Innisfil

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Town of Innisfil - 6th Line Interchange Environmental Assessment (EA) Study

Welcome

Welcome to the second Public Open House (POH) meeting. Please sign in on the attendance sheet and obtain a comment sheet at the registration desk.

Should you have any questions regarding the presentation materials, background reports or any other aspect of the study, please speak to the Town or Consultant study team members in attendance.

We encourage your input/feedback on the material being presented on the display boards. Please deposit completed comment sheets in the comment box or mail/ e-mail to the address at the bottom of the form by **December 20, 2016**.

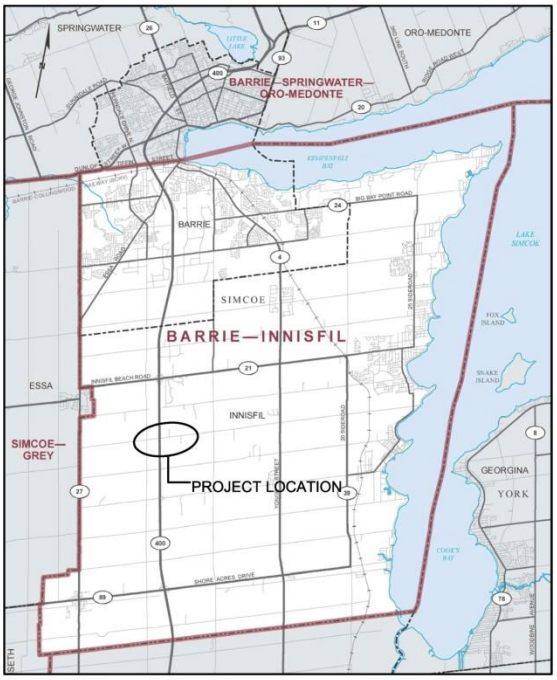
There is an opportunity at any time during the EA process for interested persons to provide written input. Any comments received will be collected under the *Environmental Assessment Act* and *Freedom of Information and Protection of Privacy Act* and, with the exception of personal information, will become part of the public record.

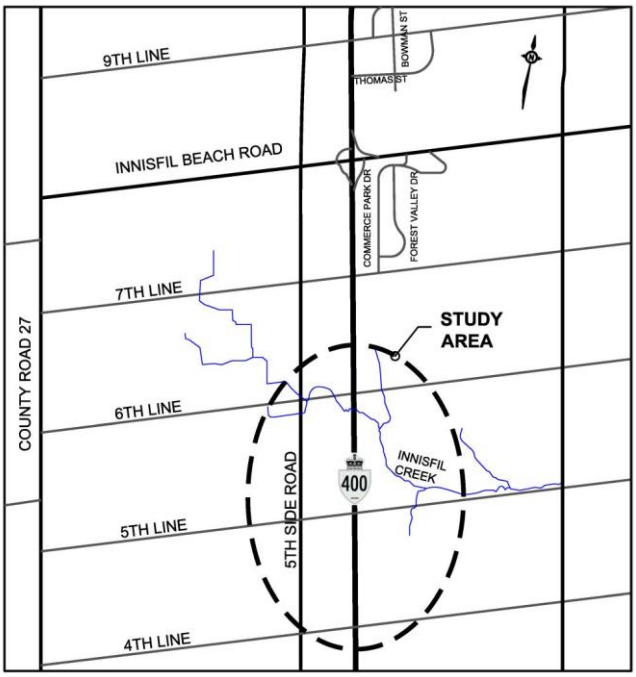
BT ENGINEERING BTE

Introduction

The Town of Innisfil is conducting an Environmental Assessment (EA) Study to plan for a new interchange on Highway 400. The study is assessing alternatives for a new interchange in the central area of Simcoe County. This new interchange will provide better access to proposed development areas (Innisfil Heights and Alcona).

This Study is completing all phases of the Municipal Class EA by establishing the need and justification for the project, considering all alternatives and proactively involving the public in defining a recommended plan for improvements. This Study is being completed as a Municipal Schedule C undertaking, based on the scope of the project and the range of anticipated effects. See the following exhibit for a description of the EA process.



