Stage 2 Overall Process

2014 → 2018

Data Collection → **Route Planning Alternatives** → **Preliminary Design** → **Draft Environmental Assessment Report** → **Submission of Final Environmental Assessment Report**

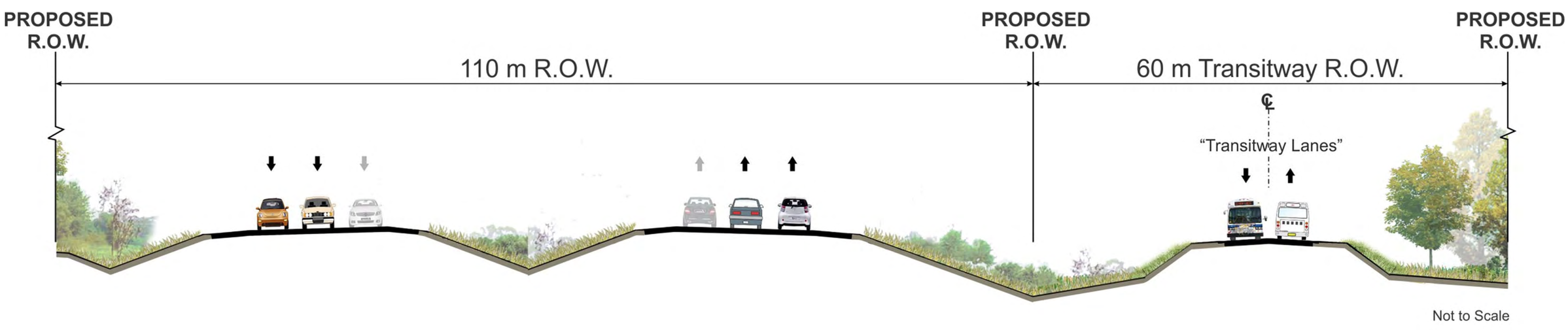
- Identify existing features and constraints

- Develop and screen a long list of route alternatives to arrive at a short list of route alternatives
- Develop and screen a long list of interchange locations to arrive at a short list of interchange locations
- Evaluate the short list of route alternatives and interchange locations to arrive at a preferred plan
- For crossing roads not identified as an interchange location, develop treatment at the corridor (i.e. overpass, underpass, or truncation)

- Develop the preferred plan to a preliminary design level of detail

The New Corridor

- The new corridor is anticipated to be a minimum 4- to 6-lane highway with a separate adjacent transitway
  - **Transitway stations will be located at interchanges and connection points**



Note: the project team is currently updating the transportation systems forecasting to confirm the number of lanes required

Goods Movement Priority Features

- Goods movement refers to the transportation of products from the location of their manufacture or harvest to their final retail destination

- Stage 1 identified the need for improved goods movement (connections and reliability)

- The following goods movement priority features are being considered:
  - **Truck only lanes**
  - **Combined truck/transit lanes**
  - **Truck use of potential HOV lanes during off-peak hours**
  - **Intelligent Transportation Systems (ITS) features, such as variable message signs and real time traveler information**
  - **Longer speed change lanes**
  - **Enhanced design to accommodate Long Combination Vehicles**
  - **Truck only interchange ramps, where warranted by truck volumes**
  - **Truck parking facilities**
  - **Enforcement features (weigh and inspection stations), including automated weigh stations**

Truck Only Lane – I-15, California


Long Combination Vehicle


Truck Parking Facility

Visit the Reference Table

Design Considerations in the Greenbelt

- The *Guideline for Planning and Design of the GTA West Corridor Through the Greenbelt* was drafted in Stage 1 with input from the Greenbelt Transportation Advisory Group (GTAG)

- The Guideline contains key planning and design principles, and recommendations for mitigation measures for placing the GTA West transportation corridor within areas of the Greenbelt (when impacts to Greenbelt areas are unavoidable)

- Key elements include:
  - **Impact avoidance, where possible**
  - **Community sensitive design**
  - **Consideration of impacts to road ecology and wildlife**
  - **Consideration of impacts to agriculture**
  - **Stormwater management**
  - **Flexibility with geometric and bridge design to avoid or reduce impacts (e.g. consider the use of reduced median and shoulder widths, steeper side slopes, tighter road curves, etc.)**

Using the Guideline for Design in the Greenbelt

- The Guideline planning and design principles were used to develop and screen the long list of route alternatives:
  - **Avoided the Greenbelt where possible**
  - **Avoided sensitive features where possible and minimized habitat fragmentation**
  - **Crossed valleys at reduced angles**
  - **Considered topography when identifying potential valley crossing locations**

- The Guideline will be referenced when evaluating route alternatives, developing the preliminary design and mitigation measures for the preferred route, and during implementation. Examples include:
  - **Developing a Community Value Plan focused on the Greenbelt**
  - **Implementing a highway vegetation plan, and considering funnel-fencing and wildlife crossings**
  - **Considering tightening road curves where possible, to avoid sensitive features and Class 1-3 soils**
  - **Considering the use of a reduced cross-section, minimizing the number of interchanges in the Greenbelt, and considering the use of open and long span bridge structures**

Interchanges and Crossing Road Treatments

- Interchanges will be required at existing/planned freeways (e.g. Highway 401, 410, 427, and 400) and at some arterial crossing roads
- Initially all existing/planned crossing roads and provincial freeways were considered as potential interchange locations
- The potential interchange locations were then screened based on the following principles:
  - **Minimize impacts to significant natural features, systems and communities**
  - **Minimize impacts to existing and planned (approved Official Plans) population and employment areas**
  - **Ensure the interchange movements are efficient and direct, and address the transportation problems and opportunities**
- Crossing roads not identified for interchanges will be either overpasses, underpasses, or become truncated at the transportation corridor. The treatment will be determined based on impacts to the surrounding land use and the associated transportation benefits and impacts

Common interchange types:

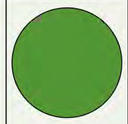
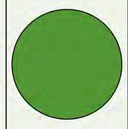
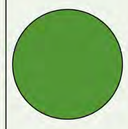
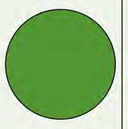
Parclo A-4

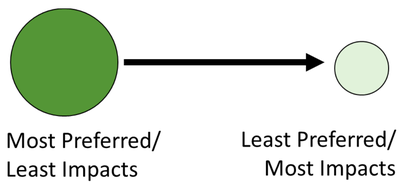
Parclo A-2

Diamond

Parclo B-2

Screening of Potential Interchange Locations

	Regional Municipality of Halton				Regional Municipality of Peel							
Principle	**Steeles Avenue**	**5 Sideroad**	**Tenth Line**	**Winston Churchill Boulevard**	**Embleton Road**	**Heritage Road**	**Future Williams Parkway**	**Bovaird Drive**	**Future Sandalwood Parkway**	**Wanless Drive**	**Mayfield Road**	**Mississauga Road**
Principle 1 – Minimize impacts to significant natural features, systems and communities												
Principle 2 – Minimize impacts to existing and planned (approved Official Plans) population and employment areas												
Principle 3 – Ensure the interchange movements are efficient and direct, and address the transportation problems and opportunities												
Recommendations	Do not carry forward	Carry forward	Carry forward	*Carry forward	Carry forward	Carry forward	Do not carry forward	Carry forward	Carry Forward	Do not carry forward	Carry forward	Carry forward



*East alignments only

Note: not all of the interchange locations being carried forward will necessarily be incorporated into the recommended plan. Further evaluation will be carried out to confirm interchange locations.

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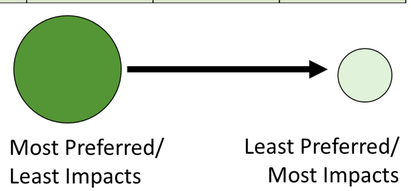
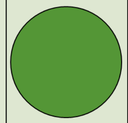
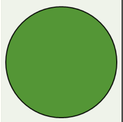
Screening of Potential Interchange Locations

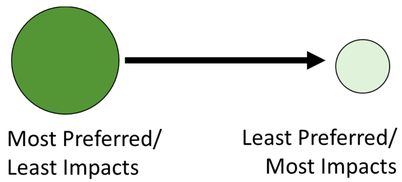
	Regional Municipality of Peel															
Principle	**Creditview Road**	**Chinguacousy Road**	**McLaughlin Road**	**Hwy 10**	**Kennedy Road**	**Heart Lake Road**	**Dixie Road**	**Bramalea Road**	**Torbram Road**	**Airport Road**	**Innis Lake Road**	**Centreville Creek Road**	**Gore Road**	**Humber Station Road**	**Mayfield Road (west of Coleraine Drive)**	**Coleraine Drive (future Bolton bypass)**
Principle 1 – Minimize impacts to significant natural features, functions, systems and communities	●	◐	●	●	●	●	●	●	●	●	●	●	◐	●	●	●
Principle 2 – Minimize impacts to existing and planned (approved Official Plans) population and employment areas	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●
Principle 3 – Ensure the interchange movements are efficient and direct, and address the transportation problems and opportunities	○	●	○	●	○	○	●	◐	○	●	○	○	●	○	●	◐
Recommendations	Do not carry forward	Carry forward	Do not carry forward	Carry forward	Do not carry forward	Do not carry forward	Carry forward	Carry forward	Do not carry forward	Carry forward	Do not carry forward	Do not carry forward	Carry forward	Do not carry forward	Carry forward	Carry forward

Note: not all of the interchange locations being carried forward will necessarily be incorporated into the recommended plan. Further evaluation will be carried out to confirm interchange locations.



