



[highway401cobourgcoborne.ca](http://highway401cobourgcoborne.ca)

Highway 401

# Nagle Road Interchange

Planning, Preliminary Design, and  
Class Environmental Assessment Study

GWP 4059-17-00





sign-in



chat

with the project team



accessibility

Let us know how we can help



take a  
comment sheet

When you're done, drop it  
in the comment box

Welcome to

# Public Information Centre 1

September 18, 2019

This is the first Public Information Centre for the  
Highway 401 Nagle Road Interchange Study



## PIC 1 Objectives

- introduce the project and outline the process being followed
- provide background information on the need for the improvements
- present Nagle Road interchange alternatives that will be evaluated as part of this project
- seek input on the existing conditions in the study area (i.e. natural, social, economic, cultural)
- answer questions about the study



## About the Project

The Ontario Ministry of Transportation (MTO) and the Town of Cobourg have retained Stantec Consulting Ltd. to undertake a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study on Highway 401 for a new interchange near Nagle Road in the Town of Cobourg and the Township of Hamilton. The purpose of the study is to identify a Recommended Plan that addresses future transportation and planning needs in the study area. The interchange study is the Town of Cobourg's initiative and is being completed concurrently with the MTO's Highway 401 Planning Study from Cobourg to Colborne (GWP 4060-11-00).

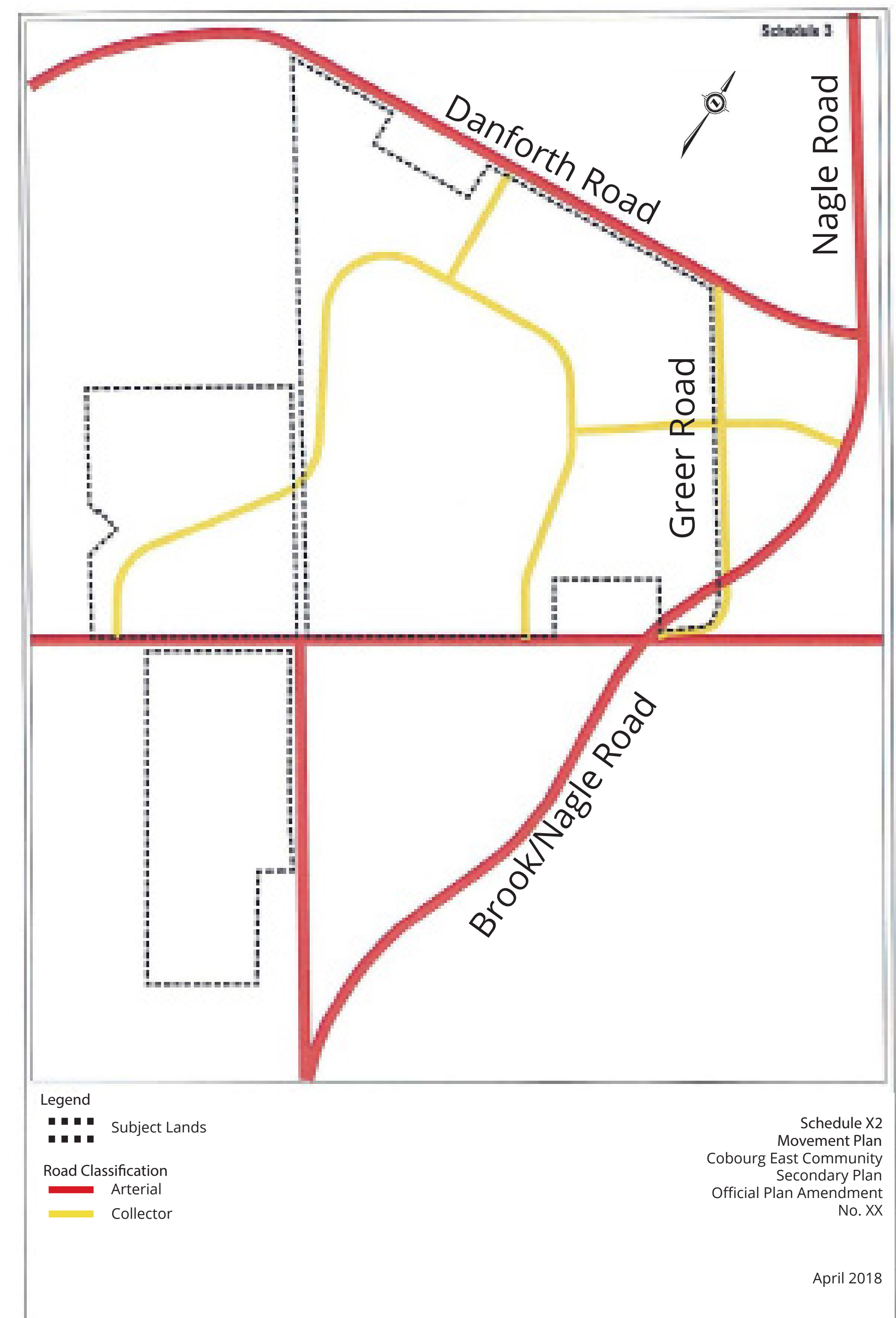
As part of the interchange study, the existing Nagle Road bridge is also being assessed. The Nagle Road bridge was constructed in 1959. It is a concrete structure and carries two lanes of traffic over Highway 401. Due to its age, the bridge is approaching the end of its planned service life and will need to be rehabilitated or replaced. Ultimately, the bridge will need to accommodate the future Highway 401 6 and 8 lane footprints

# Problem and Opportunity

The need for an interchange at Nagle Road with Highway 401 was identified in the Cobourg East Community Secondary Plan, which was approved by Cobourg Council in 2005. The proposed interchange supports the transportation objectives identified in Section 15.7 of the Town of Cobourg Official Plan (5 Year Review) which was adopted by Cobourg Council in 2010, approved by the Ministry of Municipal Affairs and Housing in 2011 and approved by the Ontario Municipal Board in 2017. The Cobourg East Community Secondary Plan was amended by Cobourg Council in July of 2018 via Official Plan Amendment No. 76 to reflect a modified land use plan and transportation network in the northern sector of the planning area.

Additional information about the Official Plan and Cobourg East Community Secondary Plan can be found on the Town's website at [www.cobourg.ca](http://www.cobourg.ca). The potential future Highway 401 interchange at Nagle Road is also identified in the Township of Hamilton Official Plan Schedule 'A' - Land Use (July 2012).

