



Regular Council Meeting

To:	Mayor and Council
Date:	March 1, 2021
From:	John F Connolly, Executive Director, Planning & Development & Wayne Hancock, Director of Public Works
Report Number:	Planning 2021-03
Subject:	Joint Report – Highway 7A & County Road 10 Intersection Improvements (Cavan)

Recommendation:

That Council direct Staff to inform WSP and MTO of its support for Alternative 1B (Signalized Intersection and Realign County Road 10 to the West) as outlined in the Preliminary Design and Class Environmental Assessment Study – January 27 2021.

Overview:

On February 4, 2021, Township staff met with representatives of the Ontario Ministry of Transportation (MTO) and its consultant (WSP) regarding the Class Environmental Assessment (EA) Study (the Study) and Preliminary Design for intersection improvements at Highway 7A and County Road 10 (Cavan) in the Township of Cavan Monaghan. Based on those meeting discussions and the short-list of alternatives being proposed by the consultant to carry forward for planning alternatives, Staff are recommending a preferred alternative for Council to identify to the consultant (and Province) as part of its input into the process.

Project Overview

The purpose of the Study is to identify the short- and long- term possible improvements to be made at the intersection of Highway 7A (which is a provincial highway) and County Road 10 in the Hamlet of Cavan. The current understanding is that this intersection is reaching the traffic capacity for the system of four (4) stop signs that are in place at this intersection. Improvements in the form of alternatives under consideration include: signalization; a roundabout; approach road re-alignments; added turning lanes; and/or illumination.

The Study is following the approved Class EA process, commenced in the Fall of 2020 and was most recently the subject of a Public Information Centre (PIC#1) in January of 2021. Based on comments received during PIC#1 (January 27, 2021), the consultant will review and respond to comments (public and agency input) by incorporating any refinements into the planning alternatives, completing an analysis & evaluation of those alternatives and then selecting a preferred alternative. According to the process

provided by WSP (Attachment No. 1), after input from the public and agencies, a second PIC will be held in the Spring/Summer of 2021 which will identify a preferred intersection alternative before environmental impacts and proposed mitigation measures are also identified before a final Transportation Environmental Study Report (TESR) is prepared and filed with the Province (likely in Fall of 2021).

The Study takes into consideration a number of relevant planning and technical policies and guidelines including: the Provincial Policy Statement (PPS); a Place to Grow (Growth Plan for the Greater Golden Horseshoe); the County of Peterborough Transportation Master Plan; the Township of Cavan Monaghan Official Plan; and the MTO Highway Corridor Management Manual. WSP has prepared background documentation on the existing environmental conditions which includes the natural, cultural environment, archaeology, contamination as well as Official Plan and Zoning designations (for detailed slides refer to Attachment No. 1).

As part of its analysis, WSP examined the existing and future traffic conditions at the subject intersection which identified problems to be addressed which include:

- Limited Capacity – afternoon peak traffic is approaching capacity and cannot accommodate future volumes (if left as is).
- Intersection Delays – there are noted delays for traffic heading northbound from Highway 7A & County Road 10.
- Collisions – there have been 16 collisions recorded from 2007 and 2017 whereby 75% of collisions are angle or turning related which account for 100% of injuries.
- Access – there are issues of multiple commercial accesses in close proximity to the intersection.

By identifying the above-noted problems, the analysis will identify a preferred alternative that will examine the opportunities to improve future traffic operations for the intersection and corridor, improve road alignments to support driver safety (i.e., better sightlines, reduce near misses/conflicts) and complete an overall access management review for safer operation near the intersection.

The MTO Class EA process requires that various planning alternatives be considered in order to ensure that there is a reasonable and sufficient justification to proceed with the project. These alternatives include: “do nothing”; incorporate various transportation demand management and improvements; making improvements to adjacent road systems; making improvements to the existing intersection; and/or improving provincial transportation facilities (e.g., improve provincial highway, new by-pass).

Based on a list of planning alternatives, WSP has recommended that there only be a series of intersection improvements made at the existing location. This recommendation is based on the fact that operational improvements to the intersection will sufficiently add capacity at the intersection and address the problem.

Intersection Improvement Alternatives

WSP developed a list of intersection improvement alternatives that looked at a range of options which looked at different layouts and alignments to be screened to determine which alternative is best for further consideration. Evaluation of these alternatives was

based on the criteria of technical feasibility, safety, property impacts and traffic operations.

In total, there were five (5) intersection alternatives considered by the consultant - two (2) of which are not recommended to be carried forward because they do not meet the evaluation criteria. These two (2) alternatives are: installing a signalized intersection at the existing location; and the development of a roundabout at the current intersection. Despite any possible advantages, the consultant has identified that there are too many disadvantages to these alternatives such that neither alternative is recommended to be carried forward.

As such, the remaining three (3) alternatives all focus on signaling the intersection and include a variation of realigning County Road 10. These alternatives (as numbered by WSP in the Study) with their respective pros and cons are listed below:

Alternative 1B – Signalize and Realign County Road 10 to the West

- **Pros** – perpendicular intersection, meets standards, sightline requirements, traffic operations, increases offset to commercial entrances but less than MTO minimum
- **Cons** – displaces 5 residential properties, edge impacts to at least 3 residential and 2 commercial properties and gas station

Alternative 1C – Signalize and Realign County Road 10 to the East

- **Pros** - perpendicular intersection, meets standards, sightline requirements, traffic operations
- **Cons** – displaces 2 commercial properties and gas station, edge impacts to 3 residential and 1 future development property

Alternative 1D – Signalize & Realign County Road 10

- **Pros** – meets standards, some sightline requirements and traffic operations
- **Cons** – displaces 5 residential properties and a gas station, edge impacts to 3 residential and 1 commercial property, “skewed” (versus perpendicular) intersection, does not meet right turn sightline requirements

Considerations

Cavan is designated as one of eight Hamlets in Section 4.9 of the Township of Cavan Monaghan Official Plan (OP) as identified on Schedule F (Map 5) (Attachment No. 2). As a hamlet, Cavan is a small-scale settlement area that provides important residential, commercial and social focus in the rural area. Hamlets serve a vital role as they are areas that recognize the unique and historic nature of the township, maintain the character and amenities of the rural community, direct the majority of non-farm development, provide opportunities for small-scale commercial, industrial & tourism related uses and ensure new development are sustainable on the basis of private services.

In particular, this intersection under consideration is the convergence of two (2) increasingly busy transportation corridors (Highway 7A, County Road 10) which not only defines the core of the Cavan Hamlet, serves as a major thoroughfare for local and commuting traffic but also accommodates the only commercial properties of the hamlet. As such, any proposed solution to improving this intersection not only has to consider the environmentally sensitive areas and cultural heritage resources within the hamlet but also recognize the impact of any realignment on the limited residential and commercial opportunities within the hamlet boundary and especially at the four corners of this intersection.

All of the three (3) proposed alternatives in the Study will have a long-term impact on Cavan because the environmental conditions of the hamlet are such that either the residential or the only commercial opportunities will be lost or severely constrained. The expansion of the hamlet to recreate any lost residential or commercial opportunities will be very difficult, if not impossible. As such, the Township would have to look to other hamlets for expansion opportunities.

With respect to property impacts of the three alternatives:

- Alternative 1B (realign West) will displace 5 residential properties and impact 3 other residential properties, 2 commercial properties and the gas station (in total 11 properties).
- Alternative 1C (realign East) will displace 2 commercial properties and the gas station and impact 3 residential properties and 1 future development property (in total 7 properties).
- Alternative 1D (realign in place) will displace 5 residential properties and the gas station and impact 3 other residential properties and 1 commercial property (in total 10 properties).

Council should also be aware that the Township is processing a proposed Zoning By-law Amendment for one of the properties on the northwest corner of Highway 7A and County Road 10 (918 Highway 7A). The public meeting for the application is scheduled for Monday, March 15, 2021 and seeks to recognize deficient setbacks (front and side), deficient lot area and frontage, reduced parking and increased lot coverage in order to permit the current single detached dwelling use of the property. This application would also rezone the property from Hamlet Commercial to Hamlet Residential. The application is to recognize an existing situation, which is not unique to the properties in proximity to the four corners, whereby existing buildings either project or encroach into road allowances (Highway 7A or County Road 10).

Summary

From a land use planning perspective, development (existing and/or proposed) in close proximity of this intersection presents many challenges for property and business owners trying to realize development or re-development potential. This is largely due, to applying either MTO corridor management guidelines or setbacks on either Highway 7A or County Road 10 which limit the ability to provide access to existing commercial properties or safe entrances for residential properties (as noted above).

In addition to these land use issues; Staff have also noted two infrastructure issues with this intersection. The existing sidewalk is located along the south side of Hwy. 7A and

west of the intersection of County Rd. 10. Staff have suggested that MTO look at this sidewalk and if there are no changes to the limits, we are recommending to them that it be replaced with a paved shoulder, thus eliminating the need for winter maintenance. It has also been noted that the streetlights at the intersection are owned by MTO and should be maintained by MTO. In regard to any intersection improvement, the streetlighting should be upgraded to proper LED lighting on a major arterial roadway.

Regardless of which intersection alternative is endorsed, Council should recognize that there will be “short term pain for long term gain”. Any proposed intersection improvements will affect private properties (residential and commercial) in order to provide for a safer situation for the travelling public. Staff would like to minimize these impacts as much as possible in order to retain the existing commercial properties in Cavan albeit at the displacement of some of the residential properties.

Staff is seeking Council’s support of its recommendation to inform WSP and MTO that the Township supports Alternative 1B (Signalized Intersection and Realign County Road 10 to the West) as outlined in the Preliminary Design and Class Environmental Assessment Study – January 27 2021. Despite the fact that this alternative will impact 11 properties (displace 5 residential, edge impacts on 6 other properties), it will retain the commercial and gas station land uses at the intersection. It will also potentially provide a resolution to a challenging situation for the Township in terms of limited development potential of the existing lots.

Financial Impact:

None at this time.

