximately 150 m of designated floodplain in the Appleby Creek and Sheldon Creek areas.	<b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 4.11 ha), agricultural (0.25 ha), and deciduous forest (FOD, 0.067 ha). Total removals equal 4.43 ha. <b>Impacts to six Watercourses:</b> Alignment crosses Appleby Creek and one of its tributaries (warmwater, low habitat sensitivity), four tributaries of Sheldon Creek (unknown thermal regime). East of Appleby Line the alignment is located at a farther distance from the 407 ETR before the crossing of the Zimmerman Valley Area of Natural and Scientific Interest, Life Science Regional compared to Alternative 1. This will lead to more impacts to natural areas east of Appleby Line and into Segment 3. The alignment crosses approximately 130 m of designated floodplain in the Appleby Creek and Sheldon Creek areas.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Impacts to the Zimmerman Valley ANSI in the eastern limits of this segment before crossing Bronte Creek. This alternative has less impacts to the ANSI as it travels across at a shorter distance and it is closer to the existing 407 ETR structure.	Impacts to the Zimmerman Valley ANSI in the eastern limits of this segment before crossing Bronte Creek. This alternative has more impacts as it travels across the ANSI at a longer distance and it is farther apart from the 407 ETR structure.

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area, Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area, Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> Butternut (Endangered, last observed 2003) and Eastern Flowering Dogwood (Endangered) within 1 km grids. The existing conditions are mainly edges of the agricultural lands for the majority of the segment up to Appleby Line, therefore potential for species at risk is minor. East of Appleby Line, the alignment crosses Zimmerman Valley Area of Natural and Scientific Interest: however, it is located close to the 407 ETR as much as possible.	<b>MNRF, NHIC Database Records:</b> Butternut (Endangered, last observed 2003) and Eastern Flowering Dogwood (Endangered). The existing conditions are mainly edges of cultural meadows and some agricultural lands for the majority of the segment up to Appleby Line, therefore potential for species at risk is minor. Potential to impact wildlife habitat east of Appleby Line before entering the Zimmerman Valley Area of Natural and Scientific Interest as the alignment is located farther away from the 407 ETR compared to Alternative 1.
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
CULTURAL ENVIRONMENT	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AiGw-97. <b>Within 50m:</b> AiGx-40, AiGw-319	<b>Within:</b> AiGw-133, AiGw-134, AiGw-136, AiGw-402, AiGw-150, AiGw-153 <b>Within 50m:</b> AiGw-100, AiGw-149, AiGw-151, AiGw-154, AiGw-339, AiGw-385
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes. No impacts.	No built heritage resources or cultural heritage landscapes. No impacts.
SOCIO-ECONOMIC ENVIRONMENT	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No impacts.	No impacts.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Halton Official Plan</li> <li>City of Burlington Official Plan</li> </ul>	<b>Greenbelt Plan:</b> Protected Countryside, Natural Heritage System (permitted under Policy 4.2.1). <b>Halton Region:</b> Regional Natural Heritage System. <b>City of Burlington:</b> Agricultural Rural Area.	<b>Greenbelt Plan:</b> East of Appleby Line, Protected Countryside, Natural Heritage System (permitted under Policy 4.2.1). <b>Parkway Belt West Plan:</b> Entire alignment occupies Parkway Belt Utility Corridor, not permitted. <b>Halton Region:</b> Urban Area and Employment Area. Regional Natural Heritage System at watercourses. <b>City of Burlington:</b> Lands west of Appleby Line designated for commercial urban development.
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</li> <li>Class 1 No significant limitations in use for Crops</li> <li>Class 2 moderate limitations on use for crops</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	Alignment will impact an approximately 45 m strip along the edge of agricultural land. <b>Impacted Soils:</b> CLI Class 1 – 2.23ha and Class 3 – 2.52 ha.	No impacts to agricultural land. <b>Impacted Soils:</b> CLI Class 1 – 2.56 and Class 3 – 1.98 ha.
	<b>Private Property Impacts</b> <i>Requirement for private property (full or partial take)</i>	Alignment will impact an approximately 45m strip along the edge of six private agricultural properties, immediately adjacent to 407 ETR.	Alignment impacts two private properties southwest of 407 ETR and Appleby Line interchange. Alignment impacts 6 acres of a private property southeast of Appleby Line, between Appleby Line and the Halton reservoir. Ownership to be confirmed.

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
INFRASTRUCTURE AND OPERATION	Impacts to existing and planned utilities (property and infrastructure)	No potential impacts.	The alignment impacts (occupies) the Parkway Belt Utility Corridor, which is not permitted.
	Impacts to 407 ETR Operation	No impacts to 407 ETR operation.	No impacts to 407 ETR operation.
	Impacts to 407 Infrastructure	No impacts to 407 ETR infrastructure.	No impacts to 407 ETR infrastructure.
	Location of Adjacent Stations	This alignment will connect to the preferred Appleby Line Station Option A, as described in the S2 Station Site Alternatives table.	This alignment alternative will not connect to the preferred Appleby Line Station Option A, as described in the S2 Station Site Alternatives table.
	Alignment Geometry <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment meets 407 Transitway Design Standards.	Speed reduction to 80 km/h required at Appleby Line crossing.
CONSTRUCTABILITY AND COST	Constructability and/or Cost Consideration	No significant constructability constraints.	No significant constructability constraints.

**SUMMARY OF FINDINGS**

NATURAL ENVIRONMENT	The impacts to natural areas and wildlife habitat east of Appleby Line are being minimized by locating the alignment closer to the 407 ETR compared to Alternative 2.	More impacts to natural areas and wildlife habitat east of Appleby Line as the alignment is located farther away from the 407 ETR compared to Alternative 1.
CULTURAL ENVIRONMENT	Less presence of known archaeological resources. There is one registered archaeological site within and two registered archaeological sites within 50 m.	More presence of known archaeological resources. There are six registered archaeological sites within and six registered archaeological sites within 50 m.
SOCIO-ECONOMIC ENVIRONMENT	Required private property is a strip of land (for six owners) immediately adjacent to 407 ETR right of way (approximately 45m wide); having a minimal impact on property use (agricultural operations) and less complicated and costly acquisition than for property affected by Alternative 2.	Entire alignment occupies Parkway Belt Utility Corridor, which is not permitted. Alignment impacts two private properties southwest of 407 ETR and Appleby Line interchange, and 6 acres of private future development land southeast of Appleby Line, the land between Appleby Line and the Halton reservoir.
INFRASTRUCTURE AND OPERATIONS	Alignment connects to the preferred Appleby Line Station Option A.	Alignment does not connect to the preferred Appleby Line Station Option A. Alignment impacts Parkway Belt Utility Corridor.
CONSTRUCTABILITY AND COST	Constructability comparable to Alternative 2. Lower property acquisition costs than Alternative 2.	Constructability comparable to Alternative 1. Higher property acquisition costs than Alternative 1.

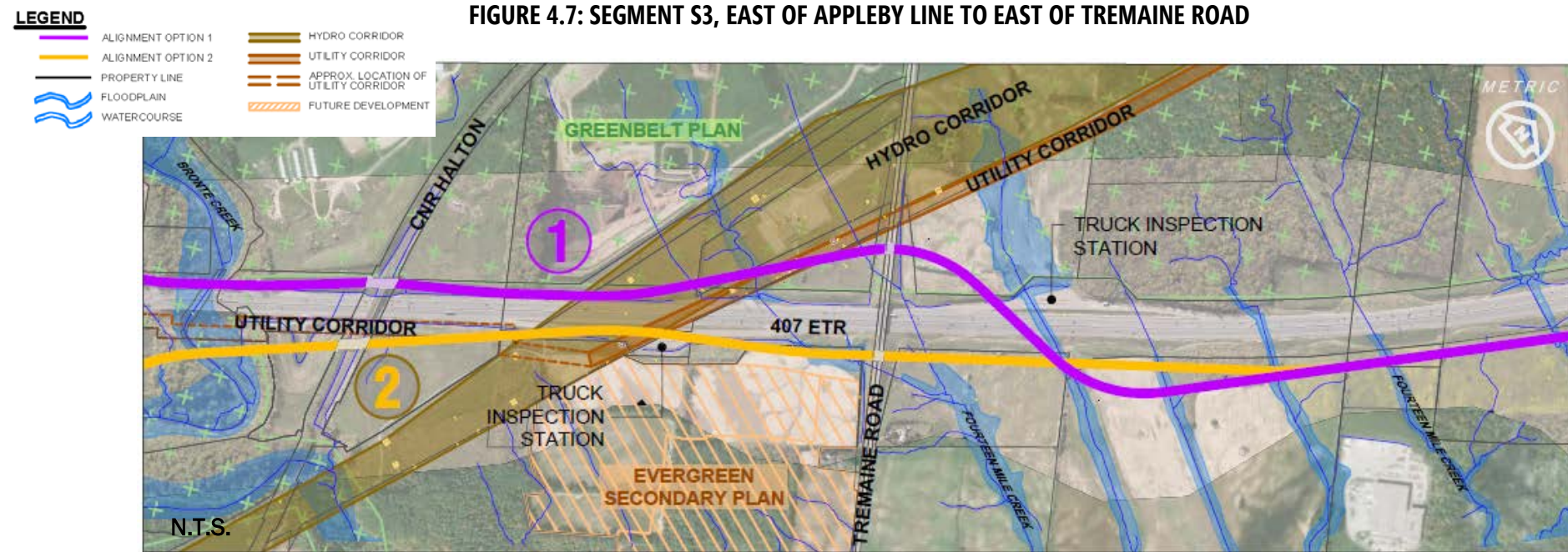
SEGMENT 2 CARRIED FORWARD ALIGNMENT:

## ALTERNATIVE 1

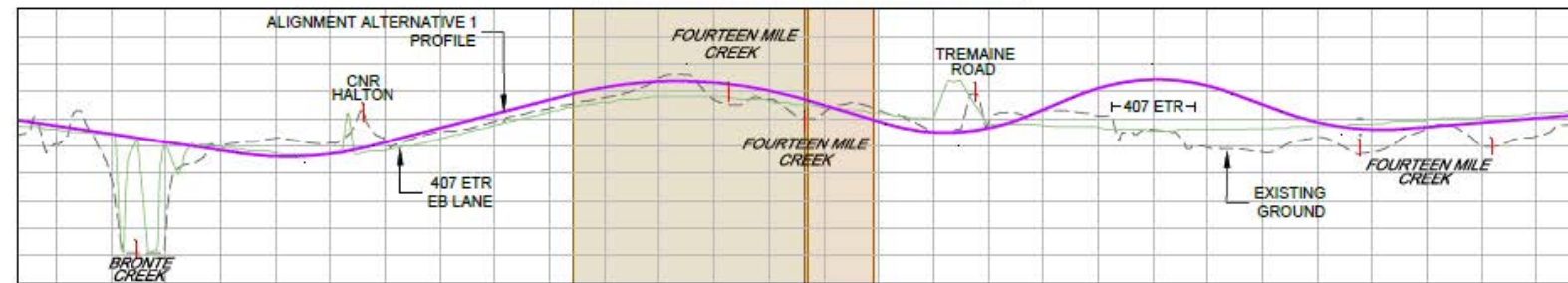
Carried forward due to the following reasons: Alternative 2 presents major conflict with the Parkway Belt Utility Corridor, Alternative 1 provides a direct connection to preferred Station Site on the north side of 407 ETR, and Alternative 2 has significant impact on current and future development such as the parcel located between Appleby Line and the Halton Region pumping station and reservoir while Alternative 1 alignment located immediately adjacent to the north side of 407 ETR right of way has minor impact to agricultural land.

### SEGMENT 3: EAST OF APPLEBY LINE TO EAST OF TREMAINE ROAD

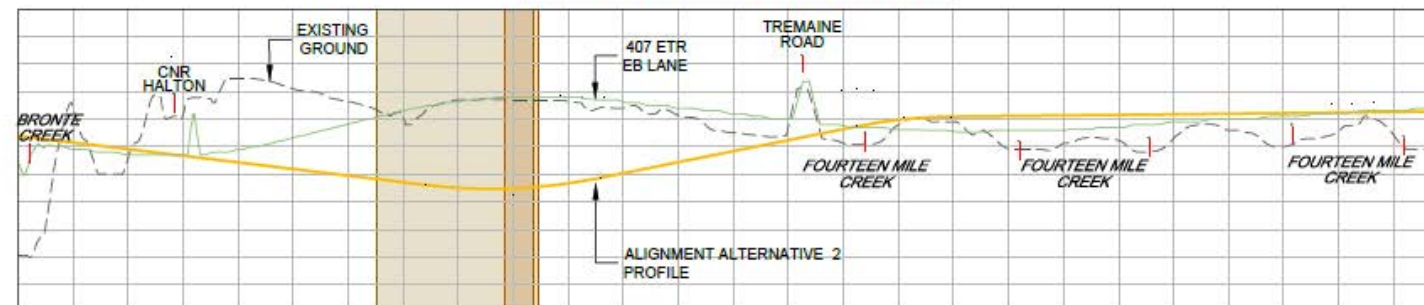
This segment travels mostly through agricultural lands; however, lands south of the 407 ETR between the CNR corridor and Tremaine Road are within a secondary plan development area (pending approval). The segment crosses the Zimmerman Valley Area of Natural Scientific Interest (ANSI) Life Science Regional, Bronte Creek (high fish habitat sensitivity), and tributaries of Fourteen Mile Creek (moderate fish habitat sensitivity). The area surrounding Bronte Creek is designated as Environmentally Sensitive Area by the City of Burlington and the area surrounding Fourteen Mile Creek is designated as Natural Heritage System Area by the Town of Oakville. This segment also crosses the CN Halton Subdivision rail line, the Hydro Corridor, the Greenbelt Plan and Parkway Belt Utility Corridor. No station is planned in this segment.



**ALIGNMENT ALTERNATIVE 1: PROFILE**



**ALIGNMENT ALTERNATIVE 2: PROFILE**





**TABLE 4.7: SEGMENT S3, EAST OF APPLEBY LINE TO EAST OF TREMAINE ROAD ALIGNMENT ALTERNATIVES**

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
<b>DESCRIPTION</b>		<b>The runningway alignment is located on the north side of 407 ETR right of way from east of Appleby Line to east of Tremaine Road, crossing the 407 ETR core lanes east of Tremaine Road. The profile crosses over Bronte Creek, under the CNR Halton Subdivision track, at grade through the Hydro Corridor, under Tremaine Road, and over 407 ETR core lanes and Fourteen Mile Creek. The alignment crosses to the south side of 407 ETR avoiding the woodlot to the east.</b>	<b>The runningway alignment is located on the south side of 407 ETR. The profile crosses over Bronte Creek and under the CNR Halton Subdivision track, Hydro Corridor and Utility Corridor. It crosses under Tremaine Road and over Fourteen Mile Creek.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agricultural (0.45 ha), cultural meadow (CUM1-1, 2.31 ha), deciduous forest (FOD, 0.70 ha), manicured (0.30 ha). Total removals equal 3.78 ha. <b>Impacts to seven Watercourses:</b> Crosses Bronte Creek (warmwater, high sensitivity) and six tributaries of Fourteen Mile Creek (coldwater, moderate sensitivity). Bronte Creek is a Species at Risk Occupied watercourse for Silver Shiner and American Eel with a High opportunity for enhancement as per DFO.	<b>Vegetation Removals:</b> agricultural (1.33 ha), cultural meadow (CUM1-1, 1.94 ha), cultural thicket (CUT-1, 0.10 ha), deciduous forest (FOD, 0.84 ha), wetland (0.12ha). Total removals equal 4.28 ha. <b>Impacts to six Watercourses:</b> Crosses Bronte Creek (warmwater, high sensitivity) and five tributaries of Fourteen Mile Creek (coldwater, moderate sensitivity). Bronte Creek is a Species at Risk Occupied watercourse for Silver Shiner and American Eel with a High opportunity for enhancement as per DFO. West of the CNR Halton Line the alignment is located at a farther distance from the 407 ETR compared to Alternative 1. This will lead to additional impacts to natural areas.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Crosses Zimmerman Valley Area of Natural Scientific Interest (ANSI) Life Science Regional. This alternative has less impacts to the ANSI as it travels across at a shorter distance and it is closer to the existing 407 ETR structure.  The segment crosses part of the Trafalgar Moraine ANSI, Earth Science at the northeast quadrant of 407 ETR and Tremaine Road Interchange.	Crosses Zimmerman Valley Area of Natural Scientific Interest (ANSI) Life Science Regional. This alternative has more impacts as it travels across the ANSI at a longer distance and it located farther apart from the 407 ETR structure (farther south).
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> American Eel (Endangered) (no date last observed), Silver Shiner (Threatened) within the 1 km grids. At a minimum it's at least a seasonal migratory corridor for L. Ontario salmonids. Bronte Creek is a Species at Risk Occupied watercourse with a High opportunity for enhancement as per DFO. Tributaries of Fourteen Mile Creek are watercourses where Species at Risk are occupied upstream. MNRF indicated occupied habitat of Redside Dace (Endangered) in Fourteen Mile Creek downstream of Tremaine Road. MNRF prefers this option compared to Option 2 (which is further downstream than Option 1).	<b>MNRF, NHIC Database Records:</b> American Eel (Endangered) (no date last observed), Silver Shiner (Threatened) within the 1 km grids. At a minimum it's at least a seasonal migratory corridor for L. Ontario salmonids. Bronte Creek is a Species at Risk Occupied watercourse with a High opportunity for enhancement as per DFO. Tributaries of Fourteen Mile Creek are watercourses where Species at Risk are occupied upstream. Potential to impact wildlife habitat west of CNR Halton Line is greater as the alignment is located farther away from the 407 ETR compared to Alternative 1. MNRF indicated occupied habitat of Redside Dace (Endangered) in Fourteen Mile Creek downstream of Tremaine Road. MNRF prefers Option 1 over this option which is closer to the Redside Dace habitat downstream.
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AiGw-137, AiGw-138, AiGw-139, and AiGw-303. <b>Within 50m:</b> AiGw-141, AiGw-320, AiGw-327, AiGw-340, AiGw-341, and AiGw-386.	<b>Within:</b> None. <b>Within 50m:</b> AiGw-140, AiGw-142, AiGw-143, AiGw-173, AiGw-302, AiGw-320, AiGw-328, AiGw-342, and AiGw-472.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	One cultural heritage landscape– CHR 30 (3269-3271 Dundas Street West), located on the south side of 407 ETR, east of Tremaine. Anticipated impacts.	One cultural heritage landscape – CHR 30 (3269-3271 Dundas Street West), located on the south side of 407 ETR, east of Tremaine. Anticipated impacts.

