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## **Study Design Report**

Planning, Preliminary Design  
& Class Environmental  
Assessment Study for the  
Extension of Highway 652 to  
Highway 11, Town of  
Cochrane (GWP 5220-16-00)

December 2021




## Sign-off Sheet

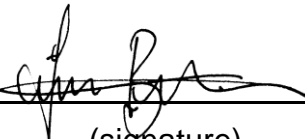
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## 1.0 Project Overview

The Ontario Ministry of Transportation (MTO) has initiated a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study for the extension of Highway 652 to Highway 11, in the Town of Cochrane.

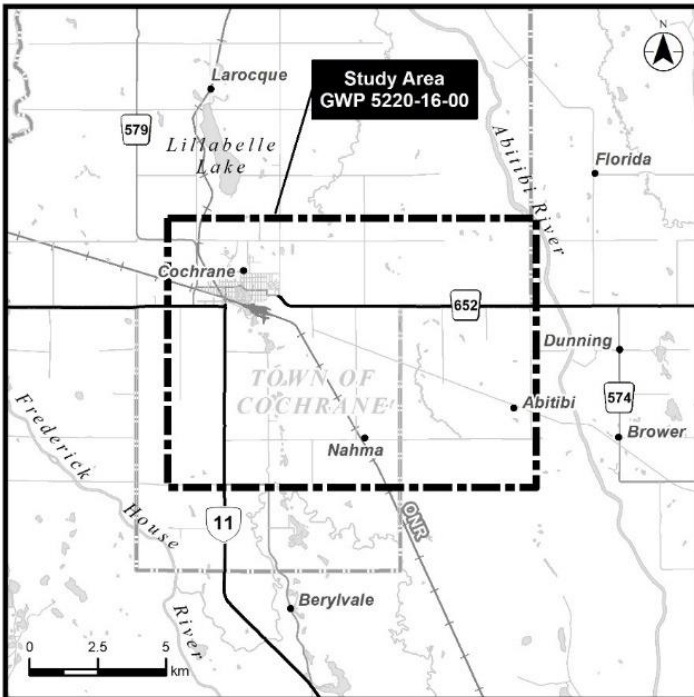
This *Study Design Report* represents the first phase of the study and provides an outline of why the study was initiated and how the study will be carried out.

The study is being carried out following the *MTO Class Environmental Assessment (EA) for Provincial Transportation Facilities (2000)* process for a Group 'A' project, following the process for a new transportation facility.

A *Study Design Report* is a requirement for Group 'A' projects.

### 1.1 Study Area

The study area is shown on **Exhibit 1**.



**Exhibit 1: Study Area**



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### 1.2 Purpose of the Report

The *Class Environmental Assessment for Provincial Transportation Facilities* (Class EA, 2000) describes the *Study Design Report* as documentation of the study process that will lead to the final submission of a *Transportation Environmental Study Report* (TESR).

Preparation and circulation of a *Study Design Report* early in a study identifies the fundamental decision-making processes and the level of detail associated with environmental and engineering work to be carried out during a study. As described in the *Class EA*, the *Study Design Report* is mandatory for Group 'A' projects since they have potential to affect a wide range of diverse environmental features.

The purpose of this report is to:

- Document the need and justification for the project
- Define the study area
- Identify alternative methods of carrying out the undertaking
- Describe the environmental assessment process that will be undertaken
- Define the scope of work that will be carried out

### 1.3 Study Background

The Town of Cochrane has been petitioning the Ministry of Transportation to initiate a by-pass study since 1980. At that time, a Feasibility Study for a Truck By-Pass was prepared by the Town. However, MTO determined that there was not sufficient commercial traffic to warrant a by-pass.

A second Business Plan for a Proposed Truck By-Pass was prepared by the Town in 2006 and presented to MTO at the Rural Ontario Municipal Association (ROMA) conference. Although MTO considered a joint study following the conference, the study was not initiated.

In the summer of 2014, Cochrane appeared as a delegation to MTO at the ROMA conference, following a truck rollover north of Cochrane, which led to the initiation of a Transportation Needs Assessment study by MTO (2016), that identified several preliminary corridor alternatives for the extension of Highway 652 to Highway 11. A summary of the previous studies is provided below.



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### 1.3.1 Previous Design Studies

#### 1.3.1.1 Cochrane Truck By-Pass Study (1980)

In 1980, the Town of Cochrane completed the *Cochrane Truck By-Pass Study*. The study analyzed traffic through Cochrane, including traffic destined for the local sawmill, and traffic with a destination in Cochrane. Alternative by-pass routes were developed and evaluated, including a by-pass to the south of the Town, and upgrades to the existing municipal road network. Cochrane identified concerns that traffic in the community would increase over time and commented that traffic was a hazard to school children and pedestrians.

The preferred route selected at the time is shown (in the bold and dashed black line) in **Exhibit 2**.



**Exhibit 2: Preferred Route, Cochrane Truck By-Pass Study (1980)**

At the time, the Ministry of Northern Affairs and Ministry of Transportation and Communications Ontario determined that there was not sufficient commercial traffic to warrant a by-pass.



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### 1.3.1.2 Business Plan for a Proposed Truck By-Pass (2006)

In 2006, the Town of Cochrane prepared a second study: *A Business Plan for a Proposed Truck By-Pass within Cochrane*. The study was initiated based on an increase in truck volumes through Cochrane, and identified the following primary issues:

- Risk of contamination of Commando Lake from a truck accident
- Risk to health and safety of residents living along existing routes
- Traffic congestion caused by truck traffic in the commercial core
- Financial burden on Cochrane from the operation and maintenance of routes through Town for truck traffic that serve an interprovincial purpose

Through consultation with Cochrane-based industrial and commercial stakeholders, the study concluded that there are 84,000 (two-way) cross-town truck movements annually, and 500 daily cross-town truck movements during the peak winter long-haul period.

The study recommended a truck by-pass funded by the Province. Four feasible routes were recommended to carry forward for further study and evaluation (**Exhibit 3**). No additional studies were initiated following the completion of the 2006 study.



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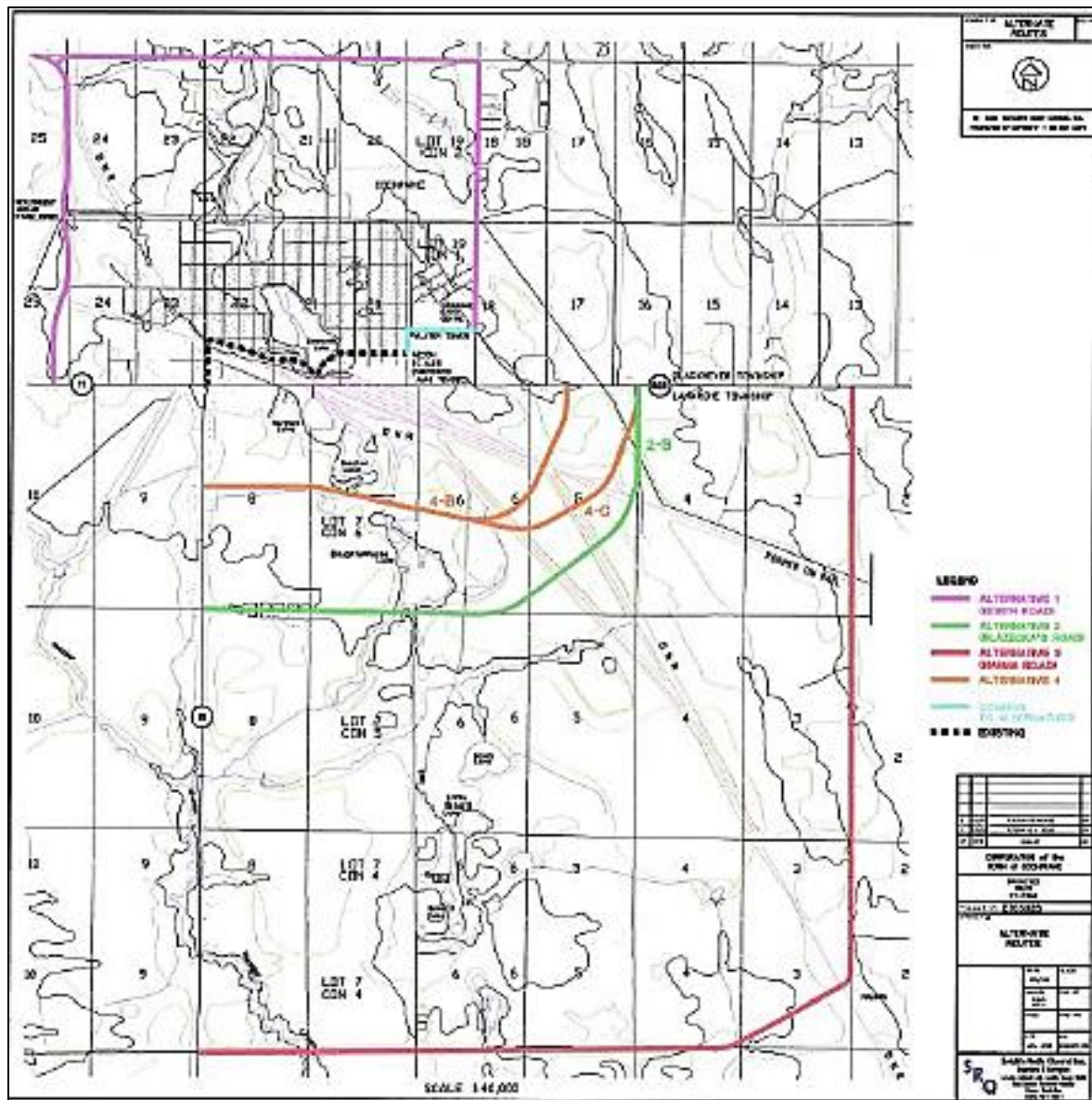


Exhibit 3: Route Alternatives (2006)

### 1.3.1.3 Wilson Road Extension

In 2003, the Town of Cochrane and Detour Gold requested funding from the Ministry of Northern Development and Mines to construct an industrial road on an unused rail bed from the Ontario Northland Transportation Commission (ONTC) rail yard in Cochrane to Wilson Road; and to upgrade Wilson Road to Highway 652. The improvements were to support the increase in the movement of heavy equipment and dangerous goods being transported by rail to support the mining industry and allowed materials arriving by rail to



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by-pass the residential area of Cochrane to minimize the potential for impacts to the municipal drinking water supply. The project was constructed in February 2013.

### **1.3.1.4 Railway Street Reconstruction**

In 2015, Cochrane initiated a Municipal Class Environmental Assessment (MCEA) for the reconstruction of Railway Street / 3<sup>rd</sup> Avenue, including stormwater management and cycling lanes. The study included evaluating alternatives to improve the curve at Commando Lake, minimize salt runoff to the lake, and the potential for a roundabout at Railway Street / 3<sup>rd</sup> Avenue. The project was constructed in 2016.

### **1.3.1.5 Transportation Needs Assessment**

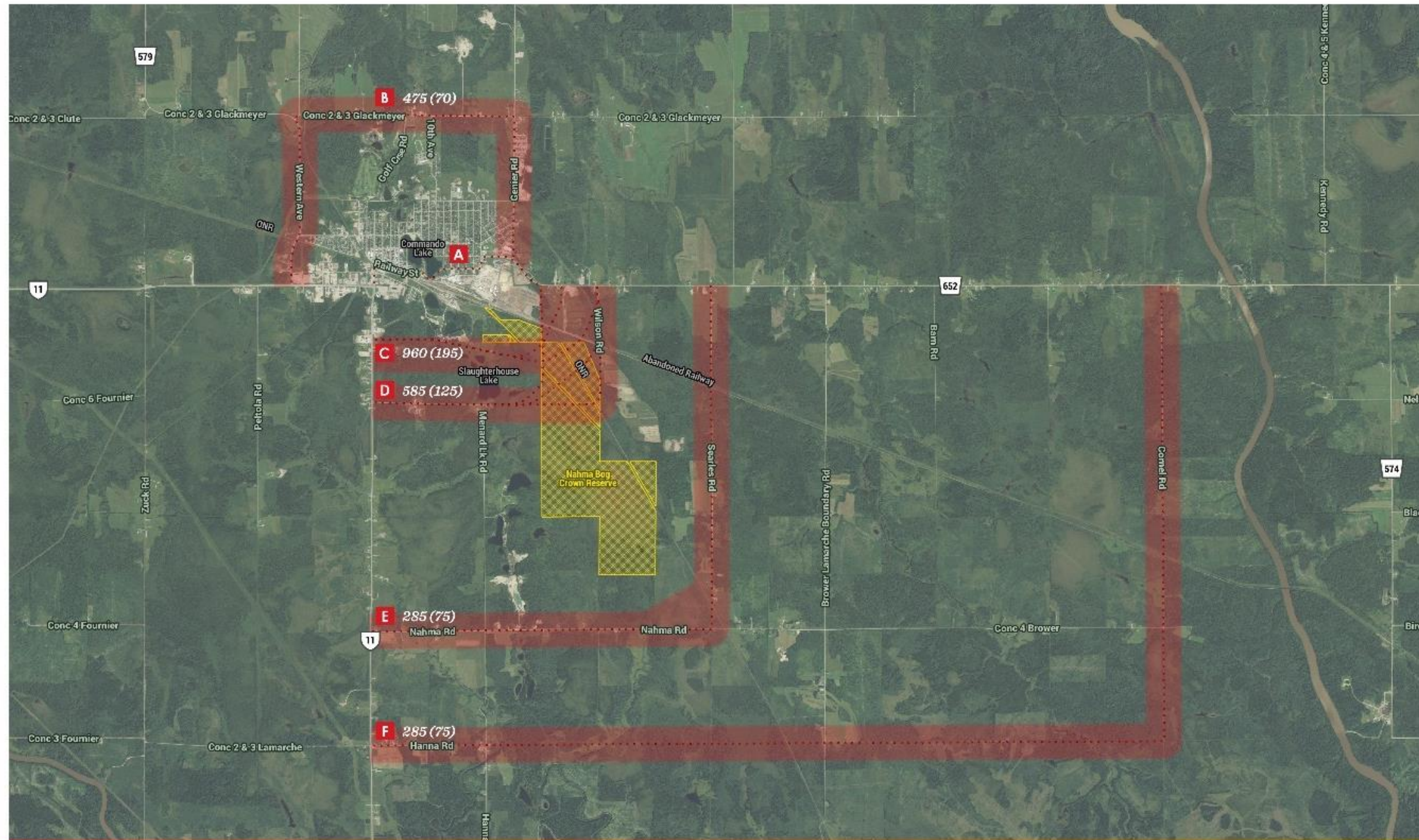
The Ministry of Transportation completed a Transportation Needs Assessment (TNA) in 2016 that identified several preliminary corridor alternatives for the extension of Highway 652. The TNA included identifying transportation challenges and opportunities, evaluating and selecting reasonable alternatives, and developing potential corridor alternatives. The TNA identified a set of corridor alternatives shown in **Exhibit 4**.