Screening of Potential Interchange Locations

	Regional Municipality of York					
Principle	**Highway 50**	**Huntington Road**	**Highway 27**	**Kipling Avenue**	**Pine Valley Drive**	**Weston Road**
Principle 1 – Minimize impacts to significant natural features, functions, systems and communities						
Principle 2 – Minimize impacts to existing and planned (approved Official Plans) population and employment areas						
Principle 3 – Ensure the interchange movements are efficient and direct, and address the transportation problems and opportunities						
Recommendations	*Carry forward	Do not carry forward	Carry forward	Do not carry forward	Carry forward	Do not carry forward



Note: not all of the interchange locations being carried forward will necessarily be incorporated into the recommended plan. Further evaluation will be carried out to confirm interchange locations.

*Depending on location of GTA West/Highway 427 Interchange

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Visit the Reference Table

Route Development and Screening Process

Consultation

Research of Features in Study Area

Identified existing features and constraints from:

- Initial site visits
- Secondary sources
- Consultation with stakeholders
- Project team experience/knowledge

Consultation included:
Public Information Centres (PICs), First Nation and Métis Communities, Municipal Executive Advisory Group (MEAG), Municipal Advisory Group (MAG), Regulatory Agency Advisory Group (RAAG), Community Workshops, Community Advisory Group (CAG), Greenbelt Transportation Advisory Group (GTAG), website comments

Develop Route Alternatives

Developed the long list of route alternatives:

- Met transportation criteria
- Maximized opportunities while minimizing impacts to significant environmental and land use features

Screen Route Alternatives

Assessed route alternatives based on opportunities and impacts to:

- Natural, land use / socio-economic, and cultural environments, and transportation considerations

Screened the long list of route alternatives:

- Divided study area into 10 sections
- Highlighted advantages / disadvantages of alternatives
- Identified the major trade-offs between the alternatives
- Determined which alternatives would be carried forward

Short List of Route Alternatives

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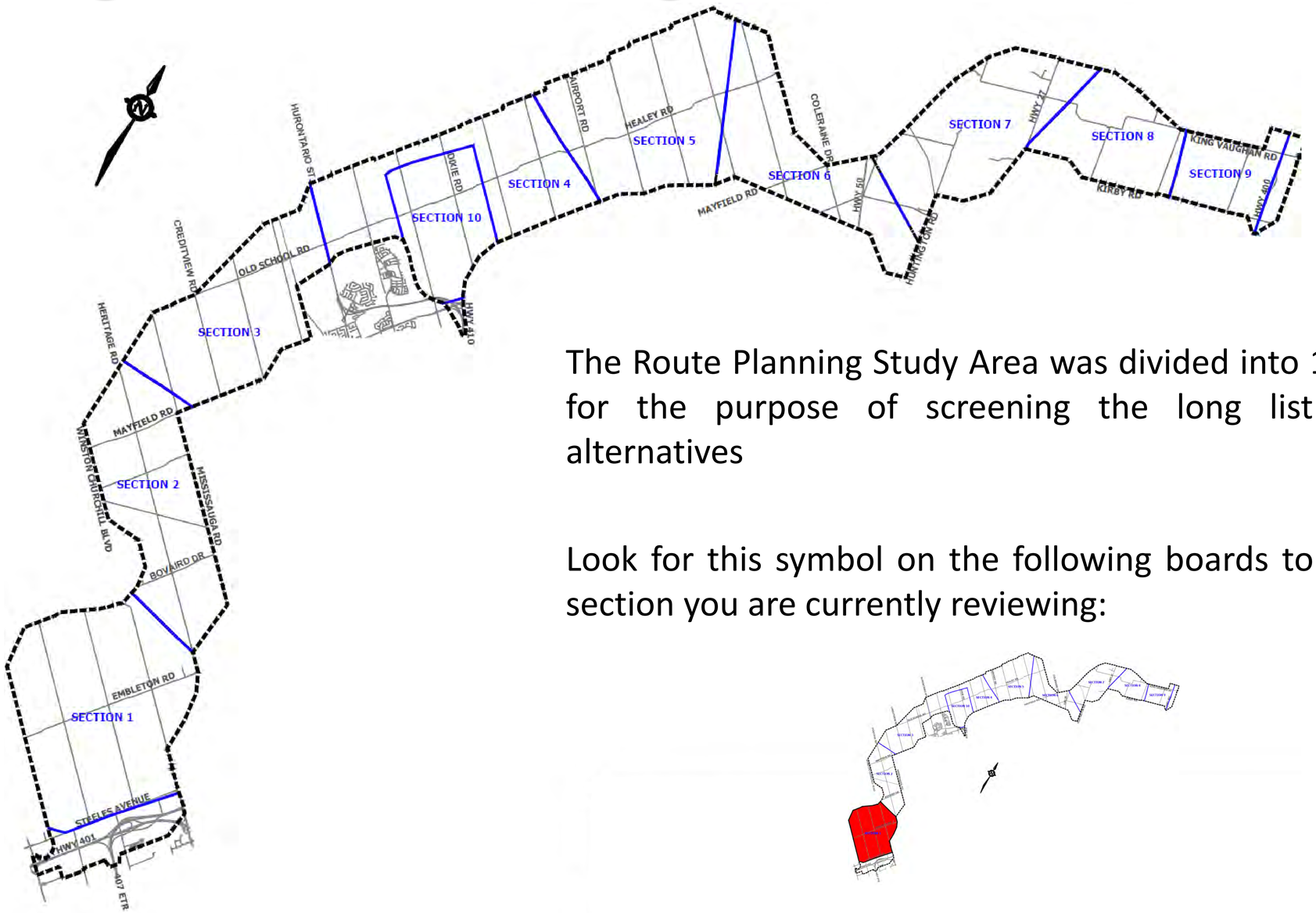
Screening Sections - Long List of Route Alternatives



The Route Planning Study Area was divided into 10 sections for the purpose of screening the long list of route alternatives

Look for this symbol on the following boards to see which section you are currently reviewing:

Visit the Reference Table

Screening Criteria – Long List of Route Alternatives

FACTOR	CRITERIA
NATURAL ENVIRONMENT	
Fisheries and Aquatic Ecosystems	• Number of sensitive watercourse crossings (watercourses with Species at Risk, coldwater crossings, critical/specialized habitat) • Siting considerations (meandering crossing, complex valley crossing)
Terrestrial Ecosystems	• Area of wetlands impacted (provincially and locally significant, non-significant)
Woodlands / Vegetation	• Area of woodlands impacted (significant woodlands, intact habitat blocks, wildlife habitat)
Designated / Special / Natural Areas	• Numbers of areas impacted (Greenbelt, Environmentally Sensitive Areas, Areas of Natural and Scientific Interest)
TRANSPORTATION	
Network Compatibility	• Compatibility with municipal/regional existing/planned key transportation corridors and potential interchange locations • Compatibility and proximity to municipal/regional existing/planned transit initiatives
Constructability	• Route length • Number/length of bridges • Crossing of/proximity to utilities
Compliance with Design Criteria	• Ability of route to meet the geometric design standards

FACTOR	CRITERIA
LAND USE / SOCIO-ECONOMIC ENVIRONMENT	
Land Use Planning Policies, Goals, and Objectives	• Compatibility with municipal land use planning policies, goals, and objectives
Land Use – Community	• Number of residential properties impacted • Number of commercial/industrial properties impacted • Number of tourist areas and attractions impacted • Number of community facilities/institutions impacted • Number of municipal infrastructure and public service facilities impacted
Noise Sensitive Areas (NSAs)	• Number of existing and future planned residences within 600 m of route alternatives
Land Use – Resources	• Area of Class 1-3 soils impacted • Number of Future Prime Agricultural Areas Impacted • Number of existing and future aggregate resource areas impacted
CULTURAL ENVIRONMENT	
Built Heritage and Cultural Heritage Landscapes	• Number of built heritage properties impacted • Number of cemeteries impacted • Number of First Nation burial sites impacted
Archaeology	• Number of known archaeological sites impacted

Long List of Route Alternatives (map)

In order to maintain manageable file sizes,
mapping is provided as separate, individual files.
Please download separate file to view map.

