

From: [Pasqua, Michelle \(MTO\)](#)
To: [Politano, Lou \(IO\)](#)
Subject: BBP - project governance
Date: November 19, 2021 4:51:57 PM
Attachments: [image001.png](#)

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Hi Lou

I'm reaching out to set up a discussion about project governance for Bradford Bypass.

Attendees so far would include Jen, Steve, Angela, you and I. Let me know if you would like to include others, and whether there are specific agenda items you would like to bring forward.

Thanks

Michelle Pasqua, CPA, CMA | Director
Asset Management Branch, MTO
T: 905-704-2476 | C: 905-708-6318



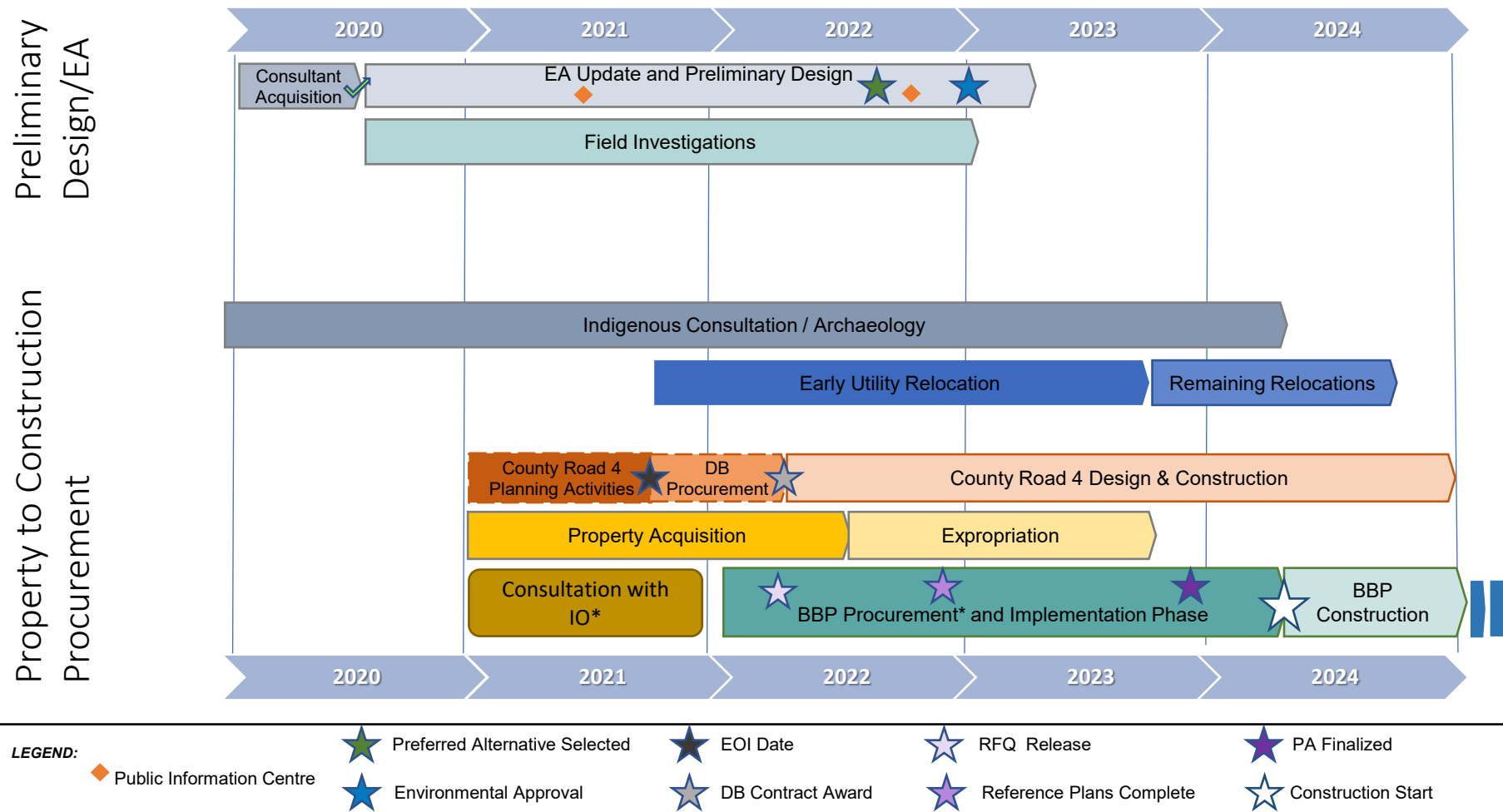
From: [Adriano, Nancy \(MTO\)](#)
To: [Remollino, Dan \(MTO\)](#); [Chu, Kelvin \(IO\)](#); [Kulathinal, Rina \(MTO\)](#); [Kalali, Salia \(MTO\)](#); [Cooper, Michael \(IO\)](#); [Politano, Lou \(IO\)](#)
Cc: [Rizwan, Fahad \(IO\)](#); [White, Jason \(MTO\)](#)
Subject: BBP Schedule
Date: November 8, 2021 1:22:16 PM
Attachments: [BBP Schedule Nov 8 2021.pptx](#)

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Further to today's discussion, attached is the latest BBP project schedule.

Nancy

Appendix A - Project Schedule



Notes:

MECP Ontario Regulation 697/21 EA exemption in place on October 7, 2021

* BBP procurement dates to be confirmed through continued consultation with IO

From: [Chu, Kelvin \(IO\)](#)
To: [Donoghue, Dan \(IO\)](#); [Sheung, Allan \(IO\)](#)
Cc: [Rizwan, Fahad \(IO\)](#); [Politano, Lou \(IO\)](#); [York, Lyndsie \(IO\)](#); [Dhushy, Amy \(IO\)](#)
Subject: Bradford Bypass - cost estimate
Date: June 7, 2021 4:22:02 PM
Attachments: [image001.png](#)

Dan/Allan,

Just finishing up a call on MTO's plan to include this project as part of the MYP submission this fall, and hope to touch base with you regarding a few challenges to generate a proper cost estimate towards this Fall's submission.

I'll set something up in coming days to align our heads on this.

Amy, can you help in finding a time with everyone this week?

Thanks,



Kelvin Chu, P.Eng
Infrastructure Ontario
Director, Roads and Special Projects

kelvin.chu@infrastructureontario.ca

Mobile: 416-436-9192

www.infrastructureontario.ca

Follow IO at:   

From: [Dhushy, Amy \(IO\)](#) on behalf of [Chu, Kelvin \(IO\)](#)
To: [Politano, Lou \(IO\)](#); [York, Lyndsie \(IO\)](#); [Donoghue, Dan \(IO\)](#); [Sheung, Allan \(IO\)](#); [Rizwan, Fahad \(IO\)](#)
Subject: Bradford Bypass - Cost Estimate

Purpose: To touchbase re: few challenges to generate a proper cost estimate towards this Fall's submission for Bradford Bypass

Microsoft Teams meeting

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(844) 597-7587,,393780583# <tel:8445977587,,393780583#> Canada (Toll-free)

Phone Conference ID: **FIPPA s. 18**

Find a local number <<https://dialin.teams.microsoft.com/0f872f90-9390-410c-9fef-529b39f51fb0?id=393780583>> | Reset PIN <<https://mysettings.lync.com/pstnconferencing>>

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From: [Remollino, Dan \(MTO\)](#)
To: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#)
Cc: [Pasqua, Michelle \(MTO\)](#)
Subject: Bradford Bypass - MO briefing
Date: November 1, 2021 10:02:43 AM
Importance: High

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Hi Loa and Kelvin

Sorry for the short notice – a MO briefing has been scheduled for today at 2:30 to 3 pm to update them on cost / budget and the project.

You will get an invite shortly directly for the meeting – hoping one or both of you can attend in case any questions for IO.

Thanks

Dan

Dan Remollino P.Eng.
416 523-4937 Cell

From: [Politano, Lou \(IO\)](#)
To: [Ho, David](#); [Clayton, Angela \(IO\)](#); [Chu, Kelvin \(IO\)](#); [Politano, Lou \(IO\)](#)
Subject: Bradford Bypass - MO briefing at 2:30
Attachments: [FIPPA s. 12, s. 13, s. 18](#)

Cursory review of deck – points of interest

- * We were not given opp to review deck
- * see ref to IO page 9 re: cost
- * cost seems to be for DBF
- * Sched shows P3 RFQ Jan-Feb 2022
- * No mention of tolling

Lou

Microsoft Teams meeting

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From: [Rizwan, Fahad \(IO\)](#)
To: [Chu, Kelvin \(IO\)](#); [Sheung, Allan \(IO\)](#); [Law, Carmen \(IO\)](#); [Kouyoumdjian, Nyrie \(IO\)](#)
Cc: [Cooper, Michael \(IO\)](#); [Politano, Lou \(IO\)](#)
Subject: Bradford Bypass - Tolling Report Comments
Date: September 28 2021 10:40:52 AM
Attachments: DUPLICATE

All,

As per the bi-weekly meeting with MTO this morning, MTO is looking for IO to provide comments on the tolling report. Please see attached.

If you can please provide comments by Friday at noon, I can compile them and send back to MTO. A couple of things to keep in mind:

- MTO is looking for feedback on methodology, principles and results
- The current construction estimate in the tolling report is out-dated and just a placeholder. The expectation is that once the project cost estimate is updated, the tolling model will be revisited to update the tolling figures.

Thanks,

Fahad Rizwan, P.Eng., PMP
Project Manager – Roads and Special Projects
Infrastructure Ontario

fahad.rizwan@infrastructureontario.ca

Mobile: 416-407-5022

www.infrastructureontario.ca

From: [Chu, Kelvin \(IO\)](#)
To: [Langford, Chris \(IO\)](#); [Lorentz, Craig](#)
Cc: [Politano, Lou \(IO\)](#)
Subject: Bradford Bypass - tolling
Date: July 6, 2021 10:32:40 AM
Attachments: [image001.png](#)

Gents,

Are you guys still involved in the tolling study for the Bradford Bypass?

FIPPA s. 13, s. 18



Regards,



Kelvin Chu, P.Eng
Infrastructure Ontario
Director, Roads and Special Projects

kelvin.chu@infrastructureontario.ca
Mobile: 416-436-9192
www.infrastructureontario.ca

Follow IO at:   

Ministry of Transportation

Bradford Bypass

Project Update

DRAFT FOR DISCUSSION PURPOSES ONLY

Minister's Office Update

November 1, 2021

Ontario 

Purpose

The purpose of the presentation is to:

- Provide an update on costing/budget:
 - 2019 and 2020 construction cost / budget estimates
 - 2021 costing and significant project risks
 - Development of initial project budget
- Provide a project update
 - Project Status
 - Project Schedule (Overall and Early Works)
 - New Interchange Locations

Bradford Bypass

Update on Cost/Budget

2019 and 2020 Construction Cost Estimate

- Bradford Bypass construction cost estimate includes:
 - A new 16.2km four-lane freeway
 - Five interchanges including connections with Highway 400, County Road 4, Bathurst Street, Leslie Street (partial) and Highway 404
 - Bridge crossings of the main and east branches of the Holland River
- The cost estimate was based on identical projects including Highway 407 East and Highway 7 Kitchener to Guelph.
- The preliminary construction cost estimate was found to be \$800M including **FIPPA s. 18**
- Third party design work (AECOM) began in September 2020 to detailed engineering and update the preliminary design leading to contract delivery. The first step was to validate previous design, identify changes and risks through:
 - Traffic modelling
 - Municipal outreach and Indigenous Consultation
 - Environmental and geotechnical field investigations

See Appendix A for project limits

Current 2021 Construction Cost Estimate

MTO and the Design Consultant have advanced design including developing alternative design concepts from the 2002 plan to better serve road users, reduce cost and address environmental concerns.

What we know in terms of cost and risk:

- Initial construction costing was appropriate however post-COVID construction cost escalation will have an impact on the costs.
- Three areas of significant risk warrant further consideration in the preliminary construction cost:
 - Holland Marsh (Lake Simcoe watershed, archeology, Indigenous considerations)
 - Freeway connections (enhanced mobility)
 - Municipal access (economic growth and development)
- Efforts including undertaking an independent risk assessment workshop to the application of innovative engineering concepts are needed to contain construction cost.

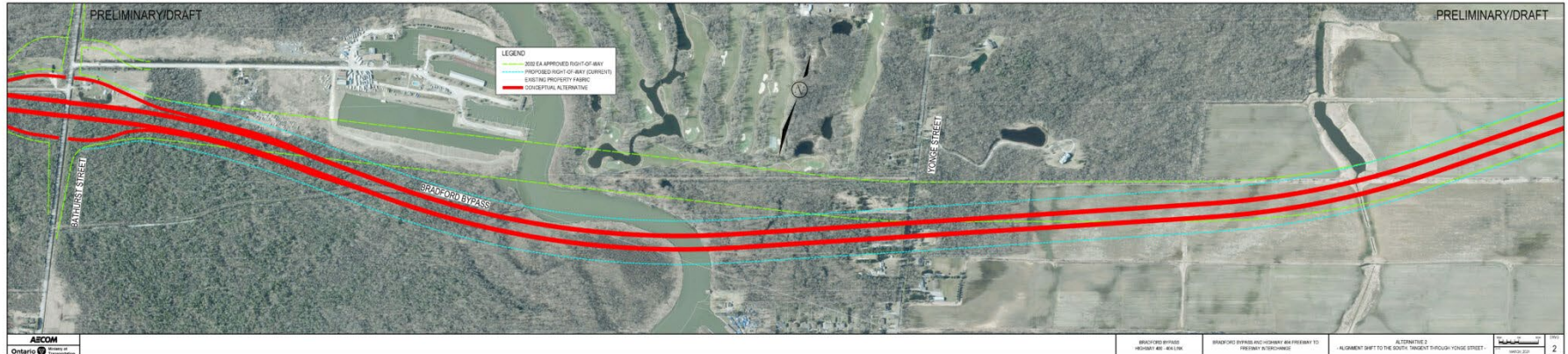
Current 2021 Construction Cost Estimate Cont'd

- The construction cost estimate with current risk realized would be **FIPPA s. 18** While the project is still in the early stages of design, the updated estimate is a more detailed parametric estimate that accounts for:
 - Increased project 'knowledge' based on recent field studies, stakeholder consultations;
 - Increased land acquisition costs;
 - Assumed enhancements based on knowledge of environmental sensitivities;
 - Holland River Crossings;
 - Crossing over PSWs, Flood Plains and environmentally sensitive areas;
 - Complexities with Sub-surface Conditions; and
 - Additional potential for Highway 400/County Road 88 Bridge Replacement and Interchange Reconstruction; and Highway 400/West Gwillimbury 9th Line Bridge Replacement, new Patrol Yard

Areas of Significant Cost Risk

Holland Marsh Complex FIPPA s. 18

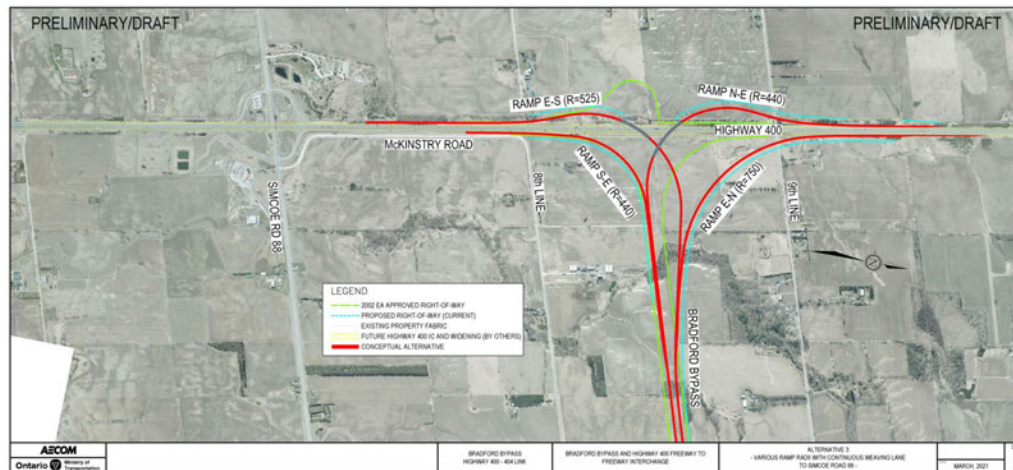
- Earlier design included causeways and bridges with culverts to manage ground and surface water.
- The environmental value of the Holland Marsh along with Lake Simcoe preservation efforts and other concerns suggest that extensive bridges (1.3km) may be needed to mitigate impacts, as this has been a focus of concern from environmental groups.
- Bridges are expensive to build and maintain. Efforts in design including evaluation of innovative design concepts through contract procurement phase will be evaluated to strike an appropriate balance.



Areas of Significant Risk cont'd.

Highway 400 and Highway 404 interchanges FIPPA s. 18

- Traffic modelling suggests that the earlier freeway interchange designs will not adequately manage anticipated traffic volumes over mid to long-term.
- Implementing the 2002 design is feasible but would result in throw away work and have a significant impact on highway operations.
- As the design evolves, further work will be done to manage costs associated with providing an interchange that will adequately manage traffic over a 30- year life span.



Municipal Access FIPPA s. 18

- Local growth and development has altered local access needs. Evaluation of new interchange access options at the 2nd Concession and Sideroad 10 are underway.
- It is expected that the interchange access changes could be offset by removing proposed interchanges.

Development of Project Budget

- The initial construction cost estimate from 2019 was \$800M including FIPPA s. 18
- A revised cost estimate with risk premiums included for the Holland Marsh, freeway interchanges and potential municipal access adjustments has been developed. A reasoned construction cost estimate of FIPPA s. 18 is recommended.
- IO has reviewed the current cost estimate and recommended increasing FIPPA s. 18. Based on input from IO, a current full budget estimate for the project has been developed, estimated at FIPPA s. 18 **(based on P3 delivery)**.

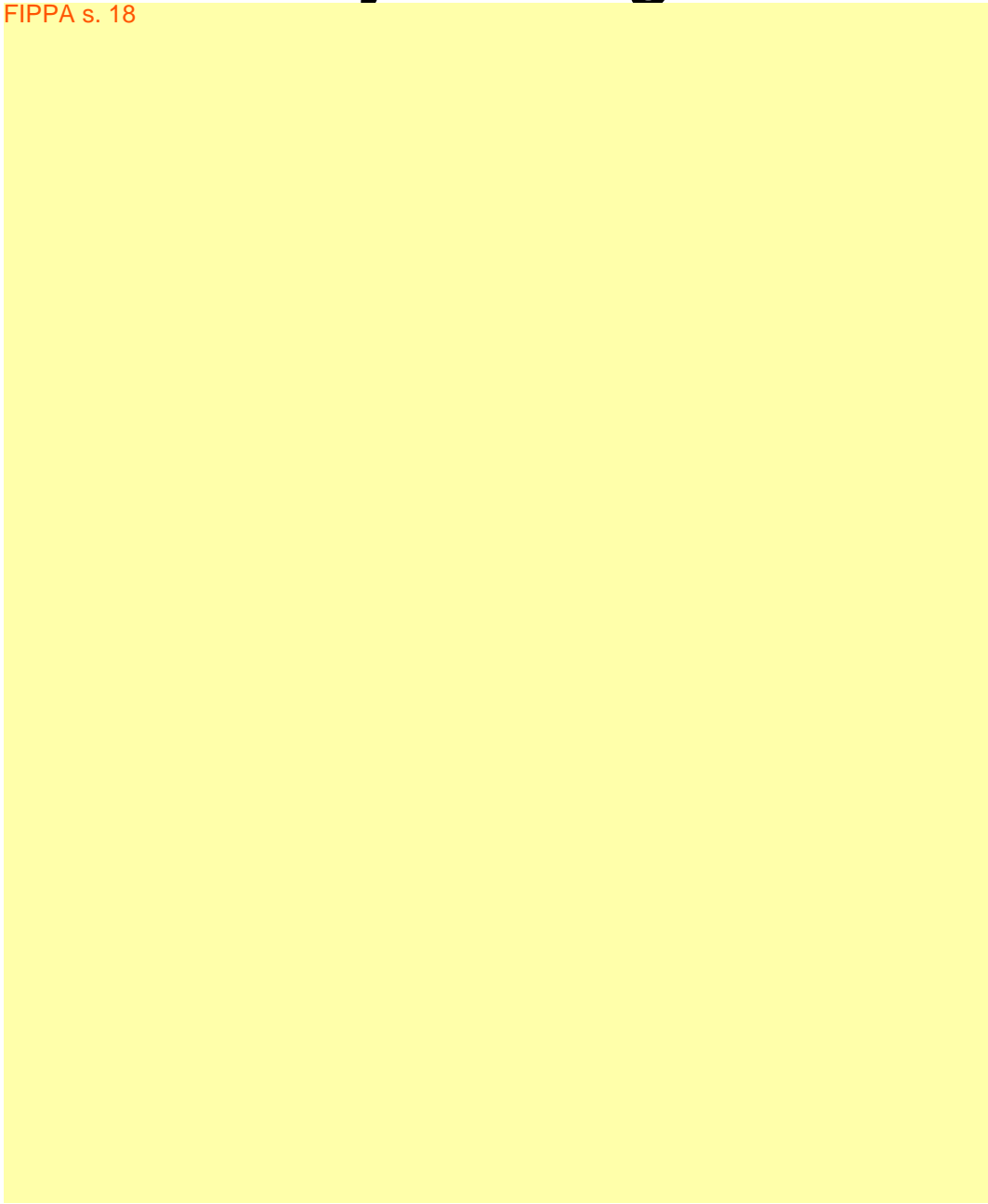
The budget includes:

- Base construction costs - FIPPA s. 18
- Contingency percentage for level of design and potential unknowns - FIPPA s. 18
- Engineering and Construction administration costs - FIPPA s. 18
- Other costs – utilities, property, environmental, land transfers, ministry consultants - FIPPA s. 18
- Escalation costs to Year of Expenditure (based upon construction cost trends) - FIPPA s. 18
- FIPPA s. 18

- FIPPA s. 18
- FIPPA s. 18

Development of Project Budget

FIPPA s. 18

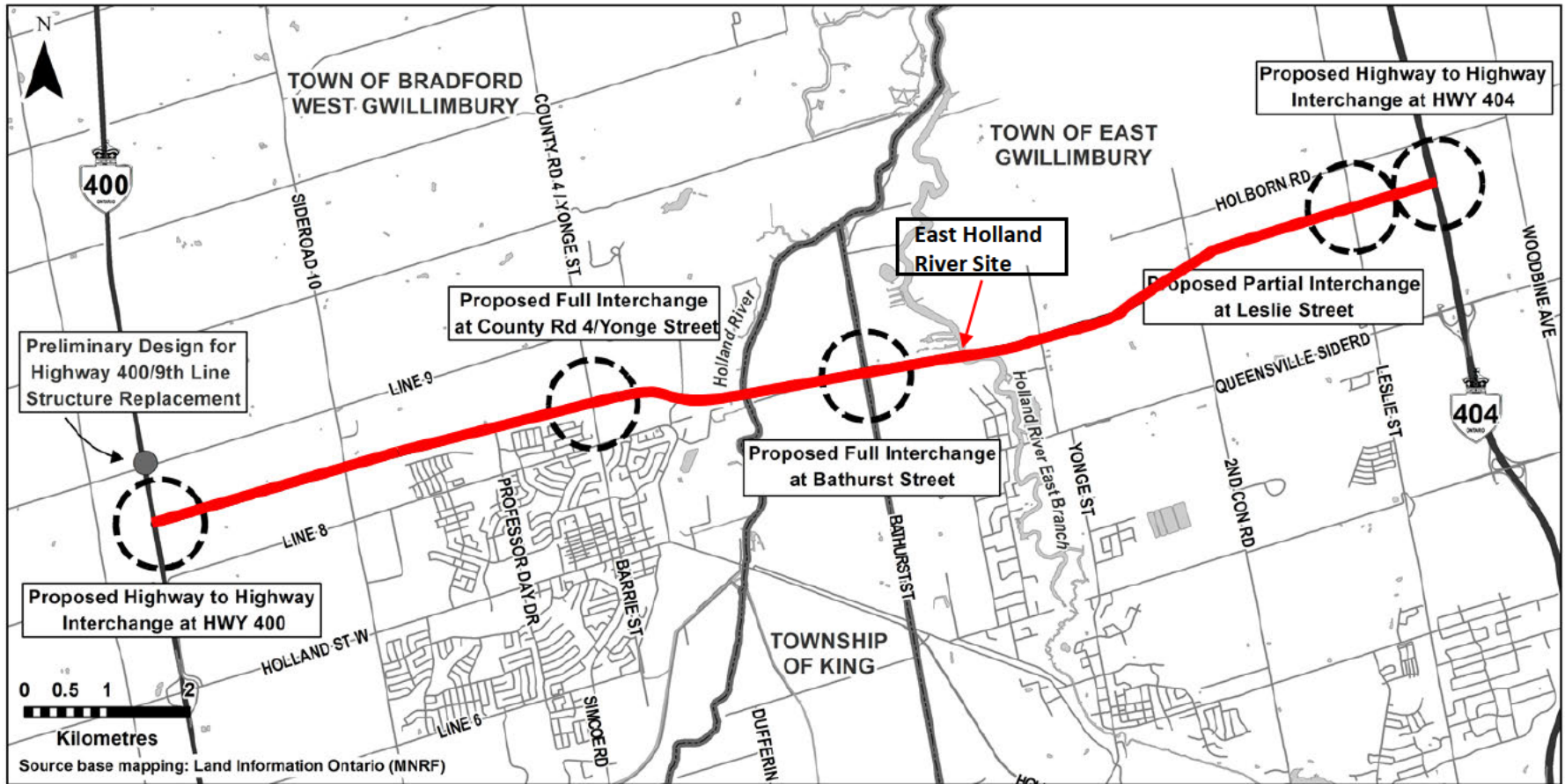


Bradford Bypass

Project Update

Project Map

Proposed project limits



Project Status

Overall BBP

- Preliminary Design and environmental assessment in accordance with Ontario Regulation 697/21 is progressing on schedule with target completion for **end of 2022/early 2023**
 - Includes required Indigenous consultation, necessary engineering and environmental investigations and utility relocations
- Preferred design established and PIC#2 - **Fall 2022**

Early Works*

- **October 8, 2021:** MTO released an Expression of Interest for an Advance Design Build Contract for a grade separation at County Road 4/future Bradford Bypass (Early Works)
- **November 9, 2021:** EOI closing
- **November 25, 2021:** Release the Request for Proposal (RFP) to the shortlisted bidders
- **March 2022:** Anticipated Contract Award
- Property Acquisition: well underway for properties required for the Early Works

**MECP Ontario Regulation 697/21 EA exemption in place on October 7, 2021*

- *See Appendix A for project schedule*

Early Works Schedule

Early Works:

- Expropriation Schedule
 - Notification of Expropriation and Possession mailed by February 28, 2022
 - Certificates of Approval (CofAs) scheduled to be ready for signature: **December 6, 2021**. Expediting this approval would save a few weeks off this schedule
- Utility relocation
 - Impacted utilities: Hydro One, Rogers, Bell and Zayo Communications
 - Schedule impacted by: Property clearance, relocation design submissions
- Construction Timeline
 - Dependent on property acquisition, demolition and utility relocation
 - Anticipated completion
 - **November 2024** (no winter work): If initiated by September 2022
 - **End of 2024** (with winter work): If initiated after 2022
- Archaeology
 - As part of the archaeological assessments for the Bradford Bypass corridor, an Indigenous archaeological site, approximately 800m west of the planned location of the County Road 4 and Bradford Bypass interchange was identified.
 - **FIPPA s. 13**
 - The archaeological assessment will continue including the impacts to Early Works.

Interchange Access Update

Current Interchange Locations and Additional Analysis

- The Preliminary Design and EA Update Study is currently following the 2002 EA approved alignment with proposed crossing road interchanges at:
 - County Road 4, Bathurst Street, and Leslie Street **(Base Case)**
- The Project Team received requests from the Town of Bradford West Gwillimbury and East Gwillimbury to include interchanges at both 10th Sideroad and 2nd Concession Road during project consultation meetings during this Study.
- MTO requested the Design Consultant to undertake additional traffic modelling and review environmental impacts of the interchanges and recommend preferred interchange locations based on the following criteria:
 - a) Traffic Operations
 - b) Environmental Constraints
 - c) Preliminary Cost

Update on Interchanges (Cont.)

Interchange Scenario Summary

The following scenarios are considered:

FIPPA s. 13

F

Next Steps

- Design consultant will continue the analysis of these scenarios considering traffic operation, environmental impacts and construction cost criteria, and will provide recommendations by the end of November.

- *See Appendix D and E for more information*

Next Steps

Overall BBP:

- Preliminary design and field investigations to continue
- Property acquisition continuing
- **FIPPA s. 12**
- Refine cost estimate as the design advances
- Continued consultation/engagement with Indigenous communities
- Meetings with:
 - Community, Greenbelt and Environmental Committee
 - Federal and provincial agencies, as well as municipal partners
 - Directly impacted property owners
- Public Information Centre #2 – scheduled for Fall 2022
- Risk/cost assessment and final project budget – Fall 2022
- Completion of required reports under Ontario Regulation 697/21

Early Works:

- Early Works DB Procurement
- Property Acquisition/Expropriation
- Monitor work being conducted with the identified Archaeological Site and provide updates on the risks associated
- Completion of required reports under Ontario Regulation 697/21

Next Steps Cont'd

MYP Direction :

- Direction is required to inform the preparation of material for the 2022/23 Multi-year-Planning (MyP) submission:

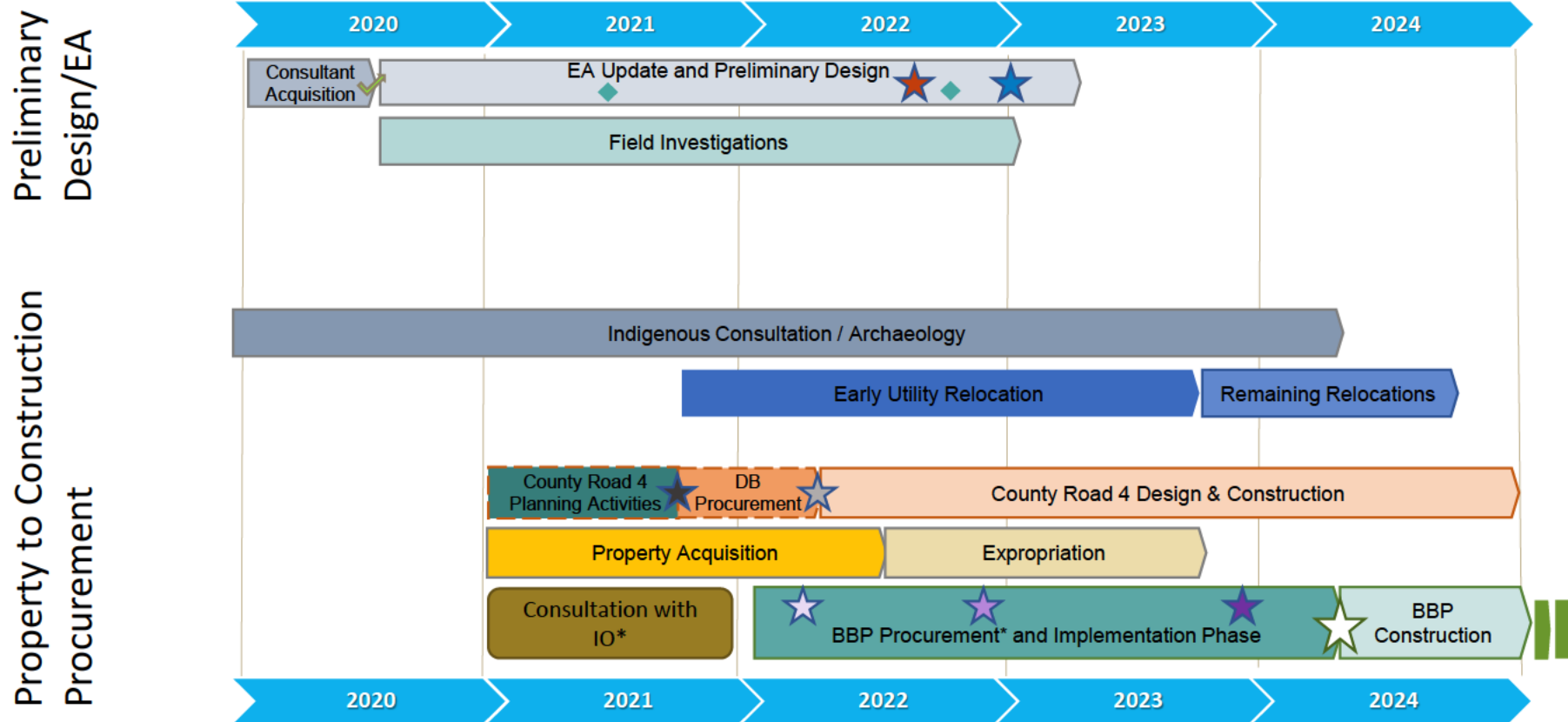
FIPPA s. 12, s. 18

- In both cases, MTO will continue work IO and 3rd party consultants to further refine the construction cost and associated budget estimate through independent risk assessment (fall 2022) and development of innovative engineering concepts (late 2022).

Appendices



Appendix A - Project Schedule



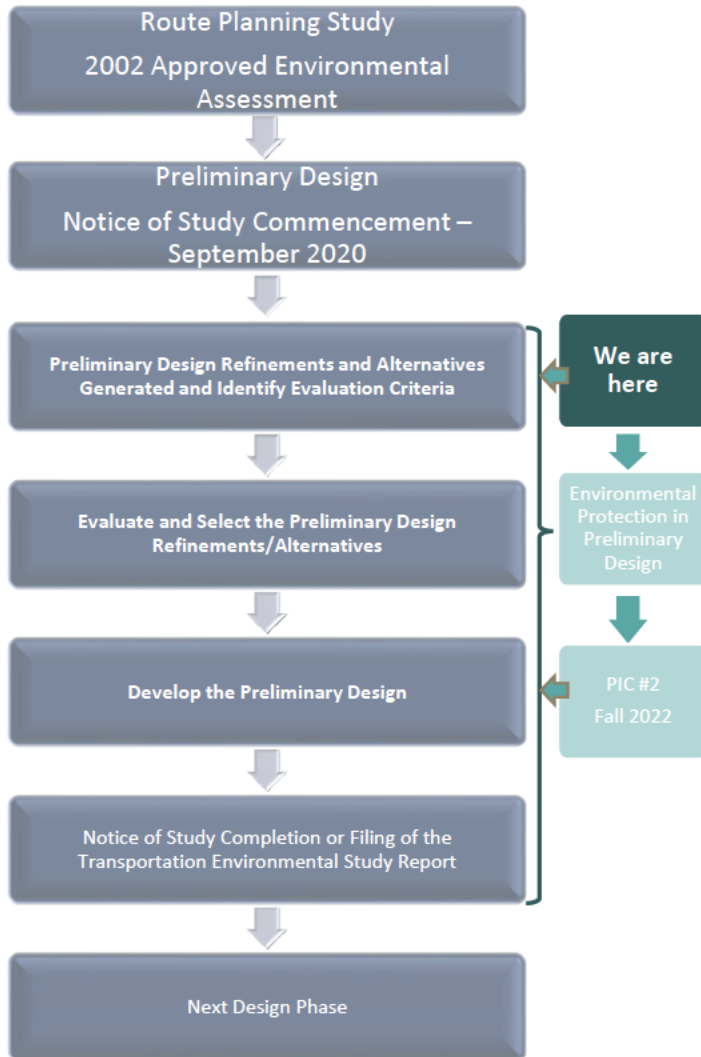
LEGEND:					
◆	Public Information Centre	★	Preferred Alternative Selected	★	EOI Date
★	Environmental Approval	★	DB Contract Award	★	RFQ Release
		★	Reference Plans Complete	★	PA Finalized
		★	Construction Start		

Notes:

MECP Ontario Regulation 697/21 EA exemption in place on October 7, 2021

* BBP procurement dates to be confirmed through continued consultation with IO

Appendix B: Cost/Budget Estimating Practices



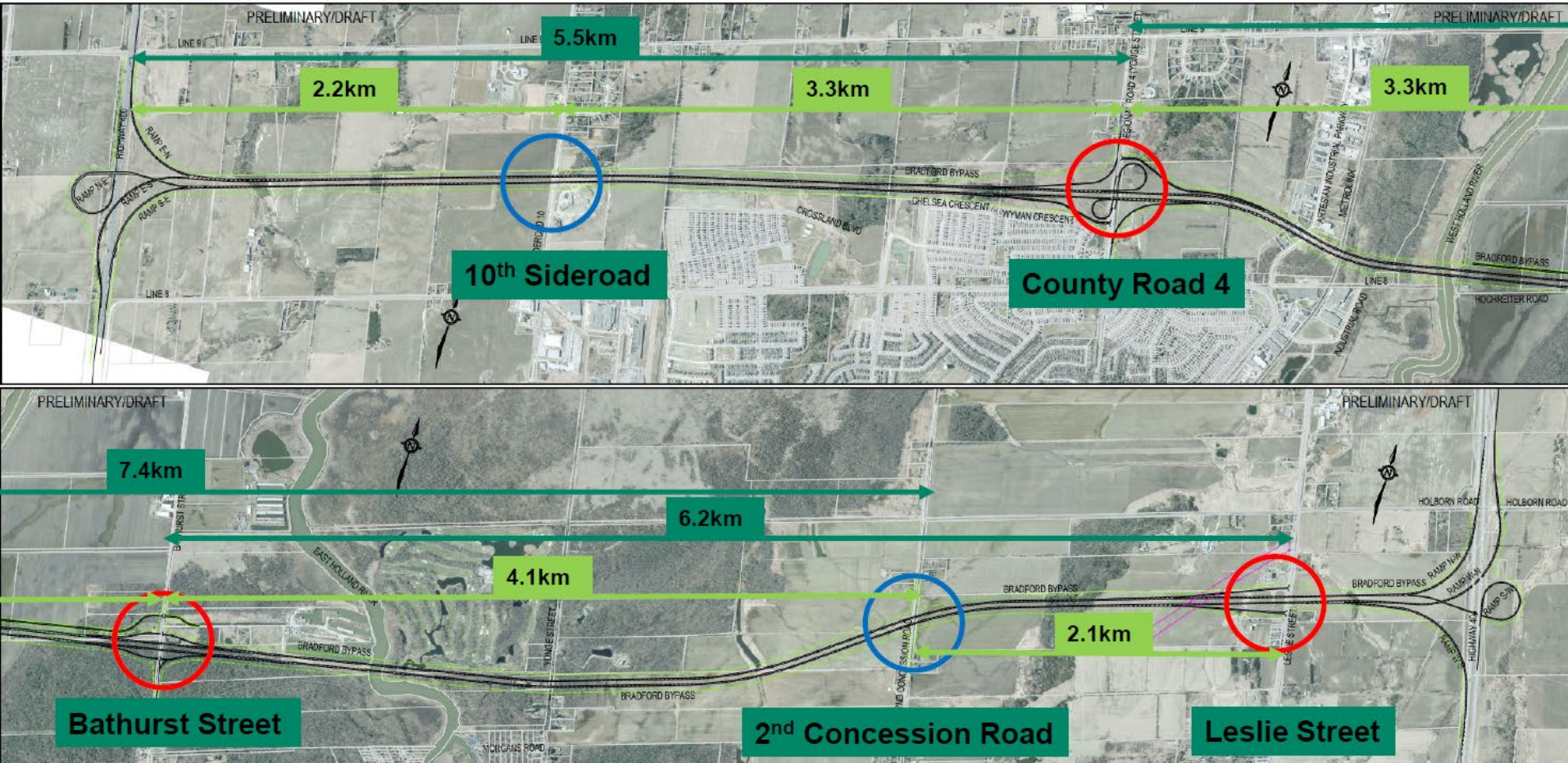
- Cost and budget estimating is performed over the life of a project with increasing degrees of certainty as projects proceed from planning stages to preliminary and detail design phases.
 - The confidence in the cost estimate increases as understanding the project scope, risks and delivery model are known
- Project construction costs and budgets will continue to be updated and refined even after Stage 2 construction approvals as project proceeds to detail design and a final tender package.
- Updating and refinement of construction costs and budgets throughout the design and tendering life cycle is standard industry practice. To help inform cost and budgets, cost risk assessment(s) are undertaken for large / complex projects at the appropriate time in the project life cycle.

