



MEMO / NOTE DE SERVICE

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TO: Transportation Committee

DESTINATAIRE : Comité des transports

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DATE: June 12, 2023

12 juin 2023

FILE NUMBER: ACS2023-PRE-TP-0006

SUBJECT: Highway 416 at Barnsdale Road Interchange, Preliminary Design and MTO Class Environmental Assessment Study

OBJET : Autoroute 416 à la hauteur de l'échangeur du chemin Barnsdale – Conception préliminaire et évaluation environnementale de portée générale du MTO

PURPOSE

The purpose of this memorandum is to supplement the Ministry of Transportation's (MTO) verbal presentation to the Transportation Committee (currently scheduled for the meeting of June 22, 2023) about the Highway 416 at Barnsdale Road Interchange Preliminary Design and Environmental Assessment (EA) Study. This document summarizes the MTO's study and highlights the City's interests.

BACKGROUND

Project Need

Growth in Barrhaven, particularly south of the Jock River, continues at a strong pace. The area south of the Jock River is expected to reach a population of 32,000 by 2031 (and 36,750 by 2046).

A new Highway 416 interchange at Barnsdale Road (Figure 1), would improve highway access for this fast-growing community. This area has only one interchange with Highway 416 at Fallowfield Road, which itself is in the far northwest corner of Barrhaven (over 9 km away from south Barrhaven). The Highway 416 interchange at Bankfield Road (a further 9 km to the south of the community) serves the village of Manotick and is too far south to be considered an effective highway access point for most residents and businesses of Barrhaven. In comparison, Ottawa's other urban growth communities outside the Greenbelt have multiple interchanges that service them; Kanata has five interchanges with Highway 417 and Orleans has four interchanges with Ottawa Road 174 (formerly provincial Highway 17).

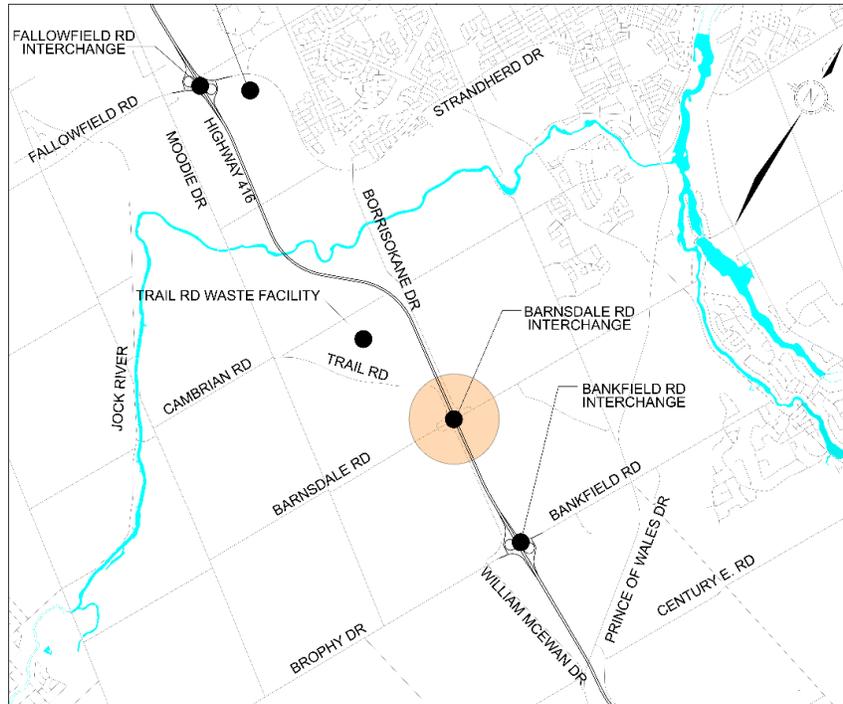


Figure 1: Barnsdale Interchange Location Plan

The new Official Plan identifies the area along the north side of Barnsdale Road immediately east of Highway 416 as an Urban Expansion Area (Figure 2). The blue area denotes planned industrial land use, and the square hatching identifies planned residential land use. The light purple identifies on-going development.