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
SOCIO-ECONOMIC ENVIRONMENT	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No adjacent existing or planned sensitive areas.	Potential noise and vibration impact to the future residential development in Evergreen Secondary Plan.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Halton Official Plan</li> <li>City of Burlington Official Plan</li> <li>Town of Oakville Official Plan</li> </ul>	<b>Greenbelt Plan:</b> Protected Countryside, Natural Heritage System (permitted under Policy 4.2.1), Urban River Valley (permitted under Policy 6.2). <b>Parkway Belt West Plan:</b> Located within the Parkway Belt Plan. It is a permitted use and allowed to cross CNR, Hydro and Utility Corridors. <b>Halton Region:</b> Regional Natural Heritage System. East side of Tremaine Road, Urban Area and Employment Area. <b>City of Burlington:</b> mostly Agricultural Rural Area. Area surrounding Bronte Creek, Environmentally Sensitive Area and within Greenlands. A small portion east of the railway, Mineral Resource Extraction Area. <b>Town of Oakville:</b> Parkway Belt and Greenbelt.	<b>Greenbelt Plan:</b> Within the Bronte Creek Valley; Urban River Valley (permitted under Policy 6.6). <b>Parkway Belt West Plan:</b> Located within the Parkway Belt Plan. It is a permitted use and allowed to cross CNR, Hydro and Utility Corridors. However, the alignment occupies the Utility Corridor from Bronte Creek to east of the Hydro Corridor which is not permitted. <b>Halton Region:</b> Western section, Regional Natural Heritage System. Eastern Section, west side of Tremaine Road, Urban Area. East side of Tremaine Road, Urban Area and Employment Area. <b>City of Burlington:</b> Western half, Greenlands. Eastern half, Land Use Designation to be determined. <b>Town of Oakville:</b> 407 Transitway designation on the south side of 407 ETR. Western half south of the 407 Transitway designation, Employment District. West of Fourteen Mile Creek and surrounding Fourteen Mile Creek, Natural Heritage System Area. <b>Evergreen Secondary Plan:</b> Along the south side of the 407 ETR right of way between the Hydro Corridor and Tremaine Road.
INFRASTRUCTURE AND OPERATION	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</li> <li>Class 1 No significant limitations in use for Crops</li> <li>Class 2 moderate limitations on use for crops</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	Impacts to agricultural lands east of Tremaine Road. <b>Impacted Soils:</b> CLI Class 1 – 3.56 ha, Class 3 – 0.21 ha, Class 4 – 0.001 ha, and Class 5 – 0.42 ha.	Impacts to agricultural lands for the majority of the alignment. <b>Impacted Soils:</b> CLI Class 1 – 3.65 ha, Class 3 – 0.10 ha, and Class 5 – 0.49 ha.
	<b>Private Property Impacts</b> Requirement for private property (full or partial take)	Minor impact to three private agricultural properties.	Impacts two private agricultural operations and one planned private development (Evergreen Secondary Plan) Significant impact to the Evergreen Secondary Plan.
INFRASTRUCTURE AND OPERATION	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	Three low-voltage hydro poles are affected by the alignment and will require relocation. Hydro towers and 15m minimum clearance not affected by the alignment.	The runningway crosses Hydro Corridor below grade with no infrastructure impacts. Significant impact to Parkway Belt Utility Corridor from Bronte Creek to east of the Hydro Corridor which is not permitted.
	<b>Impacts to 407 ETR Operation</b>	No impacts to 407 ETR operations.	No impacts to 407 ETR operations.
	<b>Impacts to 407 Infrastructure</b>	No impacts to 407 ETR infrastructure.	The alignment impacts the 407 ETR truck inspection facility. Inspection station would need to be relocated or 407 Transitway located further south with additional impact to Evergreen Secondary Plan property.
	<b>Location of Adjacent Stations</b>	Preferred Appleby Line Station site is located on north side of 407 ETR and preferred Bronte Street Station site is located south of 407 ETR. Consequently, one grade separated crossing of 407 ETR core lanes is required (407 ETR crossing is included in Segment 3).	Preferred Appleby Line Station site is located on north side of 407 ETR and preferred Bronte Road Station site is located south of 407 ETR. Consequently, one grade separated crossing of 407 ETR core lanes is required.

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
CONSTRUCTABILITY AND COST	<b>Alignment Geometry</b> <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Speed reduction to 60-70 km/h in the approaches to the bridge over 407 ETR.	Alignment meets 407 Transitway Design Standards.
	<b>Constructability and/or Cost Consideration</b>	Conventional crossing under CNR Halton Subdivision track. A 407 ETR crossing is required to link with preferred Segment 2 Alternative 1. No major constructability issues.	Crossing under CNR Halton Subdivision track may require a complex and costly bored tunnel from east of the CNR Halton Subdivision track crossing to east of Tremaine Road to avoid impact on CNR operation. Constrained space to build the tunnel west portal due to the proximity of Bronte Creek and an existing 407 ETR SWM water pond.
<b>SUMMARY OF FINDINGS</b>			
<b>NATURAL ENVIRONMENT</b>		Bronte Creek is a SAR Occupied watercourse with a high opportunity for enhancement as per DFO. It has one more watercourse crossing than Alternative 2. It is located closer to the 407 ETR at the Bronte Creek valley (Zimmerman Valley ANSI), thereby minimizing habitat fragmentation as compared to Alternative 2. It crosses the southwest corner of Trafalgar Moraine ANSI in the northeast quadrant of 407 ETR and Tremaine Road Interchange. But it immediately crosses to the south of 407 ETR to avoid further impacts to the Oakville-Milton Wetlands and Uplands Candidate ANSI and the North Oakville-Milton West Wetland Complex (provincially evaluated wetlands) that are located on the north side of 407 ETR east of Tremaine Road.	Bronte Creek is a SAR Occupied watercourse with a high opportunity for enhancement as per DFO. Alignment is located further away from 407 ETR at the Bronte Creek valley (Zimmerman Valley ANSI), thereby increasing habitat fragmentation from the alignment to the 407 ETR.
<b>CULTURAL ENVIRONMENT</b>		There are four registered archaeological sites within and six registered archaeological sites within 50 m.	There are no registered archaeological sites within and nine registered archaeological sites within 50 m.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>		Minor impact to agricultural land (three properties). No adjacent existing or planned urban development.	Minor impact to agricultural land (two properties). Significant impact to the planned community structure in the Evergreen Secondary Plan.
<b>INFRASTRUCTURE AND OPERATIONS</b>		It requires relocation of three low-voltage hydro poles. No impact to 407 ETR infrastructure and/or operation.	Significant impact to Parkway Belt Utility Corridor from Bronte Creek to east of the Hydro Corridor which is not permitted. The alignment impacts the 407 ETR truck inspection facility. To avoid this the inspection station would need to be relocated or the alignment moved south further impacting the Evergreen Secondary Plan property.
<b>CONSTRUCTABILITY AND COST</b>		Conventional crossing under CNR Halton Subdivision track. A 407 ETR crossing is required to link with preferred Segment 2 Alternative 1.	Potential complex and costly bored tunnel from west of the CNR Halton Subdivision track crossing to east of Tremaine Road.

*SEGMENT 3 CARRIED FORWARD ALIGNMENT:*

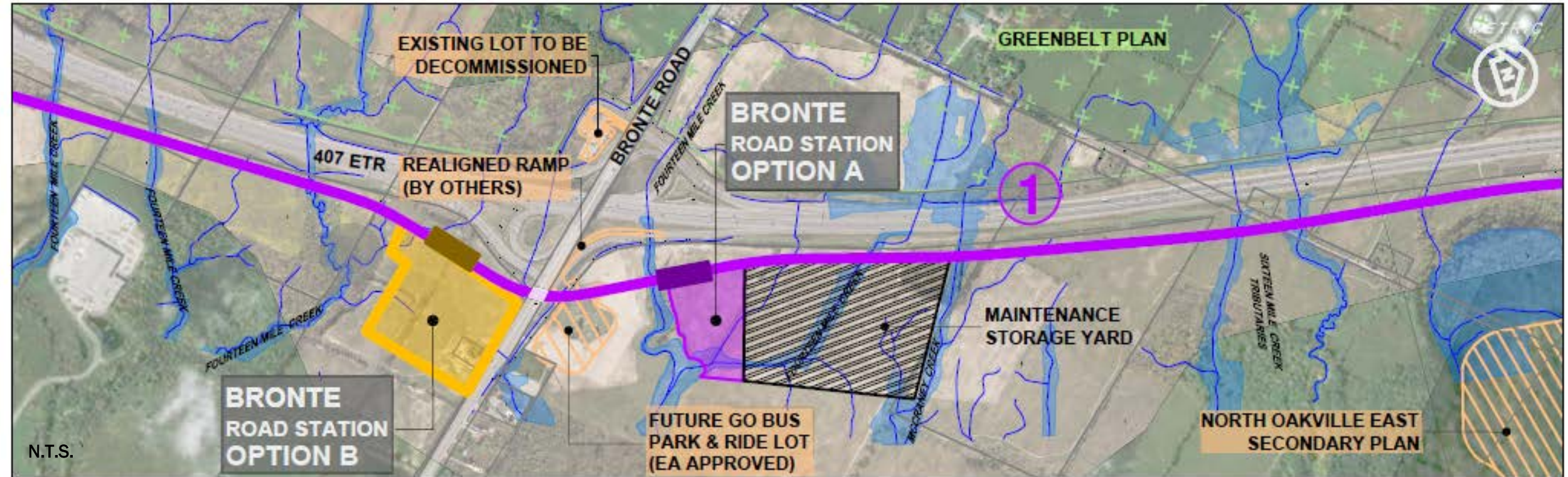
## ALTERNATIVE 1

Alignment Alternative 1 is being carried forward for the following fundamental reasons: the alignment connects to the preferred Segment S2 alignment (Alternative 1) and Appleby Line Station preferred site, it has fewer environmental impacts as compared to Alternative 2 (notably around Bronte Creek valley area), does not impact development plans, avoids impact to Parkway Belt Utility Corridor, and has significant lower construction cost than Alternative 2.

### SEGMENT 4: EAST OF TREMAINE ROAD TO WEST OF SIXTEEN MILE CREEK

The segment travels mostly through lands that are currently rural. Lands on the north side of 407 ETR are within the Parkway Belt West Plan and Greenbelt Plan. Lands on the south side of the 407 ETR are designated Employment District in the Oakville Official Plan. A station facility is planned in this section. There is an existing GO bus park and ride facility and provincial carpool lot located on the north-west quadrant of the 407 ETR/Bronte Road Interchange, which is planned to be decommissioned and moved to the Bronte Road Station Option A site (has received EA approval). This segment includes the carried forward site for the 407 Transitway West Maintenance and Storage Facility (MSF). This segment also includes the crossing of the Fourteen Mile Creek Valley.

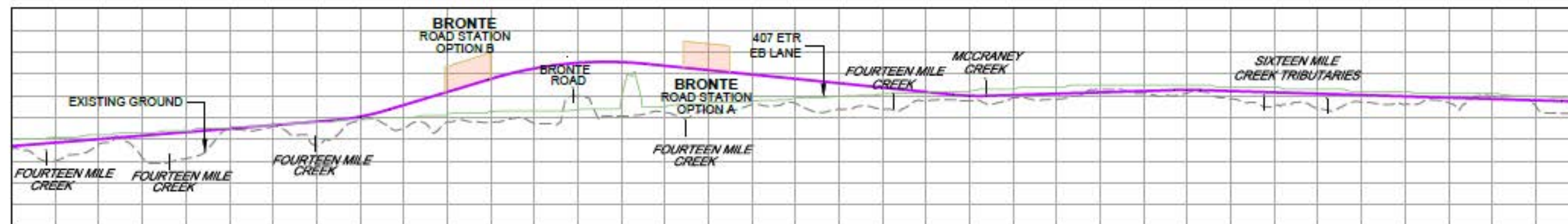
FIGURE 4.8: SEGMENT S4, EAST OF TREMAINE ROAD TO WEST OF SIXTEEN MILE CREEK



**LEGEND**

ALIGNMENT OPTION 1	PLATFORM OPTION A	STATION LIMIT OPTION A
PROPERTY LINE	PLATFORM OPTION B	STATION LIMIT OPTION B
FLOODPLAIN	HYDRO CORRIDOR	
WATERCOURSE	UTILITY CORRIDOR	
FUTURE DEVELOPMENT	APPROX. LOCATION OF UTILITY CORRIDOR	

#### ALIGNMENT ALTERNATIVE 1: PROFILE



**TABLE 4.8: SEGMENT S4, EAST OF TREMAINE ROAD TO WEST OF SIXTEEN MILE CREEK – BRONTE ROAD STATION SITE OPTIONS**

CRITERIA/INDICATORS		OPTION A	OPTION B
<b>LOCATION</b>		<b>Southeast quadrant of the 407 ETR and Bronte Road Interchange</b>	<b>Southwest quadrant of the 407 ETR and Bronte Road Interchange</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agricultural (5.85 ha), and hedge (0.48 Ha). Total removals equal 6.33 ha. <b>Impacts to one Watercourse:</b> a tributary of Fourteen Mile Creek (coldwater, moderate habitat sensitivity). The station is divided into two sections by this tributary. A crossing over this tributary is required. The area surrounding the Tributary of Fouteen Mile Creek is identified as provincially evaluated wetland area and is part of the North Oakville-Milton West Wetland Complex.	<b>Vegetation Removals:</b> Agricultural (6.90 ha), cultural meadow (CUM1-1, 1.38 ha), and hedge (0.12 Ha). Total removals equal 8.42 ha. <b>Impacts to one Watercourse:</b> a tributary of Fourteen Mile Creek (coldwater, moderate habitat sensitivity). There are two small branches of the tributary in the southern portion of the station.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	The area surrounding the Tributary of Fouteen Mile Creek is identified as provincially evaluated wetland area and is part of the North Oakville-Milton West Wetland Complex.	There are no environmentally significant landforms/features.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> Northern Bobwhite (Endangered) (last observed 1904) within 1 km grid. Treed portions of site provide modest opportunity for SAR bat habitat. Upstream of species at risk (Redside Dace) recovery habitat, a tributary of Fourteen Mile Creek.	<b>MNRF, NHIC Database Records:</b> Northern Bobwhite (Endangered) (last observed 1904) within 1 km grid. Upstream of species at risk (Redside Dace) recovery habitat, a tributary of Fourteen Mile Creek
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AiGw-988. <b>Within 50m:</b> AiGw-129.	<b>Within:</b> None. <b>Within 50m:</b> None.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts	No known impacts
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes. No impacts.	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No impacts.	No impacts.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Halton Official Plan</li> <li>Town of Oakville Official Plan</li> </ul>	<b>Halton Region:</b> Urban Area and Employment Area. <b>Town of Oakville:</b> Employment Area, Natural Heritage System Area (surrounding Fourteen Mile Creek).	<b>Halton Region:</b> Urban Area and Employment Area. <b>Town of Oakville:</b> East of Fourteen Mile Creek, Subject Lands Under Appeal.
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"> <li>Class 1 No significant limitations in use for crops.</li> <li>Class 2 moderate limitations on use for crops.</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	Impacts to active agricultural lands. <b>Impacted Soils:</b> CLI Class 1 – 4.37 ha and Class 3 – 4.07 ha.	Impacts to active agricultural lands. <b>Impacted Soils:</b> CLI Class 1 – 3.39 ha and Class 3 – 3.27 ha.

CRITERIA/INDICATORS		OPTION A	OPTION B
INFRASTRUCTURE AND OPERATIONS	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	No impacts. Site located close to existing temple.	Site located on two private properties designated for development (7.06 ha or full take required).
	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No potential impacts.	No potential impacts.
	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	Proposed access road connecting directly opposite to existing W-N/S Off-ramp. Shared access with 407 Transitway Maintenance and Storage Facility (MSF) yard. No current local transit routes. Poor pedestrian connectivity. Closest development approximately 1.5 km away.	Direct (signalized) access from Bronte Road, approximately 300m south of 407 ETR. No current local transit routes. Poor pedestrian connectivity. Closest development approximately 2 km away.
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	Viable connection to/from 407 ETR.	Viable connection to/from 407 ETR.
	<b>Site Area and Opportunity to Expand</b>	Existing GO bus stop and provincial carpool lot located on the northwest quadrant of the 407 ETR/Bronte Interchange is planned to be decommissioned and moved to the Option A site (has received EA approval). Potential for expansion within Provincial land.	No Provincial or municipal land available. Any expansion would require further private land acquisition.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of CURRENT connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	No current local transit routes.	No current local transit routes.
CONSTRUCTABILITY AND COST	<b>Constructability and/or Cost Consideration</b>	A bridge over Fourteen Mile Creek is required to access the north side of the station site; however, the structure is also required to access the proposed Maintenance and Storage Facility (MSF) yard.	Additional cost of acquiring private properties for entire station.
<b>SUMMARY OF FINDINGS</b>			
<b>NATURAL ENVIRONMENT</b>		Less vegetation removals than Option B. More impacts to watercourse and fish habitat in the southern limit of the eastern part of the parking area. The area surrounding the Tributary of Fouteen Mile Creek is identified as provincially evaluated wetland area and is part of the North Oakville-Milton West Wetland Complex.	Less impacts to watercourse and fish habitat.
<b>CULTURAL ENVIRONMENT</b>		There are two registered archaeological sites within and adjacent to the station.	No registered archaeological sites.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>		Site located on Provincial land.	Site located on private property.
<b>INFRASTRUCTURE AND OPERATIONS</b>		Viable connection to/from 407 ETR and Bronte Road. The GO bus stop/car pool site to be relocated to the station site may be used by GO Transit for mixed traffic operations as an interim solution until reconfigured to serve the 407 Transitway when constructed.	Viable connection to/from 407 ETR and Bronte Road. Future expansion limited by adjacent planned development on private land.
<b>CONSTRUCTABILITY AND COST</b>		The GO bus stop/carpool facility is to be relocated to the protected station site on Provincial land will be expanded and reconfigured to accommodate the 407 Transitway station facility. Cost of the station will therefore be lower. Located adjacent to 407 Transitway Maintenance and Storage Yard which will provide for shared access and servicing.	No major opportunities. Cost of acquiring private properties for entire station. Remote from 407 Transitway Maintenance and Storage requiring separate site access and servicing.