Appendix C – New Interchanges

Proposed Route & Interchange Spacing

 Proposed Crossing Road Interchanges

 Requested Interchanges



TAC guidelines allow for interchange spacing of 3-8 km in rural settings and 2-3 km in urban settings.

Appendix D – New Interchanges

Interchange Scenarios

- The Design Consultant assessed nine scenarios (based on Traffic Operations, Environmental Constrains, and Cost) varying in the total number of interchanges and locations including 10th Sideroad, County Road 4, Bathurst Street, 2nd Concession, and Leslie Street.

Scenario	Interchange Locations					Rank
	10 th Sideroad	County Road 4	Bathurst Street	2 nd Concession Road	Leslie Street	
Base	○	●	●	○	●	T*-8th
2	○	●	○	●	●	T-8th
3	●	●	○	●	○	3rd
4	○	●	●	●	○	5th
5	●	●	●	○	●	6th
6	●	●	○	●	●	4th
7	○	●	●	●	●	7th
8	●	●	●	●	●	2nd
9	●	●	●	●	○	1st

● Proposed Interchange ○ No Interchange * Tied

From: [Politano, Lou \(IO\)](#)
To: [Chu, Kelvin \(IO\)](#)
Subject: Bradford Bypass costing
Date: October 13, 2021 10:10:00 AM

Kelvin,

Per David's email, what is the expectation:

1. We review the MTO base cost and kind of update
2. We develop a bottom-up cost with a cost consultant?

From: [Politano, Lou \(IO\)](#)
To: [Chu, Kelvin \(IO\)](#); [Gallagher, John](#); [Traianopoulos, John](#); [Fredericks, Andrew \(IO\)](#); [Lorentz, Craig](#); [Langford, Chris \(IO\)](#)
Cc: [Politano, Lou \(IO\)](#)
Subject: Bradford Bypass tolling - shadow tolls
Date: November 3, 2021 10:27:56 AM

FYI.

http://www.financingtransportation.org/funding_financing/financing/other_finance_mechanisms/shadow_tolls.aspx

Shadow tolling mechanics, benefits, cost will be discussed at the 11:30 meeting today. I found this online which is a good summary of shadow tolling.

Andrew, John..... if you guys have any further insights on this, please raise at meeting. MTO's question will be: Can shadow tolls be used to reduce

1. Overall project cost
2. Initial capital cost

Lou

Shadow Tolls

Shadow tolls are a set payment by a public agency or authority for each vehicle that uses the facility, levied on a per-vehicle or per-vehicle-mile basis. Payments are made either to a private concessionaire or another public entity as reimbursement for particular services. Shadow tolls may be adjusted based on safety, congestion, or pre-established floors and ceilings. One advantage over real tolls is that traffic diversion to non-tolled facilities is avoided, because motorists themselves do not pay tolls.

Shadow toll concessions have been extensively used in the United Kingdom. In the United States, they have been used in public-public agreements in Texas under the term [pass-through financing](#) to repay local agencies for their upfront investments in a project.

Under the shadow toll concession model, payment is made in exchange for the concessionaire's responsibility to design, build, maintain, and/or operate a roadway for an agreed period of time. Shadow toll payments are dependent upon the volume of traffic using the road and provide an incentive for the concessionaire to optimize the facility's construction and/or operation. One disadvantage when used in a concession is that revenue to repay the concessionaire's investment must come from other public sources, which may be constrained.

Most, but not all, U.K. shadow toll projects have involved upgrades of existing roads. This has been an important attraction for private investors as historic traffic data reduces traffic risk and the need to depend on forecasts for revenue projections. In certain cases, it can also provide opportunities for generating cash flows during construction. As with conventional tolling, shadow tolls can amortize capital costs over the useful life of the investment and can create early completion and other incentives by sharing traffic forecasting and other risks with the private partners. Additional advantages include:

- Minimizing traffic risks, making it easier for private investment partners to find more advantageous financing
- Capturing the profit-seeking motives of the private sector, often resulting in capital construction costs savings
- Capitalizing on the cost efficiencies of lifecycle costing
- If structured properly, reducing the effect of lower than expected traffic volumes

- Transferring of operating and maintenance risk to the concessionaire
- Capping the public sector's exposure, thereby eliminating the risk of super-profitability by the concessionaire
- Reduced public equity requirements
- Avoiding the need for toll collection equipment

In 1999, FHWA prepared a report titled [*The Selective Use of Shadow Tolls in the United States*](#) on the UK's experience with shadow tolls, analyzing shadow toll-related financial and capital market issues, and exploring the potential applicability of this technique in the U.S.

**Tolling evaluation
for the
proposed Bradford Bypass**

Ministry of Transportation of Ontario

Assignment 2019-E-0004-009

August 2021

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1. Context and objectives

The Bradford Bypass is a limited-access highway that has been proposed to connect Highway 400 and Highway 404 north of the Town of Bradford. The Bypass is currently the subject of an environmental assessment and preliminary design (EA/PD) study. The location and provisional alignment of the Bypass are shown on Figure 1-1.

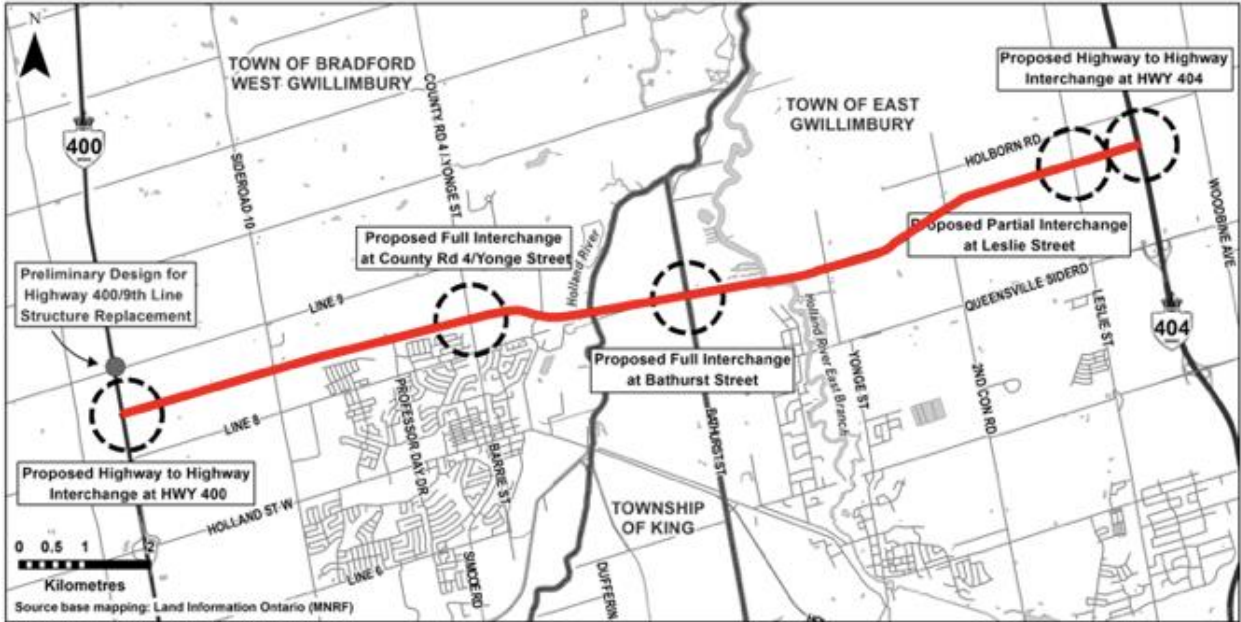


FIGURE 1-1: BRADFORD BYPASS – LOCATION AND PROVISIONAL ALIGNMENT

The Bypass is proposed as a 4-lane facility with a projected opening date, for the purposes of this assignment, of 2031. All four lanes will be general-purpose lanes. All-movement highway-to-highway interchanges are proposed at Highway 400 and Highway 404. Full interchanges are proposed at Yonge Street/YR4 and Bathurst Street and a partial interchange (to/from the west) is proposed at Leslie Street

For the purposes of this assignment, it is proposed that the Bypass will be widened to 8 lanes, including a single HOV lane in each direction, by 2041.

The objectives of this assignment are as follows:

- Evaluate the potential utilization and revenue for the Bypass for the 2031 and 2041 planning horizons;
- Evaluate the sensitivity of utilization and revenue to variations in the toll rates;
- Evaluate the potential benefit/disbenefit associated with tolling the Bypass;
- Develop an economic business case for tolling the Bypass;
- Develop a financial business case for tolling the Bypass;
- Estimate the capital recovery period associated with allocating the revenue to finance construction of the Bypass.

It is important to note that the economic and financial business cases have been developed relative to a constructed but untolled Bypass and do not consider the benefits associated with implementing the Bypass relative to the status quo.

2. Travel demand model inputs, assumptions, and calibration

2.1. Travel demand model inputs and related assumptions

MTO's GGHMv4 travel demand model was used to estimate the utilization and revenue for the Bypass for 2031 and 2041. Rather than extracting a subarea model to streamline the model runs, the entire GGHM was run for each scenario so that all possible reroutings and all benefits/disbenefits would be captured. The land use scenarios for 2031 and 2041 assumed in this model for the current assignment are base scenarios consistent with Provincial growth policies in terms of population and employment. These scenarios are consistent with those being used in the EA/PD process. The same matrix set was used for all model runs. Although the option of using enhanced land-use scenarios reflecting additional future development attracted to the Bypass corridor was considered, it was decided that the development of such scenarios was beyond the scope and timeframe for this assignment.

The 13 vehicle classes native to the GGHM were retained for the model runs - 10 auto classes and 3 truck classes. However, the outputs from the GGHM were aggregated for summarization, and for the calculation of revenue, to be consistent with the three toll rate classes currently in use, namely autos/light trucks, single unit/medium trucks and multi-unit/heavy trucks.

Modifications to the GGHM network were made to ensure it was consistent with the most current configuration envisioned for the Bypass and configuration modifications were made to represent the 4-lane cross-section for 2031, the 8-lane cross-section (including HOV lanes) for 2041, and the respective interchange locations and configurations as shown on Figure 1-1. For example, the Bathurst interchange was added, and the configurations of the other interchanges were reviewed and updated as necessary.

Originally, the intent was to run the GGHM for both the AM and PM peak hours and expand the utilization, travel time, and revenue outputs from those two peak hours to daily, weekly, and annual values. However, the decision was made by MTO, given timelines and the status of the model calibration, to run only the AM peak hour and use these outputs as the basis for expansion.

2.2. Toll-rate assumptions

The decision was made at the outset of the evaluation to use the toll rates currently in use on the MTO portion of Highway 407 (Highway 407 East), Highway 412, and Highway 418 as the baseline toll rates for the Bradford Bypass. Table 2-1 summarizes these toll rates both as they were frozen in June 2019 due to the COVID-19 pandemic (in \$2019), and in \$2016 as used in the modelling. The toll rates for single-unit (medium) trucks are nominally 100% greater than the rates for autos and light trucks, while the rates for multi-unit (heavy) trucks are nominally 200% greater than the rate for autos/light trucks. For reference, the rates shown in Table 2-1 are generally just less than 50% of those for a comparable situation on the 407ETR.

The weekday 6 am - 10 am rates were used in the modelling of the AM peak hour. A variety of tolling sensitivity scenarios were considered in this evaluation, using these baseline toll rates as a starting point.

TABLE 2-1: CURRENT (AS FROZEN IN 2019) TOLL RATES ON HIGHWAY 407 EAST, HIGHWAY 412, AND HIGHWAY 418

¢2019/km (¢2016/km)	Weekday				Weekend	
	6 am - 10 am	10 am - 3 pm	3 pm - 7 pm	7 pm - 6 am	11 am - 7 pm	7 pm - 11 am
Auto/light truck	29.66 (28.30)	23.52 (22.44)	29.66 (28.30)	19.43 (18.54)	22.50 (21.47)	19.43 (18.54)
Single-unit (medium) truck	59.32 (56.60)	47.04 (44.88)	59.32 (56.60)	38.86 (37.08)	45.00 (42.94)	38.86 (37.08)
Multi-unit (heavy) truck	88.97 (84.89)	70.57 (67.33)	88.97 (84.89)	58.29 (55.62)	67.50 (64.40)	58.29 (55.62)

2.3. Value-of-time calibration

Value-of-time (VoT also known as willingness-to-pay) is a key parameter in estimating the utilization of a tolled facility as it informs the decision on whether a driver will choose to pay the prevailing toll rate and use the Bypass or use an untolled alternative route. VoT was calibrated based on observed utilization of the 407ETR, adjusting the VOT parameter for each vehicle class until the simulated utilization of the 407ETR matched observed utilization data, again by vehicle class. In the model, the toll assessed for each link in the network is converted into an equivalent travel time, using the VoT parameters and this time is added to the estimated travel time for that link. The route choice process compares the augmented travel time for tolled links against the travel time for untolled links in assigning trips to the available routes.

The calibrated VoT values are shown in Table 2-2. The current calibration represents a pseudo (modelled) ‘revealed preference’ approach as the values are calibrated against observed behaviour. It has been typically found, as reported in the literature based on observations from actual tolled facilities, that drivers tend to pay more than expected for time actually saved, possibly because their decision is biased by frustration with congestion, or because they over-estimate the time savings they are likely to achieve.

TABLE 2-2: VOT PARAMETERS

\$2016	SOV	HOV2	HOV3+	Light truck	Medium (SU) truck	Heavy (MU) truck
VoT values from current calibration	\$36/h	\$42/h	\$47/h	\$60/h	\$69/h	\$104/h

3. Bypass utilization and revenue

3.1. Scenarios considered

Table 3-1 summarizes the scenarios that were evaluated for this assignment. Baseline untolled and tolled scenarios, the latter using the current toll rates for Highways 407 East, 412, and 418 as summarized in Table 2-1 were identified for 2031 and 2041. For 2031, scenarios with augmented toll rates, 25%, 40%, 50%, 60%, and 75% higher than the baseline rates, were evaluated to assist in the identification of a maximum-revenue scenario and to assist in the assessment of the sensitivity of utilization and revenue to toll rates. A pre-evaluation had indicated that the point of maximum revenue lay somewhere between a 50% and 60% increase in toll rate relative to the baseline rates. For 2041, scenarios with augmented toll rates 25% and 50% higher than the baseline rates were evaluated. Two additional 2041 scenarios, using the 2031 cross-section for the Bypass, were evaluated to characterize the ‘step’ in the annual utilization and revenue trends resulting from the widening of the Bypass from 4 to 8 lanes.

TABLE 3-1: SCENARIOS EVALUATED - AM PEAK HOUR

Planning horizon	Toll rates	Notes
2031	Untolled	Baseline untolled scenario
2031	Baseline toll rates (consistent with current rates for Highways 407 East, 412, 418)	Baseline tolled scenario
2031	Baseline toll rates + 25%	Sensitivity scenario
2031	Baseline toll rates + 40%	Sensitivity scenario
2031	Baseline toll rates + 50%	Sensitivity scenario
2031	Baseline toll rates + 60%	Sensitivity scenario
2031	Baseline toll rates + 75%	Sensitivity scenario
2031	Baseline toll rates - single and multi-unit trucks at same rate as autos	Sensitivity scenario
2031	Baseline toll rates + 25% - single and multi-unit trucks at same rate as autos	Sensitivity scenario
2041	Untolled	Baseline untolled scenario
2041	Baseline toll rates (consistent with current rates for Highways 407 East, 412, 418)	Baseline tolled scenario
2041	Baseline toll rates + 25%	Sensitivity scenario
2041	Baseline toll rates + 50%	Sensitivity scenario
2041	Untolled	With 2031 Bypass cross-section - to assist in development of business case models
2041	Baseline toll rates	With 2031 Bypass cross-section - to assist in development of business case models

3.2. Expansion of utilization and revenue to annual levels

Since the travel demand forecasts cover only the morning peak hour and it is necessary to evaluate travel distance and time, benefits/disbenefits, and revenue at the annual level for business case development, it is necessary to develop an expansion process. The need for revenue expansion suggests that the expansion process be vehicle class-specific and be day-of-week/time-of-day-specific to be consistent with toll rate stratification.

Appendix E contains a detailed discussion of the expansion process developed for this evaluation. Due to variability in the supporting data and in the possible assumptions, four options for expansion have been

developed, as listed below, which would lead to different estimates of VKT, VHT, and revenue. We have designated the most conservative of these, Option A, producing the lowest VKT, VHT, and revenue estimates, as the baseline. Most of the discussion in this report focuses on these 'baseline' results although selected sensitivity results will be presented for the other three options.

- Option A (Baseline/conservative) - calculated AM peak hour to average weekday expansion based on 407ETR data and average weekday to annual expansion using MTO's typical 300 factor. This option produces the most conservative (lowest) estimates of VKT, VHT, and revenue for the Bypass.
- Option B - calculated AM peak hour to average weekday expansion and calculated average weekday to annual expansion based on 407ETR data. This option produces VKT and VHT estimates that are 11-14% higher than the baseline and revenue estimates that are 5-8% higher than the baseline.
- Option C - calculated AM peak hour to average weekday expansion based on a combination of Highway 407 East, Highway 400, Highway 404 and YR31 (Davis Drive) data and average weekday to annual expansion using MTO's typical 300 factor. This option produces VKT and VHT estimates that are 19-20% higher than the baseline and revenue estimates that are 16-17% higher than the baseline.
- Option D - calculated AM peak hour to average weekday expansion based on a combination of Highway 407 East, Highway 400, Highway 404 and YR31 (Davis Drive) data and calculated average weekday to annual expansion based on 407ETR data. This option produces VKT and VHT estimates that are 45-48% higher than the baseline and revenue estimates that are 32-35% higher than the baseline.

For reference purposes, Figure 3-1 shows the relative utilization levels associated with the four different expansion options, while Figure 3-2 shows the relative revenue levels. Utilization and revenue are shown for opening day in 2031 and for various toll rate levels relative to the baseline toll rates as discussed in Section 2.2.

Unless noted otherwise, all results documented in this report utilize the more conservative Option A (Baseline) expansion process.

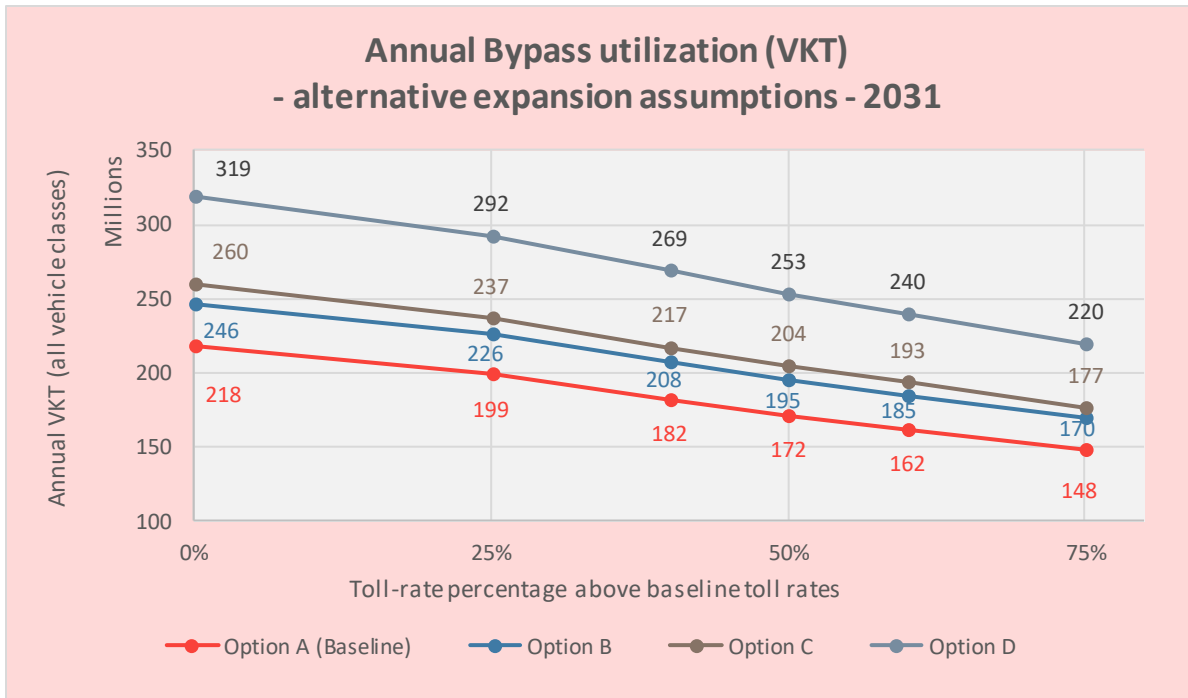


FIGURE 3-1: VARIATION IN ANNUAL BYPASS UTILIZATION RESULTING FROM ALTERNATIVE EXPANSION ASSUMPTIONS - 2031

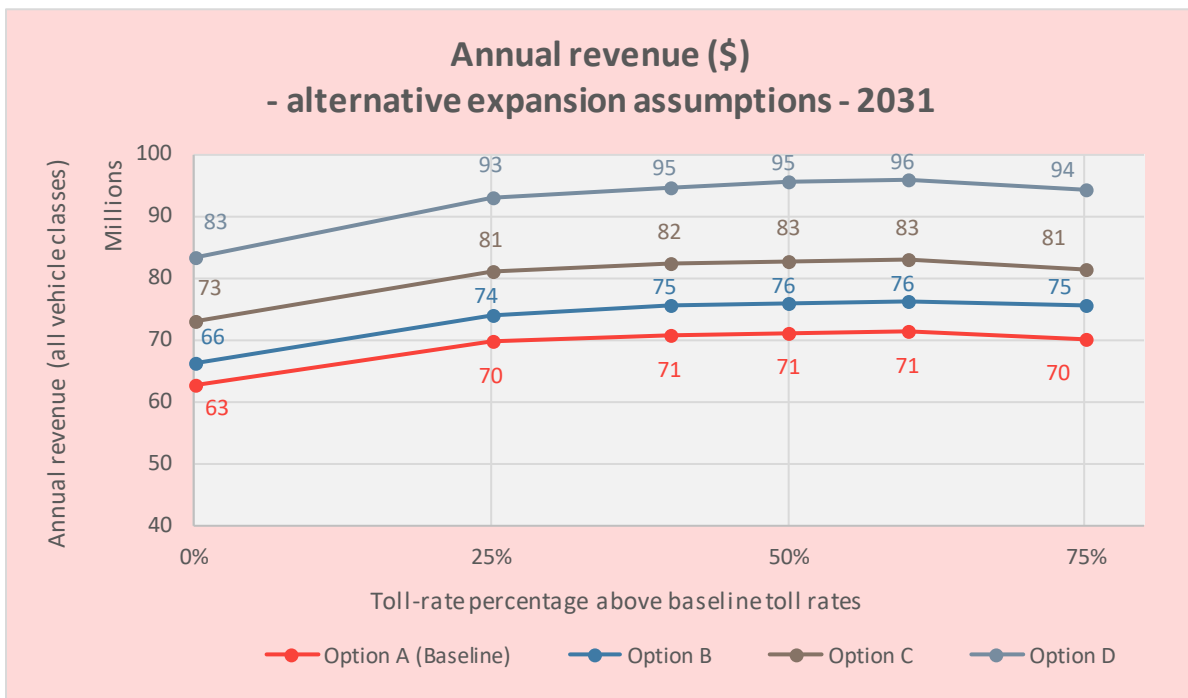


FIGURE 3-2: VARIATION IN ANNUAL REVENUE RESULTING FROM ALTERNATIVE EXPANSION ASSUMPTIONS - 2031

3.3. Utilization of the Bypass

The MTO's GGHMv4 travel demand model was used to evaluate utilization along the Bradford Corridor as well as to assess the impacts of tolling the corridor on the network. Figure 3-3 through Figure 3-6 summarize the traffic volumes during the AM peak hour for the untolled and baseline tolled scenarios for 2031 and 2041.

During the AM peak hour, the eastbound direction is typically the peak direction. The section between, Yonge Street and Leslie Street carry the highest volumes. As expected, when tolls are applied to the corridor, there is diversion from the corridor to alternate routes, traffic volumes on the Bypass decrease and travel speeds will tend to increase. Appendix A includes traffic volume schematics for additional scenarios.

Table 3-2 provides 2031 and 2041 VKT results by vehicle class and tolling scenario for the AM peak hour, average weekday, and annual level for the Bradford Bypass corridor. Table 3-3 provides VHT results in the same format.

The VKT estimates used for revenue estimation differ somewhat from those shown here. Tolls apply to each section of the Bypass from the centre-line of one interchanging road to the next, rather than from the on-ramp merge to the off-ramp diverge, and the VKT estimates used for revenue estimation reflect this adjustment. Traffic actually entering the highway would not reach the mainline until the on-ramp merge and would leave the mainline at the off-ramp entry, resulting in lower actual VKT levels.

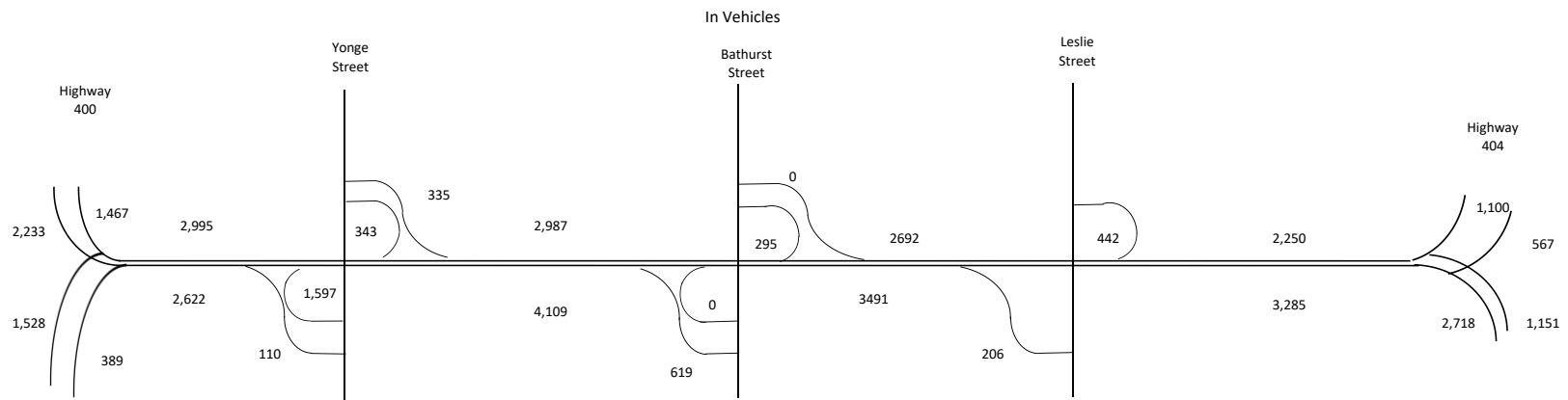


FIGURE 3-3: AM PEAK HOUR TRAFFIC VOLUMES - 2031 - UNTOLLED SCENARIO

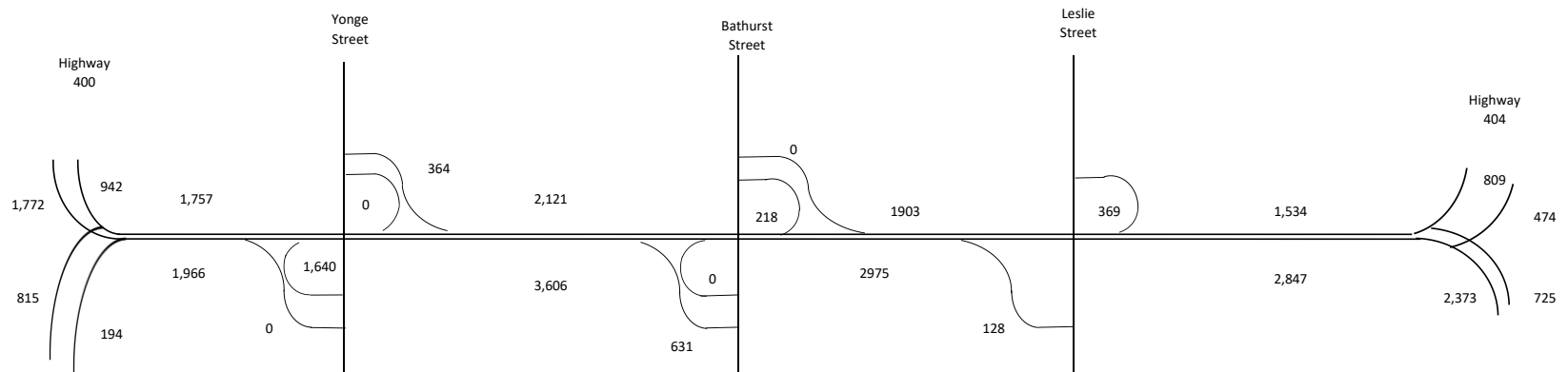


FIGURE 3-4: AM PEAK HOUR TRAFFIC VOLUMES - 2031 - BASELINE TOLLED SCENARIO

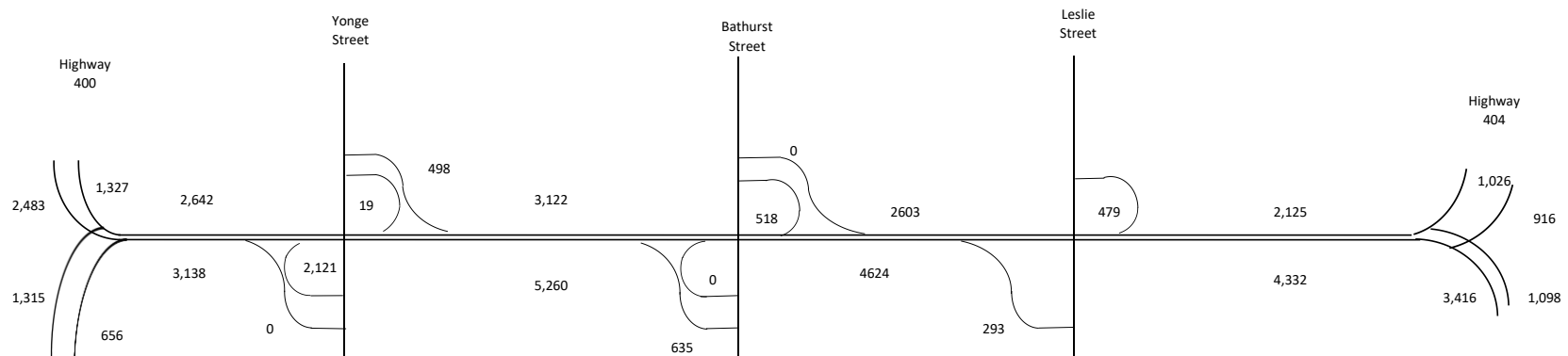


FIGURE 3-5: AM PEAK HOUR TRAFFIC VOLUMES - 2041 - UNTOLLED SCENARIO

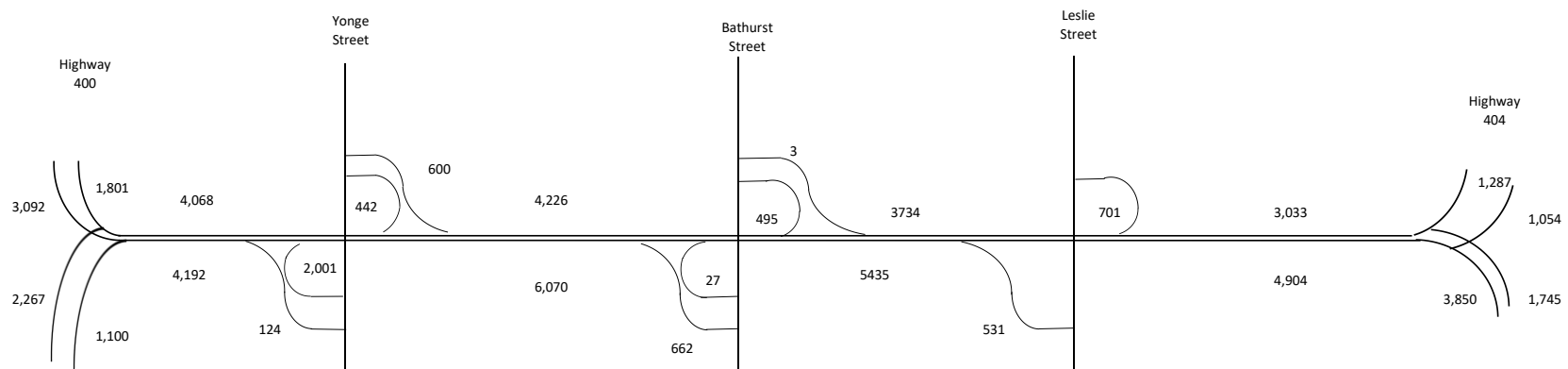


FIGURE 3-6: AM PEAK HOUR TRAFFIC VOLUMES - 2041 - BASELINE TOLLED SCENARIO

TABLE 3-2: AM PEAK HOUR, WEEKDAY, ANNUAL VKT ON THE BYPASS BY VEHICLE CLASS - 2031 AND 2041

Toll rate scenarios	AM peak hour			Average weekday			Annual (millions)		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
2031 Untolled	86,420 (91.8%)	3,910 (4.2%)	3,820 (4.1%)	832,490	51,530	44,840	249.7	15.5	13.5
2031 Tolled - baseline	66,680 (93.6%)	2,280 (3.2%)	2,270 (3.2%)	642,310	30,130	26,670	192.7	9.0	8.0
2031 Tolled - baseline +25%	62,030 (95.1%)	1,930 (3.0%)	1,280 (2.0%)	597,510	25,510	15,040	179.3	7.7	4.5
2031 Tolled - baseline +50%	54,410 (96.2%)	1,100 (2.0%)	1,040 (1.8%)	524,140	14,530	12,160	157.2	4.4	3.6
2041 Untolled	128,620 (93.0%)	4,450 (3.2%)	5,190 (3.8%)	1,238,900	58,720	60,870	371.7	17.6	18.3
2041 Tolled - baseline	100,580 (94.4%)	2,850 (2.7%)	3,090 (2.9%)	968,800	37,590	36,250	290.6	11.3	10.9
2041 Tolled - baseline +25%	94,610 (94.6%)	2,590 (2.6%)	2,790 (2.8%)	911,290	34,210	32,770	273.4	10.3	9.8
2041 Tolled - baseline +50%	88,520 (95.0%)	2,200 (2.4%)	2,420 (2.6%)	852,650	29,030	28,340	255.8	8.7	8.5

TABLE 3-3: AM PEAK HOUR, WEEKDAY, ANNUAL VHT ON THE BYPASS BY VEHICLE CLASS - 2031 AND 2041

Toll rate scenarios	AM peak hour			Average weekday			Annual (millions)		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
2031 Untolled	1,320	56	55	12,720	740	640	3.8	0.2	0.2
2031 Tolled - baseline	790	26	25	7,610	340	300	2.3	0.1	0.1
2031 Tolled - baseline +25%	710	21	15	6,800	280	170	2.0	0.1	0.1
2031 Tolled - baseline +50%	600	12	11	5,780	160	140	1.7	0.0	0.0
2041 Untolled	1,570	53	62	15,110	700	730	4.5	0.2	0.2
2041 Tolled - baseline	1,110	31	33	10,650	410	390	3.2	0.1	0.1
2041 Tolled - baseline +25%	1,020	28	30	9,830	360	350	3.0	0.1	0.1
2041 Tolled - baseline +50%	940	23	25	9,050	310	300	2.7	0.1	0.1

Additional summaries and network wide statistics of VKT and VHT, for the full GGHM are summarized in Appendix B.