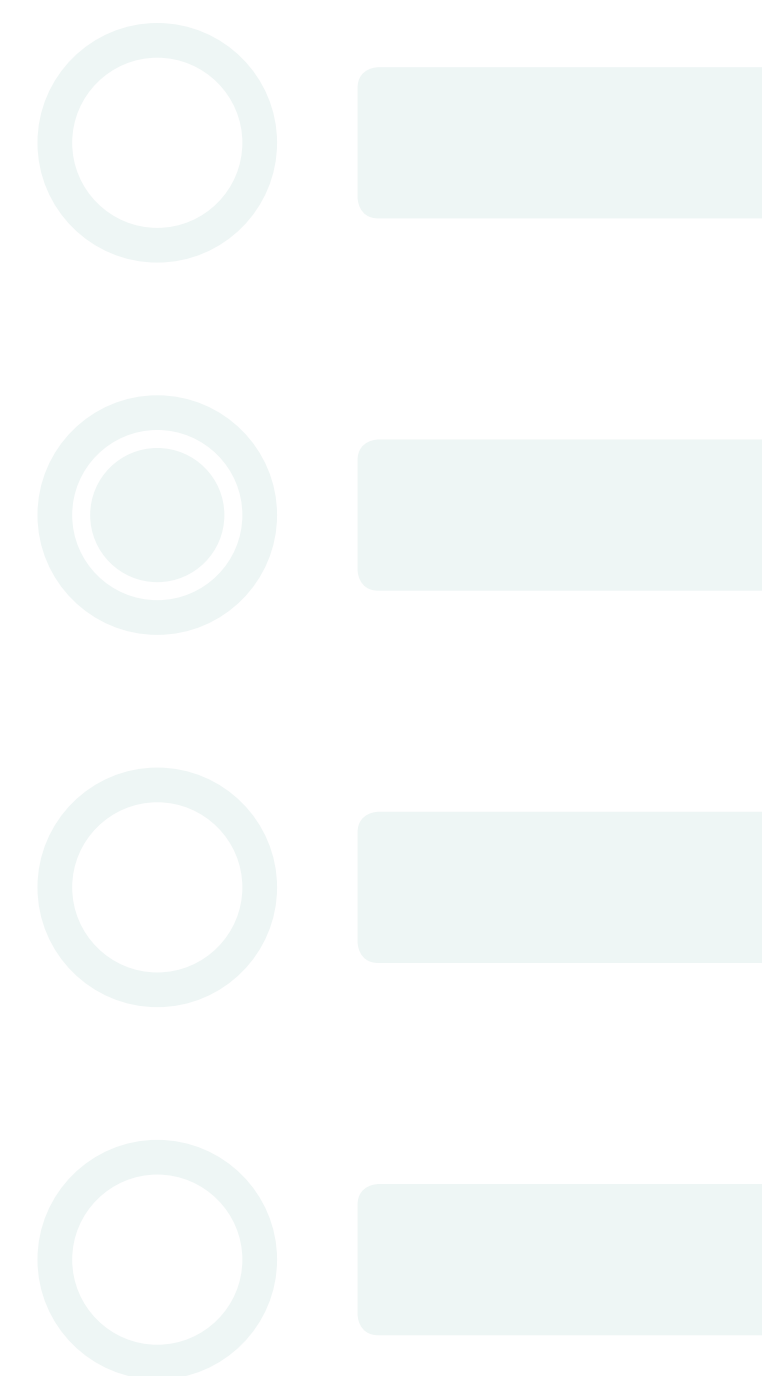
The road network and the future interchange are conceptually shown on Schedule X2 of the Cobourg East Community Secondary Plan (2018).



# Alternatives to the Undertaking

The Class EA process requires that 'reasonable alternatives' be considered to address identified problems. 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 can be studied.

The Alternatives to the Undertaking identified for this study are listed below.



## Alternatives to the Undertaking

### Sufficiency

On its own, does it address the identified transportation problems?

### Carry forward

for further consideration?

#### Do Nothing

Nagle Road crosses over Highway 401 on a bridge with no direct access to Highway 401.



#### New Interchange

Interchange ramps are constructed at or near Nagle Road to provide direct access between Highway 401 and the lands adjacent to Nagle Road in the Town of Cobourg and Hamilton Township.



Alternative interchange configurations at or near Nagle Road (Alternative Methods) have been carried forward for further consideration.

# Environmental Assessment Process

This study is being carried out under the requirements of the Class Environmental Assessment 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.

The MTO Class EA process is an approved process for highway planning, design, and construction projects. The study is following a Group 'B' process which is completed for major improvements to existing provincial transportation facilities.

At the end of the study, a Transportation Environmental Study Report (TESR) will be prepared and made available for public review.

## Class Environmental Assessment Process for Group 'B' Projects

Ongoing Transportation Needs Assessment



Ongoing Public Consultation

Need Identified

### Preliminary Design

#### Data collection

Review available background information and conduct field investigations as required to identify existing conditions in the study area

#### Generate & evaluate

Develop preliminary design alternatives to address structural needs, improve the highway safety and operations, and consider potential impacts to the existing natural, social, and cultural environment to identify a preferred plan

#### Select

Identify the preferred plan and mitigation measures to address potential impacts

#### Refine

Complete preliminary design of the preferred plan including a potential implementation strategy

#### Report

Document the process leading to the preferred plan

#### Clearance

The Class EA requirements are met and the project is cleared to proceed to detail design

Consultation during Preliminary Design



Notifications and project website



Municipal Advisory Committee Meeting 1



Public Information Centre 1



we are here



Municipal Advisory Committee Meeting 2



Public Information Centre 2



Transportation Environmental Study Report  
30-day public review period

### Future Stages

#### Detail Design



Consultation during Detail Design

#### Construction



Consultation during Construction

# Evaluation process

A detailed evaluation of alternatives will be carried out to identify an improvement plan that is cost-effective, addresses structural needs, provides safe operations, and provides reasonable local access, while minimizing the effects on the natural, social and cultural environments. This is accomplished by identifying evaluation criteria along with their relative importance, and then ranking the overall scores of the design alternatives.

A second PIC will be scheduled following PIC 1 to present the evaluation of the alternatives and a recommended plan for the Highway 401 Nagle Interchange Study.

## The recommended plan

The concluding step in the analysis and evaluation process is the selection of a recommended plan.

This process includes:

- 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
- confirming the ranking of the alternatives
- considering public/stakeholder response to the evaluation process



### Identify Criteria

Evaluation Criteria are established through:

- public input
- similar projects
- provincial guidelines
- existing conditions



### Weigh Criteria

Each criterion is assigned a weight factor that best reflects its relative importance.