CRITERIA/INDICATORS	OPTION A	OPTION B
<p><i>SEGMENT 4 CARRIED FORWARD STATION SITE:</i></p> <h2 style="color: #FFC000;">OPTION A</h2> <p>Station Site Option A is being carried forward for the following reasons: the complete site is located on Provincial property while the entire Option B site is located on private development properties; in Option A, the GO bus/carpool facility which will soon be built in the protected station site, can serve the 407 Transitway in the interim, and can be expanded and reconfigured to accommodate the 407 Transitway when implemented; and Option A will be located adjacent to the 407 Transitway MSF yard and will share access and site servicing requirements.</p>		

**TABLE 4.9: SEGMENT S4, EAST OF TREMAINE ROAD TO WEST OF SIXTEEN MILE CREEK ALIGNMENT ALTERNATIVE**

CRITERIA/INDICATORS		ALTERNATIVE 1
DESCRIPTION		The runningway alignment is located on the south side of 407 ETR running adjacent to the 407 ETR right of way. The profile of the runningway mostly follows the elevation of 407 ETR, and crosses over Bronte Road.
NATURAL ENVIRONMENT	Potential Effects on Natural Heritage Resources	<b>Vegetation Removals:</b> Agricultural (2.15 ha), cultural meadow (CUM1-1, 2.15 ha), cultural thicket (CUT1, 0.07 ha), deciduous forest (FOD, 0.34 ha), hedge (0.017 ha), and storm pond (0.33 ha). Total removals equal 4.76 ha. <b>Impacts to eleven Watercourses:</b> The alignment crosses five tributaries of Fourteen Mile Creek (coldwater, moderate habitat sensitivity), two tributaries of McCraney Creek (warmwater, low habitat sensitivity), a tributary of Taplow Creek (agricultural swale, not fish habitat), and three tributaries of the Sixteen Mile Creek. The alignment crosses approximately 380 m of designated floodplain in the Fourteen Mile Creek and McCraney Creek areas.
	Potential Effects on Environmentally Significant Landforms/Features	Crosses small pockets of provincially evaluated wetlands that are part of the North Oakville-Milton West Wetland Complex. Areas west of Bronte Road and where the alignment crosses a tributary of the Fourteen Mile Creek.
	Potential Effects on Geology and Hydrogeology	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	Potential Effects on Species/Habitats at Risk	<b>MNRF, NHIC Database Records:</b> Northern Bobwhite (Endangered) (last observed 1904) within 1 km grid. Treed portions of site provide modest opportunity for SAR bat habitat. Upstream of species at risk (Redside Dace) recovery habitat – a tributary of Fourteen Mile Creek.
	Waste and Contamination	No properties of potential concern.
CULTURAL ENVIRONMENT	Known Presence of Archaeological Resources	<b>Within:</b> None. <b>Within 50m:</b> AiGw-129.
	Potential Impacts to Known Indigenous Lands	No known impacts.
	Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes	No built heritage resources or cultural heritage landscapes. No impacts.
SOCIO-ECONOMIC ENVIRONMENT	Potential Effects on Adjacent Noise Sensitive Areas	No impacts.
	Land Use Compatibility with Provincial and Municipal Plans and Policies <ul style="list-style-type: none"> <li>• Greenbelt Plan 2017</li> <li>• Parkway Belt West Plan 1978 and amendments</li> <li>• Region of Halton Official Plan</li> <li>• Town of Oakville Official Plan</li> </ul>	<b>Greenbelt Plan:</b> Urban River Valley (permitted under Policy 6.2). <b>Halton Region:</b> Urban Area, Employment Area and Regional Natural Heritage System. <b>Town of Oakville:</b> 407 Transitway designation on the south side of 407 ETR. East of Fourteen Mile Creek. Subject Lands Under Appeal, Employment Area, Natural Heritage System Area.

CRITERIA/INDICATORS		ALTERNATIVE 1
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>• <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</i></li> <li>• <i>Class 1 No significant limitations in use for Crops</i></li> <li>• <i>Class 2 moderate limitations on use for crops</i></li> <li>• <i>Class 3 moderately severe limitations on use for crops.</i></li> <li>• <i>Class 4 Severe limitations on use for crops.</i></li> <li>• <i>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</i></li> <li>• <i>Class 6 Natural grazing only; no improvements feasible.</i></li> <li>• <i>Class 7 No capability for agriculture.</i></li> </ul>	Impacts to agricultural lands. <b>Impacted Soils:</b> CLI Class 1 – 2.81 ha and Class 3 – 2.03 ha.
	<b>Private Property Impacts</b> <i>Requirement for private property (full or partial take)</i>	Segment from east of Tremaine Road to Bronte Road will require a strip of land approximately 45m wide affecting five private future development properties.
INFRASTRUCTURE AND OPERATION	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	No potential impacts.
	<b>Impacts to 407 ETR Operation</b>	Minor impact during construction to the Bronte Road underpass.
	<b>Impacts to 407 Infrastructure</b>	No impacts.
	<b>Location of Adjacent Stations</b>	Alignment connects well to Bronte Road Station facility.
	<b>Alignment Geometry</b> <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment geometry compliant with MTO 407 Transitway Standards. No impacts of geometry on operations.
CONSTRUCTABILITY AND COST	<b>Constructability and/or Cost Consideration</b>	Bridge over Bronte Road required. No major issues.

**SUMMARY OF FINDINGS**

NATURAL ENVIRONMENT	Several watercourse crossings and crossing over small pockets of provincially evaluated wetlands that are part of the North Oakville-Milton West Wetland Complex. Impacts minimised by close proximity to 407 ETR right of way.
CULTURAL ENVIRONMENT	There is one registered archaeological site within 50m of the alignment.
SOCIO-ECONOMIC ENVIRONMENT	Private property acquisition required.
INFRASTRUCTURE AND OPERATIONS	No major issues.
CONSTRUCTABILITY AND COST	No major issues.

SEGMENT 4 CARRIED FORWARD ALIGNMENT:

## ALTERNATIVE 1

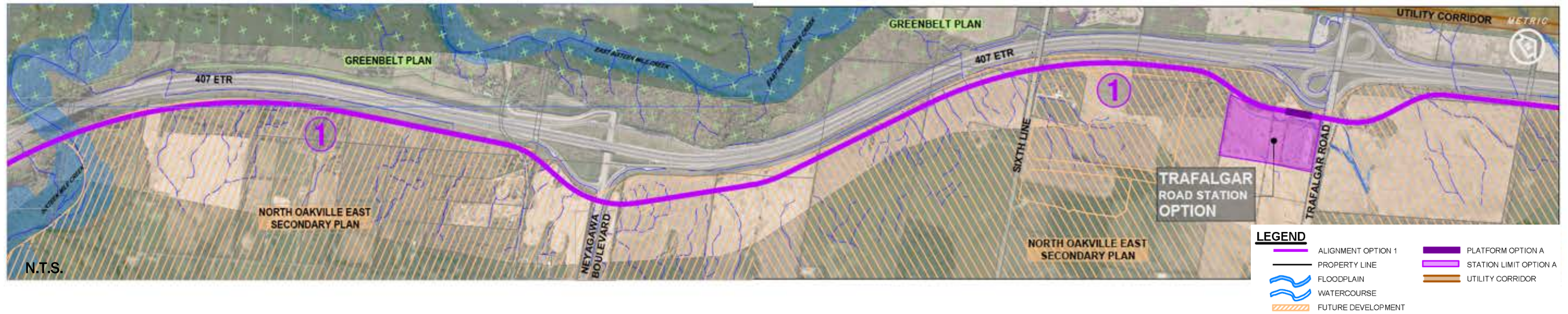
Alignment Alternative 1 is being carried forward as it does not present any major environmental or technical issues and connects well with the Bronte Road Station and Maintenance and Storage Yard.



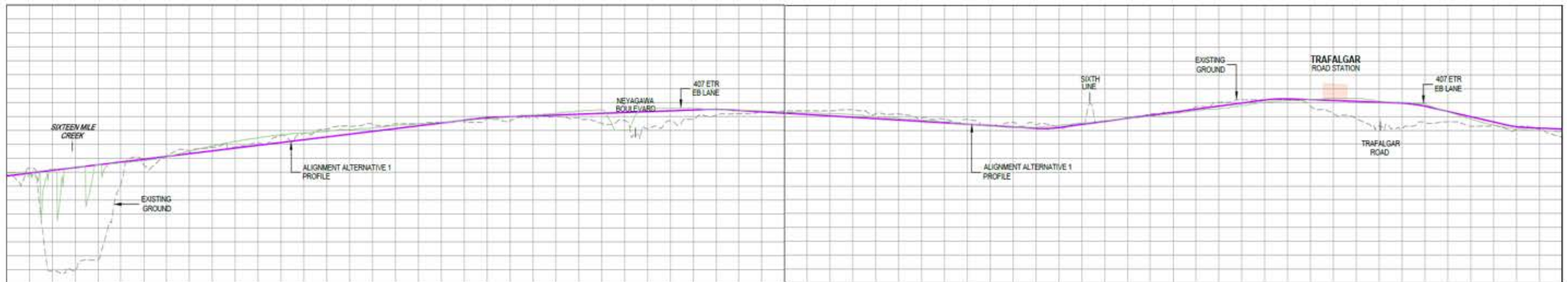
### SEGMENT 5: WEST OF SIXTEEN MILE CREEK TO EAST OF TRAFALGAR ROAD

This segment travels along the north edge of a forested area east of Sixteen Mile Creek and a forested area just west of Trafalgar Road adjacent to the south side of the 407 ETR right of way. The lands south of the 407 ETR are designated for future development (North Oakville East Secondary Plan). The Town of Oakville Official Plan has designated lands on the south side of the 407 ETR as 407 Transitway. This segment includes Trafalgar station located in the only feasible site for a station, on the southwest quadrant of the Trafalgar/407 ETR Interchange, where there is an existing GO bus station and carpool facility.

**FIGURE 4.9: SEGMENT S5, WEST OF SIXTEEN MILE CREEK TO EAST OF TRAFALGAR ROAD**



**ALIGNMENT ALTERNATIVE 1: PROFILE**



**TABLE 4.10: SEGMENT S5, WEST OF SIXTEEN MILE CREEK TO EAST OF TRAFALGAR ROAD – TRAFALGAR ROAD STATION SITE**

CRITERIA/INDICATORS		OPTION A
<b>LOCATION</b>		The only site for a station at the 407 ETR and Trafalgar Road node is located at the southwest quadrant of the 407 ETR-Trafalgar Road Interchange. There is an existing GO bus station and carpool facility at this site that will be reconfigured and expanded to accommodate the Trafalgar Road Station facility.
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agricultural (10.9 ha), cultural meadow (CUM1-1, 0.74ha), deciduous forest (FOD 0.26 ha), hedge (0.17 ha), and manicured (1.02 ha). Total removals equal 13.12 ha. <b>Impacts to one Watercourse:</b> Tributary of Joshua’s Creek (warmwater, low habitat sensitivity).
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Approximately 100m west of the station a portion of the North Oakville-Milton East Wetland Complex (provincially significant) and Oakville-Milton Wetlands and Uplands Candidate Area of Natural Scientific Interest, Life Science Provincial is located.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> None identified.
	<b>Waste and Contamination</b>	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AjGw-27, AjGw-28, AjGw-464, AjGw-465, and AjGw-467. <b>Within 50m:</b> None.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No impacts.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Halton Official Plan</li> <li>Town of Oakville Official Plan</li> </ul>	Located within the Parkway Belt West Plan. <b>Halton Region:</b> Overall area is Urban Area. <b>Town of Oakville:</b> Trafalgar Road Urban Core Area.
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"> <li>Class 1 No significant limitations in use for crops.</li> <li>Class 2 moderate limitations on use for crops.</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	Impacts to active agricultural lands. <b>Impacted Soils:</b> CLI Class 1 – 15.05 ha.
	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	Site located on Provincial property. The protected site will serve the projected 407 Transitway demand requirements and potential expansion.
<b>INFRASTRUCTURE</b>	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No impact.

CRITERIA/INDICATORS		OPTION A
	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	Both existing GO 407 Oakville/Carpool Lot accesses were constructed to serve the ultimate 407 Transitway station and will be maintained. Desirable intersection spacing for both accesses with existing full signalized and right-in access located 250m and 100m from W-N/S Off-ramp. Future Trafalgar Corridor development planned around the station site. Future property accesses will be required to conform with the existing station accesses.
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	Efficient and convenient access from both directions of 407 ETR.
	<b>Site Area and Opportunity to Expand</b>	No potential for expansion.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of CURRENT connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	Platform location ideal for efficient transit connectivity.
<b>CONSTRUCTABILITY AND COST</b>	<b>Constructability and/or Cost Consideration</b>	Good construction accessibility. Potential for convenient staging as there already is a GO bus station and carpool facility at this location. Detail Design of reconfigured station facility will include required modifications to the existing carpool surface and subsurface infrastructure.

**SUMMARY OF FINDINGS**

<b>NATURAL ENVIRONMENT</b>	There is one watercourse within the station. Some impacts to deciduous forest. No records of species at risk.
<b>CULTURAL ENVIRONMENT</b>	Five registered archaeological sites within, none within 50 m.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	No property impacts. No additional land is required for 407 Transitway station requirements or expansion. It will provide the public, a larger carpool and a major transit transfer opportunity.
<b>INFRASTRUCTURE AND OPERATIONS</b>	Convenient accessibility and transit transfer.
<b>CONSTRUCTABILITY AND COST</b>	Potential for convenient staging as there already is a GO bus station and carpool facility at this location. Limited cost.

SEGMENT 5 CARRIED FORWARD STATION SITE:

## OPTION A

Station Site Option A is being carried forward as it is the only logical alternative site in this node and it does not present any negative impacts.

**TABLE 4.11: SEGMENT S5, WEST OF SIXTEEN MILE CREEK TO EAST OF TRAFALGAR ROAD ALIGNMENT ALTERNATIVE**

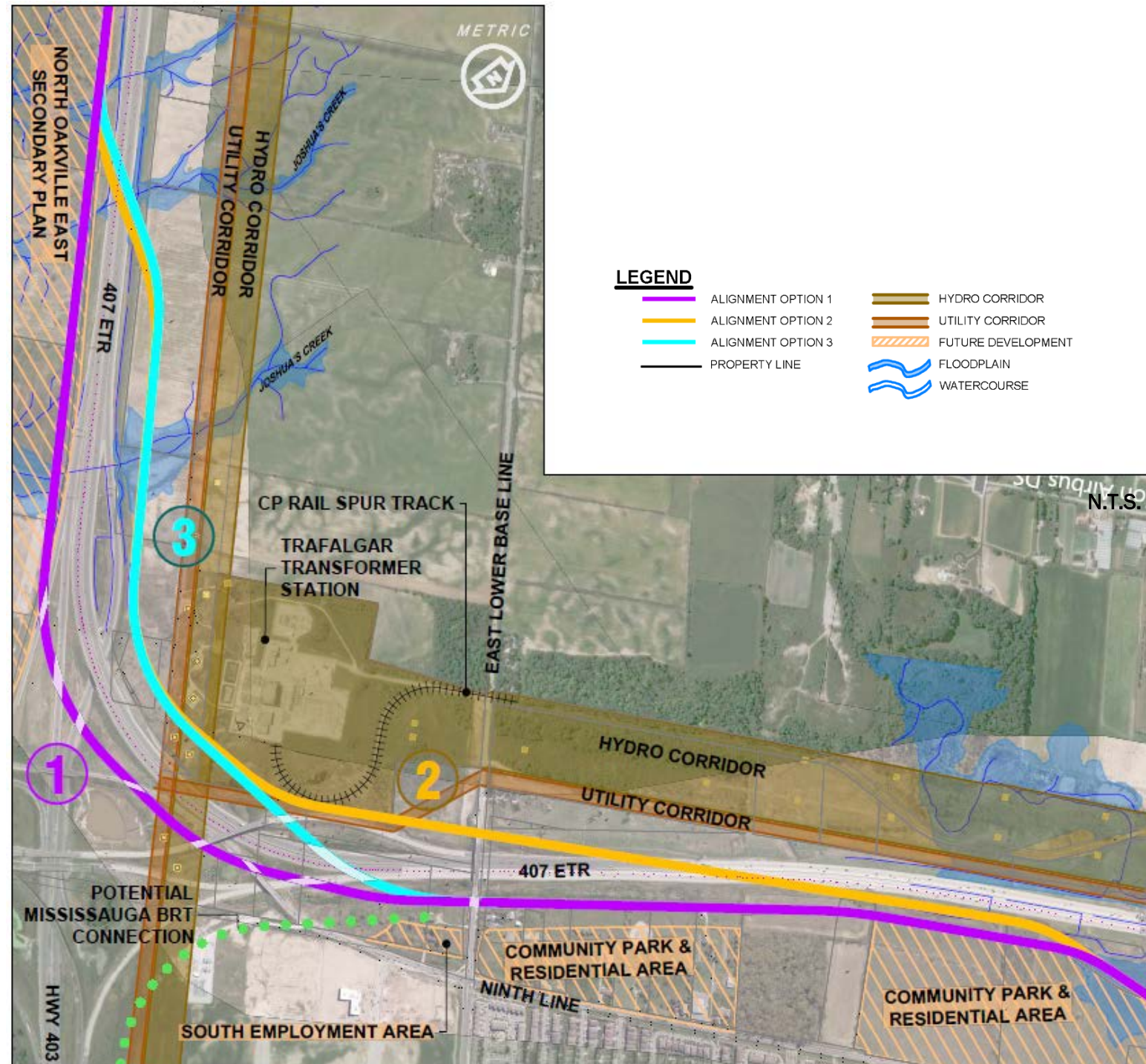
CRITERIA/INDICATORS		ALTERNATIVE 1
<b>DESCRIPTION</b>		<b>The only feasible alignment for the runningway (Alternative 1) is located just south of the 407 ETR right of way, on a corridor protected for the 407 Transitway on the north edge of the North Oakville East Secondary Plan. The profile of the runningway follows the 407 ETR profile crossing over Neyagawa Boulevard and Trafalgar Road and under Sixth Line. It is not feasible to have a runningway alignment on the north side of 407 ETR given the extent of environmental sensitivities.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> agricultural (4.06 ha), cultural meadow (CUM1-1, 3.69 ha), cultural savannah (CUS1, 0.19 ha), cultural thicket (CUT1, 0.04 ha), deciduous forest (FOD 1.90 ha), hedge (0.06 ha), manicured (0.41 ha), storm pond (0.036 ha). Total removals equal are 10.39 ha. Impacts to seven small ephemeral watercourses within the Sixteen Mile Creek watershed (warmwater regime).
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Small pockets of the North Oakville-Milton East Wetlands Complex (provincially evaluated) are located south of the alignment, west of Neyagawa Boulevard and between 6 <sup>th</sup> Line and Trafalgar Road. Also two areas that are part of the Oakville-Milton Wetlands and Uplands Candidate Area of Natural Scientific Interest, Life Science Provincial are located west of Neyagawa Boulevard and west of Trafalgar Road, south of the alignment.. The alignment crosses approximately 150 m of designated floodplain in the Sixteen Mile Creek area.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> Northern Bobwhite (Endangered, last seen in 1904), and Butternut (Endangered, last seen 1993) within 1 km grids. The tributaries of Sixteen Mile Creek, north of 407 ETR are occupied Silver Shiner Habitat (Threatened).
	<b>Waste and Contamination</b>	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AiGw-163, AiGw-165 <b>Within 50m:</b> AjGw-27, AjGw-43, AiGw-132, AiGw-164, AiGw-166, AiGw-167, AiGw-168, AiGw-305, AiGw-321, AiGw-322, AiGw-323, AiGw-324, AiGw-325, AiGw-326, AiGw-455
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	Four built heritage resources and cultural heritage landscapes- CHR 8 (4119 Fourth Line),CHR 11 (263 Burnhamthorpe Road West, Oakville), CHR 13 (4243 Sixth Line), and CHR 14 (4233 Trafalgar Road). Anticipated direct impacts to CHR 8 and CHR 14. Anticipated indirect impacts to CHR 11 and CHR 13.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No impacts.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>• <i>Greenbelt Plan 2017</i></li> <li>• <i>Parkway Belt West Plan 1978 and amendments</i></li> <li>• <i>Region of Halton Official Plan</i></li> <li>• <i>Town of Oakville Official Plan</i></li> </ul>	<b>Greenbelt Plan:</b> Urban River Valley (permitted under Policy 6.2). <b>Parkway Belt West Plan:</b> Located within the Parkway Belt Plan. <b>Halton Region:</b> Overall area is Urban Area and Employment Area Regional with a portion between Bronte Creek and Neyagawa Boulevard designated as Natural Heritage System. <b>Town of Oakville:</b> Lands south of 407 ETR are designated 407 Transitway. From east of Sixteen Mile Creek westwards south of the designated 407 Transitway lands are: Sub Urban Area, Natural Heritage, Employment Area, Neyagawa Blvd Urban Core (westside of Neyagawa Boulevard).
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>• <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</i></li> <li>• <i>Class 1 No significant limitations in use for Crops</i></li> <li>• <i>Class 2 moderate limitations on use for crops</i></li> <li>• <i>Class 3 moderately severe limitations on use for crops.</i></li> <li>• <i>Class 4 Severe limitations on use for crops.</i></li> <li>• <i>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</i></li> <li>• <i>Class 6 Natural grazing only; no improvements feasible.</i></li> <li>• <i>Class 7 No capability for agriculture.</i></li> </ul>	Impacts to active agricultural lands. <b>Impacted Soils:</b> CLI Class 1 – 8.38 ha, Class 3 – 1.33 ha, and Class 5 – 0.78 ha.