Attachment(s):

Attachment No. 1 – Public Information Centre #1 – Presentation (WSP Canada)

Attachment No. 2 – Zoning Plan of Lands in Cavan

Respectfully Submitted by,

John F. Connolly
Executive Director, Planning & Development
Administrative Officer

Wayne Hancock
Director of Public Works

Reviewed by,

Yvette Hurley
Chief Administrative Officer



Welcome to Public Information Centre #1

Preliminary Design and Class Environmental Assessment Study for
Intersection Improvements at Highway 7A and Country Road 10 in the Township of Cavan
www.Hwy7ACavan.ca



PROJECT TEAM

Ministry of Transportation

Francis Omordia, Project Engineer
Steven Baczyk, Environmental Planner

WSP

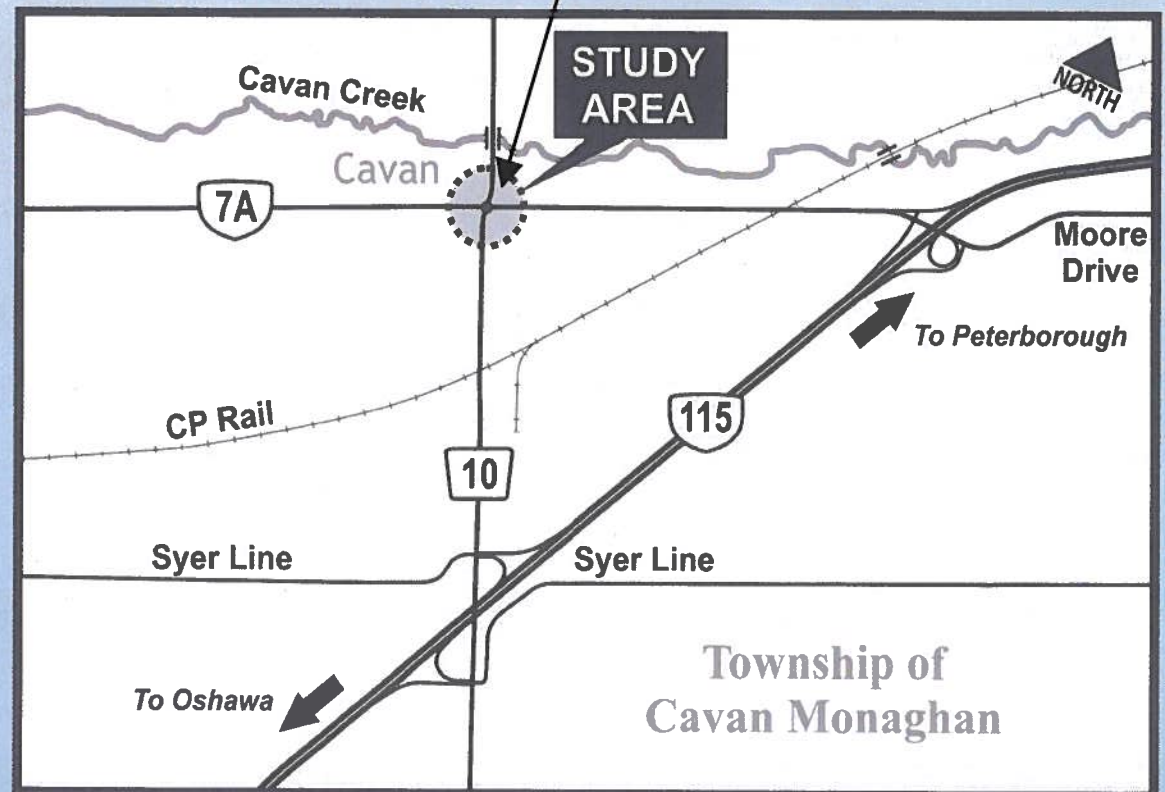
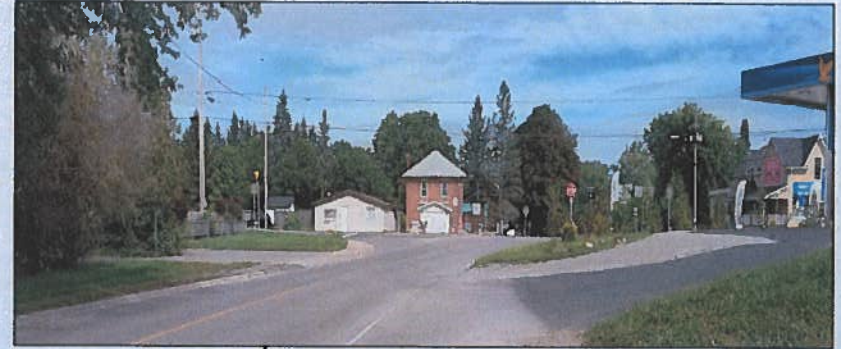
Heather Templeton, Consultant Project Manager
Rhonda George-Hiebert, Consultant Project Engineer
Greg Moore, Consultant Senior Environmental Planner

Study Overview

MTO has retained WSP to undertake the Preliminary Design and Class Environmental Assessment (EA) Study for intersection improvements at Highway 7A & County Road 10 in the Township of Cavan Monaghan.

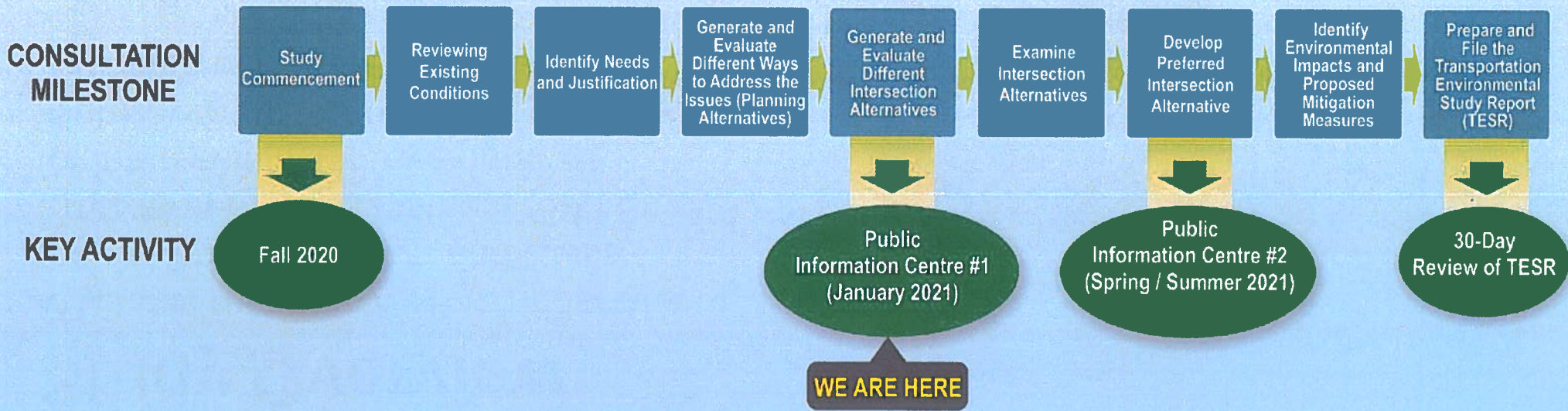
The purpose of this study is to identify the short term and long term improvements as this intersection is reaching the traffic capacity for a stop sign.

Improvements may include signalization or a roundabout, approach road realignments, added turning lanes, or illumination.

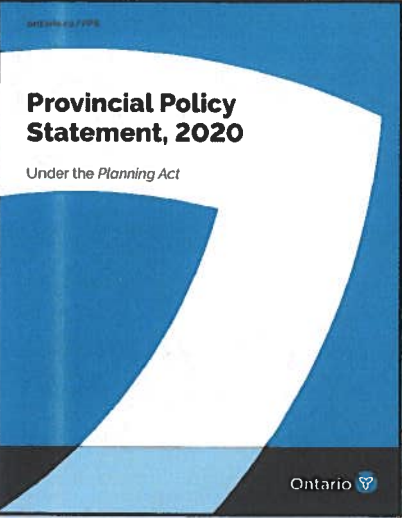
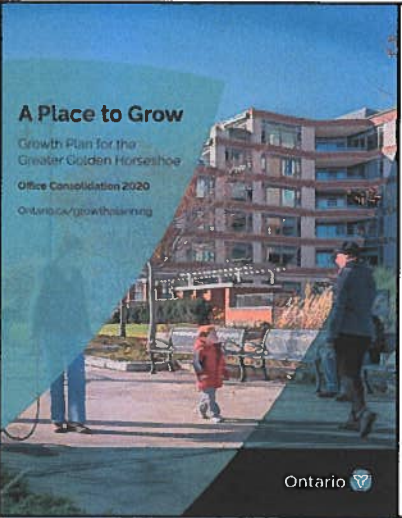
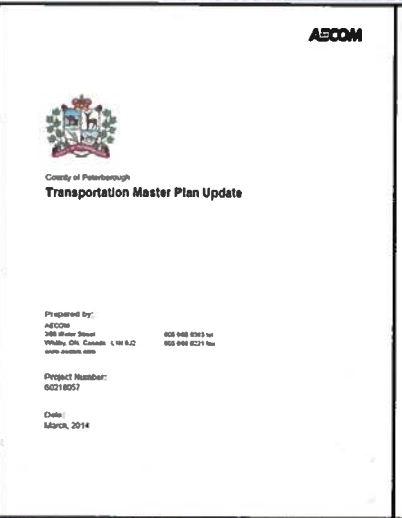

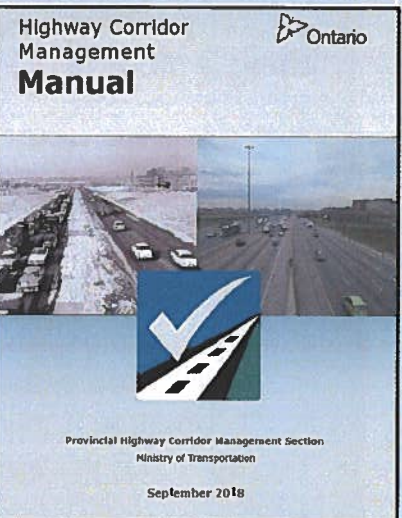


Class Environmental Assessment Process

This Preliminary Design and Class EA Study is following the approved environmental planning process for Group “B” projects under the Class Environmental Assessment for Provincial Transportation Facilities (2000).



Relevant Policies and Guidelines

Provincial Policy Statement (2020)	A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)	County of Peterborough Transportation Master Plan Update (2014, as amended)	Township of Cavan Monaghan Official Plan (2013, as amended)	MTO Highway Corridor Management Manual (2018)
 <p>Provincial Policy Statement, 2020 Under the Planning Act</p>	 <p>A Place to Grow Growth Plan for the Greater Golden Horseshoe Office Consolidation 2020 Ontario.ca/growthplanning</p>	 <p>County of Peterborough Transportation Master Plan Update</p>	 <p>OFFICIAL PLAN for TOWNSHIP OF CAVAN MONAGHAN Have it all. Right here.</p>	 <p>Highway Corridor Management Manual Provincial Highway Corridor Management Section Ministry of Transportation September 2018</p>

- The Provincial Policy Statement provides policy direction on matters of provincial interest related to land-use planning and development.