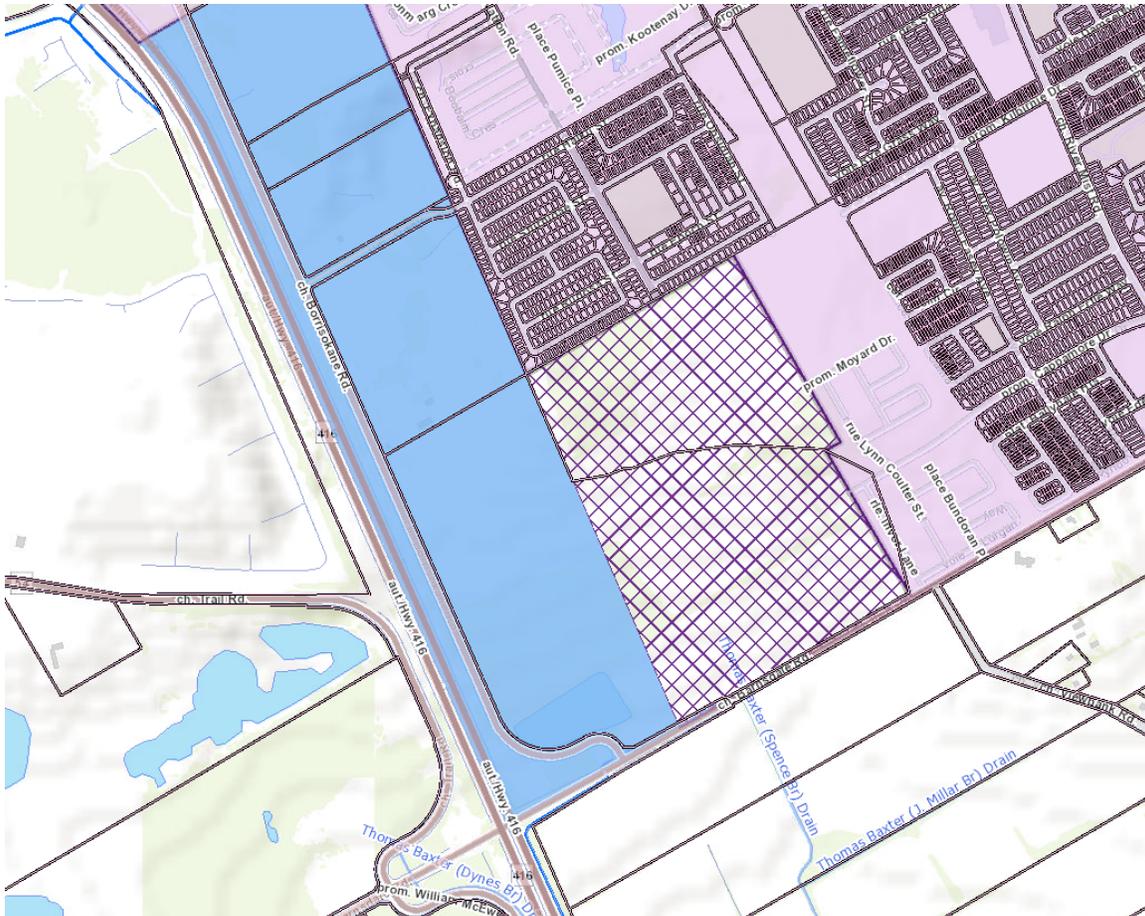


Figure 2: Urban Expansion Area

An interchange at Barnsdale would also allow the City to redirect trucking activity associated with the Trail Road Landfill and aggregate operation to the new interchange, avoiding the over utilized Fallowfield interchange and congestion on Strandherd Drive. Overall, this interchange would help maximize the utilization of the Province's investment in Highway 416.

Ministry of Transportation (MTO) Study

The study is being led by MTO, although this interchange is not in the Ministry's planned highway improvements for eastern Ontario. It is being undertaken with funds provided by a local developer. The City is managing the flow of funds to MTO as described below.

The MTO is leading this project because the interchange would be an integral component of Highway 416, which is under the mandate of the Ministry. The design

must comply with MTO standards and approval processes. Furthermore, the Ministry has the technical background information, and design and operating experience within the Highway 416 corridor.