CRITERIA/INDICATORS		ALTERNATIVE 1
INFRASTRUCTURE AND OPERATION	<b>Private Property Impacts</b> <i>Requirement for private property (full or partial take)</i>	Segment will require a strip of land approximately 45m wide affecting eight private North Oakville East development properties.
	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	No potential impacts.
	<b>Impacts to 407 ETR Operation</b>	No impacts to 407 ETR operation.
	<b>Impacts to 407 Infrastructure</b>	No impacts to 407 ETR infrastructure.
	<b>Location of Adjacent Stations</b>	Alignment connects adequately with Trafalgar Station site.
CONSTRUCTABILITY AND COST	<b>Alignment Geometry</b> <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment geometry compliant with 407 Transitway Standards. No impacts of geometry on operations.
	<b>Constructability and/or Cost Consideration</b>	Vertical alignment follows 407 ETR profile, thus minor earthworks and low unit cost/km.
SUMMARY OF FINDINGS		
<b>NATURAL ENVIRONMENT</b>	Minor impacts to edge of deciduous forest. Seven watercourse crossings. Proximity to a portion of the Oakville-Milton Wetlands and Uplands Candidate Area of Natural Scientific Interest, Life Science Provincial.	
<b>CULTURAL ENVIRONMENT</b>	Two registered archaeological sites within and 15 sites within 50m. Potential impacts to four built heritage resources and cultural heritage landscapes.	
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	Segment will require a strip of land approximately 45m wide affecting North Oakville East development private properties.	
<b>INFRASTRUCTURE AND OPERATIONS</b>	No impacts to existing infrastructure or operations.	
<b>CONSTRUCTABILITY AND COST</b>	Relatively low cost and no constructability issues.	
<p><i>SEGMENT 5 CARRIED FORWARD ALIGNMENT:</i></p> <h2>ALTERNATIVE 1</h2> <p>Alignment Alternative 1 is being carried forward as it is the only feasible alternative alignment and it does not present significant negative impacts.</p>		

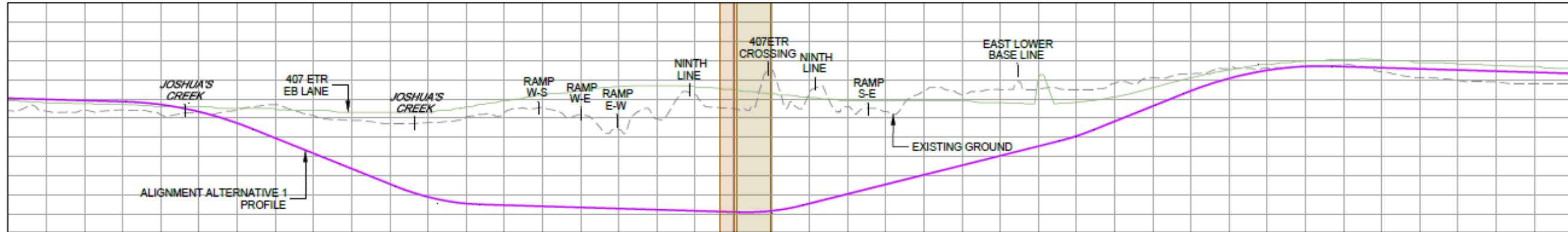
### SEGMENT 6: EAST OF TRAFALGAR ROAD TO NORTH OF LOWER BASE LINE

This segment covers the major multilevel 407 ETR/Highway 403 Interchange and involves the identification and assessment of various 407 Transitway horizontal and vertical alignment options, aimed at minimizing impact on the existing highway/road infrastructure and the Hydro One Trafalgar Transformer Station. This segment does not have any major environmental concerns.

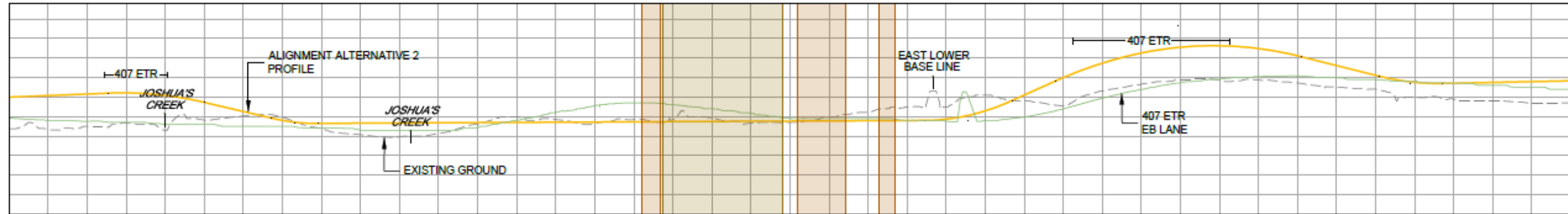
FIGURE 4.10: SEGMENT S6, EAST OF TRAFALGAR ROAD TO NORTH OF LOWER BASE LINE



### ALIGNMENT ALTERNATIVE 1: PROFILE



### ALIGNMENT ALTERNATIVE 2: PROFILE



### ALIGNMENT ALTERNATIVE 3: PROFILE

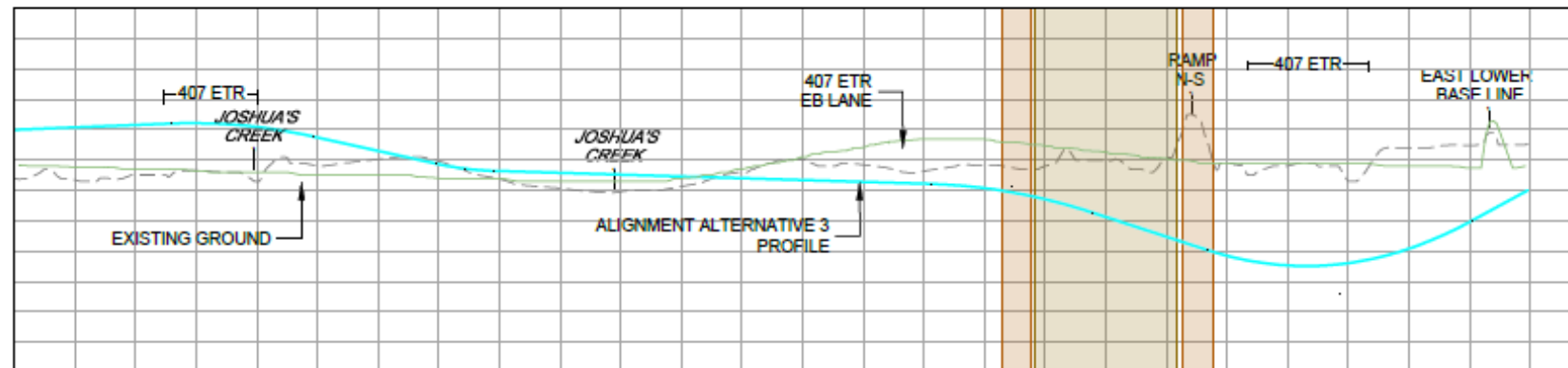


TABLE 4.12: SEGMENT S6, EAST OF TRAFALGAR ROAD TO NORTH OF LOWER BASE LINE ALIGNMENT ALTERNATIVES

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
<b>DESCRIPTION</b>		The 407 Transitway alignment is located on the south and east side of 407 ETR at the 407 ETR/Highway 403 Interchange. It runs parallel to the 407 ETR core lanes. The profile of the 407 Transitway is a tunnel underpassing six existing Interchange ramps and East Lower Base Line.	The 407 Transitway alignment is located on the north and west side of 407 ETR at the 407 ETR/Highway 403 Interchange. The alignment crosses 407 ETR from south to north, then it runs parallel to the 407 ETR within 407 right of way and again crosses 407 ETR from west to east. After crossing over the 407 ETR core lanes, the profile of the runningway follows the elevation of 407 ETR, crossing under East Lower Base Line and over 407 ETR core lanes.	The 407 Transitway alignment is partially located on the north and west side of 407 ETR at the 407 ETR/Highway 403 Interchange. The alignment crosses 407 ETR from south to north, then runs parallel to 407 ETR, within right of way and again crosses 407 ETR from west to east. After crossing over the 407 ETR core lanes, the profile of the runningway, descends to a tunnel under two existing Interchange ramps, 407 ETR core lanes and East Lower Base Line.
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agricultural (0.9 ha) at tunnel portal. There is one watercourse crossing over a tributary of Joshua's Creek (warmwater, low sensitivity habitat).	Insignificant impacts to vegetation removal. There are two watercourse crossings – two tributaries of Joshua's Creek (warmwater, low sensitivity habitat).	Insignificant impacts to vegetation removal. There are two watercourse crossings – two tributaries of Joshua's Creek (warmwater, low sensitivity habitat).
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	There are no environmentally significant landforms/features. The alignment crosses approximately 100 m of designated floodplain in the Joshua's Creek area.	There are no environmentally significant landforms/features. The alignment crosses approximately 150 m of designated floodplain in the Joshua's Creek area.	There are no environmentally significant landforms/features. The alignment crosses approximately 150 m of designated floodplain in the Joshua's Creek area.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Intake Protection Zone 3 around watercourses. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Intake Protection Zone 3 around watercourses. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Intake Protection Zone 3 around watercourses. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> None identified.	<b>MNRF, NHIC Database Records:</b> Henslow's Sparrow (Endangered, last seen 1932).	<b>MNRF, NHIC Database Records:</b> None identified.
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> None. <b>Within 50m:</b> AjGw-260.	<b>Within:</b> None. <b>Within 50m:</b> AjGw-260.	<b>Within:</b> None. <b>Within 50m:</b> AjGw-260.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	One cultural heritage landscape – CHR 29 ( 5104 Ninth Line), located north of Lower Base Line on the west side of Ninth Line. Anticipated indirect impacts.	No built heritage resources or cultural heritage landscapes. No impacts.	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No impacts.	Impacts to residential houses with backyards facing the 407 ETR.	No impacts.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Halton Official Plan</li> <li>Town of Oakville Official Plan</li> <li>City of Mississauga Official Plan</li> </ul>	<b>Parkway Belt West Plan:</b> Located within the Parkway Belt Plan. <b>Halton Region:</b> Overall area is Urban Area. At the interchange – Area with Special Policies. <b>Town of Oakville:</b> Urban Area and Employment Area. <b>Town of Milton:</b> Parkway Belt West Plan. <b>City of Mississauga:</b> Parkway Belt West Plan and Special Study Area.	<b>Parkway Belt West Plan:</b> Located within the Parkway Belt Plan. <b>Halton Region:</b> Overall area is Urban Area. At the interchange – Area with Special Policies. <b>Town of Oakville:</b> Urban Area and Employment Area. <b>Town of Milton:</b> Parkway Belt West Plan. <b>City of Mississauga:</b> Parkway Belt West Plan and Special Study Area.	<b>Parkway Belt West Plan:</b> Located within the Parkway Belt Plan. <b>Halton Region:</b> Overall area is Urban Area. At the interchange – Area with Special Policies. <b>Town of Oakville:</b> Urban Area and Employment Area. <b>Town of Milton:</b> Parkway Belt West Plan. <b>City of Mississauga:</b> Parkway Belt West Plan and Special Study Area.
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</li> <li>Class 1 No significant limitations in use for Crops</li> <li>Class 2 moderate limitations on use for crops</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	Impacts to active agricultural lands in the western section of the segment before entering the tunnel. <b>Impacted Soils:</b> CLI Class 1 – 2.97 ha.	Minor impacts to active agricultural lands in the western section. <b>Impacted Soils:</b> CLI – Class 3 – 0.9 ha.	Minor impacts to active agricultural lands in the western section of the segment as the alignment is to be above ground before entering the tunnel. <b>Impacted Soils:</b> None.



CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
INFRASTRUCTURE AND OPERATION	<b>Private Property Impacts</b> <i>Requirement for private property (full or partial take)</i>	No impacts.	No impacts.	No impacts.
	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	Alignment crosses both Hydro Corridor and Utility Corridor perpendicularly in a deep tunnel. Alignment crosses several utilities including six gas pipes, an oil pipe, and communication cables. Impact to these utilities is avoided with the tunnel which will cross under the utilities.	Major impact to existing infrastructure, including the Trafalgar Transformer Station facility, the rail spur track connecting to the Transformer Station, and a Hydro pole. Significant impact to Parkway Belt Utility Corridor which is not permitted. Alignment crosses several utilities including six gas pipes, an oil pipe, and communication cables. Impact to these utilities is avoided with the tunnel which will cross under the utilities.	Significant impact to existing infrastructure, including the Trafalgar Transformer Station facility. Alignment crosses several utilities including six gas pipes, an oil pipe, and communication cables. Impact to these utilities is avoided with the tunnel which will cross under the utilities.
	<b>Impacts to 407 ETR Operation</b>	No impacts to 407 ETR operation.	No impacts to 407 ETR operation.	No impacts to 407 ETR operation.
	<b>Impacts to 407 Infrastructure</b>	No impacts to 407 ETR infrastructure.	No impacts to 407 ETR infrastructure.	No impacts to 407 ETR infrastructure.
	<b>Location of Adjacent Stations</b>	Not applicable to this segment.	Not applicable to this segment.	Not applicable to this segment.
CONSTRUCTABILITY AND COST	<b>Alignment Geometry</b> <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Geometry compliant with 407 Transitway design standards.	Geometry compliant with 407 Transitway design standards.	Geometry compliant with 407 Transitway design standards.
	<b>Constructability and/or Cost Consideration</b>	1700 m long costly bored tunnel under entire interchange.	Least costly of the three alternatives.	Costly alternative. South portal of tunnel under 407 ETR core lanes located within Hydro Corridor. Complex construction. Costly superstructure of bridge at north end of the segment, required due to severity of skew angle of the 407 Transitway alignment crossing over 407 ETR core lanes.
<b>SUMMARY OF FINDINGS</b>				
<b>NATURAL ENVIRONMENT</b>		Very minor impacts to natural heritage resources as most of the alignment is underground.	Very minor impacts to natural heritage resources as most of the alignment is underground or elevated.	Very minor impacts to natural heritage resources as most of the alignment is underground or elevated.
<b>CULTURAL ENVIRONMENT</b>		Potential impact to one cultural heritage landscape CHR 29 (5104 Ninth Line). No difference between the alternatives for known archaeological resources.	No difference between the alternatives for known archaeological resources.	No difference between the alternatives for known archaeological resources.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>		Most impacts to active agricultural lands than the other alternatives.	Some impacts to active agricultural lands.	Least impact to active agricultural lands than the other alternatives
<b>INFRASTRUCTURE AND OPERATIONS</b>		Tunnel avoids impact to Hydro One and other utilities crossed by the alignment; and to 407 ETR infrastructure and operations.	Major impact to Hydro One infrastructure.	Significant impact to Hydro One infrastructure.
<b>CONSTRUCTABILITY AND COST</b>		High cost of tunnel under entire interchange.	Least cost.	Costly and complex construction.