### Evaluate Alternatives

The sum of the weighted scores provides a total score for each alternative. This is the basis for ranking the alternatives and identifying the recommended plan



### The highest scoring alternative

# Preliminary evaluation criteria

## Engineering

### Traffic Operations

- ... consider projected future traffic from the Cobourg East Community Secondary Plan
- ... consider Level of Service (LOS) on Highway 401

### Geometrics & Safety

- ... consider design standards for provincial highways and interchanges
- ... consider potential for collisions on Highway 401
- ... consider pedestrian and cyclists accommodations

### Constructability

- ... consider construction techniques

## Community

### Property

- ... consider impacts to private property

### Noise & Air Quality

- ... consider noise impacts at Noise Sensitive Receivers (NSR's)
- ... consider impacts to air quality

### Land Use

- ... consider impacts to sensitive land uses
- ... consider existing and future development plans

### Built & Cultural Heritage

- ... consider impacts to existing cultural and built heritage features within the study area

### Archaeology

- ... consider impact on archaeological resources
- ... consider impacts on areas of archaeological potential

### Contamination

- ... consider impact on potentially contaminated land

... consider geotechnical and foundation conditions

... consider traffic flow and operations, including local access and out-of-way travel

### Utilities

... consider impacts to utilities

### Cost

... consider total cost including utility relocations and property acquisition

## Environment

### Terrestrial Ecosystem

... consider impacts on wildlife habitat

... consider impacts on significant trees or vegetation

### Fish & Fish Habitat

... consider impacts to creeks and water bodies

... consider impacts to fish and fish habitat

### Species of Conservation Concern

... consider impacts to Species-at-Risk or habitat associated with Species-at-Risk

### Environmentally Sensitive Areas, Designated Areas

... consider impacts to the Brook Creek Environmental Constraint Area

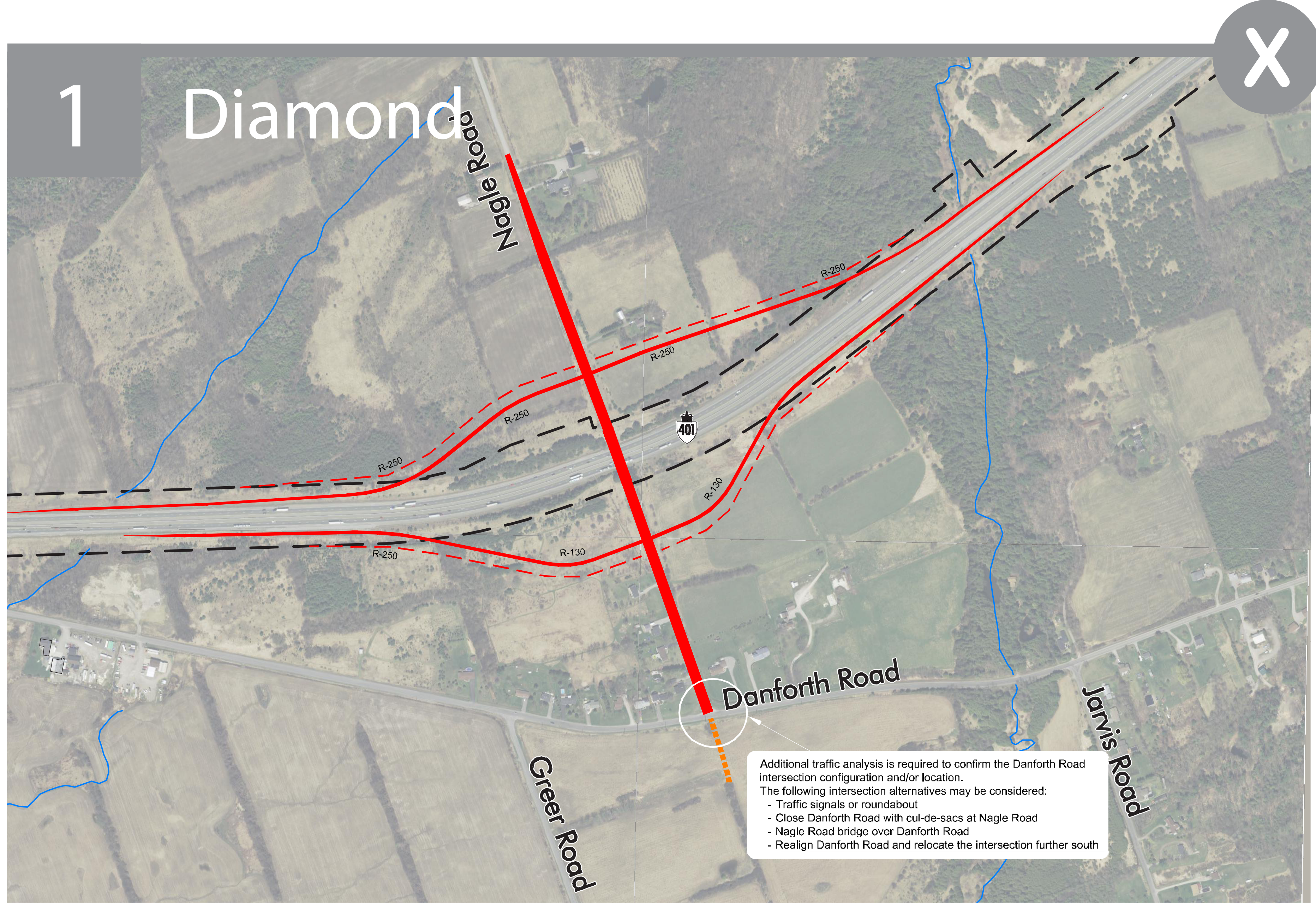
... consider impacts to Sourcewater Protection Areas

# N

## Nagle Road Interchange alternatives: 1, 2, 3, 4

— New roadway  
- - - Property required  
- - - Limit of MTO right-of-way  
- - - Possible Brook Road/Nagle Road Connection by the Town of Cobourg