Short List of Route Alternatives and Potential Interchange Locations (map)

In order to maintain manageable file sizes, mapping is provided as separate, individual files. Please download separate file to view map.

Focused Analysis Area (map)

In order to maintain manageable file sizes,
mapping is provided as separate, individual files.
Please download separate file to view map.

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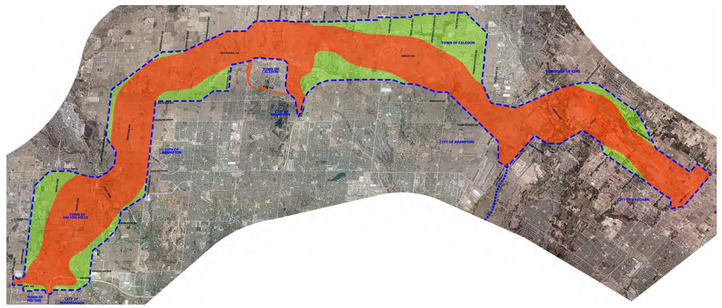
What Is the Focused Analysis Area and What Does the Shading Mean to You?

Orange Area

- The **Focused Analysis Area (FAA)** is a zone surrounding the short list of route alternatives. The project team may refine route alternatives as more fieldwork is completed and alternatives are further developed within the FAA
- If your property is located within the FAA, your property could be directly impacted by the GTA West transportation corridor. Your property is still of interest to the project team and could possibly be impacted by ancillary uses or if refinements are made to the route alternatives



Green Areas

- MTO will continue to review development applications, but it is anticipated that development processes may proceed for these lands

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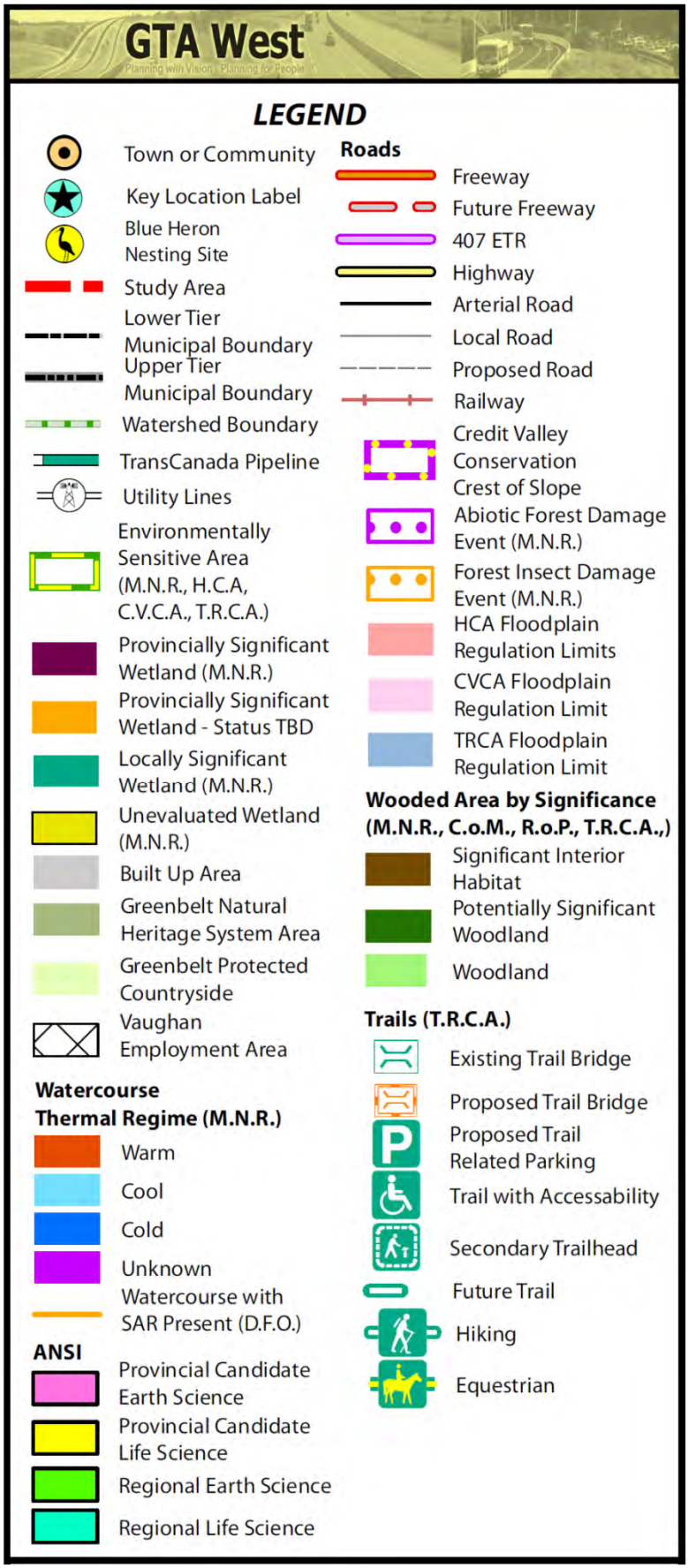
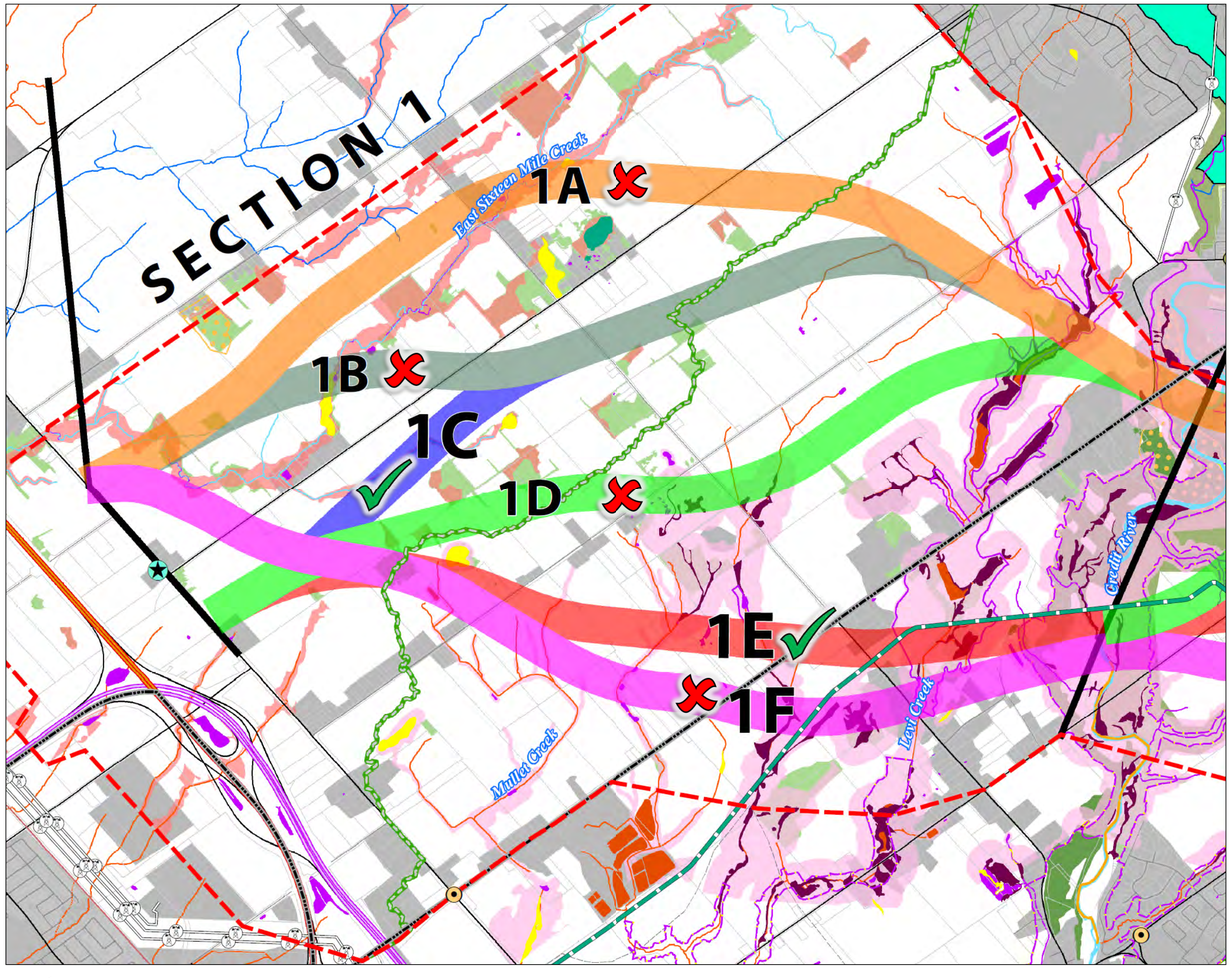
Legend for the Screening of the Long List of Route Alternatives