SEGMENT 6 CARRIED FORWARD ALIGNMENT:

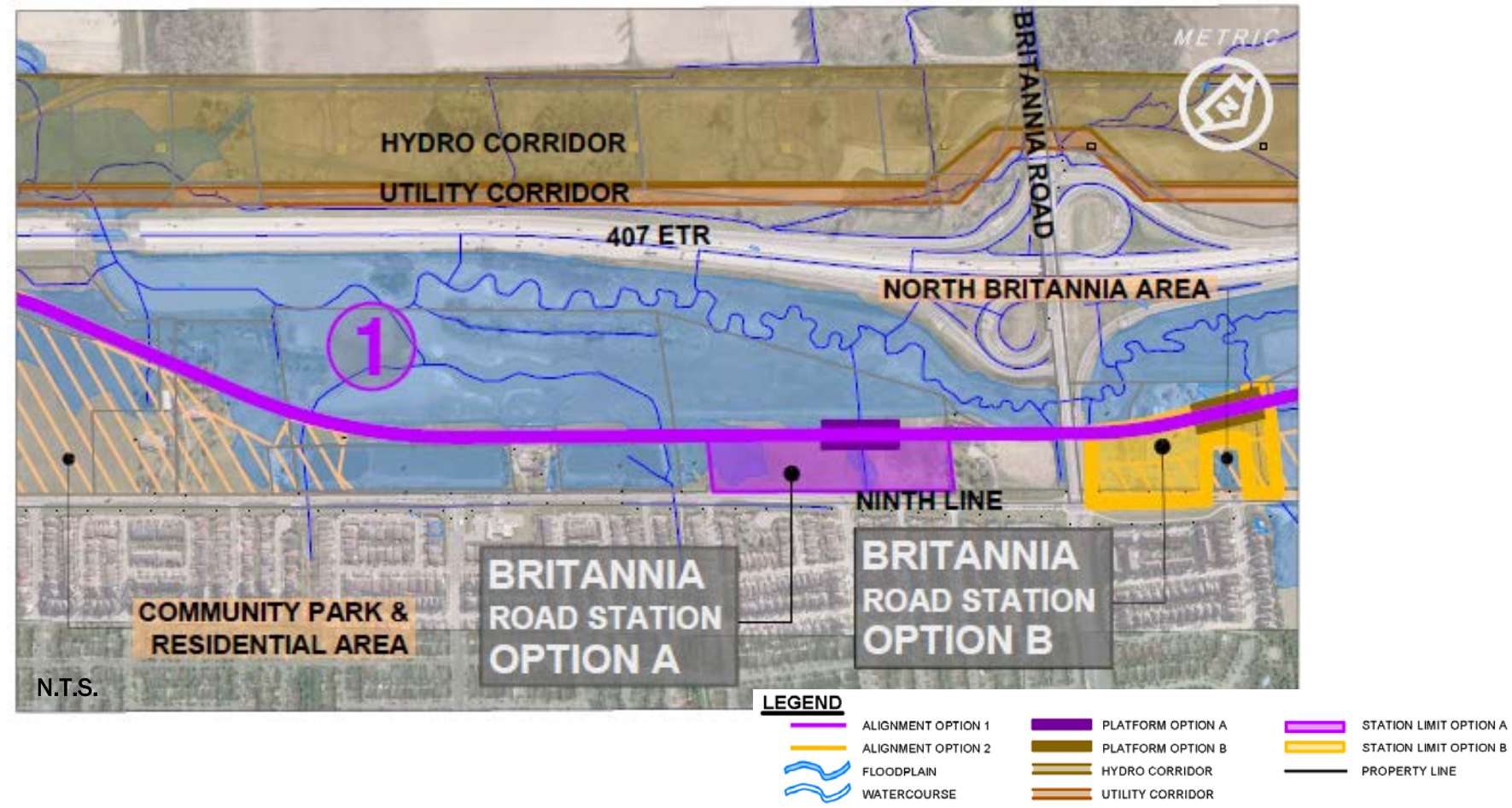
## ALTERNATIVE 1

Alternative 1 is carried forward due to the major impact that Alternatives 2 and 3 would have on existing Hydro One infrastructure.

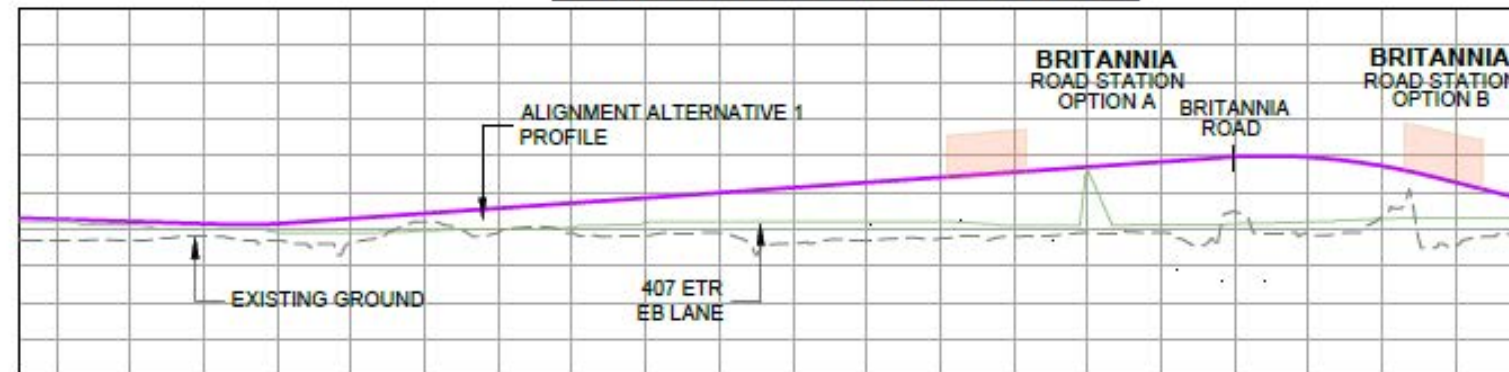
### SEGMENT 7: NORH OF LOWER BASE LINE TO NORTH OF BRITANNIA ROAD

The segment travels through mostly open space and agricultural areas between the 407 ETR and Ninth Line. The City of Mississauga has recently completed the Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018) and has identified the 407 Transitway alignment and stations. The station site for this segment (Britannia Road Station) will serve the southern Ninth Line Corridor residential developments and the existing residential areas east of Ninth Line extending to Winston Churchill Boulevard and beyond . This corridor has extensive areas of floodplain.

**FIGURE 4.11: SEGMENT S7, NORTH OF LOWER BASE LINE TO NORTH OF BRITANNIA ROAD**



**ALIGNMENT ALTERNATIVE 1: PROFILE**



**TABLE 4.13: SEGMENT S7: NORTH OF LOWER BASE LINE TO NORTH OF BRITANNIA ROAD– STATION SITE OPTIONS**

CRITERIA/INDICATORS		OPTION A	OPTION B
<b>LOCATION</b>		<b>Southeast quadrant of the 407 ETR and Britannia Road Interchange.</b>	<b>Northeast quadrant of the 407 ETR and Britannia Road Interchange.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agriculture (3.79 ha), cultural meadow (CUM1-1, 0.28 ha), and manicure (M, 0.63 ha). Total removals equal 4.70 ha. <b>No impacts to watercourses.</b> A tributary of the East Sixteen Mile Creek is located adjacent to the station.	<b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 0.75 ha) and manicure (M, 0.42 ha). Total removals equal 1.17 ha. <b>Impacts to one watercourse:</b> A tributary of the East Sixteen Mile Creek is located within the northern section of the station.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Station site compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> .	Potential impacts of the station on existing floodplain management facilities.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> None.	<b>MNRF, NHIC Database Records:</b> None.
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> None. <b>Within 50m:</b> AjGw-277.	<b>Within:</b> None. <b>Within 50m:</b> None.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts	No known impacts
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	One cultural heritage landscape– CHR 20 (5768 Ninth Line), located on the southwest corner of Ninth Line and Britannia Road East. Anticipated direct impacts.	Two cultural heritage landscapes – CHR24 (6056 Ninth Line) and CHR 25 (6136 Ninth Line), located on the northwest corner of Ninth Line and Britannia Road. Anticipated indirect impacts.
	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	Potential impacts on residential properties on the east side of Ninth Line.	Potential impacts on residential properties on the east side of Ninth Line.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"><li>Greenbelt Plan 2017</li><li>Parkway Belt West Plan 1978 and amendments</li><li>Region of Peel Official Plan</li><li>City of Mississauga Official Plan</li></ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Ninth Line Lands. <b>City of Mississauga:</b> designated 407 Transitway Station, Parkway Belt West and Commercial.	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Ninth Line Lands. <b>City of Mississauga:</b> Residential Medium Density. A small portion in the northern limit is Greenlands.
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"><li>Class 1 No significant limitations in use for crops.</li><li>Class 2 moderate limitations on use for crops.</li><li>Class 3 moderately severe limitations on use for crops.</li><li>Class 4 Severe limitations on use for crops.</li><li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li><li>Class 6 Natural grazing only; no improvements feasible.</li><li>Class 7 No capability for agriculture.</li></ul>	<b>Impacted Soils:</b> CLI Class 1 – 4.7 ha.	<b>Impacted Soils:</b> CLI Class 1 – 2.9 ha, Class 3 – 0.28 ha.
	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	No potential impacts.	Larger portion of station site (approx. 8.5 acres) is located on private land immediately north of Britannia Road. North portion of site located on municipal land.
<b>INFRASTRUCTURE AND OPERATIONS</b>	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No potential impacts.	No potential impacts.
	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	Optimum vehicular and pedestrian main access off Ninth Line across Manatee Way. Right-in/right-out bus access off Ninth Line, close to Britannia Road.	Optimum access constrained by location of existing church, and intersection/signaling standard requirements. Available access north of church, over 600m. from Britannia Road.
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	Adequate accessibility from/to 407 ETR/ Britannia Road Interchange.	Adequate accessibility from/to 407 ETR/ Britannia Road Interchange.

CRITERIA/INDICATORS		OPTION A	OPTION B
	<b>Site Area and Opportunity to Expand</b>	Sufficient site available to satisfy ridership demand and opportunity to expand to the south.	Insufficient site available to satisfy ridership demand. No opportunity for future expansion.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of CURRENT connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	Adequate platform location.	Adequate platform location.
<b>CONSTRUCTABILITY AND COST</b>	<b>Constructability and/or Cost Consideration</b>	No major issues with construction site and access.	No major issues with construction site and access.
SUMMARY OF FINDINGS			
<b>NATURAL ENVIRONMENT</b>	Station site compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> .	Potential impacts to existing floodplain management facilities. Impact to one watercourse in the northern section of the station. Less vegetation removals.	
<b>CULTURAL ENVIRONMENT</b>	One registered archaeological site within 50m. Direct impacts to one cultural heritage landscape – CHR 20 (5768 Ninth Line).	No impacts to known archaeological resources. Indirect impacts to two cultural heritage landscapes – CHR24 (6056 Ninth Line) and CHR 25 (6136 Ninth Line),	
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	No negative impacts.	Acquisition of private property is required.	
<b>INFRASTRUCTURE AND OPERATIONS</b>	Very good vehicular and pedestrian access. Land sufficient for demand and potential future expansion	Insufficient site for forecast demand with constrained accessibility.	
<b>CONSTRUCTABILITY AND COST</b>	No major issues with construction site and access.	No major issues with construction site and access.	
<i>SEGMENT 7 CARRIED FORWARD STATION SITE:</i>			
<b>OPTION A</b>			
Station Option A is being carried forward because it has sufficient land availability and adequate vehicular and pedestrian accessibility, while Option B does not have sufficient land available to satisfy forecast demand and presents more operational vehicular and pedestrian issues than Option A.			

**TABLE 4.14: SEGMENT S7, NORTH OF LOWER BASE LINE TO NORTH OF BRITANNIA ROAD ALIGNMENT ALTERNATIVE**

CRITERIA/INDICATORS		ALTERNATIVE 1
<b>DESCRIPTION</b>		<b>The 407 Transitway alignment is located between Ninth Line and 407 ETR, bridging over Britannia Road to minimize impact to existing meanders and flood plain areas. This is the only viable alignment alternative for Segment S7.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agriculture (31.49 ha), cultural meadow (CUM1-1, 1.1 ha), and manicure (M, 0.63 ha). Total removals equal 33.22 ha. <b>Impacts to one watercourse:</b> Tributary of the East Sixteen Mile Creek. There is one major crossing.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Alignment compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> .
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> None.

CRITERIA/INDICATORS		ALTERNATIVE 1
CULTURAL ENVIRONMENT	Waste and Contamination	No properties of potential concern.
	Known Presence of Archaeological Resources	<b>Within:</b> None. <b>Within 50m:</b> AjGw-254 and AjGw-277.
	Potential Impacts to Known Indigenous Lands	No known impacts.
	Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes	Three cultural heritage landscapes – CHR 20 (5768 Ninth Line), CHR24 (6056 Ninth Line) and CHR 25 (6136 Ninth Line), located on the northwest and southwest corners of Ninth Line and Britannia Road. Anticipated direct impacts to CHR 20. Anticipated impacts to CHR 24 and CHR 25.
SOCIO-ECONOMIC ENVIRONMENT	Potential Effects on Adjacent Noise Sensitive Areas	Potential impact to residential properties adjacent to corridor and east of Ninth Line.
	Land Use Compatibility with Provincial and Municipal Plans and Policies <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Peel Official Plan</li> <li>City of Mississauga Official Plan5</li> </ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Ninth Line Lands. <b>City of Mississauga:</b> designated 407 Transitway Station, Parkway Belt West and Hazard Lands.
INFRASTRUCTURE AND OPERATION	Impacts to Prime Agricultural Lands <ul style="list-style-type: none"> <li>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</li> <li>Class 1 No significant limitations in use for Crops</li> <li>Class 2 moderate limitations on use for crops</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	<b>Impacted Soils:</b> CLI Class 1 – 3.7 ha and Class 3 – 1.1 ha.
	Private Property Impacts <i>Requirement for private property (full or partial take)</i>	Impacts three residential properties.
	Impacts to existing and planned utilities (property and infrastructure)	No potential impacts.
CONSTRUCTABILITY AND COST	Impacts to 407 ETR Operation	No impacts to 407 ETR operation.
	Impacts to 407 Infrastructure	No impacts to 407 ETR infrastructure.
	Location of Adjacent Stations	Alignment adequately connects to Preferred Britannia Road Station
CONSTRUCTABILITY AND COST	Alignment Geometry <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment meets 407 Transitway Design Standards.
	Constructability and/or Cost Consideration	Construction access from Ninth Line. No major issues.

CRITERIA/INDICATORS	ALTERNATIVE 1
<b>NATURAL ENVIRONMENT</b>	One watercourse crossing and potential crossings over drainage features. Alignment compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> .
<b>CULTURAL ENVIRONMENT</b>	Two registered archaeological sites within 50m. Three cultural heritage landscapes – CHR 20 (5768 Ninth Line), CHR24 (6056 Ninth Line) and CHR 25 (6136 Ninth Line),
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	Potential impact to residential properties adjacent to corridor and east of Ninth Line.
<b>INFRASTRUCTURE AND OPERATIONS</b>	No issues.
<b>CONSTRUCTABILITY AND COST</b>	No issues.

SEGMENT 7 CARRIED FORWARD ALIGNMENT:

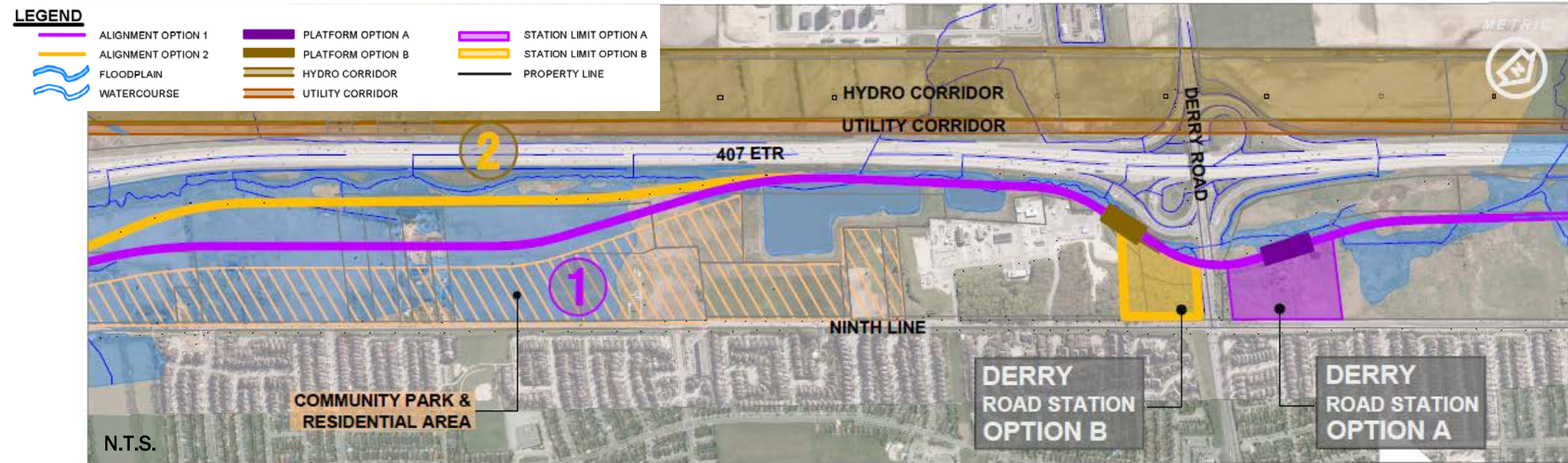
## ALTERNATIVE 1

Alignment Alternative 1 is being carried forward as it is the only feasible alternative alignment and it does not present significant negative impacts.

### SEGMENT 8: NORTH OF BRITANNIA ROAD TO NORTH OF DERRY ROAD

The segment travels mainly through agricultural areas and open space areas between 407 ETR and Ninth Line. The City of Mississauga has recently completed the Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018) a planning study for the Ninth Line Corridor and has identified the 407 Transitway alignment and stations. This segment will include a high demand station at the crossing with Derry Road which will serve the residential developments in the northern section of the Ninth Line Corridor and the existing residential development on the east side of Ninth Line, extending to Winston Churchill Boulevard and beyond. This corridor has extensive areas of floodplain.

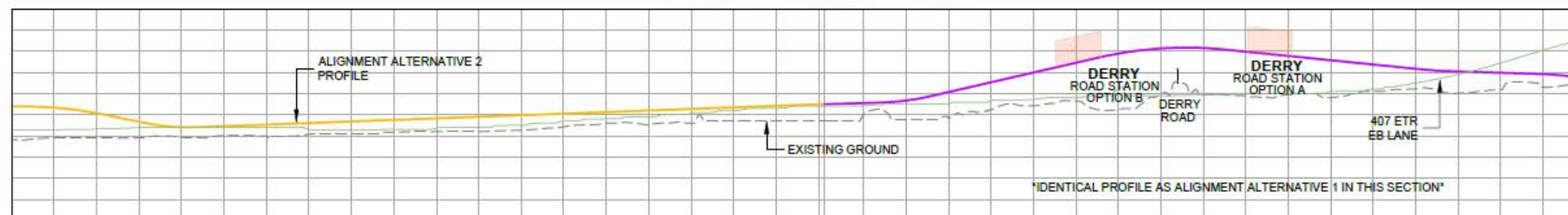
**FIGURE 4.12: SEGMENT S8, NORTH OF BRITANNIA ROAD TO NORTH OF DERRY ROAD**



**ALIGNMENT ALTERNATIVE 1: PROFILE**



**ALIGNMENT ALTERNATIVE 2: PROFILE**



**TABLE 4.15: SEGMENT S8, NORTH OF BRITANNIA ROAD TO NORTH OF DERRY ROAD STATION SITE OPTIONS**

CRITERIA/INDICATORS		OPTION A	OPTION B
<b>LOCATION</b>		<b>Northeast quadrant of the 407 ETR and Derry Road Interchange.</b>	<b>Southeast quadrant of the 407 ETR and Derry Road Interchange.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 0.7 ha), deciduous forest (FOD, 2.05 ha), and shallow marsh (MAS, 0.16 ha). Total – 2.91 ha. <b>Impacts to one Watercourse:</b> Tributary of the East Sixteen Mile Creek (warmwater, low-medium sensitivity).	<b>Vegetation Removals:</b> cultural meadow (CUM1-1, 4.85 ha), manicured (0.46 ha), thicket swamp (SWT, 0.013 ha) Total –5.32 ha. <b>Impacts to one Watercourse:</b> Tributary of the East Sixteen Mile Creek (warmwater, low-medium sensitivity).
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Station site compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i>	Potential impacts of the station on existing floodplain management facilities.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> None.	<b>MNRF, NHIC Database Records:</b> none
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AjGw-252. <b>Within 50m:</b> None.	<b>Within:</b> None. <b>Within 50m:</b> None.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	One cultural heritage landscape - CHR 19 (7044 Ninth Line), located on the northwest corner of Derry Road East and Ninth Line. Anticipated impacts.	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	Potential impacts on residential properties on the east side of Ninth Line.	Potential impacts on residential properties on the east side of Ninth Line.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Peel Official Plan</li> <li>City of Mississauga Official Plan</li> </ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Ninth Line Lands. <b>City of Mississauga:</b> Parkway Belt West Plan. A small portion is Greenlands.	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Ninth Line Lands. <b>City of Mississauga:</b> Parkway Belt West Plan.
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"> <li>Class 1 No significant limitations in use for crops.</li> <li>Class 2 moderate limitations on use for crops.</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	<b>Impacted Soils:</b> CLI Class 1 – 2.92 ha.	<b>Impacted Soils:</b> CLI Class 1 – 5.33 ha.
	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	No impacts.	South portion of site owned by Union Gas and may impact existing or future infrastructure/operations, north portion City of Mississauga.
	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No potential impacts.	May impact existing or future Union Gas infrastructure/operations.
<b>INFRASTRUCTURE AND OPERATIONS</b>	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	Direct all-direction access from Ninth Line. Option of right-in/right-out from/to Ninth Line. Site close to residential area.	Direct all-direction access from Ninth Line. Option of right-in/right-out from/to Ninth Line. Site close to residential area.