Table 3-4 summarizes network-wide VKT and VHT for different tolling scenarios vs. the untolled scenario. Although the differences resulting from tolling are understandably small, since they affect only a relatively small part of the total GGHM network, they are nonetheless interesting since they suggest that tolling the

Bypass results in an overall decrease in VKT and an increase in VHT relative to the untolled scenario. The logical explanation is that tolling the Bypass results in some drivers with a lower VoT diverting to alternative routes that are shorter in distance but require more travel time than the route taken when they used the faster Bypass. In other words, drivers willing to pay the toll travel, on average, a longer distance in order to access the Bypass and take advantage of the time savings gained through use of the Bypass.

TABLE 3-4: NETWORK-WIDE VKT AND VHT FOR VARIOUS TOLLING SCENARIOS - AM PEAK HOUR - 2031

	VKT	Difference vs untolled scenario	VHT	Difference vs untolled scenario
Untolled	31,717,400	-	736,700	-
Baseline tolled	31,709,500	-7,950 (-0.025%)	737,000	+310 (+0.042%)
Baseline tolled + 25%	31,708,000	-9,470 (-0.030%)	737,200	+520 (+0.070%)
Baseline tolled + 40%	31,706,500	-10,880 (-0.034%)	737,400	+720 (+0.097%)
Baseline tolled + 50%	31,705,800	-11,670 (-0.037%)	737,600	+860 (+0.116%)
Baseline tolled + 60%	31,704,800	-12,590 (-0.040%)	737,700	+1,000 (+0.136%)
Baseline tolled + 75%	31,704,200	-13,200 (-0.042%)	737,900	+1,220 (+0.166%)

3.4. Operational performance of the Bypass

Table 3-5 summarizes mean speeds and volume/capacity ratios anticipated for the Bypass for the 2031 and 2041 AM peak hours.

For 2031 (opening day), the eastbound section of the Bypass, between Yonge and Bathurst, is expected to operate with a volume/capacity ratio greater than 1.0 during the AM peak hour under untolled conditions. However, with the implementation of tolling, the number of drivers choosing to use the Bypass will decrease and the volume/capacity ratio for this section drops below 1.0. With increases in the toll rates beyond baseline levels, this ratio drops even further. Otherwise, little in the way of congestion is expected for 2031.

Table 3-6 indicates that approximately 67% of the eastbound VKT during the AM peak hour in 2031 will experience a volume/capacity ratio greater than 0.9 for the untolled scenario, consistent with the observations above. This percentage drops to 27% if tolling is implemented and drops to zero if the toll rates are increased by 50% above baseline conditions. None of the VKT in the westbound direction is expected to experience congestion during the AM peak hour in 2031.

For 2041, with the assumed widening to 8 lanes, including HOV lanes, none of the VKT in either direction is expected to experience congestion during the AM peak hour.

TABLE 3-5: AVERAGE SPEED AND VOLUME/CAPACITY RATIO ON THE BYPASS BY DIRECTION

- AM PEAK HOUR - 2031, 2041

	Untolled		Tolled								
	Mean speed (km/h)	Volume/capacity ratio	Baseline		Baseline + 25%		Baseline + 50%		Baseline + 75%		
			Mean speed (km/h)	Volume/capacity ratio	Mean speed (km/h)	Volume/capacity ratio	Mean speed (km/h)	Volume/capacity ratio	Mean speed (km/h)	Volume/capacity ratio	
2031¹											
Highway 404 - Leslie	WB	100	0.64	100	0.43	100	0.35	100	0.26	100	0.18
Leslie - Bathurst		85	0.75	98	0.53	99	0.44	100	0.33	100	0.23
Bathurst - Yonge		75	0.83	96	0.58	98	0.52	99	0.43	100	0.36
Yonge - Highway 400		76	0.83	99	0.48	100	0.40	100	0.29	100	0.19
Highway 400 - Yonge	EB	88	0.71	98	0.53	99	0.47	100	0.42	100	0.37
Yonge - Bathurst		37	1.09	59	0.94	64	0.91	71	0.86	77	0.82
Bathurst - Leslie		60	0.93	82	0.77	87	0.73	91	0.68	95	0.62
Leslie - Highway 404		93	0.88	97	0.74	98	0.71	99	0.66	99	0.60
2041¹											
Highway 404 - Leslie	WB	99	0.44	100	0.31	100	0.28	100	0.24	-	-
Leslie - Bathurst		95	0.54	99	0.37	99	0.34	100	0.30	-	-
Bathurst - Yonge		90	0.61	97	0.44	98	0.40	99	0.37	-	-
Yonge - Highway 400		93	0.58	99	0.37	99	0.33	100	0.29	-	-
Highway 400 - Yonge	EB	94	0.58	99	0.43	99	0.41	100	0.38	-	-
Yonge - Bathurst		56	0.83	74	0.71	78	0.69	82	0.66	-	-
Bathurst - Leslie		77	0.75	90	0.63	93	0.60	95	0.57	-	-
Leslie - Highway 404		73	0.68	83	0.59	86	0.57	88	0.54	-	-
Notes:											
1. The cross-section of the Bypass is assumed to include two general-purpose lanes in each direction for 2031 and three general-purpose lanes plus an HOV lane in each direction for 2041.											
2. The mean speeds shown are for the general-purpose lanes only - the HOV lanes would be expected to be operating under free-flow conditions (100 km/h) for the 2031 and 2041 scenarios											

TABLE 3-6: PERCENTAGE OF TRAVEL (VKT) UNDER CONGESTED CONDITIONS (VOLUME/CAPACITY RATION > 0.90)

	Untolled	Tolled			
		Baseline	Baseline + 25%	Baseline + 50%	Baseline + 75%
2031¹					
WB	0%	0%	0%	0%	0%
EB	67%	27%	27%	0%	0%
2041¹					
WB	0%	0%	0%	0%	0%
EB	0%	0%	0%	0%	0%
<i>Notes:</i> 1. The cross-section of the Bypass is assumed to include two general-purpose lanes in each direction for 2031 and three general-purpose lanes plus an HOV lane in each direction for 2041.					

3.5. Changes in travel patterns resulting from tolling the Bypass - screenline analysis

Screenlines were established to capture likely changes in travel patterns that might result from tolling the Bypass. These screenlines are described in Table 3-7.

TABLE 3-7: SCREENLINE DESCRIPTIONS

North-south screenline east of Highway 400	
• Innisfil Beach Road	• Line 5
• 5th Line	• Canal road
• Highway 89	• Highway 9/YR31/Davis Drive
• Bradford Bypass	• Highway 407
• Highway 88	• Highway 401
North-south screenline west of Highway 404	
• Jon Dales Road	• Mount Albert Road
• Ravenshoe Road	• Green Lane
• Bradford Bypass	• Davis Drive
• Queensville Sideroad	• Highway 407
• Doane Road	• Highway 401
• Farr Avenue	
East-west screenline north of the Bradford Bypass	
• 5 th Sideroad	• 2 nd Concession
• Highway 400	• Leslie Street
• 10 th Sideroad	• Highway 404
• Yonge Street	• Woodbine Avenue
• Bathurst Street	
East-west screenline south of the Bradford Bypass	
• 5 th Sideroad	• 2 nd Concession
• Highway 400	• Leslie Street
• 10 th Sideroad	• Highway 404
• Yonge Street	• Woodbine Avenue
• Bathurst Street	

Note: Centroid connectors were also included in the screenlines where these might reflect movement on local roads

Figure 3-7 through Figure 3-10 summarize the results of the screenline analysis for the key north-south screenlines east of Highway 400 and west of Highway 404. More complete information is included in Appendix C.

Interestingly, the facilities included in the north-south screenlines east of Highway 400 and West of Highway 404 captured only between 30 and 60% of the trips that would divert from the Bypass during the AM peak hour under baseline toll rate conditions. The remainder are captured under 'other' in these figures. This implies that the remainder may have used alternative routes beyond the screenlines. The resulting increases in traffic on roads captured by the screenline east of Highway 400 were logically focused on the major parallel roads, such as Highway 88, Highway 89, and YR31/Davis Drive with the maximum increase on any single road being 358 vehicles during the AM peak hour on Highway 88 in the eastbound direction. West of Highway 404, the diverted traffic was much more dispersed with no single road gaining more than 128 veh/h. Also, interestingly, very few trips used Highway 407 or Highway 401 as an alternative route; routes that would could have been attractive to longer-distance trips transiting between Highway 400 or Highway 404 and Highway 401 east or west of the GTA.

In the case of the facilities captured by the east-west screenlines, tolling the Bypass understandably led to reductions on roads interchanging with the Bypass but the increases on other north-south roads were well dispersed.

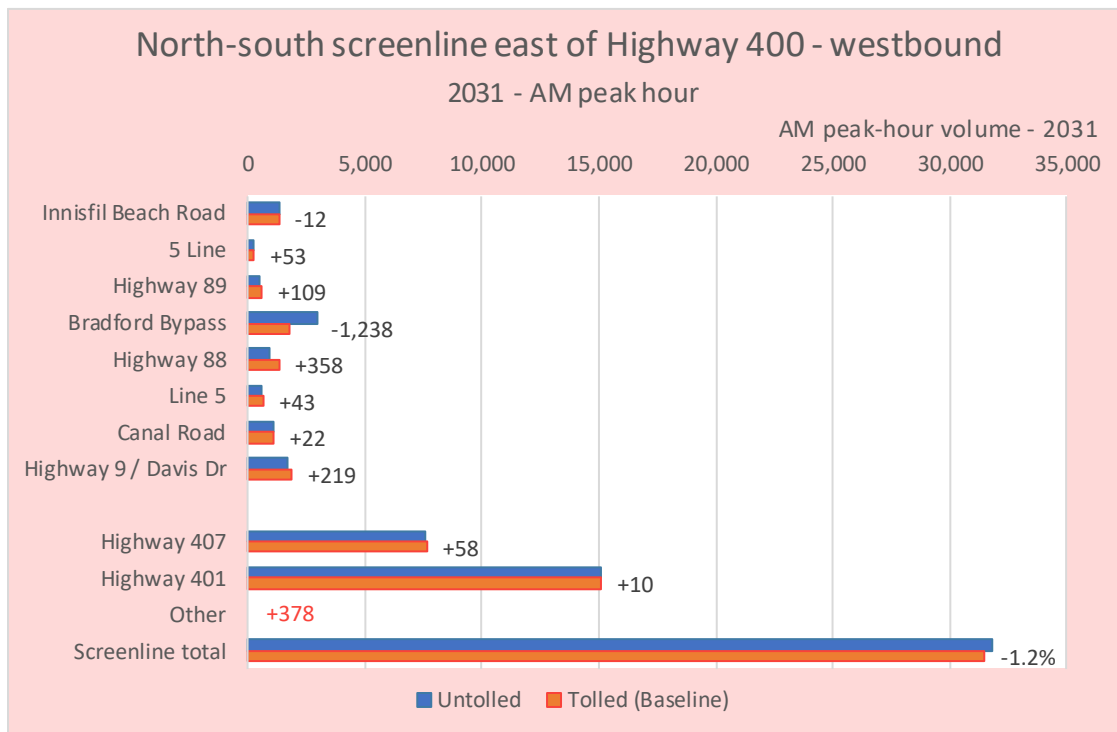


FIGURE 3-7: TOLLING IMPLICATIONS FOR ALTERNATIVE ROUTES - HIGHWAY 400 SCREENLINE - WESTBOUND - 2031 - AM PEAK HOUR

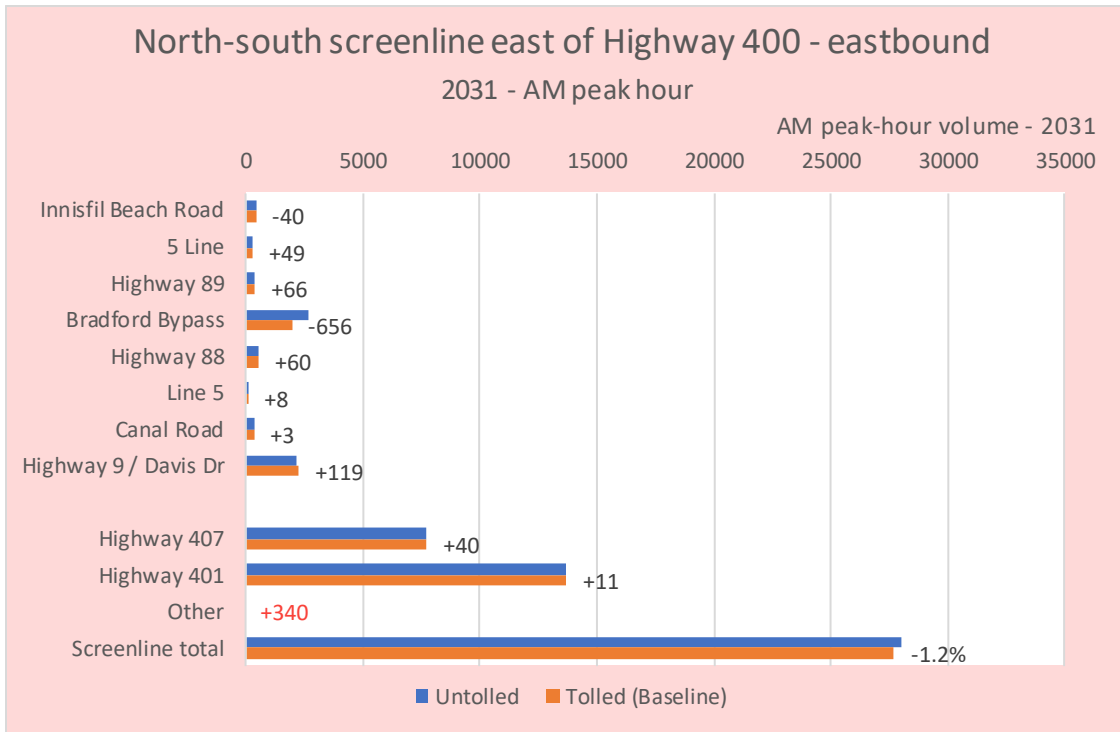


FIGURE 3-8: TOLLING IMPLICATIONS FOR ALTERNATIVE ROUTES - HIGHWAY 400 SCREENLINE - EASTBOUND - 2031 - AM PEAK HOUR

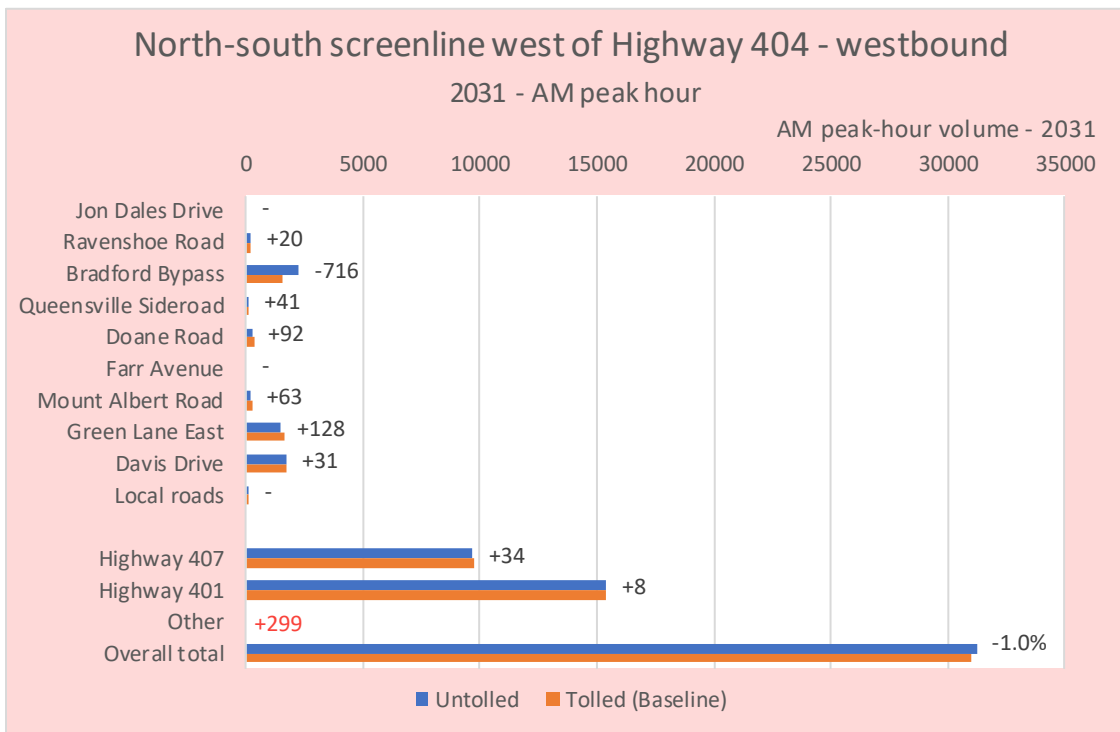


FIGURE 3-9: TOLLING IMPLICATIONS FOR ALTERNATIVE ROUTES - HIGHWAY 404 SCREENLINE - WESTBOUND - 2031 - AM PEAK HOUR

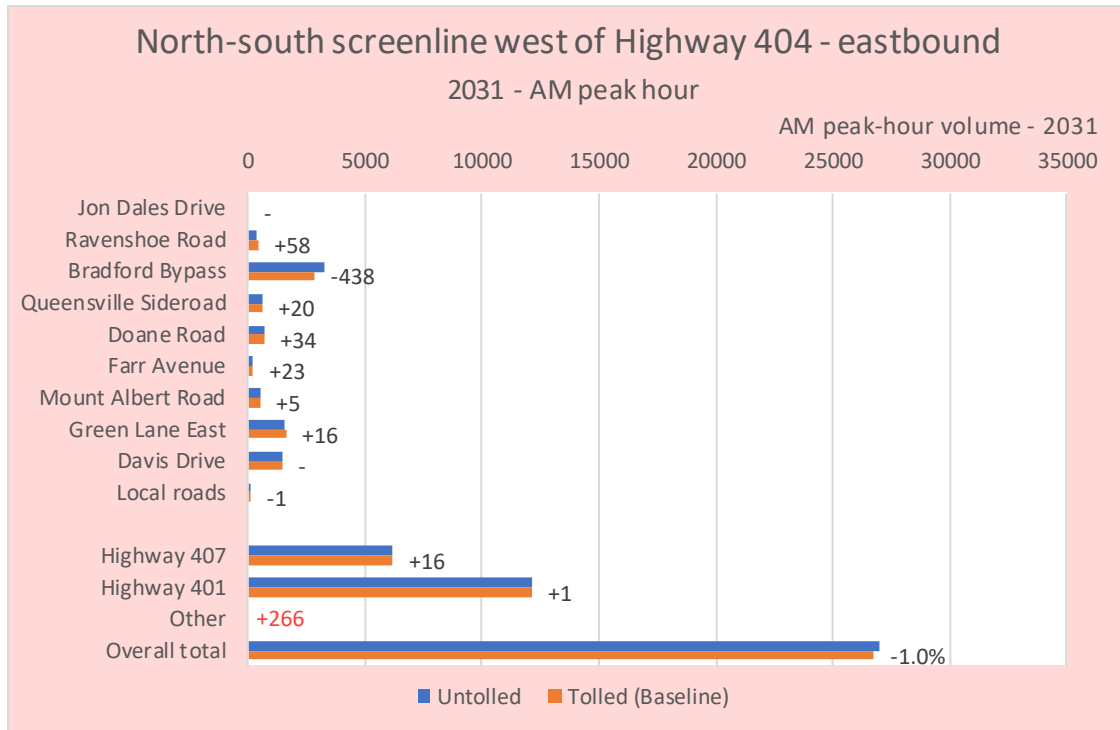


FIGURE 3-10: TOLLING IMPLICATIONS FOR ALTERNATIVE ROUTES - HIGHWAY 400 SCREENLINE - WESTBOUND - 2031 - AM PEAK HOUR

3.6. Incidence of travel impacts associated with tolling

Table 3-8 summarizes the changes in travel distance and travel time associated with various tolling scenarios vs. the untolled case.

For the 2031 planning horizon, the network wide VKT value decreases by 0.03% to 0.04% when comparing the non-tolled scenario to the tolled scenarios. The VHT values on the other hand increases by 0.04% to 0.17% when comparing the non-tolled scenario to the tolled scenarios. These results indicate that drivers were travelling longer distances to use the Bradford Corridor under the non-tolled scenario but as tolls are applied these drivers move away from the corridor and now experience shorter distances but longer travel times. When specifically reviewing Simcoe County, the VKT value decreases by 0.39% to 0.77% when comparing the non-tolled scenario to the tolled scenarios and the VHT value also decrease by 0.11% to 0.25% when comparing the non-tolled scenario to the tolled scenarios. These results indicate the drivers were traveling longer distances to use the Bradford Corridor for the non-tolled scenario and were not experiencing travel time benefits. For York Region, the VKT values decrease by 0.14% to 0.19% and the percent change in the VHT values range from -0.03% to +0.38% when comparing the non-tolled scenario to the tolled scenarios. These results indicate that drivers were travelling longer distances to use the Bradford Corridor but under certain scenarios there was little travel time benefits while other scenarios saw significant benefits. For the 2041 planning horizon, the network wide VKT value decreases by 0.06% to 0.08% and the VHT values on the other hand increases by 0.12% to 0.20% when comparing the non-tolled scenario to the tolled scenarios. The same results were observed when comparing these values for Simcoe County and York Region. These results echo those observed for the 2031 planning horizon where

drivers were travelling longer distances to use the Bradford Corridor under the non-tolled scenario but as tolls are applied these drivers move away from the corridor and now experience longer travel times.

TABLE 3-8: CHANGES IN VKT AND VHT IN SIMCOE COUNTY AND YORK REGION ASSOCIATED WITH TOLLING THE BYPASS

		Untolled	Tolled					
			Baseline	Baseline + 25%	Baseline + 50%	Baseline + 75%	Baseline - all vehicles at auto/light truck rate	Baseline + 25% - all vehicles at auto/light truck rate
2031								
Network	VKT	31,717,400	31,709,500	31,708,000	31,705,800	31,704,200	31,709,400	31,708,000
			-0.03%	-0.03%	-0.04%	-0.04%	-0.03%	-0.03%
	VHT	736,700	737,000	737,200	737,600	737,900	737,000	737,200
			0.04%	0.07%	0.12%	0.17%	0.04%	0.06%
Simcoe	VKT	2,063,100	2,055,000	2,053,100	2,049,300	2,047,100	2,055,100	2,052,700
			-0.39%	-0.48%	-0.66%	-0.77%	-0.39%	-0.50%
	VHT	32,600	32,500	32,500	32,500	32,500	32,500	32,500
			-0.25%	-0.19%	-0.20%	-0.11%	-0.24%	-0.21%
York	VKT	4,261,600	4,255,500	4,254,300	4,253,800	4,253,500	4,255,300	4,254,900
			-0.14%	-0.17%	-0.18%	-0.19%	-0.15%	-0.16%
	VHT	107,100	107,100	107,200	107,300	107,500	107,100	107,200
			-0.02%	0.06%	0.22%	0.38%	-0.03%	0.04%
2041								
Network	VKT	36,074,300	36,053,200	36,049,500	36,045,200	-	-	-
			-0.06%	-0.07%	-0.08%	-	-	-
	VHT	952,400	953,500	953,900	954,300	-	-	-
			0.12%	0.16%	0.20%	-	-	-
Simcoe	VKT	2,352,900	2,352,300	2,349,300	2,345,600	-	-	-
			-0.02%	-0.15%	-0.31%	-	-	-
	VHT	40,000	40,100	40,100	40,100	-	-	-
			0.45%	0.43%	0.44%	-	-	-
York	VKT	4,750,300	4,737,200	4,735,000	4,733,700	-	-	-
			-0.28%	-0.32%	-0.35%	-	-	-
	VHT	138,300	138,500	138,700	138,900	-	-	-
			0.19%	0.30%	0.44%	-	-	-

3.7. Revenue

Table 3-9 summarizes the anticipated AM peak hour, average daily, and annual revenue for 2031 (opening day) and 2041 for all tolling scenarios evaluated and includes sensitivity to the alternative expansion assumptions (Options A through D from Section 3.2).

Revenue estimated in conjunction with the baseline toll rates shows increases of approximately 48% from \$62.7M in 2031 to \$92.5M in 2041. Higher Bypass utilization expected in 2041, as a result of growth in demand and an increase in the capacity of the Bypass through widening, further increases revenue estimates relative to 2031 by approximately 55% and 68% with toll-rate increases of 25% and 50%, respectively, above the baseline toll rates.

A more complete discussion of the revenue trends and the factors involved is presented in Section 3.8, in conjunction with graphical displays that illustrate these trends more clearly. However, Table 3-9 presents a comprehensive summary of all revenue estimates for reference purposes. In addition, revenue estimates, broken down by vehicle class, are found in Appendix D.

TABLE 3-9: AM PEAK HOUR, AVERAGE WEEKDAY AND ANNUAL REVENUE ESTIMATES FOR VARIOUS TOLLING SCENARIOS, INCLUDING SENSITIVITY TO EXPANSION ASSUMPTIONS

Expansion option (see Section 3.2)	Toll rate scenario	2031 (opening day) - \$2016			2041 - \$2016		
		Average weekday (thousands)	Weekly (millions)	Annual (millions)	Average weekday (thousands)	Weekly (millions)	Annual (millions)
Option A (Baseline)	Baseline	209.1	Not available	62.733	308.3	Not available	92.498
	Baseline + 25%	232.1	- MTO	69.640	360.4	- MTO	108.125
	Baseline + 40%	235.3	300	70.582	-	300	-
	Baseline + 50%	236.9	factor goes	71.077	399.5	factor goes	119.836
	Baseline + 60%	237.4	straight	71.210	-	straight	-
	Baseline + 75%	233.2	from average	69.974	-	from average	-
	Baseline - All vehicles tolled at auto/light truck rate	188.5	weekday to annual.	56.539	-	weekday to annual.	-
	Baseline + 25% - All vehicles tolled at auto/light truck rate	212.9		63.877	-		-
Option B	Baseline	209.1	1.291	66.143	308.3	1.911	97.946
	Baseline + 25%	232.1	1.444	74.000	360.4	2.236	114.610
	Baseline + 40%	235.3	1.471	75.415	-	-	-
	Baseline + 50%	236.9	1.482	75.979	399.5	2.484	127.315
	Baseline + 60%	237.4	1.487	76.273	-	-	-
	Baseline + 75%	233.2	1.469	75.356	-	-	-
	Baseline - All vehicles tolled at auto/light truck rate	188.5	1.173	60.144	-	-	-
	Baseline + 25% - All vehicles tolled at auto/light truck rate	212.9	1.321	67.706	-	-	-
Option C	Baseline	243.5	Not available	73.060	359.3	Not available	107.775
	Baseline + 25%	269.7	- MTO	80.901	419.9	- MTO	125.974
	Baseline + 40%	273.8	300	82.141	-	300	-
	Baseline + 50%	275.8	factor goes	82.731	465.4	factor goes	139.618
	Baseline + 60%	276.0	straight	82.815	-	straight	-
	Baseline + 75%	270.8	from average	81.227	-	from average	-
	Baseline - All vehicles tolled at auto/light truck rate	219.0	weekday to annual	65.702	-	weekday to annual.	-
	Baseline + 25% - All vehicles tolled at auto/light truck rate	247.4		74.226	-		-

Table 3-9 is continued on the following page.

Table 3-9 (continued)

Expansion option (see Section 3.2)	Toll rate scenario	2031 (opening day) - \$2016			2041 - \$2016		
		Average weekday (thousands)	Weekly (millions)	Annual (millions)	Average weekday (thousands)	Weekly (millions)	Annual (millions)
Option D	Baseline	243.5	1.618	83.313	359.3	2.393	123.268
	Baseline + 25%	269.7	1.804	92.958	419.9	2.799	144.202
	Baseline + 40%	273.8	1.836	94.674	-	-	-
	Baseline + 50%	275.8	1.850	95.377	465.4	3.107	160.102
	Baseline + 60%	276.0	1.855	95.672	-	-	-
	Baseline + 75%	270.8	1.829	94.343	-	-	-
	Baseline - All vehicles tolled at auto/light truck rate	219.0	1.466	75.541	-	-	-
	Baseline + 25% - All vehicles tolled at auto/light truck rate	247.4	1.652	85.109	-	-	-

3.8. Revenue, utilization and toll rates - elasticity/sensitivity

One of the outcomes desired from this evaluation was an assessment of the sensitivity of Bypass utilization and revenue to toll rates, in effect, a form of elasticity. A series of runs were undertaken under 2031 (opening day) conditions with toll rates at differing percentages above the baseline toll rates (25, 40, 50, 60, 75%) to investigate sensitivity.

The following sections provide information on the sensitivity of utilization and revenue to toll rate levels and the tradeoff between utilization and revenue. However, no conclusion is drawn with respect to the ‘best’ toll rate level and/or structure. Any decision on toll rates would have to consider MTO’s policy objectives and criteria.

3.8.1. Utilization vs. toll rate

Figure 3-11 illustrates the sensitivity of Bypass utilization to toll rate for 2031 (opening day) and 2041 conditions. As expected, the highest utilization would occur for the untolled case. Introducing tolling using the baseline tolls (as discussed in Section 2.2) reduces utilization by 25%, to 218 million VKT in 2031 and by 23.5% to 325 million VKT in 2041.

Table 3-10 summarizes the percentage reduction in utilization (relative to utilization at baseline toll rates) in relation to the percentage increase in toll rates (relative to baseline toll rates).

The relationship is monotonic but is not strictly linear, although in the range between a 25% increase and a 75% increase in toll rates relative to the baseline rate, it appears that for every 1% increase in toll rate, the utilization drops by an average of 0.56% in 2031. The incremental drops in utilization average 0.27% per 1% increase in toll rate for 2041 up to a 50% increase.

3.8.2. Revenue vs. toll rate

Figure 3-12 illustrates the sensitivity of revenue to toll rate for 2031 (opening day) conditions. As toll rate increases, the revenue/VKT also increases, although the VKT tends to decrease. When these influences are combined, the revenue rises to a maximum value of approximately \$71.2M at a toll rate approximately 60% above the baseline rates, as shown on Figure 3-12, and declines thereafter.

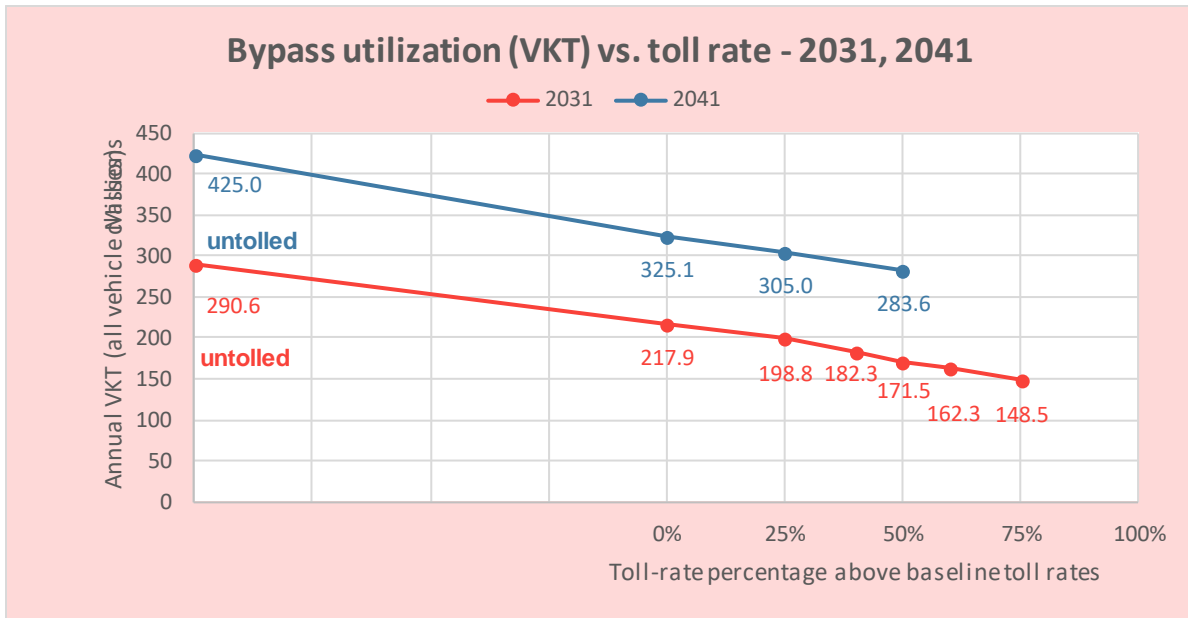


FIGURE 3-11: SENSITIVITY OF BYPASS UTILIZATION TO TOLL RATE - 2031 - ANNUAL TOTALS - ALL VEHICLE CLASSES

TABLE 3-10: SENSITIVITY OF BYPASS UTILIZATION TO TOLL RATE - 2031, 2041 - ANNUAL TOTALS - ALL VEHICLE CLASSES

Change in toll rate relative to baseline toll rates	Cumulative change in utilization (VKT) relative to utilization at baseline toll rates		Incremental change in utilization produced by 1% increase in toll rate	
	2031	2041	2031	2041
0%	-	-	-	-
25%	-8.7%	-6.2%	-0.35%	-0.25%
40%	-16.5%	-	-0.55%	-
50%	-21.1%	-12.8%	-0.59%	-0.28%
60%	-25.7%	-	-0.54%	-
75%	-32.1%	-	-0.57%	-

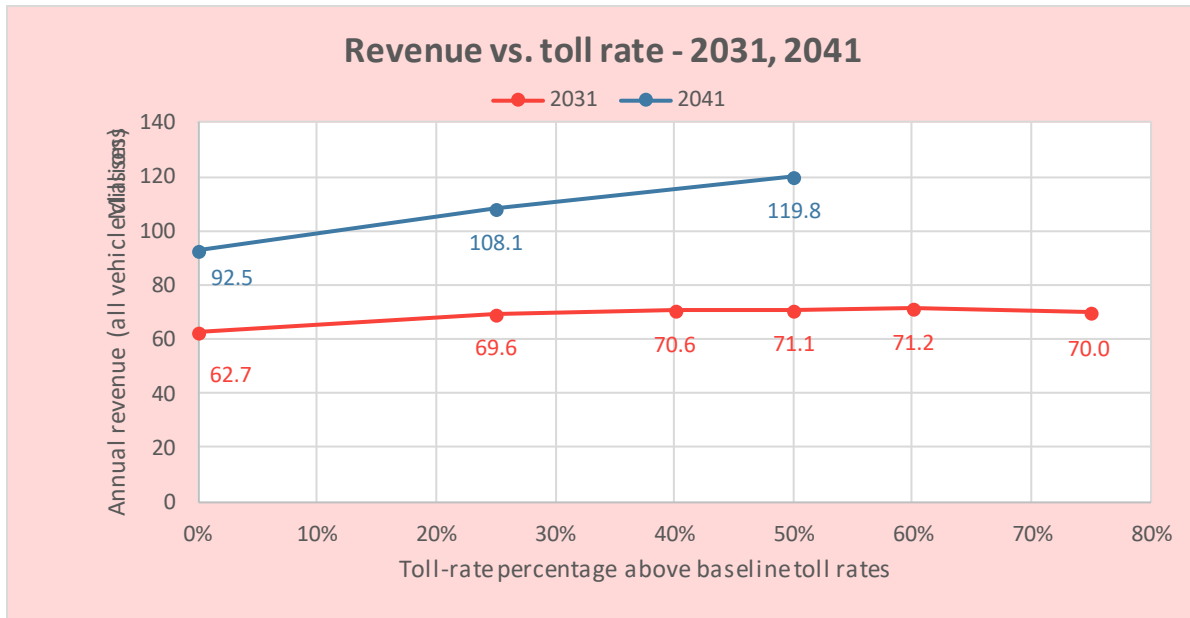


FIGURE 3-12: SENSITIVITY OF REVENUE TO TOLL RATE - 2031, 2041 - ANNUAL TOTALS - ALL VEHICLE CLASSES

3.8.3. Revenue vs. utilization

The final combination is that of revenue with utilization, as shown on Figure 3-13. This graph represents essentially a combination of the previous two graphs, noting that both revenue and utilization are a function of the toll rates. As before, the maximum revenue is approximately \$71.2M and this coincides with a utilization (VKT) of approximately 162M in 2031. It is difficult to identify a maximum revenue point for 2041 as the graph does not 'peak' within the range of toll rates and utilization evaluated.