Visit the Reference Table

Screening of Long List of Route Alternatives – Section 1



✓ Carried Forward

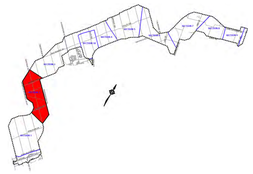
✗ Screened Out

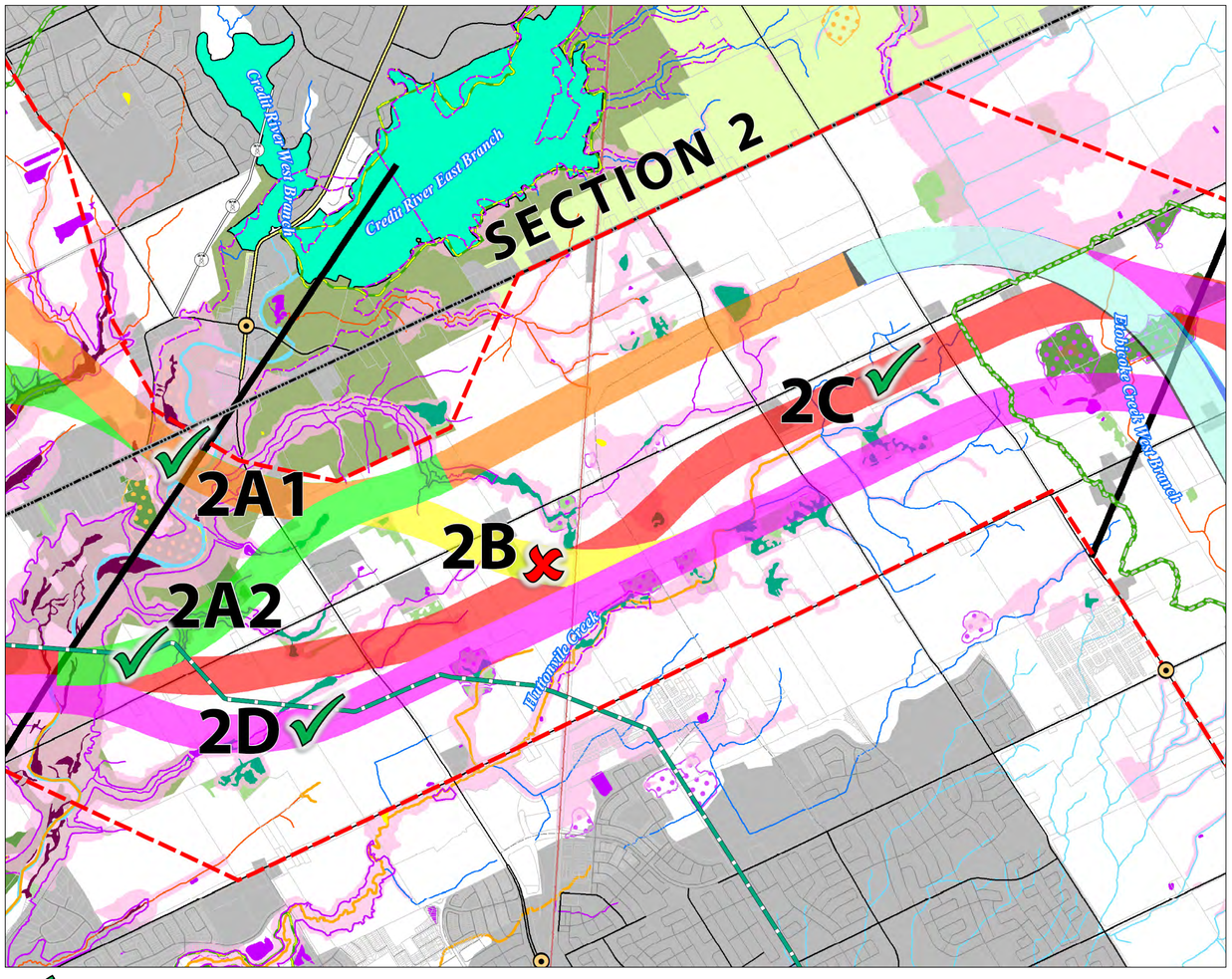
- Key reasons for screening out Alternatives 1A and 1B:
  - Largest impact to Species at Risk habitat and complex crossings of Sixteen Mile Creek
  - Largest impact to agricultural area and Class 1-3 soils
  - Additionally, Alternative 1B:
    - Impacts 2 cemeteries
    - Largest impact to significant built heritage resources/cultural heritage landscapes

- Key reasons for screening out Alternatives 1D and 1F:
  - Largest impact to commercial/industrial features
  - Additionally, Alternative 1D:
    - Impacts a very rare built heritage resource/cultural heritage landscape
  - Additionally Alternative 1F:
    - Large impact to existing and future noise sensitive areas
    - Requires up to 2 pipeline crossings

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 2





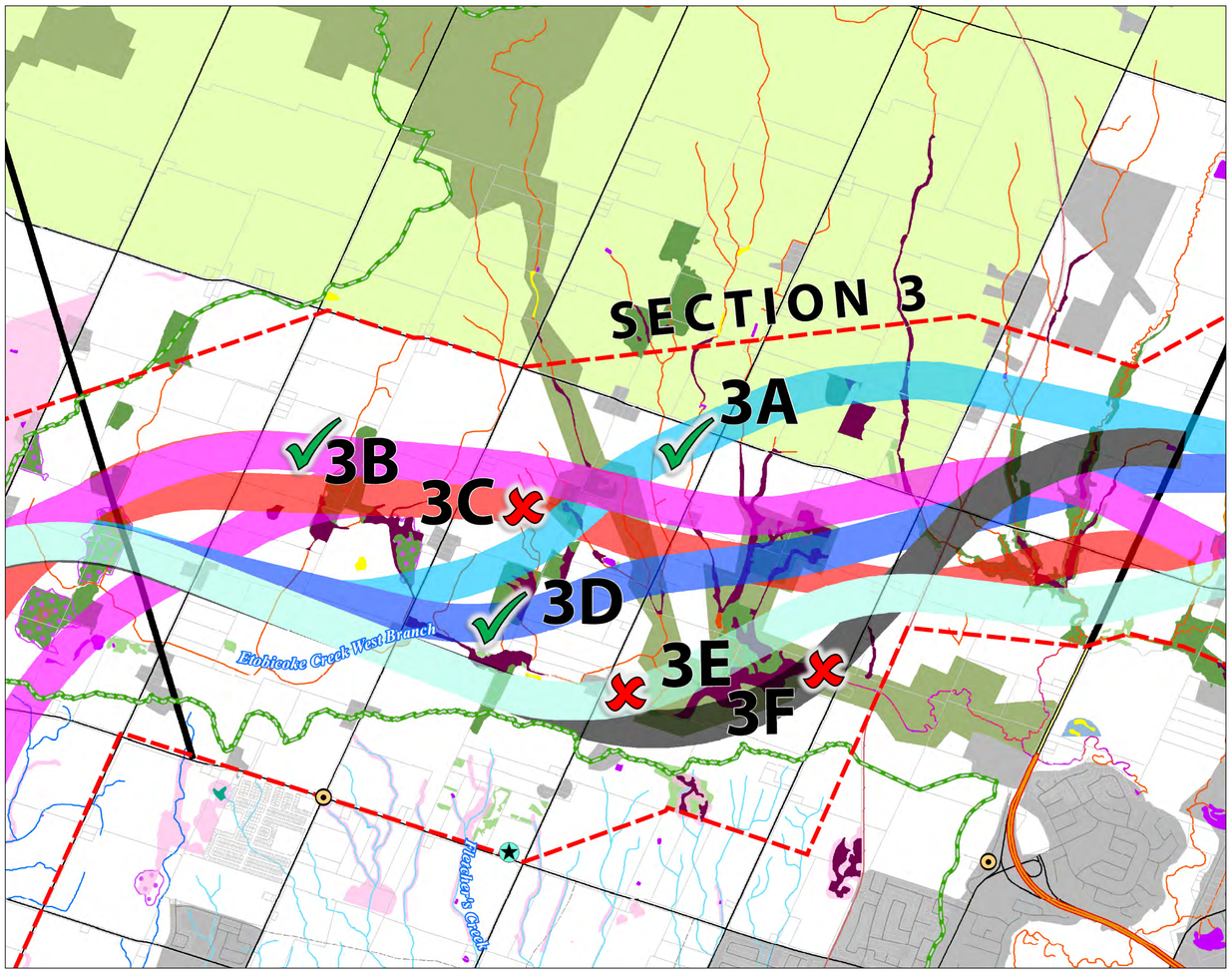
✓ Carried Forward

✗ Screened Out

- Key reasons for screening out Alternative 2B:
  - Large impact to existing land use (particularly commercial/industrial land uses)