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**Stantec**  
 Ontario  
 Transportation Needs Assessment  
 Highway 11 and Highway 652, Cochrane  
 Assignment 5014 E-0037

Corridor alternatives  
 Possible routes  
 Potential traffic diversion (ypd)

1:10,000  
 Overview of  
 Corridor Alternatives

Exhibit 4: TNA Corridor Alternatives



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A Transportation Needs Assessment (TNA) can result in a number of recommendations, including initiating a study, initiating major and minor improvements, initiating routine maintenance, monitoring a situation, or 'doing nothing'. Because of the range of potential outcomes, the transportation needs assessment process included the following key steps:

1. Identifying transportation problems and opportunities
2. Evaluating and selecting reasonable alternatives, including 'do nothing'
3. Developing potential transportation study objectives
4. Initiating future studies, if required

The TNA included steps 1 to 3 listed above, and the Transportation Needs Assessment Report was the conclusion of that study. The TNA study recommended that Route Alternatives C and D be carried forward for future study. The TNA also included targeted consultation with key stakeholders such as:

- Forestry companies and operations (Abitibi River Forest Management Inc., Tembec)
- Mining companies (Kirkland Lake Gold, formerly Detour Gold) that operate within and near Cochrane
- Ontario Northland Transportation Commission
- Key agencies such as the Ministry of Natural Resources and Forestry, Ministry of Northern Development and Mines, Town of Cochrane

### **1.3.1.6 Multi-Modal Facilities**

Multi-modal facilities provide infrastructure to load and off-load materials to and from truck and rail. These facilities can support reducing truck traffic on the roadway network by providing alternative shipping methods. The Town of Cochrane has been working with the Ontario Northland Railway Commission (ONTC) and local industries, including Kirkland Lake Gold, to identify a site and secure funding for a multi-modal yard featuring infrastructure and equipment to load/off-load to/from truck and rail for mining goods and materials.

In April 2021, The Town of Cochrane Council accepted a motion to initiate a Design-Build contract for an agricultural processing facility and a grain elevator as part of the Cochrane Intermodal Terminal. The facility would be located adjacent to the ONR Rail facility and would allow for easy transportation of grain products using rail.



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# 1.4 Policy Context

## 1.4.1 Provincial Transportation Framework

The Ministry of Transportation (MTO)'s current priorities are to:

- Promote a multimodal transportation network
- Be a leader in road safety
- Improve highway, bridge, and border infrastructure
- Increase transit ridership
- Integrate sustainability into the Ministry's programs

The above is intended to support the MTO vision to be a world leader in moving people and goods safely, efficiently, and sustainably, and to support a globally competitive economy and a high quality of life.

## 1.4.2 Provincial Policy Statement (2020)

The Provincial Policy Statement (2020) provides policy direction for matters of provincial interest related to land use planning and development but does not directly regulate planning policy for municipalities. The Ministry's actions are guided by the transportation policies included in the PPS, 2020, which indicates that:

- A transportation system should be provided that is safe, energy efficient, facilitates the movement of people and goods, and is appropriate to address projected needs
- Efficient use shall be made of existing and planned infrastructure
- As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries
- Major goods movement facilities and corridors shall be protected for the long term

Policies within the PPS that relate directly to this study include:

### *Policy 1.6.4*

*Infrastructure and public service facilities should be strategically located to support the effective and efficient delivery of emergency management services, and to ensure the protection of public health and safety in accordance with the policies in Section 3.0: Protecting Public Health and Safety.*



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### *Policy 1.6.7.1*

*Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.*

### *Policy 1.6.7.3*

*As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries.*

### *Policy 1.6.8.2*

*Major goods movement facilities and corridors shall be protected for the long term.*

This study will be carried out within the context of the MTO responsibilities and requirements of the PPS.

### **1.4.3 Growth Plan for Northern Ontario (2018)**

The *Growth Plan for Northern Ontario* was prepared and approved under the *Places to Grow Act* (2005) and took effect on March 3, 2011. The Growth Plan indicates that: ‘the transportation system within Northern Ontario will be planned and managed with an emphasis on opportunities to...link major markets, resource development areas, and economic and service hubs [and to] create or strengthen linkages between economic and service hubs and rural and remote communities...’. Cochrane is within the boundaries of the Growth Plan.

The Growth Plan was designed as a strategic framework to guide decision-making and investment planning over the next 25 years and aims to achieve the goals set out in the *Place to Grow Act*, which defines how communities in Ontario should grow and develop. Transportation policies within the growth plan include planning and managing the transportation system to:

- Optimize the capacity, efficiency, and safety of the existing transportation system
- Link major markets, resource development areas, and economic and service hubs
- Meet the needs of the existing and emerging priority economic sectors and help implement regional economic plans



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- Enhance connectivity among transportation modes and service hubs and rural and remote communities
- Reduce emissions and other environmental impacts associated with transportation

### 1.4.4 Northern Ontario Multimodal Transportation Strategy

The *Northern Ontario Multimodal Transportation Strategy* (NOMTS) was initiated in 2015 by the Ministry of Transportation and the Ministry of Northern Development and Mines (MNDM). This study is a key initiative to support the implementation of transportation directions as part of the *Growth Plan for Northern Ontario*. Highway, marine, air, rail and other modes of transportation are being considered as the strategy is taking an integrated multimodal transportation approach. Ultimately, the strategy will recommend transportation improvements through to 2041 to meet a variety of transportation planning objectives.

### 1.4.5 Official Plan for the Cochrane and Suburban Planning Area (2014)

The purpose of the *Official Plan* (OP) is to guide future physical development in the Cochrane and Suburban Planning Area, through the establishment of practical objectives and policies that consider relevant social, economic, and environmental aspects.

The OP recognizes the importance of Highway 11 as a major highway in the Cochrane area and identifies Highway 11's contribution to the economic vitality of Cochrane, and the highway's utility as a corridor to transport goods and people to and from the community.

Section 10.5 of the OP identifies that Council will examine the feasibility of constructing a by-pass road as an alternate truck route connecting Highway 11 (south of Cochrane) to Highway 652 (east of Cochrane).

## 2.0 Existing Conditions

### 2.1 Existing Land Use

The *Official Plan for the Cochrane and Suburban Planning Area* (2014) provides guidance for land use development within the study area. Outside of Cochrane's urban area, the study area is identified primarily as Agricultural and Rural Areas. Cochrane has traditionally been associated with the railway, and it was historically a major railway centre for both freight and passenger services. Residential properties are generally



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located within the settlement boundary. However, there are also rural homes/businesses along municipal roads, including Glackmeyer Concession Road 2/3, Glackmeyer Concession 1/Highway 652, Nahma Road, Peltola Road, and Highway 11.

Railway Street/3rd Street provides the primary route through Cochrane, connecting Highway 11 and Highway 652. Land use along this corridor includes a combination of commercial properties (e.g., hotels), industrial properties (e.g., Rockshield and Greenfirst), and residential properties. The corridor also includes Commando Lake, which is used locally as a recreation area. There are no schools on Railway Street/3rd Street.

The Town of Cochrane is the owner of the Polar Bear Habitat, located south of the Ontario Northland Railway.

Cochrane's primary economic activities include forestry, logging, mining, tourism, and a small recreational industry.

### **2.1.1 Aggregates**

A review of Schedule B of Cochrane's Official Plan indicated that there are no active or surrendered aggregate removal areas in the vicinity of the study area.

A review of the Ministry of Natural Resources aggregates database shows there are no active pits or quarries located within or adjacent to the study area. However, based on observations from aerial imagery, there is a mining or aggregate operation and facility located on the north side of Nahma Road, east of Menard Lake Road.

### **2.1.2 Mining**

There are no operating mines directly within the study area.

The Detour Lake Gold Mine is located 185 km northeast of the study area. The mine is owned and operated by Kirkland Lake Gold and the mine's only access is via Highway 652, with all mine traffic currently directed through Cochrane. Kirkland Lake Gold also have facilities located in Cochrane, including an office, storage, and staff parking facility.

Kirkland Lake Gold has been in discussions with Cochrane and the Ontario Northland Railway to develop a multi-modal facility that would allow for the movement of some of their materials by rail.



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### **2.1.3 Forestry Resources**

Forestry is a key industry in the study area. Forest resources in Ontario are managed by the Ministry of Northern Development, Mines, Natural Resources and Forestry through licensed areas adjacent to Cochrane: the Abitibi River and Gordon Cousins Forests. Cochrane also includes two major wood product processing facilities, Rockshield Engineered Wood Products, and Greenfirst (formerly Tembec/Rayonier Advanced Materials). Both facilities use a combination of rail and road to move goods to and from the processing facilities. Access to these facilities is via 3<sup>rd</sup> Street, with the entrances located near the 3<sup>rd</sup> Street / 2<sup>nd</sup> Street intersection.

### **2.1.4 Student Transportation**

There are four schools located within the study area, Cochrane Public School, Cochrane High School, Aileen-Wright English Catholic School, and École Catholique Nouveau Regard - Pavillon ST-Joseph, and the schools are serviced by the North-East Tri-Board Student Transportation.

### **2.1.5 Emergency Services**

In Cochrane, fire and ambulance services are provided by the Cochrane Fire Department, and the Cochrane District Social Services Administration Board (CDSSAB), respectively. Police service in the study area is provided by the Ontario Provincial Police.

The Fire Hall is located within the study area at 23 5<sup>th</sup> Street.

There is one hospital within the study area. The Lady Minto Hospital is an acute care facility located at the intersection of 9<sup>th</sup> Avenue and 8<sup>th</sup> Street in Cochrane.

There is an Ontario Provincial Police station (Cochrane Detachment) located at 64 3<sup>rd</sup> Avenue in Cochrane.

The Porcupine Health Unit is a public health unit that provides various medical and dental programs and has a branch office in Cochrane Ontario.

### **2.1.6 Active Transportation and Recreational Trails**

The Official Plan for the Cochrane and Suburban Planning Area identifies a desire to expand resource-based recreation and tourism to encourage economic growth and development. This includes providing for and protecting recreational features in the municipality, including green spaces, trails, and parks.



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Lake Commando is a well-used recreation resource in Cochrane, with fishing, a beach along the north shore, docks, and a pathway around the lake.

The Cochrane Polar Bear Habitat is the only captive bear facility in the world dedicated solely to polar bears. This research and tourism development also includes a Heritage Village focusing on the rail's impact to Cochrane, and an Antique Snowmobile Museum.

The Cochrane Cross-Country Ski Club maintains and operates a set of trails located just west of the Lee Golf Club. The entrance to the trails is located beside the Cochrane Curling Club building at 405 1<sup>st</sup> Avenue.

### **2.1.7 Agriculture**

The Cochrane area includes soils that have the potential to support an agriculture industry and the Town of Cochrane's Strategic Plan (2020) has identified this sector as important resource to provide for the community. The soils in and around Cochrane are generally classified as Class 3 soils or organic soils. The Cochrane District has over 150 working farms with dairy, cattle and hay operations, and the Cochrane and District Agricultural Society has a horse ranch and arena in Cochrane where various agricultural events are held.

### **2.1.8 Snowmobile Trails**

The study area is located within District 15 of the Ontario Federation of Snowmobile Clubs (OFSC), and the Polar Bear Riders Snowmobile Club maintains the snowmobile trails within the study area. There are three trails as described below and displayed in **Exhibit 5**.

- 'Trunk Trail A' runs southeasterly from Cochrane to Iroquois Falls. A portion of the trail runs through the north block of the Nahma Bog and Poor Fens Conservation Reserve. Most of the trail runs adjacent to the Ontario Northland Railway right of way
- 'Feeder Trail A105Q' runs northerly along Searles Road and Sonar Road, then easterly along Glackmeyer Concession Road 3
- 'Club Trail L109' runs from Trunk Trail A to Feeder Trail A105Q through Cochrane including the Lee Golf Club



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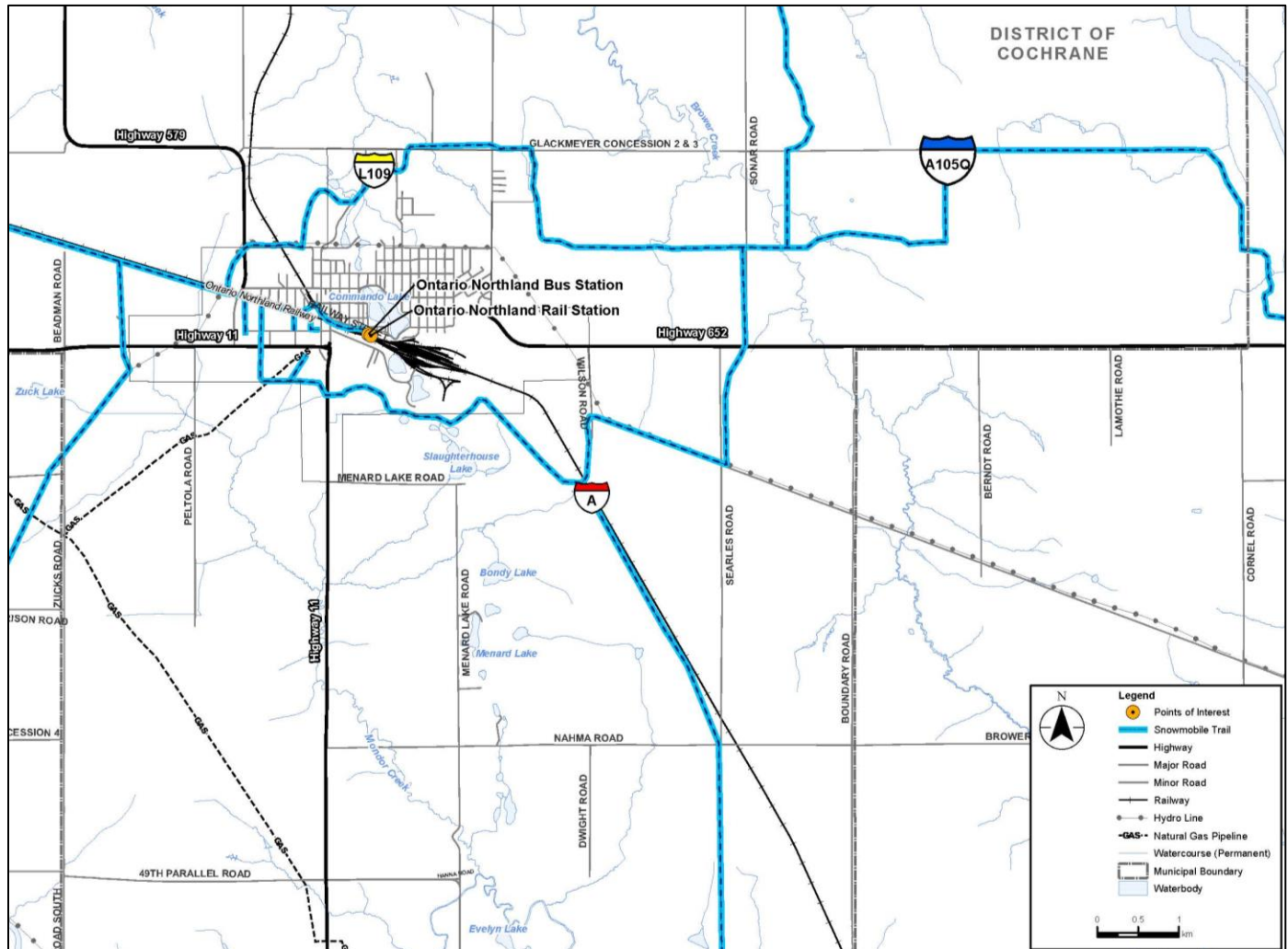


Exhibit 5: Snowmobile Trails

## 2.2 Existing Transportation Network

### 2.2.1 Provincial

There are three provincial highways within the study limits. Highway 11 is a critical transportation facility in this part of the province and is classified as a north-south highway that generally heads north-south in the study area, but changes to east-west at the Highway 11/3<sup>rd</sup> Avenue intersection. Highway 11 is a major trucking and access route in Northern Ontario and serves as the major local road providing access to businesses and the community of Cochrane. The posted speed limit on this section of Highway 11 varies between 70 and 90 km/hr.