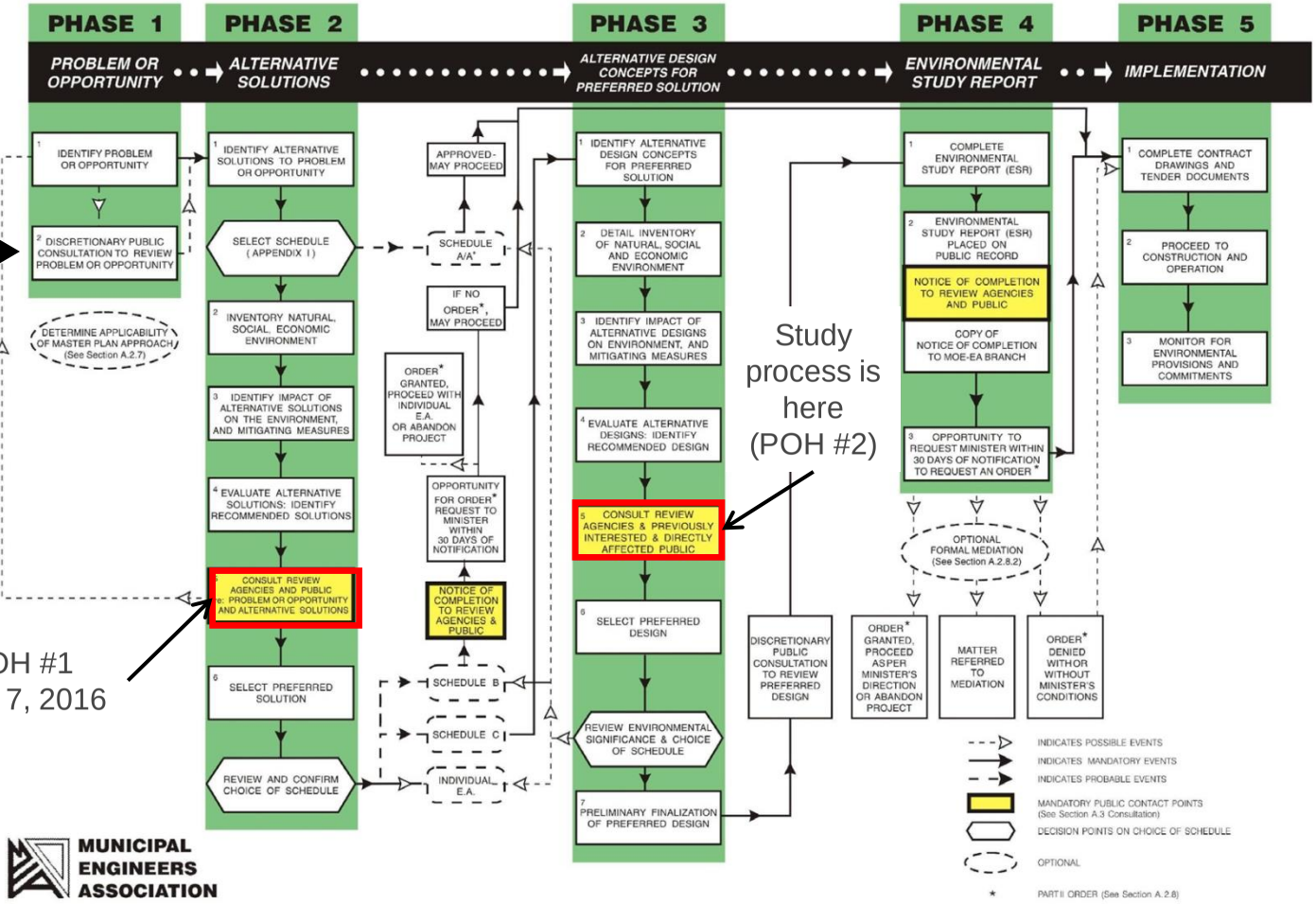


Municipal Class Environmental Assessment (EA) Process

This project is being undertaken as a Municipal Schedule C Class EA in accordance with the Municipal Class Environmental Assessment. A copy of this document is available at the Resource Table.

The data and reports produced for the study will be documented in an Environmental Study Report (ESR).

Initial Consultation Public Review of Study Design



Need and Justification for an Interchange

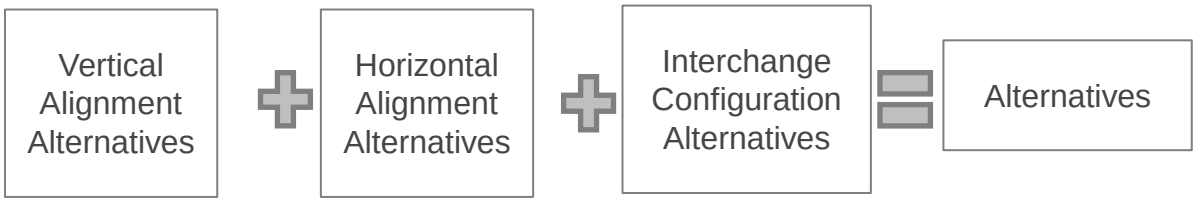
Current and expected increases in traffic in the County of Simcoe and Town of Innisfil necessitate improvements to the road network for a new interchange on Highway 400.

The Simcoe County Transportation Master Plan (TMP) (2014) identified that Innisfil Beach Road will be above capacity by 2031, even with planned roadway improvements.

The Town of Innisfil's Official Plan identified the need for a future interchange on Highway 400. The Innisfil TMP (2013) has also confirmed the need for a new interchange on Highway 400 and recommended it be located at 6th Line (subject of this EA Study) along with improvements to the 6th Line corridor (defined in the 6th Line EA). The TMP identified that an interchange at 6th Line would also address the capacity constraint on Innisfil Beach Road. These background documents are available at the Resource Table.

Alternatives for Evaluation

The alternatives will involve a combination of vertical alignment alternatives, horizontal alignment alternatives and interchange configuration alternatives. An example of how these will combine to create an alternative is illustrated below:



Vertical Alignment Alternatives:

- Alternative 1: Highway 400 Overpass
- Alternative 2: Highway 400 Underpass

Horizontal Alignment Alternatives:

- Alternative A: Existing 6th Line Alignment
- Alternative B: 50 m shift north of 6th Line
- Alternative C: 50 m shift south of 6th Line

Interchange Configuration Alternatives:

- Alternative 1: Diamond
- Alternative 2: Diamond with Roundabout
- Alternative 3: Parclo A2 with 180 m direct taper on 6th Line
- Alternative 4: Parclo A4 with 180 m direct taper on 6th Line
- Alternative 5: Parclo A2 with 110 m direct taper on 6th Line
- Alternative 6: Parclo A4 with 110 m direct taper on 6th Line
- Alternative 7: Parclo A2 with 110 m direct taper on 6th Line beyond structure
- Alternative 8: Parclo A4 with 110 m direct taper on 6th Line beyond structure
- Alternative 9: Parclo B2
- Alternative 10: Parclo B4

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Alternatives for Evaluation

Below is a list of all possible combinations of alternatives carried forward for this study:

Horizontal / Vertical Alignment	Alternative Number	Interchange Type	Design Speed on 6th Line	Taper on 6th Line
Alternative A1: Current / 6th Line under Highway 400	Alt A1-1	Diamond		
	Alt A1-2	Diamond with Roundabout		
	Alt A1-3	Parclo A2	100 km/h Design Speed	180 m Direct Taper on 6th Line
	Alt A1-4	Parclo A4		
	Alt A1-5	Parclo A2	80 km/h Design Speed	110 m Direct Taper on 6th Line
	Alt A1-6	Parclo A4		
	Alt A1-7	Parclo A2		110 m Direct Taper on 6th Line Beyond Structure
	Alt A1-8	Parclo A4		
	Alt A1-9	Parclo B2		
	Alt A1-10	Parclo B4		
Alternative A2: Current / 6th Line over Highway 400	Alt A2-1	Diamond		
	Alt A2-2	Diamond with Roundabout		
	Alt A2-3	Parclo A2	100 km/h Design Speed	180 m Direct Taper on 6th Line
	Alt A2-4	Parclo A4		
	Alt A2-5	Parclo A2	80 km/h Design Speed	110 m Direct Taper on 6th Line
	Alt A2-6	Parclo A4		
	Alt A2-7	Parclo A2		110 m Direct Taper on 6th Line Beyond Structure
	Alt A2-8	Parclo A4		
	Alt A2-9	Parclo B2		
	Alt A2-10	Parclo B4		
Alternative B2: Northerly / 6th Line over Highway 400	Alt B2-1	Diamond		
	Alt B2-2	Diamond with Roundabout		
	Alt B2-3	Parclo A2	100 km/h Design Speed	180 m Direct Taper on 6th Line
	Alt B2-4	Parclo A4		
	Alt B2-5	Parclo A2	80 km/h Design Speed	110 m Direct Taper on 6th Line
	Alt B2-6	Parclo A4		
	Alt B2-7	Parclo A2		110 m Direct Taper on 6th Line Beyond Structure
	Alt B2-8	Parclo A4		
	Alt B2-9	Parclo B2		
	Alt B2-10	Parclo B4		

Vertical Alignment Alternatives

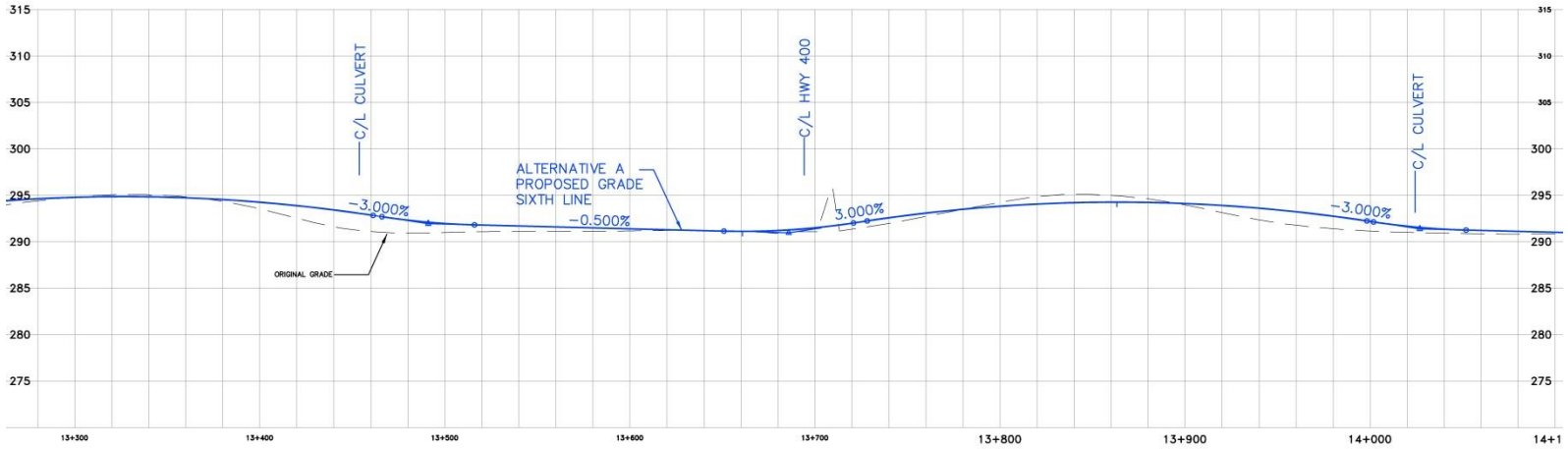
The EA assessed both Highway 400 Overpass (existing condition with Highway 400 over 6th Line) and Highway 400 Underpass alternatives. The overpass alternative will require a minor grade raise (slope increase) of Highway 400 to accommodate a larger bridge span and the future longer range widening of 6th Line to a 4-lane arterial. The underpass alternative will maintain the existing Highway 400 profile (no change to existing profile).

Horizontal Alignment Alternatives

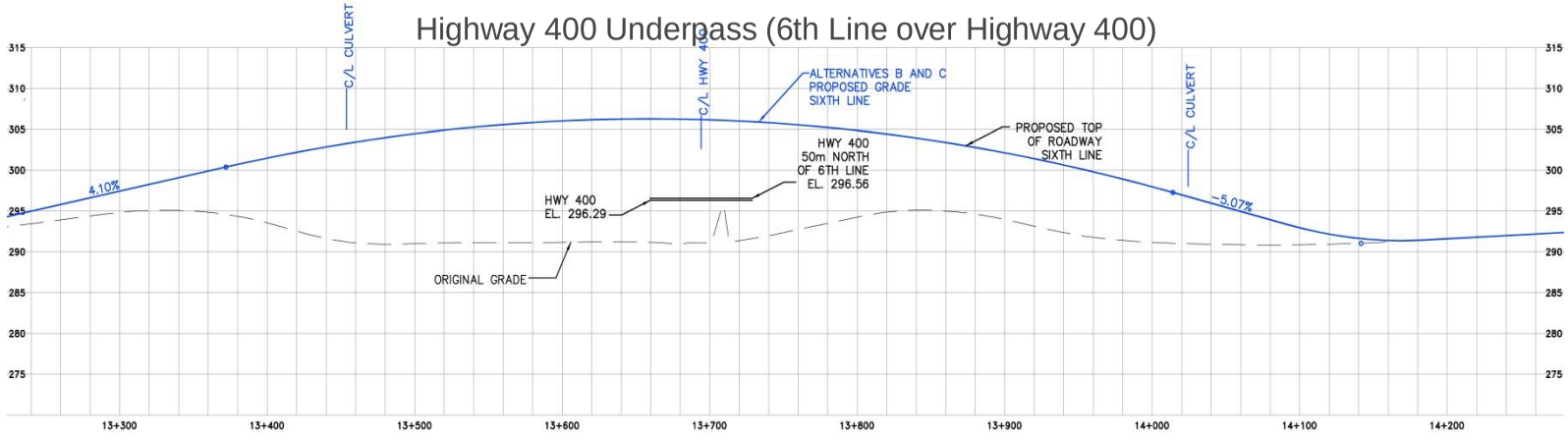
The EA has also reviewed the horizontal alignment of 6th Line. The alternatives are: maintaining the existing alignment; a 50 m roadway shift to the north; and, a 50 m roadway shift to the south. Due to the significant environmental impacts (ravine and woodlot), the 50 m roadway shift to the south was screened out and not carried forward for the evaluation.