On February 24, 2021, by way of [Motion No 49/9](#) , Council approved the delegation of authority to the General Manager of Transportation Services to enter into an agreement with South Barrhaven Development Corporation for funding so that agreements could be signed between the City and the Province to commence work on the EA study. The motion also stated that the agreement could be entered into, provided there is no cost to the City beyond presently approved budget allocations and resources. Agreements with the developer and MTO were signed in 2021.

As this study is being led by the MTO, it is following the project requirements under the MTO Class EA for Provincial Transportation Facilities (2000), which is slightly different to the Municipal Class EA process that Council and residents are more accustomed to with City-led studies. City-led transportation studies typically include a functional design, whereas under the Provincial Class EA for preliminary design, the information/design only provides a level of detail that is specific enough to ensure that the preferred alternative is environmentally, technically and economically feasible to construct the project. A more detailed analysis is completed during the next stage of the project (Detailed Design). The Ministry's EA process includes a Transportation Environmental Study Report (TESR) that documents the development of the Preliminary Design, which is published for a 30-day public review period. After this, the Ministry of Environment, Conservation and Parks has 30 days to review the study. If they do not have any additional questions or orders by the end of that period, the TESR is considered approved, and the Preliminary Design Report is finalized.

RECOMMENDED PLAN

This study evaluated a range of alternatives to assess interim and ultimate design requirements and identified a potential implementation phasing plan. The proposed interchange would accommodate traffic movements in all directions by providing entry and exit from both the northbound and southbound lanes of Highway 416.

A total of nine alternatives were assessed based on three broad environmental criteria: Social/Natural Environment, Cost/Staging and Transportation. The assessment led to a short list of four interchange alternatives that were carried forward for further evaluation, which resulted in a recommended plan. The recommended plan was developed based

on impacts to adjacent lands, impacts to Barnsdale Road during construction, ability to maintain all movements during each phase of implementation, and cost.

Ultimate Recommended Plan

The Ultimate Recommended Plan is shown in Figure 3, with red dotted lines denoting the right-of-way requirements.

The future Interchange can be identified as such:

1. The West to North Ramp will connect traffic travelling along Barnsdale Road by turning south before proceeding to Highway 416 northbound;
2. The East to North Ramp will connect traffic westbound on Barnsdale Road to Highway 416 northbound by way of a free-flow condition;
3. The North to East Ramp will take southbound traffic from Highway 416 to an intersection along Barnsdale Road west of Highway 416;
4. The North to West Ramp will take southbound traffic from Highway 416 to Barnsdale Road westbound by way of free-flow condition;
5. The South to East/West Ramp will take northbound traffic from Highway 416 to an intersection along Barnsdale Road east of Highway 416; and
6. The East/West to South Ramp will take traffic from an intersection along Barnsdale Road west of Highway 416 to the southbound Highway 416.

The implementation of the North to East Ramp (3) and the East/West to South Ramp (6) require the realignment of the existing William McEwen Road to access further west along Barnsdale Road.