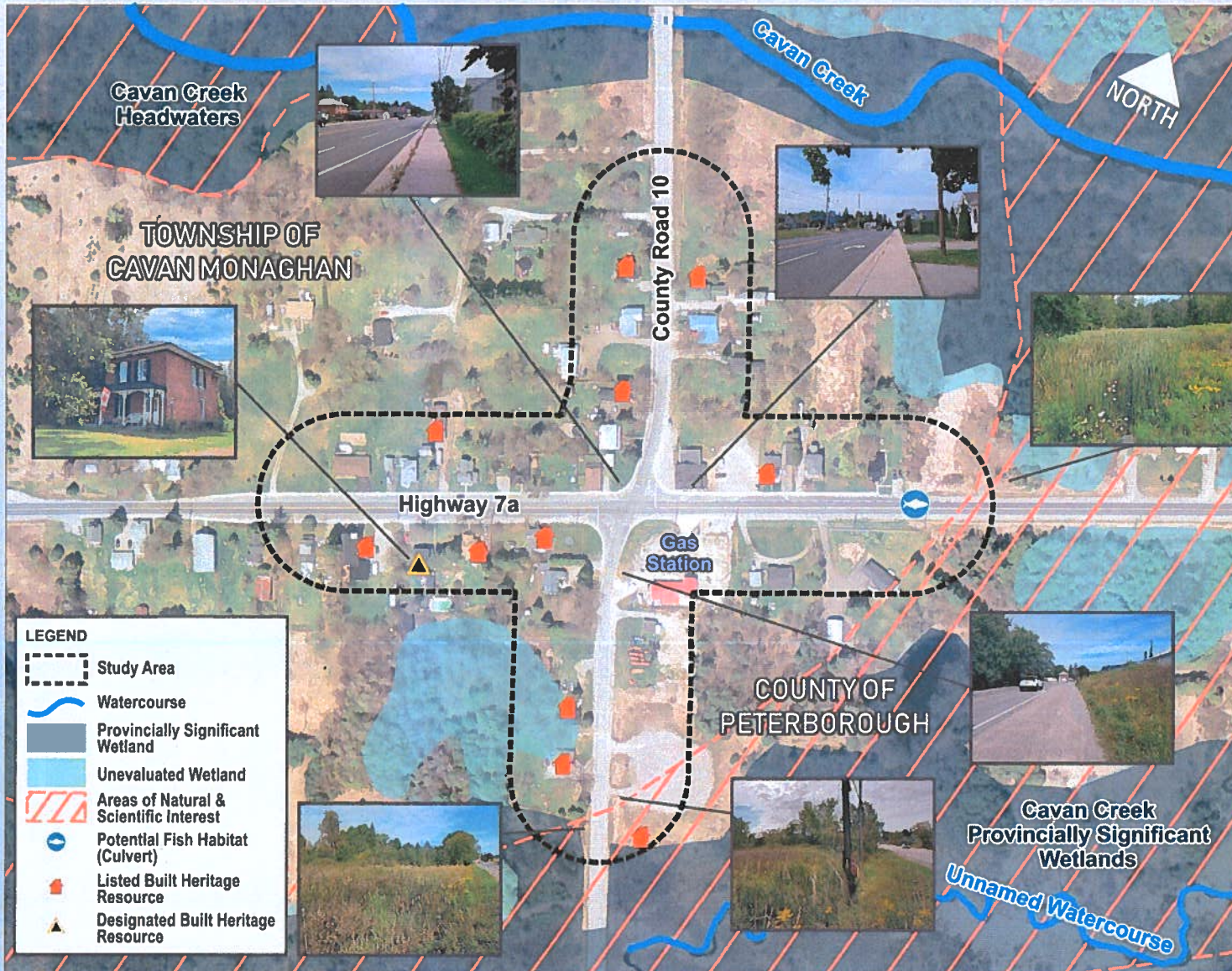
- The A Place to Grow Plan establishes a long-term framework for where and how regions in Ontario will grow.
- The County of Peterborough is identified in the Greater Golden Horseshoe Growth Plan Area.

- The County of Peterborough Transportation Master Plan provides recommendations for transportation infrastructure, including active transportation facilities, to meet current and future transportation needs within the County.

- The Township of Cavan Monaghan Official Plan sets the land-use and planning policies to direct growth and development within the Township.
- The Official Plan also includes provisions which the Township's Zoning By-law 2018-58 (2018) must conform to.

- The MTO Highway Corridor Management Manual serves as a reference to ensure that land-use planning is coordinated with transportation and infrastructure planning, as well as design.

Existing Environmental Conditions



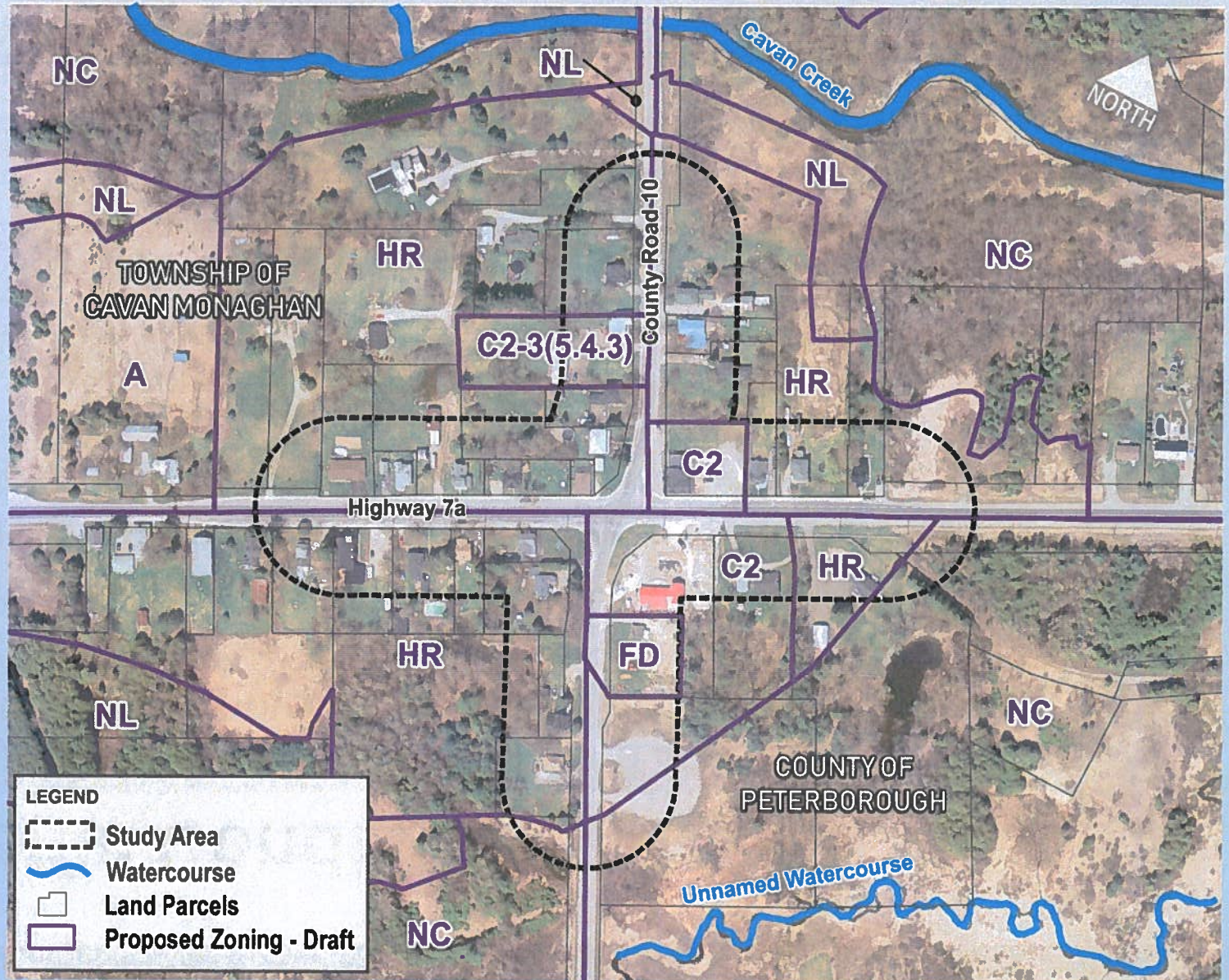
- **Natural Environment:** Environmentally sensitive areas were identified within the study area. Impacts to fish and fish habitats are not anticipated.
- **Cultural Heritage:** A cultural heritage assessment was completed which identified 11 Listed Built Heritage Resources and one Designated Built Heritage Resource in the study area.
- **Archaeology:** A Stage 1 Archaeological Assessment (AA) identified areas requiring further Stage 2 AA.
- **Contamination:** Properties with high and median potential for contamination exist within the study area.

Township of Cavan-Monaghan Zoning Designations

Zoning-Designations*

- **A** = Agriculture
- **C2** = Hamlet Commercial
- **FD** = Future Development
- **HR** = Hamlet Residential
- **NC** = Natural Core
- **NL** = Natural Linkage

*Township of Cavan Monaghan Zoning By-law 2018-58, as amended

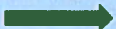

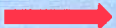


Existing Traffic Conditions

- Existing traffic conditions show moderately good operation in the morning peak hour for most turning movements, except for Northbound and Eastbound from Highway 7A.
- In addition, the afternoon peak hour volumes for the Eastbound, Westbound and Northbound movements from County Road 10 are approaching the capacity of a stop-controlled intersection.