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Highway 652 and Highway 579 are secondary provincial highways. Highway 652 is used primarily to access the Detour Lake Gold Mine, provide access to forestry and aggregate resources, and provide access for small communities northeast of Cochrane, making it an important economic route in the north. Highway 652 is generally east-west within the study area and begins east of the Genier Road/3<sup>rd</sup> Street intersection. The highway's eastern terminus is at the Kattawagami River.

Highway 579 is generally north-south and provides access through the Town of Clute to the Abitibi River, where there is a ferry to cross the river to Gardiner.

The posted speed limit on Highway 652 is 60 km/hr west of Genier Road, and 90 km/hr east of Genier Road: and the posted speed limit on Highway 579 ranges from 80 km/hr to 90 km/hr.

There are no provincial highway connections linking these highways in the study area.

### 2.2.2 Municipal

There is a well-established network of rural municipal roads within the study area.

Railway Street/3<sup>rd</sup> Street serves as the primary route through Cochrane, connecting Highway 11 to Highway 652. Wilson Road was recently constructed to provide additional access to the Ontario Northland Railway (ONR) property.

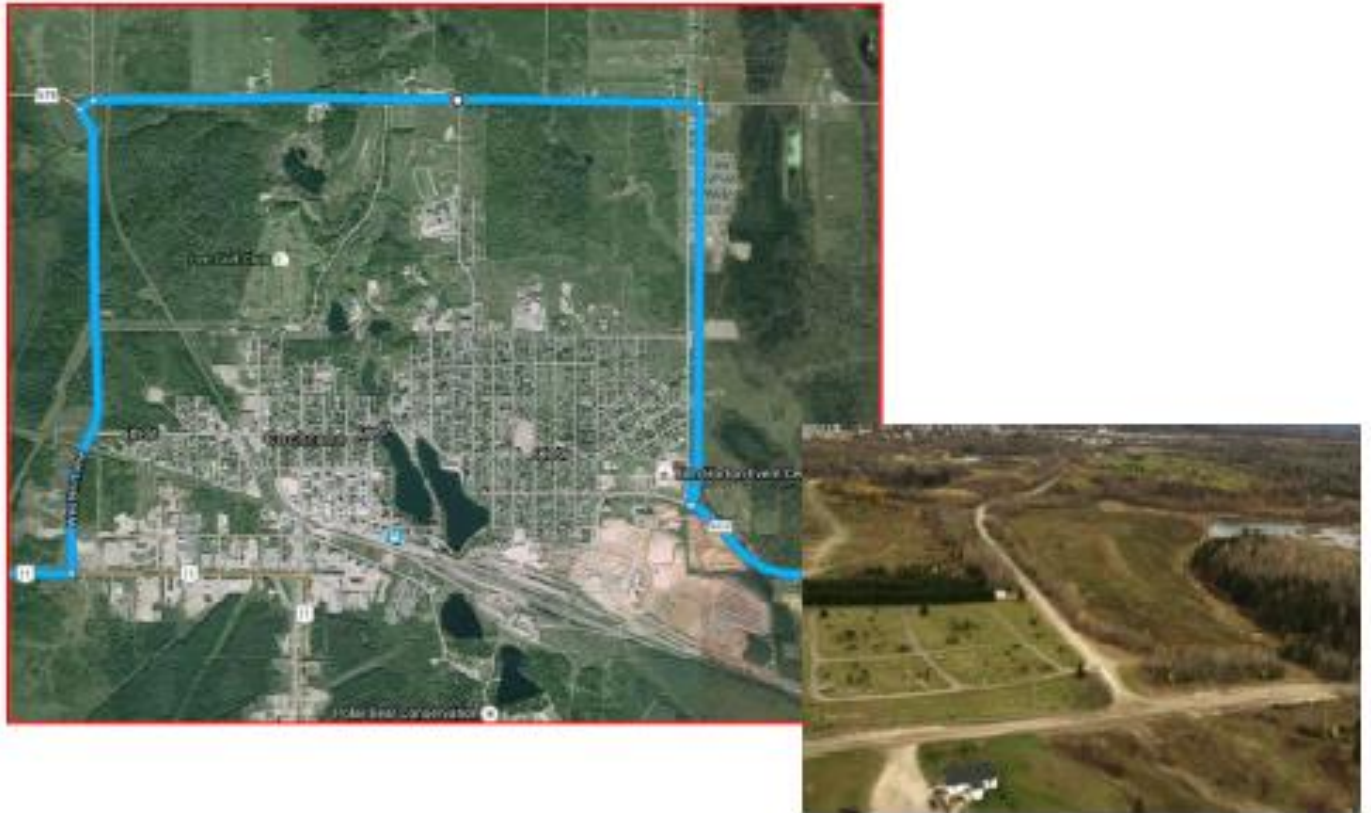
Cochrane has identified Glackmeyer Concession 2/3 as the preferred route for hazardous materials. However, the condition of the road is not always suitable for commercial vehicles. This route is depicted in **Exhibit 6**.



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### Exhibit 6: Town of Cochrane Seasonal Hazardous Materials Route

#### 2.2.3 Existing Truck Route

The existing truck route through Cochrane is identified in **Exhibit 7** and includes 3<sup>rd</sup> Avenue, Railway Street, and 3<sup>rd</sup> Street East, which provides a connection between Highway 11 to the south and west, and Highway 652 to the east.

The existing route includes the following roadway characteristics:

- An at-grade railway crossing on 3<sup>rd</sup> Avenue, between Highway 11 and Railway Street
- A roundabout at the intersection of 3<sup>rd</sup> Avenue and Railway Street
- Sixteen at-grade intersections and several commercial entrances between and including the intersections of Highway 11 and 3<sup>rd</sup> Avenue, and Genier Road and Highway 652
- An urban cross-section on Railway Street, with sections of sidewalk and on-street parking



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- A tight horizontal curve (R-35m) around the south end of Commando Lake, where trucks typically cross the centreline of the roadway when traveling through the curve
- Steep grades on Railway Street in the vicinity of Commando Lake, which are sometimes difficult for trucks to navigate in winter conditions
- 3<sup>rd</sup> Street has an urban cross-section with residential entrances
- A tight horizontal curve (R-30m) on 3<sup>rd</sup> Street, opposite the Greenfirst weight scales, where trucks often park on the roadway while waiting to access the scales



### Exhibit 7: Existing Truck Route

In 2015, Cochrane initiated a Municipal Class Environmental Assessment (MCEA) study for the reconstruction of Railway Street/3<sup>rd</sup> Avenue, including stormwater management and cycling lanes. The study included evaluating alternatives to improve the curve at Commando Lake, minimize salt runoff to the lake, and the potential for a roundabout at Railway Street/3<sup>rd</sup> Avenue.

The Recommended Plan for the proposed improvements included:

- The reconstruction of Railway Street from 3<sup>rd</sup> Avenue to approximately 80 m east of Lakefront Avenue (i.e., no improvements to the curve on 3<sup>rd</sup> Avenue around Commando Lake)



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- A roundabout at Railway Street and 3<sup>rd</sup> Avenue, which also includes intersecting legs from 2<sup>nd</sup> Avenue, and 3<sup>rd</sup> Street (5 legs total)
- Railway Street from 3<sup>rd</sup> Avenue to Lakefront Avenue will have an urban cross-section with 12.5 m of pavement (permitting on-street parking)
- Railway Street will have 2.0 m wide sidewalks on both sides of the road from 3<sup>rd</sup> Avenue to 5<sup>th</sup> Avenue
- Railway Street from 5<sup>th</sup> Avenue to Lakefront Avenue will have a 2.0 m wide sidewalk on the north side and a 2.4 m wide bike lane behind the curb on the south side
- Railway Street reconstruction will also help include the removal and replacement of the existing watermain and storm sewer

These improvements were constructed in 2017.

### **2.2.4 Additional Roadways**

There is a network of forest access and private roads that provide access to resources and recreation. Industrial Road provides access between Highway 652 and Iroquois Falls. However, the bridge over the Abitibi River requires replacement and was closed to traffic by the private owner in 2015.

The Land Use Permits (LUPs) that provided co-funded maintenance on key forestry routes expired in December 2015, including the connection between Cochrane and Iroquois Falls, and the Trans Limit Road from Quebec.

### **2.2.5 Railways**

The Ontario Northland Transportation Commission (ONTC) maintains rail infrastructure through Cochrane, south of Railway Street. Cochrane was the northernmost station stop for the discontinued Northlander trains and is the southernmost stop for Polar Bear Express that provides service between Cochrane and Moosonee. In May 2021, the MTO announced that Ontario Northland and Metrolinx will plan to have operational passenger rail service by 2025. Next to the train station is Cochrane Yard, a small train yard used to store rail cars.

The rail bed of the former CNR mainline that runs east-west from Cochrane to Quebec is used as a recreational trail on a year-round basis.



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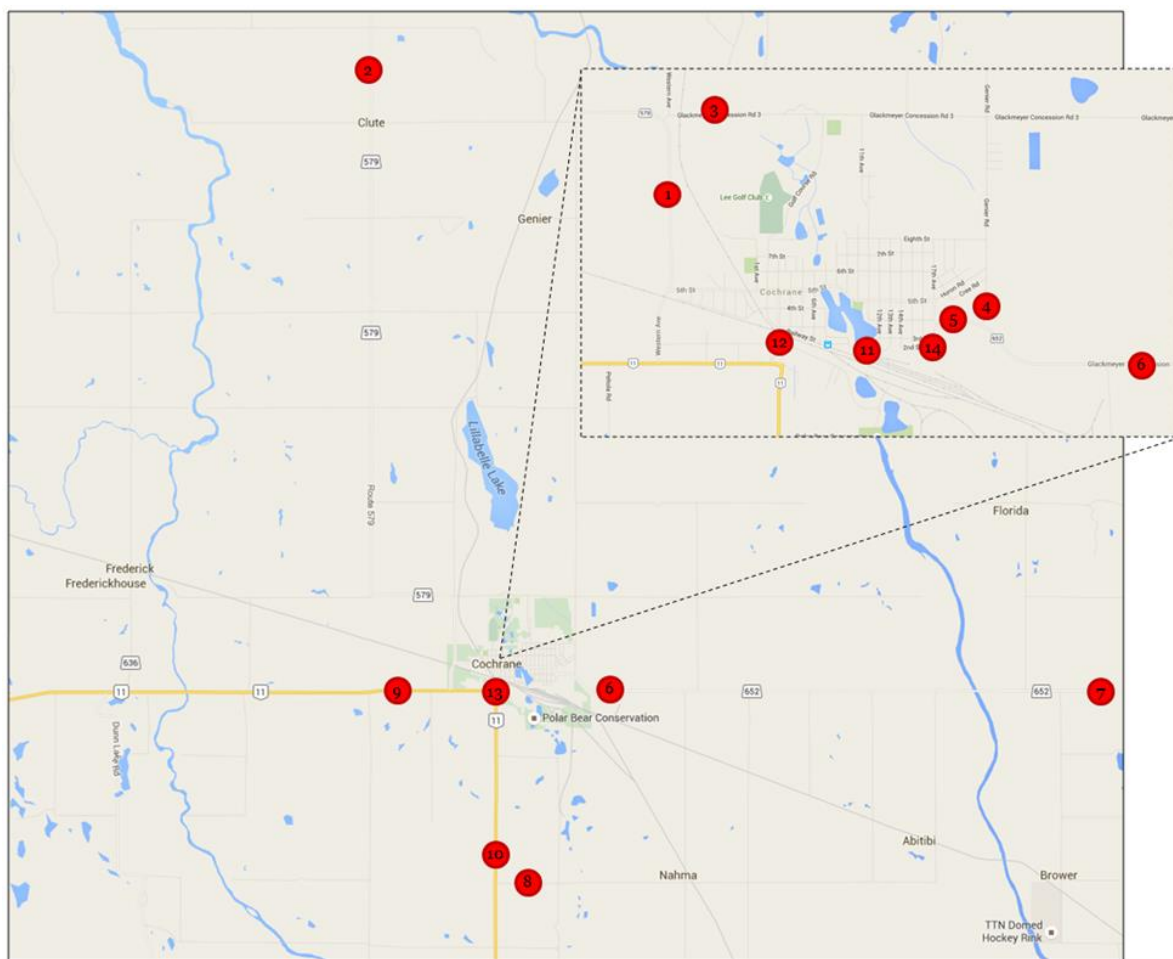
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## 2.2.6 Traffic Characteristics and Operations

### 2.2.6.1 Existing Traffic Volumes

The Transportation Needs Assessment included on-site traffic counts over seven days in the fall of 2015; and comparing those collected traffic counts to traffic volumes collected by the Ministry of Transportation in 2014 and 2015. The traffic count locations are provided in **Exhibit 8**. As part of this study, updated traffic data will be collected.



**Exhibit 8: Traffic Count Locations**

### 2.2.6.2 Collisions

Collision information along the existing truck route through Cochrane is limited and a full set of data could not be obtained from the Ontario Provincial Police (OPP) during the TNA. The TNA study included a review of limited collision data provided by the Ministry of Transportation for the 25-year period from 1989 to 2013 from approximately the



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Greenfirst (formerly Tembec) weigh scale entrance easterly. A review of those collisions yielded the following results:

- A total of seven collisions over the most recent 5-year period (collision rate of 0.7 accidents per million vehicle kilometres)
- A total of four collisions involving trucks over the entire 25-year period, all of which were classified as property damage only, and occurred near the intersection of Genier Road

### 2.2.6.3 Historical Traffic Growth

Historical Annual Average Daily Traffic (AADT) traffic volumes along Highway 11 and Highway 652 were reviewed from 1988 to 2015. Based on the review, traffic growth along Highway 11 was low at 0.1% per year; and traffic growth along Highway 652 was 1.0% per year.

### 2.2.6.4 Additional Traffic Data

A number of additional data sources were reviewed as part of the TNA study. The following sections provide a summary of the additional data that was collected.

#### *Ministry of Transportation 2012 Commercial Vehicle Survey*

The Ministry of Transportation undertakes a Commercial Vehicle Survey (CVS) every five years, across all days of the week, at over 100 sites across Ontario. This is a voluntary survey that collects information about trip characteristics, vehicle classification, weights and dimensions, commodity details, border crossings, routes and trip origin, and destination through a roadside interview.