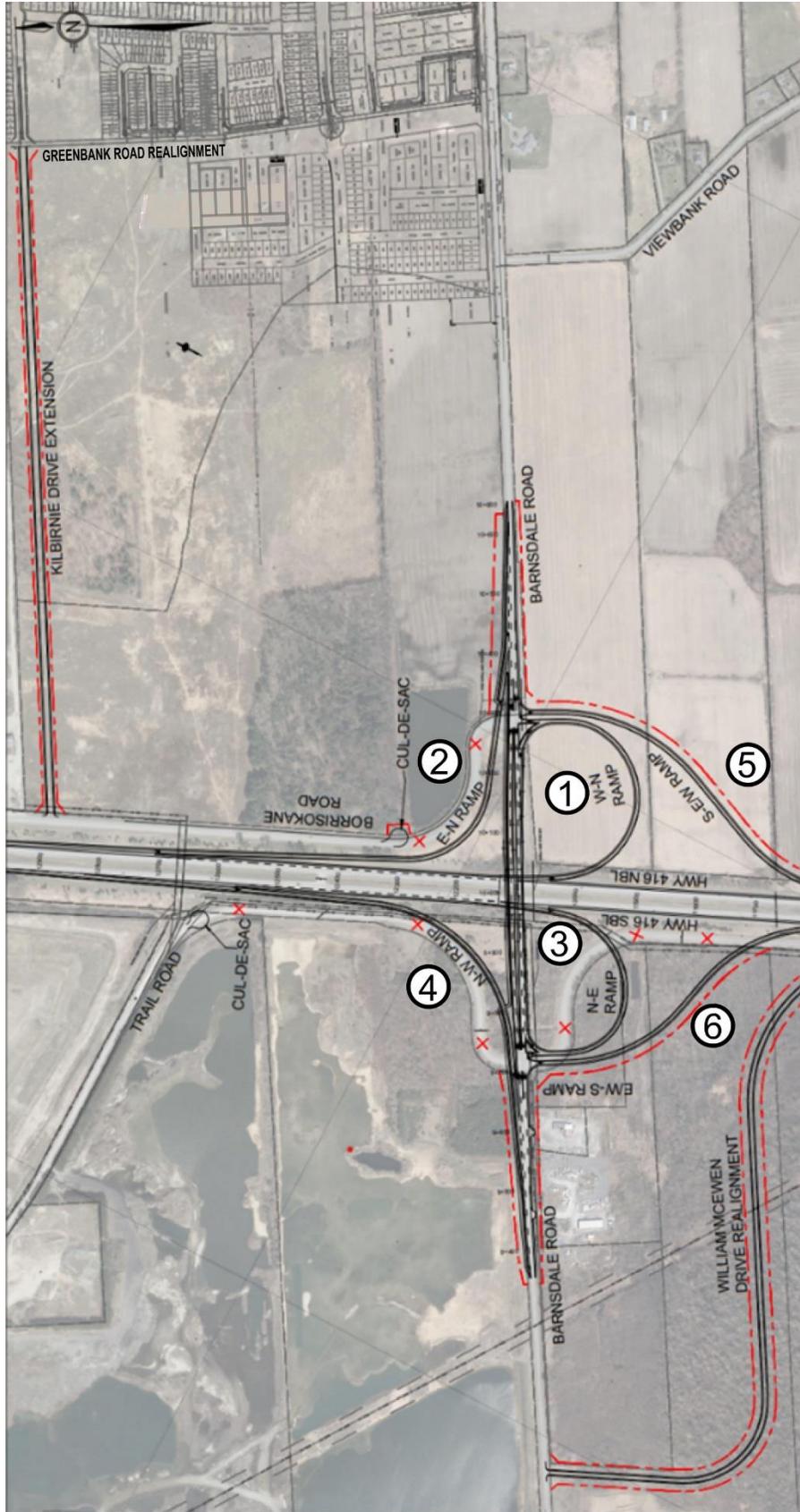


Figure 3: Ultimate Recommended Plan

The implementation of the North to West free-flow ramp (4) and the East to North free-flow ramp (2) require the closure of the following roads:

- Trail Road would be closed north of the interchange with a new cul-de-sac.
- Borrisokane Road would be closed north of the interchange with a new cul-de-sac. This closure will require a new connection to be provided between Borrisokane Road and Barnsdale Road. Through the EA process, the future Kilbirnie Drive Extension was identified to be the most suitable option for this connection. Because this roadway will likely be required for development before the West to North free-flow ramp is needed (necessitating the closure of Borrisokane), it will be funded and constructed through future development practices. From Borrisokane Road, the Kilbirnie Drive Extension will connect to the future Realigned Greenbank Road to the east which will in turn connect to Barnsdale Road at its south end.

The Ultimate Recommended Plan accommodates the future widening of Barnsdale Road over the Highway 416. When the widening is needed, a separate structure will be constructed. The existing bridge would be used for the future eastbound lanes and a new structure to the north would be used for the two westbound lanes and active transportation facilities (Figure 4).