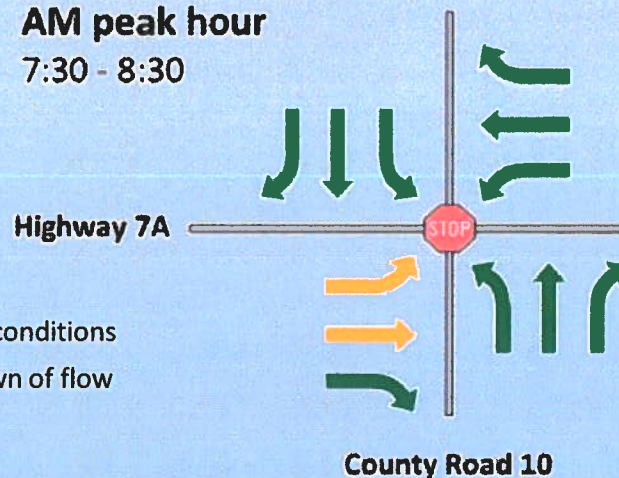
Traffic operations are shown for each turning movement at the intersection.

LEGEND

-  Acceptable Operations
-  Operating near capacity; unstable conditions
-  Operating over capacity; breakdown of flow

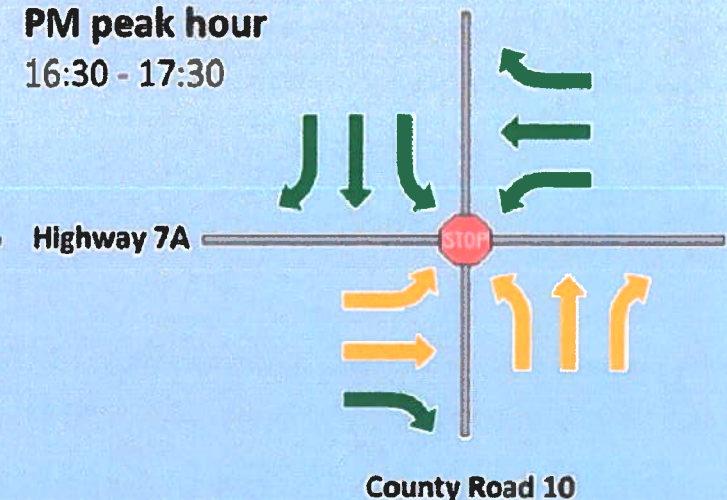
Summer 2018

AM peak hour
7:30 - 8:30



Summer 2018

PM peak hour
16:30 - 17:30

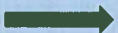
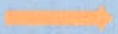
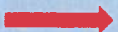


Future Traffic Conditions

- Future traffic conditions, with no changes to the intersection, result in poor operations.
- The existing morning and afternoon peak hour conditions are worsened; resulting in over-capacity operations at multiple approaches.
- The stop controlled intersection cannot adequately handle future volumes.

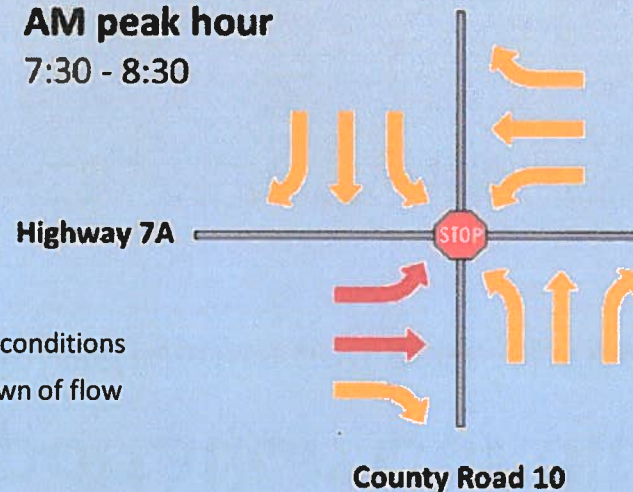
Traffic operations are shown for each turning movement at the intersection.

LEGEND

-  Acceptable Operations
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-  Operating over capacity; breakdown of flow

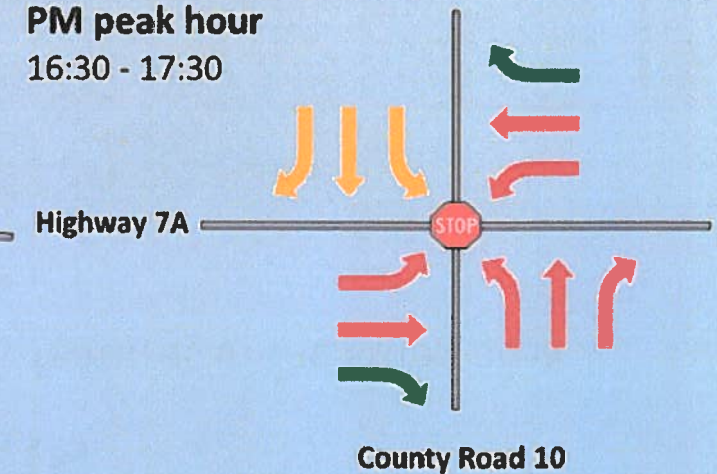
Summer 2041

AM peak hour
7:30 - 8:30



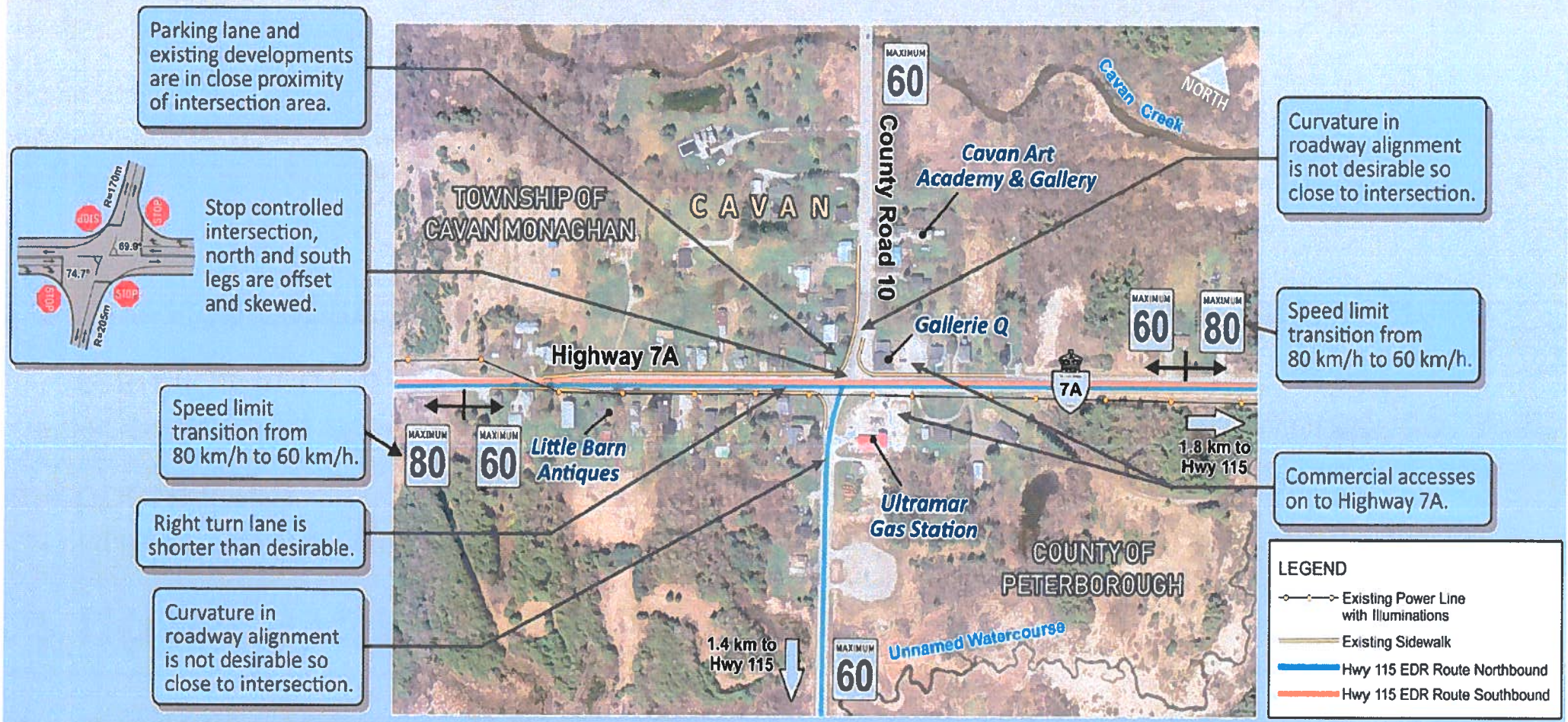
Summer 2041

PM peak hour
16:30 - 17:30



Existing Transportation Conditions

The existing transportation infrastructure and general roadway features in the study area are presented on the plan.



Summary of Problems & Opportunities

PROBLEMS

Limited Capacity



- Existing traffic in the afternoon peak is approaching capacity.
- Current intersection configuration cannot accommodate future volumes.

Intersection Delays



- Delays are noted for traffic heading northbound coming from both County Road 10 and Highway 7A.

Collisions



- 16 collisions were recorded between 2007 and 2017.
- 75% of collisions are angle or turning related, and these account for 100% of injuries.

Access



- Multiple commercial accesses are in close proximity to the intersection.

OPPORTUNITIES

Improve Future Traffic Operations



- Improve intersection operations.
- Improve highway corridor operations.
- Supports anticipated growth within the County of Peterborough as stipulated in the *A Place to Grow* Plan.

Driver Safety



- Improve road alignments, resulting in safer operation.
- Provide better sightlines to the intersection.
- Reduce near misses and intersection conflicts.

Access



- Complete access management review.
- Provide well-spaced accesses for safer operation near intersection.

Planning Alternatives

The Class EA process requires that planning alternatives be considered to ensure that there is reasonable and sufficient justification to proceed with the project.