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 3



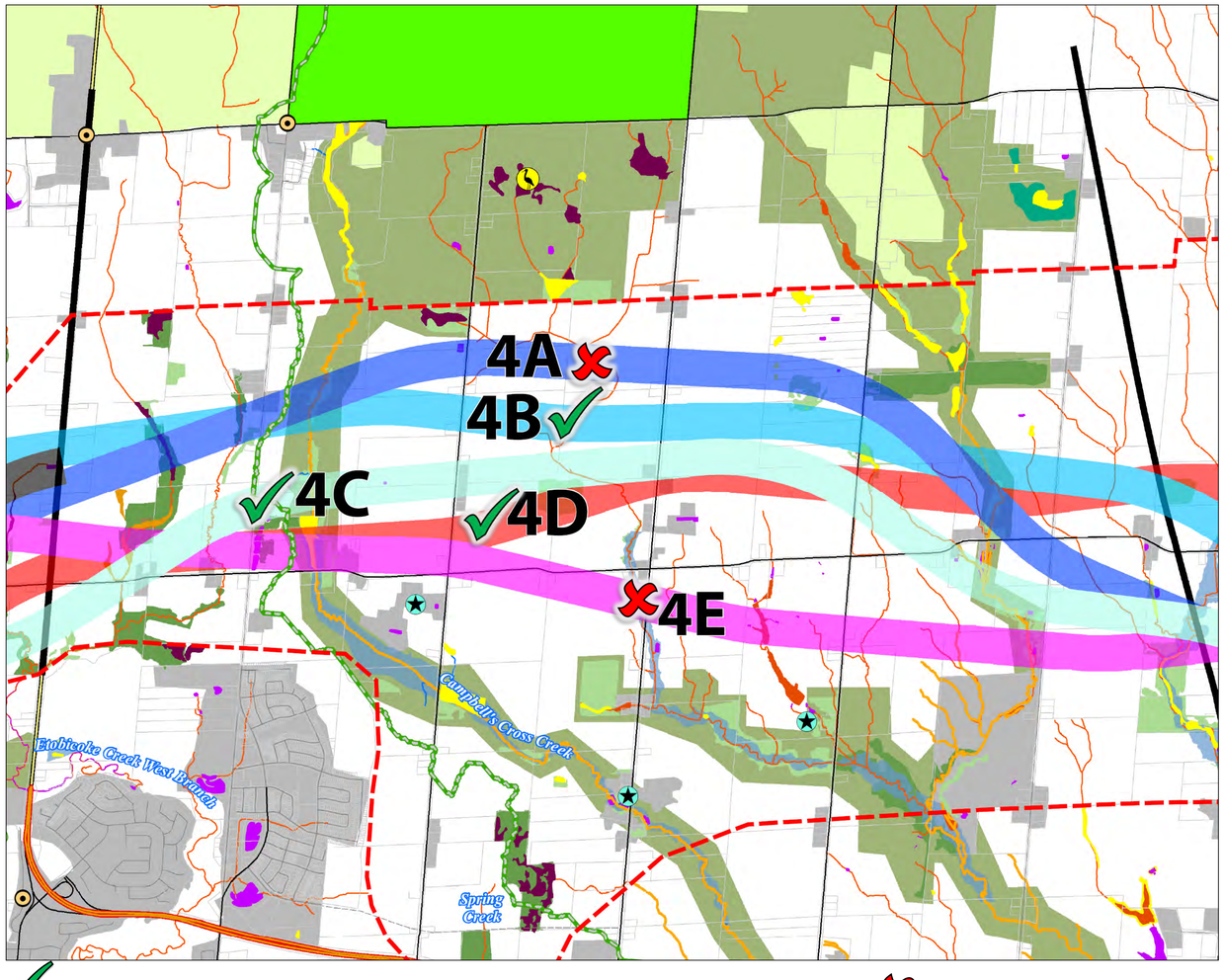
✓ Carried Forward

✗ Screened Out

- Key reasons for screening out Alternative 3C:
  - Alternatives 3C and 3D result in similar impacts, however Alternative 3C results in an additional impact to Brentwood Academy
  - Large impacts to significant wetlands
- Key reasons for screening out Alternative 3E:
  - More complex crossings of Etobicoke Creek, and large impacts to woodlands and Provincially Significant Wetlands
  - Large impact to residential properties and future noise sensitive areas (in Mayfield West)
  - Very constrained (does not allow for design modification in future planning stages)
- Key reasons for screening out Alternative 3F:
  - Largest impact to residential and commercial/industrial properties, and future noise sensitive areas (in Mayfield West)
  - Largest impact to significant built heritage resources/cultural heritage landscapes

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 4



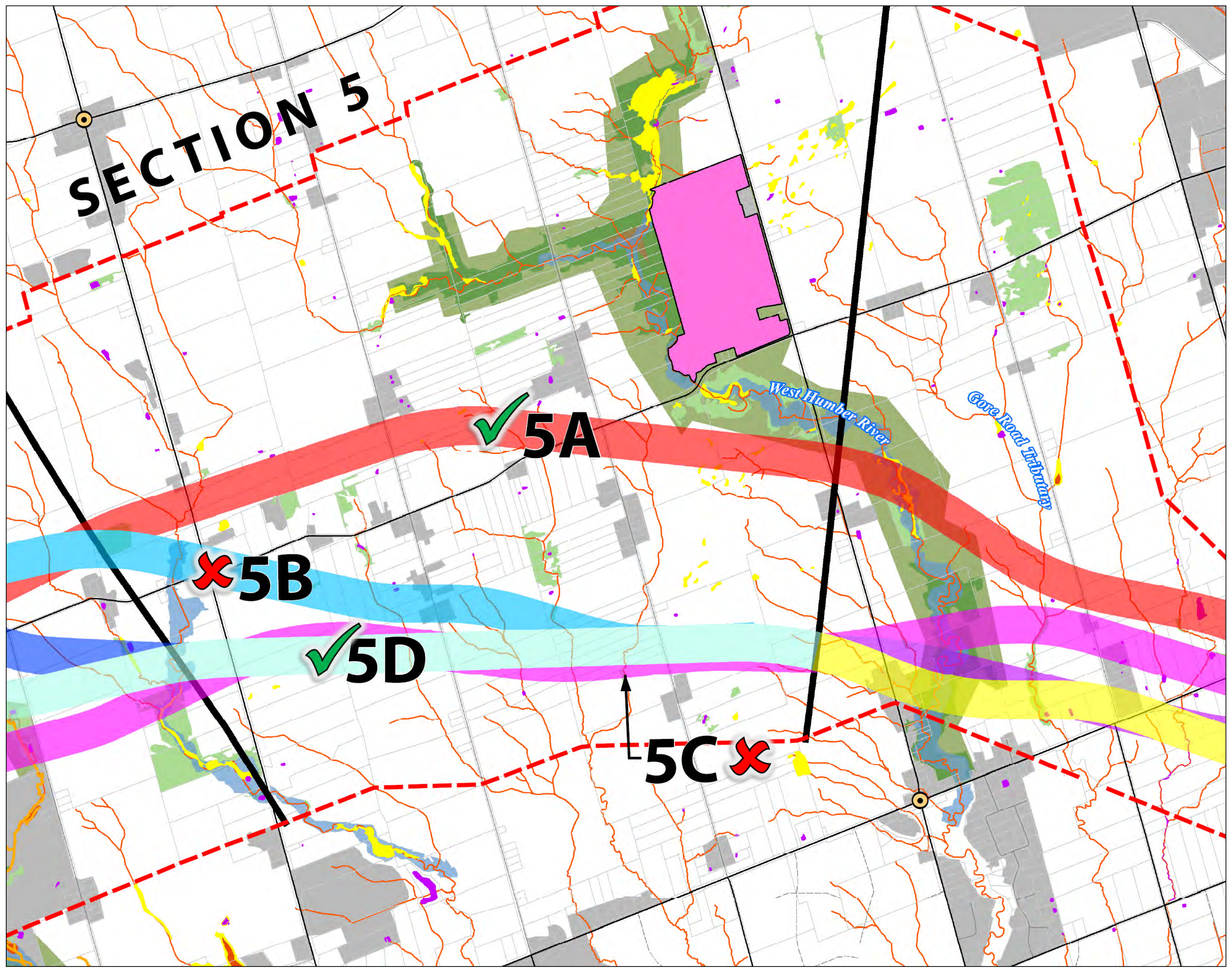
✓ Carried Forward

✗ Screened Out

- Key reasons for screening out Alternative 4A:
  - Largest impact to agricultural area and Class 1-3 soils
  - Does not follow lot lines, resulting in large impacts to agricultural operations
- Key reasons for screening out Alternative 4E:
  - Largest impact to Etobicoke Creek Headwaters Wetland Complex, non-significant wetlands, woodlands, and Species at Risk habitat in Salt Creek
  - Large impact to residential properties and existing noise sensitive areas
  - Impacts the Brampton Fairgrounds and Banty's Roost Golf and Country Club
  - Largest impact to built heritage resources/cultural heritage landscapes
  - Requires the realignment of Old School Road