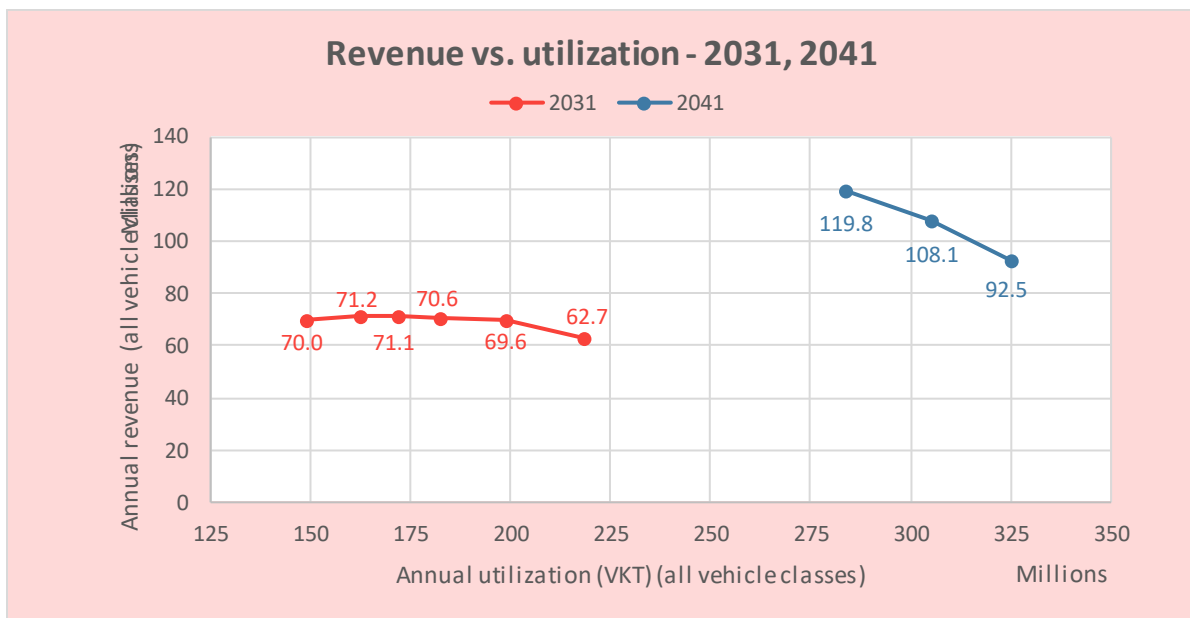


FIGURE 3-13: SENSITIVITY OF REVENUE TO UTILIZATION - 2031 - ANNUAL TOTALS - ALL VEHICLE CLASSES

3.8.4. Toll rate structure sensitivity

Two additional scenarios were evaluated that eliminated the higher tolling rates for single-unit (medium) trucks and multi-unit (heavy) trucks under 2031 (opening day) conditions. Instead of tolling single-unit (medium) trucks and multi-unit (heavy) trucks at rates approximately 100% higher and 200% higher, respectively, than autos/light trucks, all vehicles were tolled at the rate for autos/light trucks. The first of these scenarios used the baseline toll rates and the second used the baseline toll rate + 25%. Table 3-11 summarizes the results for these scenarios.

In both cases, eliminating the toll surcharge on trucks results in a change in VKT of less than 1% and a decrease in revenue of approximately 8-10%. However, as might be expected, there is a noticeable change in the distribution of VKT and revenue among the different vehicle classes. There is a significant increase (more than 60%) in the utilization of the Bypass by the single and multi-unit truck classes as a result of the reduced toll rates for these classes. This is offset by a decrease in utilization by the auto/light truck class. Although the net numerical difference in VKT over all vehicle classes is small, the percentage changes for the smaller truck classes are significant. The revenue associated with the single and multi-unit truck classes decreases by 18-44% under the baseline toll rate levels, not surprising since the higher toll rates for these classes have been eliminated. However, this effect is offset somewhat by the higher utilization for these classes. Under the baseline toll rate levels +25%, the changes in revenue are somewhat more muted.

TABLE 3-11: UTILIZATION AND REVENUE FOR SCENARIOS ELIMINATING TOLL RATE SURCHARGES FOR SINGLE AND MULTI-UNIT TRUCKS - 2031

		Baseline toll rate levels		Baseline toll rate levels + 25%	
2031		Utilization (VKT millions)	Revenue (\$ millions)	Utilization (VKT millions)	Revenue (\$ millions)
Toll structure with toll stratification by vehicle class	Auto/light trucks	200.2	51.8	186.0	60.2
	Single-unit (medium) trucks	9.4	4.8	8.0	5.1
	Multi-unit (heavy) trucks	8.3	6.2	4.7	4.4
	All vehicles	217.9	62.7	198.8	69.6
Toll structure with same toll rates for all vehicle classes	Auto/light trucks	189.9 (-5.1%)	49.1 (-5.2%)	168.3 (-9.5%)	54.4 (-9.6%)
	Single-unit (medium) trucks	15.3 (+62.8%)	3.9 (-18.8%)	15.5 (+93.8%)	4.9 (-3.9%)
	Multi-unit (heavy) trucks	14.2 (+71.1%)	3.5 (-43.6%)	14.6 (+210.6%)	4.6 (+4.6%)
	All vehicles	219.4 (+0.7%)	56.5 (-9.9%)	198.4 (-0.2%)	63.9 (-8.2%)

4. Business case evaluation

4.1. Overview and business case scenarios

The following section presents the results of the financial and economic business case evaluations associated with the tolling of the Bypass. Three scenarios are considered in the business cases:

1. Tolling with the baseline toll rates (as used for Highway 407 East, Highway 412, and Highway 418) vs. the untolled case
2. Tolling with rates 25% higher than the baseline toll rates vs. the untolled case
3. Tolling with rates 50% higher than the baseline toll rates vs. the untolled case.

As noted previously, the business case evaluation documented in this report does not include a case for construction of the Bypass vs. the status quo. However, an evaluation of the payback period associated with the use of the revenue generated to payback the construction costs is included. It is noted that the range of business case scenarios developed does not include the maximum revenue scenario, which appears to occur, for 2031 (opening day), at toll rates approximately 60% higher than the baseline toll rates.

The business case evaluation is predicated on the baseline (conservative) expansion of revenue, distance travelled (VKT) and travel time (VHT) to annual levels.

4.2. Cost estimation

4.2.1. Capital cost of tolling infrastructure

The capital costs of this project are associated with the construction of tolling stations, installation of a communication system, procurement of power and central systems, for a total of nearly 23.4 million in constant 2020 dollars without using a discount rate. Table 4-1 breakdowns the cost by year and by item. The capital budget will be spent 10 % in 2028, 30 % in 2029 and 60% in 2030.

TABLE 4-1: SCHEDULE OF CAPITAL COSTS (IN 2020 UNDISCOUNTED DOLLARS), 2028-2030

Cost Item	2028	2029	2030	Total (2028-2030)
Tolling Stations	1,389,843	4,169,529	8,339,057	13,898,429
Communications	350,000	1,050,000	2,100,000	3,500,000
Power	40,000	120,000	240,000	400,000
Central Systems (s/w & h/w)	600,000	1,800,000	3,600,000	6,000,000
Total (All Items)	2,379,843	7,139,529	14,279,057	23,798,429

Sources: MTO, WSP

4.2.2. Operating costs associated with tolling

Operating the tolling infrastructure and equipment will incur some annual fixed costs (maintenance of the central system and operation of the back office support), a variable transaction cost which depends on the bypass utilization, and some recurring capital costs which occur every 5 years or 10 years depending on the equipment to be replaced. Figure 4-1 shows the breakdown of the annual operating and maintenance costs by type. The transaction costs which represent 10% of the tolling revenue account for

the most part the annual costs. The jump in the transaction costs from M\$8 in 2041 to \$10M in 2042 reflects a higher utilization level resulting from widening the bypass.

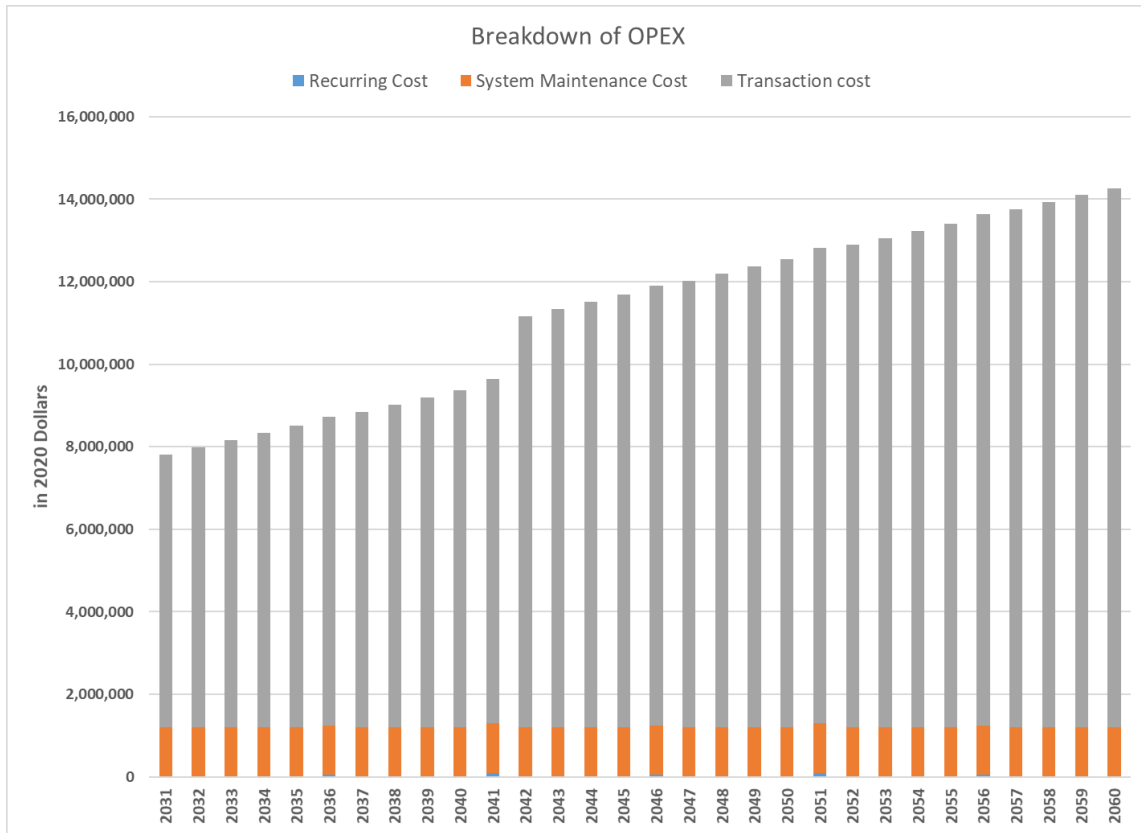


FIGURE 4-1: ANNUAL BREAKDOWN OF TOLLING INFRASTRUCTURE OPERATING COSTS

Source: WSP

4.3. The economic business case

The economic business case carries a Benefit-Cost Analysis (BCA) to determine the socioeconomic feasibility and relative merits of tolling the Bradford Bypass, a proposed 16.2-kilometre long freeway connecting Highway 400 and Highway 404 in the Regional Municipality of York and County of Simcoe. A BCA is an evaluation framework to assess the economic advantages (benefits) and disadvantages (costs) of an investment alternative. Benefits and costs are broadly defined and are quantified in monetary terms to the extent possible. The overall goal of a BCA is to assess whether the expected benefits of a project justify the costs from a provincial perspective. A BCA framework attempts to capture the net welfare change created by a project, including increases in welfare (benefits) as well as net cost increases where costs can be identified (e.g., project capital costs), and welfare reductions where some groups are expected to be made worse off as an outcome of the proposed project.

4.3.1. Model and Assumptions

Model

The BCA model involves defining a Base Case or “No Build” Case, which is compared to the “Build” Case, where the tolling project is completed as proposed. Under the No-Build scenario, the Bradford Bypass will not be tolled. Under the Build scenario, the Bypass will be tolled. The BCA assesses the incremental difference between the Base Case and the Build Case, which represents the net change in welfare. BCAs are forward-looking exercises which seek to assess the incremental change in welfare over a project lifecycle. The importance of future welfare changes is determined through discounting, which is meant to reflect both the opportunity cost of capital as well as the societal preference for the present.

Assumptions

The analysis was conducted in accordance with the MTO. This includes the following analytical assumptions:

- All construction and operation costs related to the Bypass infrastructure itself are not included in economic business case. That means only construction and operation related to the tolling system were taken into consideration;
- The construction of the tolling infrastructure starts in 2028 and ends in 2030 in order to accommodate the operation of the bypass in 2031;
- All benefits/disbenefits are assumed to be fully realized in 2031 when the bypass is open for the public;
- The useful life of the tolling infrastructure is supposed to be 30 years, meaning that at the end of 2060, there will be no residual value left;
- The net change in benefits/disbenefits and costs will be calculated for 3 years of construction of the tolling system (2028-2030) and 30 years of operation (2031-2060);
- Whenever possible, using MTO recommended monetized values for travel time costs, reduced fatalities, injuries, property damage, reduced vehicle operating costs, and emissions, while relying on best practices for monetization of other benefits;
- Presenting dollar values in real 2020 dollars. In instances where cost estimates and benefits valuations are expressed in historical or future dollar years, using an appropriate inflation factor to adjust the values;
- Discounting future benefits and costs with a real discount rate of 3.5%.

4.3.2. Business case data and method

4.3.2.1. Forecast of Travel Demand, Travel Time, and Speed

A traffic forecasting was conducted by WSP for the Bradford Bypass and the rest of the Greater Toronto Area road network for both untolled and tolled scenario. Table 4-2 presents the forecasted annual vehicle-kilometers travelled (VKT) and vehicle-hours travelled (VHT) for 2031 with a four-lane bypass and 2041 with an eight-lane bypass. It was expected that tolling the highway will decrease VKT and VHT on the Bypass, while increase them on the rest of the network. The effects on VKT and VHT in percentage terms are significant on the Bypass, but not significant on the rest of the network. The net effects on the overall network are to decrease VKT, while increase VHT. The explanation for this result is when the highway is not tolled, road users prefer to take the bypass for travel time savings purpose even though they would have to travel on longer distances. When the highway is tolled, some road users will naturally find

alternates with shorter distances. However, travelling on alternative routes would increase travel time due to lower speed.

TABLE 4-2: FORECAST TRAVEL DEMAND, TRAVEL TIME AND SPEED, 2031 & 2041 FOR BASELINE TOLL RATE SCENARIO

Scenario	Unit	Untolled	Tolled	Difference	
				Value	%
I. 2031					
1) Bradford Corridor					
VKT	Million VKT	279	210	-68.9	-24.7%
VHT	Million VHT	4.2	2.5	-1.8	-41.5%
Speed	km/h	66	85	19	28.7%
2) Rest of the network					
VKT	Million VKT	93,396	93,441	44.8	0.05%
VHT	Million VHT	2,166	2,169	2.7	0.12%
Speed	km/h	43	43	0	-0.08%
3) Total of the network					
VKT	Million VKT	93,675	93,651	-24.1	-0.03%
VHT	Million VHT	2,171	2,172	0.9	0.04%
Speed	km/h	43	43	0	-0.07%
II. 2041					
1) Bradford Corridor					
VKT	Million VKT	411	318	-92.4	-22.5%
VHT	Million VHT	5.2	3.6	-1.6	-30.2%
Speed	km/h	79	88	9	11.0%
2) Rest of the network					
VKT	Million VKT	107,828	107,858	29.7	0.03%
VHT	Million VHT	2,890	2,895	4.8	0.17%
Speed	km/h	37	37	0	-0.14%
3) Total of the network					
VKT	Million VKT	108,239	108,176	-62.7	-0.06%
VHT	Million VHT	2,895	2,898	3.3	0.11%
Speed	km/h	37	37	0	-0.17%

Since the forecast was done for only two years (2031 and 2041), one needs to expand the forecast for the entire analysis period from 2031 to 2060. Traditionally, interpolation between two data points is a common method used to derive individual year forecast from 2031 to 2041. Beyond 2041 with a jump in travel demand on the widening bypass however, no data point is available to apply the same interpolation method. We will assume that the trend (slope) between 2041 and 2060 will be the same as that between 2031 and 2041. The resulting forecast for the entire 2031-2061 period is presented in Figure 4-2, Figure 4-3 and Figure 4-4.

The following subsections use the data presented in these three figures to estimate the benefits and disbenefits of tolling the bypass. Changes in VHT will be used to estimate travel time costs; changes in VKT will be used to estimate vehicle operating costs and collision costs; and changes in VKT combined with changes in speed will be used to estimate fuel consumption costs and environmental costs.



FIGURE 4-2: TRAVEL DISTANCE BY SCENARIO: BRADFORD CORRIDOR VS. REST OF NETWORK

Source: WSP

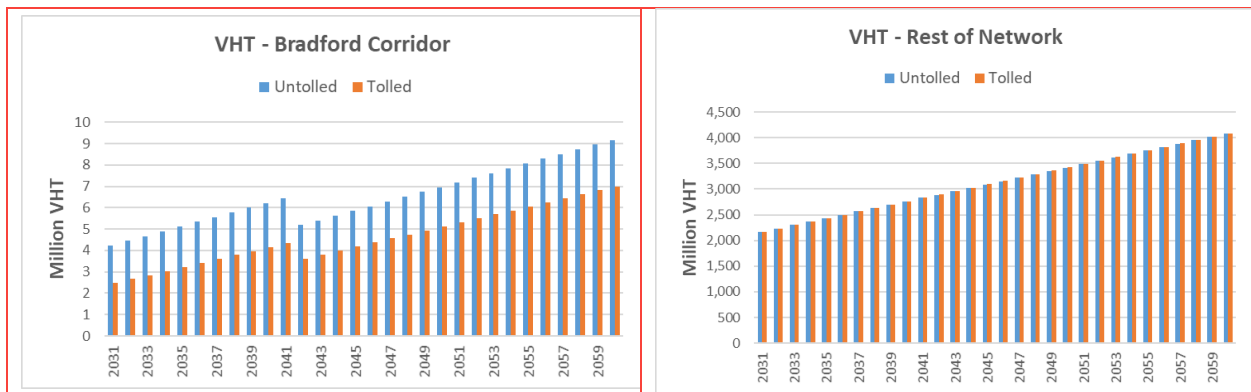


FIGURE 4-3: TRAVEL TIME BY SCENARIO: BRADFORD CORRIDOR VS. REST OF NETWORK

Source: WSP

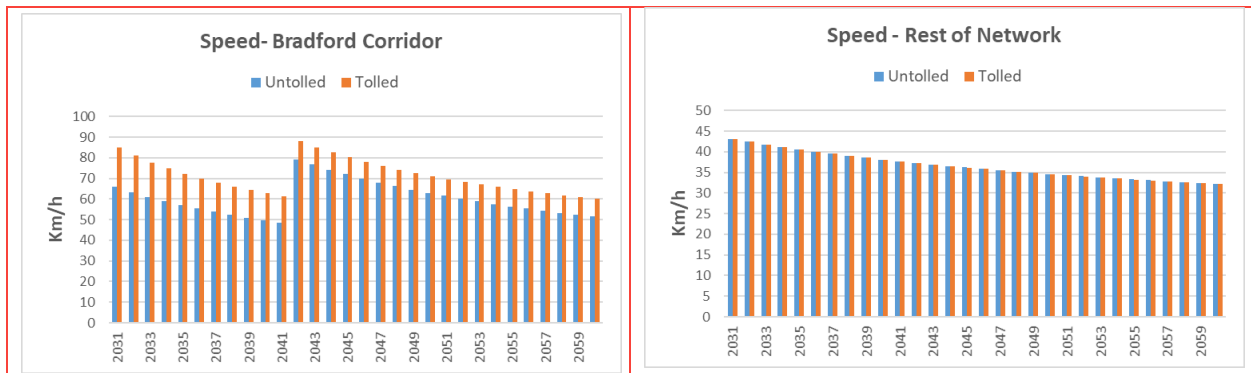


FIGURE 4-4: SPEED BY SCENARIO: BRADFORD CORRIDOR VS. REST OF NETWORK

Source: WSP

4.3.2.2. Travel Time Benefits/Disbenefits

As shown in Table 4-2, tolling will decrease VHT on the Bypass, but increase overall VHT on the entire road network. Table 4-3 shows the steps to calculate the travel time disbenefit of tolling the highway. As of 2031, travel time will increase by 0.9 million VHT for all types of vehicle combined. If 1.22 is the occupancy rate for light vehicles, and 1 is for medium and heavy trucks, the total persons-hours travelled (PHT) was estimated to be more than 1.11 million person-hours by 2031. By applying the value of time for each type of vehicle, the disbenefit was monetarized to be 29.3 million dollars in undiscounted value as of 2031.

TABLE 4-3: TRAVEL TIME BENEFIT/DISBENEFIT DATA AND METHOD, UNDISCOUNTED DOLLAR 2020

Variable	Type of Vehicle	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
A (VHT)	Light Vehicle (LV)	Million VHT	1,987	1,988	0.77	WSP
	Medium Truck (MT)	Million VHT	98.7	98.8	0.08	WSP
	Heavy Truck (HT)	Million VHT	84.9	85.0	0.08	WSP
B (Vehicle occupancy rate)	Light Vehicle (LV)	pers/veh	1.22	1.22	0.00	Assumption
	Medium Truck (MT)	pers/veh	1.00	1.00	0.00	Assumption
	Heavy Truck (HT)	pers/veh	1.00	1.00	0.00	Assumption
C=A*B (Persons-hours travelled))	Light Vehicle (LV)	Million PHT	2424	2425	0.94	Calculation
	Medium Truck (MT)	Million PHT	98.7	98.8	0.08	Calculation
	Heavy Truck (HT)	Million PHT	84.9	85.0	0.08	Calculation
D (Value of Time)	Light Vehicle (LV)	\$2020/hour	16.6	16.6	0.00	MTO
	Medium Truck (MT)	\$2020/hour	84.7	84.7	0.00	MTO
	Heavy Truck (HT)	\$2020/hour	84.7	84.7	0.00	MTO
E=C*D (Travel time costs)	Light Vehicle (LV)	M\$2020	40,195	40,210	15.7	Calculation
	Medium Truck (MT)	M\$2020	8,362	8,369	7.03	Calculation
	Heavy Truck (HT)	M\$2020	7,197	7,203	6.63	Calculation
	Total	M\$2020	55,754	55,783	29.3	Calculation

Note: For benefit/disbenefit estimation over the 2031-2060 period, the variables A, C and E vary over time, while B and D do not.

4.3.2.3. Vehicle Operating Benefits/Disbenefits

Here the vehicle operating costs include depreciation, regular maintenance, and tires, but do not include fuel consumption which is calculated separately. Tolling the highway will decrease the overall VKT which will decrease vehicle operating costs for road users. Table 4-4 presents the data and method used to calculate a benefit of \$9.3 million as of 2031. Operating cost per kilometer was given by MTO, but for heavy truck category only (\$0.73/km). Lighter vehicles usually have a lower cost per kilometer, according to MTQ and US DOT. Using the estimates from MTQ and US DOT, one can derive proportionally the estimates for lighter vehicles from the heavy truck estimate.

TABLE 4-4: VEHICLE OPERATING BENEFIT/DISBENEFIT DATA AND METHOD, UNDISCOUNTED DOLLAR 2020

Variable	Category	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
A (VKT)	Light Vehicle (LV)	Million VKT	84,771	84,752	-19.0	WSP
	Medium Truck (MT)	Million VKT	4,670	4,668	-2.4	WSP
	Heavy Truck (HT)	Million VKT	4,235	4,232	-2.7	WSP
B (Vehicle operating cost per km)	Light Vehicle (LV)	\$2020/km	0.29	0.29	0.0	MTO
	Medium Truck (MT)	\$2020/km	0.57	0.57	0.0	MTO
	Heavy Truck (HT)	\$2020/km	0.73	0.73	0.0	MTO
C=A*B (Vehicle operating cost)	Light Vehicle (LV)	M\$2020	24,427	24,422	-5.5	Calculation
	Medium Truck (MT)	M\$2020	2,679	2,677	-1.4	Calculation
	Heavy Truck (HT)	M\$2020	3,091	3,089	-2.0	Calculation
	Total	M\$2020	30,197	30,188	-8.8	Calculation

Note: For benefit/disbenefit estimation over the 2031-2060 period, the variables A and C vary over time, while B does not.

4.3.2.4. Road Safety Benefits/Disbenefits

Collision frequency is directly related to the distance travelled (VKT) and also to the class of road and other environmental factors. In the case of the Bypass, prior expectations were that tolling would result in a reduction in travel on the Bypass itself and an offsetting increase in travel on alternative, largely non-expressway, routes. Since, historically, expressways tend to exhibit a lower frequency of collisions than non-expressway facilities, one would expect tolling to result in an increase in collision costs.

The approach to the evaluation of collision costs was driven by two factors:

- The Bypass does not currently exist so that historic collision data is not available;
- The high-level nature of the evaluation was not amenable to detailed collision analysis using SafetyAnalyst or similar methods and the proposed approach involved the use of collision rates;
- Collision data from jurisdictions other than MTO was not available due to the nature and schedule of the current assignment.

In this case, the proposed methodology involved the development of collision rates for expressways and non-expressway facilities that were presumed comparable to the Bypass and alternative routes to the Bypass and the application of these rates, in conjunction with modelled travel VKT, to estimate the change in the number of collisions. Standard MTO severity distributions and collision cost data would then be applied to estimate the change in collision costs associated with tolling the Bypass. Separate collision cost estimates were prepared using (a) the calculated expansion of VKT from AM peak hour to annual levels and (b) using a combination of MTO’s standard expansion factor from average weekday to annual levels

(300) and calculated factors for AM peak hour to average weekday. Separate estimates were also prepared for the three business case scenarios (baseline toll rates, baseline toll rates + 25% and baseline toll rates + 50%).

Collision data was provided by MTO for 2015 through 2019. For this evaluation, two expressway sections were selected for the estimation of an expressway collision rate:

- Highway 400 between YR 11 and SR 21/Innisfil Beach Road (42 km)
- Highway 404 between YR40/Bloomington Rad and SR77/Queensville Road (19 km)

Three non-expressway sections were selected for the estimation of a non-expressway collision rate:

- Highway 9 between Highway 50 and Highway 400 (22 km);
- Highway 89 between SR50 and Highway 400 (15 km);
- Highway 48 between YR40/Bloomington Road and YR18/Sibbald Point Road (36 km).

Collision rates for these sections were assessed over the 5-year period 2015-2019 and weighted (by distance) average rates were calculated, yielding a collision rate of **0.453 collisions/MVKM** for expressways and **0.635 collisions/MVKM** for non-expressways. These rates are somewhat lower than typical Ontario-wide rates, but the sections evaluated are relatively rural in nature and are not generally subject to high levels of congestion.

The collision rates calculated above were then applied to the differences in VKT between the various scenarios. A standard MTO severity distribution was used and societal costs per collision by severity level based on recent MTO work were applied to yield the collision costs summarized in Table 4-5 for the baseline toll rate scenario. According to the MTO estimate over the entire GTA road network, most collisions are related to Property Damage Only (PDO). Fatal collisions account for about 0.03% of the total only, while injuries account for about 17.8%. collisions. The \$199,762 reduction in collision costs results from a combination of a net reduction in VKT travelled due to tolling, partially offset by an increase in the proportion of travel on non-expressway facilities with a higher collision rate.

TABLE 4-5: ROAD SAFETY BENEFIT/DISBENEFIT DATA AND METHOD, UNDISCOUNTED DOLLAR 2020

Variable	Category	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
1) Expressway						
A1 (VKT)	All vehicle types	Million VKT	31,252	31,187	-65.1	WSP
B1 (Average collision rate)	All collision types	collisions/million VKT	0.453	0.453	0.0	WSP
C1=A1*B1 (Collision number)	All collision types	Collisions	14,157	14,128	-29.5	Calculation
2) Non-expressway						
A2 (VKT)	All vehicle types	Million VKT	62,423	62,464	41.0	WSP
B2 (Average collision rate)	All collision types	collisions/million VKT	0.635	0.635	0.0	WSP
C2=A2*B2 (Collision number)	All collision types	Collisions	39,638	39,664	26.0	Calculation

Table 4-5 is continued on the following page.

Table 4-5 (continued)

Variable	Category	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
3) Entire network combined						
C=C1+C2 (Collision number)	All collision types	Collisions	53,796	53,792	-3.5	Calculation
D (Share of collisions by type)	Fatal	%	0.03%	0.03%	0.0	MTO
	Injuries	%	17.8%	17.8%	0.0	MTO
	PDO	%	82.2%	82.2%	0.0	MTO
E=C*D (Number of collisions by type)	Fatal	Collisions	16	16	-0.001	Calculation
	Injuries	Collisions	9,576	9,575	-0.618	Calculation
	PDO	Collisions	44,204	44,201	-2.852	Calculation
F (Collision cost per type)	Fatal	\$2020/collision	17,046,597	17,046,597	0.0	MTO
	Injuries	\$2020/collision	234,871	234,871	0.0	MTO
	PDO	\$2020/collision	12,940	12,940	0.0	MTO
G=E*F(Total collision cost)	Fatal	\$2020	275,110,225	275,092,475	-17,750	Calculation
	Injuries	\$2020	2,249,040,012	2,248,894,905	-145,107	Calculation
	PDO	\$2020	571,999,101	571,962,196	-36,905	Calculation
	Total	\$2020	3,096,149,337	3,095,949,575	-199,762	Calculation
<i>Note: For benefit/disbenefit estimation over the 2031-2060 period, the variables B1, B2 and D do not vary over time. All remaining variables vary.</i>						

4.3.2.5. Fuel Consumption Benefits/Disbenefits

In the previous two sections, the assessment of vehicle operating costs and collision costs depends only on the VKT but does not depend on speed. Fuel consumption costs depend on however both the VKT and speed. Therefore, the data and method presented in Table 4-6 separates the Bradford corridor data from the rest of the road network data. The key data here is the fuel efficiency factor per type of vehicle. According to the US Energy Information Agency, one litre of fuel consumed allows a light vehicle to run for 12.35km, while a truck can only run for about 3.46km. Tolling the highway will increase vehicle efficiency for Bradford corridor users due to higher speed. This combined with the corridor lower VKT results in a lower fuel consumption. Although tolling the highway will increase VKT for the rest of the road network, there is no effect on overall speed. Therefore, the decrease in fuel consumption over the Bradford corridor outweighs the increase in fuel consumption over the rest of the network. The net effect tolling is a decrease in fuel consumption over the entire network, which is translated into a \$M1.5 of savings by 2031.

TABLE 4-6: FUEL CONSUMPTION BENEFIT/DISBENEFIT DATA AND METHOD, UNDISCOUNTED DOLLAR 2020

Variable	Category	Unit	Value at Project Opening Year (2031)			
			Untolled	Tolled	Difference	
1) Bradford Corridor						
A1 (VKT)	Light Vehicle (LV)	Million VKT	250	193	-57.1	WSP
	Medium Truck (MT)	Million VKT	15	9	-6.4	WSP
	Heavy Truck (HT)	Million VKT	13	8	-5.5	WSP
B1 (Fuel efficiency as function of speed)	Light Vehicle (LV)	km/L	12.35	12.71	0.36	US EIA
	Medium Truck (MT)	km/L	3.46	3.57	0.10	US EIA
	Heavy Truck (HT)	km/L	3.46	3.57	0.10	US EIA
C1=A1/B1 (Fuel consumption)	Light Vehicle (LV)	Million litres	20	15	-5	Calculation
	Medium Truck (MT)	Million litres	4	3	-2	Calculation
	Heavy Truck (HT)	Million litres	4	2	-2	Calculation
2) Rest of Network						
A2 (VKT)	Light Vehicle (LV)	Million VKT	84,521	84,559	38.0	WSP
	Medium Truck (MT)	Million VKT	4,655	4,659	4.0	WSP
	Heavy Truck (HT)	Million VKT	4,221	4,224	2.8	WSP
B2 (Fuel efficiency as function of speed)	Light Vehicle (LV)	km/L	9.35	9.35	0.0	US EIA
	Medium Truck (MT)	km/L	3.10	3.10	0.0	US EIA
	Heavy Truck (HT)	km/L	3.10	3.10	0.0	US EIA
C2=A2/B2 (Fuel consumption)	Light Vehicle (LV)	Million litres	9,041	9,045	4.1	Calculation
	Medium Truck (MT)	Million litres	1,500	1,502	1.3	Calculation
	Heavy Truck (HT)	Million litres	1,361	1,361	0.9	Calculation

Table 4-6 is continued on the following page.

Table 4-6 (continued)

Variable	Category	Unit	Value at Project Opening Year (2031)			
			Untolled	Tolled	Difference	
3) Entire Network						
C=C1+C2 (Fuel consumption)	Light Vehicle (LV)	Million litres	9,062	9,061	-1.0	Calculation
	Medium Truck (MT)	Million litres	1,505	1,504	-0.6	Calculation
	Heavy Truck (HT)	Million litres	1,364	1,364	-0.7	Calculation
D (Fuel price, excluding taxes)	Light Vehicle (LV)	\$2020/L	0.58	0.58	0.0	Calculation
	Medium Truck (MT)	\$2020/L	0.64	0.64	0.0	Calculation
	Heavy Truck (HT)	\$2020/L	0.64	0.64	0.0	Calculation
E=C*D/10 ⁶ (Fuel consumption cost)	Light Vehicle (LV)	M\$2020	5,225	5,224	-0.6	Calculation
	Medium Truck (MT)	M\$2020	956	955	-0.4	Calculation
	Heavy Truck (HT)	M\$2020	866	866	-0.5	Calculation
	Total	M\$2020	7,047	7,045	-1.5	Calculation
<i>Note: For benefit/disbenefit estimation over the 2031-2060 period, D is the only variable that does not vary over time.</i>						

4.3.2.6. Environmental Benefits/Disbenefits

Greenhouse gas (GHG) emissions

Three forms of GHG emissions were assessed for every litre of fuel consumed: CO₂, CH₄ and N₂O. According to Environment Canada¹, a litre of fuel burned by light vehicles produces 2.3 kg of CO₂, 0.14 kg of CH₄ and 0.022 kg of N₂O. Medium and heavy truck release generally higher emission rates which are shown in Table 4-7. Environment Canada also provides the cost per ton of GHG emissions in dollar 2012 which were then inflated to 2020 dollar. Tolling the highway reduces fuel consumption and therefore GHG emission costs, estimated to be \$367,525 as of 2031.