The Ministry provided information for the Town of Cochrane and the Cochrane Census Division from the 2012 CVS for which survey data was collected between 2010 and 2014. Key points of information from the CVS include:

- On a typical day, the Cochrane Census District generates or attracts over 1,500 commercial trips with a commodity value of over \$21 million, commodity weight of 15 million kg, and an average goods value on each commercial vehicle of \$14,000
- 44% of the commercial vehicle activity can be attributed to the Towns of Cochrane and Iroquois Falls
- On a typical day, 518 commercial vehicle trips passed through the Cochrane Census District with a trip origin or destination in the Town of Cochrane with a commodity value of \$4.1 million, commodity weight of 4.7 million kg, and an average goods value on each commercial vehicle of \$8,000



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- The average trip length of a commercial vehicle trip with an origin or destination in the Town of Cochrane is 133 km, with 97% of the kilometres of travel occurring in Ontario
- Of the typical 518 commercial vehicle trips with a trip origin or destination in the Town of Cochrane, the three largest commodity groups were forestry (100 daily trips, 19%), consumer goods (38 trips, 7%) and fuel related vehicles (27 daily trips, 5%). Over 25% of the trips (i.e., 138 of the 518 trips) had no commodity group identified

### *Ministry of Northern Development, Mines, Natural Resources and Forestry Management Unit Information*

As the forestry industry represents a major commercial stakeholder, information was requested from the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) for available commercial vehicle information. MNDMNRF provided commercial vehicle trips of roundwood from Crown lands by forestry management unit (FMU). Truck volumes associated with wood obtained from private lands and finished products being shipped out to destinations was not included in this information. From the information provided, it was observed that there is a great deal of variability in commercial vehicle traffic given the prevailing economic conditions, license terms, and other factors. For example, in reviewing FMU information at Tembec, the volume of annual roundwood deliveries averaged approximately 400,000 m<sup>3</sup> from 2004 to 2014 but was as low as 103,000 m<sup>3</sup> and as high as 608,000 m<sup>3</sup>. Furthermore, this information indicated changes in forestry commercial vehicle travel patterns as the volume of shipments decreased in some FMUs and increased in others over the years. Approximately 50% of the total volume of roundwood over the past 5 years originated from the Abitibi River FMU to the north of Town.

### *Goods Movement Survey*

A questionnaire was distributed to key stakeholders in the study area during the TNA. The following is a summary of the survey results:

- The majority of goods are transported via truck
- The number of hauling trips varied widely between respondents, with a range from 2 – 6 trips per week to 80 trips per day
- The number of trips was found to change over the course of the year for 88.9% of respondents. The survey showed that four of nine respondents conduct more trips in winter months (December-March), with those stakeholders indicating that they conduct 40 – 75% of their trips in the winter. This data is consistent with information received from the forestry industry



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- When asked to project conditions over the next 15 years, seven of ten respondents indicated that their number of trips would increase. Additionally, five of eight question respondents indicated that their business had plans for expansion, and that this expansion would subsequently lead to additional traffic
- Approximately half of the respondents indicated that the existing route does not meet their transportation needs
- Wahgoshig First Nation, responded with comments indicated that they travel through town more frequently now, due to the closure of the Industrial Road trestle bridge crossing the Abitibi River
- Most respondents would welcome a new route that by-passes Cochrane – but not many identified a major issue/concern with the existing route

A summary of the trip information obtained as part of the survey is provided in **Table 1**. The trips noted in the table represent total commercial vehicle trips for each entity, and do not necessarily reflect the volume of vehicles using the existing truck route on Railway Street.

**Table 1: Commercial Vehicle Trip Information from Survey**

Company	Peak Daily Commercial Vehicle Trips (Two-Way)	Peak Season	Trip Origin/Destination within Town Boundaries?
Detour Gold Corp	44 trips	Spring (40% of annual trips)	Partial (4 per day with a destination at ONR Yard)
Genier Bros Trucking	154 trips	Winter (40% of annual trips)	Partial
Laidlaw Carriers Tank LP	6 trips	None	No
Moose Cree Group of Companies LP	50 trips	Winter (60% of annual trips)	Yes (Tembec, Rockshield)
Tembec Woodlands	240 trips	Winter (75% of annual trips)	Yes (Tembec)





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Company	Peak Daily Commercial Vehicle Trips (Two-Way)	Peak Season	Trip Origin/Destination within Town Boundaries?
Rockshield Engineered Wood Products ULC	Info not provided	Winter (50% of annual trips)	Yes (Rockshield)

The majority of the commercial vehicle trips identified as part of the survey have an origin or destination in Cochrane. Although the data obtained does not provide a complete picture of commercial traffic in Cochrane, and some data may also be double counted due to trips reported by a commercial vehicle carrier (e.g., Genier Bros) and by a destination such as Tembec, the data was still considered to be valuable to supplement the data collection for this study.

Based on the commercial vehicle information from the survey, the highest levels of forestry related truck activity occur during the winter, when passenger vehicle traffic is also typically lower when compared to other seasons.

## 3.0 Transportation Needs Assessment

The provincial highway network plays a key role in linking communities and supporting economic prosperity across Ontario. Over the last several decades, Cochrane has identified safety, maintenance, and operational concerns with the use of Railway Street / 3<sup>rd</sup> Avenue as the primary connection between Highway 11 and Highway 652.

### 3.1 Transportation Problem and Opportunity

#### 3.1.1 Transportation Problem

The transportation problem is related to existing conditions, safety, and provincial transportation network connectivity as discussed in the previously completed Transportation Needs Assessment report and summarized below:

- There is no provincial highway connection between Highway 11 and Highway 652, which has an impact on the existing municipal road network
- There is a potential for significant traffic delays if the existing route (Railway Street) is closed



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- The character of the existing truck route (Railway Street) is not desirable for heavy industrial truck traffic
- The existing roadway connection results in mixing of provincial and local traffic and other road users such as pedestrians and cyclists, which reduces the safety of the local road network
- There is potential for a spill of dangerous goods into Commando Lake (drinking water source)

### 3.1.2 Transportation Opportunity

The Ministry of Transportation has policies and strategies in place that seek to make sure that the Provincial transportation system is connected, optimized, efficient, and safe. Currently, a municipal road, Railway Street/3<sup>rd</sup> Avenue, is providing the key connection for the movement of people and goods between Highway 11 and Highway 652; and between Highway 11 and key commercial traffic generators including Greenfirst, Rockshield, and the ONR rail yards.

The transportation opportunity could improve safety and operations for goods movement and the travelling public through Cochrane by:

- Providing a provincial roadway connection between Highway 11 and Highway 652
- Providing an alternate route for provincial traffic and trucks, which would improve safety on the local road network
- Providing an alternate route for the transportation of dangerous goods, which could reduce the risk of a spill into Commando Lake
- Separating local and provincial traffic, which could improve the character of 3<sup>rd</sup> Avenue, Railway Street, and 3<sup>rd</sup> Street East, and would minimize the long-term maintenance requirements on the local road network

## 3.2 Alternatives to the Undertaking

The *Environmental Assessment Act* requires that 'reasonable alternatives' be considered in addressing the identified problem. This involves two levels of analysis. The Alternatives to the Undertaking considers a broad range of alternatives that could address the project needs. Once the best alternative is selected, the Alternative Methods of Carrying out the Undertaking is studied.



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### 3.2.1 Assessment of Alternatives to the Undertaking

Alternatives to the Undertaking were identified and assessed during the Transportation Needs Assessment study to identify the most reasonable approach to address the problems and opportunities. A screening process was developed to evaluate these options and select the most reasonable alternatives for more detailed study. This process allows unreasonable alternatives or alternatives that do not meet provincial policy requirements to be eliminated from consideration in advance of detailed development and evaluation stage.

An overview of the Screening of Alternatives to the Undertaking is provided in **Table 2**.

**Table 2: Alternatives to the Undertaking**

Description	Does it address the problems?	Carried Forward
Do Nothing / Improve existing facility	<ul style="list-style-type: none"><li>✘ There is no provincial highway connection between Highway 11 and Highway 652, which is having an impact on the existing municipal road network</li><li>✘ There is a potential for significant traffic delays if the existing route (Railway Street) is closed</li><li>✘ The character of the existing truck route (Railway Street) is not desirable for heavy industrial truck traffic</li><li>✘ The existing roadway alignment in the vicinity of Commando Lake is challenging for heavy industrial trucks</li><li>✘ There is potential for a spill of dangerous goods into Commando Lake (drinking water source)</li></ul>	<input checked="" type="checkbox"/> Not carried forward



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Description	Does it address the problems?	Carried Forward
Expand Roadway Network (i.e., provide an alternate route)	<ul style="list-style-type: none"> <li>✓ Provide a provincial roadway connection between Highway 11 and Highway 652</li> <li>✓ Provide an alternate route for provincial traffic and trucks, which could improve safety on the local road network</li> <li>✓ Provide an alternate route for the transportation of dangerous goods, which could reduce the risk of a spill into Commando Lake</li> <li>✓ Separate local and provincial traffic, which could improve the character of 3rd Avenue, Railway Street, and 3rd Street, and would minimize the long-term maintenance requirements on the local road network</li> <li>✓ Has the potential to attract a significant volume of commercial traffic</li> <li>✗ Potential for environmental impacts</li> </ul>	<input checked="" type="checkbox"/> Carried forward
Transportation Demand Management (i.e., restrict access to municipal road network or modify peak travel times)	<ul style="list-style-type: none"> <li>✗ Restricting access to the existing route without providing an alternate route does not support economic growth in the region</li> </ul>	<input checked="" type="checkbox"/> Not carried forward



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Description	Does it address the problems?	Carried Forward
Expand use of existing railway	<ul style="list-style-type: none"><li>✓ Has the potential to minimize truck use</li><li>✗ Would not likely change a significant volume of commercial traffic through Cochrane</li><li>✗ Goods would still be required to travel to and from the existing railway / multi modal facility</li><li>✗ Does not currently have the potential to reduce commercial traffic volumes significantly through Cochrane</li></ul>	<input checked="" type="checkbox"/> Not carried forward

### 3.3 Alternative Solutions

Following the preliminary screening of the alternatives to the undertaking, expanding the roadway network was carried forward for additional study since it has the ability to best address the identified problems. To further assess the potential to expand the roadway network, conceptual corridor alternatives for a possible by-pass of Cochrane were developed by considering significant factors within the study area, including topography, environmental constraints, land use constraints, the current municipal and provincial transportation networks, previous studies, and secondary source information. An overview of the corridor alternatives is provided in **Exhibit 9**. A preliminary screening of the corridor alternatives was completed. The screening was based on addressing the problems and opportunities identified for the study. **Table 3** provides an overview of the screening of corridor alternatives.



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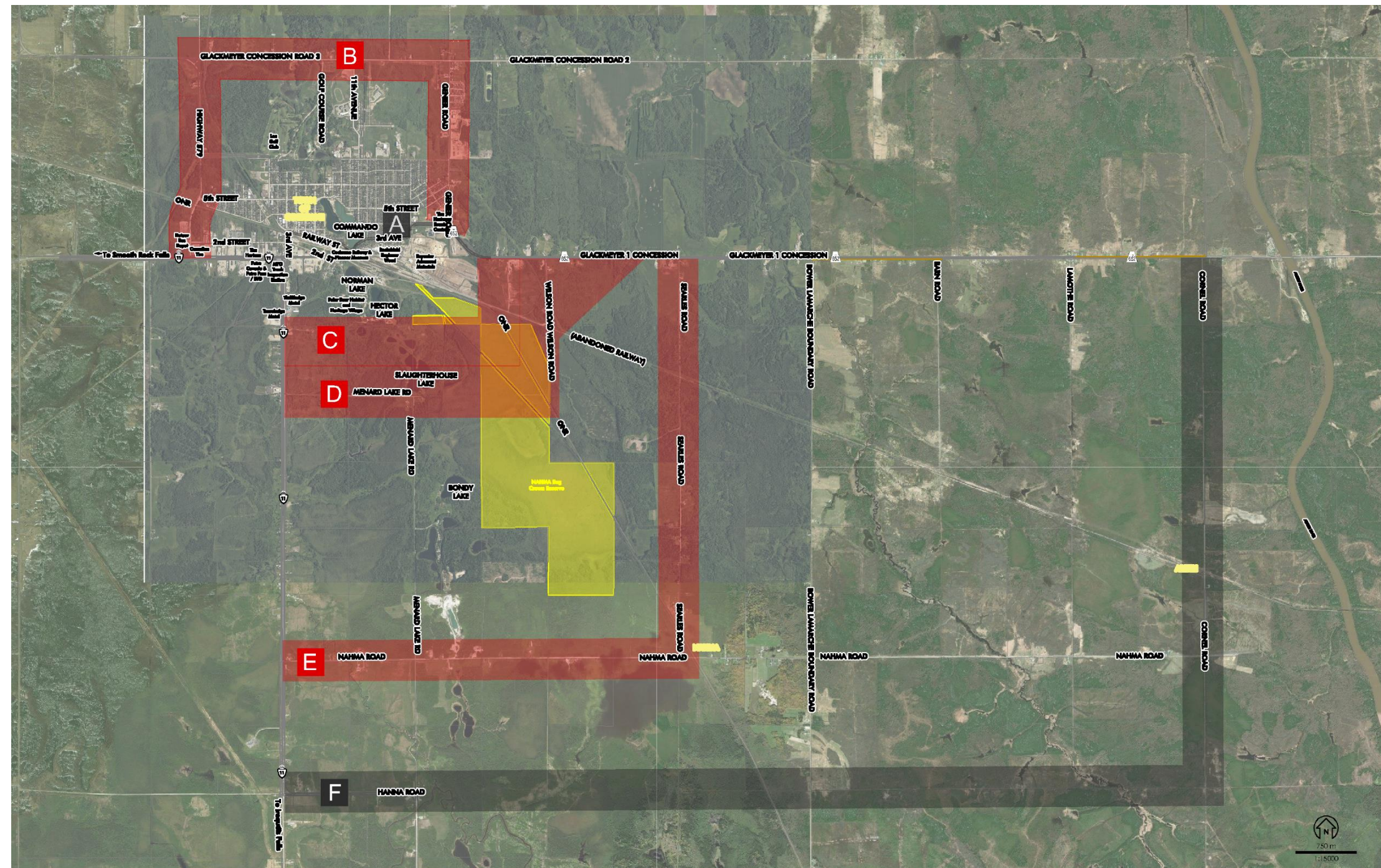
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- ✗ **A** Corridor A has been screened out because it does not meet the problem/opportunity statement of the project by:
  - Not addressing the concern of trucks travelling through the Town of Cochrane
- ✓ **B** Corridor B will be carried forward because it meets the problem/opportunity statement of the project by:
  - Providing an alternate connection between Highway 11 and Highway 652
  - Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane
  - Providing an alternate route for dangerous goods
  - Providing separation between local and provincial traffic
- ✓ **C** Corridor C will be carried forward because it meets the problem/opportunity statement of the project by:
  - Providing an alternate connection between Highway 11 and Highway 652
  - Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane
  - Providing an alternate route for dangerous goods
  - Providing separation between local and provincial traffic
- ✓ **D** Corridor D will be carried forward because it meets the problem/opportunity statement of the project by:
  - Providing an alternate connection between Highway 11 and Highway 652
  - Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane
  - Providing an alternate route for dangerous goods
  - Providing separation between local and provincial traffic
- ✓ **E** Corridor E will be carried forward because it meets the problem/opportunity statement of the project by:
  - Providing an alternate connection between Highway 11 and Highway 652
  - Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane
  - Providing an alternate route for dangerous goods
  - Providing separation between local and provincial traffic
- ✗ **F** Corridor F has been screened out because it does not meet the problem/opportunity statement of the project by:
  - Not attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane

### LEGEND

- Corridor Alternative Carried Forward (B, C, D & E)
- Corridor Alternative Screened Out (A & F)
- Nahma Bog Crown Reserve

Exhibit 9: Corridor Alternatives



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**Table 3: Screening of Corridor Alternatives**

Corridor	Screened Out / Carried Forward
<b>Corridor A</b>	<input checked="" type="checkbox"/> Screened out because it does not address the concern of trucks travelling through the Town of Cochrane
<b>Corridor B</b>	<input checked="" type="checkbox"/> Carried forward because it addresses the problem/opportunity statement by: <ul style="list-style-type: none"> <li>• Providing an alternate connection between Highway 11 and Highway 652</li> <li>• Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane</li> <li>• Providing an alternate route for dangerous goods</li> <li>• Providing separation between local and provincial traffic</li> </ul>
<b>Corridor C</b>	<input checked="" type="checkbox"/> Carried forward because it addresses the problem/opportunity statement by: <ul style="list-style-type: none"> <li>• Providing an alternate connection between Highway 11 and Highway 652</li> <li>• Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane</li> <li>• Providing an alternate route for dangerous goods</li> <li>• Providing separation between local and provincial traffic</li> </ul>
<b>Corridor D</b>	<input checked="" type="checkbox"/> Carried forward because it addresses the problem/opportunity statement by: <ul style="list-style-type: none"> <li>• Providing an alternate connection between Highway 11 and Highway 652</li> <li>• Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane</li> <li>• Providing an alternate route for dangerous goods</li> <li>• Providing separation between local and provincial traffic</li> </ul>



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Corridor	Screened Out / Carried Forward
Corridor E	<input checked="" type="checkbox"/> Carried forward because it addresses the problem/opportunity statement by: <ul style="list-style-type: none"><li>• Providing an alternate connection between Highway 11 and Highway 652</li><li>• Attracting enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane</li><li>• Providing an alternate route for dangerous goods</li><li>• Providing separation between local and provincial traffic</li></ul>
Corridor F	<input checked="" type="checkbox"/> Screened out because it does not attract enough commercial traffic to reduce the concern of trucks travelling through the Town of Cochrane

## 4.0 Consultation Process

The Consultation Process provides an opportunity for the project team to discuss the study process and/or any other issues relating to the project with the public, agencies, Indigenous communities, and other interested parties.

The process aims to notify all interested parties of the project and provide an opportunity for input to the study and decision-making processes. This is accomplished by presenting the findings of each stage of work and obtaining input from the public, government agencies and ministries, Indigenous communities, non-government interest groups and property owners.

The Consultation approach for external consultation will include:

- Notices in local newspapers – The Cochrane Times-Post
- Communication with external agencies in order to obtain pertinent technical information and identify the requirement for legislative or regulatory approvals related to the undertaking
- An interactive, accessible project website ([www.highway652extension.ca](http://www.highway652extension.ca))
- Indigenous engagement plan



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- Meetings with municipal staff and Council (Town of Cochrane)
- Communication with affected property owners where temporary or permanent interest in property is required
- Communication with local residents, businesses, and local highway users
- Two Public Information Centres
- 30-day Review Period for the *Study Design Report* (SDR)
- 30-day Review Period for the *Transportation Environmental Study Report* (TESR)

The goal of the public notification program is to ensure that the public and all stakeholders are kept informed at key points during the course of the study. These key notification points are:

- Study Commencement – Newspaper notices, Canada Post unaddressed admail, and direct correspondence to project mailing list in order to announce the study start-up (October 2021)
- Online Public Information Centre 1 and Notice of Study Design Report (SDR) – Newspaper notices, Canada Post unaddressed admail, Project website launch, and direct correspondence to project mailing list to announce PIC 1 and the 30-day SDR Review Period (December 2021- January 2022)
  - The first PIC provides an opportunity for the public to review and comment on the existing conditions, Problems and Opportunities, Alternatives to the Undertaking, Corridor Alternatives, screening of the Corridor Alternatives, Preliminary Alignment Alternatives, the proposed evaluation criteria, and the evaluation process
- Public Information Centre 2 - Newspaper notices, Canada Post unaddressed admail, and direct correspondence to project mailing list to announce PIC 2 (Fall 2022)
  - The purpose of PIC 2 is to present the results of the evaluation and the Preferred Plan, including a recommended design and mitigation measures to minimize potential impacts
- Notice of Study Completion – Newspaper notices, Canada Post unaddressed admail, and direct correspondence to project mailing list to announce the 30-day *Transportation Environmental Study Report* Public Review Period

The consultation program will continue through subsequent study stages, including detail design and construction.



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### **4.1 Government Ministry / Agency Liaison**

Each ministry/agency is contacted at the outset of the study to inform them of the study commencement and to discuss the project need, justification, goals and objectives.

The contact list includes the following agencies and will be updated as the study progresses:

#### **Provincial**

- Infrastructure Ontario
- Ministry of Northern Development, Mines, Natural Resources and Forestry, Cochrane District
- Ministry of the Environment, Conservation and Parks
- Ministry of Heritage, Sport, Tourism and Culture Industries
- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Municipal Affairs and Housing
- Ministry of Indigenous Affairs

#### **Municipal**

- Town of Cochrane – CAO, Clerk, Municipal Operations & Infrastructure, Economic Development

#### **Local Elected Representatives**

- MPP –Timiskaming-Cochrane
- Town of Cochrane - Mayor

#### **Emergency Services**

- Ontario Provincial Police – Cochrane
- Cochrane District Social Services Administration Board – Cochrane District EMS
- Town of Cochrane Protective Services – Cochrane Fire Department
- Lady Minto Hospital

#### **School Boards/ Bus Service**

- Northeastern Catholic District Services Board
- Conseil scolaire de district du Nord-Est de l'Ontario
- District School Board Ontario North East Sudbury Student Services Consortium
- North East Tri-Board Student Transportation



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### Other Stakeholders

- Ontario Trucking Association
- Ontario Federation of Agriculture
- Cochrane District Social Planning Council
- Ontario Trails
- Genier Bros Trucking Ltd.
- Kirkland Lake Gold
- Digalot
- SGS Canada Inc.
- Rockshield Engineered Wood Products
- Epiroc
- GoWest Gold Ltd.
- Northern Sun Mining
- Vallieres Logging Inc.
- Villeneuve Construction Co.
- Abitibi River Forest Management Inc,
- Eacom Timber Corporation
- The Station Restaurant
- Polar Bear Riders Snowmobile Club
- Good Time Outfitters
- Cochrane Air Services
- Cochrane Cross Country Ski Club
- Polar Bear Habitat & Heritage Village
- Canadian National Railway
- Ontario Northland Transportation
- Northeastern Ontario Tourism
- Manitoulin Group of Companies
- GP Northwoods
- 3 Nations Logging
- Greenfirst Forest Products
- InnLink Concrete Ltd.
- Ontario Power Generation
- First Nation Timber
- DeBeers Canada
- P & J Norris Trucking
- Blue Shark Transport
- Cam-Scott Transport Ltd.
- Needleworks Canada
- Gerry's Enterprises
- Allan's Home Hardware
- Carquest Auto Parts
- Angel's Mini Mart
- Cochrane Food Bank Inc.

Provincial agencies, local municipalities, and other relevant stakeholders play an important role in the study. The staff of each agency and municipality will be kept informed of all aspects of the project. **Table 4** provides an overview of the stakeholder consultation workplan for the project. Where required, meetings will be held with relevant agencies or municipalities to discuss project specific issues. Indigenous community consultation is discussed in Section 3.3.



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**Table 4: Stakeholder Consultation Work Plan**

Requirements	How Our Team Will Complete These Requirements
Notify Stakeholders, Ministries, Agencies, Municipalities, Interest Groups, Indigenous Communities, Property Owners Directly affected by the Project of Start of Study.	<ul style="list-style-type: none"> <li>• Contact relevant ministries, agencies, etc., and confirm proper contact people and current mailing addresses</li> <li>• Identify any stakeholder groups unique to this project</li> <li>• Send initial contact letter to ministries/agencies, municipalities, and interest groups, provide comment form and location plan</li> <li>• Contact Indigenous communities in accordance with MTO protocol and Duty to Consult</li> <li>• Provide responses to all letters, comments, and inquiries</li> <li>• Project Team to initiate discussion with property owners potentially affected by the project</li> </ul>
Notify Ministry of the Environment, Conservation and Parks	<ul style="list-style-type: none"> <li>• Confirm current MECP contact(s) and relevant office(s)</li> <li>• Send initial letter of notification describing project following “Group A” EA process and respond to letters and issues</li> </ul>
Contact Municipalities	<ul style="list-style-type: none"> <li>• Confirm current contacts and relevant office(s) for the Town of Cochrane</li> <li>• Send initial letter of notification describing current assignment, seeking input</li> <li>• Take input into consideration during development of the Preliminary Design Alternatives and selection of the Preferred Plan and involve throughout the project, as necessary</li> <li>• Provide responses to all letters, comments, and inquiries</li> </ul>
Involve Indigenous Communities, Ministries/Agencies, Municipalities	<ul style="list-style-type: none"> <li>• Initiate notification through correspondence (as described above) directly from MTO</li> <li>• Confirm concerns and input and any permits or approvals required either during Detail Design or the construction phase</li> <li>• Meet with stakeholders as necessary</li> <li>• Respond to all correspondence, comments and inquiries</li> </ul>
Contact MTO District Staff	<ul style="list-style-type: none"> <li>• Consult at start-up meeting and notify of start of project and take input into consideration</li> <li>• Record input in study documentation</li> </ul>



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Requirements	How Our Team Will Complete These Requirements
Document Consultation in TESR	<ul style="list-style-type: none"><li>• The TRACER document will ensure that every issue is resolved and included in final study documentation (TESR) to confirm accountability in the EA process</li><li>• Send TESR Public Review notification letters and notice to all external agencies, stakeholders, property owners and the public and respond to external agencies/public comments received during the public review period</li></ul>

## 4.2 Public Consultation

The public plays a key role in the study. Public input is received at each of the Public Information Centres as well as continuously during the study. As the project progresses, contact will be made with a number of groups and organizations who have interest in the study. The range of public organizations with an interest in the project can include communities, interest groups including snowmobile and outdoor recreation clubs, local associations (e.g., for trucking, etc.) and tourist attractions. As discussed above, the public will be notified of opportunities for public input through:

- Notices in newspapers – each notice will be placed in papers relevant to the study area
- Direct mailings to the project mailing list and property owners (where possible)
- Canada Post Unaddressed Ad Mailings (to all mailing addresses in the Town of Cochrane)
- The project website ([www.highway652extension.ca](http://www.highway652extension.ca))
- People interested in the project are requested to express their interest to be added to the project mailing list by contacting a member of the project team.

Additional meetings and discussions will be held with the general public and property owners during the study, as required.

### 4.2.1 Public Information Centres

The PICs form part of the overall consultation plan for the project and are designed to involve stakeholders early and throughout the study to identify concerns and provide opportunities for input. Two Public Information Centres are planned as part of this project.



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The purpose of PIC 1 is to present and seek input on the objectives of the study, the Study Design Report, existing conditions, Alternatives to the Undertaking, Corridor Alternatives and screening of the Corridor Alternatives, preliminary alignment alternatives, and the evaluation process and criteria.

The purpose of PIC 2 is to seek input on the evaluation of alternatives, proposed mitigation and protection measures and obtain feedback on the Preferred Plan.

In light of the COVID-19 pandemic and associated physical distancing requirements, PIC 1 will be organized in an online format. The first PIC will include a pre-recorded presentation available on the project website for review. The format of PIC 2 will be confirmed with the MTO as the study progresses. Reference materials, including drawings and background reports will be made available on the project website. Hardcopies of the presentation will be provided as requested. Comment forms will be provided on the project website, and attendees will be encouraged to submit them online, or by mail, or e-mail. Contact information for the Project Team will be provided on the project website.

### **4.2.2 Agency Meetings**

Agency and stakeholder meetings will be held throughout the duration of the project. Due to the COVID-19 pandemic and associated physical distancing requirements, the agency meetings will be organized in an online format.

The agency meetings will be interactive and are intended to encourage involvement from the agencies. The goal of these meetings is to:

1. Provide project information and updates to agencies
2. Gather information from agencies
3. Identify permitting and regulatory requirements of agencies
4. Provide opportunities for agencies to ask questions about the project

### **4.2.3 Municipal Meetings**

The project team will provide Council presentations to the Town of Cochrane in advance of each PIC for the project. Due to the COVID-19 pandemic and associated physical distancing requirements, it is assumed that the Council presentations will be organized in an online format. The format of meetings will continually be re-assessed due to the changing COVID-19 pandemic requirements.





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### 4.3 Indigenous Engagement

Indigenous engagement will be coordinated with the Public and Agency engagement plan to the extent possible and with a similar timeline. Engagement will seek to coincide with key milestones such as study notifications and PICs. Indigenous consultation will be carried out to ensure that each community has an opportunity to review project information and share information knowledge with respect to the study area.

Individual letters will be prepared to accompany the Notice of Study Commencement, Notice of PIC 1 and the SDR Review Period, Notice of PIC 2, and the Notice of TESR Public Review.

Indigenous communities will be engaged through letter notifications and invitations, email correspondence, telephone conversations, meetings (as required), and will be invited to participate in project planning throughout the study. Throughout the study we will implement strategies to meet the Crown's Duty to Consult to ensure community engagement and participation.

#### 4.3.1 Indigenous Communities and Organizations

Taykwa Tagamou Nation, Flying Post First Nation, and Wahgoshig First Nation are the three First Nations closest to the study area. The Matachewan First Nation, Moose Cree First Nation, and the Fort Albany First Nation are also located within the District of Cochrane. Taykwa Tagamou Nation is represented by the Mushkegowuk Council and Flying Post First Nation is a member of the Wabun Tribal Council. In addition, the Métis Nation of Ontario will also be consulted as part of this project. These Indigenous communities will be consulted throughout the duration of the project.

## 5.0 Study Process

This Highway 652 extension to Highway 11 Planning, Preliminary Design and Class Environmental Assessment study is being carried out under the requirements of the *Class Environmental Assessment (EA) for Provincial Transportation Facilities (2000)*, which has been approved under the Ontario *Environmental Assessment Act* for provincial transportation projects of a defined scope and magnitude.