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 5



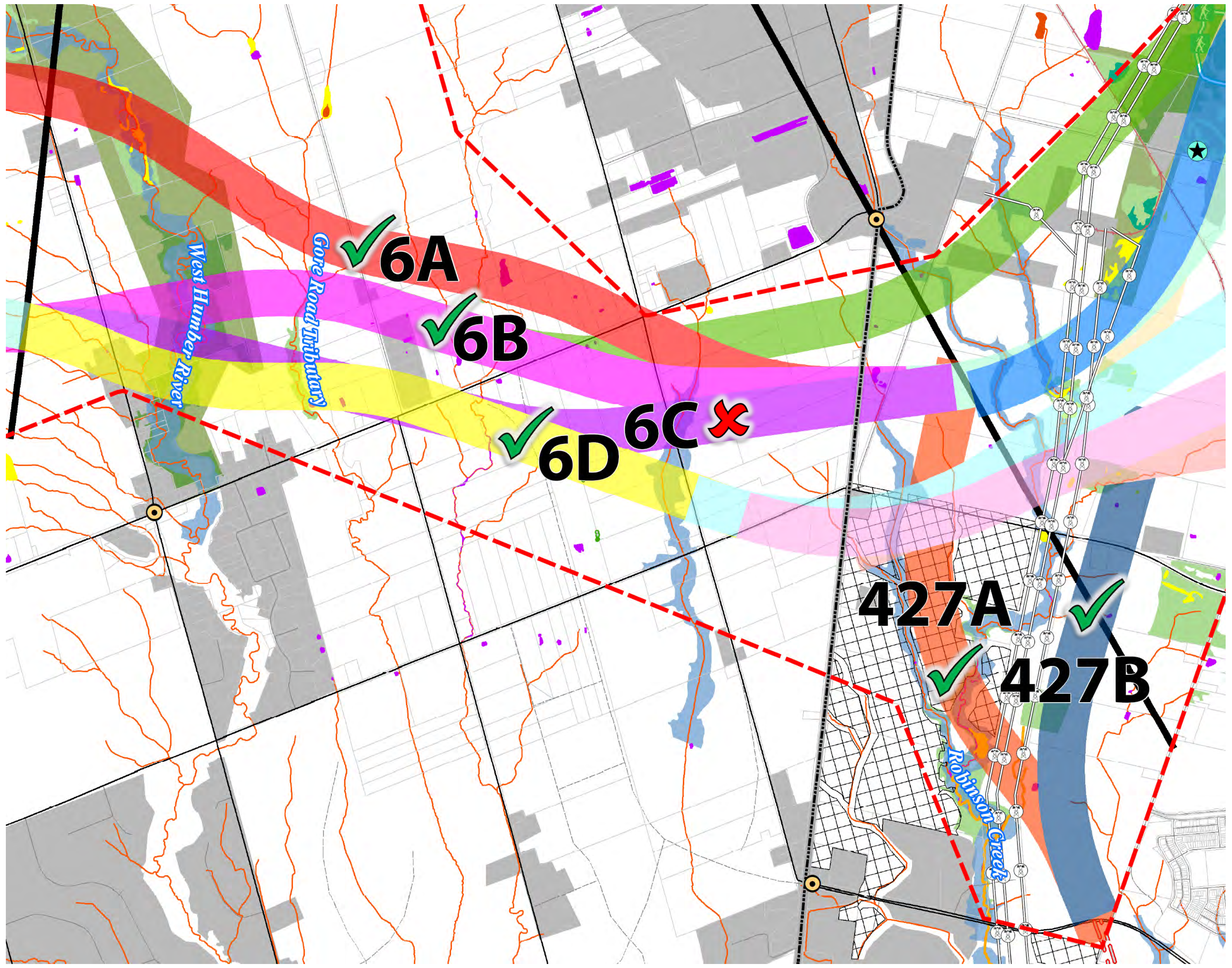
✓ Carried Forward

✗ Screened Out

- Key reasons for screening out Alternative 5B:
  - Largest impacts to residential and commercial / industrial properties
  - Impacts a built heritage resource (designated building on Airport Road)
- Key reasons for screening out Alternative 5C:
  - Alternatives 5C and 5D result in similar impacts, however Alternative 5C crosses Salt Creek at a significant bend, resulting in a complex crossing

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 6



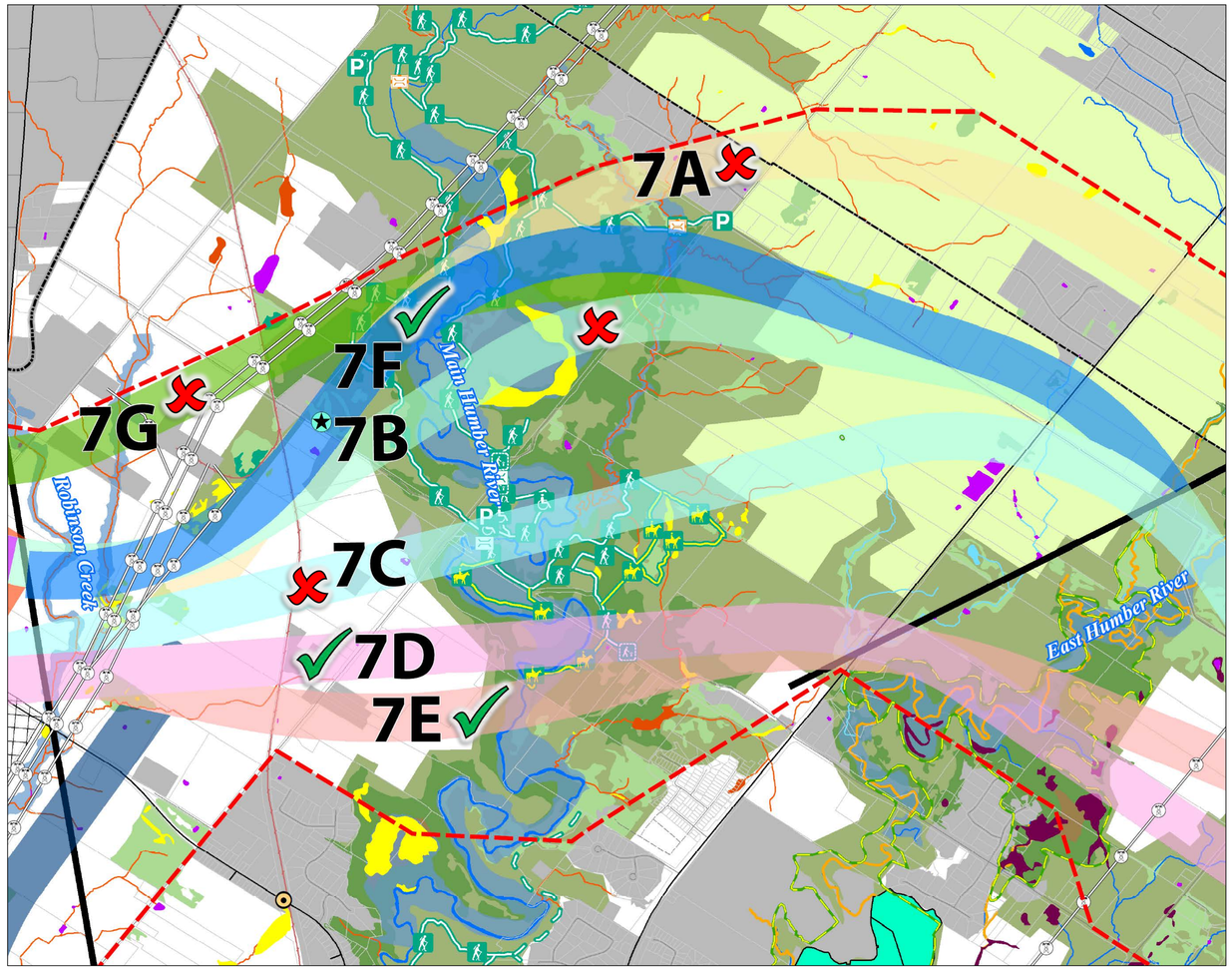
✓ Carried Forward

✗ Screened Out

- Key reasons for screening out Alternative 6C:
  - Crosses the Humber River and headwater tributary at a significant bend, resulting in a complex crossing
  - Large impact to agricultural area and Class 1-3 soils