¹ Environment Canada, 2021. Canada's Official Greenhouse Gas Inventory - Emission Factors. Link: https://data.ec.gc.ca/data/substances/monitor/canada-s-official-greenhouse-gas-inventory/Emission_Factors.pdf

TABLE 4-7: GHG EMISSION BENEFIT/DISBENEFIT DATA AND METHOD, UNDISCOUNTED DOLLAR 2020

Variable	Category	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
A (Fuel consumption - entire network)	Light Vehicle (LV)	Million litres	9,062	9,061	-1.0	WSP
	Medium Truck (MT)	Million litres	1,505	1,504	-0.6	WSP
	Heavy Truck (HT)	Million litres	1,364	1,364	-0.7	WSP
B1 (CO2 emission factor)	Light Vehicle (LV)	grams/litre	2,307	2,307	0	Environment Canada
	Medium Truck (MT)	grams/litre	2,681	2,681	0	Environment Canada
	Heavy Truck (HT)	grams/litre	2,681	2,681	0	Environment Canada
B2 (CH4 emission factor)	Light Vehicle (LV)	grams/litre	0.140	0.140	0	Environment Canada
	Medium Truck (MT)	grams/litre	0.068	0.068	0	Environment Canada
	Heavy Truck (HT)	grams/litre	0.110	0.110	0	Environment Canada
B3 (N2O emission factor)	Light Vehicle (LV)	grams/litre	0.022	0.022	0	Environment Canada
	Medium Truck (MT)	grams/litre	0.220	0.220	0	Environment Canada
	Heavy Truck (HT)	grams/litre	0.151	0.151	0	Environment Canada
C1=A*B1 (CO2 emission)	Light Vehicle (LV)	metric tons	20,907,608	20,905,307	-2,302	Calculation
	Medium Truck (MT)	metric tons	4,033,486	4,031,768	-1,718	Calculation
	Heavy Truck (HT)	metric tons	3,657,430	3,655,426	-2,003	Calculation
	All Vehicles	metric tons	28,598,524	28,592,501	-6,023	Calculation
C2=A*B2 (CH4 emission)	Light Vehicle (LV)	metric tons	1,268.6	1,268.5	-0.14	Calculation
	Medium Truck (MT)	metric tons	102.32	102.28	-0.04	Calculation
	Heavy Truck (HT)	metric tons	150.1	150.0	-0.08	Calculation
	All Vehicles	metric tons	1,521.0	1,520.8	-0.3	Calculation
C3=A*B3 (N2O emission)	Light Vehicle (LV)	metric tons	199.35	199.33	-0.02	Calculation
	Medium Truck (MT)	metric tons	331.05	330.90	-0.14	Calculation
	Heavy Truck (HT)	metric tons	206.03	205.92	-0.11	Calculation
	All Vehicles	metric tons	736.43	736.16	-0.28	Calculation
D1 (CO2 emission unit cost)	All Vehicles	\$2020/metric ton	60	60	0	Environment Canada
D2 (CH4 emission unit cost)	All Vehicles	\$2020/metric ton	1,914	1,914	0	Environment Canada
D3 (N2O emission unit cost)	All Vehicles	\$2020/metric ton	22,174	22,174	0	Environment Canada
E1=C1*D1/10 ⁶ (CO2 emission cost)	All Vehicles	\$2020	1,714	1,713	-0.361	Calculation
E2=C2*D2/10 ⁶ (CH4 emission cost)	All Vehicles	\$2020	3	3	-0.001	Calculation
E3=C3*D3/10 ⁶ (N2O emission cost)	All Vehicles	\$2020	16	16	-0.006	Calculation
E=E1+E2+E3	Total	M\$2020	1,733	1,733	-0.368	Calculation

Note: For benefit/disbenefit estimation over the 2031-2060 period, B1, B2 and B3 are the three variables that do not vary over time. All remaining variables vary.

Air contaminant (AC) pollutions

The method used to monetize GHG emission is similar to monetize air contaminant pollutions and is shown in Table 4-8. Three forms of AC pollutions were assessed for every kilometer travelled: NOX, PM2.5 and SOX. Like fuel consumption efficiency factor, AC pollution factor is a function of speed. This key data, grams per VMT, is provided by the US Energy Information Agency and is converted into grams per kilometer. If tolling has an impact on speed over the Bradford Corridor, it does not have an impact on speed over the rest of the network. Therefore, the decrease in NOX and SOX pollutions over the Bradford corridor outweighs the increase in NOX and SOC pollutions over the rest of the network. Although the net effect on PM2.5 pollutions is an increase, this is however negligible. With the AC pollution unit cost estimated by Metrolinx for Ontario, the benefit of tolling the highway on AC pollutions is estimated to be \$10,175 as of 2031.

TABLE 4-8: AC POLLUTION BENEFIT/DISBENEFIT DATA AND METHOD, UNDISCOUNTED DOLLAR 2020

Variable	Category	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
1) Bradford Corridor						
A1 (VKT)	Light Vehicle (LV)	Million VKT	250	193	-57.1	WSP
	Medium Truck (MT)	Million VKT	15	9	-6.4	WSP
	Heavy Truck (HT)	Million VKT	13	8	-5.5	WSP
B11 (NOX pollution factor as function of speed)	Light Vehicle (LV)	grams/km	0.0267	0.0269	0.0002	US EIA
	Medium Truck (MT)	grams/km	0.1514	0.1341	-0.0173	US EIA
	Heavy Truck (HT)	grams/km	0.2326	0.1914	-0.0411	US EIA
B12 (PM2.5 pollution factor as function of speed)	Light Vehicle (LV)	grams/km	0.0005	0.0004	-0.0001	US EIA
	Medium Truck (MT)	grams/km	0.0041	0.0073	0.0032	US EIA
	Heavy Truck (HT)	grams/km	0.0089	0.0134	0.0045	US EIA
B13 (SOX pollution factor as function of speed)	Light Vehicle (LV)	grams/km	0.0014	0.0015	0.0001	US EIA
	Medium Truck (MT)	grams/km	0.0057	0.0059	0.0002	US EIA
	Heavy Truck (HT)	grams/km	0.0049	0.0047	-0.0002	US EIA
C11=A1*B11 (NOX pollution)	Light Vehicle (LV)	metric tons	6.66	5.18	-1.48	Calculation
	Medium Truck (MT)	metric tons	2.34	1.21	-1.13	Calculation
	Heavy Truck (HT)	metric tons	3.13	1.53	-1.60	Calculation
	All Vehicles	metric tons	12.13	7.92	-4.21	Calculation
C12=A1*B12 (PM2.5 pollution)	Light Vehicle (LV)	metric tons	0.12	0.08	-0.04	Calculation
	Medium Truck (MT)	metric tons	0.06	0.07	0.00	Calculation
	Heavy Truck (HT)	metric tons	0.12	0.11	-0.01	Calculation
	All Vehicles	metric tons	0.30	0.25	-0.05	Calculation

Table 4-8 is continued on the following page.

Table 4-8 (continued)

Variable	Category	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
1) Bradford Corridor						
C13=A1*B13 (SOX pollution)	Light Vehicle (LV)	metric tons	0.36	0.29	-0.07	Calculation
	Medium Truck (MT)	metric tons	0.09	0.05	-0.04	Calculation
	Heavy Truck (HT)	metric tons	0.07	0.04	-0.03	Calculation
	All Vehicles	metric tons	0.51	0.38	-0.13	Calculation
2) Rest of Network						
A2 (VKT)	Light Vehicle (LV)	Million VKT	84,521	84,559	38.0	WSP
	Medium Truck (MT)	Million VKT	4,655	4,659	4.0	WSP
	Heavy Truck (HT)	Million VKT	4,221	4,224	2.8	WSP
B21 (NOX pollution factor as function of speed)	Light Vehicle (LV)	grams/km	0.030	0.030	0.00	US EIA
	Medium Truck (MT)	grams/km	0.195	0.195	0.00	US EIA
	Heavy Truck (HT)	grams/km	0.299	0.299	0.00	US EIA
B22 (PM2.5 pollution factor as function of speed)	Light Vehicle (LV)	grams/km	0.001	0.001	0.00	US EIA
	Medium Truck (MT)	grams/km	0.005	0.005	0.00	US EIA
	Heavy Truck (HT)	grams/km	0.007	0.007	0.00	US EIA
B23 (SOX pollution factor as function of speed)	Light Vehicle (LV)	grams/km	0.002	0.002	0.00	US EIA
	Medium Truck (MT)	grams/km	0.007	0.007	0.00	US EIA
	Heavy Truck (HT)	grams/km	0.005	0.005	0.00	US EIA
C21=A2*B21 (NOX pollution)	Light Vehicle (LV)	metric tons	2,506	2,507	1.13	Calculation
	Medium Truck (MT)	metric tons	907	908	0.78	Calculation
	Heavy Truck (HT)	metric tons	1,261	1,262	0.83	Calculation
	All Vehicles	metric tons	4,675	4,677	2.74	Calculation
C22=A2*B22 (PM2.5 pollutions)	Light Vehicle (LV)	metric tons	66.24	66.27	0.03	Calculation
	Medium Truck (MT)	metric tons	21.95	21.97	0.02	Calculation
	Heavy Truck (HT)	metric tons	31.59	31.61	0.02	Calculation
	All Vehicles	metric tons	119.78	119.85	0.07	Calculation
C23=A2*B23 (SOX pollution)	Light Vehicle (LV)	metric tons	144.02	144.09	0.06	Calculation
	Medium Truck (MT)	metric tons	30.65	30.68	0.03	Calculation
	Heavy Truck (HT)	metric tons	22.61	22.63	0.01	Calculation
	All Vehicles	metric tons	197.29	197.40	0.11	Calculation

Table 4-8 is continued on the following page.

Table 4-8 (continued)

Variable	Category	Unit	Value at Project Opening Year (2031)			Source
			Untolled	Tolled	Difference	
3) Entire Network						
C1=C11+C21 (NOX pollutions)	All Vehicles	metric tons	4,687	4,685	-1.47	Calculation
C2=C12+C22 (PM2.5 pollutions)	All Vehicles	metric tons	120.1	120.1	0.02	Calculation
C3=C13+C23 (SOX pollution)	All Vehicles	metric tons	197.8	197.8	-0.03	Calculation
D1 (NOX pollution unit cost)	All Vehicles	\$2020/metric ton	7,219	7,219	0.00	Metrolinx
D2 (PM2.5 pollution unit cost)	All Vehicles	\$2020/metric ton	35,362	35,362	0.00	Metrolinx
D3 (SOX pollution unit cost)	All Vehicles	\$2020/metric ton	7,923	7,923	0.00	Metrolinx
E1=C1*D1 (NOX pollution cost)	All Vehicles	\$2020	33,832,264	33,821,648	-10,616	Calculation
E2=C2*D2 (PM2.5 pollution cost)	All Vehicles	\$2020	4,246,284	4,246,941	656	Calculation
E3=C3*D3 (SOX pollution cost)	All Vehicles	\$2020	1,567,156	1,566,941	-215	Calculation
E=E1+E2+E3	Total	\$2020	39,645,704	39,635,530	-10,175	Calculation
<i>Note: For benefit/disbenefit estimation over the 2031-2060 period, D1, D2 and D3 are the three variables that do not vary over time. All remaining variables vary.</i>						

4.4. Summary of Economic Business Case Results

The present business case uses the net present value (NPV) and the Benefit-to-Cost Ratio (BCR) as two common benefit-cost evaluation measures. Both the NPV the BCR express the relation of discounted benefits to discounted costs as a measure of the extent to which a Project’s benefits either exceed or fall short of the costs. Table 4-9 presents the evaluation results for the Project for the baseline toll rate scenarios, and two other scenarios where toll rates increase by 25% and 50%. All benefits and costs were estimated over a 33-year evaluation period, including 3 years of tolling infrastructure construction (2028-2030) and 30 years of operation (2031-2060). Their values were discounted at 3.5% as prescribed by the MTO.

The Project long-term impacts are classified under three primary categories: economic competitiveness; environmental sustainability; and safety. As demonstrated in the previous sections, the project is expected to generate a disbenefit in travel time: M\$783 for the baseline toll rate scenario, M\$943 and M\$1,133 for the other two scenarios. The most important benefit brought by the project is vehicle operating cost savings of more than M\$196, followed by fuel consumption cost savings (M\$42.8), GHG emission cost savings (M\$13.1), and injury collision cost savings (M\$9). Overall, the Project will generate a disbenefit of M\$518 if the baseline toll rate is kept over the entire period on analysis. With the total cost of M\$156, the net present value of the Project becomes negative with a value of -M\$673 for the baseline toll rate scenario. Increase the toll rate to 25% and 50% would further increase the disbenefit for the society.

Since the Project total benefits are negative, reporting a benefit-to-cost ratio is not relevant here as the interpretation of a negative ratio is questionable. Therefore, only the NPV was presented in Table 4-9.

TABLE 4-9: SUMMARY OF BCA RESULTS, CUMULATIVE 2028-2060 IN DISCOUNTED 2020 DOLLAR VALUE

Long-term Outcome	Benefits/Disbenefits	Unit	Baseline	Baseline + 25%	Baseline + 50%
Economic	Travel Time Costs	M\$2020 (discounted)	-783	-943	-1,133
	Vehicle Operating Cost Savings (tires, maintenance, depreciation)	M\$2020 (discounted)	196	216	241
	Fuel consumption cost savings	M\$2020 (discounted)	42.8	45.5	50.5
Environment	GHG emission cost savings	M\$2020 (discounted)	13.1	14.0	15.6
	Air pollution cost savings	M\$2020 (discounted)	0.15	0.17	0.2
Safety	Fatal accident cost savings	M\$2020 (discounted)	1.10	1.25	1.41
	Injury accident cost savings	M\$2020 (discounted)	9.00	10.2	11.6
	PDO accident cost savings	M\$2020 (discounted)	2.29	2.59	2.94
Total Benefits		M\$2020 (discounted)	-518	-653	-810
Costs	CAPEX	M\$2020 (discounted)	17.2	17.2	17.2
	OPEX	M\$2020 (discounted)	139	148	156
Total Costs		M\$2020 (discounted)	156	165	173
Net Present Value (NPV)		M\$2020 (discounted)	-673	-818	-983
Benefit-to-Cost Ratio (BCR)			N.A	N.A	N.A

4.5. Financial business case

The financial business case will look first at the profitability of the tolling system itself, and second at the profitability of the bypass and tolling system combined.

4.5.1. Financial analysis related to the tolling system

Model

Revenues generated from the tolling system were compared with the capital and operating costs associated with the tolling system only. The present value of the net cash flow was used to evaluate the annual net cash flow in present value terms by using a real discount rate. A capital recovery (payback) period was then calculated to count the amount of time it takes to recover the cost of the tolling system investment.

Assumptions

The financial analysis was conducted based on the revenue forecasted for the baseline scenario, the 25% increase in toll rate scenario, and the 50% increase in toll rate scenario. This includes the following additional assumptions:

- The period of analysis cover 3 years of construction from 2028 to 2030, plus 30 years of operation from 2031 to 2060;
- All revenues and costs are presented in real 2020 dollars;
- The discount rate used is 3.5%;
- The base year for discounting is 2020, meaning that one dollar in 2020 is equivalent to an amount smaller than one in the future.

The capital and operating costs of the tolling system were already shown in Section 4.2. The following subsection look at the revenue side of the system.

4.5.1.1. Revenue Forecast

The revenue forecast was presented previously in Section 3.7 **Error! Reference source not found.** Table 4-10 recaps the key numbers for the interpolation purpose between data points in time. As can be seen, increases in toll rate will increase revenues collected from all three types of vehicles. However, if the Bypass was not widened by 2041, increases in roll rates will not have an impact on revenues, with a total amount of M\$83.4. Only when the Bypass is widened in 2041, then tolling revenues increase from M\$83.4 to M\$97.9 if toll rate was kept unchanged, to M\$114.6 if toll rate was increased by 25%, and to M\$127.3 if toll rate was increased by 50%.

To forecast the revenue over the 2031-2060 period, the assumption used in the forecast of travel demand was applied, i.e., that the trend (slope) between 2041 and 2060 will be the same as that between 2031 and 2041. The resulting revenue forecast for the entire 2031-2061 period is presented in the following figures.

TABLE 4-10: REVENUE FORECAST BY YEAR AND BY SCENARIO

Forecast Year	Unit	LV	MT	HT	Total
2031					
Baseline	Million \$2020	56.6	4.0	5.5	66.1
Baseline + 25%	Million \$2020	65.8	4.3	3.9	74.0
Baseline + 50%	Million \$2020	69.2	3.0	3.8	76.0
2041 with 2031 bypass configuration					
All toll rate scenarios	Million \$2020	73.0	4.2	6.2	83.4
2041 with widened bypass configuration					
Baseline	Million \$2020	85.5	5.0	7.4	97.9
Baseline + 25%	Million \$2020	100.5	5.7	8.4	114.6
Baseline + 50%	Million \$2020	112.8	5.8	8.7	127.3

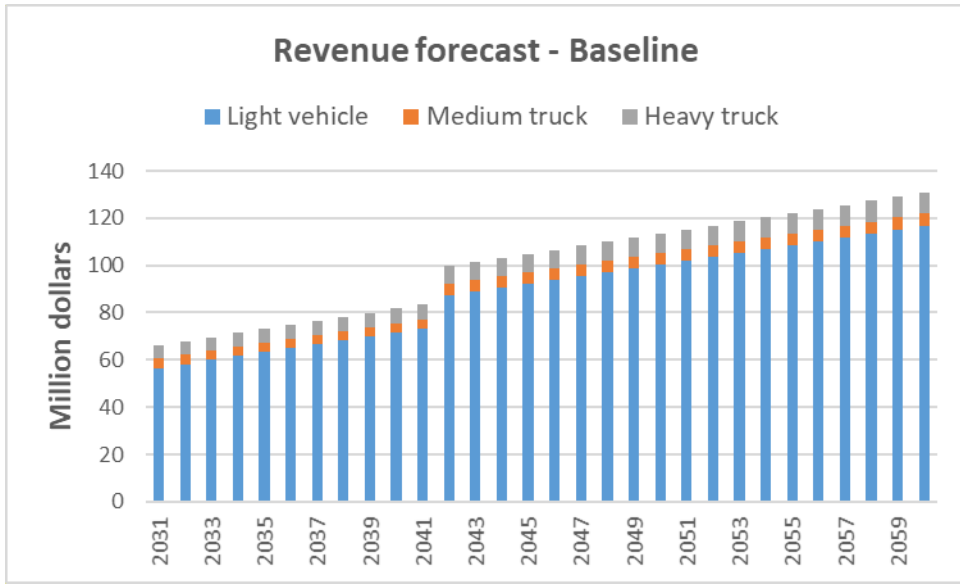


FIGURE 4-5: REVENUE FORECAST BY TYPE OF VEHICLES: BASELINE SCENARIO

Source: WSP

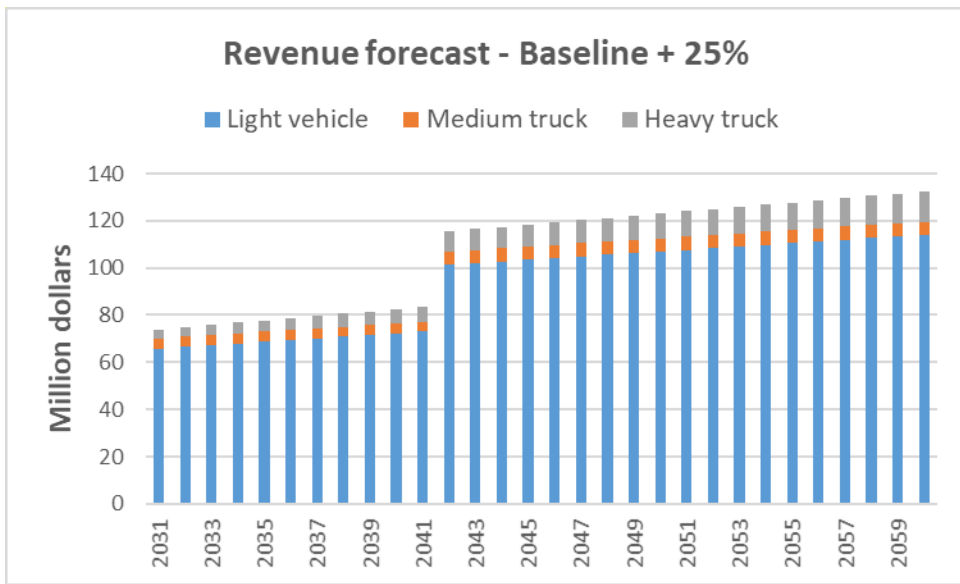


FIGURE 4-6: REVENUE FORECAST BY TYPE OF VEHICLES: BASELINE +25% SCENARIO

Source: WSP

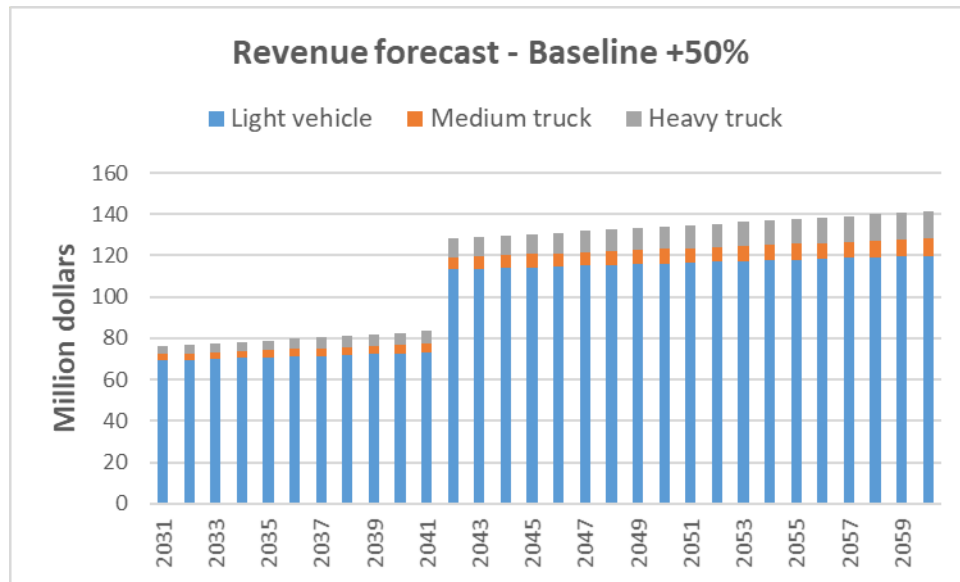


FIGURE 4-7: REVENUE FORECAST BY TYPE OF VEHICLES: BASELINE +50% SCENARIO

Source: WSP

4.5.1.2. Net Cash Flow and Payback Period of the Tolling Infrastructure

Table 4-11 below presents the steps to arrive at the cumulative present value of net cash flow for the baseline toll rate scenario. For the first three years of the tolling project from 2028 to 2030, no revenue is collected from the Bypass, so that annual net cash flow is all negative. From 2031 onward, the annual revenue largely exceeds the annual total cost, thus tolling the Bypass will create a positive net cash flow as of 2031. Even with the discounting factor smaller than one and decreasing over time, the present value of net cash flow of M\$40 by 2031 largely exceeds the capital cost of M\$17 in discounted value.

The last column of the table presents the cumulative present value of net cash flow which amounts to M\$22.8 in 2031, meaning that it would take at most four years from the tolling infrastructure construction date (2028) to recover the investment of the tolling system.

The exact amount of time is calculated as follows:

$$\text{Paypack period} = (\text{Number of years cumulative present value of net cash flow turns positive}) + (\text{Absolute value of the last negative cumulative net cash flow}) / (\text{Value of the first positive net cash flow})$$

$$= (2031-2028) + 17.2/40.0 = 3.4 \text{ years (or 3 years and almost 5 months),}$$

where 17.2 and 40.0 are the values highlighted in red and green in Table 4-11 respectively.

TABLE 4-11: PRESENT VALUE OF NET CASH FLOW - BASELINE SCENARIO

A	B	C	D	E=B-(C+D)	F	G=E*F	H=CUM(G)
Year	Revenue (M\$)	CAPE X (M\$)	OPEX (M\$)	Net Cash Flow (M\$)	Discounting Factor	Present Value of Net Cash Flow (M\$)	Cumulative Present Value of Net Cash Flow
2028		2.4		-2.4	0.759	-1.8	-1.8
2029		7.1		-7.1	0.734	-5.2	-7.0
2030		14.3		-14.3	0.709	-10.1	-17.2
2031	66.1		7.8	58.3	0.685	40.0	22.8
2032	67.9		8.0	59.9	0.662	39.6	62.4
2033	69.6		8.2	61.4	0.639	39.3	102
2034	71.3		8.3	63.0	0.618	38.9	141
2035	73.0		8.5	64.5	0.597	38.5	179
2036	74.8		8.7	66.0	0.577	38.1	217
2037	76.5		8.8	67.6	0.557	37.7	255
2038	78.2		9.0	69.2	0.538	37.2	292
2039	79.9		9.2	70.7	0.520	36.8	329
2040	81.6		9.4	72.3	0.503	36.3	365
2041	83.4		9.6	73.7	0.486	35.8	401
2042	99.7		11.2	88.5	0.469	41.5	443
2043	101.4		11.3	90.1	0.453	40.8	483
2044	103.1		11.5	91.6	0.438	40.1	524
2045	104.8		11.7	93.2	0.423	39.4	563
2046	106.6		11.9	94.7	0.409	38.7	602
2047	108.3		12.0	96.3	0.395	38.0	640
2048	110.0		12.2	97.8	0.382	37.3	677
2049	111.7		12.4	99.4	0.369	36.6	714
2050	113.5		12.5	100.9	0.356	36.0	750
2051	115.2		12.8	102.4	0.344	35.2	785
2052	116.9		12.9	104.0	0.333	34.6	819
2053	118.6		13.1	105.6	0.321	33.9	853
2054	120.3		13.2	107.1	0.310	33.3	887
2055	122.1		13.4	108.7	0.300	32.6	919
2056	123.8		13.6	110.2	0.290	31.9	951
2057	125.5		13.8	111.8	0.280	31.3	982
2058	127.2		13.9	113.3	0.271	30.7	1,013
2059	129.0		14.1	114.9	0.261	30.0	1,043
2060	130.7		14.3	116.4	0.253	29.4	1,072
Total (2028-2060)	3,011	23.8	337	2,649	N.A	1,072	N.A

Source: WSP

Using the similar method, Table 4-12 reports the net cash flows and payback periods calculated for the two other toll rate scenarios: the baseline + 25% and the baseline + 50%. Since the tolling system itself is profitable right within the first year of commissioning the Bypass, the internal rate of return (IRR) will be automatically greater than 100%. By definition, the IRR is a discount rate for the project to break even within a predefined period. The IRR should always be smaller than 100% to respect the discounting concept. Since the IRR for three toll rate scenarios are all higher than 100%, it was therefore not reported in Table 4-12.

TABLE 4-12: SUMMARY OF FINANCIAL BUSINESS CASE RESULT BY SCENARIO

M\$2020	Baseline	Baseline +25%	Baseline +50%
Tolling Revenue (2031-2060)	3,011	3,221	3,436
CAPEX (2028-2030)	24	24	24
OPEX (2031-2060)	337	358	380
Present Value of Net Cash Flow (Discounted)	1,072	1,154	1,226
Payback Period Relative to Assumed 2028 Start of Construction (Relative to 2031 opening)	3.4 years (0.4 years)	3.4 years (0.4 years)	3.4 years (0.4 years)
Year Cumulative Present Value of Net Cash Flow Turns Positive	2031	2031	2031

Source: WSP

4.5.2. Financial analysis related to the Bypass and tolling system combined

Model

A similar financial model was built to include the capital and operating cost associated with the bypass and the tolling system combined, in order to determine the profitability of building the highway.

Assumptions

The revenues forecasted for the baseline scenario, the 25% increase in toll rate scenario, and the 50% increase in toll rate scenario were similar to the ones discussed in the previous section. The following additional assumptions were made to reflect the inclusion of the Bypass:

- The period of analysis covers 5 years of construction work of the bypass and the tolling infrastructure from 2026 to 2030, 4 years of construction work to widen the bypass from 2038 to 2041, plus 30 years of operation from 2031 to 2060;
- For the purposes of the present financial business case, the capital cost associated with Bypass construction was estimated approximately (a reliable cost estimate was not yet available; neither was information on the number and size of structures, culverts, etc.). A total cost of M\$676 was estimated, including Bypass construction and tolling implementation in 2031 and Bypass widening in 2041 (refer to Appendix F). It is important to note that the estimated construction and widening costs associated with the Bypass are preliminary, serve only as a placeholder, and will almost certainly be refined as the EA/preliminary design proceeds.

4.5.2.1. Capital recovery (payback period) for Bypass construction and tolling system implementation

Table 4-13 below presents the steps to arrive at the cumulative present value of net cash flow for the baseline toll rate scenario. For the entire period of analysis from 2026 to 2041, the cumulative present value of net cash flow is all negative, meaning that it would be impossible to recover the investment of the Bypass and tolling system construction within the period of analysis.

The last row of Table 4-13 shows that not until 2065 does the cumulative present value of net cash flow turn positive. The capital recovery period is therefore

$$\text{Paypack period} = (2065-2026) + 4.0/13.9 = 39.3 \text{ years (or 39 years and 4 months),}$$

where 4.0 and 13.9 are the values highlighted in red and green in Table 4-13 respectively.

TABLE 4-13: PRESENT VALUE OF NET CASH FLOW - BASELINE SCENARIO

A	B	C	D	E=B-(C+D)	F	G=E*F	H=CUM(G)
Year	Revenue (M\$)	CAPEX (M\$)	OPEX (M\$)	Net Cash Flow (M\$)	Discount Factor	Present Value of Net Cash Flow (M\$)	Cumulative Present Value of Net Cash Flow
2026	0.0	89.5	0	-89.5	0.814	-72.8	-72.8
2027	0.0	89.5	0	-89.5	0.786	-70.3	-143.1
2028	0.0	91.9	0	-91.9	0.759	-69.8	-212.9
2029	0.0	96.6	0	-96.6	0.734	-70.9	-283.8
2030	0.0	169.7	0	-169.7	0.709	-120.3	-404.1
2031	66.1	0	52.6	13.6	0.685	9.3	-394.8
2032	67.9	0	52.7	15.1	0.662	10.0	-384.8
2033	69.6	0	52.9	16.7	0.639	10.7	-374.1
2034	71.3	0	53.1	18.2	0.618	11.3	-362.8
2035	73.0	0	53.2	19.8	0.597	11.8	-351.0
2036	74.8	0	53.5	21.3	0.577	12.3	-338.7
2037	76.5	0	53.6	22.9	0.557	12.8	-326.0
2038	78.2	34.7	53.8	-10.2	0.538	-5.5	-331.5
2039	79.9	34.7	53.9	-8.7	0.520	-4.5	-336.0
2040	81.6	34.7	54.1	-7.1	0.503	-3.6	-339.6
2041	83.4	34.7	54.4	-5.7	0.486	-2.8	-342.4
2042	99.7	0	69.8	29.9	0.469	14.0	-328.3
2043	101.4	0	70.0	31.4	0.453	14.3	-314.1
2044	103.1	0	70.1	33.0	0.438	14.4	-299.6
2045	104.8	0	70.3	34.5	0.423	14.6	-285.0
2046	106.6	0	70.5	36.0	0.409	14.7	-270.3
2047	108.3	0	70.6	37.6	0.395	14.9	-255.4
2048	110.0	0	70.8	39.2	0.382	15.0	-240.5
2049	111.7	0	71.0	40.7	0.369	15.0	-225.4
2050	113.5	0	71.2	42.3	0.356	15.1	-210.4

A	B	C	D	E=B-(C+D)	F	G=E*F	H=CUM(G)
Year	Revenue (M\$)	CAPEX (M\$)	OPEX (M\$)	Net Cash Flow (M\$)	Discount Factor	Present Value of Net Cash Flow (M\$)	Cumulative Present Value of Net Cash Flow
2051	115.2	0	71.4	43.7	0.344	15.1	-195.3
2052	116.9	0	71.5	45.4	0.333	15.1	-180.2
2053	118.6	0	71.7	46.9	0.321	15.1	-165.1
2054	120.3	0	71.8	48.5	0.310	15.1	-150.1
2055	122.1	0	72.0	50.0	0.300	15.0	-135.1
2056	123.8	0	72.2	51.5	0.290	14.9	-120.1
2057	125.5	0	72.4	53.1	0.280	14.9	-105.2
2058	127.2	0	72.5	54.7	0.271	14.8	-90.4
2059	129.0	0	72.7	56.2	0.261	14.7	-75.7
2060	130.7	0	72.9	57.8	0.253	14.6	-61.1
Total (2026-2060)	3010.7	676	1,943	392	N.A	-61.1	N.A
2061	132.4	0	73.2	59.2	0.244	14.5	-46.7
2062	134.1	0	73.2	60.9	0.236	14.4	-32.3
2063	135.9	0	73.4	62.5	0.228	14.2	-18.1
2064	137.6	0	73.6	64.0	0.220	14.1	-4.0
2065	139.3	0	73.7	65.6	0.213	13.9	9.9

Source: WSP

Using the similar method, Table 4-14 reports the net cash flows, payback periods, and IRR calculated for the two other toll rate scenarios. The higher the toll rate, the shorter the payback period and the higher the IRR. For the baseline + 25% toll rate scenario, it would take 33.6 years to payback the M\$676 initial investment or a 3.8% discount rate for the project to break even within the 2026-2060 period. For the baseline + 50% toll rate scenario, the payback period is shortened to 29.9 years, while the IRR was improved to reach 4.7%.

TABLE 4-14: SUMMARY OF FINANCIAL BUSINESS CASE RESULT BY SCENARIO

M\$2020	Baseline	Baseline +25%	Baseline +50%
Tolling Revenue (2031-2060)	3,011	3,221	3,436
CAPEX (2026-2030; 2038-2041)	676	676	676
OPEX (2031-2060)	1,943	1,964	1,986
Present Value of Net Cash Flow (Discounted)	-61.1	20.6	92.1
Payback Period Relative to Assumed 2026 Start of Construction	39.3	33.6	29.9
Year Cumulative Present Value of Net Cash Flow Turns Positive	2065	2059	2055
Internal Rate of Return (IRR)	2.6%	3.8%	4.7%

Source: WSP

5. Summary of business case evaluation

The following tables summarize the key outputs of the various business case analyses. The results are presented for three scenarios:

1. Baseline toll rates (as currently used on Highway 407 East, Highway 412, Highway 418)
2. Baseline toll rates + 25%
3. Baseline toll rates + 50%

A. Economic business case

What is the benefit/cost ratio associated with implementing and operating a tolling system on the Bradford Bypass?

M\$2020	Baseline tolls	Baseline tolls + 25%	Baseline tolls + 50%
Travel time benefits	-783	-943	-1,133
Vehicle operating cost benefits	196	216	241
Fuel consumption benefits	42.8	45.5	50.5
Emissions benefits	13.3	14.2	15.8
Collision benefits	12.4	14.0	16.0
Total benefits	-518	-653	-810
Capital expenditures	17.2	17.2	17.2
Operating expenditures	139	148	156
Total expenditures	156	165	173
Net Present Value (NPV)	-673	-818	-983
Benefit/cost ratio (BCR)	N/A	N/A	N/A

- Since the benefits are negative, reporting a benefit/cost ratio is of questionable relevance.
- The benefits that do occur are incidental - neither an intended nor expected result of tolling the Bypass.
- Tolling the Bypass tends to lead to trips diverted from the Bypass to shorter (travel distance) but longer (travel time) alternative routes.

B. Financial business case - implement tolling or not?

Is there a positive financial business case associated with tolling the Bradford Bypass vs. not tolling it?

M\$2020 (discounted)	Baseline tolls	Baseline tolls + 25%	Baseline tolls + 50%
Tolling revenue	3,011	3,221	3,436
Capital expenditures	24	24	24
Operating expenditures	337	358	380
Total expenditures	361	382	404
Present value of net cash flow (discounted)	1,072	1,154	1,226
Payback period relative to assumed 2028 start of tolling system implementation	3.4 years	3.4 years	3.4 years
Year cumulative present value of net cash flow turns positive	2031	2031	2031

- There is a strong financial case for the implementation of tolling on the Bypass.
- The tolling system would be effectively paid for less than a year after the Bypass opens.

C. Financial business case - will toll revenue pay for the Bypass?

What is the payback period associated with Bypass construction in the context of tolling revenue?

M\$2020	Baseline tolls	Baseline tolls + 25%	Baseline tolls + 50%
Tolling revenue	3,011	3,221	3,436
Capital expenditures	676	676	676
Operating expenditures	1,943	1,964	1,986
Present value of net cash flow (discounted)	-61.1	20.6	92.1
Payback period relative to assumed 2026 start of Bypass construction	39.3 years	33.6 years	29.9 years
Year cumulative present value of net cash flow turns positive	2065	2059	2055
Internal Rate of Return	2.6%	3.8%	4.7%

- The Bypass capital costs are highly speculative and serve only as a temporary placeholder.