This study falls within the scope of a Group "A" project, which includes by-passes to existing provincial highway and freeways.

Other aspects of the Class EA process and environmental documentation required by the process are contained in the Class EA document. A copy of the Class EA for



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Provincial Transportation Facilities is available on the project website ([www.highway652extension.ca](http://www.highway652extension.ca)).

The study process is illustrated in **Exhibit 10**. This study includes all aspects of the Planning and Preliminary Design stages of the study process.



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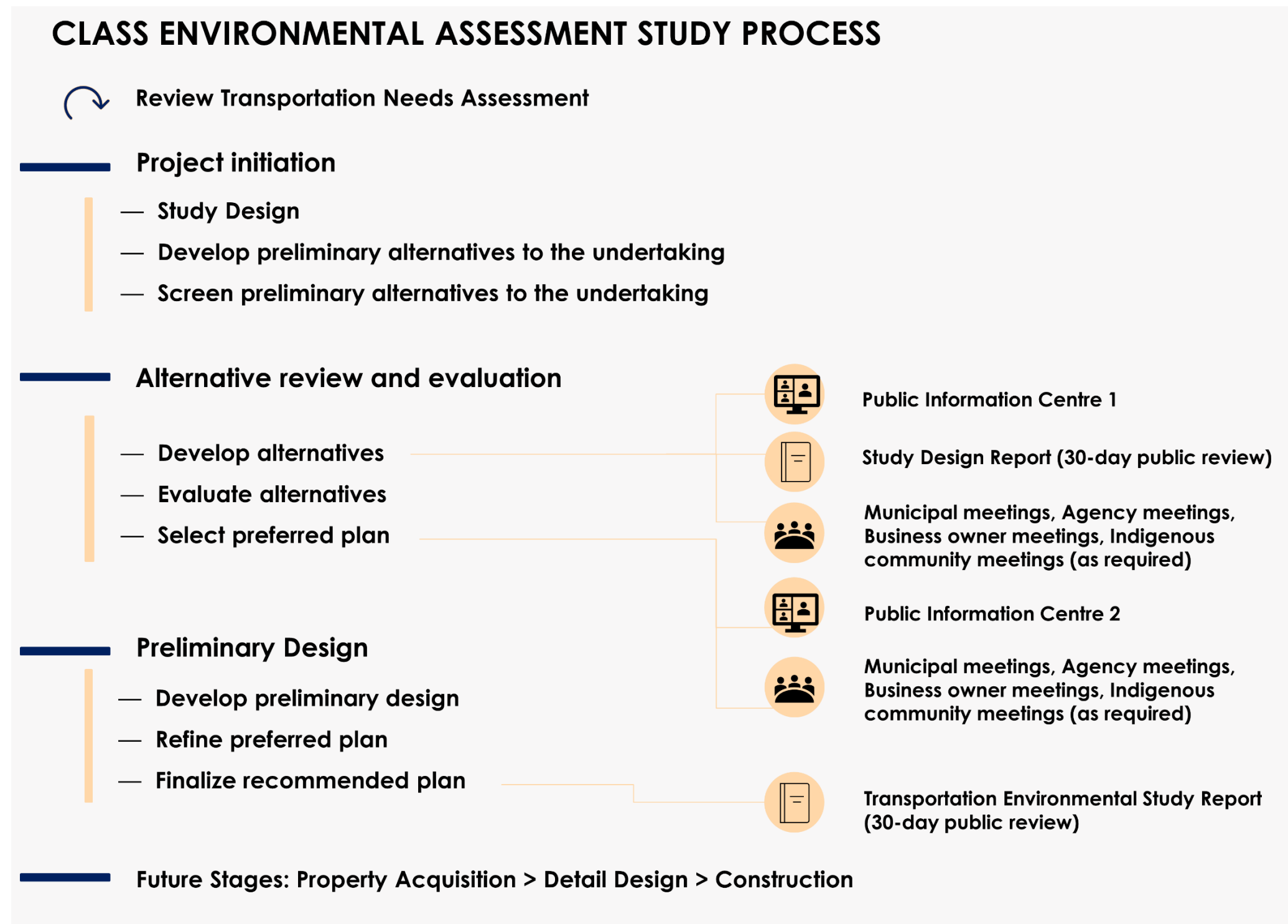


Exhibit 10: Overview of Class EA Process



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# 5.1 Environmental Assessment Approval Regulations

The work on a planning study of this type must be carried out in accordance with the applicable environmental legislation and the current government policies and procedures. These are described below.

## 5.1.1 Ontario Environmental Assessment Act

The *Ontario Environmental Assessment Act* (EAA, 1990) governs the conduct of planning studies in the province.

The purpose of the *Environmental Assessment Act* (EAA) is to protect, conserve and wisely manage Ontario's environment. It sets out a planning and decision-making process to ensure the environmental effects of a project are evaluated and documented prior to decisions being made about proceeding to construction. The EAA promotes responsible environmental decision-making and ensures that interested persons have an opportunity to comment on a project that may affect them. In the EAA, environment is broadly defined and includes the natural, social, cultural and economic environment.

The EAA requires an environmental assessment of any major public sector undertaking that has the potential for significant environmental effects, including public roads, transit, wastewater and stormwater installations.

## 5.1.2 Impact Assessment Act

The Canadian *Impact Assessment Act* (IAA 2019) and its regulations establish the legislative basis for the federal impact assessment process. Under IAA 2019, an environmental assessment is only required for projects included in the list of designated projects or Physical Activities regulations. These types of projects are likely to have significant adverse environmental effects and therefore may be subject to a federal EA.

A proponent is not required to complete the federal EA process if a project is not on this list. This project does not fall under the list of designated projects.

## 5.1.3 Project Specific Environmental Assessment Process

For additional information, the following documents are available to assist with understanding the process:

- *Class Environmental Assessment Provincial Transportation Facilities*, MTO, July 2000
- *Environmental Reference for Highway Design*, MTO 2006, updated in June 2013



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- *Code of Practice for Preparing, Reviewing, and using Class Environmental Assessment in Ontario*, MOE, January 2014

These publications are available from the MTO Research Library Online Catalogue ([library.mto.gov.on.ca](http://library.mto.gov.on.ca)) and from Publications Ontario ([publications.serviceontario.ca](http://publications.serviceontario.ca)).

### 5.1.4 Environmental and Engineering Principles and Protection

This study will follow the environmental and engineering principles outlined in the *Class EA* document, including but not limited to:

#### **Transportation engineering principles:**

- Providing for the efficient movements of people and goods
- Addressing the identified transportation problems and opportunities
- Maximizing the opportunity to satisfy existing and future provincial travel demand
- Reflecting sound engineering judgement
- Ensuring compatibility and consistency with existing and future transportation system users
- Ensuring technical feasibility
- Minimizing environmental impacts and the use of non-renewable natural resources
- Minimizing property requirements and impacts to adjacent properties
- Minimizing net energy usage
- Avoiding directing large volumes of long-distance provincial traffic through settlement areas
- Maximizing opportunities to make facilities safer
- Providing the maximum benefit for the lowest cost

#### **Environmental protection principles:**

- Avoiding or minimizing environmental impacts through consideration of alternatives
- Identifying existing conditions and potential impacts relevant to the study



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- Meeting the statutory duties of federal and provincial environmental legislation
- Addressing the MTO Statement of Environmental Values
- Balancing environmental protection considerations with transportation engineering considerations
- Recognizing that there may be environmental impacts from environmental mitigation measures
- Monitoring the implementation of protection and mitigation measures during construction
- Providing mitigation efforts in proportion to environmental significance and ability to reasonably mitigate

### **Evaluation principles:**

- Providing an evaluation process that is traceable, replicable, and understandable; providing both subjective and objective processes
- Giving due consideration to all relevant factors
- Carrying out a subjective or objective evaluation
- Establishing an evaluation process through consultation with external stakeholders (for Group A projects)
- Refining factors from one stage to the next

### **Consultation principles:**

- Notifying relevant stakeholders, property owners, and agencies of the intention at the beginning of the study
- Placing an emphasis on consulting with stakeholders most directly affected
- Providing timely and user-friendly opportunities for input
- Using the consultation process to assist in the identification of data requirements
- Constructively addressing input received during the consultation process
- Showing how consultation received in earlier stages of a study affected a project
- Allowing for variance in the amount, extent and timing of consultation depending on the complexity of a project, nature of the issues, and identified concerns



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- Selecting appropriate methods of notification
- Making reasonable efforts to resolve concerns

Environmental Protection requirements for Class EA projects are summarized in the *Environmental Protection Requirements for Transportation Planning and Highway Design, Construction, Operation and Maintenance* (2014). This document contains a compilation of environmental protection requirements to clarify the requirements of environmental statutes, regulations, and government policies that apply to transportation projects.

### 5.1.5 Other Approval Requirements

Undertaking an Environmental Assessment also requires consideration of other approvals and review agencies. They include:

#### 5.1.5.1 Federal Review Agencies

- Department of Fisheries and Oceans (DFO) – *MTO/DFO/OMNRF Fisheries Protocol, Fisheries Act (FAA)*
- Environment and Climate Change Canada – *Migratory Birds Convention Act*

#### 5.1.5.2 Provincial Review/Policy Requirements

- *Provincial Policy Statement (2014)*
- Ministry of the Environment, Conservation and Parks– *Environmental Assessment Act, Environmental Protection Act, Ontario Noise Protocol, Endangered Species Act (ESA), Provincial Parks and Conservation Reserves Act*
- Ontario Access and Privacy Office – *Freedom of Information and Protection of Privacy Act*
- Ministry of Northern Development, Mines, Natural Resources and Forestry – *MTO/DFO/OMNRF Fisheries Protocol, Ontario Wetlands Policy*
- Ministry of Heritage, Sport, Tourism, and Culture Industries – *Ontario Archaeological Protocol, Ontario Heritage Act*

#### 5.1.5.3 Municipal Policy\*

- Official and Secondary Plans
- Zoning Bylaws
- Transportation Planning Policy





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*\*MTO is not required to obtain approvals or exemptions for Municipal Official Plans, zoning exemptions, or policy. However, municipal policies and plans are considered during the study, including during the evaluation of alternatives.*

### 5.1.6 Acceptance of Study Process and Recommendations

Throughout the study, input will be solicited from the public through meetings, webinars, telephone conversations, the project website, and two PICs. Interested agencies and stakeholders will be contacted throughout the project and will be informed of project progress at key milestones and in advance of the Public Information Centres. External agencies and stakeholders to be contacted include local municipal staff and council, government bodies (e.g., Ministry of Environment, Conservation and Parks (MECP), Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNR)). Local and relevant stakeholders have been identified and notified as part of the Notice of Study Commencement and as part of PIC 1.

The project team will conduct the study in a manner that addresses and resolves specific issues and concerns as they arise. During the study, the decision-making process will be clearly documented to provide a traceable process and one that is easily understood by the public, agencies and stakeholders involved in the study.

## 5.2 Proposed Evaluation Process

In accordance with the *Class EA and Environmental Assessment Act*, the evaluation process will consider a range of engineering and environmental (natural, social, economic and cultural) factors in the study area.

The assessment of potential effects will include consideration of:

- Potential impacts
- Opportunity to mitigate the impact
- Net environmental impacts following incorporation of mitigation measures
- An evaluation of the advantages and disadvantages associated with each alternative

Each stage of the evaluation process will be based on the results of the previous stage and assess the alternatives in greater detail. It is important that the evaluation criteria capture the key issues.

The evaluation process will be developed to provide an objective approach to the analysis and evaluation of each alternative.



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The goal of the evaluation process is to identify a Recommended Plan that is cost-effective, provides safe operations and reasonable local access, while minimizing effects on the environment.

The evaluation process is based on the following *Class EA* guiding principles:

- The evaluation process must be traceable, replicable, and must be understandable by those who may be affected by the decisions
- All relevant factors, including transportation engineering and environmental protection, will be given due consideration
- The evaluation may be subjective (based on reasoned argument) or objective (using quantifiable data)
- The proposed evaluation process will be refined through consultation with external stakeholders
- Evaluation factors may be refined from one stage of a project to the next

The evaluation process will increase in detail as the study progresses. During the study, several alternatives will be identified; of which some will be screened out because they do not satisfy either the engineering or environmental goals of the evaluation process. Any alternatives that are screened out will be documented, and the reasons for not considering the alternative further will be included in the final *Transportation Environmental Study Report*.

### 5.2.1 Evaluation Criteria

The evaluation process is based on evaluation factors relevant to the study. Evaluation criteria will be developed that address the key environmental and engineering issues related to the decision-making process of selecting a Preferred Plan. Evaluation criteria are grouped under three main categories, Engineering, Natural Environment and Community.

The evaluation criteria are independent variables, each of which may contribute a positive or negative influence on the overall suitability of a given alternative. Although it is important to explicitly consider suitability in terms of each criterion, it is useful to establish an overall composite technical measure. This is accomplished by determining appropriate weighting (relative importance) among the criteria. Each evaluation criterion is assigned a weight that represents its relative importance to the other criteria.

In order to identify the effects on various evaluation criteria, indicators will be developed for each factor. Indicators are ways of identifying, describing, and measuring impacts, cost and performance for each factor. During the study the indicator for a factor may



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change based on the level of detail of information that is available and relevance to the part of the study area being considered.

### 5.3 Proposed Study Process

The *Class EA* process is a comprehensive planning process that involves identifying and evaluating project alternatives, identifying associated environmental impacts and developing a plan for a solution that minimizes impacts, while addressing the identified transportation *problem*.

This study includes three distinct but inter-related steps that will coincide with opportunities for public, stakeholder, and external agency input as discussed in the following sections.

#### 5.3.1 Project Initiation

The submission of this report marks the end of the project initiation stage. This stage of the study has included providing notice of the Study Commencement to the public, local municipalities, stakeholders, property owners, and external agencies; reviewing input received; initiating a review of background information available for the study area; reviewing and documenting the existing conditions; identifying and documenting deficiencies, operational problems, and safety issues; and reviewing and selecting the most suitable Alternative to the Undertaking, and developing the Alternative Methods of Carrying out the Undertaking. This stage also included presenting and receiving input on the above-mentioned materials to the public, agencies and stakeholders at the first Public Information Centre (PIC).

Following the evaluation of the Alternatives to the Undertaking and screening of Corridor Alternatives, a set of Preliminary Design Alternatives (alignment alternatives) was developed and presented at the first PIC. A set of evaluation criteria has been developed and will be presented at the first PIC for public and agency input. Following the first PIC, alternatives may be modified based on engineering or environmental requirements or information obtained during the first round of public and agency meetings.

#### 5.3.2 Alternatives Review and Evaluation

During this stage, the project team will identify existing natural, social, cultural and transportation conditions in the study area, and develop a range of Preliminary Design Alternatives including alignment alternatives.

Preliminary Design Alternatives will be generated based on the *Principle for Generating Alternatives* in the *Class EA for Provincial Transportation Facilities* (2000) including



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transportation engineering principles and environmental protection principles. Transportation engineering and environmental protection factors are both considered in generating preliminary design alternatives.