Vertical Alignment Alternatives

Highway 400 Overpass (6th Line under Highway 400)



Highway 400 Underpass (6th Line over Highway 400)



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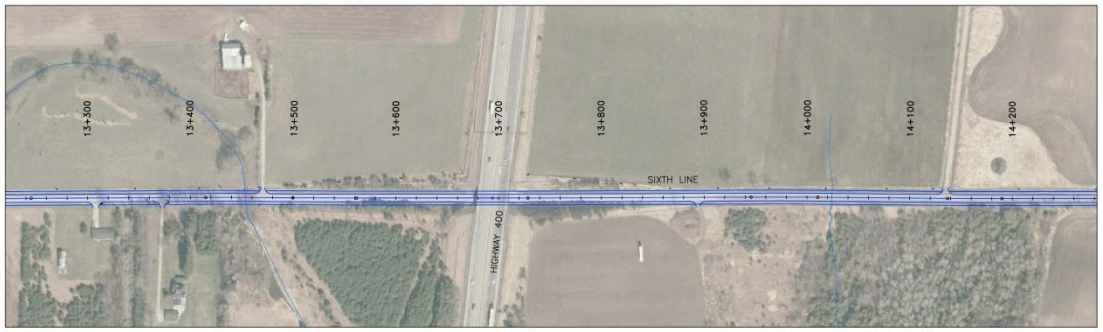
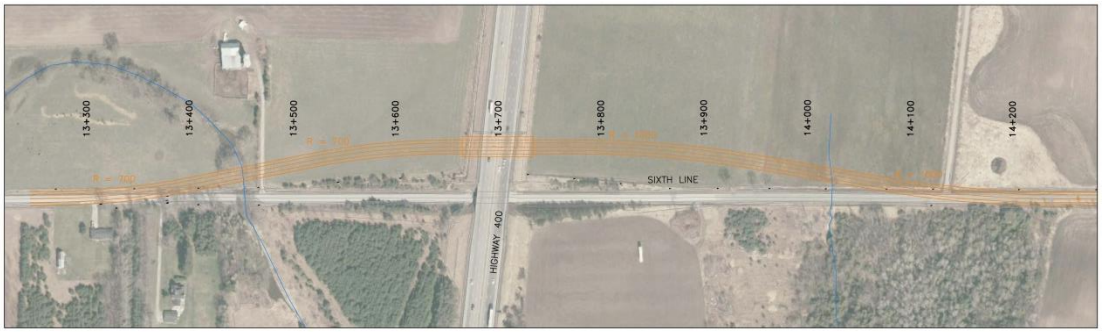
Horizontal Alignment Alternatives

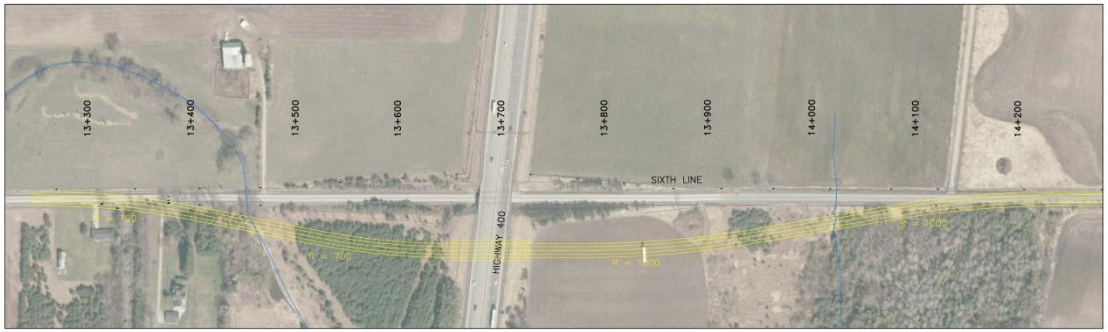
Existing Alignment



North Alignment



South Alignment



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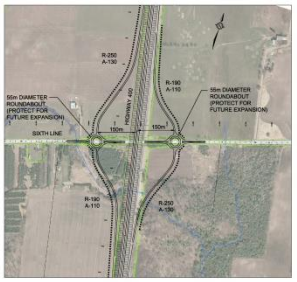
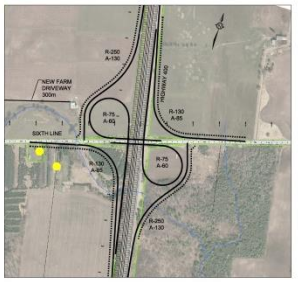
Interchange Configuration Alternatives

ALTERNATIVE 1
DIAMOND

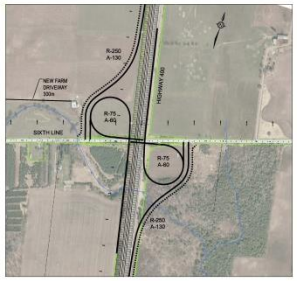


ALTERNATIVE 2
DIAMOND WITH ROUNDABOUT

ALTERNATIVE 3
PARCLO A2
180m DIRECT TAPER ON SIXTH LINE
(100 km/h DESIGN SPEED)