Appendices

Appendix A

TRAFFIC VOLUME DIAGRAMS

AM peak hour conditions - 2031 (opening day) and 2041

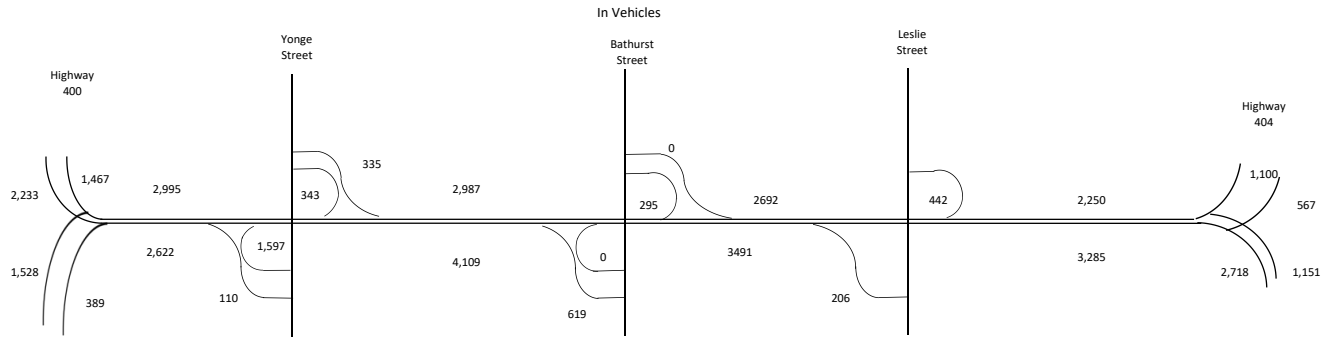


Figure A-1: 2031 AM peak hour volume schematic for the non-tolled scenario

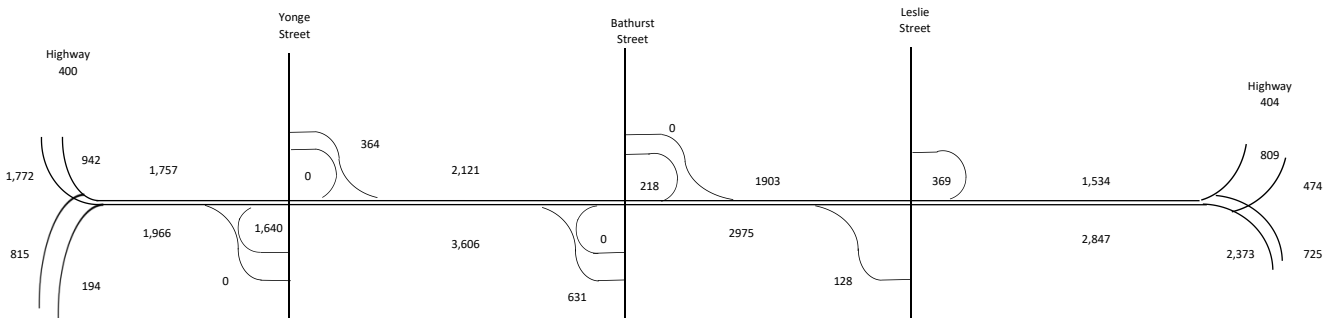


Figure A-2: 2031 AM peak hour volume schematic for the tolled scenario with the Highway 407 East 2016 toll rates (baseline scenario)

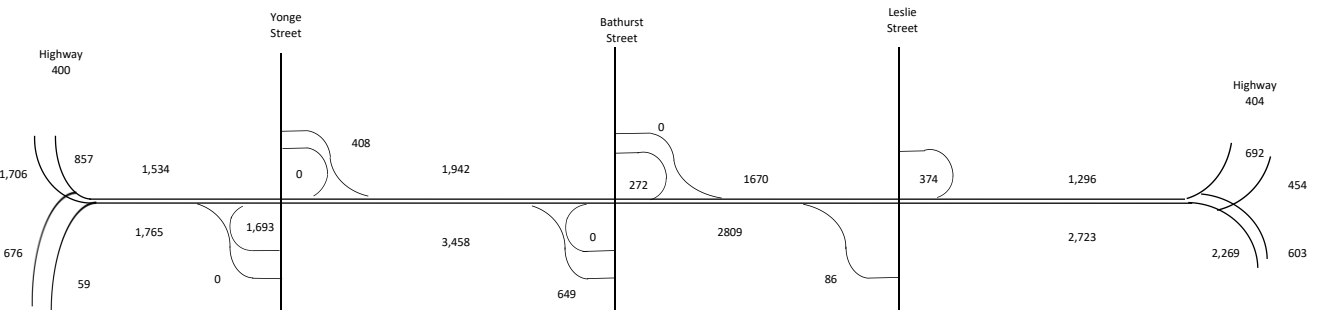


Figure A-3: 2031 AM peak hour volume schematic for the tolled scenario with a 25% increase of the Highway 407 East 2016 toll rates

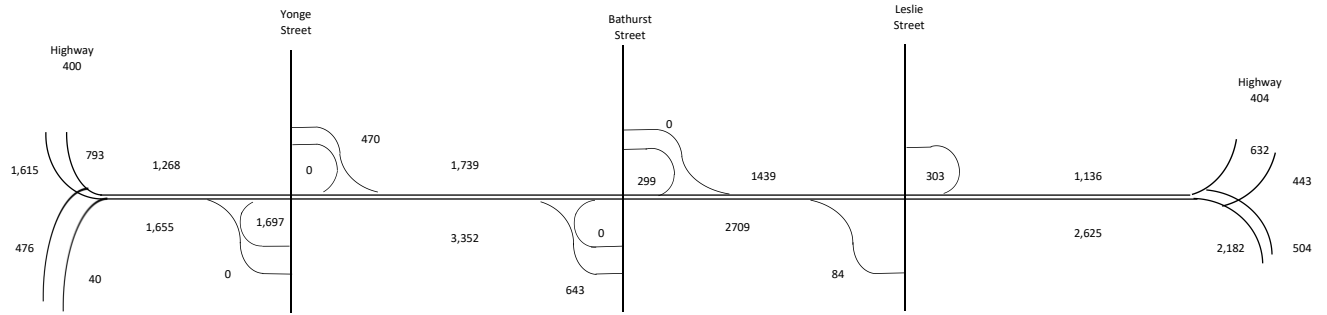


Figure A-4: 2031 AM peak hour volume schematic for the tolled scenario with a 40% increase of the Highway 407 East 2016 toll rates

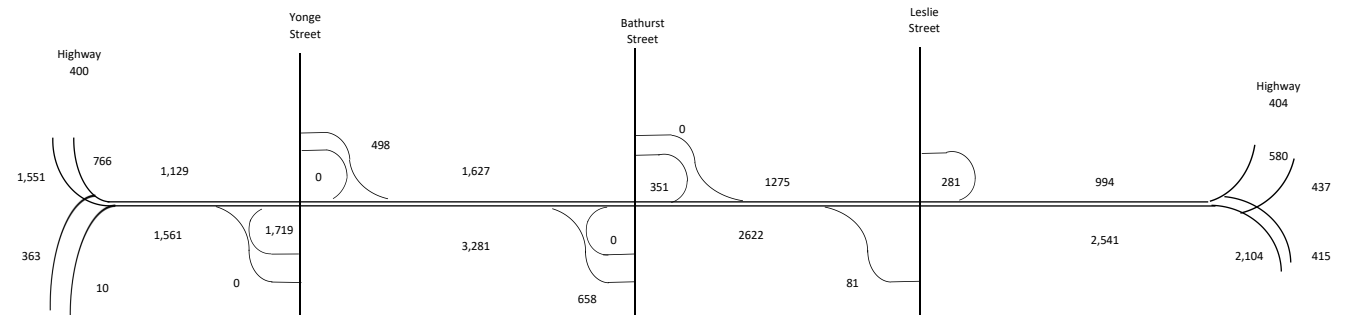


Figure A-5: 2031 AM peak hour volume schematic for the tolled scenario with a 50% increase of the Highway 407 East 2016 toll rates

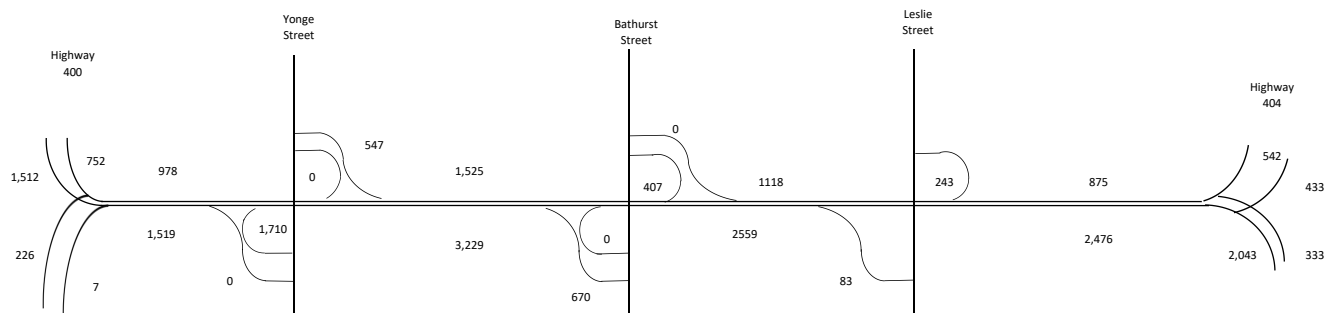


Figure A-6: 2031 AM peak hour volume schematic for the tolled scenario with a 60% increase of the Highway 407 East 2016 toll rates

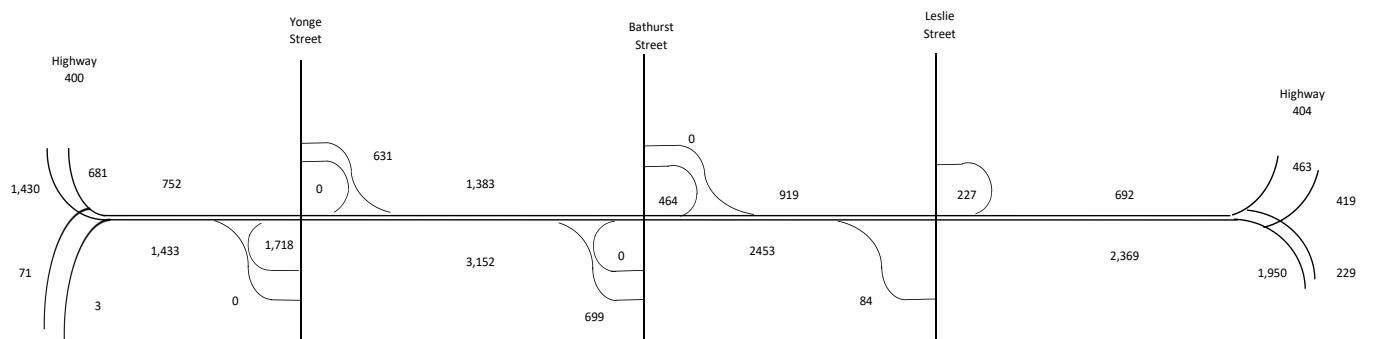


Figure A-7: 2031 AM peak hour volume schematic for the tolled scenario with a 75% increase of the Highway 407 East 2016 toll rates

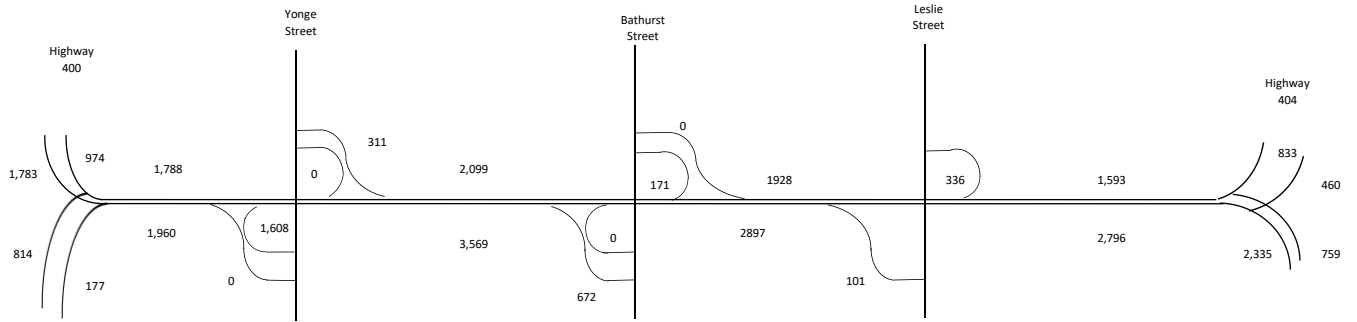


Figure A-8: 2031 AM peak hour volume schematic for the tolled scenario with all vehicles tolled at the same auto/light truck Highway 407 East 2016 toll rate

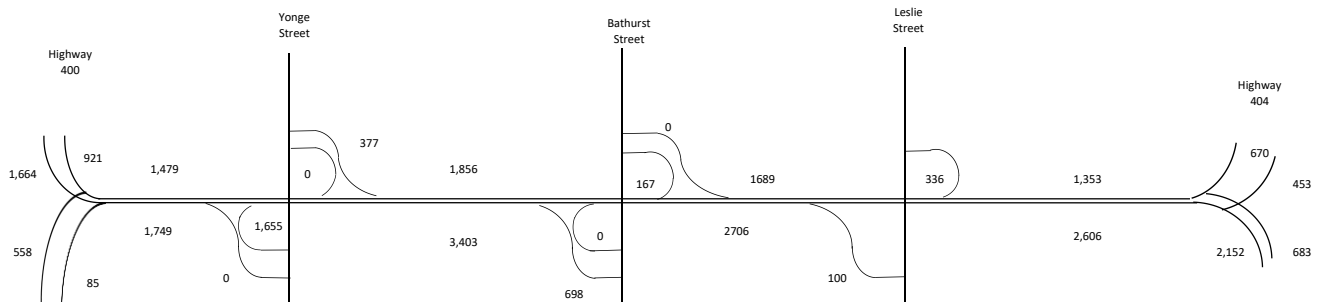


Figure A-9: 2031 AM peak hour volume schematic for the tolled scenario with all vehicles tolled at a 25% increase of the auto/light truck Highway 407 East 2016 toll rate

Note: for the 2041 scenarios, although the cross-section is 3 general-purpose lanes and 1 high-occupancy lane per direction, the schematic illustrates the aggregated volume between interchanges.

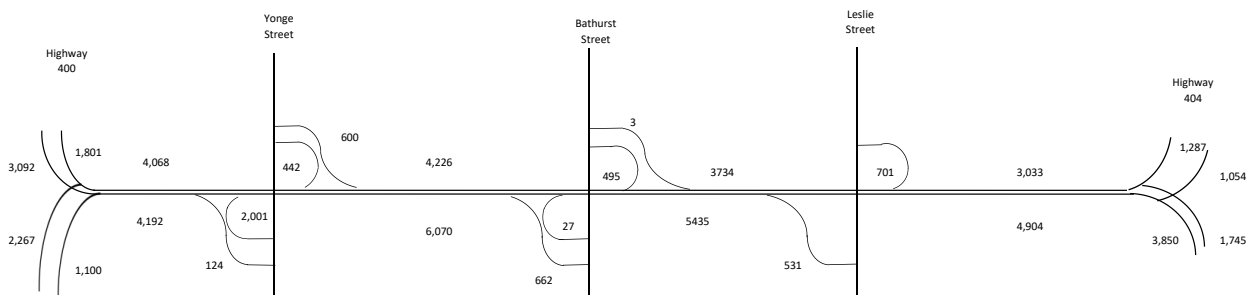


Figure A-10: 2041 AM peak hour volume schematic for the non-tolled scenario

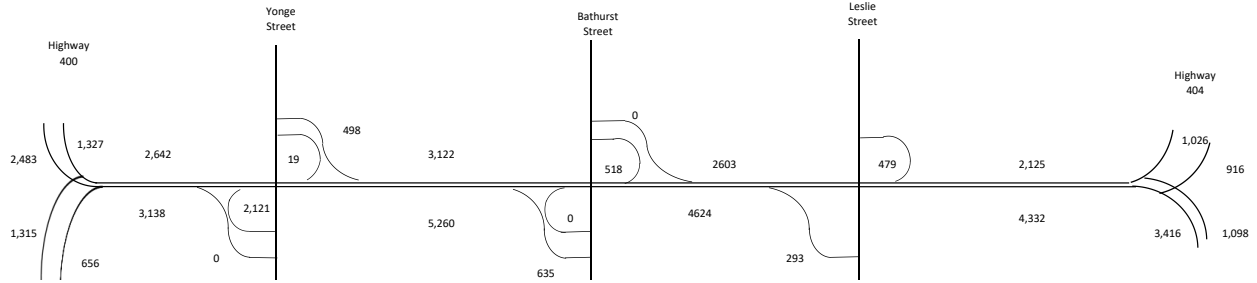


Figure A-11: 2041 AM peak hour volume schematic for the tolled scenario with the Highway 407 East 2016 toll rates (baseline scenario)

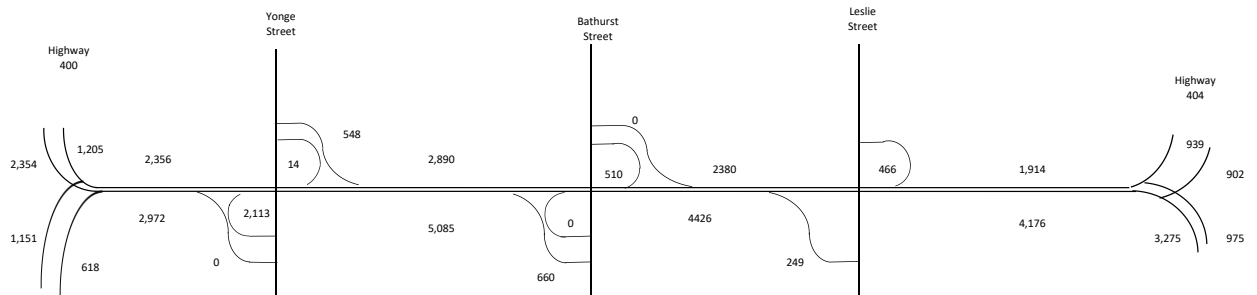


Figure A-12: 2041 AM peak hour volume schematic for the tolled scenario with a 25% increase of the Highway 407 East 2016 toll rates

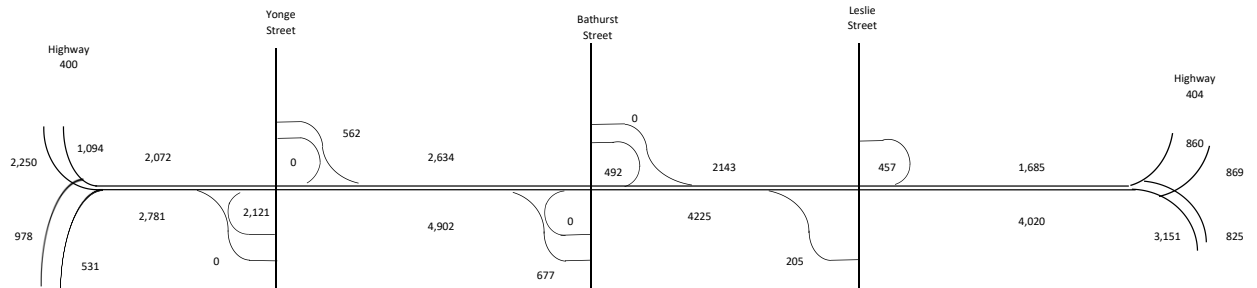


Figure A-13: 2041 AM peak hour volume schematic for the tolled scenario with a 50% increase of the Highway 407 East 2016 toll rates

Appendix B

NETWORK TRAVEL METRICS

AM peak hour conditions - 2031 (opening day) and 2041
network-wide and for Simcoe County and York Region

The following scenarios are summarized:

1. Non-tolled scenario
2. Tolled scenario - baseline (with the current Highway 407 East toll rates)
3. Tolled scenario - baseline toll rates +25%
4. Tolled scenario - baseline toll rates +40%
5. Tolled scenario - baseline toll rates +50%
6. Tolled scenario - baseline toll rates +60%
7. Tolled scenario - baseline toll rates +75%
8. Tolled scenario - baseline toll rates - all vehicles tolled using the auto/light truck rates
9. Tolled scenario - baseline toll rates + 25% - all vehicles tolled using the auto/light truck rates

Table B-1: 2031 AM peak hour vehicle*kilometer and vehicle*hour by scenario for the whole network

	non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline
VKM	31,717,423	31,709,469	31,707,952	31,706,541	31,705,757	31,704,838	31,704,196	31,709,398	31,707,947
VHR	736,695	737,006	737,212	737,410	737,550	737,697	737,916	736,960	737,157

Table B-2: 2031 AM peak hour vehicle*kilometer and vehicle*hour by scenario for Simcoe County

	non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline
VKM	2,063,052	2,054,968	2,053,112	2,050,520	2,049,348	2,048,514	2,047,121	2,055,100	2,052,726
VHR	32,576	32,494	32,513	32,501	32,511	32,520	32,539	32,497	32,509

Table B-3: 2031 AM peak hour vehicle*kilometer and vehicle*hour by scenario for York Region

	non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline
VKM	4,261,548	4,255,517	4,254,340	4,254,214	4,253,817	4,253,457	4,253,453	4,255,345	4,254,853
VHR	107,112	107,094	107,171	107,280	107,345	107,418	107,518	107,081	107,160

Table B-4: 2041 AM peak hour vehicle*kilometer and vehicle*hour by scenario for the whole network

	non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%
VKM	36,074,304	36,053,224	36,049,518	36,045,202
VHR	952,415	953,513	953,893	954,328

Table B-5: 2041 AM peak hour vehicle*kilometer and vehicle*hour by scenario for Simcoe County

	non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%
VKM	2,352,865	2,352,277	2,349,317	2,345,645
VHR	39,956	40,136	40,126	40,130

Table B-6: 2041 AM peak hour vehicle*kilometer and vehicle*hour by scenario for York Region

	non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%
VKM	4,750,317	4,737,230	4,734,981	4,733,651
VHR	138,265	138,525	138,679	138,880

Appendix C

SCREENLINE ANALYSES

AM peak hour conditions - 2031 (opening day) and 2041

Table C-1: 2031 AM peak hour volumes along the north-south screenline east of Highway 400

Locations are: Innisfil Beach Road, 5 Line, Highway 89, Bradford Corridor, Highway 88, Line 5, Canal Road, Highway 9/Davis Dr W

		Percent change relative to the non-tolled scenario																
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline
Innisfil Beach Road	WB	1,319	1,307	1,304	1,298	1,289	1,284	1,286	1,314	1,310	-1%	-1%	-2%	-2%	-3%	-2%	0%	-1%
	EB	462	422	422	422	422	422	430	427	421	-9%	-9%	-9%	-9%	-9%	-7%	-8%	-9%
5 Line	WB	201	254	256	257	249	248	269	253	262	27%	27%	28%	24%	23%	34%	26%	30%
	EB	242	291	291	296	284	281	293	294	309	20%	20%	22%	17%	16%	21%	21%	28%
Highway 89	WB	468	577	599	636	647	660	704	561	614	23%	28%	36%	38%	41%	50%	20%	31%
	EB	326	392	403	439	449	458	461	376	422	20%	24%	35%	38%	41%	42%	15%	30%
Bradford Corridor	WB	2,995	1,757	1,534	1,268	1,129	978	752	1,788	1,479	-41%	-49%	-58%	-62%	-67%	-75%	-40%	-51%
	EB	2,622	1,966	1,765	1,655	1,561	1,519	1,433	1,960	1,749	-25%	-33%	-37%	-40%	-42%	-45%	-25%	-33%
Highway 88	WB	950	1,308	1,323	1,361	1,381	1,399	1,417	1,317	1,387	38%	39%	43%	45%	47%	49%	39%	46%
	EB	487	547	633	630	655	649	642	563	622	12%	30%	29%	34%	33%	32%	16%	28%
Line 5	WB	595	638	674	714	733	760	781	637	677	7%	13%	20%	23%	28%	31%	7%	14%
	EB	78	86	86	97	99	102	115	85	89	9%	10%	23%	26%	30%	46%	8%	13%
Canal Road	WB	1,060	1,082	1,090	1,097	1,104	1,107	1,110	1,085	1,101	2%	3%	3%	4%	4%	5%	2%	4%
	EB	340	343	344	346	347	349	350	343	344	1%	1%	2%	2%	2%	3%	1%	1%
Highway 9 / Davis Dr W	WB	1,643	1,862	1,907	1,957	1,973	1,995	2,017	1,875	1,930	13%	16%	19%	20%	21%	23%	14%	17%
	EB	2,139	2,258	2,284	2,301	2,310	2,315	2,315	2,281	2,324	6%	7%	8%	8%	8%	8%	7%	9%
Total	WB	9,232	8,786	8,687	8,588	8,504	8,431	8,338	8,830	8,760								
	EB	6,697	6,303	6,229	6,186	6,127	6,094	6,039	6,329	6,279								

Table C-2: 2031 AM peak hour volumes along the north-south screenline west of Highway 404

Locations are: Jon Dales Drive, Ravenshoe Road, Centroid connector, Bradford Corridor, Centroid connector, Queensville Sideroad, Doane Road, Centroid connector, Farr Avenue, Mount Albert

		Percent change relative to the non-tolled scenario																	
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	
Jon Dales Drive	WB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	
	EB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	
Ravenshoe Road	WB	182	202	214	227	224	223	222	162	215	11%	18%	25%	23%	23%	22%	-11%	18%	
	EB	368	426	453	465	471	474	482	388	445	16%	23%	27%	28%	29%	31%	6%	21%	
Bradford Corridor	WB	2,250	1,534	1,296	1,136	994	875	692	1,593	1,353	-32%	-42%	-50%	-56%	-61%	-69%	-29%	-40%	
	EB	3,285	2,847	2,723	2,625	2,541	2,476	2,369	2,796	2,606	-13%	-17%	-20%	-23%	-25%	-28%	-15%	-21%	
Queensville Sideroad	WB	90	131	189	227	282	314	379	143	204	46%	111%	153%	215%	250%	323%	60%	128%	
	EB	573	593	586	601	604	610	632	638	662	3%	2%	5%	5%	6%	10%	11%	15%	
Doane Road	WB	242	334	367	352	349	342	339	334	348	38%	52%	46%	44%	42%	40%	38%	44%	
	EB	653	687	695	699	703	707	714	696	704	5%	6%	7%	8%	8%	9%	7%	8%	
Farr Avenue	WB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	
	EB	193	216	220	220	223	223	226	211	216	11%	14%	14%	15%	15%	17%	9%	12%	
Mount Albert Road	WB	179	242	266	272	277	285	284	234	233	35%	48%	52%	55%	59%	59%	30%	30%	
	EB	506	511	515	518	518	520	514	523	526	1%	2%	2%	2%	3%	2%	3%	4%	
Green Lane East	WB	1,481	1,609	1,603	1,605	1,610	1,609	1,620	1,616	1,635	9%	8%	8%	9%	9%	9%	9%	10%	
	EB	1,591	1,607	1,611	1,615	1,614	1,613	1,615	1,624	1,630	1%	1%	1%	1%	1%	1%	2%	2%	
+Davis Drive	WB	1,697	1,728	1,743	1,749	1,738	1,744	1,749	1,725	1,734	2%	3%	3%	2%	3%	3%	2%	2%	
	EB	1,467	1,467	1,467	1,466	1,464	1,464	1,466	1,467	1,465	0%	0%	0%	0%	0%	0%	0%	0%	
Local Roads (centroid connectors)	WB	126	126	126	127	130	135	142	126	126	0%	0%	1%	3%	7%	13%	0%	0%	
	EB	120	119	117	119	123	124	127	117	125	-1%	-3%	-1%	3%	3%	6%	-2%	4%	
Total	WB	6,246	5,906	5,803	5,695	5,604	5,527	5,427	5,933	5,849									
	EB	8,756	8,473	8,386	8,327	8,261	8,209	8,146	8,460	8,377									

Road, Connection over Highway 404, Green Lane East, Davis Drive



Table C-3: 2031 AM peak hour volumes along the east-west screenline north of the Bradford corridor

Locations are: 5th Side Road, Highway 400, 10th Side Road, Yonge Street, Bathurst Street, 2 Concession Road, Leslie Street, Highway 404, Centroid connector, Woodbine Avenue

		Percent change relative to the non-tolled scenario																
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline
5th Side Road	SB	901	896	893	889	889	889	881	903	897	-1%	-1%	-1%	-1%	-1%	-2%	0%	0%
	NB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
Highway 400	SB	5,182	5,249	5,259	5,272	5,272	5,287	5,297	5,230	5,237	1%	1%	2%	2%	2%	2%	1%	1%
	NB	3,272	3,205	3,193	3,174	3,168	3,164	3,114	3,218	3,200	-2%	-2%	-3%	-3%	-3%	-5%	-2%	-2%
10th Side Road	SB	505	509	496	492	483	469	447	522	515	1%	-2%	-3%	-4%	-7%	-11%	3%	2%
	NB	68	16	16	16	16	16	16	16	16	-76%	-76%	-76%	-76%	-76%	-76%	-76%	-76%
Yonge Street	SB	1,563	1,476	1,474	1,481	1,492	1,497	1,512	1,470	1,477	-6%	-6%	-5%	-5%	-4%	-3%	-6%	-6%
	NB	203	271	273	272	272	272	325	262	270	33%	34%	34%	34%	34%	60%	29%	33%
Bathurst Street	SB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
	NB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
2 Concession Road	SB	434	427	417	480	497	526	544	421	451	-2%	-4%	11%	14%	21%	25%	-3%	4%
	NB	251	291	305	306	313	316	322	282	287	16%	22%	22%	25%	26%	29%	13%	14%
Leslie Street	SB	749	698	687	607	580	544	519	707	653	-7%	-8%	-19%	-23%	-27%	-31%	-6%	-13%
	NB	331	309	307	309	306	307	308	326	324	-7%	-7%	-7%	-8%	-7%	-7%	-1%	-2%
Highway 404	SB	2,041	1,914	1,861	1,836	1,824	1,818	1,815	1,892	1,834	-6%	-9%	-10%	-11%	-11%	-11%	-7%	-10%
	NB	1,184	1,126	1,109	1,111	1,098	1,093	1,083	1,110	1,103	-5%	-6%	-6%	-7%	-8%	-9%	-6%	-7%
Local Road (centroid)	SB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
	NB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
Woodbine Avenue	SB	247	235	239	240	239	240	239	237	237	-5%	-3%	-3%	-3%	-3%	-3%	-4%	-4%
	NB	94	82	82	83	89	89	90	82	82	-12%	-13%	-12%	-6%	-6%	-5%	-13%	-13%
Total	SB	11,622	11,403	11,326	11,297	11,277	11,269	11,255	11,380	11,302								
	NB	5,404	5,301	5,285	5,271	5,262	5,257	5,259	5,297	5,283								

Table C-4: 2031 AM peak hour volumes along the east-west screenline south of the Bradford corridor

Locations are: 5th Side Road, Highway 400, 10th Side Road, Yonge Street, Bathurst Street, 2 Concession Road, Leslie Street, Highway 404, Centroid connector, Woodbine Avenue

		Percent change relative to the non-tolled scenario																
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline
5th Side Road	SB	901	896	893	889	889	889	881	903	897	-1%	-1%	-1%	-1%	-1%	-2%	0%	0%
	NB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
Highway 400	SB	4,477	4,292	4,229	4,133	4,084	4,000	3,938	4,261	4,131	-4%	-6%	-8%	-9%	-11%	-12%	-5%	-8%
	NB	2,194	2,458	2,394	2,422	2,412	2,419	2,436	2,421	2,364	12%	9%	10%	10%	10%	11%	10%	8%
10th Side Road	SB	505	509	496	492	483	469	447	522	515	1%	-2%	-3%	-4%	-7%	-11%	3%	2%
	NB	68	16	16	16	16	16	16	16	16	-76%	-76%	-76%	-76%	-76%	-76%	-76%	-76%
Yonge Street	SB	413	279	316	378	405	465	498	275	342	-33%	-24%	-9%	-2%	13%	21%	-33%	-17%
	NB	549	350	398	396	407	403	398	365	413	-36%	-27%	-28%	-26%	-27%	-27%	-34%	-25%
Bathurst Street	SB	619	631	649	643	658	670	699	672	698	2%	5%	4%	6%	8%	13%	9%	13%
	NB	295	218	272	299	351	407	464	171	167	-26%	-8%	2%	19%	38%	58%	-42%	-43%
2 Concession Road	SB	434	427	417	480	497	526	544	421	451	-2%	-4%	11%	14%	21%	25%	-3%	4%
	NB	251	291	305	306	313	316	322	282	287	16%	22%	22%	25%	26%	29%	13%	14%
Leslie Street	SB	502	413	355	343	339	340	330	412	356	-18%	-29%	-32%	-33%	-32%	-34%	-18%	-29%
	NB	319	265	264	264	264	264	262	265	263	-17%	-17%	-17%	-17%	-17%	-18%	-17%	-18%
Highway 404	SB	3,659	3,478	3,437	3,387	3,348	3,320	3,303	3,394	3,316	-5%	-6%	-7%	-8%	-9%	-10%	-7%	-9%
	NB	1,767	1,377	1,258	1,172	1,076	993	893	1,409	1,333	-22%	-29%	-34%	-39%	-44%	-49%	-20%	-25%
Local Road (centroid)	SB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
	NB	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
Woodbine Avenue	SB	247	235	239	240	239	239	239	237	237	-5%	-3%	-3%	-3%	-3%	-3%	-4%	-4%
	NB	52	40	40	41	47	47	48	40	40	-23%	-23%	-21%	-10%	-10%	-9%	-24%	-23%
Total	SB	11,756	11,160	11,031	10,985	10,943	10,919	10,879	11,095	10,943								
	NB	5,496	5,016	4,948	4,916	4,886	4,865	4,841	4,970	4,883								

Table C-5: 2031 AM peak hour volumes along the north-south screenline east of Highway 400 along Highway 407

		Percent change relative to the non-tolled scenario																	
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	
Highway 407	WB	7,562	7,620	7,639	7,660	7,678	7,696	7,720	7,615	7,630	1%	1%	1%	2%	2%	2%	1%	1%	
	EB	7,690	7,730	7,743	7,753	7,764	7,771	7,783	7,726	7,739	1%	1%	1%	1%	1%	1%	0%	1%	

Table C-6: 2031 AM peak hour volumes along the north-south screenline east of Highway 400 along Highway 401

		Percent change relative to the non-tolled scenario																	
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	
Highway 401	WB	15,065	15,075	15,081	15,085	15,089	15,095	15,104	15,074	15,084	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.1%	0.1%	
	EB	13,682	13,693	13,694	13,697	13,700	13,702	13,705	13,697	13,700	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	

Table C-7: 2031 AM peak hour volumes along the north-south screenline west of Highway 404 along Highway 407

												Percent change relative to the non-tolled scenario							
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	
Highway 407	WB	9,675	9,709	9,720	9,732	9,741	9,751	9,764	9,706	9,717	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	0.3%	0.4%	
	EB	6,165	6,181	6,188	6,192	6,198	6,201	6,211	6,181	6,186	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.3%	0.3%	

Table C-8: 2031 AM peak hour volumes along the north-south screenline west of Highway 404 along Highway 401

												Percent change relative to the non-tolled scenario							
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	tolled baseline	tolled baseline +25%	tolled baseline +40%	tolled baseline +50%	tolled baseline +60%	tolled baseline +75%	tolled with all vehicles tolled at the same auto/light truck baseline	tolled with all vehicles toll +25% auto/light truck baseline	
Highway 401	WB	15,366	15,374	15,375	15,374	15,379	15,380	15,386	15,372	15,375	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	
	EB	12,113	12,114	12,116	12,113	12,114	12,115	12,118	12,114	12,117	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Table C-9: 2041 AM peak hour volumes along the north-south screenline east of Highway 400

Locations are: Innisfil Beach Road, 5 Line, Highway 89, Bradford Corridor, Highway 88, Line 5, Canal Road, Highway 9/Davis Dr W

						Percent change relative to the non-tolled scenario		
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	tolled baseline	tolled baseline +25%	tolled baseline +50%
Innisfil Beach Road	WB	1,523	1,526	1,528	1,532	0%	0%	1%
	EB	572	534	530	533	-7%	-7%	-7%
5 Line	WB	158	372	368	366	135%	133%	131%
	EB	247	405	405	401	64%	64%	63%
Highway 89	WB	601	530	545	555	-12%	-9%	-8%
	EB	550	473	474	480	-14%	-14%	-13%
Bradford Corridor	WB	4,068	2,642	2,356	2,072	-35%	-42%	-49%
	EB	4,192	3,138	2,972	2,781	-25%	-29%	-34%
Highway 88	WB	1,362	1,450	1,519	1,568	6%	12%	15%
	EB	584	640	643	652	10%	10%	12%
Line 5	WB	660	723	740	764	10%	12%	16%
	EB	84	98	100	110	17%	19%	31%
Canal Road	WB	1,102	1,113	1,115	1,121	1%	1%	2%
	EB	385	381	384	388	-1%	0%	1%
Highway 9 / Davis Dr W	WB	1,635	1,917	1,981	2,038	17%	21%	25%
	EB	2,336	2,482	2,517	2,555	6%	8%	9%
Total	WB	11,110	10,273	10,152	10,017			
	EB	8,950	8,151	8,026	7,901			

Table C-10: 2041 AM peak hour volumes along the north-south screenline west of Highway 404

Locations are: Jon Dales Drive, Ravenshoe Road, Centroid connector, Bradford Corridor, Centroid connector, Queensville Sideroad, Doane Road, Centroid connector, Farr Avenue, Mount Albert Road, Connection over Highway 404, Green Lane East, Davis Drive