Visit the Reference Table

Screening of Long List of Route Alternatives– Section 7



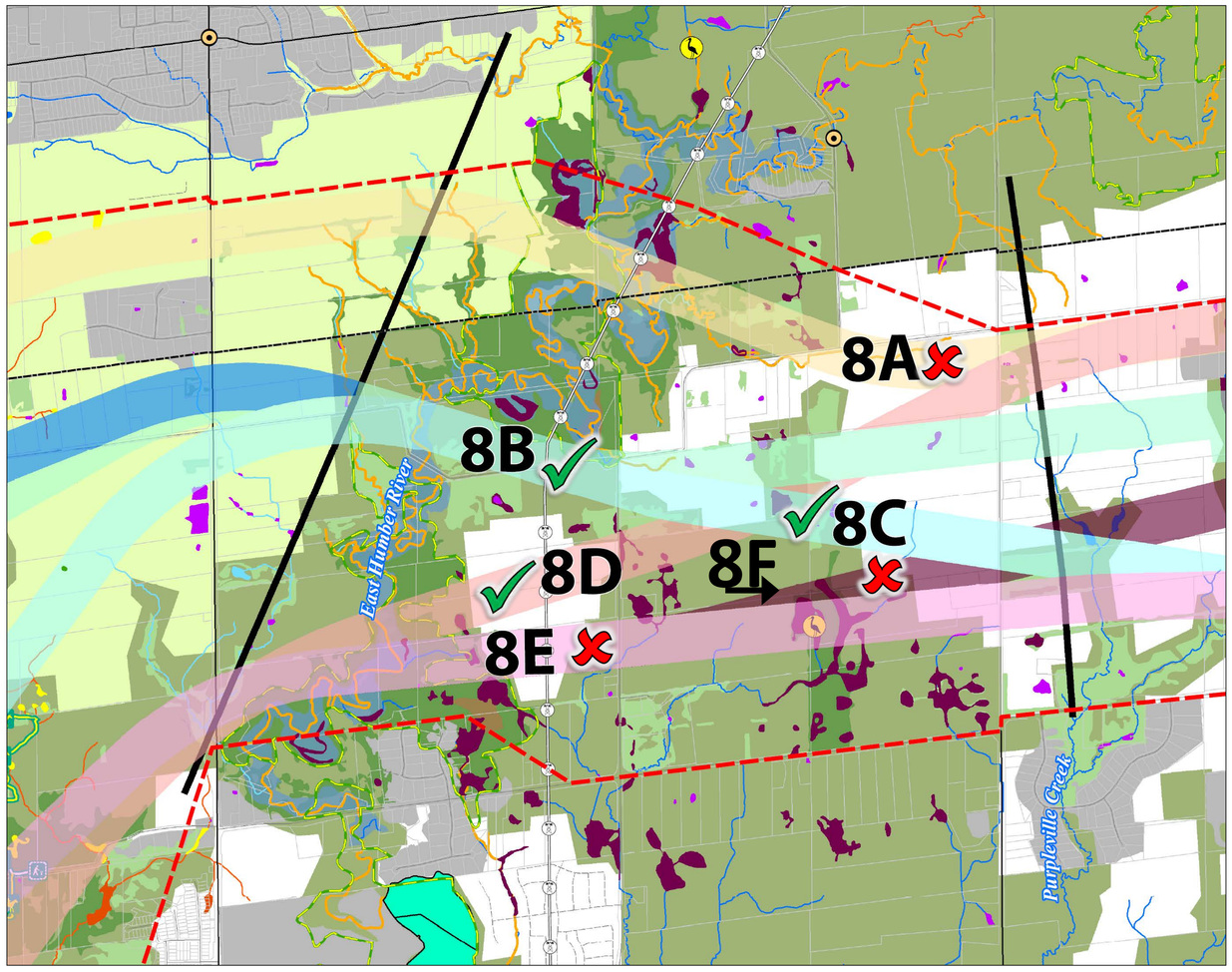
✓ Carried Forward

✘ Screened Out

- Key reasons for screening out Alternative 7A:
  - Large impacts to headwater areas of tributaries, Species at Risk habitat, and woodland areas
  - Impacts a large unevaluated wetland
  - Largest impact to residential properties, Burlington Outdoor Recreation Facility, and existing noise sensitive areas
  - Largest impact to agricultural area and Class 1-3 soils
- Key reasons for screening out Alternative 7B:
  - Requires multiple crossings of the Humber River, Robinson Creek, and East Humber
  - Impacts a large unevaluated wetland
  - Large impact to agricultural area and Class 1-3 soils
- Key reasons for screening out Alternative 7C:
  - Requires crossing the Humber River multiple times and at its widest point
  - Large impacts to Robinson Creek, unevaluated wetlands
  - Large impacts to agricultural area and Class 1-3 soils
  - Impacts 4 hydro lines
  - Largest impact to built heritage resources/cultural heritage landscapes
- Key reasons for screening out Alternative 7G:
  - Impacts a Hydro One substation
  - Connected to 6F, which has a limited opportunity to incorporate a Highway 427 interchange within the study area

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 8



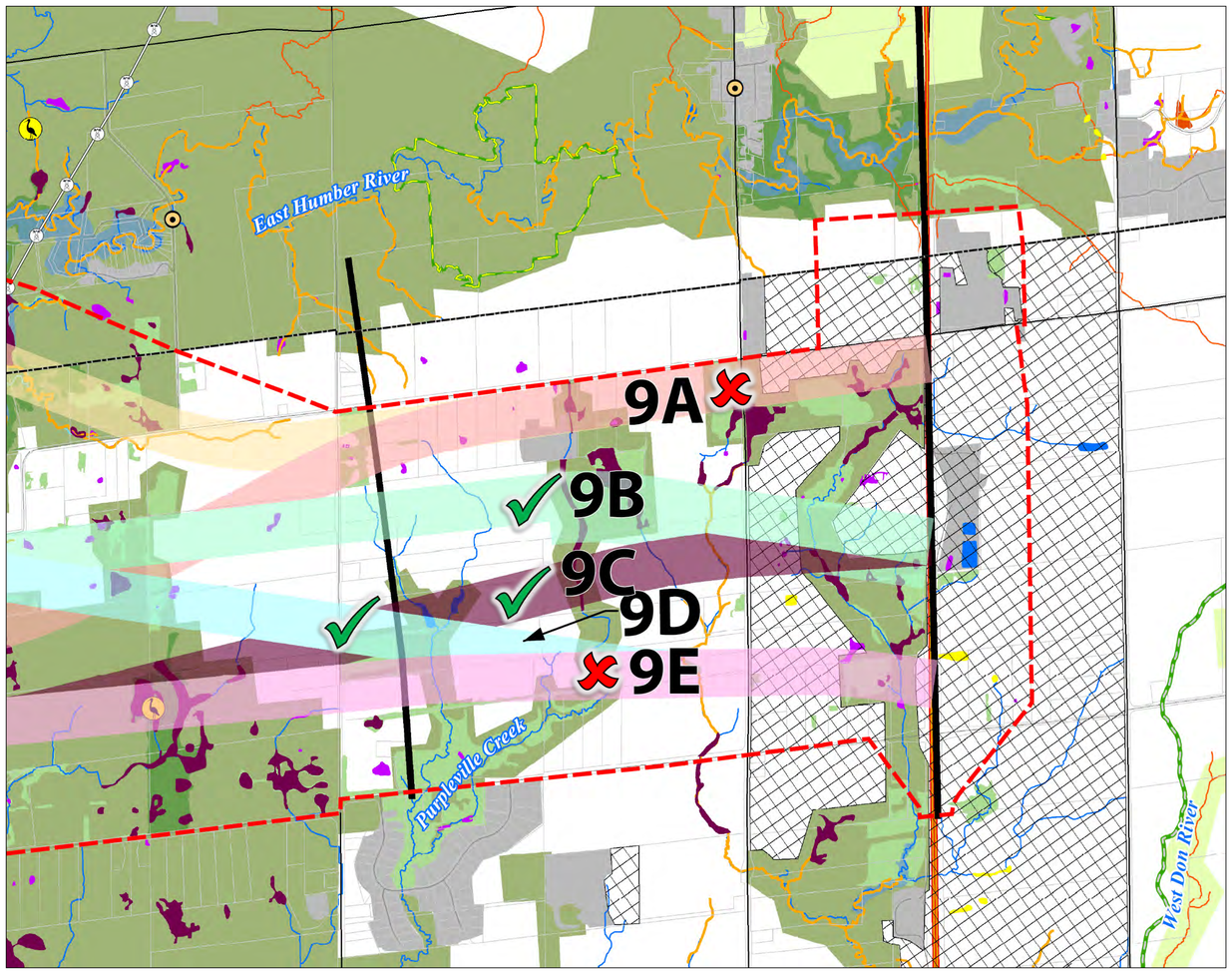
✓ Carried Forward

✗ Screened Out

- Key reasons for screening out Alternative 8A:
  - Large impacts to Species at Risk habitat, East Humber River Wetland Complex, woodlands with interior habitat, and a complex crossing of the East Humber River
  - Largest impact on agricultural area
- Key reasons for screening out Alternative 8E:
  - Large impact to, and complex crossing of, the East Humber River
  - Impacts a heronry
  - Largest impact to existing noise sensitive areas
- Key reasons for screening out Alternative 8F:
  - 8F not required as it was a connector between 8E (screened out) and 9C