CRITERIA/INDICATORS		OPTION A	OPTION B
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	Convenient access to/from 407 ETR.	Convenient access to/from 407 ETR.
	<b>Site Area and Opportunity to Expand</b>	Sufficient size to accommodate demand. Opportunity for expansion.	Insufficient size to accommodate demand. No opportunity for expansion.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of CURRENT connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	Only one current local transit route on Derry Road.	Only one current local transit route on Derry Road.
<b>CONSTRUCTABILITY AND COST</b>	<b>Constructability and/or Cost Consideration</b>	No major constructability issues. Construction cost compatible with other stations, no property requirements.	No major constructability issues. High cost due to property requirement.
SUMMARY OF FINDINGS			
<b>NATURAL ENVIRONMENT</b>		Station site compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> .	Potential impacts of the station on existing floodplain management facilities.
<b>CULTURAL ENVIRONMENT</b>		A small portion is designated Greenlands. There is one registered archaeological site within the station. One cultural heritage landscape - CHR 19 within the station.	None.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>		No impacts to private property.	Impact to private property (Union Gas). May impact existing Union Gas facilities or expansion plans.
<b>INFRASTRUCTURE AND OPERATIONS</b>		Sufficient size to accommodate demand; no operational issues.	Insufficient size to accommodate demand; no operational issues.
<b>CONSTRUCTABILITY AND COST</b>		No major issues.	No major issues.
<p><i>SEGMENT 8 CARRIED FORWARD STATION SITE:</i></p> <h2>OPTION A</h2> <p>Carried forward due to cost of property and land availability. Option A is located on Provincial land and provides sufficient available land to satisfy the ridership demand, while Option B requires purchase of private property (Union Gas) and municipal property and does not provide sufficient land to satisfy ridership demand.</p>			

**TABLE 4.16: SEGMENT S8, NORTH OF BRITANNIA ROAD TO NORTH OF DERRY ROAD ALIGNMENT ALTERNATIVES**

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
<b>DESCRIPTION</b>		<b>The runningway alignment is located on the east side of 407 ETR. It runs parallel to the highway, partially close to the future developments. The profile of the runningway follows the elevation of 407 ETR, crossing over Derry Road. This will avoid significant visual impact to adjacent residential developments.</b>	<b>The runningway alignment is located on the east side of 407 ETR. It runs parallel to the highway within 407 ETR right of way. The profile of the runningway follows the elevation of 407 ETR, crossing over Derry Road. This will avoid significant visual impact to adjacent residential developments.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Agriculture (Ag, 0.64 ha), cultural meadow (CUM1-1, 2.89 ha), deciduous forest (FOD, 0.003 ha), hedge (H, 0.026 ha), shallow marsh (MAS, 0.65 ha), storm pond (0.56 ha). Total removals equal 4.769 ha. <b>Impacts to one Watercourse:</b> Tributary of the East Sixteen Mile Creek (warmwater, low-medium sensitivity)	<b>Vegetation Removals:</b> agriculture (Ag, 1.04 ha), cultural meadow (CUM1-1, 2.32 ha), deciduous forest (FOD, 0.003 ha), hedge (H, 0.18 ha), shallow marsh (MAS, 0.65 ha), and storm pond (0.56 ha). Total removals equal 4.75 ha. <b>Impacts to one Watercourse:</b> Tributary of the East Sixteen Mile Creek (warmwater, low-medium sensitivity).

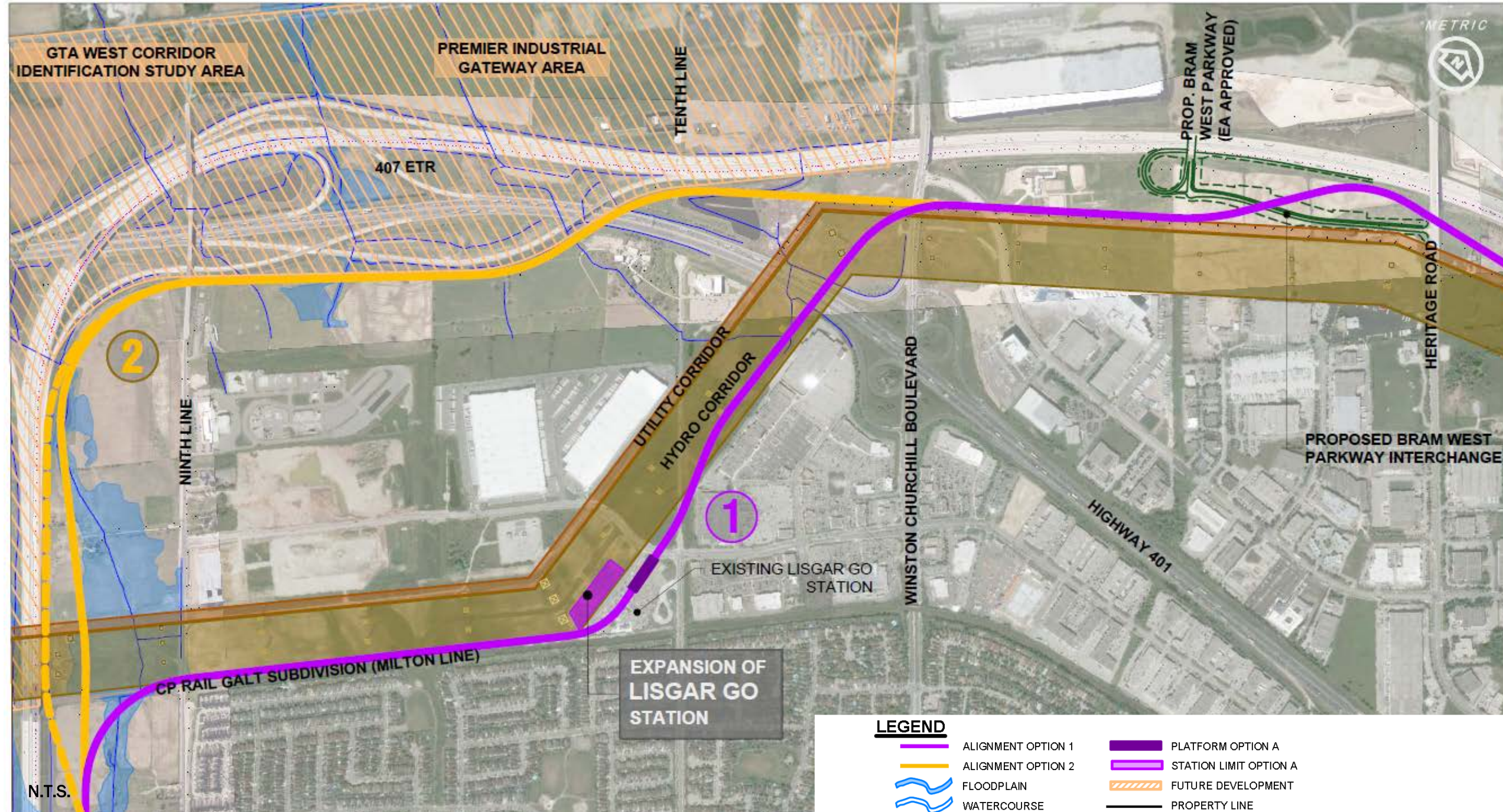
CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Alignment compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> .	Potential impacts of the station on existing floodplain management facilities.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> None.	<b>MNRF, NHIC Database Records:</b> None.
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
CULTURAL ENVIRONMENT	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> None. <b>Within 50m:</b> AjGw-431.	<b>Within:</b> None. <b>Within 50m:</b> AjGw-431.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	One cultural heritage landscape CHR 19 (7044 Ninth Line). Anticipated impacts to CHR 19.	One cultural heritage landscape CHR 19 (7044 Ninth Line). Anticipated impacts to CHR 19.
SOCIO-ECONOMIC ENVIRONMENT	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	Potential impact to four residential properties near corridor.	Potential impact to four residential properties near corridor.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Peel Official Plan</li> <li>City of Mississauga Official Plan 2015</li> </ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Ninth Line Lands. <b>City of Mississauga:</b> Parkway Belt West Plan.	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Ninth Line Lands. <b>City of Mississauga:</b> Parkway Belt West Plan. A small portion is Greenlands.
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</li> <li>Class 1 No significant limitations in use for Crops</li> <li>Class 2 moderate limitations on use for crops</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	<b>Impacted Soils:</b> CLI Class 1 – 6.88 ha and Class 3 – 2.94.	<b>Impacted Soils:</b> CLI Class 1 – 3.7 ha and Class 3 – 1.135 ha.
	<b>Private Property Impacts</b> <i>Requirement for private property (full or partial take)</i>	Impacts four private properties. Larger portions of properties required.	Impacts four private properties.
INFRASTRUCTURE AND OPERATION	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	No potential impacts.	No potential impacts.
	<b>Impacts to 407 ETR Operation</b>	No impacts to 407 ETR operation.	No impacts to 407 ETR operation.
	<b>Impacts to 407 Infrastructure</b>	No impacts to 407 ETR infrastructure.	No impacts to 407 ETR infrastructure.
	<b>Location of Adjacent Stations</b>	Compatible with preferred Derry Station site.	Compatible with preferred Derry Station site.
	<b>Alignment Geometry</b> <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment meets 407 Transitway Design Standards.	Alignment meets 407 Transitway Design Standards.

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
CONSTRUCTABILITY AND COST	Constructability and/or Cost Consideration	Complex construction due to existing floodplain area.	Complex construction due to existing floodplain area.
	<b>SUMMARY OF FINDINGS</b>		
NATURAL ENVIRONMENT		Alignment compatible with the existing/proposed floodplain management facilities as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> .	Potential impacts of the station on existing floodplain management facilities.
CULTURAL ENVIRONMENT		No significant difference between the two alternatives.	No significant difference between the two alternatives.
SOCIO-ECONOMIC ENVIRONMENT		Same alignment as identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> . Larger portions of private properties required.	Alignment not compatible with the alignment identified in the City of Mississauga study: <i>Highway 407 Transitway Corridor Assessment Within The Ninth Line Lands (2018)</i> . Smaller portions of private properties required.
INFRASTRUCTURE AND OPERATIONS		No major issues.	No major issues.
CONSTRUCTABILITY AND COST		Complex construction due to existing floodplain area.	Complex construction due to existing floodplain area.
<p><i>SEGMENT 8 CARRIED FORWARD ALIGNMENT:</i></p> <p><b>ALTERNATIVE 1</b></p> <p>Both Alternatives are located between 407 ETR and Ninth Line and have similar characteristics. The City of Mississauga land use studies identify Alternative 1 as the preferred corridor location.</p>			

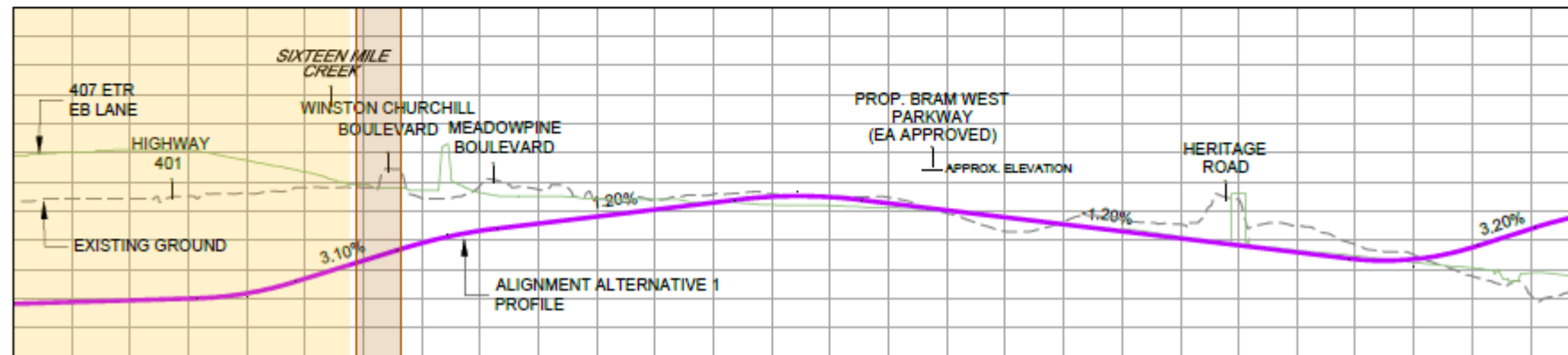
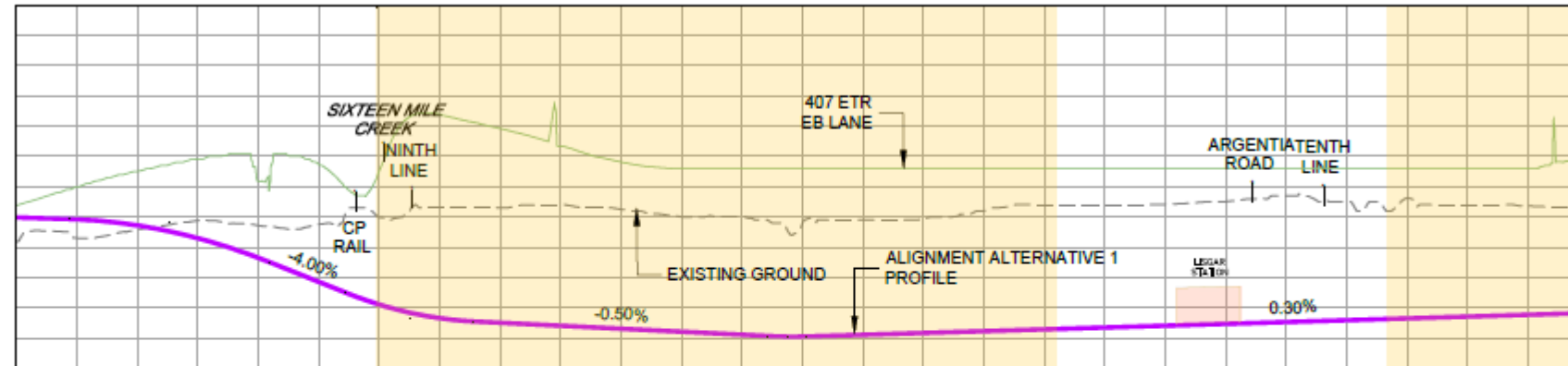
### SEGMENT 9: NORTH OF DERRY ROAD TO WEST OF HERITAGE ROAD

This segment covers the area between the GO Transit Milton rail line that operates on the CP Galt Subdivision, and Heritage Road. The segment includes the Highway 401/407 ETR Interchange, the crossing of Winston Churchill Boulevard, and the south end of the future Bram West Parkway (EA approved). Existing land use includes residential south of the GO line; and industrial/commercial north of the GO line. The Lisgar GO Station is located in this segment. The opportunity of integrating the 407 Transitway with the GO Transit Milton rail line at the Lisgar GO Station is discussed in the evaluation table.

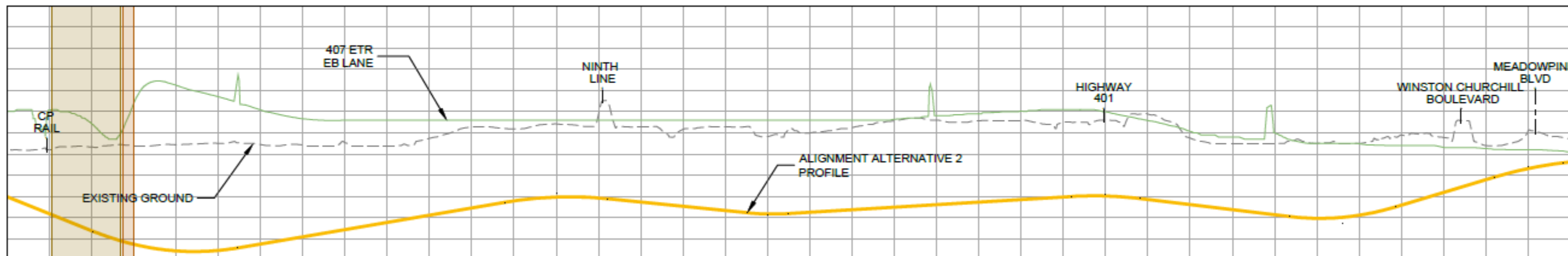
FIGURE 4.13: SEGMENT S9, NORTH OF DERRY ROAD TO WEST OF HERITAGE ROAD



### ALIGNMENT ALTERNATIVE 1: PROFILE



### ALIGNMENT ALTERNATIVE 2: PROFILE



**TABLE 4.17: SEGMENT S9, NORTH OF DERRY ROAD TO WEST OF HERITAGE ROAD – LISGAR GO STATION EXPANSION**

CRITERIA/INDICATORS		OPTION A
<b>LOCATION</b>		The existing GO Transit Milton Line Lisgar Station is located between Ninth Line and Winston Churchill Boulevard, south of the Highway 401/407 ETR Interchange. The 407 Transitway project proposes building additional parking to accommodate the estimated 407 Transitway forecast demand as required. <b>This station site only applies to Alignment Alternative 1 (as described below).</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Manicured (7.5 ha) and cultural meadow (CUM1-1, 2.4 ha). <b>No impact to watercourse.</b>
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	There are no environmentally significant landforms/features.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> Barn Swallow (Threatened, last seen in 2017) within 1 km grid.
	<b>Waste and Contamination</b>	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> None. <b>Within 50 m:</b> AjGw-226.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No potential impacts as there is an existing station on the site.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Peel Official Plan</li> <li>City of Mississauga Official Plan</li> </ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Regional Urban Boundary, within the Urban System. <b>City of Mississauga:</b> Parkway Belt West Plan.
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"> <li>Class 1 No significant limitations in use for crops.</li> <li>Class 2 moderate limitations on use for crops.</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	<b>Impacted Soils:</b> CLI Class 1 – 9.9 ha.
	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	Proposed extended parking facility located within Hydro Corridor.