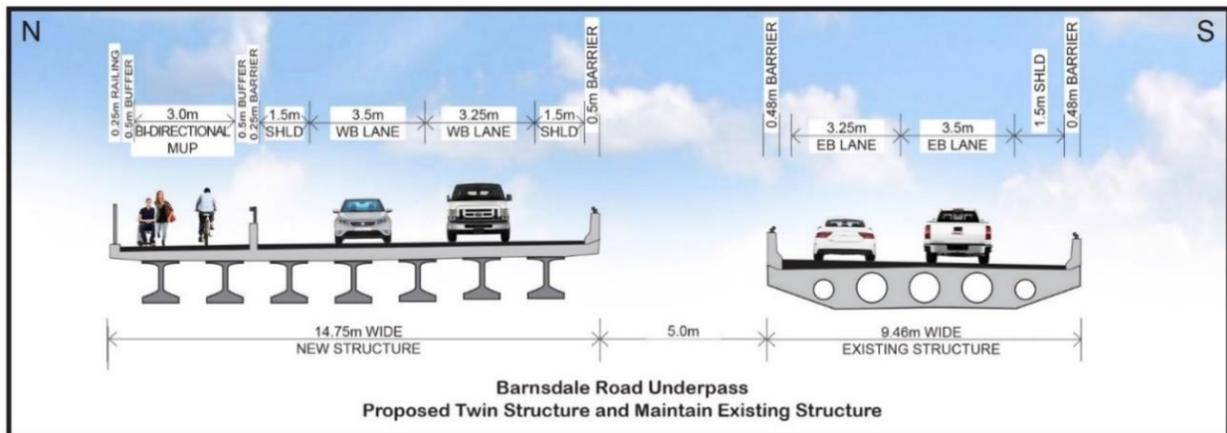


Figure 4: Barnsdale Structures Looking East

The future widening of Barnsdale Road east and west of the future overpass will include a bi-directional multi-use pathway along the north side of the roadway for active transportation (Figure 5).



Figure 5: Barnsdale Road Looking East

Interim Recommended Plan

The movements provided by the North to West (4) and East to North (2) free-flow ramps can also be accommodated using the ramps on the south side of the interchange (3 and 1). This configuration can function well until such time that growth in left-turning traffic volumes results in a long queue that impact operations of the highway ramps and Barnsdale Road. It is not known when these free-flow ramps will be needed to accommodate future traffic volumes; but, it is MTO policy to protect the right-of-way for this possible eventuality and therefore they have been included in the Ultimate Recommended Plan.

The ultimate interchange design can be constructed in stages, based on future travel demand and/or available funding. This phasing would include construction of the ramps on the south side of Barnsdale Road first, followed by the widening of Barnsdale Road when required. Both Trail Road and Borrisokane Road would remain open under the interim configuration and all interchange movements would be accommodated using the loop ramps on the south side of the interchange (Figure 6).