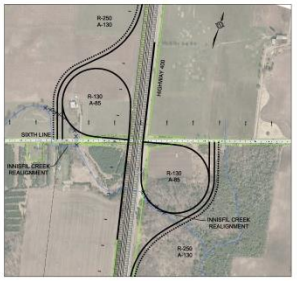


ALTERNATIVE 4
PARCLO A4
180m DIRECT TAPER ON SIXTH LINE
(100 km/h DESIGN SPEED)

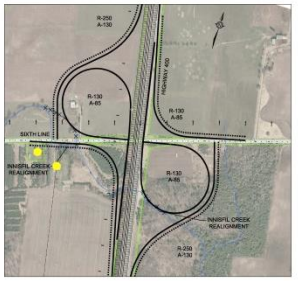


ALTERNATIVE 5
PARCLO A2
110m DIRECT TAPER ON SIXTH LINE
(80 km/h DESIGN SPEED)

ALTERNATIVE 6
PARCLO A4
110m DIRECT TAPER ON SIXTH LINE
(80 km/h DESIGN SPEED)



ALTERNATIVE 7
PARCLO A2
110m DIRECT TAPER ON SIXTH LINE BEYOND STRUCTURE
(80 km/h DESIGN SPEED)



ALTERNATIVE 8
PARCLO A4
110m DIRECT TAPER ON SIXTH LINE BEYOND STRUCTURE
(80 km/h DESIGN SPEED)

ALTERNATIVE 9
PARCLO B2

ALTERNATIVE 10
PARCLO B4

Legend

- Potential Property Acquisition
- Existing R-O-W
- Proposed R-O-W

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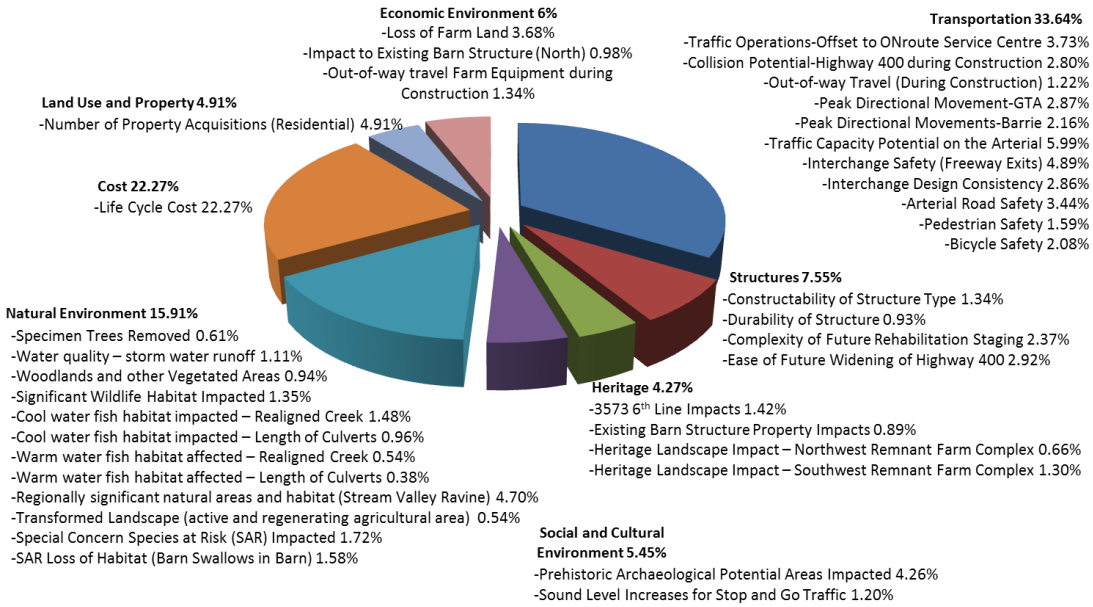
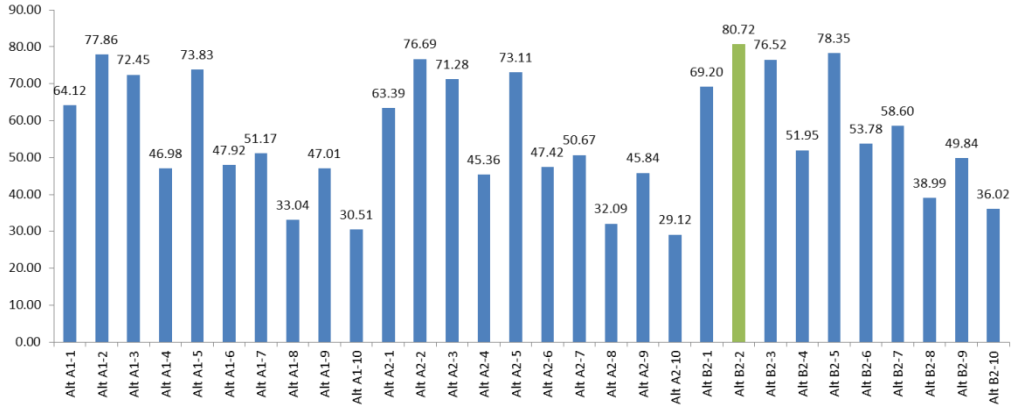
Evaluation Results

The evaluation approach to compare preliminary design alternatives, described as the Multi Attribute Trade-off System (MATS), is based on the "Weighted Additive Method" which focuses on the differences between the alternatives, addressing the complexity of the base data collected, and providing a traceable decision-making process. In addition, the method allows quick sensitivity tests to be performed because of the matrix configuration of the assessment and the use of numerical scores to measure the impact of the alternatives. The Evaluation Methodology report is available at the resource table.

Evaluation criteria were developed that were used to compare and rank alternatives. The results are illustrated below – Alternative B2-2 (northern alignment over Highway 400 with a diamond roundabout interchange configuration) was rated as the Technically Preferred Alternative.