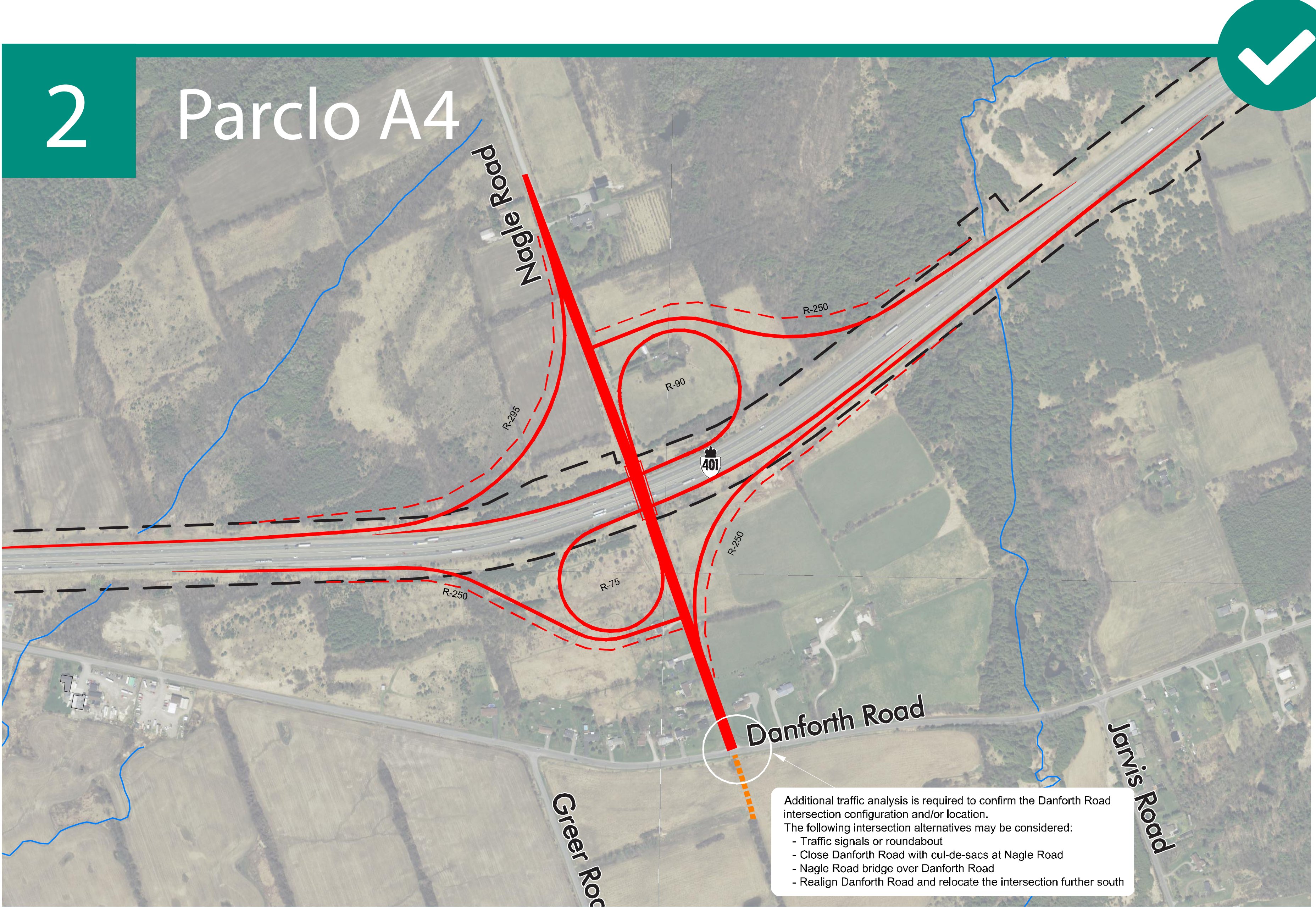
  
 500 m  
 1:4000



- Advantages**
- Requires less property than Parclo interchange
  - Lower construction cost when compared to a Parclo interchange
  - The bridge can be replaced in advance of the interchange construction if required
  - Fewer environmental impacts when compared to interchange alternatives located east of Nagle Road (Alternatives 5, 6, 7, 8)

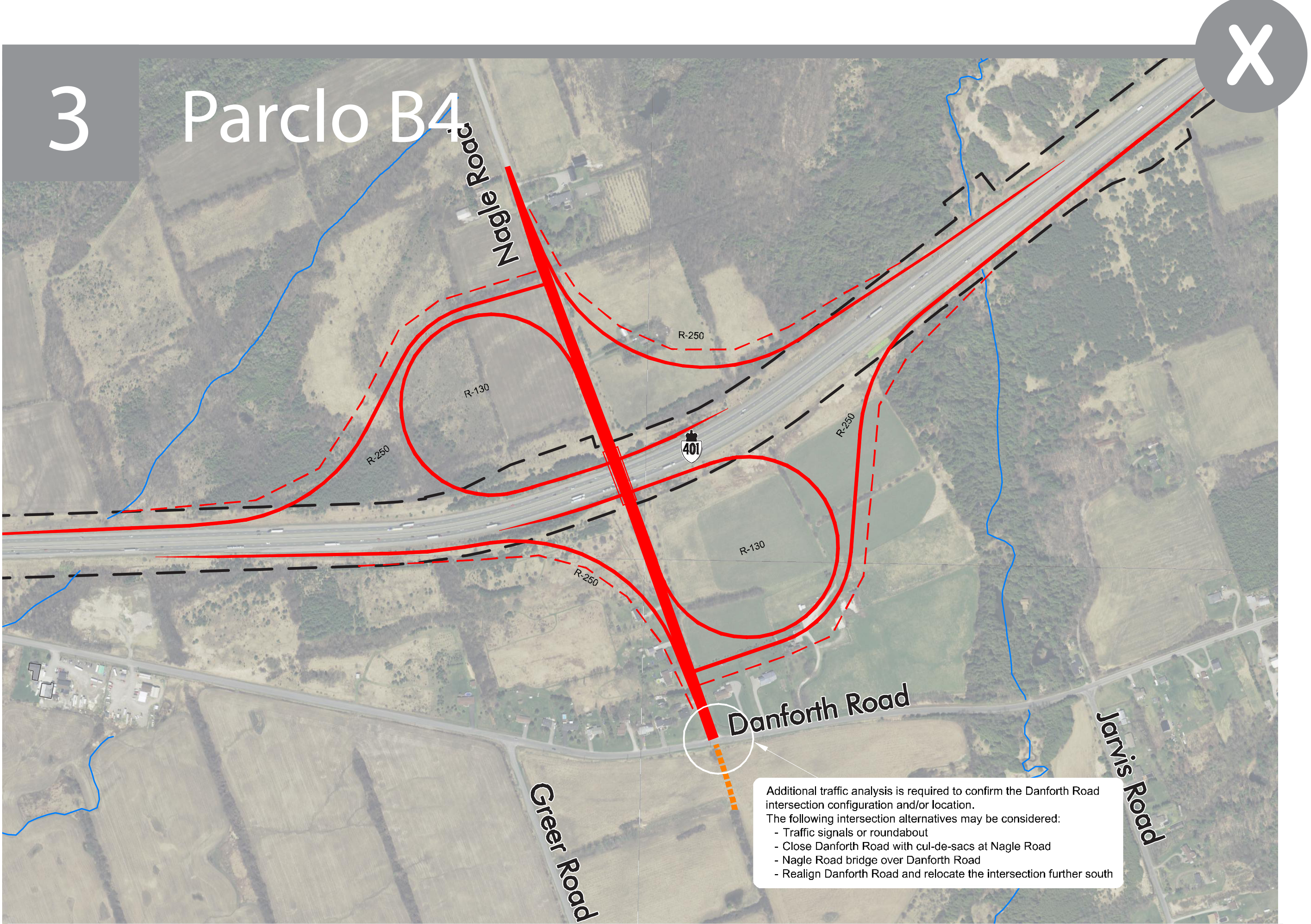
- Disadvantages**
- Lower traffic capacity than a Parclo interchange
  - Potential for "wrong-way" movements from side road to exit ramps
  - Increased traffic conflicts at ramps intersections with Nagle Road
  - Requires closure of Nagle Road during construction
  - The distance between the south ramp terminal and Danforth Road is 280 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal
  - The distance between the Nagle Road Interchange and Division Street interchange ramps is 915 m (EB) and 645 m (WB).