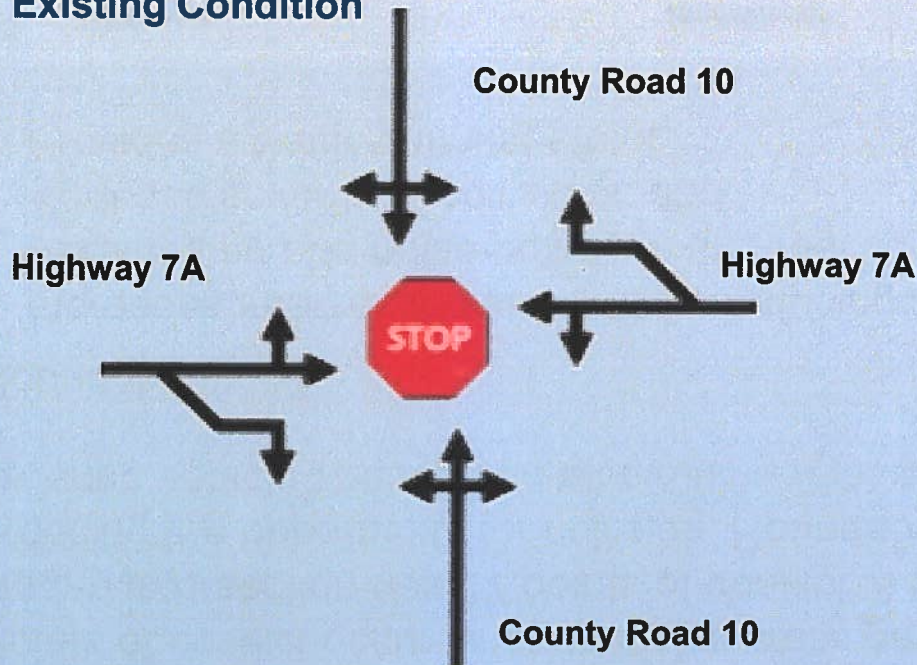
Alternative	Description	Recommendation
Do Nothing	<ul style="list-style-type: none"> Maintain existing roadway and access conditions (i.e. no new infrastructure) Includes routine maintenance (e.g. resurfacing within existing footprint). 	<ul style="list-style-type: none"> Does not address any identified problems or opportunities at the intersection. <p>Not Carried Forward</p>
Transportation Demand Management	<ul style="list-style-type: none"> Reduce, shift, or eliminate transportation demand (e.g. flex work hours to shift demand outside of rush hours, carpooling, alternate modes of transportation). 	<ul style="list-style-type: none"> On its own, does not improve operations and safety of the intersection or meet the needs of future area development. <p>Not Carried Forward</p>
Active Transportation Improvements	<ul style="list-style-type: none"> Measures to improve pedestrian and cycling facilities such as sidewalks and/or bike lanes. 	<ul style="list-style-type: none"> On its own, does not improve operations and safety of the intersection or meet the needs of future area development. County of Peterborough's Active Transportation Master Plan policies include active transportation initiatives, and would be independent of this study. <p>Not Carried Forward</p>
Improve Adjacent Road Systems	<ul style="list-style-type: none"> Upgrade adjacent roads and intersections to reduce travel demand at the intersection. 	<ul style="list-style-type: none"> There is significant distance between the Hwy 7A and County Road 10 intersection and the nearest alternative intersection. <p>Not Carried Forward</p>
Intersection Improvements at the Existing Location	<ul style="list-style-type: none"> Improve operations at the existing location by either signaling the intersection (and associated realignment of County Road 10) or construction of a roundabout. 	<ul style="list-style-type: none"> Operational improvements to the intersection will sufficiently add capacity at the intersection and address the problem. <p>Carried Forward</p>
New/Improved Provincial Transportation Facility	<ul style="list-style-type: none"> Improve existing provincial highway facilities, service, maintenance, and operations, or construct a new by-pass facility. 	<ul style="list-style-type: none"> Would result in significant economic implications for businesses in the hamlet, and high construction costs. <p>Not Carried Forward</p>

The Project Team is recommending that Intersection Improvements at the Existing Location be carried forward for further consideration.

Development of Alternatives: Signalized Intersection

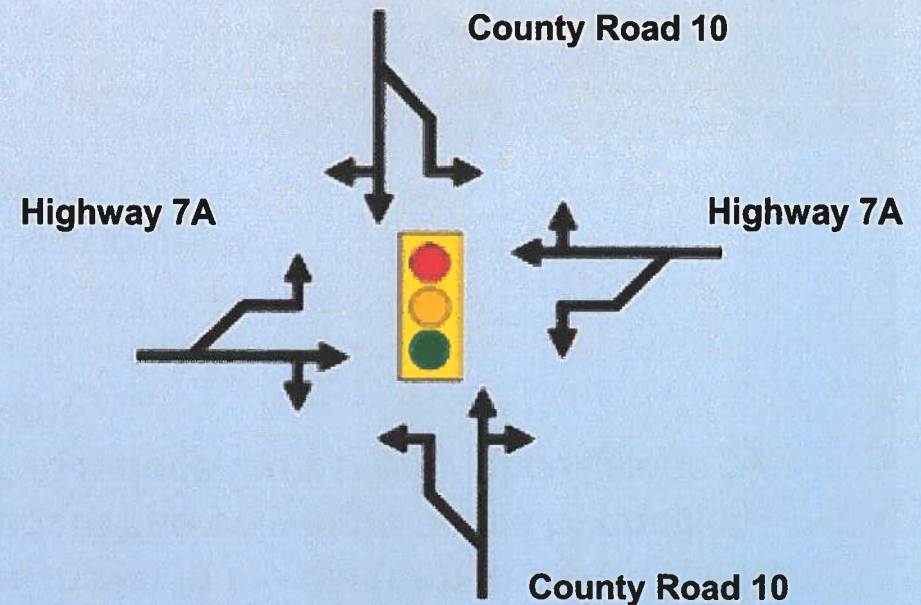
Signalized intersection control provides better traffic flow over the existing stop sign and improved capacity for future volumes.

Existing Condition



- On Highway 7A, combined left turn and through lanes are present with a dedicated right turn
- On County Road 10, all moves are combined in one lane

Signalized Intersection



- Dedicated left turn lanes are recommended with a combined through and right turn lane at all approaches
- **Alternatives 1A to 1D illustrate the signalized intersection alternatives being considered**

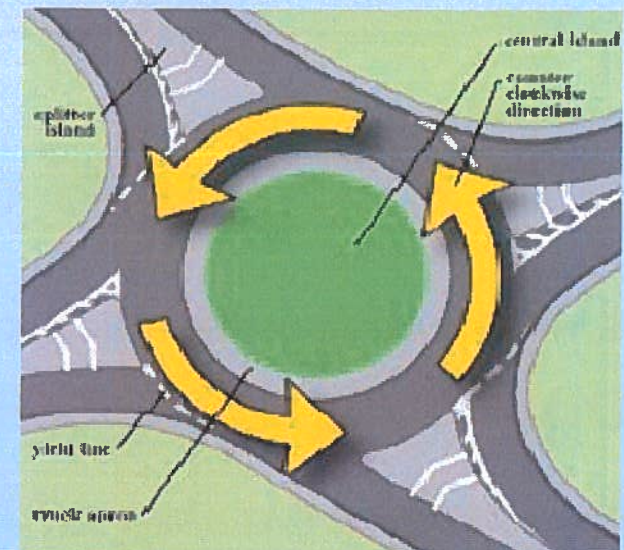
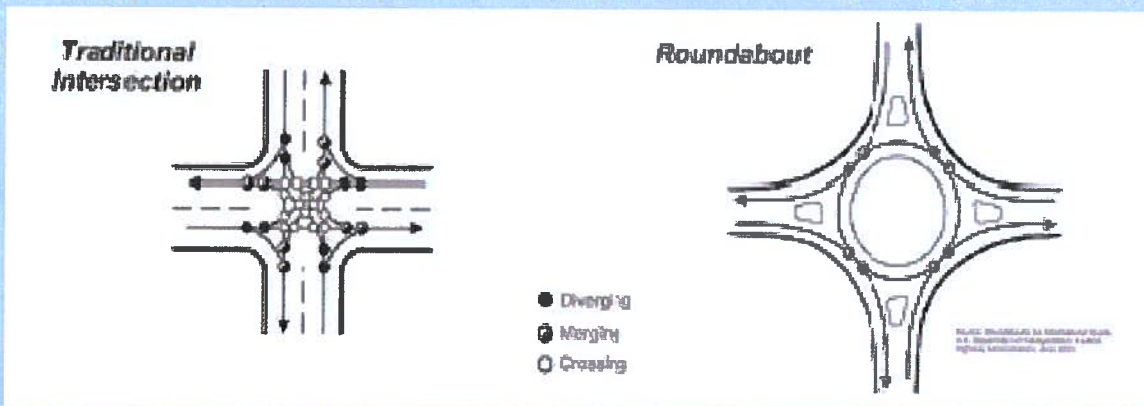
Development of Alternatives: Roundabout

A roundabout is an alternative form of intersection traffic control that is a circular intersection with yield at entry. Roundabouts promote safe, efficient traffic flow.

Points of conflict occur when vehicles cross paths. As shown in the diagram, a traditional four-legged intersection has 32 points of conflict. A roundabout has only eight points of conflict, reducing the opportunity for collision. Roundabouts also reduce the severity of collisions by lowering vehicle speeds and eliminating right angle turns.

Roundabouts:

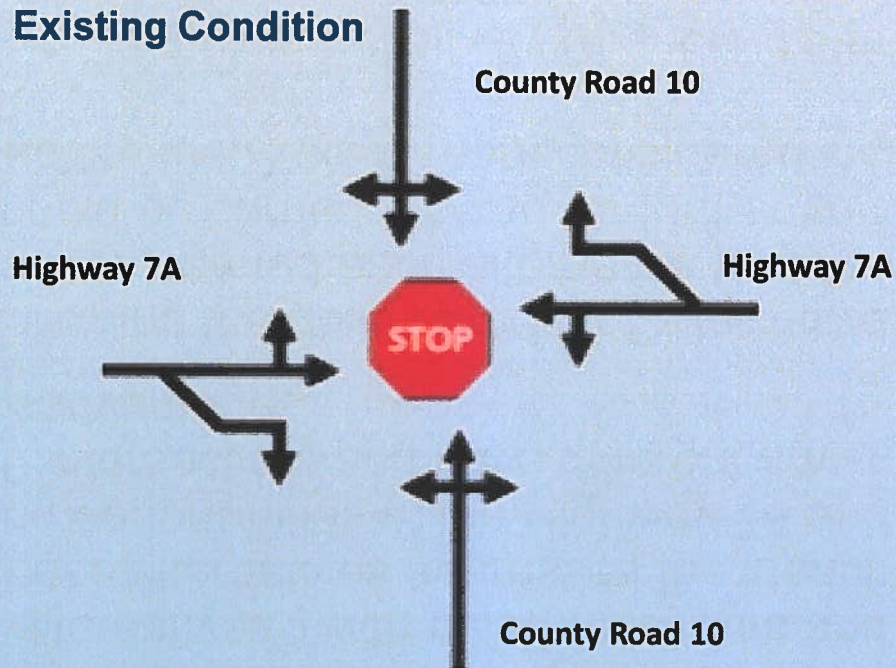
- Increases intersection capacity by reducing delays and queues;
- Reduces air and noise pollution, and fuel consumption;
- Reduces severity of collisions; and
- Provides a traffic calming effect.