CRITERIA/INDICATORS		OPTION A
INFRASTRUCTURE AND OPERATIONS	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No potential impacts.
	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	Existing access to Lisgar GO Station would not be modified.
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	No direct access from 407 ETR. This station would only serve the 407 Transitway when the exclusive runningway (Alternative 1) is built.
	<b>Site Area and Opportunity to Expand</b>	Opportunity for parking expansion within Hydro Corridor.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of current connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	Station directly connects with the existing Lisgar GO station facility on the Milton Rail Corridor. Platform location ideal for efficient transit connectivity.
CONSTRUCTABILITY AND COST	<b>Constructability and/or Cost Consideration</b>	Cut and cover 407 Transitway stop platforms would impact Lisgar GO Station parking during construction. Construction staging arrangements will be analyzed during Detail Design to minimize temporary impact. Low cost.

**SUMMARY OF FINDINGS**

<b>NATURAL ENVIRONMENT</b>	Located on existing Lisgar GO Station site and Hydro Corridor – impacts to vegetation are not significant. Possible foraging habitat for Barn Swallow.
<b>CULTURAL ENVIRONMENT</b>	No impact.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	By adding a connection to the 407 Transitway at the existing Lisgar GO station, it will provide direct access through transfers to other rapid transit services.
<b>INFRASTRUCTURE AND OPERATIONS</b>	This station will improve connectivity and in turn ridership for both GO Transit and 407 Transitway by providing transfer services between both lines.
<b>CONSTRUCTABILITY AND COST</b>	Efficient construction staging required to minimize temporary impact to GO Transit users.

SEGMENT 9 CARRIED FORWARD STATION SITE:

## OPTION A (LISGAR GO STATION EXPANSION)

This option is being carried forward as it provides the opportunity to access and link and provide transfers between the Transitway, GO Rail and municipal transit operations serving the Lisgar station. This station expansion would be constructed when 407 Transitway Alignment Alternative 1 is built.

TABLE 4.18: SEGMENT S9, NORTH OF DERRY ROAD TO WEST OF HERITAGE ROAD ALIGNMENT ALTERNATIVES

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
<b>DESCRIPTION</b>		The runningway alignment is located within the Hydro Corridor, connecting to the Lisgar GO Station. Due to Hydro One's vertical clearance requirements, the profile is underground through the Hydro Corridor, CP Rail, Ninth Line, Argentia Road, Tenth Line, Highway 401, Winston Churchill Boulevard and Meadowpine Boulevard. It crosses under Bram West Parkway and Heritage Road as well.	The runningway alignment from Derry Road Station to the 407/401 Interchange is located on the east side of 407 ETR up to Ninth Line. It runs parallel to the Interchange area and 407 ETR all the way to Meadowpine Boulevard. Since the expansion of the Interchange planning is on-going and the final configuration is unknown, to avoid potential impact to the Interchange, and restricted by the Hydro One's vertical clearance requirement within the Hydro Corridor, the profile is designed to cross with tunneling under CP Rail, the Hydro and Utility Corridor, Ninth line, the Interchange area, Winston Churchill Boulevard and Meadowpine Boulevard. It crosses under Bram West Parkway and Heritage Road as well.
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	No impacts to watercourses as the runningway is underground.	No impacts to watercourses as the runningway is underground.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	The alignment crosses approximately 140 m of designated floodplain in the East Sixteen Mile Creek area.	No impacts.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Halton Region. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area or Highly Vulnerable Aquifer. Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	No impacts as the runningway is underground.	No impacts as the runningway is underground.
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AjGw-225 and AjGw-268. <b>Within 50m:</b> AjGw-62, AjGw-453, AjGw-226, and AjGw-63.	<b>Within:</b> AjGw-225 and AjGw-268. <b>Within 50m:</b> AjGw-558 and AjGw-63.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts	No known impacts
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	Three cultural heritage landscapes CHR 21 (2800 Meadowpine Boulevard), CHR 22 (7696 Heritage Road) and CHR 31 (0 Heritage Road). Anticipated impacts to all.	Five cultural heritage landscapes - CHR 1 (7420 Ninth Line, Mississauga), CHR 2 (7564 Tenth Line), CHR 21 (2800 Meadowpine Boulevard), CHR 22 (7696 Heritage Road) and CHR 31 (0 Heritage Road). Anticipated impacts to all.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	Potential impact to four residential properties near corridor.	Potential impact to four residential properties near corridor.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Peel Official Plan</li> <li>City of Mississauga Official Plan</li> <li>City of Brampton Official Plan</li> </ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Urban System. <b>City of Mississauga:</b> Parkway Belt West Plan, Natural Hazards. <b>City of Brampton:</b> Provincial Highways, Parkway Belt West Plan.	
<b>INFRASTRUCTURE</b>	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</li> <li>Class 1 No significant limitations in use for Crops</li> <li>Class 2 moderate limitations on use for crops</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	No impacts.	No impacts.
	<b>Private Property Impacts</b> Requirement for private property (full or partial take)	No impacts.	Private property required between the CP Rail and the 407-401 Interchange.
	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	Adequate setbacks from rail and Hydro infrastructure achievable.	No potential impacts.

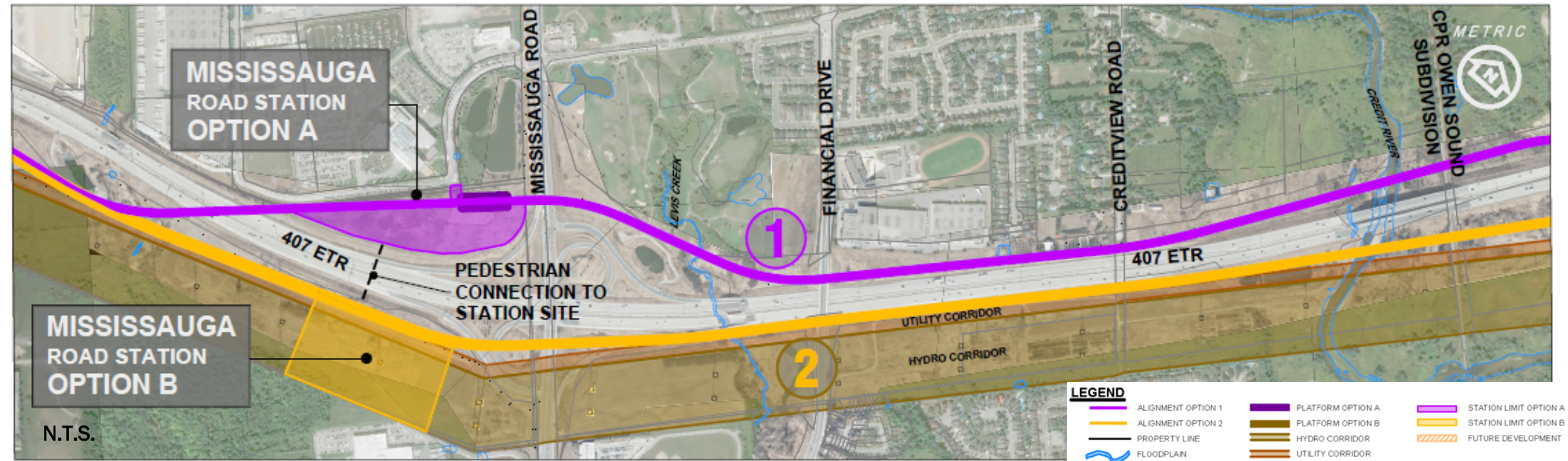


CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
	<b>Impacts to 407 ETR Operation</b>	No impacts to 407 ETR operation.	No impacts to 407 ETR operation.
	<b>Impacts to 407 Infrastructure</b>	No impacts to 407 ETR infrastructure.	Alignment would require relocation of existing 407 ETR Stormwater management pond.
	<b>Location of Adjacent Stations</b>	This alignment connects with the GO Transit Lisgar Station.	This alignment does not connect with any station within this segment.
	<b>Alignment Geometry</b> <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment meets 407 Transitway Design Standards.	Alignment meets 407 Transitway Design Standards.
<b>CONSTRUCTABILITY AND COST</b>	<b>Constructability and/or Cost Consideration</b>	High cost of tunnel.	High cost of tunnel.
<b>SUMMARY OF FINDINGS</b>			
<b>NATURAL ENVIRONMENT</b>	Minimal loss of vegetation and impacts to watercourses as the alignment is underground.	Minimal loss of vegetation and impacts to watercourses as the alignment is underground.	
<b>CULTURAL ENVIRONMENT</b>	Two registered archaeological sites within and four sites within 50m. Three cultural heritage landscapes CHR 21 (2800 Meadowpine Boulevard), CHR 22 (7696 Heritage Road) and CHR 31 (0 Heritage Road).	Two registered archaeological sites within and two sites within 50m. Five cultural heritage landscapes - CHR 1 (7420 Ninth Line, Mississauga), CHR 2 (7564 Tenth Line), CHR 21 (2800 Meadowpine Boulevard), CHR 22 (7696 Heritage Road) and CHR 31 (0 Heritage Road).	
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	No major issues.	Private property required.	
<b>INFRASTRUCTURE AND OPERATIONS</b>	This alignment connects with Lisgar GO Station. Adequate setbacks from rail and Hydro infrastructure achievable.	This alignment does not connect with GO Transit Lisgar Station.	
<b>CONSTRUCTABILITY AND COST</b>	High cost tunnel is required.	High cost tunnel is required.	
<p><i>SEGMENT 9 CARRIED FORWARD ALIGNMENT:</i></p> <p><b>ALTERNATIVE 1</b></p> <p>Carried forward due to connection opportunity to the Lisgar GO Station.</p>			

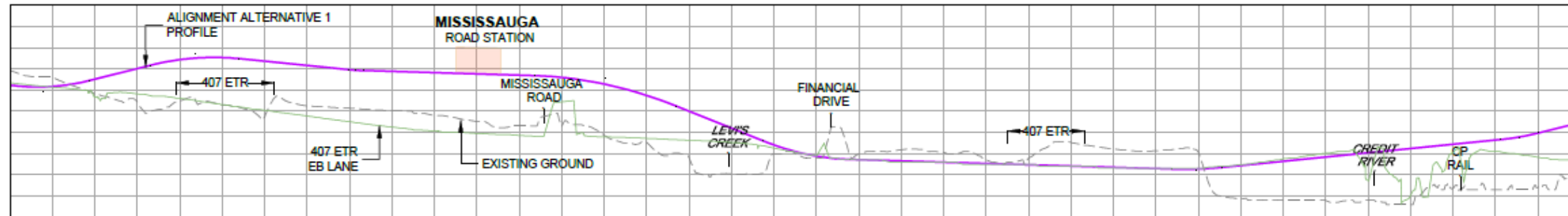
### SEGMENT 10: WEST OF HERITAGE ROAD TO EAST OF CREDIT RIVER

The segment travels through vacant land and open space areas adjacent to 407 ETR on the north and south sides of the highway. The high demand Mississauga Road Station is included in this segment. Lewis Creek (moderate habitat sensitivity) and Credit River cross this segment from north to south; no other major environmental concerns.

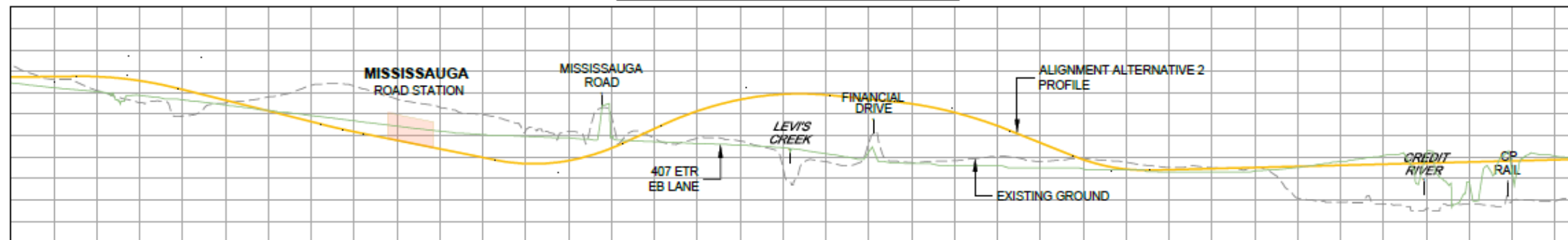
FIGURE 4.14: SEGMENT S10, WEST OF HERITAGE ROAD TO EAST OF CREDIT RIVER



ALIGNMENT ALTERNATIVE 1: PROFILE



ALIGNMENT ALTERNATIVE 2: PROFILE



**TABLE 4.19: SEGMENT S10, WEST OF HERITAGE ROAD TO EAST OF CREDIT RIVER – MISSISSAUGA ROAD STATION SITE OPTIONS**

CRITERIA/INDICATORS		OPTION A	OPTION B
<b>LOCATION</b>		Northwest quadrant of the 407 ETR and Mississauga Road Interchange.	Southwest quadrant of the 407 ETR and Mississauga Road Interchange.
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 5.80 ha) and manicure (0.95 ha). Total removals equal 6.76 ha. There are no watercourses within the station area.	<b>Vegetation Removals:</b> cultural meadow (CUM1-1, 6.78 ha), deciduous forest (FOD, 0.37 ha), and manicure (0.017 ha). Total removals equal 7.17 ha. There are no watercourses within the station area.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	There are no environmentally significant landforms/features.	The southwest corner of the station is within the Credit Valley Conservation's Environmentally Significant Area where the Tributary of Mullet Creek travels through from a north-south direction.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Credit Valley. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area. Within Highly Vulnerable Aquifer (score 6). Properties not expected to depend on groundwater wells for water supply.	Source Protection Area – Credit Valley. Not found within Wellhead Protection Area, Significant Groundwater Recharge Area. Within Highly Vulnerable Aquifer (score 6). Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF – NHIC Database records:</b> Eastern Meadowlark (Threatened, last seen in 2002).	<b>MNRF – NHIC Database records:</b> Eastern Meadowlark (Threatened, last seen in 2002).
	<b>Waste and Contamination</b>	No properties of potential concern.	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> None. <b>Within 50m:</b> None.	<b>Within:</b> None. <b>Within 50m:</b> None.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes . No impacts.	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	No potential impacts.	No potential impacts.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>Greenbelt Plan 2017</li> <li>Parkway Belt West Plan 1978 and amendments</li> <li>Region of Peel Official Plan</li> <li>City of Brampton Official Plan</li> </ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Peel Parkway Belt West Plan Area. <b>City of Brampton:</b> Parkway Belt West.	Located within the Parkway Belt West Plan. Impacts Parkway Belt Utility Corridor. <b>Region of Peel:</b> Peel Parkway Belt West Plan Area. <b>City of Brampton:</b> Parkway Belt West.
	<b>Impacts to Prime Agricultural Lands</b> <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019), Canada Land Inventory (CLI). Class Descriptions:</i> <ul style="list-style-type: none"> <li>Class 1 No significant limitations in use for crops.</li> <li>Class 2 moderate limitations on use for crops.</li> <li>Class 3 moderately severe limitations on use for crops.</li> <li>Class 4 Severe limitations on use for crops.</li> <li>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</li> <li>Class 6 Natural grazing only; no improvements feasible.</li> <li>Class 7 No capability for agriculture.</li> </ul>	<b>Impacted Soils:</b> CLI Class 0 (not placed in capability classes) – 7.97 ha.	<b>Impacted Soils:</b> CLI Class 0 (not placed in capability classes) – 7.17 ha.
	<b>Private Property Impacts</b> <i>Requirement for Private Property (Full or Partial Take)</i>	No impacts. Site located on Provincial land.	No impacts. Site located in the Hydro Corridor.

CRITERIA/INDICATORS		OPTION A	OPTION B
INFRASTRUCTURE AND OPERATIONS	<b>Impacts to Existing and Planned Utilities (Property and Infrastructure)</b>	No potential impacts.	Entire station site located in the Hydro Corridor.
	<b>Accessibility from Local Road Network</b> <i>Relative ease of Vehicular/Pedestrian/Buses access to Station Location.</i>	Connection to Mississauga Road via municipal road (Hereford Street). Pedestrian bridge over 407 ETR with lengthy walking distance required if alignment on south side of 407 ETR is selected as the preferred. Good walking access to employment lands immediately north of the 407 Transitway station. Lengthy walking distance to residential area to the east (1.0 km)	Unable to accommodate buses on the south side of 407 ETR due to Hydro One technical restrictions. Pedestrian bridge over 407 ETR with lengthy walking distance required
	<b>Accessibility from 407 ETR</b> <i>Close Ramp Access to/from 407 ETR</i>	Access located far from 407 ETR eastbound ramps (approximately 700m).	Site access south of 407 ETR constrained by nearby development (i.e. Walmart e-Commerce Building) and intersection spacing requirements from E-N/S Off-ramp. Option of utilizing access and parking on north side of 407 ETR with a connect to station via pedestrian bridge.
	<b>Site Area and Opportunity to Expand</b>	Sufficient area to accommodate forecast demand and potential expansion.	Sufficient area to accommodate forecast demand = 2.64 ha, however, a bus loop cannot be accommodated on site.
	<b>Platform Location and Transit Connectivity</b> <i>Note: this is an evaluation of CURRENT connectivity. It is assumed that transit agencies would aim to divert/connect bus routes to 407 Transitway stations once in operation. Therefore, transit connectivity was not considered when determining the preferred station location.</i>	One existing bus route on Hereford Street.	Poor pedestrian connectivity, located over 1 km away from closest commercial or residential area. Closest bus routes stop at Meadowvale and Mississauga Road (located 600 m from 407 Transitway station).
CONSTRUCTABILITY AND COST	<b>Constructability and/or Cost Consideration</b>	No major issues regarding construction access, site or other issues.	Hydro One restrictions during construction
<b>SUMMARY OF FINDINGS</b>			
<b>NATURAL ENVIRONMENT</b>		No significant difference between the two Options.	No significant difference between the two Options.
<b>CULTURAL ENVIRONMENT</b>		No significant difference between the two Options.	No significant difference between the two Options.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>		No significant difference between the two Options.	No significant difference between the two Options.
<b>INFRASTRUCTURE AND OPERATIONS</b>		No impacts to existing infrastructure Access to/from 407 ETR eastbound ramps (700m). Sufficient available site to accommodate forecast demand and future potential expansion.	Bus loops not possible because of conflict with Hydro One infrastructure. Access to site is problematic and remote from 407 ETR ramps. Impacts Parkway Belt Utility Corridor.
<b>CONSTRUCTABILITY AND COST</b>		No major issues regarding construction access, site or other issues. If alignment on south side of 407 ETR is selected as preferred, a pedestrian bridge over 407 ETR core lanes will be required.	Hydro One restrictions during construction.