		Percent change relative to the non-tolled scenario						
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	tolled baseline	tolled baseline +25%	tolled baseline +50%
Jon Dales Drive	WB	0	0	0	0	-	-	-
	EB	0	0	0	0	-	-	-
Ravenshoe Road	WB	293	289	299	302	-1%	2%	3%
	EB	659	678	692	690	3%	5%	5%
Bradford Corridor	WB	3,033	2,125	1,914	1,685	-30%	-37%	-44%
	EB	4,904	4,332	4,176	4,020	-12%	-15%	-18%
Queensville Sideroad	WB	115	153	178	216	33%	55%	88%
	EB	864	898	904	909	4%	5%	5%
Doane Road	WB	446	425	459	475	-5%	3%	7%
	EB	1,066	1,051	1,060	1,066	-1%	-1%	0%
Farr Avenue	WB	0	0	0	0	-	-	-
	EB	383	390	397	401	2%	4%	5%
Mount Albert Road	WB	272	334	340	348	23%	25%	28%
	EB	705	708	713	718	0%	1%	2%
Green Lane East	WB	1,436	1,575	1,589	1,603	10%	11%	12%
	EB	1,838	1,819	1,838	1,840	-1%	0%	0%
Davis Drive	WB	1,903	1,905	1,928	1,945	0%	1%	2%
	EB	1,567	1,590	1,608	1,612	1%	3%	3%
Local Road (centroids)	WB	246	287	288	293	17%	17%	19%
	EB	617	626	630	636	2%	2%	3%
Total	WB	7,744	7,094	6,994	6,868			
	EB	12,602	12,092	12,017	11,891			

Table C-11: 2041 AM peak hour volumes along the east-west screenline north of the Bradford corridor

Locations are: 5th Side Road, Highway 400, 10th Side Road, Yonge Street, Bathurst Street, 2 Concession Road, Leslie Street, Highway 404, Centroid connector, Woodbine Avenue

		Percent change relative to the non-tolled scenario						
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	tolled baseline	tolled baseline +25%	tolled baseline +50%
5th Side Road	SB	994	1,004	1,002	998	1%	1%	0%
	NB	17	0	0	0	-	-	-
Highway 400	SB	5,502	5,548	5,550	5,548	1%	1%	1%
	NB	3,630	3,554	3,535	3,499	-2%	-3%	-4%
10th Side Road	SB	644	652	643	622	1%	0%	-3%
	NB	27	18	18	18	-32%	-32%	-32%
Yonge Street	SB	1,787	1,695	1,690	1,713	-5%	-5%	-4%
	NB	298	329	331	339	10%	11%	14%
Bathurst Street	SB	0	0	0	0	-	-	-
	NB	0	0	0	0	-	-	-
2 Concession Road	SB	484	393	388	390	-19%	-20%	-19%
	NB	553	484	492	503	-12%	-11%	-9%
Leslie Street	SB	774	840	834	820	9%	8%	6%
	NB	372	462	454	439	24%	22%	18%
Highway 404	SB	1,739	1,759	1,749	1,739	1%	1%	0%
	NB	1,653	1,598	1,597	1,599	-3%	-3%	-3%
Local Road (centroid)	SB	8	0	0	0	-100%	-100%	-100%
	NB	0	0	0	0	-	-	-
Woodbine Avenue	SB	761	653	642	625	-14%	-16%	-18%
	NB	192	192	192	199	0%	0%	3%
Total	SB	12,693	12,544	12,497	12,455			
	NB	6,374	6,638	6,619	6,596			

Table C-12: 2041 AM peak hour volumes along the east-west screenline south of the Bradford corridor

Locations are: 5th Side Road, Highway 400, 10th Side Road, Yonge Street, Bathurst Street, 2 Concession Road, Leslie Street, Highway 404, Centroid connector, Woodbine Avenue

						Percent change relative to the non-tolled scenario		
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	tolled baseline	tolled baseline +25%	tolled baseline +50%
5th Side Road	SB	994	1,004	1,002	998	1%	1%	0%
	NB	17	0	0	0	-100%	-100%	-100%
Highway 400	SB	4,678	4,381	4,347	4,277	-6%	-7%	-9%
	NB	2,930	2,883	2,948	2,936	-2%	1%	0%
10th Side Road	SB	644	652	643	622	1%	0%	-3%
	NB	27	18	18	18	-32%	-32%	-32%
Yonge Street	SB	821	522	498	507	-36%	-39%	-38%
	NB	1,052	798	719	692	-24%	-32%	-34%
Bathurst Street	SB	666	635	660	677	-5%	-1%	2%
	NB	522	518	510	492	-1%	-2%	-6%
2 Concession Road	SB	484	393	388	390	-19%	-20%	-19%
	NB	553	484	492	503	-12%	-11%	-9%
Leslie Street	SB	706	602	562	517	-15%	-20%	-27%
	NB	475	410	399	389	-14%	-16%	-18%
Highway 404	SB	4,301	4,149	4,084	4,030	-4%	-5%	-6%
	NB	2,344	1,780	1,670	1,555	-24%	-29%	-34%
Local Road (centroid)	SB	152	85	85	88	-44%	-44%	-42%
	NB	26	26	26	26	0%	0%	0%
Woodbine Avenue	SB	690	577	567	546	-16%	-18%	-21%
	NB	199	132	132	138	-34%	-34%	-31%
Total	SB	14,136	12,999	12,834	12,651			
	NB	8,145	7,050	6,912	6,748			

Table C-13: 2041 AM peak hour volumes along the north-south screenline east of Highway 400 along Highway 407

		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	Percent change relative to the non-tolled scenario		
						tolled baseline	tolled baseline +25%	tolled baseline +50%
Highway 407	WB	8,294	8,347	8,359	8,383	1%	1%	1%
	EB	8,580	8,647	8,660	8,671	1%	1%	1%

Table C-14: 2041 AM peak hour volumes along the north-south screenline east of Highway 400 along Highway 401

		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	Percent change relative to the non-tolled scenario		
						tolled baseline	tolled baseline +25%	tolled baseline +50%
Highway 401	WB	15,677	15,703	15,713	15,715	0.2%	0.2%	0.2%
	EB	13,767	13,778	13,783	13,786	0.1%	0.1%	0.1%

Table C-15: 2041 AM peak hour volumes along the north-south screenline west of Highway 404 along Highway 407

						Percent change relative to the non-tolled scenario		
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	tolled baseline	tolled baseline +25%	tolled baseline +50%
Highway 407	WB	10,477	10,518	10,533	10,545	0%	1%	1%
	EB	7,531	7,579	7,593	7,603	1%	1%	1%

Table C-15: 2041 AM peak hour volumes along the north-south screenline west of Highway 404 along Highway 401

						Percent change relative to the non-tolled scenario		
		non-tolled	tolled baseline	tolled baseline +25%	tolled baseline +50%	tolled baseline	tolled baseline +25%	tolled baseline +50%
Highway 401	WB	15,987	15,997	16,004	16,010	0.1%	0.1%	0.1%
	EB	12,578	12,585	12,588	12,592	0.1%	0.1%	0.1%

Appendix D
UTILIZATION AND REVENUE SUMMARIES BY VEHICLE CLASS
AM peak hour conditions - 2031 (opening day) and 2041

Table D-1: Summary of utilization (VKT) for each scenario by vehicle class – AM peak hour and average weekday – 2031

Toll rate scenarios ¹	Daily VKT ³ (veh-km)											
	AM Peak VKT (veh-km)						Options A and B			Options C and D		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Non-tolled	90,138	4,066	3,978	92%	4%	4%	868,265	53,647	46,673	1,035,378	57,524	61,213
Baseline	69,265	2,375	2,359	94%	3%	3%	667,203	31,336	27,678	795,619	33,600	36,300
Baseline +25%	64,387	2,021	1,342	95%	3%	2%	620,215	26,665	15,746	739,587	28,592	20,651
Baseline +40%	59,911	1,285	1,163	96%	2%	2%	577,100	16,954	13,645	688,173	18,180	17,896
Baseline +50%	56,435	1,163	1,092	96%	2%	2%	543,617	15,345	12,812	648,246	16,454	16,804
Baseline +60%	53,623	1,096	848	97%	2%	2%	516,530	14,461	9,949	615,945	15,506	13,049
Baseline +75%	49,634	948	373	97%	2%	1%	478,105	12,508	4,376	570,125	13,412	5,740

Table D-2: Summary of utilization (VKT) for each scenario by vehicle class – Annual – 2031

Toll rate scenarios ¹	Annual VKT (million veh-km)											
	Option A			Option B			Option C			Option D		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Non-tolled	260.5	16.1	14.0	300.3	13.9	12.5	310.6	17.3	18.4	387.9	18.4	17.9
Baseline	200.2	9.4	8.3	230.8	8.1	7.4	238.7	10.1	10.9	298.1	10.8	10.6
Baseline +25%	186.1	8.0	4.7	214.5	6.9	4.2	221.9	8.6	6.2	277.1	9.2	6.0
Baseline +40%	173.1	5.1	4.1	199.6	4.4	3.7	206.5	5.5	5.4	257.8	5.8	5.2
Baseline +50%	163.1	4.6	3.8	188.0	4.0	3.4	194.5	4.9	5.0	242.9	5.3	4.9
Baseline +60%	155.0	4.3	3.0	178.6	3.7	2.7	184.8	4.7	3.9	230.8	5.0	3.8
Baseline +75%	143.4	3.8	1.3	165.4	3.2	1.2	171.0	4.0	1.7	213.6	4.3	1.7

Table D-3: Summary of revenue (\$2016) for each scenario by vehicle class – Average weekday – 2031

Toll rate scenarios ¹	Daily Revenue ^{2,3} - typical weekday (in \$2016)					
	Options A and B			Options C and D		
	Auto/ light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/ light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Baseline	172,582	15,885	20,643	200,823	16,793	25,918
Baseline +25%	200,558	16,896	14,680	233,379	17,862	18,431
Baseline +40%	208,993	12,032	14,249	243,195	12,720	17,889
Baseline +50%	210,921	11,668	14,335	245,437	12,335	17,997
Baseline +60%	213,765	11,729	11,873	248,744	12,399	14,907
Baseline +75%	216,439	11,096	5,712	251,858	11,730	7,172

Table D-4: Summary of revenue (\$2016) for each scenario by vehicle class – Annual – 2031

Toll rate scenarios ¹	Annual Revenue ² (\$million in \$2016)											
	Option A			Option B			Option C			Option D		
	Auto/ light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/ light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/ light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/ light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Non-tolled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Baseline	51.8	4.8	6.2	56.6	4.0	5.5	60.2	5.0	7.8	70.7	5.2	7.4
Baseline +25%	60.2	5.1	4.4	65.8	4.3	3.9	70.0	5.4	5.5	82.2	5.5	5.3
Baseline +40%	62.7	3.6	4.3	68.6	3.1	3.8	73.0	3.8	5.4	85.6	3.9	5.1
Baseline +50%	63.3	3.5	4.3	69.2	3.0	3.8	73.6	3.7	5.4	86.4	3.8	5.2
Baseline +60%	64.1	3.5	3.6	70.1	3.0	3.1	74.6	3.7	4.5	87.6	3.8	4.3
Baseline +75%	64.9	3.3	1.7	71.0	2.8	1.5	75.6	3.5	2.2	88.7	3.6	2.1

Table D-5: Percentage changes in utilization (VKT) and revenue, relative to the baseline scenario, for toll-rate increase scenarios

Toll rate scenarios	AM Peak VKT			Daily and Annual VKT			Daily and Annual Revenue		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Baseline +25%	-7%	-15%	-43%	-7%	-15%	-43%	16%	6%	-29%
Baseline +40%	-14%	-46%	-51%	-14%	-46%	-51%	21%	-24%	-31%
Baseline +50%	-19%	-51%	-54%	-19%	-51%	-54%	22%	-27%	-31%
Baseline +60%	-23%	-54%	-64%	-23%	-54%	-64%	24%	-26%	-42%
Baseline +75%	-28%	-60%	-84%	-28%	-60%	-84%	25%	-30%	-72%

Notes:

1. The baseline toll rates are those used by MTO for Highway 407 East as of February 2019 and converted to \$2016
2. Revenue is gross revenue – tolling-related cost have not been accounted for
3. Daily VKT is based on a typical weekday (Tuesday-Thursday)

Table D-6: Summary of utilization (VKT) for each scenario by vehicle class – AM peak hour and average weekday – 2041

Toll rate scenarios ¹	AM Peak VKT (veh-km)						Daily VKT ³ (veh-km)					
							Options A and B			Options C and D		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck%	Single-unit (medium) truck%	Multi-unit (heavy) truck%	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Non-tolled	134,155	4,635	5,400	93%	3%	4%	1,292,264	61,154	63,358	1,540,983	65,574	83,095
Baseline	104,560	2,955	3,204	94%	3%	3%	1,007,186	38,988	37,592	1,201,038	41,806	49,303
Baseline +25%	98,324	2,689	2,895	95%	3%	3%	947,117	35,479	33,967	1,129,407	38,043	44,548
Baseline +50%	91,960	2,287	2,500	95%	2%	3%	885,815	30,175	29,332	1,056,307	32,355	38,470

Table D-7: Summary of utilization (VKT) for each scenario by vehicle class – Annual – 2041

Toll rate scenarios ¹	Annual VKT (million veh-km)											
	Option A			Option B			Option C			Option D		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Non-tolled	387.7	18.3	19.0	446.9	15.9	17.0	462.3	19.7	24.9	577.3	21.0	24.3
Baseline	302.2	11.7	11.3	348.3	10.1	10.1	360.3	12.5	14.8	450.0	13.4	14.4
Baseline +25%	284.1	10.6	10.2	327.6	9.2	9.1	338.8	11.4	13.4	423.1	12.2	13.0
Baseline +50%	265.7	9.1	8.8	306.4	7.8	7.9	316.9	9.7	11.5	395.7	10.4	11.2

Table D-8: Summary or revenue (\$2016) for each scenario by vehicle class – Average weekday – 2041

Toll rate scenarios ¹	Daily Revenue ^{2,3} - typical weekday (in \$2016)					
	Options A and B			Options C and D		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Non-tolled	0	0	0	0	0	0
Baseline	260,523	19,764	28,038	303,155	20,893	35,202
Baseline +25%	306,268	22,481	31,667	356,388	23,766	39,759
Baseline +50%	343,693	22,944	32,817	399,935	24,256	41,203

Table D-9: Summary of revenue (\$2016) for each scenario by vehicle class – Annual – 2041

Toll rate scenarios ¹	Annual Revenue ² (\$million in \$2016)											
	Option A			Option B			Option C			Option D		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Non-tolled	0	0	0	0	0	0	0	0	0	0	0	0
Baseline	78.2	5.9	8.4	85.5	5.0	7.4	90.9	6.3	10.6	106.7	6.4	10.1
Baseline +25%	91.9	6.7	9.5	100.5	5.7	8.4	106.9	7.1	11.9	125.5	7.3	11.4
Baseline +50%	103.1	6.9	9.8	112.8	5.8	8.7	120.0	7.3	12.4	140.8	7.5	11.8

Table D-10: Percentage changes in utilization (VKT) and revenue to the baseline scenario, for toll-rate increase scenarios

Toll rate scenarios	AM Peak VKT			Daily and Annual VKT			Daily and Annual Revenue		
	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck	Auto/light truck	Single-unit (medium) truck	Multi-unit (heavy) truck
Baseline +25%	-6%	-9%	-10%	-6%	-9%	-10%	18%	14%	13%
Baseline +50%	-12%	-23%	-22%	-12%	-23%	-22%	32%	16%	17%

Notes:

1. The baseline toll rates are those used by MTO for Highway 407 East as of February 2019 and converted to \$2016
2. Revenue is gross revenue – tolling-related cost have not been accounted for
3. Daily VKT is based on a typical weekday (Tuesday-Thursday)

Appendix E
**EXPANSION OF VKT, VHT, AND REVENUE FROM AM
PEAK HOUR TO ANNUAL LEVELS**

E-1 Need for expansion

Since the travel demand forecasts cover only the morning peak hour and it is necessary to evaluate travel distance and time, benefits/disbenefits, and revenue at the annual level for business case development, it is necessary to develop an expansion process. The need for revenue expansion suggests that the expansion process be vehicle class-specific and be day-of-week/time-of-day-specific to be consistent with the toll rate stratification.

E-2 Utilization/VKT expansion

The expansion process for utilization (VKT) also covers the expansion of benefits, where these are based on VKT.

There are several factors influencing the expansion process for utilization (VKT):

- The Bypass does not currently exist so that traffic patterns must be determined 'by analogy' with other, existing facilities;
- The evaluation considers the Bypass as a tolled facility and it might be expected that drivers would be less willing to use a tolled facility under off-peak/uncongested conditions, when there would be less of a travel-time advantage relative to the competing untolled;
- The time distribution of traffic volume on the Bypass might be expected to be comparable to that on alternative and connecting routes in the area of the Bypass since it is traffic diverting from those routes or connecting with those routes which will represent a significant portion of the utilization of the Bypass. For example, the Bypass will be connected to Highway 400 (Intermediate Commuter/Commuter Tourist Recreation traffic pattern in that area) and Highway 404 (Intermediate Commuter traffic pattern in that area) and might be expected to exhibit comparable volume and vehicle class distributions over time to these facilities;
- Expressway-oriented trips, such as long-distance commercial vehicle trips using the proposed Bypass to connect between Highways 400 and 404, might be expected to use the Bypass, regardless of the time of day and provided the toll is not excessive, to avoid leaving the expressway system. In addition, there is typically a higher proportion of commercial vehicles (relative to autos) using the expressway system during off-peak periods, including the overnight period.

In terms of the selection of analogous highways, the following were identified for consideration:

- **407ETR** - selected since it is a tolled highway and traverses areas covering a variety of levels of urban intensity. However, it is also an alternative route for Highway 401, which is a major corridor for both urban and long-distance/international traffic, which may bias the time-distribution of traffic.
- **Highway 407 East** - selected since it is a tolled highway and traverses areas of lower urban intensity. However, as an extension of the Highway 407ETR corridor, it also serves as an alternative route for Highway 401;
- **Highway 400 and Highway 404 in the vicinity of the Bypass** - although these highways are untolled, they were selected since they are reflective of travel patterns in the area of the Bypass and traffic on the Bypass will likely also be using one or both of these highways;

- **York Road 31 (Davis Drive) between Highway 400 and Highway 404** - although this road is not an expressway and is not tolled, it is the most proximate and most obvious alternative route for traffic that might otherwise use the Bypass.

Available traffic count data was compiled for these analogous facilities as follows:

407ETR:

- Cordon Count data for 18 stations distributed across the GTA - class-specific data, available hourly between 6 AM and 8 PM for an average weekday;
- 24/7 class-specific MTO VDS data for a single station located just north of the Freeman interchange.

Highway 407 East:

- 24/7 MTO VDS data for 3 stations.

Highway 400:

- Cordon Count data for 2 stations in the vicinity of the Bypass;
- 24/7 MTO VDS data for 2 stations in the vicinity of the Bypass;
- Commercial Vehicle Survey data - class-specific 24/7 VDS data for a single station near King Road.

Highway 404:

- Cordon Count data for 2 stations in the vicinity of the Bypass;
- 24/7 VDS data for 2 stations in the vicinity of the Bypass.

York 31/Davis Dr:

- Cordon Count data for 2 stations parallel to the Bypass

A comparison of hypothetical expansion factors based on observed traffic volume time distributions for the above analogous highways was conducted, yielding Table B-1 and Figure B-1. All factors are based on the total of all vehicle classes and both directions of travel to facilitate comparison. Blank cells indicate that the data was not available. These factors are not used directly in the expansion process but they have been derived from that process to facilitate comparison. The AM peak hour to annual expansion has been subdivided, based on the data available, and for discussion purposes, into four steps: AM peak hour to 14-h, 14-h to 24-h (average weekday), average weekday to average week, and average week to annual.

AM peak hour to 14-h (6 am to 8 pm): It is observed that the 407ETR is characterized by lower implied expansion factors in the range of 8.0 to 9.5 for the AM peak hour to 14-h expansion, while all of the other ‘candidate’ facilities are in the range of 10.3 to 12.6. As discussed above, this is not unexpected in the case of a tolled facility. Traditionally, the peak hour has been considered to include about 10% of the daily volume, implying an expansion factor from the AM peak hour to 24 hours of 10. In urban areas, such as the GTA, peak spreading due to congestion, an increase in ‘non-traditional’ working hours, and other factors have reduced this over time to about 8-9%, increasing the expansion factor from the AM peak hour to 24 hours to somewhere between 11 and 12. However, in areas outside the GTA, especially for a tolled facility, somewhat lower factors might be more appropriate.

14-h to 24-h (average weekday): The tolled facilities exhibit a lower factor here (around 1.1) relative to the untolled facilities (around 1.2), not unexpected given the discussion above.

Average weekday to average week: There is less variation among these factors, all being between 6.4 and 7.2.

Average week to annual: For this factor, weeks with statutory holidays (10 holidays annually) were adjusted by substituting a typical Sunday pattern for the holiday, yielding a calculated factor of 51.25.

MTO indicated that they have a standard expansion factor for average weekday to annual of 300. Table B-3 provides a comparison between this value and the equivalent 'calculated' factors based on the above discussion.

Table E-1: Comparison of expansion factors based on observed time distributions

Highway/section	AM peak hour ⇒ 14-h	14-h ⇔ 24-h	AM peak hour ⇒ 24-h	24-h ⇔ 7 days
407ETR in the Region of Halton (Cordon Count data - 6 stations)	8.33			
407ETR in the Region of Peel (Cordon Count data - 5 stations)	8.39			
407ETR in the Region of York (Cordon Count data - 6 stations)	8.86			
407ETR in the Region of Durham (Cordon Count data - 1 station)	8.04			
407ETR north of Hwy 403/QEW (MTO VDS data - 1 station)	9.56	1.09	10.4*	6.39
Highway 407 East (MTO VDS data - 3 stations)	10.29	1.10	11.3*	6.97
Highway 400 near the Bypass (Cordon Count data - 2 stations)	12.64			
Highway 400 near the Bypass (MTO VDS data - 2 stations)	12.53	1.20	15.0*	6.84
Highway 400 at King Road (CVS data - 1 station)	12.06	1.21	14.6*	7.18
Highway 404 near the Bypass (Cordon Count data - 2 stations)	12.91			
Highway 404 near the Bypass (MTO VDS data - 2 stations)	11.11	1.18	13.1*	6.54
* derived from the AM peak hour ⇒ 14-h and 14-h ⇔ 24-h factors				
York 31/Davis Dr near the Bypass (Cordon Count - 2 stations)	12.16			

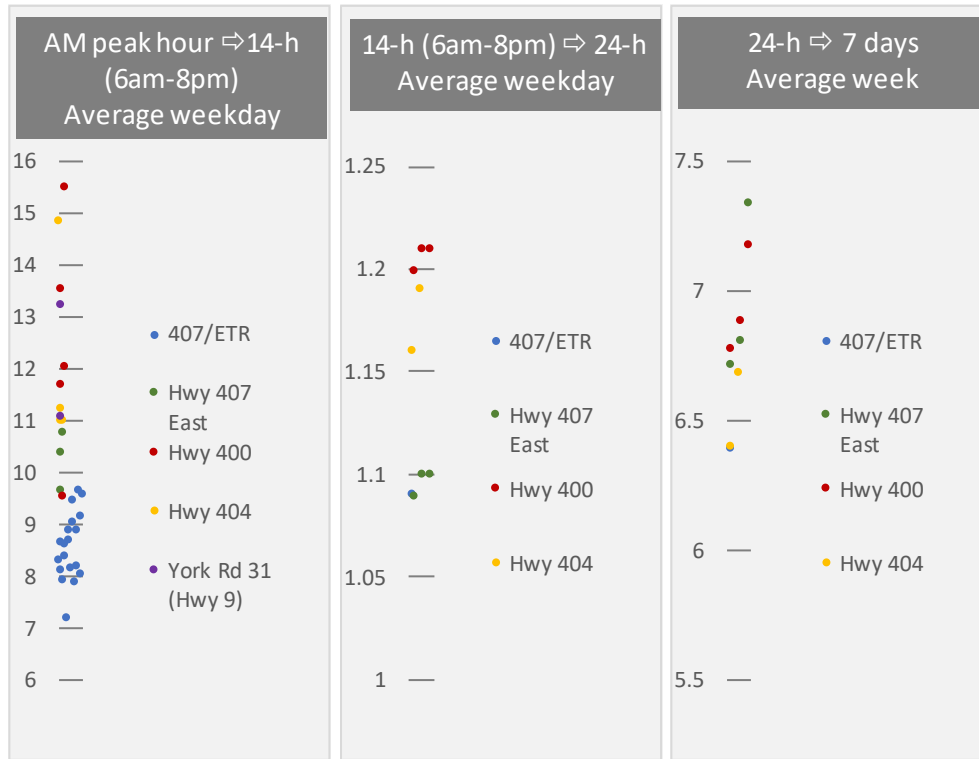


Figure E-1: Comparison of expansion factors based on observed time distributions

Table E-2: Comparison of equivalent expansion factors (VKT) from an average weekday to annual

	Baseline calculated factors based on observed data		MTO factor
	Average weekday to annual	Average week to annual	Average weekday to annual
Autos/light trucks	346	51.6	
Medium (single-unit) trucks	259	50.7	
Heavy (multi-unit) trucks	268	50.4	
All vehicle classes combined	339	51.6	300

Notes:

1 An average weekday is considered the average of Tuesday, Wednesday, and Thursday

2 An average week does not include a statutory holiday

3 Annual includes substitution of Sunday conditions for statutory holiday conditions

After considering all of the above, the expansion process for utilization/VKT adopted for the purposes of this evaluation is as follows:

Two options were developed for the AM peak hour to average weekday portion of the expansion:

- Baseline (conservative) - based on observed data for the 407ETR

- High - based on a combination of observed data for Highway 407 East, Highway 400, Highway 404, and YR31

Two options were also developed for the average weekday to annual portion of the expansion:

- Baseline (conservative) - using the MTO factor of 300
- High - based on observed data for 407ETR

Combining the above component options yields four 'overall' options. From (nominally) most conservative (lowest annual VKT, revenue, etc.) to least conservative (highest annual VKT, revenue, etc.)

- A (Baseline/conservative) - AM peak hour to average weekday expansion based on 407ETR data and average weekday to annual expansion based on MTO's 300 factor;
- B - AM peak hour to average weekday expansion and average weekday to annual expansion based on 407ETR data;
- C - AM peak hour to average weekday expansion based on a combination of Highway 407 East, Highway 400, Highway 404 and YR31 data and average weekday to annual expansion based on MTO's 300 factor;
- D - AM peak hour to average weekday expansion based on a combination of Highway 407 East, Highway 400, Highway 404 and YR31 data and average weekday to annual expansion based on 407ETR data;

Components of the process that are based on observed data utilize a spreadsheet tool based on vehicle class-specific hourly traffic volume distributions over an average week that are expressed as a ratio relative to the AM peak hour for an average weekday. The following assumptions were incorporated in this process:

- All calculations in the expansion process utilize bi-directional traffic volumes.
- All data used is representative of spring and/or fall conditions to approximate average seasonal conditions. In some cases, spring data was not considered since the March Break was included.
- The vehicle classes considered are autos/light trucks, medium (single-unit) trucks and heavy (multi-unit) trucks to be consistent with the current tolling structure for 407ETR and Highways 407 East, 412, and 418.

E-3 Revenue expansion

The expansion process for revenue is similar to that for VKT except that the hourly traffic volume factors are 'weighted' by the appropriate day of week/time of day/vehicle class toll rates from the Highway 407 East tolling structure (see Table 2-1).

E-4 Travel time/VHT expansion

For the evaluation of travel time benefits, it is necessary to have a means of expanding VHT from AM peak hour to annual levels. While a variety of sources of hourly traffic volume data could be utilized in the development of a VKT (and revenue) expansion process, no comparable sources of hourly travel time distribution data are available. In general, and particularly in the case of facilities that are heavily

congested during the peak periods, it would be expected that VHT would be more heavily concentrated in the peak periods.

For the AM peak hour to 14-h (6 am to 8 pm) portion of the expansion, we investigated the use of hourly traffic volume distributions produced via traffic micro-simulation for the more northerly portions of Highway 410 and Highway 404 during the Managed (HOT) Lanes study. However, these distributions were not found to be representative, in that peaking in the northbound direction during the PM peak period was 'muted' due to traffic metering further south.

It was therefore decided to use the VKT expansion process for the expansion of VHT values. Given that the changes in traffic volume patterns that occur as a result of tolling the Bypass are largely focused on facilities in the area of the Bypass, which are typically only moderately congested, this was believed to be a reasonable approach.

Appendix F
ASSUMED BYPASS CONSTRUCTION COSTS

Bypass construction cost estimate

Neither a construction cost estimate, nor a preliminary design, was available for the evaluation of the payback period for Bypass construction in the context of potential revenue available through tolling of the Bypass. Therefore, a rough cost estimate was prepared as a placeholder based on the assumptions outlined below, in conjunction with MTO's Parametric Estimating Guide (2016).

Cost	Item	Quantity/notes
Initial construction of 4-lane Bypass in 2031		
\$73M	Roadway/interchange construction cost	14.5 km of 4-lane highway @ \$5.005M/km
\$295M	Structure costs (assuming interchange structures are included in the roadway/interchange construction cost) Note that these costs are based on a 'line on a map' that shows only interchange locations. There is no information currently available on the number and size of structures.	Holland River E - 550m x 35m (Bypass over) Holland River W - 920m x 35m (Bypass over) Yonge - 25m x 35m - (Bypass over) Holborn - 35m x 25m (Bypass under) Railway - 15m x 35m (Bypass over) Artesian Industrial Pkwy - 32m x 35m (Bypass over) 10 th Sideroad - 35m x 25m (Bypass under) Total 55,720 sq.m. deck area @ \$5,300/sq.m.
\$80M	Culvert costs The number of culverts was estimated based on the number of streams crossing the Bypass alignment as shown on a map.	Approximately 11 culverts - 3.6m x 37.9m Total 15,000 sq.m. deck area @ \$5,300/sq.m.
\$448M	Subtotal	
\$45M	Add 10% for engineering costs	
\$14M	Add 3% for lighting costs	
\$9M	Add 2% for signing and related costs	
\$24M	Tolling system costs	
\$540M	Total	
Widening from 4 to 8 lanes in 2041		
\$139M	Roadway widening cost	14.5 km of 4-lane widening @ \$9.57M/km

Bradford Bypass Tolling Evaluation

Progress - April 15, 2021

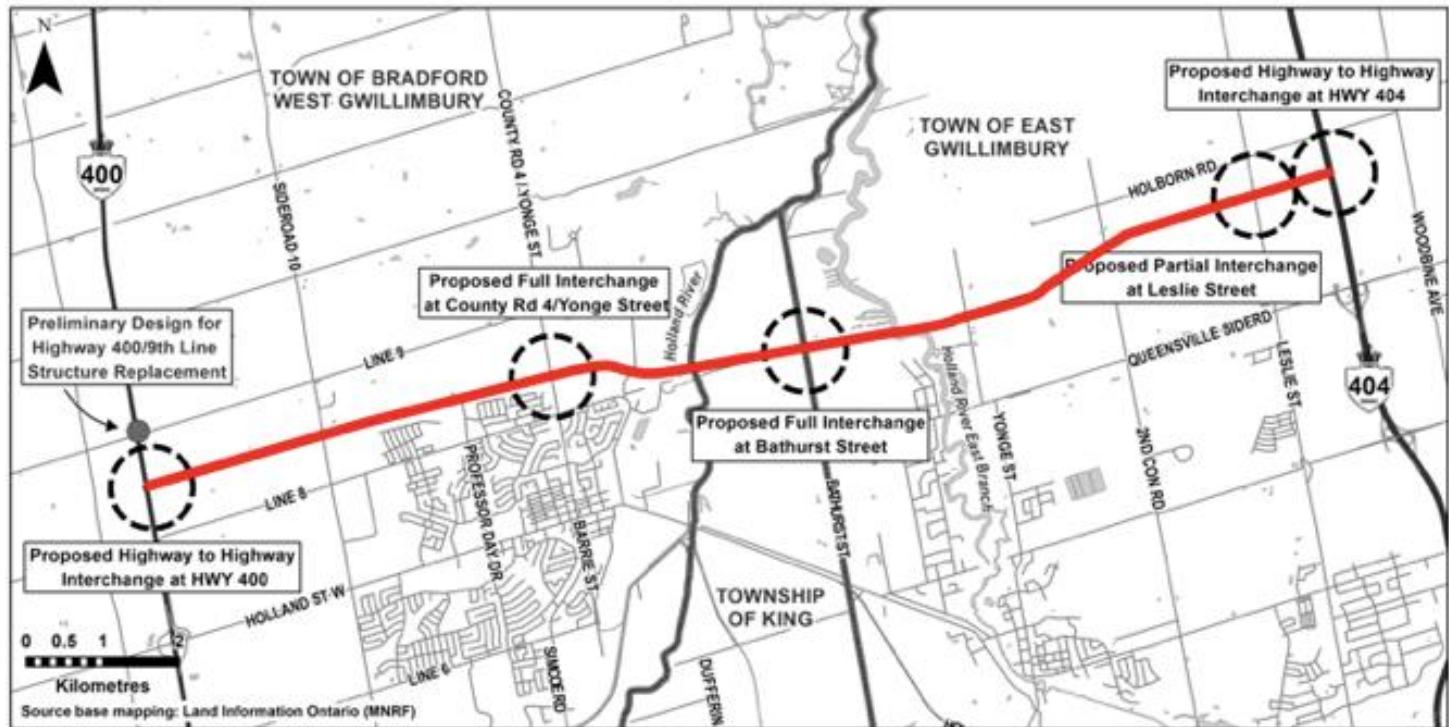
Objectives

Evaluate utilization and revenue associated with tolling the proposed Bradford Bypass

- Compare tolled and untolled scenarios
- Undertake sensitivity analysis with respect to toll rates, presence of GTAW, etc.
- Identify trade-offs between toll rates, utilization and revenue (elasticity)
- Develop business case for tolling

Bradford Bypass configuration

- 2031 - 2 general-purpose lanes (each direction)
- 2041 - 3 general-purpose lanes + 1 HOV lane (each direction)
- Highway-highway interchanges - Hwy 400, Hwy 404
- Full interchanges - Yonge St/CR4, Bathurst St
- Partial interchange - Leslie St (to/from west)



Baseline travel demand

- 2031 using traffic demand (trip matrices) consistent with the ongoing Preliminary Design/EA update
- Baseline 2031 scenarios:
 - A. Untolled
 - B. Tolled using Hwy 407 East toll rates

Baseline 2031 scenarios do not include the GTAW corridor

Baseline toll rate assumptions

- Use Hwy 407 East tolling structure as baseline
- 2019 toll rates adjusted for inflation to \$2016 for the current evaluation
- Tolls are assessed for travel between interchanging crossing roads

*Current Hwy 407 East tolls - frozen at 2019 levels
(Hwy 407 East tolls adjusted to \$2016 for evaluation)*

¢/km - \$2019	Weekday				Weekend	
(¢/km - \$2016)	6 am - 10 am	10 am - 3 pm	3 pm - 7 pm	7 pm - 6 am	11 am - 7 pm	7 pm - 11 am
Auto/light truck	30 (28)	24 (22)	30 (28)	19 (18)	23 (21)	19 (18)
Single-unit (medium) truck	59 (57)	47 (45)	59 (57)	39 (37)	45 (43)	39 (37)
Multi-unit (heavy) truck	89 (85)	71 (67)	89 (85)	58 (56)	67 (64)	58 (56)

Baseline Value-of-Time (VoT) assumptions

- The ratio *toll rate/VoT* determines the likelihood that a driver will use the Bypass, if tolled, and therefore the utilization
- VoTs estimated from surveys conducted for the earlier HOT-lane study were used as a starting point
- These were adjusted through calibration of the GGHM, including matching the modelled vs. observed utilization for the 407ETR
- The calibrated values (\$2016) were used as the baseline for the current evaluation

\$/h	SOV	HOV2	HOV3+	Light truck	Medium truck	Heavy truck
HOTL survey values (~\$2015)	\$20/h	\$23/h	\$26/h	\$35/h	\$50/h	\$70/h
Calibrated values (\$2016)	\$36/h	\$42/h	\$47/h	\$60/h	\$69/h	\$104/h

Modelling methodology

- MTO's GGHM (macroscopic travel demand forecasting model) was used to assign the same traffic demand to the network for the AM peak hour:
 - *with and without tolls on the Bypass*
 - *under other alternative scenarios*
- The model assigns traffic to the Bypass vs. alternative routes based on:
 - *Trip origins and destinations*
 - *Relative travel times on routes including the Bypass and on alternative routes not including the Bypass*
 - *Toll rates on the Bypass and the willingness of drivers to pay the toll in exchange for travel time saved (and other perceived advantages)*