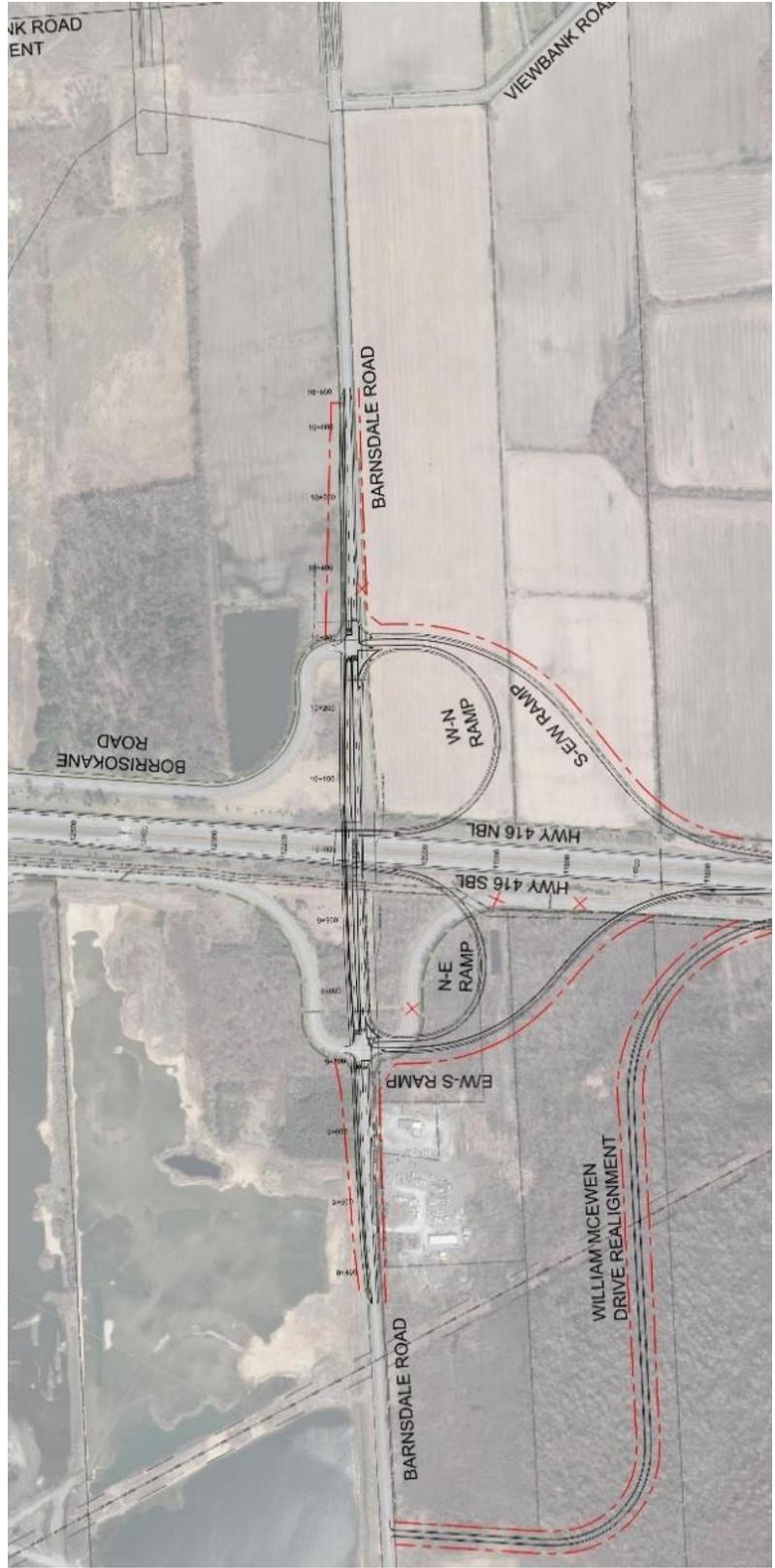


Figure 6: Interim Recommended Plan

Property Impacts

The implementation of the Ultimate Recommended Plan will require approximately 18.5 hectares in total, including both City-owned properties (5.8 hectares) and private properties (12.7 hectares). The total hectares accommodate the new (and future) ramps, roadway realignments and widening of Barnsdale Road. The required land is primarily woodlot or farmland and would be acquired when the Interim Recommended Plan is implemented. Property acquisition will be initiated after detailed design, should this project receive funding to proceed. The above does not include the property required for Kilbirnie Drive Extension which will be obtained through site plan approval.

Cost

The MTO's estimate for the Ultimate Recommended Plan is \$80M (2023 dollars). This includes design, construction, property acquisition and associated contingencies. This estimate does not include the future Kilbirnie Drive Extension which would be designed and constructed by local developers. The Interim Recommended Plan is estimated to be \$70.5 million (2023 dollars). This includes the loop ramps on the south side providing for all movements, the realigned William McEwen Drive, and the widening of Barnsdale Road. At this time, no funding sources have been identified to advance this project to detailed design and implementation.

Consultation

The MTO's consultation program included issuance of four formal Notices at key stages in the study process as follows:

- Study Commencement (completed in January 2022);
- Public Information Centre No. 1 (completed in April 2022);
- Public Information Centre No. 2 (completed in November 2022); and
- Notice of Study Completion to announce submission of the Transportation and Environmental Study Report (TESR), and the 30-day public comment period (anticipated to be undertaken in Summer 2023)

There were also meetings with City staff and local developers. More information about MTO's study and consultation activities is available at:

<http://www.highway416barnsdale.com/>.