Development of Alternatives: Roundabout

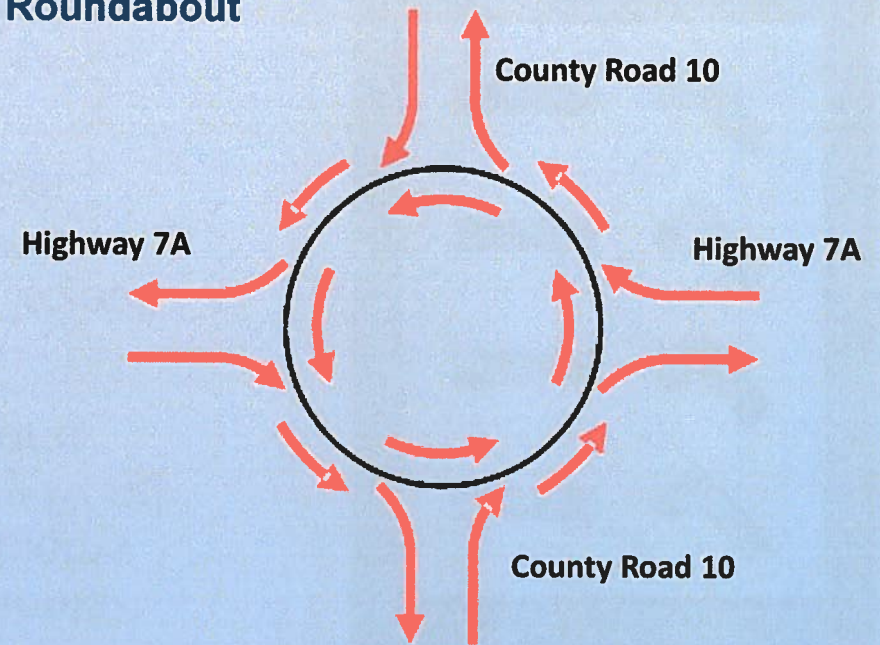
Roundabouts provide better traffic flow over the existing stop sign and improved capacity for future volumes.

Existing Condition



- On Highway 7A, combined left turn and through lanes are present with a dedicated right turn
- On County Road 10, all moves are combined in one lane

Roundabout



- Each approach at Highway 7A and County Road 10 has one lane entering and one lane exiting the roundabout
- **Alternative 2 illustrates the roundabout alternative being considered**

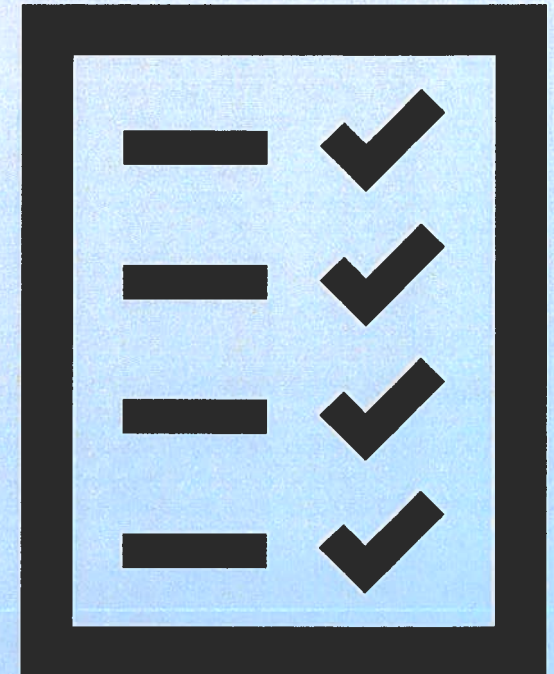
Alternatives Screening

The Project Team developed a long list of a range of signalized intersection and roundabout options (“Alternatives”) with different layouts and alignments. These alternatives addresses the identified problems and opportunities at the Highway 7A and County Road 10 intersection, and have different advantages and disadvantages.

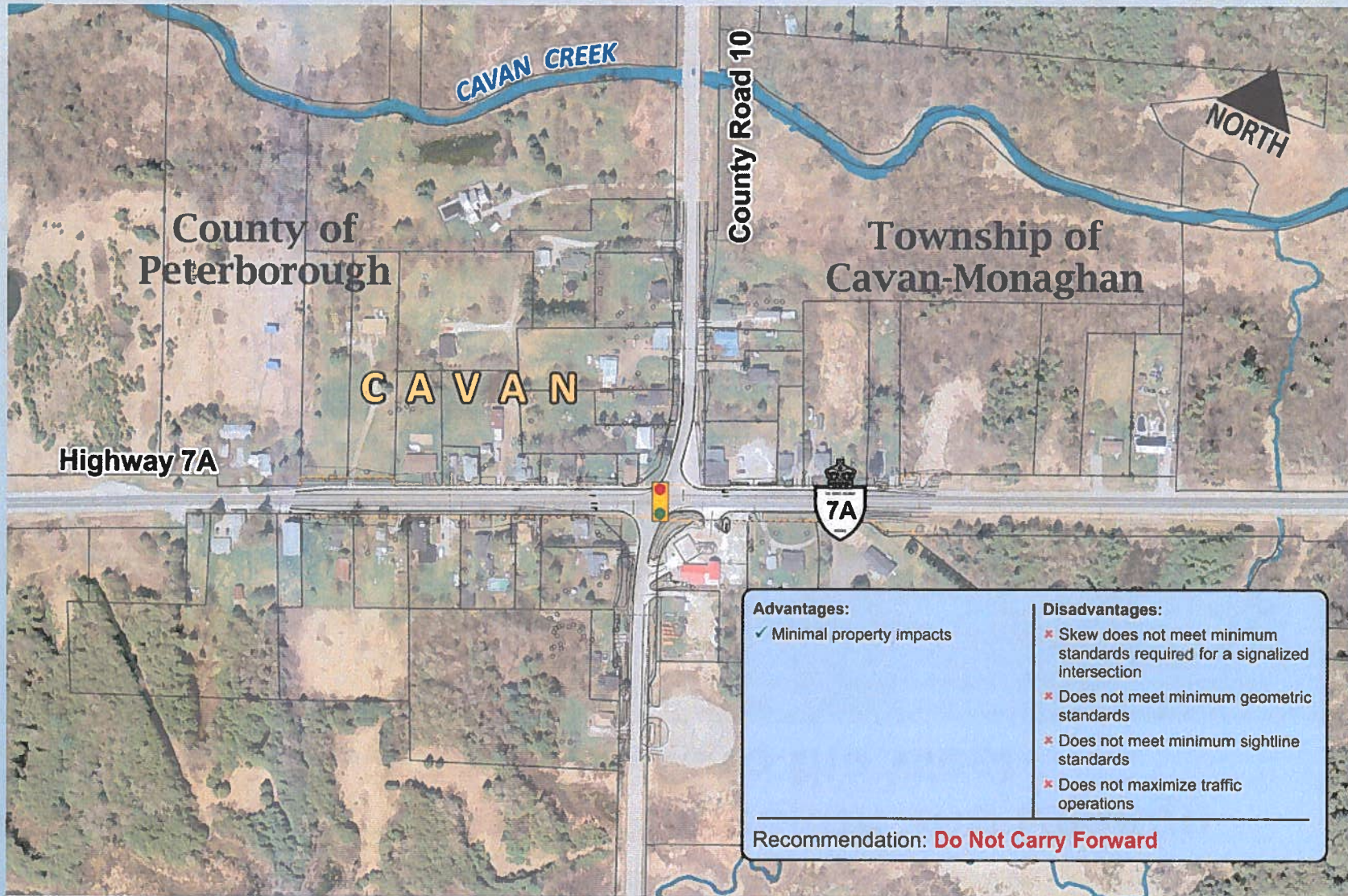
Following the development of alternatives, the Project Team screened each alternative to determine which should be carried forward for further consideration.

Factors the Project Team considered included:

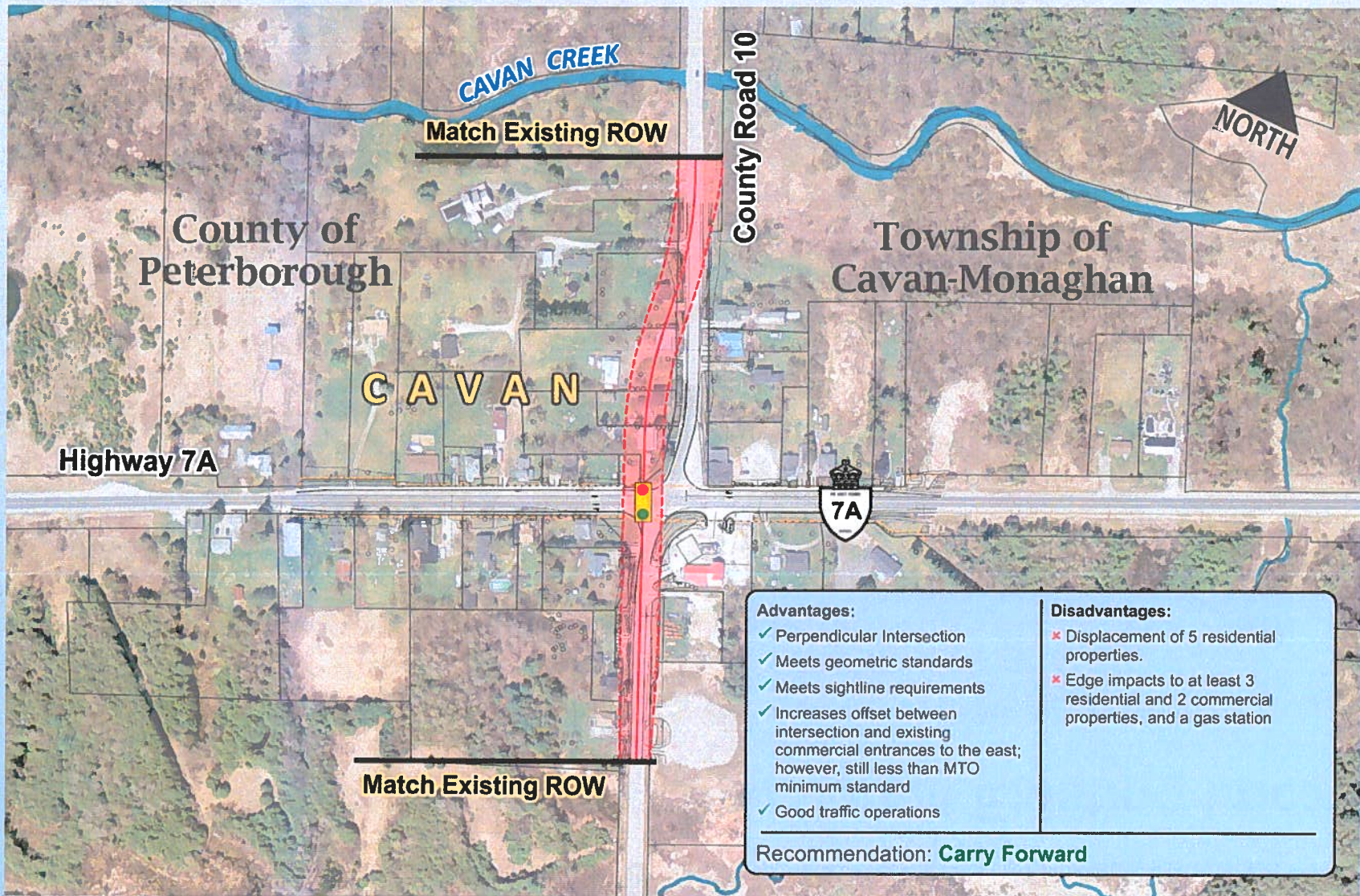
- Technical Feasibility (e.g. MTO standards);
- Intersection Safety;
- Property Impacts;
- Access Impacts; and
- Traffic Operations.