CRITERIA/INDICATORS	OPTION A	OPTION B
<p><i>SEGMENT 10 CARRIED FORWARD STATION SITE:</i></p> <h2 style="color: #FFD700; margin: 0;">OPTION A</h2> <p>This is the only feasible unconstrained site in this segment. It is being carried forward as it does not present any major physical, environmental, or operational issues.</p>		

**TABLE 4.20: SEGMENT S10, WEST OF HERITAGE ROAD TO EAST OF CREDIT RIVER ALIGNMENT ALTERNATIVES**

CRITERIA/INDICATORS	ALTERNATIVE 1	ALTERNATIVE 2
<b>DESCRIPTION</b>	The runningway alignment is located on the north side of 407 ETR. The profile of the runningway crosses over Mississauga Road, running east, it follows the elevation of 407 ETR, crossing under Financial Drive and then it rises to cross over Credit River and CP Rail.	The runningway alignment is located on the south side of 407 ETR. The profile of the runningway follows the elevation of 407 ETR, crossing under Mississauga Road-407 ETR Interchange, under Financial Drive and over Credit River and CP Rail.
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 2.81 ha) and manicure (1.39 ha). Total removals equal 4.21 ha. <b>Impacts to two watercourses:</b> Levi’s Creek (coolwater, moderate habitat sensitivity), and the Credit River (coolwater, high habitat sensitivity).
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	The east end of the alignment – it crosses a portion of the Churchville-Norval Wetland Complex (provincially evaluated) located between the Credit River and Mavis Road.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Credit Valley. Not found within Wellhead Protection Area Significant Groundwater Recharge Area around Levi’s Creek (score 6). Within Highly Vulnerable Aquifer (score 6). Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> Eastern Meadowlark (Threatened) (2002), Barn Swallow (Threatened) (2017).
	<b>Waste and Contamination</b>	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> AjGw-632, AjGw-637 <b>Within 50m:</b> AjGw-66, AjGw-68
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	One cultural heritage landscape – CHR 23 Churchville Heritage Conservation District, located on the north side of 407 ETR between Credit River and Financial Drive. Anticipated indirect impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	Potential impact to residences north of 407 ETR and south of the Hydro Corridor.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b>	<b>Greenbelt Plan:</b> Urban River Valley (permitted under Policy 6.2). Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Peel Parkway Belt West Plan Area, area surrounding the Credit River is designated as Core Areas of the Greenland System. <b>City of Brampton:</b> Parkway Belt West Plan.

CRITERIA/INDICATORS		ALTERNATIVE 1	ALTERNATIVE 2
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>• <i>Agricultural Information Atlas - Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) - Canada Land Inventory (CLI). Class Descriptions:</i></li> <li>• <i>Class 1 No significant limitations in use for Crops</i></li> <li>• <i>Class 2 moderate limitations on use for crops</i></li> <li>• <i>Class 3 moderately severe limitations on use for crops.</i></li> <li>• <i>Class 4 Severe limitations on use for crops.</i></li> <li>• <i>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</i></li> <li>• <i>Class 6 Natural grazing only; no improvements feasible.</i></li> <li>• <i>Class 7 No capability for agriculture.</i></li> </ul>	<b>Impacted Soils:</b> CLI Class 0 (not placed in capability classes) – 5.21 ha.	<b>Impacted Soils:</b> CLI Class 0 (not placed in capability classes) – 5.20 ha.
	<b>Private Property Impacts</b> <i>Requirement for private property (full or partial take)</i>	Minor impact (0.17 ha) on one private property.	No impacts. Runningway located on Provincial land.
INFRASTRUCTURE AND OPERATION	<b>Impacts to existing and planned utilities (property and infrastructure)</b>	No potential impacts.	No potential impacts.
	<b>Impacts to 407 ETR Operation</b>	No impacts to 407 ETR operations.	No impacts to 407 ETR operations.
	<b>Impacts to 407 Infrastructure</b>	No impacts to 407 ETR infrastructure. Bridge over 407 ETR core lanes will include a centre pier located off protected ETR median for potential future expansion.	No impacts to 407 ETR infrastructure.
	<b>Location of Adjacent Stations</b>	Alignment connects adequately with the preferred Mississauga Road Station facility.	A pedestrian bridge over 407 ETR core lanes would be required to connect 407 Transitway stop with preferred Mississauga Road Station facility.
	<b>Alignment Geometry</b> <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment meets 407 Transitway Design Standards.	Alignment meets 407 Transitway Design Standards.
CONSTRUCTABILITY AND COST	<b>Constructability and/or Cost Consideration</b>	No major constraints. Two bridge crossings over 407 ETR required.	The profile of the runningway would mostly follow the 407 ETR elevations; however, the crossing of the two 407 ETR/Mississauga Road ramps would not allow staged conventional cut and cover construction of the underpass. Consequently, a bored and costly tunnel would be required to avoid 407 ETR operation disruption.
<b>SUMMARY OF FINDINGS</b>			
<b>NATURAL ENVIRONMENT</b>		Minor impacts due to Levi Creek and Credit River crossings. The alignment crosses a portion of the Churchville-Norval Wetland Complex (provincially evaluated) located between the Credit River and Mavis Road. No significant difference between the alternatives.	Minor impacts due to Levis Creek and Credit River crossings. The alignment crosses a portion of the Churchville-Norval Wetland Complex (provincially evaluated) located between the Credit River and Mavis Road. No significant difference between the alternatives.
<b>CULTURAL ENVIRONMENT</b>		There are two registered archaeological sites within and two registered archaeological sites within 50 m. One cultural heritage landscape – CHR 23 Churchville Heritage Conservation District.	There are two registered archaeological sites within and one registered archaeological site within 50 m. One of the registered archaeological site contains a burial site which is within the runningway alignment. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>		No negative impacts.	Major impact to 407 ETR right of way.

CRITERIA/INDICATORS	ALTERNATIVE 1	ALTERNATIVE 2
<b>INFRASTRUCTURE AND OPERATIONS</b>	Alignment connects adequately with preferred Mississauga Road Station facility and meets 407 Transitway design standards.	A pedestrian bridge over 407 ETR core lanes with lengthy walking distance would be required to connect 407 Transitway stop with preferred Mississauga Road Station facility.
<b>CONSTRUCTABILITY AND COST</b>	No major constraints. Two bridge crossings over 407 ETR required.	Costly bored tunnel required to cross ETR/Mississauga Road Interchange.

*SEGMENT 10 CARRIED FORWARD ALIGNMENT:*

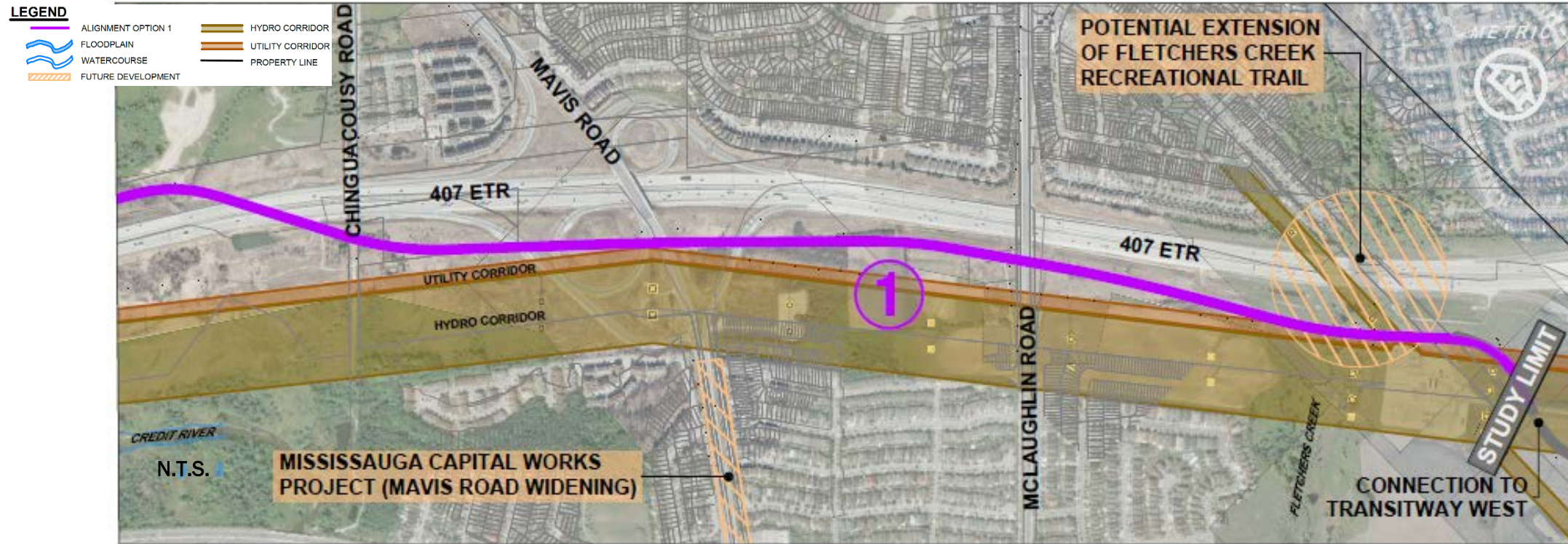
## **ALTERNATIVE 1**

Due mainly to connectivity to Mississauga Road Station facility, lower construction cost, and less impact to the 407 ETR right of way, Alignment Alternative 1 is being carried forward.

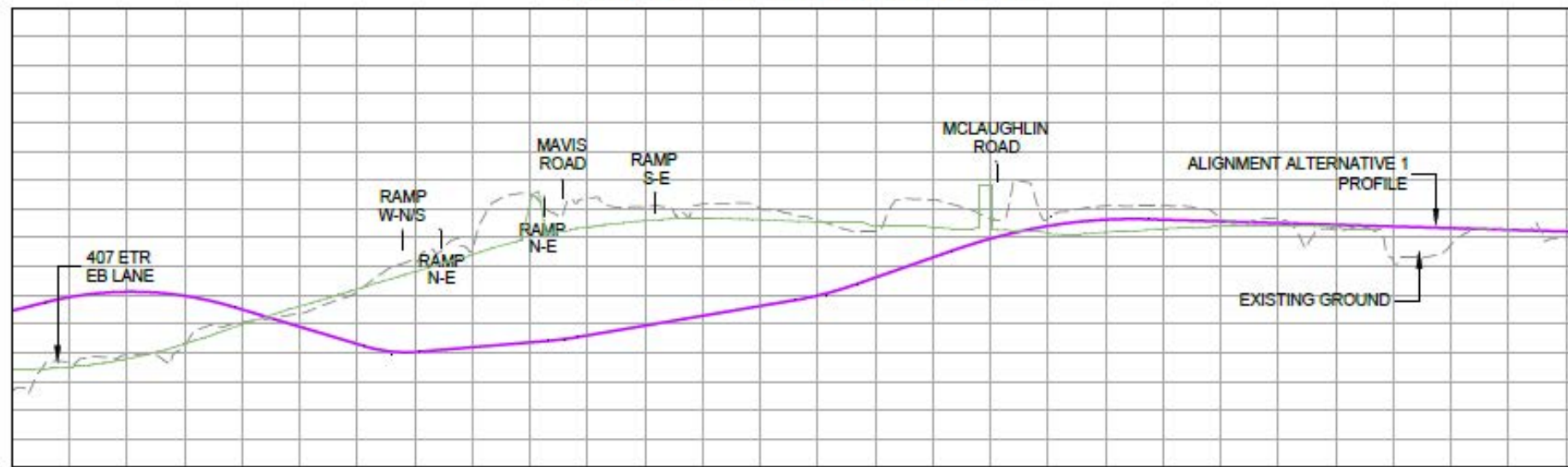
### SEGMENT 11: EAST OF CREDIT RIVER TO WEST OF HURONTARIO STREET

The segment travels through vacant land adjacent to 407 ETR. Land use in the vicinity is residential adjacent to 407 ETR on the north side, and adjacent to the Hydro Corridor on the south side. This segment connects to the Hurontario Street to Highway 400 Section of the 407 Transitway, which was approved in 2018.

FIGURE 4.15: SEGMENT S11, EAST OF CREDIT RIVER TO WEST OF HURONTARIO STREET



ALIGNMENT ALTERNATIVE 1: PROFILE





**TABLE 4.21: SEGMENT S11, EAST OF CREDIT RIVER TO WEST OF HURONTARIO STREET ALIGNMENT ALTERNATIVES**

CRITERIA/INDICATORS		ALTERNATIVE 1
<b>DESCRIPTION</b>		<b>The runningway bridges over 407 ETR alignment from north to south, just west of Chingualacosi Road, and is maintained on the south side of 407, crossing under the Mavis Road Interchange, and under McLoughlin Road, connecting with the approved 407 Transitway alignment at Hurontario Street Station.</b>
<b>NATURAL ENVIRONMENT</b>	<b>Potential Effects on Natural Heritage Resources</b>	<b>Vegetation Removals:</b> Cultural meadow (CUM1-1, 4.02 ha), agricultural (0.17 ha), cultural thicket (CUT1, 0.1 ha), cultural woodlot (CUW01, 0.17 ha), deciduous forest (FOD, 0.042), manicure (0.014 ha), and marsh/swamp (0.23 ha). Total removals equal 4.76 ha.
	<b>Potential Effects on Environmentally Significant Landforms/Features</b>	Crosses Meadowvale Conservation Area, and Churchville-Norval Wetland Complex. The west end of the alignment – it crosses a portion of the Churchville-Norval Wetland Complex (provincially evaluated) located between the Credit River and Mavis Road.
	<b>Potential Effects on Geology and Hydrogeology</b>	Source Protection Area – Credit Valley. Not found within Wellhead Protection Area. Area near Credit River is Significant Groundwater Recharge Area (score 6) and within Highly Vulnerable Aquifer (score 6). Properties not expected to depend on groundwater wells for water supply.
	<b>Potential Effects on Species/Habitats at Risk</b>	<b>MNRF, NHIC Database Records:</b> None.
	<b>Waste and Contamination</b>	No properties of potential concern.
<b>CULTURAL ENVIRONMENT</b>	<b>Known Presence of Archaeological Resources</b>	<b>Within:</b> None. <b>Within 50 m:</b> None.
	<b>Potential Impacts to Known Indigenous Lands</b>	No known impacts.
	<b>Potential Effects on Built Heritage Resources and Cultural Heritage Landscapes</b>	No built heritage resources or cultural heritage landscapes. No impacts.
<b>SOCIO-ECONOMIC ENVIRONMENT</b>	<b>Potential Effects on Adjacent Noise Sensitive Areas</b>	Potential impact to residences south of the Hydro Corridor.
	<b>Land Use Compatibility with Provincial and Municipal Plans and Policies</b> <ul style="list-style-type: none"> <li>• <i>Greenbelt Plan 2017</i></li> <li>• <i>Parkway Belt West Plan 1978 and amendments</i></li> <li>• <i>Region of Peel Official Plan</i></li> <li>• <i>City of Brampton Official Plan</i></li> </ul>	Located within the Parkway Belt West Plan. <b>Region of Peel:</b> Peel Parkway Belt West Plan Area <b>City of Brampton:</b> Parkway Belt West Plan.
	<b>Impacts to Prime Agricultural Lands</b> <ul style="list-style-type: none"> <li>• <i>Agricultural Information Atlas – Soil Capability for Agriculture (Canada Land Inventory Rating for Soil) (OMAFRA, online 2019) – Canada Land Inventory (CLI). Class Descriptions:</i></li> <li>• <i>Class 1 No significant limitations in use for Crops</i></li> <li>• <i>Class 2 moderate limitations on use for crops</i></li> <li>• <i>Class 3 moderately severe limitations on use for crops.</i></li> <li>• <i>Class 4 Severe limitations on use for crops.</i></li> <li>• <i>Class 5 Very severe limitations preclude annual cultivation; improvements feasible.</i></li> <li>• <i>Class 6 Natural grazing only; no improvements feasible.</i></li> <li>• <i>Class 7 No capability for agriculture.</i></li> </ul>	<b>Impacted Soils:</b> CLI Class 0 (not placed in capability classes) – 5.21 ha.
	<b>Private Property Impacts</b> <i>Requirement for private property (full or partial take)</i>	No impacts. Runningway located on Provincial land.

CRITERIA/INDICATORS		ALTERNATIVE 1
INFRASTRUCTURE AND OPERATION	Impacts to existing and planned utilities (property and infrastructure)	No major impacts
	Impacts to 407 ETR Operation	No impacts to 407 ETR operations.
	Impacts to 407 Infrastructure	No impacts to 407 ETR infrastructure.
	Location of Adjacent Stations	Connects adequately to Hurontario Street Station (approved site), also located on the south side of 407 ETR.
	Alignment Geometry <i>Level of Compliance with MTO 407 Transitway Design Standards</i> <i>Impacts of Geometry on Operation (Travel Time)</i>	Alignment meets 407 Transitway Design Standards.
CONSTRUCTABILITY AND COST	Constructability and/or Cost Consideration	The profile of the runningway would mostly follow the 407 ETR elevations. However, the location of the below grade crossing of the 407 ETR/Mavis Road Interchange would not allow staged conventional cut and cover construction of the underpass. Consequently, a bored and costly tunnel will be required to avoid 407 ETR operation disruption.
<b>SUMMARY OF FINDINGS</b>		
NATURAL ENVIRONMENT		Minor impacts.
CULTURAL ENVIRONMENT		No impacts.
SOCIO-ECONOMIC ENVIRONMENT		No negative impacts.
INFRASTRUCTURE AND OPERATIONS		Good connection to Hurontario Street Station.
CONSTRUCTABILITY AND COST		Complex tunnel under 407 ETR/Mavis Road Interchange is required.
<p><i>SEGMENT 11 CARRIED FORWARD ALIGNMENT:</i></p> <h2 style="color: yellow;">ALTERNATIVE 1</h2> <p>Alignment Alternative 1 is being carried forward as it is the only feasible alternative alignment and it does not present significant negative impacts.</p>		