Overall, there is public support for this project. Key comments to-date include:

- Concerns regarding the potential closure of Borrisokane Road and associated mitigation options
 - Borrisokane Realignment and Kilbirnie Drive Extension impacts on planned development north of Barnsdale Road
- Property impacts, along the south side of Barnsdale Road providing area for proposed ramps and the realigned William McEwen Road.
- Need to accommodate active transportation on the new structure.
- Concerns regarding the operation of the landfill, as trucks cross the four-lane Barnsdale Road from the landfill to the composting facility.

Most comments were from the residents on Viewbank Road who did not endorse one of the alternative options which proposed to connect a realigned Borrisokane Road with a realigned Viewbank Road. This option was ultimately not selected as part of the final study recommendations.

ISSUES OF NOTE

The Barnsdale Road interchange is a critical project that will support growth and economic development in Barrhaven. However, there are aspects of the ultimate recommended plan that need to be highlighted such as the closure of Borrisokane Road immediately north of Barnsdale Road when the East to North (2) free-flow ramp is constructed. The timing of need for this ramp is not known and that the interim interchange configuration could be sufficient to accommodate mobility needs for quite some time.

The interim configuration provides for all accesses to the Highway, and allows Borrisokane Road to remain open, thus deferring the need to divert truck traffic to Kilbirnie Drive Extension. However, the risk is that as traffic volumes increase over the longer term, congestion may occur at the two loop ramp intersections on Barnsdale Road. This could impact traffic operations (and safety) on Highway 416. Although the MTO study team believes that the interim configuration will be acceptable for many years, there may be a time in the future when operations at this interchange require the free-flow ramp to be constructed, as envisioned in the ultimate plan. It is therefore prudent to plan for this eventuality, and it is also MTO policy to do so.

Borrisokane Realignment Options

Three options were considered (Figure 7):

- Option 1: Realignment to the east so that the Borrisokane alignment would connect Barnsdale Road at a location to match a realigned Viewbank Road.
- Option 2: Realignment to the east as part of the planned Cappamore Drive Extension
- Option 3: Realignment to the east as part of the planned Kilbirnie Drive Extension

Option 1 was not carried forward due to strong public opposition from residents with regards to the potential of increased cut through traffic along Viewbank Road. Option 2 was not carried forward due to existing subdivision construction along Cappamore Drive limiting the possibility of large trucks turning onto and from the future Realigned Greenbank Road. Option 3 will have the effect of rerouting traffic headed to and from Barnsdale Road along Borrisokane Road to the Kilbirnie Drive Extension (a planned future collector) and Realigned Greenbank Road (a planned future arterial road).

The future intersection of the Kilbirnie Drive Extension and Realigned Greenbank Road will function as the centre of the community with commercial land uses, a park and ride, high density residential and schools close by. The closure of Borrisokane Road will introduce industrial traffic into the community from the industrial lands designated in the Official Plan along Borrisokane Road.

The Kilbirnie Drive Extension will be constructed as part of the development through the Community Design Plan process for the lands east of Highway 416. The alignment may be tweaked through this process with the involvement of affected landowners. It will be designed as a collector roadway with consideration given to safety measures and other features to mitigate the impact of future truck movements along this corridor and facilitate a safe environment for the accompanying land use.



Figure 7: Borrisokane Realignment Options

Local Ward Councillors Feedback

Councillor Hill notes that the long-term solution of a Kilbirnie Drive Extension could be a suitable option but keeping Borriskane connected to Barnsdale Road for as long as possible is key for community development. This would keep construction, industrial and warehouse traffic outside of the residential development lands. This is a safety issue and an economic consideration as the closure of Borriskane would impact land that is zoned industrial due to the Trail Road Landfill exclusion area.

Councillor Brown concurs that the Kilbirnie Drive Extension is the best option for the realignment of Borriskane Road, as it would not have direct impact on Viewbank Road.

NEXT STEPS

The next steps for MTO's project will be to complete the Preliminary Design, including the environmental and engineering reporting, and post the Transportation Environmental Study Report (anticipated to be undertaken in July 2023). A 30-day public review followed by the Minister of Environment, Conservation and Parks review is required before clearance can be issued. After that, the Report for the Preliminary Design will be finalized (completed by September 2023).

The primary City representative on this MTO study is Frank McKinney, Program Manager Transportation Environmental Assessments. He can be reached at 613-580-2424 extension 28540 should you have questions.

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