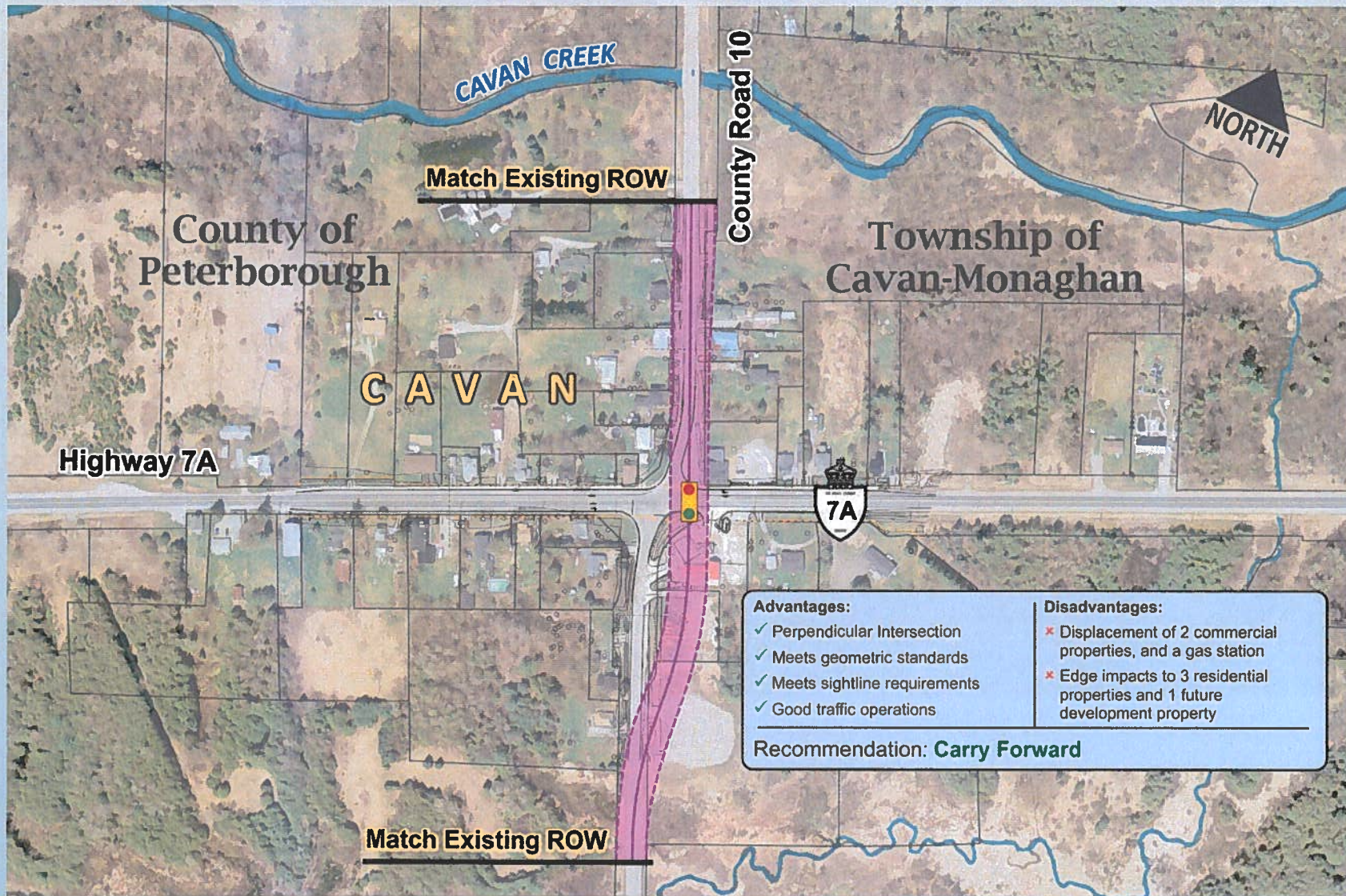
Alternative 1A: Signalized Intersection at Existing Location



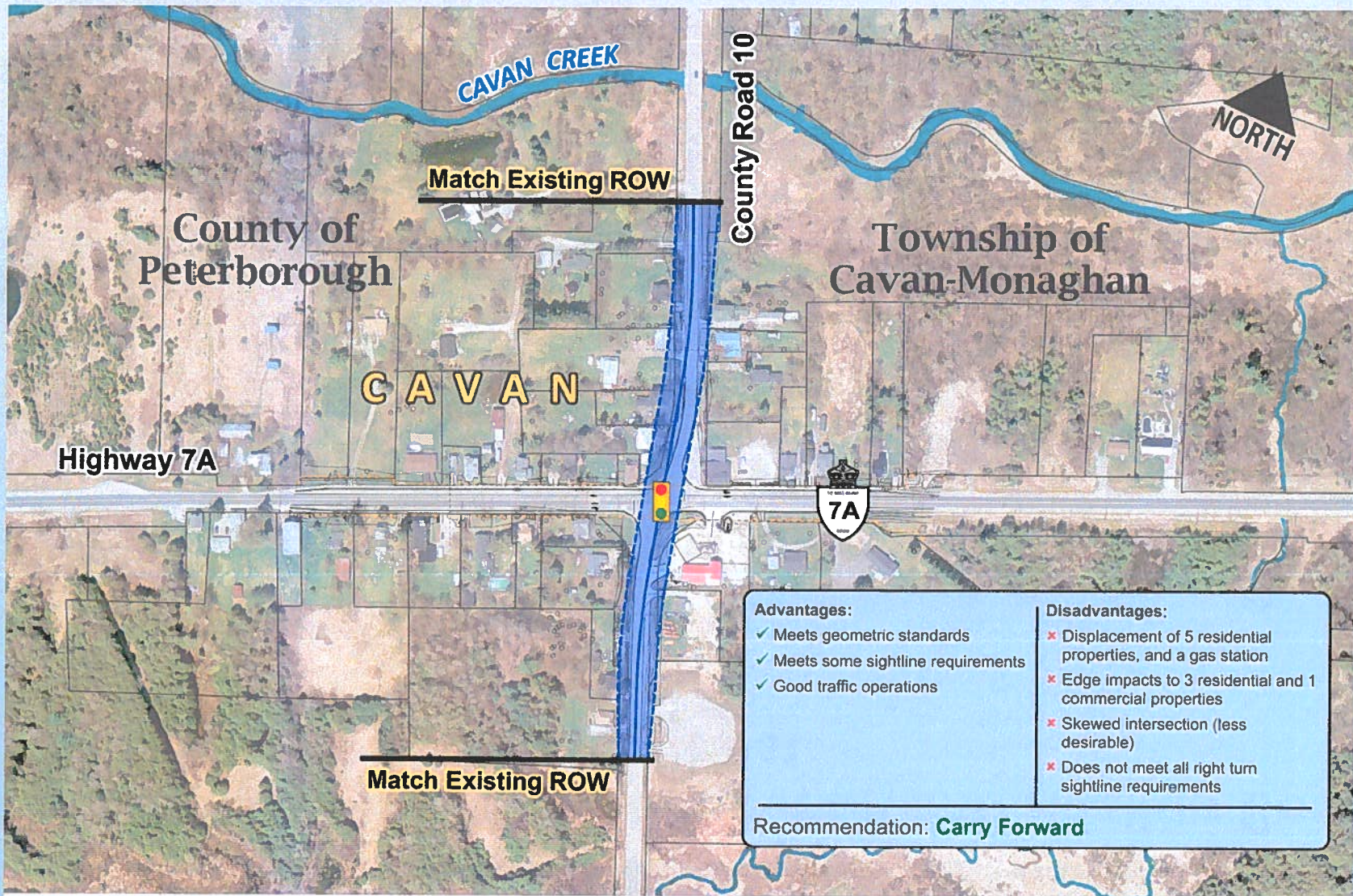
Alternative 1B: Signalized Intersection and Realign County Road 10 to the West