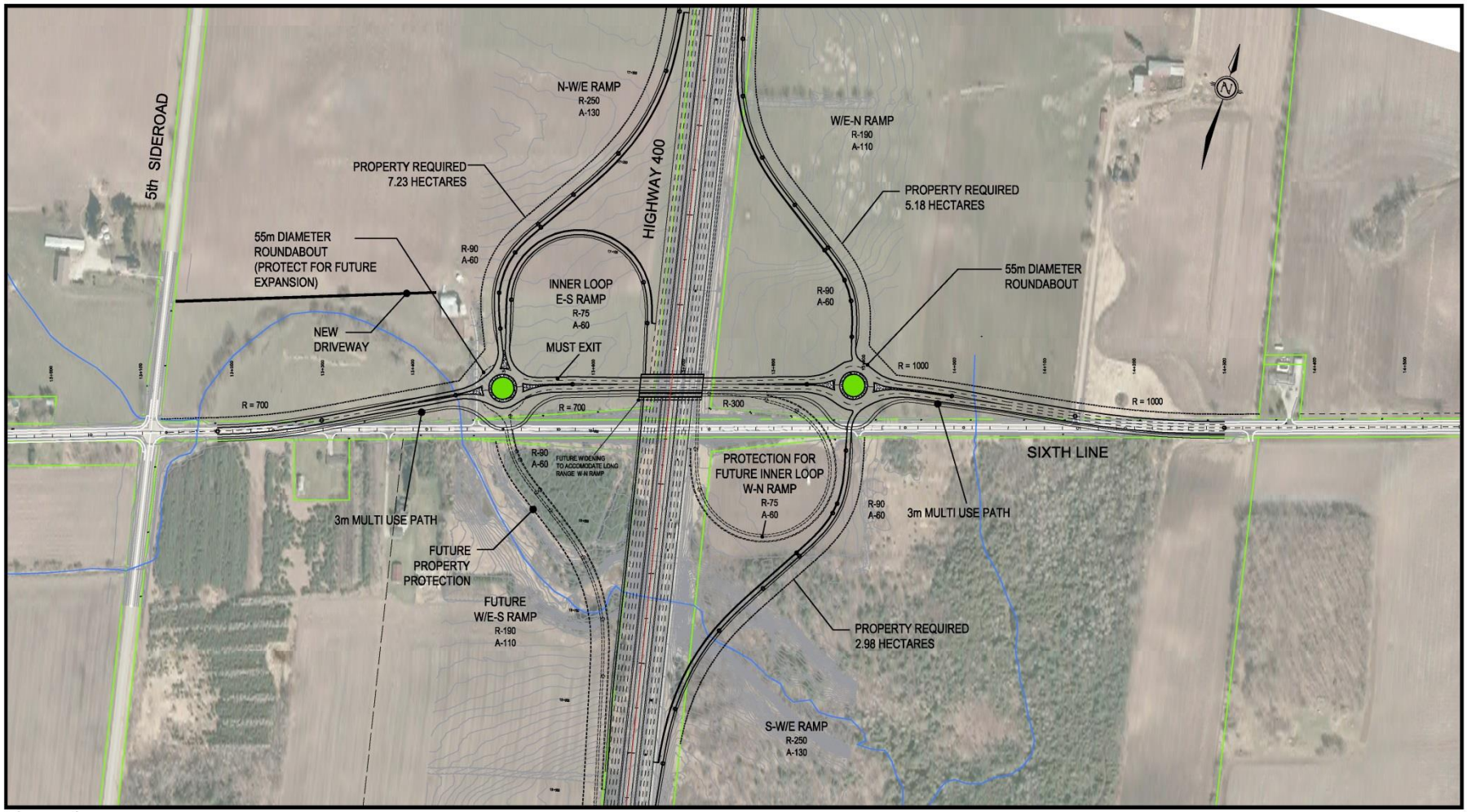
Refinements to Technically Preferred Alternative

Based on the detailed traffic modelling, the Technically Preferred Alternative (TPA) included minor refinements that include:

- Constructing an inner loop in the northwest quadrant to accommodate the peak travel demand;
- Deferring the outer loop ramp in the southwest quadrant to minimize environmental effects but protecting property for long term expansion;
- Protecting for a future inner loop on the east side of the interchange to accommodate future traffic demand or a linkage for a future Barrie Bypass.

The final design is presented as the Recommended Plan.