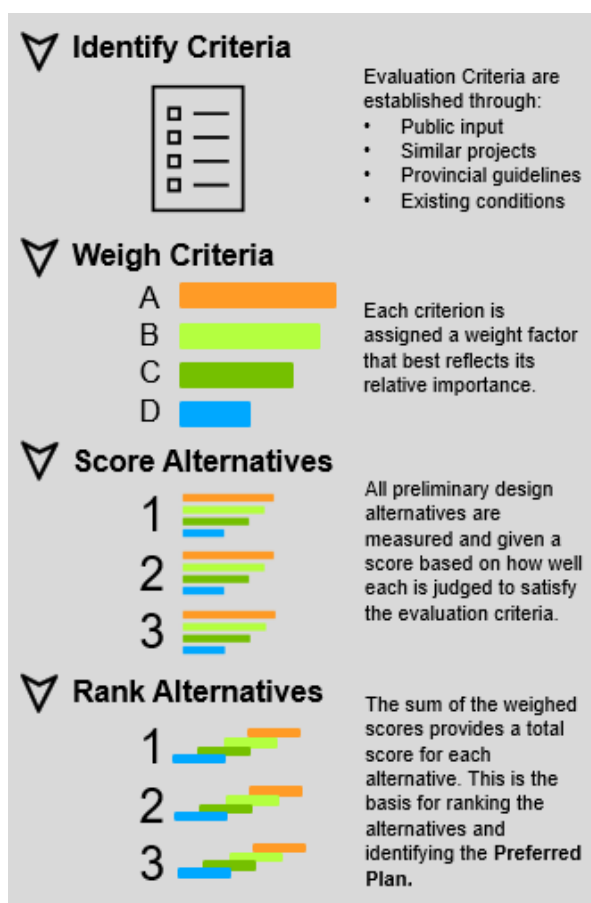
In accordance with the requirements of the *Endangered Species Act*, impacts to Species-at-Risk and their habitat will also be avoided during the development or Preliminary Design Alternatives.

### 5.3.2.1 Detailed Evaluation of Alternatives

Alternatives will be evaluated using a comparative analysis based on the evaluation criteria and consideration of the advantages and disadvantages of each alternative. The alternatives are given a score based on how well each alternative is judged to satisfy the evaluation criteria.

The individual scores are determined by completing a pairwise comparison of each alternative for each of the evaluation criteria. The individual scores are multiplied by the weight (relative importance) for each evaluation criterion to produce a weighted score for each evaluation criterion and each alternative. The sum of the weighted scores provides a total score or rating for each alternative. The results of the evaluation process are used to rank the alternatives with the highest weighted score representing the highest ranked alternative. This process results in identifying the “best” improvement plan. It also identifies the advantages (high scores) and disadvantages (low scores) of each alternative.

The evaluation of alternatives is an iterative process that includes consideration of input from the public, agencies, and stakeholder groups to help identify which project specific issues or impacts are important. A graphic providing an overview of the evaluation process is provided in **Exhibit 11**.



**Exhibit 11: Evaluation Process**



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### 5.3.2.2 Select Preferred Plan

The concluding step in the analysis and evaluation process is the selection of a Preferred Plan. This process will include:

- Considering public/stakeholder response to the evaluation process
- Reviewing the results of the analysis and evaluation based on specialist work and input received during the study
- Determining which criteria have the most influence on the outcome of the evaluation process
- Considering the sensitivity of the weightings (i.e., testing other weightings to determine if the results change substantially)
- Confirming the ranking of alternatives

The Preferred Plan will be selected based on the results of the evaluation and comments from the first PIC, and will be presented to the public, stakeholder and external agencies at the second PIC.

### 5.3.3 Preliminary Design Documentation

The study will be documented in a *Transportation Environmental Study Report* (TESR) that outlines the route planning and preliminary design process. The TERS will be made available for a 30-day public review period.

### 5.3.4 Next Steps – EA Clearance

If no concerns or issues are outstanding by the end of the 30-day review period, the project is considered to have met the requirements of the Class EA, and MTO may proceed to Detail Design, subject to the commitments documented in the TERS, and obtain any outstanding environmental approvals.

*Environmental Clearance – Right-of-Way Designation, Utility Relocation, and Property Expropriation* obtained at the conclusion of the planning and preliminary design stage of the study will permit the Ministry to:

- Designate the facility under the *Public Transportation and Highway Improvement Act* (1990)
- Acquire property consistent with the project needs or initiate proceedings under the *Expropriations Act* (1990) (note: the Ministry has indicated that initially property will be acquired on a willing seller/willing buyer basis or under circumstances where the



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future highway designation on a property prevents the current owner from using the property)

- Initiate subsequent study stages (i.e., Detail Design and contract preparation) when warranted

The TESR will include commitments for future consultation with agencies, relevant stakeholders, property owners, and the public during Detail Design and construction.

*Environmental Clearance – Construction Start* is provided at the completion of the Detail Design stage to permit the Ministry to begin to physically alter ground, water, or vegetation.

If there are no significant concerns following the Public Review Period, the project will be eligible for Environmental Clearance. This will permit the MTO to:

- Negotiate temporary and permanent property acquisition, consistent with the project needs (including ROW designation)
- Relocate utilities
- Initiate subsequent study stages (i.e., Detail Design and contract preparation) for the Recommended Plan

Although the timeline for implementing the results of this study is not confirmed, this planning will assist the Ministry, municipalities, business owners, and private landowners with future planning and development within the study area. The implementation of the identified improvements is dependent on regional and provincial priorities and available funding.

## 6.0 Environmental and Engineering Studies

Existing environmental and engineering conditions in the Highway 652 to Highway 11 study area have been documented in the *Transportation Needs Assessment and By-Pass Feasibility Study Report (2016)*. The studies provided inventories of the natural environment from reviews of previous studies, field inventories, and information provided from external agencies and the public.

Although information in the aforementioned reports will be considered, it cannot be assumed that the natural, social, cultural or economic conditions in the study area have remained the same since that time. The strategy for identifying environmental impacts will begin with confirming the significant elements of the transportation network, and the natural, social, economic, and cultural environments in the study area.



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Information on the existing natural, social, economic environments will be obtained from published sources, through site investigations, and contact with the public and external agencies.

MTO has developed guidance documents to make sure that MTO projects are in compliance with federal and provincial environmental legislation and government policy. The Ministry's *Environmental Standards and Practices* documents provide for a consistent and systematic approach to environmental management.

Environmental work for this study will be carried out in accordance with the requirements of the *MTO Environmental Protection Requirements for Transportation and Highway Design, Construction, Operation and Maintenance* (2014), the *Environmental Reference for Highway Design* (ERD, 2013), and the requirements in the *Class EA for Provincial Transportation Facilities* (2000). These documents are available for review on MTO's website: <http://www.mto.gov.on.ca/english/highway-bridges/environmental-standards-practices.shtml>. A link to the Class EA document is available on the project website: ([www.highway652extension.ca](http://www.highway652extension.ca)). This project will include the factor-specific environmental components or elements identified in **Table 5**.

**Table 5: Factor-Specific Environmental Elements**

Natural Environment	Socio-Economic Environment	Cultural Environment	Engineering Environment
<ul style="list-style-type: none"> <li>• Fish and Fish Habitat</li> <li>• Wildlife</li> <li>• Vegetation</li> <li>• Wetlands</li> <li>• Groundwater</li> <li>• Surface Water</li> <li>• Soil</li> <li>• Species-at-Risk</li> </ul>	<ul style="list-style-type: none"> <li>• Aesthetics</li> <li>• Highway and Construction Noise</li> <li>• Community/ Recreation</li> <li>• Air Quality and Greenhouse Gases</li> <li>• Private Property</li> <li>• Land Use</li> <li>• Agriculture</li> <li>• Commercial/ Industrial</li> <li>• Tourism</li> <li>• Contaminated Properties</li> <li>• Businesses</li> </ul>	<ul style="list-style-type: none"> <li>• Archaeological resources and areas of archaeological potential</li> <li>• Built Heritage Resources</li> <li>• Cultural Heritage Landscapes</li> </ul>	<ul style="list-style-type: none"> <li>• Stormwater management</li> <li>• Erosion and Sediment Control</li> <li>• Management of Excess Materials</li> <li>• Aggregates and Mines</li> <li>• Highway Geometrics and Design</li> <li>• Bridge Engineering</li> <li>• Foundation and Geotechnical Engineering</li> <li>• Traffic Study</li> <li>• Utilities</li> </ul>



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### 6.1 Approach to Specialist Work

The level of detail of environmental and engineering work for the study will change depending on the study phase, to identify and deal with environmental conditions and constraints at an appropriate level of detail.

During the initial stages of the study, the scope of work will focus on identifying significant constraints to aid in confirming a range of alternatives and confirming which alternatives can be considered for further evaluation. Environmental work will then focus on field investigations for feasible alignment alternatives, and specific features will be focused on to determine if they affect the viability of an alternative. An assessment of potential impacts will be undertaken for the preferred plan, and possible mitigation or avoidance measures will be developed and confirmed with agencies and stakeholders.

Mitigation for environmental impacts will be identified and addressed at a preliminary design level of detail. Environmental impacts and proposed mitigation measures will be documented for public review in a *Transportation Environmental Study Report* at the end of the study. The TESR will also include a summary of commitments to future work to be carried out during detail design. This is appropriate as some types of impacts cannot be confirmed at a preliminary design level of detail. Final approvals required from external agencies will be listed in the report.

The following sections describe the scope and work plans for confirming and identifying environmental conditions and constraints in the study area for the factor-specific areas: natural sciences (including vegetation, terrestrial ecosystems, wetlands, Species-at-Risk, and fish and fish habitat), groundwater, noise, land use and socio-economics, contamination, archaeology, built heritage and cultural heritage landscapes, air quality and greenhouse gases, and erosion and sediment control.

The development and evaluation of alternatives will focus on avoiding impacts to significant features in the study area including, but not limited to:

#### **Natural Environment**

- Areas of Species-at-Risk Habitat
- Significant wildlife habitat
- Nahma Bog Conservation Reserve
- Sourcewater Protection Areas / Water Intake Protection Zones

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

- The Town of Cochrane





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- Mineral and aggregate resources
- Recreation features, including trails, snowmobile trails, parks, waterways, docks and golf courses
- Residential areas
- Commercial developments
- Businesses
- Municipal facilities, cemeteries, etc.
- Utilities, including hydro and watermains
- Railways
- Contaminated property

### **Cultural Environment**

- Archaeological resources and areas of archaeological potential
- Built heritage features
- Aboriginal Traditional Knowledge (obtained through consultation with Indigenous communities as part of project consultation and archaeological investigations)

The locations and boundaries of the significant features will be confirmed with relevant agencies as part of the background data collected process.

#### **6.1.1 Fish and Fish Habitat**

The study area is located within the jurisdiction of the Northeast Region/Cochrane District of the NDMNRF and resides in Fisheries Management Zone 8 (FMZ8). The study area is not located within the jurisdiction of a Conservation Authority.

The preliminary development and evaluation of alignment alternatives will focus on minimizing potential fish and aquatic impacts, including implications for Species-at-Risk.

Fish and fish habitat work for this study will be carried out in accordance with the requirements of the *MTO/DFO/MNRF Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings* (Version 4, 2020) and the *Interim Environmental Guide for Fisheries* (MTO 2020).

Their work will include a detailed review of background information, including SAR distribution maps, for all alignment alternatives. Consultation will also take place with



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MNDMNRF to collect background data regarding watercourse thermal and flow regimes, fish communities, and the potential for SAR to occur in the study area. The fisheries team will use this background information to provide input to the evaluation of alternatives.

Information to be reviewed for the purposes of this study will include agency data and documentation, aerial photography, and correspondence with individuals knowledgeable with the natural resources in the study area. The background information includes, but is not limited to:

- NDMNRF databases
- *Endangered Species Act*
- Fisheries Management Plans
- Species-at-Risk in Ontario Checklist and Distribution Maps

Upon selection of a Preferred Route alternative, the fisheries team will conduct spring and summer field investigations in 2022 according to the *Environmental Guide for Fisheries*, following the *MTO/DFO/MNRF Fisheries Protocol*. A *Fish and Fish Habitat Existing Conditions and Impact Assessment Report* will then be prepared to summarize existing conditions and to provide an impact assessment of the Preferred Route.

### 6.1.2 Terrestrial Ecosystems

The terrestrial ecosystem is defined as the interaction of land, water, and biotic components functioning as an ecological unit over space and time, and includes vegetation, wetlands, wildlife, and wildlife habitat. Primary terrestrial concerns related to transportation projects include loss of habitat or habitat function, and habitat fragmentation. Stantec's team will carry out background data collection, field investigations, an impact assessment, and reporting for the project. Field data collection and inventory will follow the ERD.

The terrestrial ecosystems work will include a review of background information, including NHIC and Land Information Ontario (LIO) data, wildlife atlases and other online data sources. Background information will be compiled in GIS to allow mapping and quantitative analysis of existing conditions and constraints. Sources will include:

- *Endangered Species Act*
- Species-at-Risk in Ontario Checklist and distribution mapping
- Checklist of Vascular Plants



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- The NDMNRF Natural Heritage Information Centre (NHIC) database to confirm the presence or absence of rare floral or faunal species
- Atlas of the Mammals of Ontario
- Ontario Breeding Bird Atlas
- Ontario Herpetofaunal Atlas
- Fisheries Management Plans

The background research conducted for terrestrial ecosystems will include:

- Reviewing relevant background documents
- Obtaining existing information from and coordinating with NDMNRF and the Town of Cochrane
- Incorporating Indigenous/Aboriginal Traditional Ecological Knowledge, if available
- Providing terrestrial input to development and evaluation of Alignment alternatives based on existing data and information, and assess potential impacts and mitigation
- Completing an impact assessment for the Preferred Plan and preliminary mitigation recommendations for the preferred plan
- Identifying any areas for the Preferred Plan that have the potential to support Species-at-Risk birds, turtles, and bats. Specific timing of any additional field surveys will be determined through correspondence with the NDMNRF Species-at-Risk biologist
- Preparing and submitting an Information Gathering Form if Species-at-Risk are identified by the NDMNRF or during field data collection to determine authorization requirements under the *Endangered Species Act*

Terrestrial vegetation units in the study area will be characterized according to the NDMNRF's Ecological Land Classification (ELC) system. Terrestrial ecology field studies will identify impacts to vegetation, loss of habitat function for local vegetation and wildlife, and conflicts with existing management practices for the Preferred Plan. The terrestrial ecology inventory will also identify any vegetation or wildlife species that may be protected under the provincial *Endangered Species Act* and the federal *Species at Risk Act*. Terrestrial ecosystems (vegetation, wetland, and wildlife resources) will be evaluated in sufficient detail to support analysis and evaluation of the route alternatives and selection of the Preferred Route alternative.



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Botanical inventories, breeding bird surveys, wildlife habitat assessments and Species-at-Risk habitat assessments will be conducted for the Preferred Plan, and field staff will identify and describe any areas that have the potential to support Species-at-Risk.