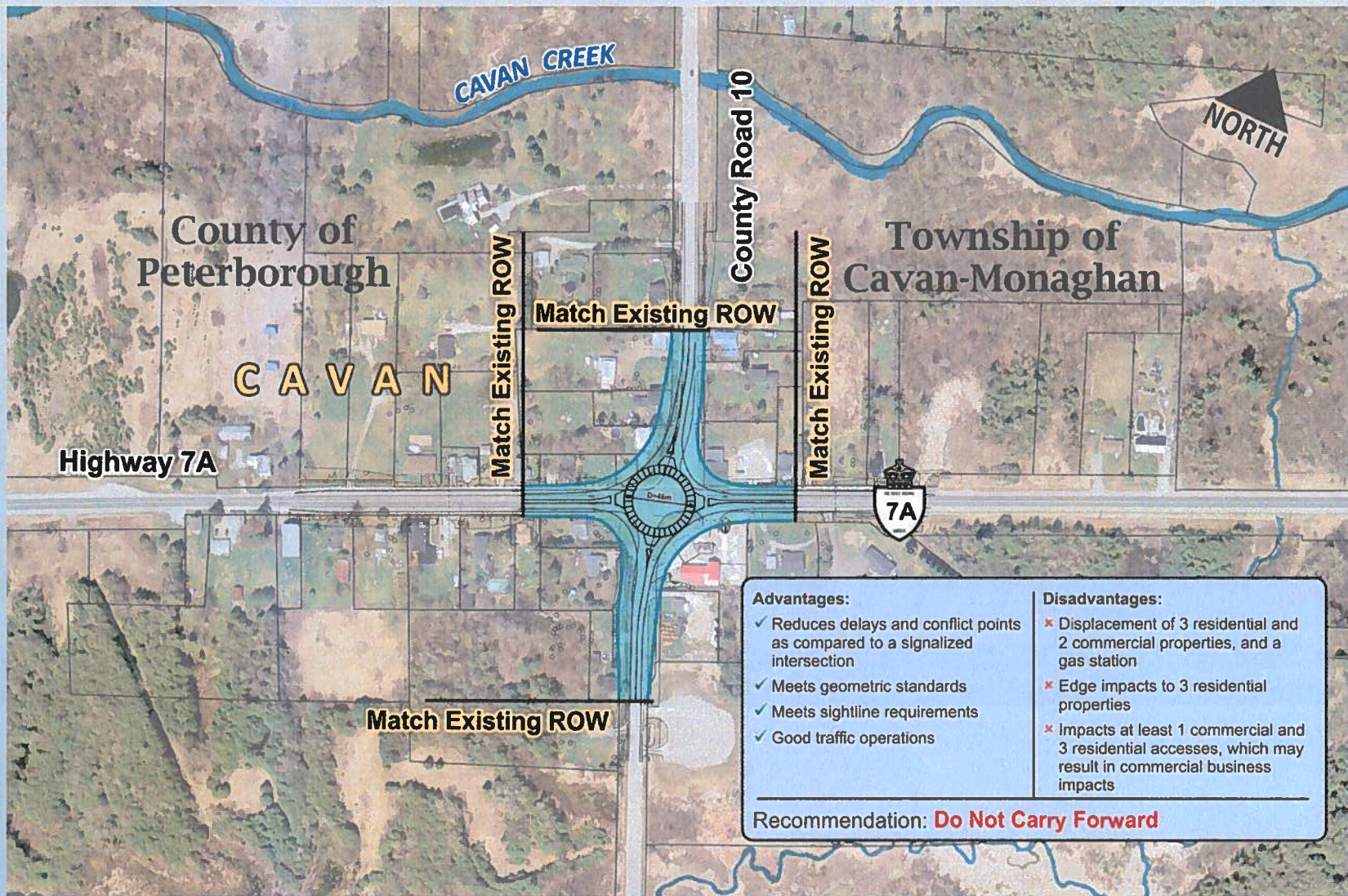
Alternative 1C: Signalized Intersection and Realign County Road 10 to the East








Alternative 1D: Signalized Intersection and Realign County Road 10



Alternative 2: Roundabout







Short-List of Alternatives

Alternative	Carry Forward?
Alt 1A: Signalized Intersection at Existing Location	
Alt 1B: Signalized Intersection and Realign County Road 10 to the West	
Alt 1C: Signalized Intersection and Realign County Road 10 to the East	
Alt 1D: Signalized Intersection and Realign County Road 10	
Alt 2: Roundabout	

Approach to Evaluating the Short-List of Alternatives

The qualitative evaluation of the short-list of alternatives will identify the **preferred alternative** that best meets future transportation needs of the intersection, while minimizing negative impacts to the social, economic and natural environments.

Factor	Weight	Evaluation Criteria
 Natural Environment	Low	<ul style="list-style-type: none"> • Direct and indirect impacts on wetlands. • Direct and indirect impacts on species at risk. • Direct and indirect impacts on terrestrial ecosystems. • Storm water drainage.
 Socio-Economic Environment	High	<ul style="list-style-type: none"> • Impacts to private properties. • Direct and indirect impacts to residents and businesses. • Access for local residents, school buses and emergency vehicles. • Traffic noise effects on adjacent residential areas. • Relocation and/or closure of existing entrances
 Cultural Heritage Environment	Low	<ul style="list-style-type: none"> • Direct and indirect impacts to built heritage features. • Direct and indirect impacts to cultural landscapes. • Impacts to archaeological resources.
 Transportation / Technical Considerations	High	<ul style="list-style-type: none"> • Ability to accommodate future traffic forecasts. • Forecasted traffic performance. • Improvements to substandard geometrics and intersection design. • Cost. • Constructability/traffic staging.

Next Steps

After this Public Information Centre (PIC), the following will be carried out:



Review the comments received following PIC #1 and respond to comments;



Incorporate any refinements into the planning alternatives based on public and agency input;



Complete the analysis and evaluation of the planning alternatives and select the preferred alternative; and



Hold PIC# 2 later in the study to present and receive feedback on the results of the evaluation process and the preferred alternative.



Contact Information

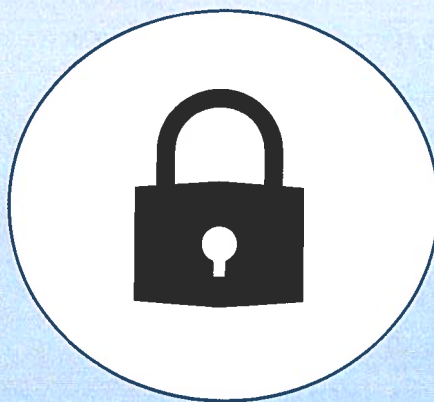
Please feel free to submit comments through the project website or by sending your comments to one of the Project Team members listed below. Comments would be appreciated by February 19, 2021.

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Thank you for your time and participation
Information presented today is available online at the study website: www.hwy7ACavan.ca

Freedom of Information and Protection of Privacy

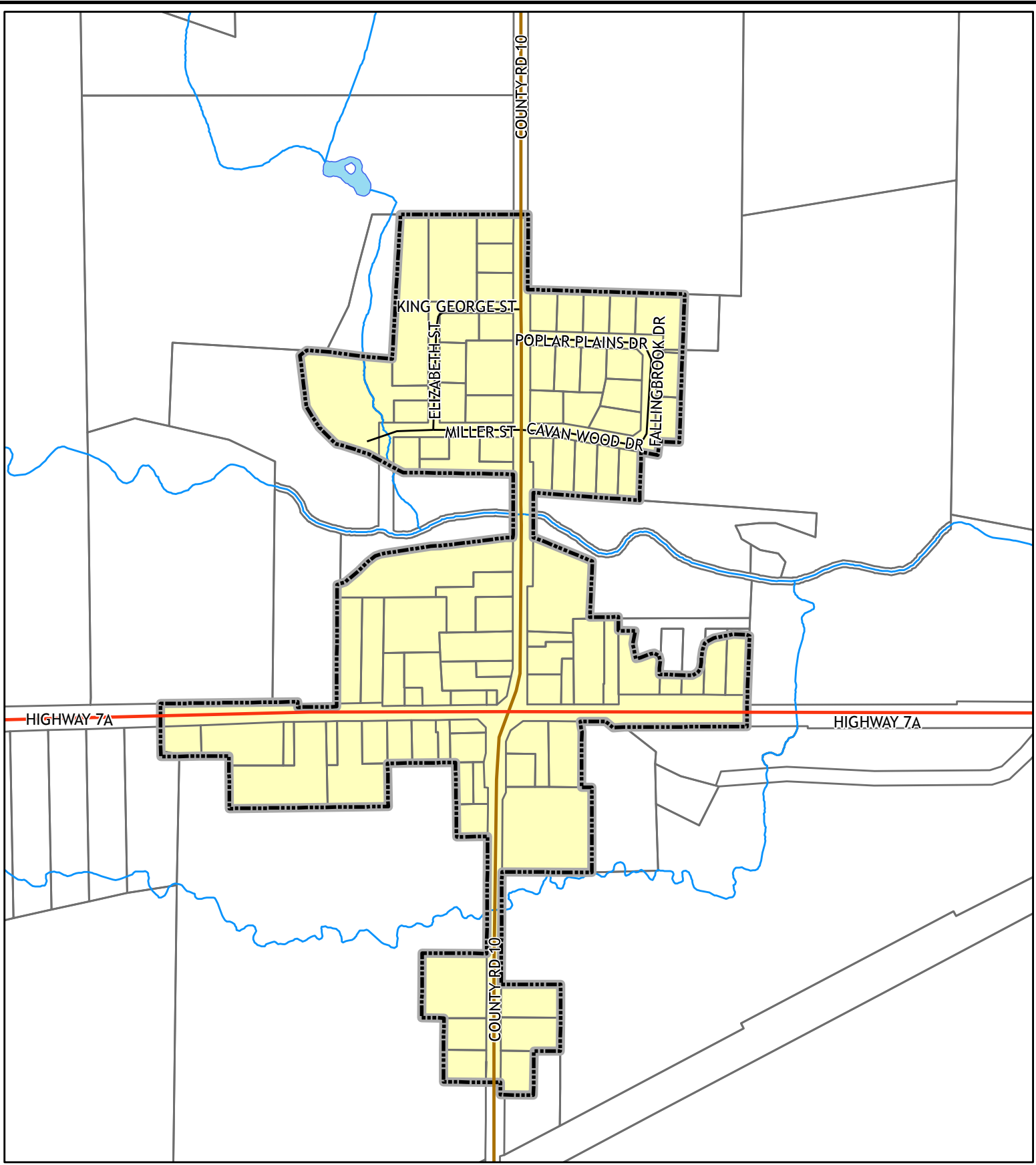


Information collected during this study will be used to assist the Ministry of Transportation in meeting the requirements of the Ontario *Environmental Assessment Act*. This material will be maintained on file for use during the study and may be included in the study documentation.

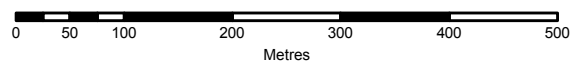
Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Ontario












TOWNSHIP OF CAVAN MONAGHAN
Schedule F - Map 5
CAVAN



LEGEND

-  Hamlet Boundary
-  Parcel
-  Waterbody
-  Watercourse
- Transportation**
-  County Road
-  King's Highway
-  Township Road