Alternative 1 is screened-out from further consideration because the interchange configuration cannot accommodate the anticipated traffic volumes



- Advantages**
- Higher traffic capacity and minimal traffic conflicts when compared to other interchange alternatives
  - Interchange is a standard configuration with inherent safety features (i.e. minimal conflicts)
  - Fewer environmental impacts when compared to interchange alternatives located east of Nagle Road (Alternatives 5, 6, 7, 8)
  - The bridge can be replaced in advance of the interchange construction if required

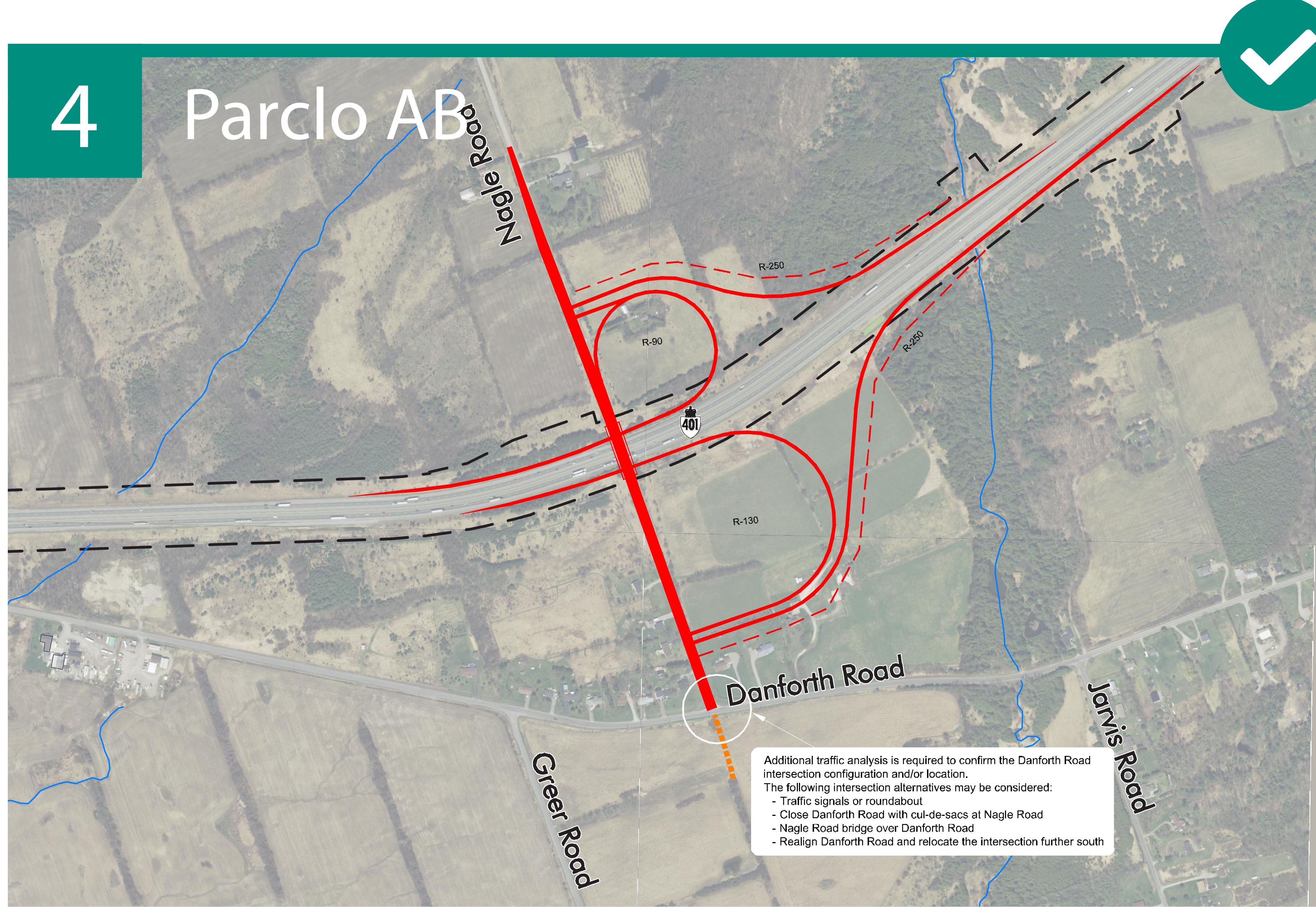
- Disadvantages**
- Higher construction costs when compared to Diamond interchange
  - Requires more property than a Diamond interchange
  - The distance between the south ramp terminal and Danforth Road is 260 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal
  - The distance between the Nagle Road interchange and Division Street interchange ramps is 1010 m (EB) and 575 m (WB)
  - Requires closure of Nagle Road during construction



- Advantages**
- Higher traffic capacity and minimal traffic conflicts when compared to Diamond interchange
  - The bridge can be replaced in advance of the interchange construction if required
  - Fewer environmental impacts when compared to interchange alternatives located east of Nagle Road (Alternatives 5, 6, 7, 8)

- Disadvantages**
- Requires more property than other interchange alternatives
  - Loop ramp exits on freeways are less desirable than direct ramps
  - Typically higher construction costs than other interchange alternatives
  - Requires closure of Nagle Road during construction
  - The distance between the south ramp terminal and Danforth Road is 110 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal
  - The distance between the Nagle Road interchange and Division Street interchange ramps is 975 m (EB) and 470 m (WB)

Alternative 3 is screened-out from further consideration because it has significant property impacts in the NW and SE quadrants, and it is less desirable to have exit loop ramps on Highway 401