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 9



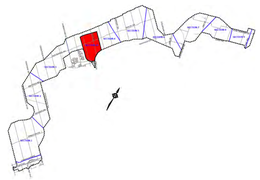
✓ Carried Forward

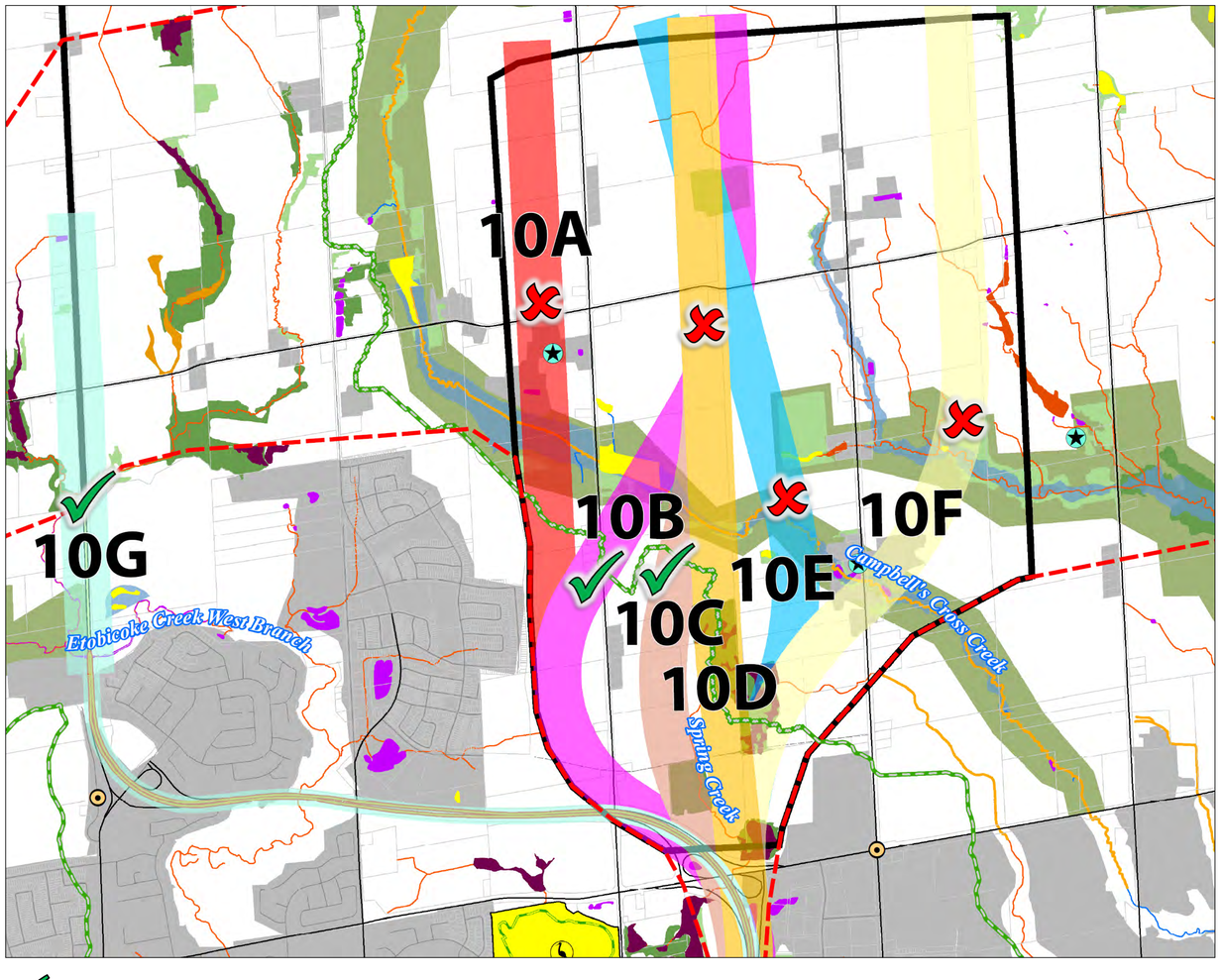
✗ Screened Out

- Key reasons for screening out Alternative 9A:
  - Significant wetland and woodland impacts
  - Largest impact to commercial/industrial properties
  - Does not efficiently connect to the planned Highway 400 Employment Area
  - Largest impact to the planned Highway 400 Employment Area
- Key reasons for screening out Alternative 9E:
  - Alternatives 9D and 9E are very similar, but Alternative 9E impacts a noise sensitive area
  - Largest impact on planned residential areas

Visit the Reference Table

Screening of Long List of Route Alternatives – Section 10





✓ Carried Forward

✗ Screened Out

- Key reasons for screening out Alternative 10A:
  - Impacts the largest number of properties
  - Very close to a new residential community
  - Displaces the Brampton Fairgrounds
  - Largest impact to existing and future noise sensitive areas

- Key reasons for screening out Alternatives 10D, 10E and 10F:
  - Removes the Heart Lake Wetland Complex
  - Additionally Alternative 10F:
    - Impacts the Mayfield United Church and cemetery
    - Largest impact to agricultural area and Class 1-3 soils
    - Largest impact to significant built heritage resources/cultural heritage landscapes

Evaluation Criteria - Short List of Route Alternatives

FACTOR	CRITERIA
NATURAL ENVIRONMENT	
Fisheries and Aquatic Ecosystems	• Fish Habitat • Fish Community
Terrestrial Ecosystems	• Wildlife Habitat • Wildlife • Wetlands • Woodlands and Vegetation • Designated / Special / Natural Areas
Ecosystem Services	• Ecosystems Services Criteria
Groundwater	• Areas of Groundwater Recharge or Discharge • Groundwater Source Areas and Wellhead Protection Areas • Large Volume Wells • Private Wells • Groundwater Dependent Commercial Enterprises • Groundwater Sensitive Ecosystems
Surface Water	• Watershed / Subwatershed Drainage Features / Patterns • Surface Water Quality and Quantity
Air Quality	• Local and Regional air quality impacts; greenhouse emissions
TRANSPORTATION	
System Capacity and Efficiency	• Movement of People • Movement of Goods • System Performance during Peak Periods
System Reliability and Redundancy	
Safety	• Traffic Safety • Emergency Access
Mobility and Accessibility	• Modal Integration and Balance • Linkages to Population and Employment Centres • Recreation and Tourism Travel • Accommodation for Pedestrians, Cyclists and Snowmobiles
Network Compatibility	• Network connectivity • Flexibility for Future Expansion
Engineering	• Constructability • Compliance with Design Criteria
Construction Cost	• Capital Cost • Area of Property Required
Traffic Operations	• Level of Service • User Delay

FACTOR	CRITERIA
LAND USE / SOCIO-ECONOMIC ENVIRONMENT	
Land Use Planning	• First Nation Land Claims • Provincial / Federal Land Use Planning Policies / Goals / Objectives • Municipal (local / regional) Land Use Planning Policies / Goals / Objectives • Development Objectives of Private Property Owners
Land Use – Community	• First Nation Reserves • First Nation Sacred Grounds • Urban and Rural Residential Uses • Commercial / Industrial Uses • Tourist Areas and Attractions • Community Facilities / Institutions • Municipal Infrastructures and Public Service Facilities
Noise Sensitive Areas	
Resources	• First Nation Treaty Rights and Use of Land and Resources for Traditional Purposes • Agriculture / Specialized Agriculture • Recreation • Aggregate and Mineral Resources
Major utility transmission corridors and pipelines	
Contaminated Property and Waste Management	
Landscape Composition	• Scenic Composition • Sensitive Viewer Groups • Scenic Value of Views / Vistas from the Facility
CULTURAL ENVIRONMENT	
Built Heritage and Cultural Heritage Landscapes	• Built Heritage • Heritage Bridges • Areas of Historic 19th Century Settlement • Cultural Heritage Landscapes • First Nation Burial Sites • Cemeteries
Archaeology	• Pre-Contact and Contact First Nations' Archaeological Sites • Historic Euro Canadian Archaeological Sites

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