SIXTH LINE AT HIGHWAY 400
RECOMMENDED PLAN



Legend

Existing Right-of-Way & Property Fabric

Proposed Right-of-Way

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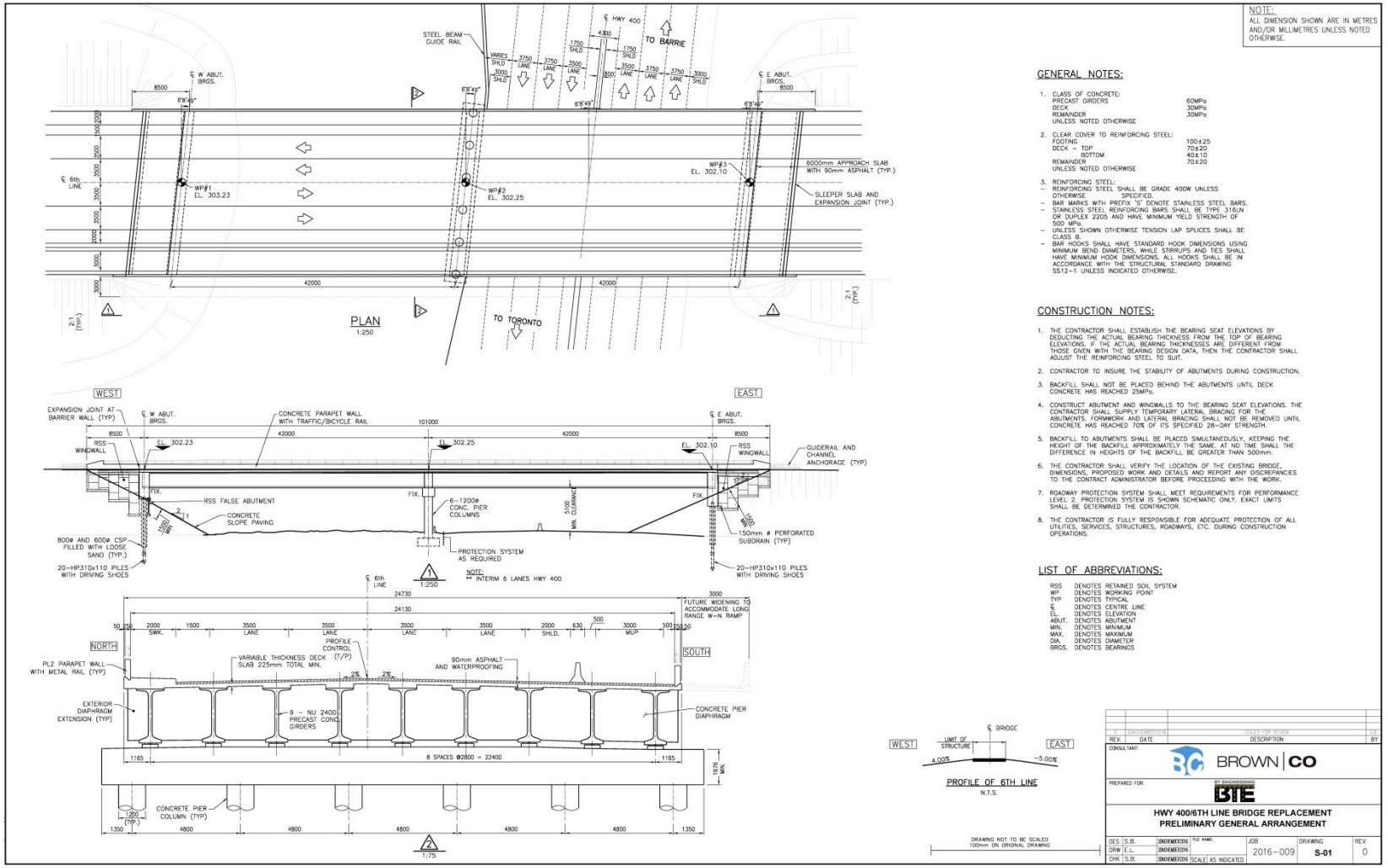
General Arrangement Bridge Drawing



NOTE:
ALL DIMENSION SHOWN ARE IN METRES AND/OR MILLIMETRES UNLESS NOTED OTHERWISE.

GENERAL NOTES:

1. CLASS OF CONCRETE:
   PRECAST GIRDERS 60MPa
   DECK 30MPa
   REMAINDER 30MPa
   UNLESS NOTED OTHERWISE
2. CLEAR COVER TO REINFORCING STEEL:
   FOOTING 100±25
   DECK – TOP 70±20
   BOTTOM 40±10
   REMAINDER 70±20
   UNLESS NOTED OTHERWISE
3. REINFORCING STEEL:
   - REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
   - BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
   - STAINLESS STEEL REINFORCING BARS SHALL BE TYPE 316LN OR DUPLEX 2205 AND HAVE MINIMUM YIELD STRENGTH OF 500 MPa.
   - UNLESS SHOWN OTHERWISE TENSION LAP SPLICES SHALL BE CLASS B.
   - BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12-1 UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESS FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THEN THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. CONTRACTOR TO INSURE THE STABILITY OF ABUTMENTS DURING CONSTRUCTION.
3. BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL DECK CONCRETE HAS REACHED 25MPa.
4. CONSTRUCT ABUTMENT AND WINGWALLS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACING FOR THE ABUTMENTS. FORMWORK AND LATERAL BRACING SHALL NOT BE REMOVED UNTIL CONCRETE HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
5. BACKFILL TO ABUTMENTS SHALL BE PLACED SIMULTANEOUSLY, KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN HEIGHTS OF THE BACKFILL BE GREATER THAN 500mm.
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING BRIDGE, DIMENSIONS, PROPOSED WORK AND DETAILS AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK.
7. ROADWAY PROTECTION SYSTEM SHALL MEET REQUIREMENTS FOR PERFORMANCE LEVEL 2. PROTECTION SYSTEM IS SHOWN SCHEMATIC ONLY. EXACT LIMITS SHALL BE DETERMINED THE CONTRACTOR.
8. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ADEQUATE PROTECTION OF ALL UTILITIES, SERVICES, STRUCTURES, ROADWAYS, ETC. DURING CONSTRUCTION OPERATIONS.

LIST OF ABBREVIATIONS:

RSS	DENOTES RETAINED SOIL SYSTEM
WP	DENOTES WORKING POINT
TYP	DENOTES TYPICAL
℄	DENOTES CENTRE LINE
EL.	DENOTES ELEVATION
ABUT.	DENOTES ABUTMENT
MIN.	DENOTES MINIMUM
MAX.	DENOTES MAXIMUM
DIA.	DENOTES DIAMETER
BRGS.	DENOTES BEARINGS