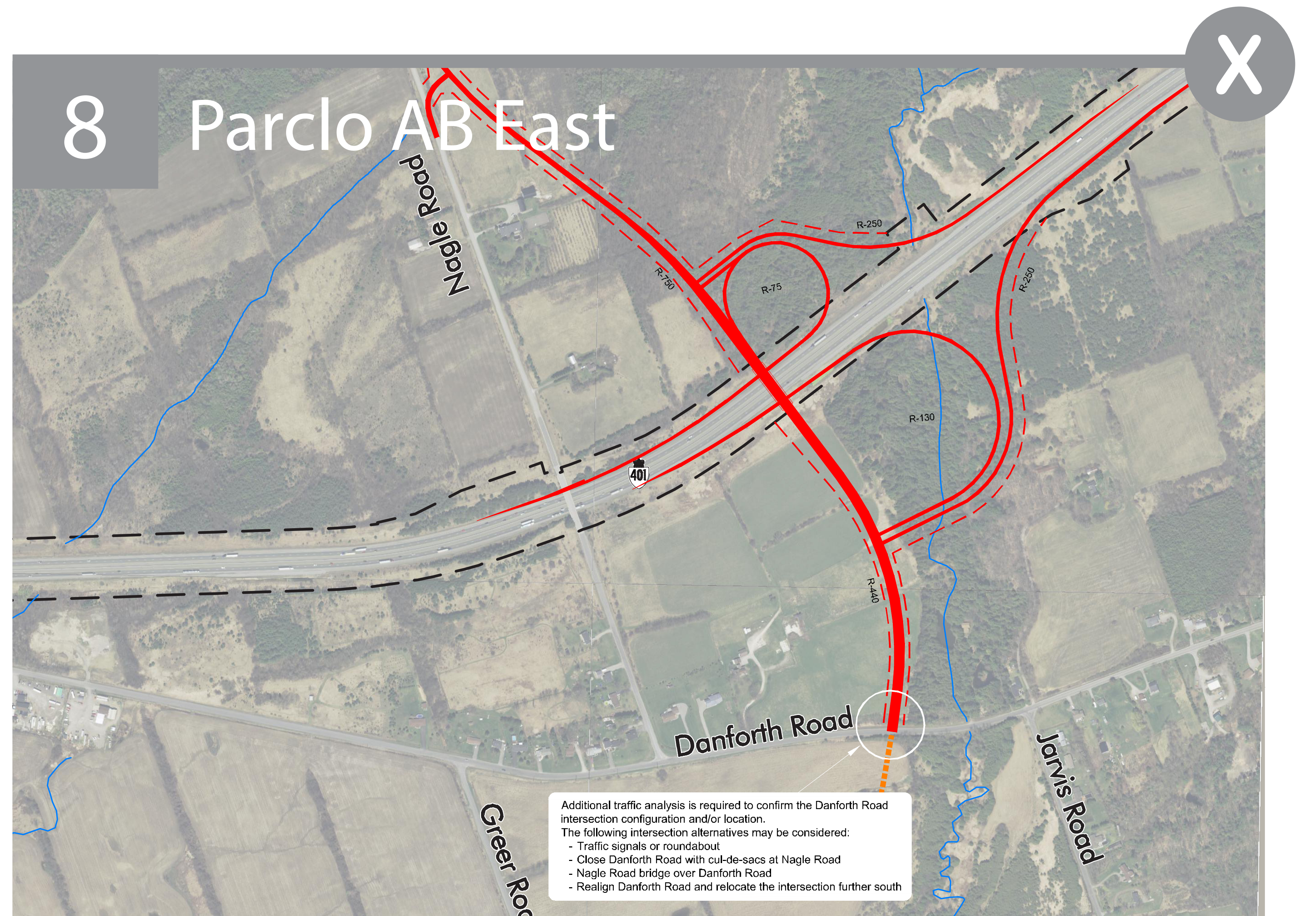
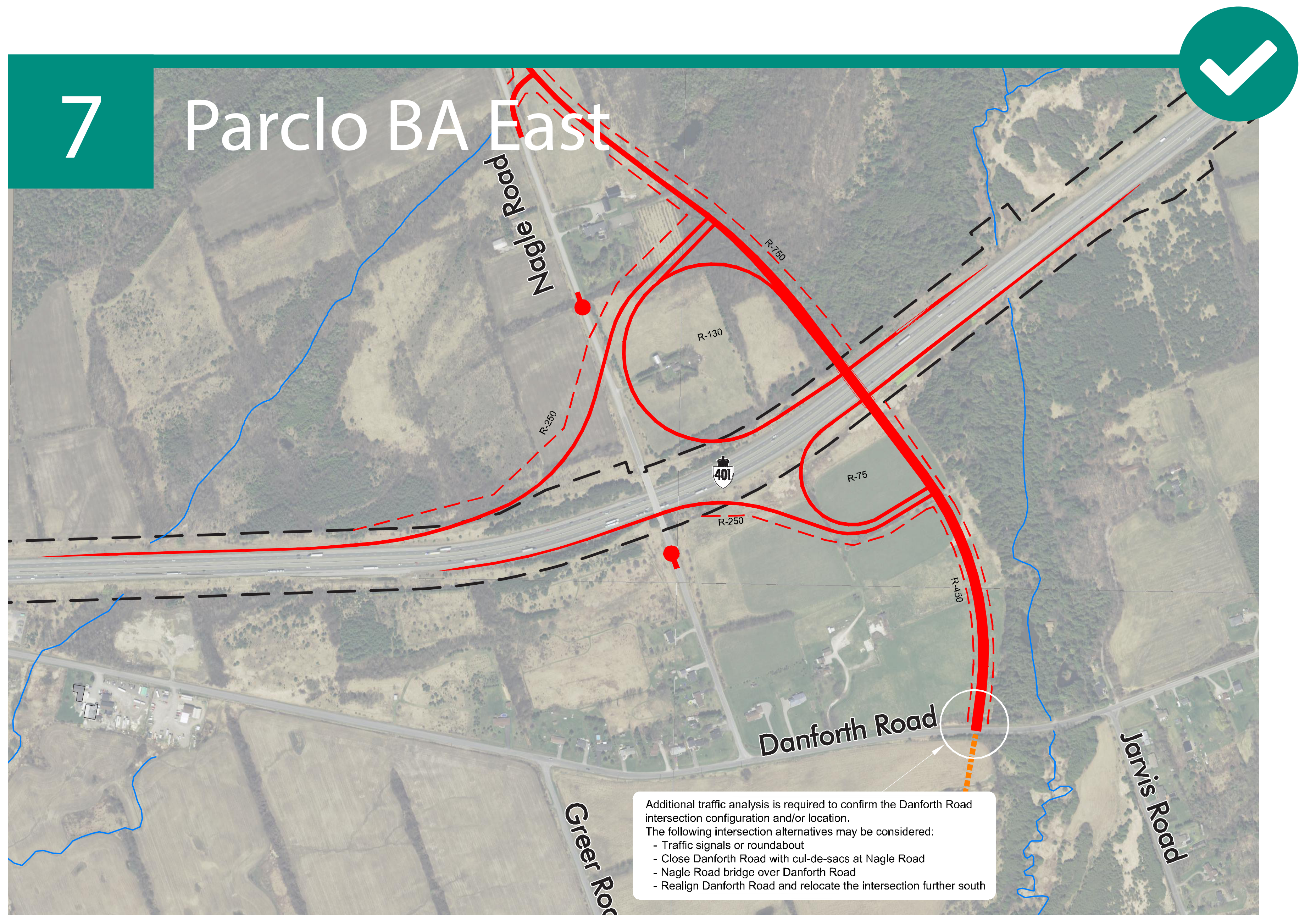
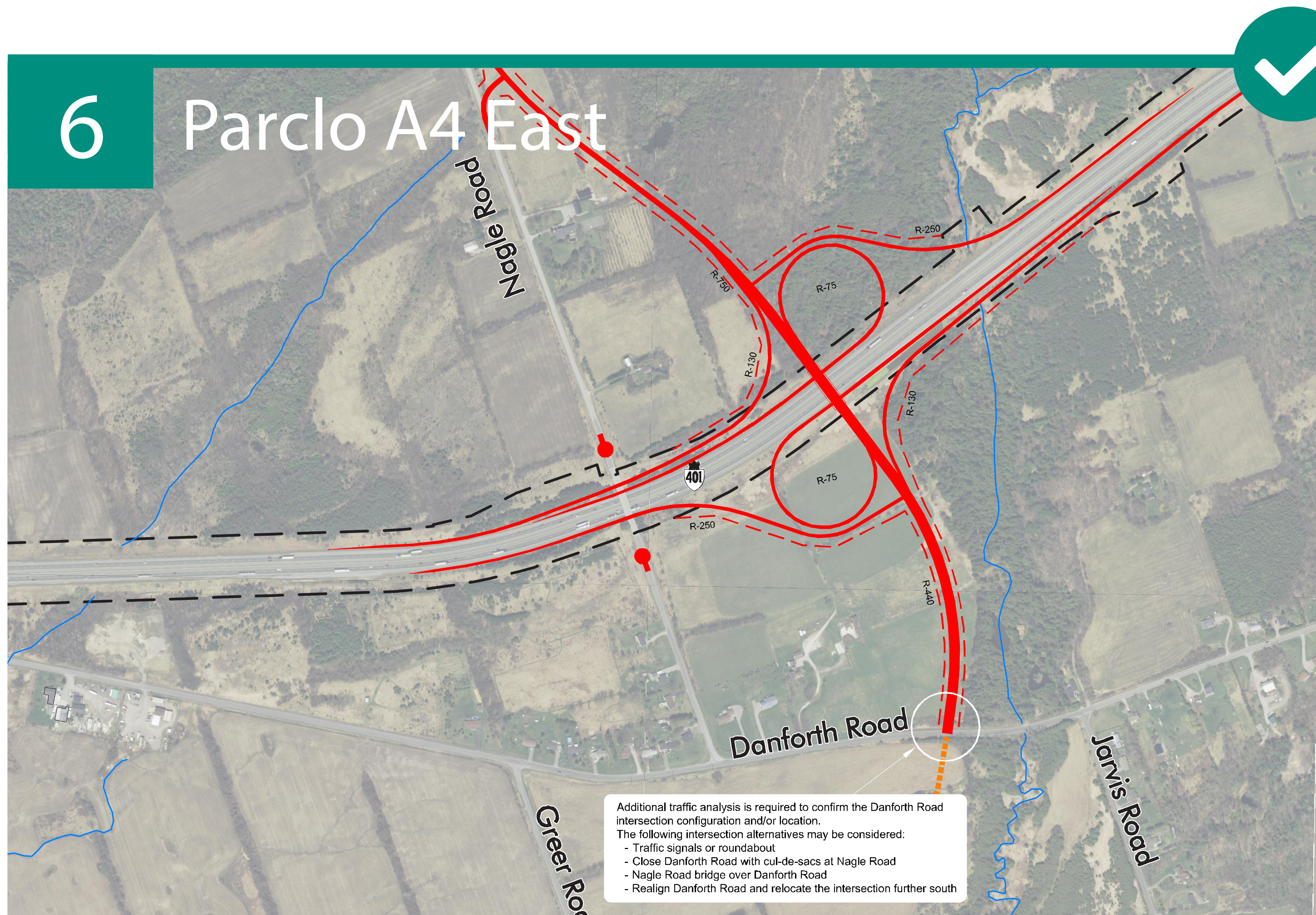
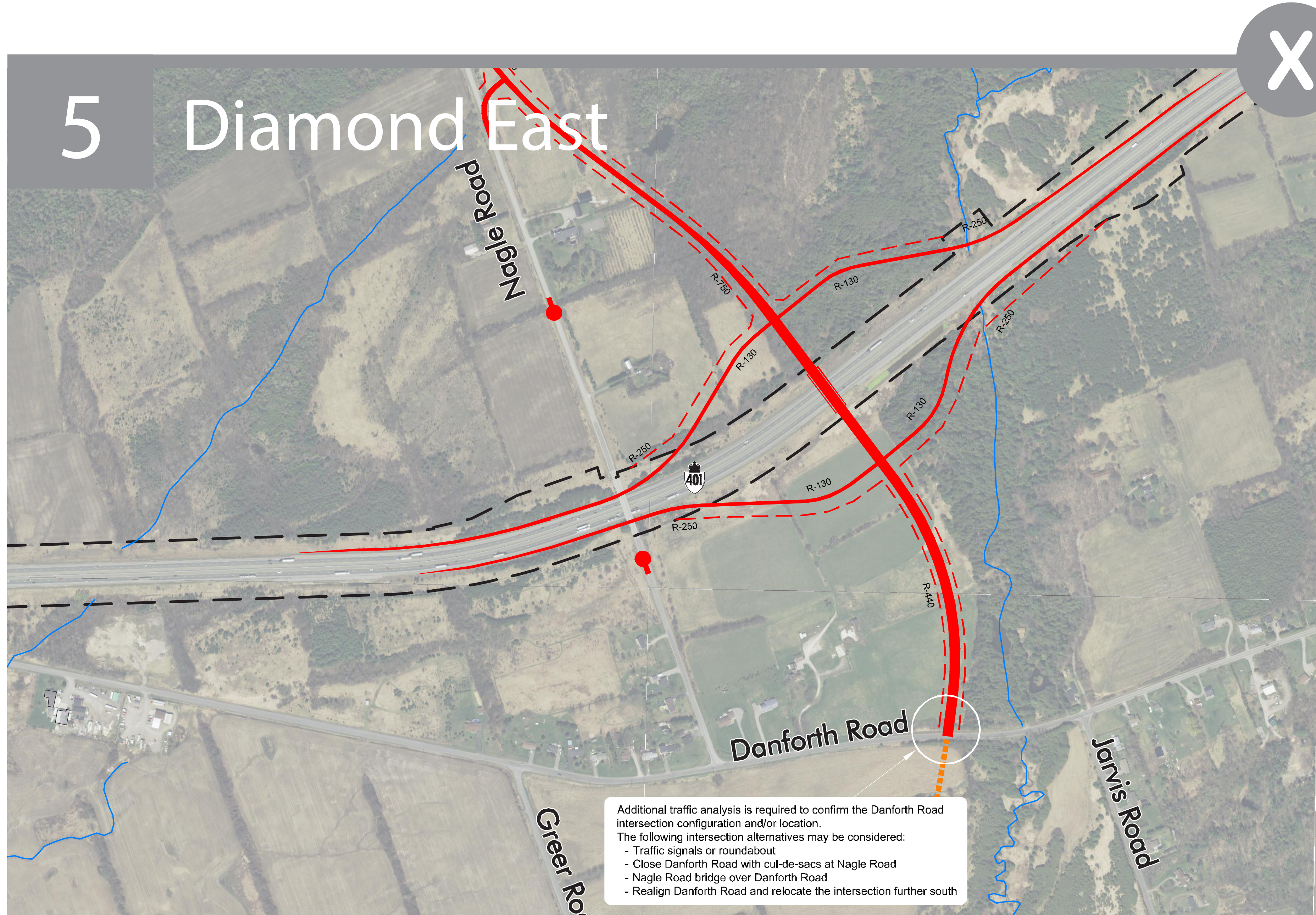
- Advantages**
- Additional traffic capacity when compared to Diamond interchange
  - Fewer environmental impacts when compared to interchange alternatives located east of Nagle Road (Alternatives 5, 6, 7, 8)
  - The distance between the Nagle Road interchange and Division Street interchange ramps is 1415 m (EB) and 1160 m (WB)
  - The bridge can be replaced in advance of the interchange construction if required