Field investigations will be conducted for the Preferred Route, which will include Ecological Land Classification, a breeding bird survey, Wildlife Habitat Assessment, identification of potential habitat for SAR, and recording of incidental SAR observations. Field staff will identify and describe any areas that have the potential to support SAR birds, turtles and bats. Potential caribou habitat in the study area will also be identified. Field staff will consult with MNDMNRF and use the following guidance documents to identify Caribou Habitat: *The Integrated Range Assessment for Woodland Caribou and their Habitat – Kesagami Range* (2010), *Ontario’s Woodland Caribou Conservation Plan*, and the *General Habitat Description for the Forest-dwelling Woodland Caribou*.

The study area is located within the Abitibi River Forest Management Unit and Lake Abitibi Ecoregion. Ecoregion 3E falls within Rowe’s (1972) Boreal Forest Region. The vegetation communities within the study area are therefore typical of the Lake Abitibi Ecoregion and include boreal, with black spruce, white spruce, balsam fir, jack pine, tamarack, white birch, trembling aspen, and balsam poplar.

Wildlife habitat assessments will be conducted along the Preferred Plan. All evidence of wildlife (birds, mammals, herpetofauna) will be recorded and associated with specific vegetation areas (ELC units). Species detection will be primarily visual or auditory and incidental in nature. Special attention will be given to recognizing habitat conditions which may be suitable for supporting significant faunal species.

In addition to documenting wildlife species occurrences, field inventories, will also document significant wildlife habitat. Significant wildlife habitat is defined, by the MNR’s (now NDMNRF) *Significant Wildlife Habitat Technical Guide* (2000), as habitat that is “ecologically important in terms of features, functions, representation or amount and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System” and is protected under the *Provincial Policy Statement* (2020).

For the purposes of this study, significant wildlife habitat includes habitats that fall within any of the following four categories:

- Seasonal concentration areas
- Rare vegetation communities and specialized habitats for wildlife
- Habitats for species of conservation concern, excluding the habitats of endangered and threatened species
- Animal movement corridors



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Significant wildlife habitat will be evaluated using information gathered from field surveys as well as secondary data available from the MNDMNRF and other sources.

The identification of terrestrial and wildlife resource constraints in the study area is intended to assist in the analysis and evaluation of alternatives and the selection of a Preferred Plan. The information will also be used in the development of appropriate mitigation measures for minimizing impacts to regulated areas, habitats for significant vegetation, wildlife, sensitive vegetation communities, etc.

The study area will be checked for the presence of nesting migratory or protected birds, in accordance with the *Migratory Birds Convention Act* (1994). Where the nests of migratory or protected birds are identified, mitigative measures will be recommended to avoid interaction with migratory birds during construction.

A *Natural Sciences Existing Conditions and Impact Assessment Report* summarizing existing conditions and providing an impact assessment of the Preferred Route alternative will be prepared.

### 6.1.3 Groundwater

The groundwater component of this study will meet the requirements of the *Provincial Policy Statement* (2020) and Section 3.3 of the *Environmental Reference for Highway Design* (2013). The study will identify local groundwater recharge and discharge areas, sensitive ecosystems that may be affected by changes to groundwater levels, and potentially impacted private supply wells. The objective of the study will be to identify groundwater resources within the study area and to determine potential implications of alternative construction methods for the alternatives for consideration during the evaluation of alternatives and to identify future work requirements.

The Groundwater Overview includes a broad level background review of secondary source data available for the study area including regional groundwater studies and mapping, Ministry of the Environment, Conservation and Parks water well records, source water protection reports, and historical project reports.

The background review and potential mitigation measures will be documented in a Groundwater Technical Report and will identify:

- Groundwater recharge and discharge areas
- Geological and hydrogeological conditions
- Sensitive ecosystems that may be affected by changes to groundwater levels
- Aquifer sensitivity



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- Large volume and private wells (in the vicinity of the Preferred Alignment)
- Groundwater source and municipal wellhead protection areas
- Groundwater dependent commercial enterprises

The need for and potential extent of a private well monitoring program prior to construction will also be determined. A *Groundwater Technical Report* will be prepared to document the findings of the review and to provide recommendations for Detail Design.

### 6.1.4 Noise

The acoustics investigation will include an assessment of the design alternatives based on noise impact as per the following: 1) number of residences or areas affected by noise from the baseline “do nothing” condition; and 2) the anticipated noise mitigation (barriers) expected to address noise from the baseline “do nothing” condition. Each design alternative will be ranked based on these two criteria from least to most impacted.

A detailed noise and vibration review of the Preferred Route alternative will be conducted by determining Noise Sensitive Areas (NSAs) where noise impacts as a result of the project may be of concern. A prediction model to determine noise levels from road traffic on NSAs using FHWA Traffic Noise Model 2.5 will be completed. The predicted noise levels at NSAs will be compared to applicable criteria to determine the potential impact and significance at each. A vibration assessment will be undertaken by reviewing the study area to determine any potential areas in which vibration from the Preferred Route alternative may be a concern. Traffic information will also be reviewed, and vibration estimates at critical receptors will be completed. Stantec will compare predicted vibration levels at NSAs to applicable guidelines to determine the potential impact and significance at each.

If the acoustic impact exceeds the permissible limit at the receptors, potential noise mitigation measures will be reviewed, and the technical, economic, and administrative feasibility will be considered and documented. A *Noise Technical Report* documenting the findings and recommendations of the Acoustics and Vibration Investigation will be prepared.

### 6.1.5 Contamination Overview Study

A Contamination Overview study will be carried out for the study area to identify and document actual and potential environmental contamination (i.e., soil and water) concerns associated with the study area. Work for this component of the study will be carried out in accordance with the *Environmental Reference for Highway Design* (2013), MTO Environmental Guide for Contaminated Property Identification and Management,



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MTO Environmental Standards and Practices, and Ontario Regulation (O.Reg.) 406/19, made under the Environmental Protection Act, 2019, as amended.

A modified Phase I Environmental Site Assessment will be undertaken, including a review of publicly available historical records pertaining to potential environmental concerns, as well as reviewing historic aerial photography and an ERIS search of the study area. This information will be considered during the development and evaluation of Alignment alternatives. The study will deviate from a Phase I Environmental Site Assessment, in that it will not include building assessments, individual walk-throughs of any particular property or a windshield survey of the proposed routes, fire insurance plans will not be ordered, and city directories will not be assessed.

A *Contaminated Property Identification Technical Report* will be prepared to identify and document the actual and potential sources of contamination within the study area. The results of the COS will be considered during the development and evaluation of alternatives.

Future work identified as a result of the study will be documented in the TESR.

### 6.1.6 Archaeology and Cultural Heritage

#### 6.1.6.1 Archaeology

A Stage 1 and Stage 2 Archaeological Assessment (AA) will be completed for this project. The Stage 1 AA will include a review of relevant literature, the MHSTCI's *Ontario Archaeological Sites Database*, previous AAs completed within/adjacent to the study area, historical maps, relevant archaeological master or management plans, and a site visit. The information gathered during the Stage 1 AA will then be used to recommend further archaeological work, as applicable, in the form of a Stage 2 AA. A *Stage 1 Archaeology Technical Report* will be prepared and submitted to MHSTCI for review and inclusion in the *Ontario Public Register of Archaeological Reports*.

If a Stage 2 AA is recommended, it will only be completed for the Preferred Route alternative. The Stage 2 AA will be limited to the areas within the study area identified as retaining archaeological potential during the Stage 1 AA. The Stage 2 AA will provide an overview of archaeological resources within the study area and provide a determination of whether any of the identified resources contain cultural heritage value or interest. It is assumed that lands will not be accessible for ploughing and, as such, the Stage 2 physical survey will consist of the test pit survey method undertaken over one day of work. Surveying will follow the applicable MHSTCI standards.

The information gathered during the Stage 2 AA will be used to recommend further archaeological work, as applicable, in the form of Stage 3 mitigation or avoidance and protection strategies. A *Stage 2 Archaeology Technical Report* will be prepared and



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submitted to MHSTCI for review and inclusion in the *Ontario Public Register of Archaeological Reports*.

### 6.1.6.2 Cultural Heritage

A Cultural Heritage Resource Assessment will be completed in accordance with Section 3.7 of the ERD. Archival and secondary source material will be utilized to place the study area in provincial and regional historical context. Consultation with provincial, regional, and municipal bodies will be undertaken to identify potential heritage sites in the study area. A roadside survey will then take place to identify built heritage resources and cultural heritage landscapes (BHCHL). Based on the findings of the background search and field investigation, an evaluation of each potential BHCHL will be undertaken according to Section 5 of the *Environmental Guide for Built Heritage and Cultural Heritage Landscapes*, and in conjunction with O.Reg. 9/06. An impact assessment will be carried out on the Preferred Route alternative to identify impacts on cultural heritage resources within and adjacent to the study area. Based on the findings, recommendations will be provided to address areas where preservation or mitigation measures may be required. A *Built Heritage and Cultural Heritage Landscape Factors Technical Report* will be prepared for the study area.

The report will include:

- Historical overview of the study area
- Description of the existing conditions: a brief description of the (known and potential) cultural heritage resources within the study area, including a summary table and map depicting those resources
- Identification and assessment of potential impacts (direct and indirect)
- Description of proposed mitigation measures for any negative impacts
- Community engagement
- Description of clear commitments for future work (implementation and monitoring)

### 6.1.7 Air Quality and Greenhouse Gas

An air quality and greenhouse gas assessment will be completed for the project in accordance with the ERD and the MTO *Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects* (2020).





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The assessment will include the five tasks listed below:

1. Assessment of alignment alternatives
2. Detailed assessment of the preferred alternative (selected transportation planning and route option)
3. Assessment of need for mitigation
4. Evaluation of mitigation options, if a need for mitigation is identified
5. Reporting

Comparative pollutant emission estimates will be used in the selection of the preferred alignment. Critical and representative sensitive receptor locations within 500 m of the preferred route will be identified. The receptors will include areas of anticipated current or future development. Local air quality impacts will be assessed, specifically the likelihood, extent, and duration of exceeding provincial and national air quality standards. The incremental increase or decrease in expected GHG emissions will also be assessed. Based on this assessment, the need for and practicality of control measures will be assessed. Potential AQ impacts during construction will also be assessed and recommendations for construction mitigation measures will be provided. An *Air Quality and Greenhouse Gas Study Report* will be prepared to document the results of the AQ and GHG assessment and the associated recommendations.

The proposed methodology to conducting an air quality impact assessment relies on pollutant emission and dispersion modelling to predict the contribution of the project to ambient pollutant concentrations over a 20-year period. This contribution, added to background concentration levels, allows prediction of the cumulative impact of the proposed project and all other contributors to air pollution. The resulting concentration levels are compared to the provincial and federal ambient air quality criteria and standards to assist in the assessment and evaluation of transportation alternatives and to judge the need for any mitigation. Similarly, the methodology to assess potential GHG impacts relies on emission modelling to predict the net amount of GHGs attributable to the project over the same 20-year period.

### 6.1.8 Erosion and Sediment Control

Past reports and guidelines will be identified and followed as part of the assessment. The team will identify relevant topographic and surface water features, environmentally sensitive features, and the overall site soil types in the study area. The study area will be divided into evaluation areas using surficial geology data. Each area will be evaluated based on erosion potential and nearby environmentally sensitive features to develop an erosion potential rating and a consequence rating. An erosion and sedimentation risk rating will be assigned to each evaluated area and to the overall



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study area. Recommendations will be developed following MTO Guidelines, and procedures will be developed to be included in the *Erosion and Sediment Control Plan* for the Preferred Route alternative.

### 6.1.9 Engineering Studies

This study is led by an engineering team that is responsible for generating, developing, and evaluating project alternatives in accordance with current geometric design standards.

#### 6.1.9.1 Highway Engineering

The Highway Engineering work plan includes the coordination of specialists in the areas of bridge engineering, drainage and hydrology engineering, electrical engineering, foundations engineering, and traffic engineering. The Highway Engineering team will:

- Undertake an inventory of the existing highway system and study area including environmental features, highway geometrics, roadside safety features, property, utilities, and traffic operations
- Assess the existing conditions of the highway system to determine current highway geometrics and roadside safety
- Analyze the existing traffic volumes, level of service, and collision reports to determine the current operational deficiencies
- Collect future land use information such as Official Plans and relevant Zoning By-laws to determine the short-term and long-term land uses within the study area
- Assess the property and utility requirements for the alternatives
- Assess the environmental and business impacts associated with the alternatives
- Confirm the recommended improvements, including geometrics, lane configuration, interchange requirements, and roadside safety
- Identify the recommended improvements including structural, property and utility requirements, and environmental constraints
- Document the Recommended Plan

A brief overview of the scope of work for the supporting engineering specialties is provided below.



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### **6.1.9.2 Drainage and Hydrology Engineering**

The scope of work for the Drainage and Hydrology Engineering team includes the development of a preliminary stormwater management plan and review of watercourse hydrology for the Recommended Plan. The Drainage team will complete a culvert inspection report, a culvert design report, and a drainage and hydrology report.

### **6.1.9.3 Electrical Engineering**

The Electrical Engineering team will develop a preliminary electrical plan, which includes identifying electrical needs for traffic signals and illumination, developing a utility plan of the study area, and identifying locations of all known electrical infrastructure. Illumination requirements, at intersections and structures will be established and lighting calculations will be completed.

### **6.1.9.4 Traffic Engineering**

The traffic engineering team will complete updated traffic counts within the study area. A traffic study will be carried out to make recommendations related to traffic operations and safety (existing and future) in the study area. This study will include a review of the existing traffic operations at the intersection of Highway 11 and 3<sup>rd</sup> Avenue, based on updated traffic counts. A review of traffic volumes along the existing municipal road connection between Highway 11 and Highway 652—Railway Street/3<sup>rd</sup> Avenue—will also be conducted. The team will be able to use the data to estimate future traffic volumes on the Alignment Alternatives. Collision reports for the last five years will be reviewed and collision patterns and locations with high collision frequency will be identified. Once a preferred design alternative of the by-pass is determined, Stantec will conduct an operational analysis to identify the impacts of any traffic diversions, detours or lane closures during construction, as required.

The traffic study will include the following tasks:

- Consult with the Ministry's staff regarding maintenance, operational and safety problem areas
- Consult with the local municipal staff to identify local traffic and operational issues
- Review existing correspondence related to public complaints and concerns
- Update traffic projections based on growth and future development
- Conduct an analysis of traffic capacity and level of service
- Analyze collision records to determine collision trends and collision-prone locations
- Analyze traffic operations



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- Identify corrective alternatives for improvements to resolve geometric deficiencies, operational and safety problems and/or to provide safety and operational efficiency, particularly at collision-prone locations
- Examine roadside safety
- Assess traffic operations for alternatives considered
- Traffic management and staging plans that can minimize delay during construction

## **7.0 Next Steps**

Following the 30-day public review period of the *Study Design Report* (SDR), any comments or revisions received from the public, stakeholders or agencies will be incorporated into the SDR and the report will be finalized and made available on the project website for reference.