REV.	DATE	DESCRIPTION	BY

CONSULTANT: BROWN | CO

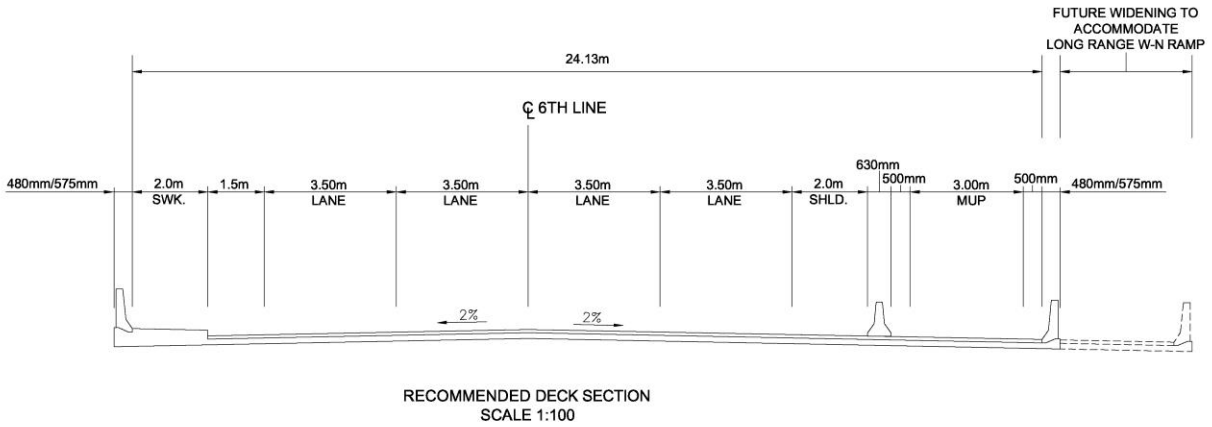
PREPARED FOR: BT ENGINEERING BTE

HWY 400/6TH LINE BRIDGE REPLACEMENT
PRELIMINARY GENERAL ARRANGEMENT

DES	S.B.	3INDEMEC06	FILE NAME:	JOB	DRAWING	REV
DRW	E.L.	3INDEMEC06		2016-009	S-01	0
CHK	S.B.	3INDEMEC06	SCALE: AS INDICATED			

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

Typical Cross Section



RECOMMENDED DECK SECTION
SCALE 1:100

Legend:
MUP – Multi—use Path
SWK – Sidewalk
SHLD - Shoulder

Statement of Flexibility

The Environmental Study Report will document that the design will include the flexibility to include minor modifications that may include:

- Design revisions to the ramp terminal/roundabout designs based on MTO design approvals during the detail design
- Ability to stage the project by building only the grade separation as a first priority project to replace the aging Highway 400/6th Line structure and to accommodate widening of Highway 400 to 10 lanes
- Ability to implement a property protection plan to accommodate an ultimate Parclo A4 interchange design when triggered by future growth

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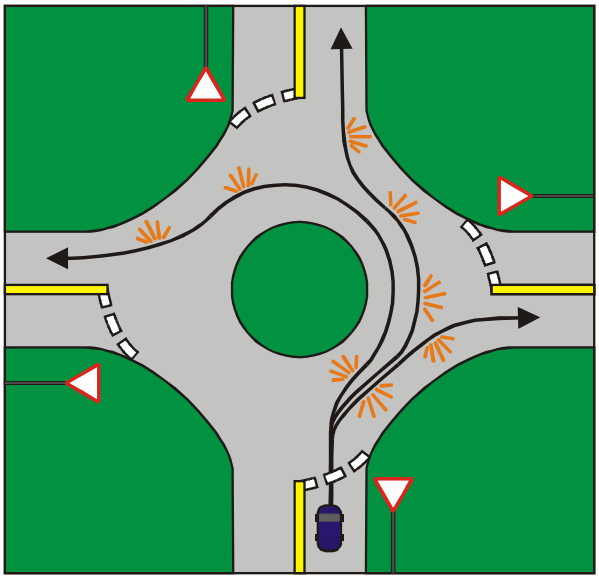
Traffic Video

Position and Signalling within a Single Lane Roundabout



1. Drivers must signal to turn right
2. Drivers must signal to exit the roundabout
3. Drivers must signal to change lanes and should check their rear view mirror and blind spot.
4. When travelling past two or more exits on the roundabout drivers can use a courtesy left hand signal.

Advantages of a Roundabout

Advantages of the roundabout alternative for the intersection include:

- Increased safety with reduced collision severity
- Roundabouts are a traffic calming feature that will slow traffic
- Improves traffic operations with minimal traffic delays
- Establishes a distinctive character
- Roundabout will accommodate pedestrian movements

Roundabout Driving Tips

- ✓ Slow down as you approach the roundabout.
- ✓ View direction signage to plan exit leg of roundabout.
- ✓ Choose the correct entry lane (viewing pavement markings and signage).
- ✓ Watch and yield to pedestrians crossing the roadway when approaching or exiting a roundabout.
- ✓ Traffic in the roundabout has the right-of-way (treat roundabout as a one-way street).
- ✓ Do not stop within roundabout.
- ✓ Give large vehicles extra space to manoeuver.
- ✓ Avoid passing other vehicles in the roundabout.
- ✓ Always signal your exit.

Schedule

Following this meeting we will:

- Review all comments
- Finalize the Recommended Plan
- Prepare the Environmental Study Report
- Place the Study Completion Notice in the newspaper
- 30-day public review period (winter 2017)
- Environmental Clearance

How can you remain involved in the Study?

- Request that your name/e-mail be added to the mailing list
- Provide a completed comment sheet
- Contact the Town or consultant representatives at any time

Any of our representatives that are present can assist you with the above activities.

Thank you for your participation at tonight's meeting. Your input into this study is valued and appreciated. Please provide your completed comment sheet on or before **December 20, 2016**. All information is collected and used in accordance with the *Environmental Assessment Act* and the *Freedom of Information and Protection of Privacy Act*.

Resource Table

Study Design

Aquatic Assessment

Bridge Hydrology and Drainage Report

Cultural Heritage Memo

Municipal Class EA

Town of Innisfil Official Plan

Town of Innisfil Transportation Master Plan

Assessment of Interchange Locations

Traffic Memo

Analysis and Evaluation Report

Land Use Planning Report

Phase I ESA

POH No. 1 Summary Report

MTO Future Approvals

The Ministry of Transportation of Ontario (MTO) will have future approvals for the project including:

- Interchange Project Approval
- Detail Design
- Construction Delivery

These approvals may require minor design refinements which will be covered by the ESR Statement of Flexibility.