- Disadvantages**
- Requires more property than a Diamond or Parclo A4 interchange
  - Reduced traffic capacity and safety when compared to a Parclo A interchange
  - Higher construction costs when compared to a Diamond interchange
  - Loop ramp exits on freeways are less desirable than direct ramps
  - The distance between the south ramp terminal and Danforth Road is 110 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal
  - Requires closure of Nagle Road during construction

# N

## Nagle Road Interchange alternatives: 5, 6, 7, 8

— New roadway  
- - - Property required  
- - - Limit of MTO right-of-way  
- - - Possible Brook Road/Nagle Road Connection by the Town of Cobourg



### Advantages

- Requires less property than a Parclo interchange
- Lower construction cost when compared to a Parclo interchange
- Shifting Nagle Road to the east increases the separation between the Division Street interchange ramps (1350 m EB, and 1080 m WB)
- Simpler construction staging when compared to alternatives on the existing alignment (Alternatives 1, 2, 3, 4)

### Disadvantages

- Lower traffic capacity than a Parclo interchange
- Potential for "wrong-way" movements from side road to exit ramps
- Increased traffic conflicts at ramp intersections with Nagle Road
- Minor impacts to Brook Creek Environmental Constraint Area
- Requires approximately 1.15 km of realignment of Nagle Road
- A new bridge must be constructed in conjunction with realigned Nagle Road, which could be in advance of the need for the interchange
- The realigned Nagle Road has relatively steep grades through the interchange
- The distance between the south ramp terminal and Danforth Road is 430 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal

Alternative 5 is screened-out from further consideration because the interchange configuration cannot accommodate the anticipated traffic volumes

### Advantages

- Higher traffic capacity and minimal traffic conflicts when compared to other interchange alternatives
- Simpler construction staging when compared to alternatives on the existing alignment (Alternatives 1, 2, 3, 4)
- Shifting Nagle Road to the east increases the separation between the Division Street interchange ramps (1420 m EB, and 1125 m WB)

### Disadvantages

- Minor impacts to Brook Creek Environmental Constraint Area
- Higher construction costs when compared to a Diamond interchange
- Requires more property than a Diamond interchange but less property than other interchange alternatives
- Requires approximately 1.15 km of realignment of Nagle Road
- A new bridge must be constructed in conjunction with realigned Nagle Road, which could be in advance of the need of an interchange
- The realigned Nagle Road has relatively steep grades through the interchange
- The distance between the south ramp terminal and Danforth Road is 420 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal

### Advantages

- Higher traffic capacity and minimal traffic conflicts when compared to a Diamond interchange
- Minimizes impacts to the Brook Creek Environmental Constraint Area
- Shifting Nagle road to the east increases the separation between the Division Street interchange ramps (1420 m EB, and 650 m WB)

### Disadvantages

- Requires more property than other interchange alternatives
- Lower traffic capacity and safety when compared to a Parclo A interchange
- Typically higher construction costs than other interchange alternatives
- Requires approximately 1.15 km of realignment of Nagle Road
- A new bridge must be constructed in conjunction with realigned Nagle Road, which could be in advance of the need for the interchange
- The realigned Nagle Road has relatively steep grades through the interchange
- The distance between the south ramp terminal and Danforth Road is 420 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal
- Loop ramp exits on freeways are less desirable than direct ramps

### Advantages

- Locating all ramps on the east side of the interchange increases the separation between the Division Street interchange ramps (1765 m EB, and 1430 m WB)
- Additional traffic capacity when compared to a Diamond interchange

### Disadvantages

- Significant impacts to Brook Creek Environmental Constraint Area
- Requires more property than a Diamond interchange or Parclo A4 interchange
- Reduced traffic capacity and safety when compared to a Parclo A interchange
- Higher construction costs when compared to a Diamond interchange
- Requires approximately 1.15 km of realignment of Nagle Road
- Loop ramp exits on freeways are less desirable than direct ramps
- A new bridge must be constructed in conjunction with realigned Nagle Road, which could be in advance of the need for the interchange
- The realigned Nagle Road has relatively steep grades through the interchange
- The distance between the south ramp terminal and Danforth Road is 280 m, and may require a bridge over Danforth Road; or closure of Danforth Road at Nagle Road; to provide sufficient intersection separation from the south ramp terminal

Alternative 8 is screened-out from further consideration because it has significant environmental impacts in the NE and SE quadrants

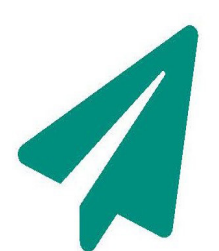
# Thank you for attending

Your input is important

## 3 ways to provide your comments:



Fill out a comment sheet and place it in the box



Email [comments@highway401cobourgcoborne.ca](mailto:comments@highway401cobourgcoborne.ca)



Or, mail your comments to:

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Kingston ON K7L 5A3  
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We would appreciate receiving your comments by  
October 18, 2019



Freedom of Information and Protection of Privacy Act  
Comments and information regarding this study are being collected to satisfy the requirements of the Ontario Environmental Assessment Act, and 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.