Expansion methodology

- Need to expand AM peak hour traffic volumes (from the model), benefits, and toll revenue to weekly/annual values
- An expansion methodology was developed:
 - *recognizes vehicle classes*
 - *considers available traffic time distribution data :*
 - locations on 407ETR and Highway 407 East
 - locations on Hwy 400, Hwy 404 and YR9/Davis Drive in vicinity of Bypass

(Hwy 407 East and 407ETR considered as analogues since traffic on tolled highways likely to be proportionately lower than untolled highways during off-peak times/days)
 - *separately expands traffic volume and revenue*
 - *revenue expansion considers differences in toll rates by time-period, weekday vs. weekend, and vehicle class*

Expansion methodology (cont'd)

- Expansion undertaken on a class-specific and hourly/day-of-week basis
- Expansion uses average seasonal data (spring and/or fall)
- Expansion from average week to annual replaces statutory holidays with Sunday distribution
- ‘Baseline’ expansion uses more conservative 407ETR data - ‘High’ expansion also incorporates data from Hwy 407 East and from Hwy 400, Hwy 404, and YR9/Davis Dr. in the vicinity of the bypass
- Table below shows ‘equivalent’ expansion factors:

	Auto/light truck		Single-unit (medium) truck		Multi-unit (heavy) truck	
	Baseline	High	Baseline	High	Baseline	High
AM peak hour to average weekday	9.6	11.2	13.3	13.9	11.6	14.3
Average weekday to average week	6.5	6.9	5.3	5.8	5.1	5.3
Average week to annual	51.25					

Sensitivity analysis

- 2031 baseline untolled and tolled scenarios
- 2041 baseline untolled and tolled scenarios
- 2031 scenarios with toll rates increased 25%, 40%, 50%, 60%, and 75% above baseline
- Baseline vs. High expansion
- ‘Optimum’ balance between utilization and revenue (to be determined)
- Other sensitivity scenarios (to be determined) – e.g.
 - *Toll rate variations for medium/heavy truck classes relative to autos/light trucks*
 - *Toll rate variations for HOVs in conjunction with HOV lanes in 2041*

Progress to date

- Calibration of the GGHM was refined for the AM peak hour
 - *calibration challenging for the mid-day and PM peak periods - decision made jointly with SAFO to base evaluation on AM peak hour modelling to meet timelines*
- Methodology developed to expand modelled AM peak-hour traffic volumes/toll revenue to annual levels
- Scenarios evaluated to date:
 - *2031 baseline untolled and tolled*
 - *2031 with toll rates increased by 25%, 40%, 50%, 60%, 75%*

Key results: estimated 2031 AM peak-hour traffic volumes along the Bypass

Veh/hour	Highway section	Untolled Scenario	Tolled Baseline Scenario	Difference
Eastbound	Hwy 400 - Yonge	2,620	1,970	-25%
	Yonge - Bathurst	4,110	3,610	-12%
	Bathurst - Leslie	3,490	2,980	-15%
	Leslie - Hwy 404	3,290	2,850	-13%
Westbound	Hwy 404 - Leslie	2,250	1,530	-32%
	Leslie - Bathurst	2,690	1,900	-29%
	Bathurst - Yonge	2,990	2,120	-29%
	Yonge - Hwy 400	3,000	1,760	-41%

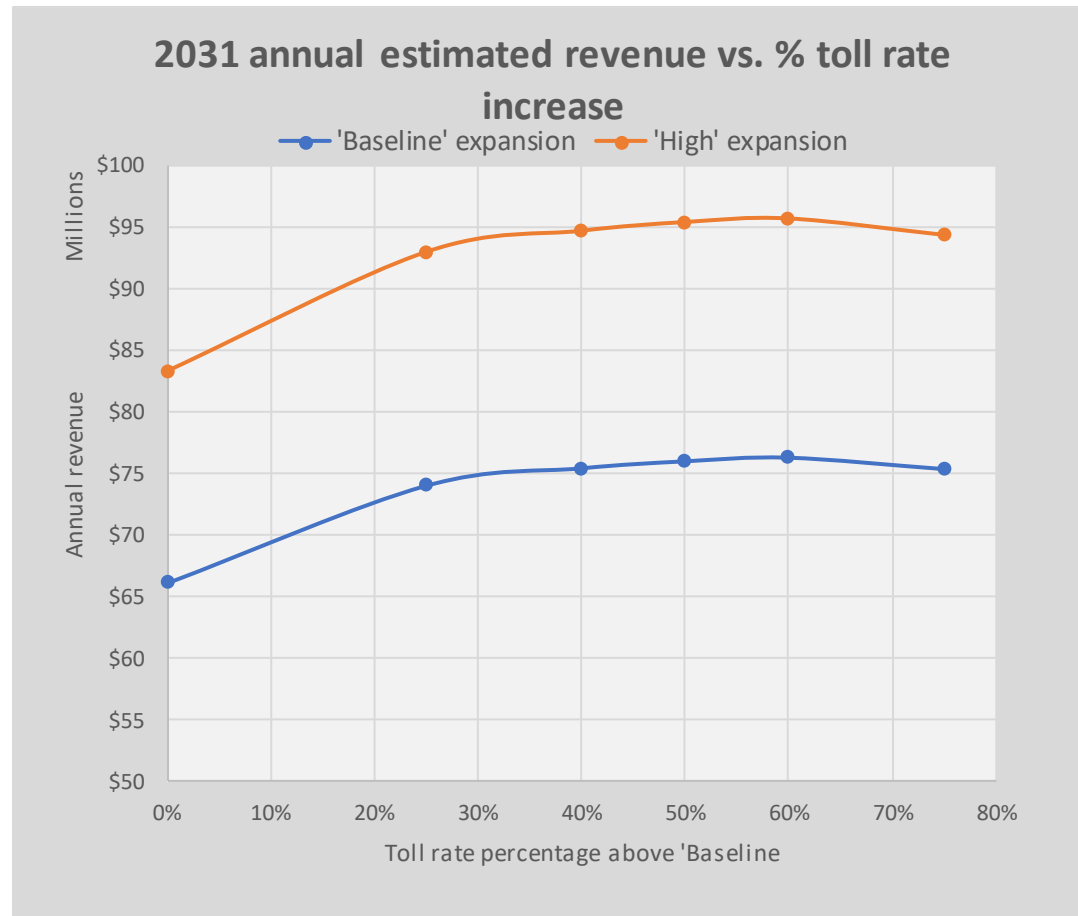
Key results: 2031 estimated toll rates/utilization/revenue

Toll rates ¹	Annual utilization (million veh-km)		Annual revenue (\$million)	
	'Baseline' expansion	'High' expansion	'Baseline' expansion	'High' expansion
Untolled	326.7	424.2	0	0
Baseline ¹	246.3	319.4	66.1	83.3
Baseline +25%	225.6	292.3	74.0	93.0
Baseline +40%	207.6	268.9	75.4	94.7
Baseline +50%	195.4	253.0	76.0	95.4
Baseline +60%	185.1	239.5	76.3	95.7
Baseline +75%	169.8	219.6	75.4	94.3

Notes:

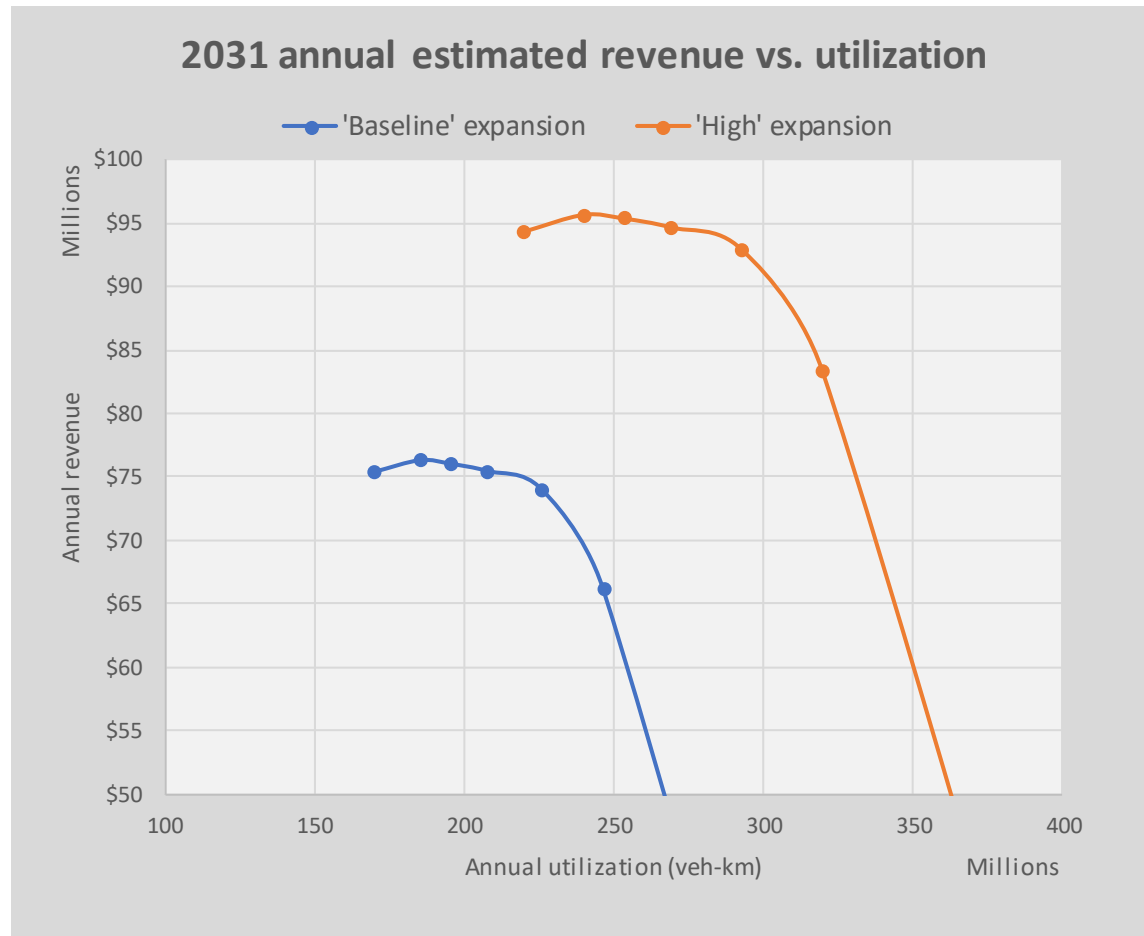
1. The baseline toll rates are those used by MTO for Hwy 407 East
2. Revenue is gross revenue - tolling-related costs have not been accounted for

Key results: Annual revenue vs. toll rates



Note: Revenue is gross revenue – tolling-related costs have not been accounted for

Key results – Annual revenue vs utilization



Note: Revenue is gross revenue – tolling-related costs have not been accounted for

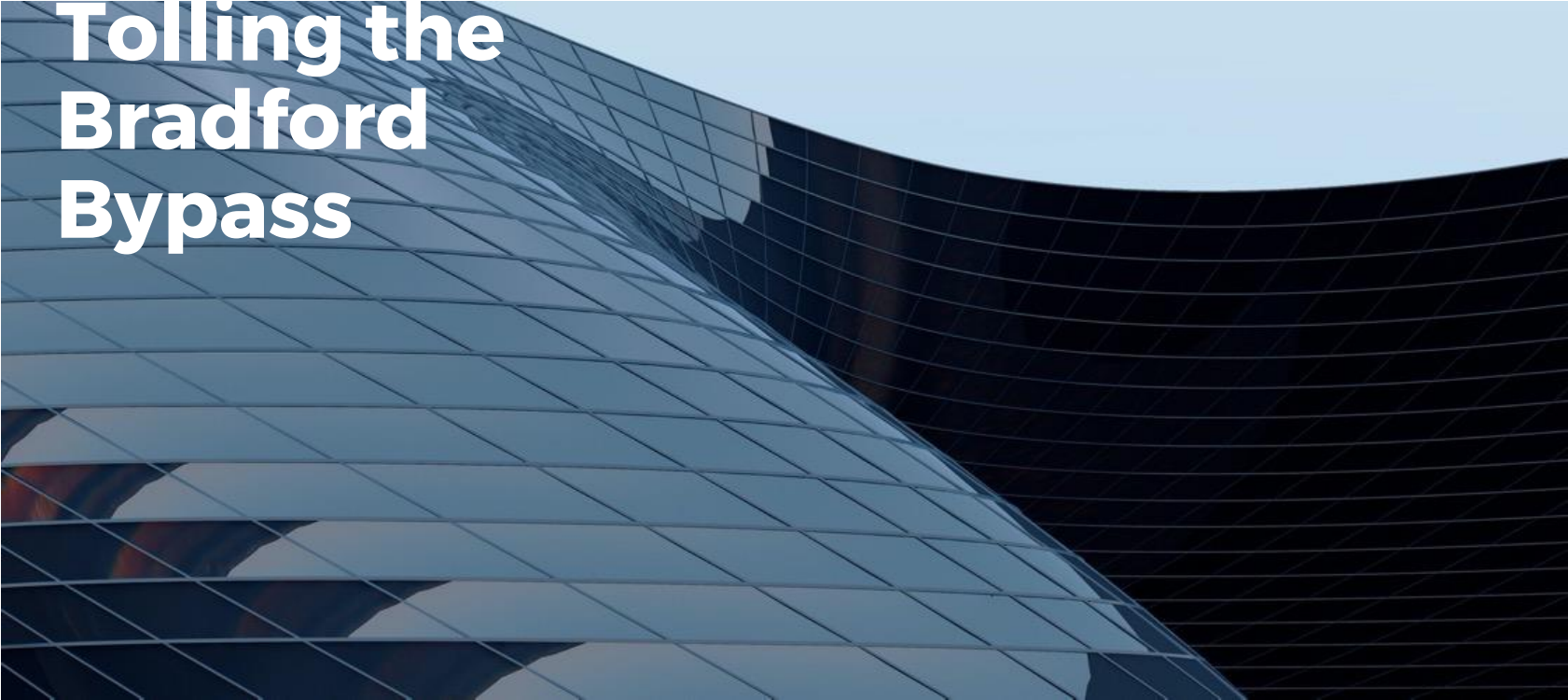
Next steps

- Evaluate 2041 scenarios
- Identify and run sensitivity scenarios
- Identify 3 scenarios for business case development
 - *Estimate benefits/disbenefits associated with tolling (travel time cost, vehicle operating cost, collision cost)*
 - *Estimate costs associated with tolling implementation and operation*
 - *Develop business case (financial, economic, strategic)*
- Undertake screenline analysis to assess changes in area traffic patterns resulting from tolling of the Bypass

Thank you!

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A photograph of a modern building's facade, featuring a grid of dark blue panels that curve away from the viewer, creating a sense of depth and perspective. The sky is a clear, light blue.

Tolling the Bradford Bypass

Update on Business Case Analysis
July 28, 2021



Evaluation parameters

- Business case evaluation (economic and financial) focuses on the tolling of the highway – tolled Bypass vs. untolled Bypass
 - Incorporates capital and operating costs associated with tolling the Bypass
 - Does not incorporate the construction and operation of the Bypass itself
- A supplementary capital recovery (payback) period evaluation also includes the capital (e.g. construction) and operating costs associated with the Bypass itself
- Three business case scenarios have been evaluated:
 1. Baseline toll rates (from Highway 407 East/412/418)
 2. Baseline toll rates + 25%
 3. Baseline toll rates +50%

Expansion of VHT from AM peak hour to annual level

- In contrast to VKT, where count data is available, there is no similar hourly distribution of VHT from which to develop an expansion process
- We looked at the outputs from the HOTL study which generated 15-hour distributions – however the VHT distributions examined showed the effects of these being radial corridors with significant metering outbound during the PM peak period and were not considered representative
- The fallback position - actually used in this case - was to apply the VKT expansion process to VHT
 - Since the facilities primarily carrying the difference in travel between the untolled and tolled scenarios are not significantly congested, this is considered to be a reasonable approximation.

VKT and VHT results

- AM peak hour - entire CGHM network - baseline toll rates

Scenario		Untolled	Tolled	Difference
2031	VKT	31,717,000	31,709,000	-8,000 (-0.03%)
	VHT	736,700	737,000	+310 (+0.04%)
2041	VKT	36,074,000	36,053,000	-21,100 (-0.06%)
	VHT	952,400	953,500	+1,100 (+0.1%)

- Tolling the Bypass results in (2031):
 - a decrease in VKT on the Bypass (-22,910)
 - a net increase in VKT on other highways/roads (14,960)
- From this, it is apparent that toll-paying drivers travel 7,940 additional km during the AM peak hour in order to use the tolled Bypass and save time (break even at a minimum)
- This plays a role in the benefit cost results and their interpretation:

Economic business case

These numbers:

- *Are based on calculated expansion factors (are based on MTO expansion factors (avg. weekday to annual))*
- *are discounted at 3.5%*

Present value M\$2020		Baseline tolls	Baseline tolls + 25%	Baseline tolls + 50%
Travel time	disbenefit	-816 (-783)	-986 (-943)	-1181 (-1133)
Operating cost	benefit	+210 (+196)	+231 (+216)	+258 (+241)
Fuel consumption	benefit	+45.3 (+42.8)	+48.2 (+45.5)	+53.2 (+50.5)
Emissions	benefit	+14.0 (+13.3)	+15.0 (+14.2)	+16.6 (+15.8)
Collisions	benefit	+20.4 (+18.4)	+22.7 (+20.5)	+25.2 (+22.7)
Total benefits	disbenefit	-526 (-512)	-669 (-647)	-828 (-803)
Total costs	cost	-156	-165	-173
NPV		-682 (-667)	-834 (-812)	-1,001 (-976)

*Since the benefits are negative, reporting of a B/C ratio is of questionable relevance
The benefits are incidental - neither an intended nor expected result of tolling.*

Financial business case – considers only tolling-related capital and operating costs

M\$2020	Baseline tolls	Baseline tolls + 25%	Baseline tolls + 50%
Capital costs (2028-2030)	23.8	23.8	23.8
Operating costs (over 30 years)	337	358	380
Tolling revenue (over 30 years)	3,011	3,221	3,436
Present value of net cash flow (discounted)	1,072	1,154	1,226
Capital recovery/Payback period <i>relative to assumed 2028 start of construction (relative to 2031 opening)</i>	3.4 years (0.4 years)	3.4 years (0.4 years)	3.4 years (0.4 years)
<i>Year Cumulative Present Value of Net Cash Flow turns positive</i>	2031	2031	2031

- *These numbers are undiscounted unless noted (NPV)*
- *Only considers tolling-related costs*
- *Payback period occurs in first year revenue is collected (2031).*

Financial business case – Bypass infrastructure cost estimate

- Cost estimate for Bypass infrastructure are not yet available from EA/PD assignment
- Except for the tolling infrastructure costs, the costs assumed here are speculative guesstimates for illustrative purposes only (placeholders) –MTO’s Parametric Estimating Guide was used BUT the inputs to that process are entirely speculative:
- Construction (2026-2030 assumed)
 - Mainline \$73M
 - Bridges \$295M
 - Culverts \$80M
 - Tolling infrastructure \$23.8M
 - Engineering, lighting, signs, etc. +14%
 - Total \$540M
- Widening (2038-2040 assumed)
 - Widening to 8 lanes \$139M

Financial business case –considers Bypass and tolling-related capital and operating costs

M\$2020	Baseline tolls	Baseline tolls + 25%	Baseline tolls + 50%
Capital costs (2026-2030)	676	676	676
Operating costs (over 30 years)	1943	1964	1986
Tolling revenue (over 30 years)	3,011	3,221	3,436
Present value of net cash flow (discounted)	-61.1	20.6	92.1
Capital recovery (Payback) period <i>relative to assumed 2026 start of construction (relative to 2031 opening)</i>	39.3 years (34.3 years)	33.6 years (28.6 years)	29.9 years (24.9 years)
<i>Internal Rate of Return (IRR)</i>	2.6%	3.8%	4.7%

- *These numbers are undiscounted unless noted (NPV).*
- *Bypass capital costs (except for tolling costs) are highly speculative.*

Thank-you!

From: [Remollino, Dan \(MTO\)](#)
To: [Chu, Kelvin \(IO\)](#)
Cc: [Adriano, Nancy \(MTO\)](#); [Politano, Lou \(IO\)](#); [Pasqua, Michelle \(MTO\)](#)
Subject: Bradford Bypass
Date: October 13, 2021 7:50:32 AM
Importance: High

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Hi Kelvin

We now have direction to share updating costing information for BBP and work with IO to update the budget for BBP. Nancy will be setting up a meeting for early next week. Can you please advise who should attend from IO.

We will need to provide update by the end of November or sooner

Thanks

Dan

Dan Remollino P.Eng.
416 523-4937 Cell

From: [Chu, Kelvin \(IO\)](#)
To: [Politano, Lou \(IO\)](#)
Subject: Bradford latest
Date:
Attachments: [FIPPA s. 18](#)
[image001.png](#)

Regards,



Kelvin Chu, P.Eng
Infrastructure Ontario
Director, Roads and Special Projects

kelvin.chu@infrastructureontario.ca

Mobile: 416-436-9192

www.infrastructureontario.ca

Follow IO at:   

From: [Politano, Lou \(IO\)](#)
To: [Sheung, Allan \(IO\)](#)
Cc: [Ho, David](#); [Donoghue, Dan \(IO\)](#); [Chu, Kelvin \(IO\)](#)
Subject: Braford Bypass - 3rd party cost estimate
Date: November 8, 2021 2:35:04 PM

Allan,

We been asked to develop a cost estimate by a 3rd party for the Bradford Bypass. MTO will require the estimate and budget Jan 21 +/-.

The estimate will be based on info that is know so far, so the appropriate level of contingencies will need to be built in. (The full scope of the project may not be established until fall 2022)

We will need a base construction cost, DBF and DBFM cost.

I spoke with David and IO fully supports us providing this to MTO.

Please let me know:

1. Info required from MTO
2. Approach for procuring cost consultant
 - Schedule for cost consultant procurement and costing (Including any key milestones, workshops, drafts)
3. Cost of undertaking
4. Next steps

Will it be possible to have this info by tomorrow morning, please?

Thanks

Lou

From: [DesignationOntario \(IAAC/AEIC\)](#)
To: Thomas.Hoggarth@dfo-mpo.gc.ca; [Eddy, Sara](#); Lisa.Wren@dfo-mpo.gc.ca; [McKay, Jennifer \(EC\)](#); [Lusk, Sheryl \(EC\)](#); [Plant, Wesley \(EC\)](#); [Roberge, Chantal \(HC/SC\)](#); [Ma, Kitty \(HC/SC\)](#); [Akhtar, Umme \(HC/SC\)](#); [Clarke, John \(NRCAN/RNCAN\)](#); [Lenghan, Marie-Eve \(NRCAN/RNCAN\)](#); [Smith, Walker \(NRCAN/RNCAN\)](#); vera.haslett@tc.gc.ca; jeremy.craigs@tc.gc.ca; david.zeit@tc.gc.ca; [Politano, Lou \(IO\)](#); [Martin, Andrea \(OMAFRA\)](#); [Doncaster, Michele \(OMAFRA\)](#); [O'Neill, Kathleen \(MECP\)](#); [Battarino, Gavin \(MECP\)](#); [Downing, Gavin \(MHSTCI\)](#); [Hatcher, Laura \(MHSTCI\)](#); [Downarowicz, Ewa \(MMAH\)](#); [Miller, Laurie \(MMAH\)](#); [Rew, Sharon \(NDMNR\)](#); regional.clerk@york.ca; brian.titherington@york.ca; jsharma@newmarket.ca; twebster@eastgwillimbury.ca; mmolinari@eastgwillimbury.ca; dkostopoulos@king.ca; sfraser@king.ca; christian.meile@simcoe.ca; gmcknight@townofbwg.com
Subject: Designation Request Decision for the Bradford Bypass Project under the Impact Assessment Act
Date: May 3, 2021 1:41:36 PM

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Good afternoon,

On February 3, 2021, the Minister of Environment and Climate Change (the Minister) received a request to designate the Bradford Bypass Project (the Project) under subsection 9(1) of the *Impact Assessment Act* (IAA).

On May 3, 2021, the Minister decided that the Project does not warrant designation pursuant to subsection 9(1) of IAA.

The Impact Assessment Agency of Canada (the Agency), in its analysis to support the Minister, considered the information provided by the Ontario Ministry of Transportation, advice from federal authorities, input from provincial ministries, the views of potentially affected municipalities and Indigenous groups, concerns expressed in the requesters' letters and other public concerns that are known to the Agency.

The Minister's Response with reasons and the Agency's Analysis Report are available on the Canadian Impact Assessment Registry Internet site (Reference number 81382): <https://iaac-aeic.gc.ca/050/evaluations/proj/81382>.

Federal authorities, provincial ministries, and municipal officials with regulatory responsibilities, consistent with information provided to the Agency, are invited to visit the Registry Internet site to view the public and Indigenous comments submitted on the Project and consider them, as appropriate, in support of their regulatory roles.

Further questions can be directed to Conor Anderson, Project Manager, who may be reached by phone at 416-735-1673 or by email at iaac.designationontario.aeic@canada.ca.

Sincerely,

Sean Carriere
A/Regional Director, Ontario Region

From: [Ontario Region / Region d"Ontario \(IAAC/AEIC\)](#)
To: [Politano, Lou \(IO\)](#); [Martin, Andrea \(OMAFRA\)](#); [O'Neill, Kathleen \(MECP\)](#); [Downing, Gavin \(MHSTCI\)](#); [Downarowicz, Ewa \(MMAH\)](#); [Rew, Sharon \(NDMNR\)](#)
Cc: [Miller, Laurie \(MMAH\)](#); [Barboza, Karla \(MHSTCI\)](#); [Doncaster, Michele \(OMAFRA\)](#); [Anderson, Conor \(IAAC/AEIC\)](#)
Subject: Designation Request for the Proposed Bradford Bypass Project under the Impact Assessment Act
Date: February 12, 2021 5:24:18 PM
Attachments: [FIPPA s. 18](#)

Good afternoon:

On behalf of Anjala Puvananathan, please see the attached letter regarding the Bradford Bypass Project, for which the Impact Assessment Agency of Canada has received a request to designate the Project under subsection 9(1) of the *Impact Assessment Act*.

Given the legislated timeline to respond to the designation request, the Agency made two requests in the attached letter:

Request 1: Provide a lead contact for the Project by **Wednesday, February 17, 2021**.

Request 2: Complete and submit the form requesting advice from your ministry attached with the letter no later than **Wednesday, March 3, 2021**.

To facilitate your review of the information beyond the original letter from the requestor (Enclosure 1) and information from the Ontario Ministry of Transportation (the proponent) that is publicly available, the Agency has asked the proponent to provide any recent, relevant documents regarding the Project by February 17, 2021. The Agency will provide you these documents as soon as they are available.

Any questions or correspondences related to the content of the attached letter should be forwarded to Conor Anderson, Project Manager at Conor.Anderson@canada.ca or 4167351673. Conor has also been copied on this message.

Sincerely,

Jeremy Schultz

Jeremy Schultz
(he/him/il)

Administrative Officer, Ontario Region
Impact Assessment Agency of Canada / Government of Canada
Jeremy.Schultz@canada.ca / Tel: 416-553-6513

From: [Politano, Lou \(IO\)](#)
To: [Chu, Kelvin \(IO\)](#); [Rizwan, Fahad \(IO\)](#)
Subject: Designation Request for the Proposed Bradford Bypass Project under the Impact Assessment Act
Date: February 17 2021 10:03:00 AM
Attachments: FIPPA s. 18

Bradford Bypass

Can you guys complete the form attached, and please arrange a meeting with me to discuss completed form by end of Feb?

Thanks

From: Ontario Region / Region d'Ontario (IAAC/AEIC) <iaac.ontarioregion-regiondontario.aeic@canada.ca>
Sent: February 12, 2021 5:17 PM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Martin, Andrea (OMAFRA) <Andrea.L.Martin@ontario.ca>; O'Neill, Kathleen (MECP) <Kathleen.Oneill@ontario.ca>; Downing, Gavin (MHSTCI) <Gavin.Downing@ontario.ca>; Downarowicz, Ewa (MMAH) <Ewa.Downarowicz@ontario.ca>; Rew, Sharon (MNRF) <sharon.rew@ontario.ca>
Cc: Miller, Laurie (MMAH) <Laurie.Miller@ontario.ca>; Barboza, Karla (MHSTCI) <Karla.Barboza@ontario.ca>; Doncaster, Michele (OMAFRA) <michele.doncaster@ontario.ca>; Anderson, Conor (IAAC/AEIC) <conor.anderson@canada.ca>
Subject: Designation Request for the Proposed Bradford Bypass Project under the Impact Assessment Act

Good afternoon:

On behalf of Anjala Puvananathan, please see the attached letter regarding the Bradford Bypass Project, for which the Impact Assessment Agency of Canada has received a request to designate the Project under subsection 9(1) of the *Impact Assessment Act*.

Given the legislated timeline to respond to the designation request, the Agency made two requests in the attached letter:

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Any questions or correspondences related to the content of the attached letter should be forwarded to Conor Anderson, Project Manager at Conor.Anderson@canada.ca or 4167351673. Conor has also been copied on this message.

Sincerely,

Jeremy Schultz

Jeremy Schultz
(he/him|il)

Administrative Officer, Ontario Region
Impact Assessment Agency of Canada / Government of Canada
Jeremy.Schultz@canada.ca / Tel: 416-553-6513

From: [Politano, Lou \(IO\)](#)
To: [Dhushy, Amy \(IO\)](#)
Subject: FW: Bradford Bypass - tolling
Date: January 13, 2022 10:01:42 AM
Attachments: [image001.png](#)

From: Politano, Lou (IO)
Sent: July 6, 2021 11:09 AM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>
Subject: RE: Bradford Bypass - tolling

We haven't had an update from MTO on tolling for a couple of months now. Not sure MTO is looking at technologies for Bradford. They were only doing a revenue study. (we had flagged that they should do a tech study as well)

Craig...any updates that I haven't been involved with?.

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: July 6, 2021 10:33 AM
To: Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>
Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: Bradford Bypass - tolling

Gents,

Are you guys still involved in the tolling study for the Bradford Bypass?

My understanding relating to the latest finding is that the current technologies (used on H407) will not be cost effective and for implementing on Bradford. I'm wondering if there are other methods and still ongoing assessment to be done for Fall MYP for this project?

Regards,



Kelvin Chu, P.Eng
Infrastructure Ontario
Director, Roads and Special Projects

kelvin.chu@infrastructureontario.ca
Mobile: 416-436-9192
www.infrastructureontario.ca

Follow IO at:



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To: [Dhushy, Amy \(IO\)](#)
Subject: FW: Bradford Bypass - tolling
Date: January 13, 2022 10:01:42 AM
Attachments: [image001.png](#)

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Sent: July 6, 2021 11:09 AM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>
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Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: Bradford Bypass - tolling

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My understanding relating to the latest finding is that the current technologies (used on H407) will not be cost effective and for implementing on Bradford. I'm wondering if there are other methods and still ongoing assessment to be done for Fall MYP for this project?

Regards,



Kelvin Chu, P.Eng
Infrastructure Ontario
Director, Roads and Special Projects

kelvin.chu@infrastructureontario.ca
Mobile: 416-436-9192
www.infrastructureontario.ca

Follow IO at:



From: [Chu, Kelvin \(IO\)](#)
To: [Politano, Lou \(IO\)](#)
Subject: FW: Bradford Bypass Construction Cost Estimate and Budget Table
Date: October 19, 2021 5:23:08 PM
Attachments: FIPPA s. 18

From: Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>
Sent: October 19, 2021 4:51 PM
To: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>; White, Jason (MTO) <Jason.White@ontario.ca>; Kalali, Salia (MTO) <Salia.Kalali@ontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>; Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>
Subject: Bradford Bypass Construction Cost Estimate and Budget Table

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

IO Team,

Further to our meeting today, attached are the preliminary construction cost estimate and budget mark-up.

Please review the assumptions and populate the DOAT table.

I understand this is now required to be completed by end of day tomorrow and we will discuss Thursday.

Thank you,
Nancy

From: [Dhushy, Amy \(IO\)](#)
To: [Politano, Lou \(IO\)](#)
Subject: FW: Bradford Bypass Market Sounding - Kick Off Meeting
Date: November 10, 2021 3:34:31 PM
Attachments: [FIPPA s. 13, s. 18](#)

Thoughts? Confirmation on whom I should extend/replace the invite to?

From: Ho, David <David.Ho@infrastructureontario.ca>
Sent: November 10, 2021 3:32 PM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Dhushy, Amy (IO) <Amy.Dhushy@infrastructureontario.ca>
Subject: RE: Bradford Bypass Market Sounding - Kick Off Meeting

Hi Amy

Would suggest an expanded the invite list per attached
Uncertain that this requires Craig L at all if Chris Langford attends.

David Ho (he, him)
Infrastructure Ontario
Executive Vice President, Procurement and Program Management
david.ho@infrastructureontario.ca
+1 416 357 9542

-----Original Appointment-----

From: Dhushy, Amy (IO) <Amy.Dhushy@infrastructureontario.ca> **On Behalf Of** Politano, Lou (IO)
Sent: November 10, 2021 3:27 PM
To: Ho, David; Traianopoulos, John; Townley, Danielle (IO); Lorentz, Craig; Chu, Kelvin (IO)
Subject: Bradford Bypass Market Sounding - Kick Off Meeting
When: November 15, 2021 2:45 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Agenda:

- Delivery Model
- MTCE/OPS/Lifecycle: 16km, 4 lane
- Procurement Structure
- Areas of Risk Transfer
- Construction Schedule
- Areas of Innovation
- Market Sense of Cost
- Market Capacity
- Tolling
- Other

Your efforts to have this time-sensitive meeting accommodated into your calendar is much appreciated.

Thanks,
Lou

Microsoft Teams meeting

Join on your computer or mobile app

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Or call in (audio only)

[+1 647-749-9436,412594370#](#) Canada, Toronto

[\(844\) 597-7587,412594370#](#) Canada (Toll-free)

Phone Conference ID: **FIPPA s. 18**

[Find a local number](#) | [Reset PIN](#)

[Learn More](#) | [Meeting options](#)

From: [Politano, Lou \(IO\)](#)
To: [Dhushy, Amy \(IO\)](#)
Cc: [Chu, Kelvin \(IO\)](#)
Subject: FW: Bradford Bypass
Date: October 22, 2021 9:06:00 AM
Attachments: [image001.png](#)

Amy, can you line up a ½ hr meeting later this am or today with
Angela, Bruce
David
Kelvin , me

To discuss estimate for Bradford bypass

Thnx

From: Ho, David <David.Ho@infrastructureontario.ca>
Sent: October 22, 2021 8:38 AM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: Bradford Bypass

Can you schedule an update for Angela & Bruce? Or send them a note with me copied that the 4 of us should touch base?

Will make sense given that I had to catch Michael in the hall at the end of the day yesterday before we spoke.



David Ho (he, him)


Infrastructure Ontario

Executive Vice President, Procurement and Program Management

david.ho@infrastructureontario.ca

+1 416 357 9542

www.infrastructureontario.ca

Follow IO at:   

From: [Politano, Lou \(IO\)](#)
To: [Dhushy, Amy \(IO\)](#)
Subject: FW: Designation Request Decision for the Bradford Bypass Project under the Impact Assessment Act
Date: January 13, 2022 10:01:32 AM

From: Politano, Lou (IO)
Sent: May 5, 2021 9:59 AM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>
Subject: FW: Designation Request Decision for the Bradford Bypass Project under the Impact Assessment Act

From: DesignationOntario (IAAC/AEIC) <iaac.designationontario.aeic@canada.ca>
Sent: May 3, 2021 1:41 PM
To: Thomas.Hoggarth@dfo-mpo.gc.ca; Eddy, Sara <Sara.Eddy@dfo-mpo.gc.ca>; Lisa.Wren@dfo-mpo.gc.ca; McKay, Jennifer (EC) <jennifer.mckay@canada.ca>; Lusk, Sheryl (EC) <sheryl.lusk@canada.ca>; Plant, Wesley (EC) <wesley.plant@canada.ca>; Roberge, Chantal (HC/SC) <chantal.roberge@canada.ca>; Ma, Kitty (HC/SC) <kitty.ma@canada.ca>; Akhtar, Umme (HC/SC) <umme.akhtar@canada.ca>; Clarke, John (NRCAN/RNCAN) <john.clarke@canada.ca>; Lenghan, Marie-Eve (NRCAN/RNCAN) <marie-eve.lenghan@canada.ca>; Smith, Walker (NRCAN/RNCAN) <walker.smith@canada.ca>; vera.haslett@tc.gc.ca; jeremy.craigs@tc.gc.ca; david.zeit@tc.gc.ca; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Martin, Andrea (OMAFRA) <Andrea.L.Martin@ontario.ca>; Doncaster, Michele (OMAFRA) <michele.doncaster@ontario.ca>; O'Neill, Kathleen (MECP) <Kathleen.Oneill@ontario.ca>; Battarino, Gavin (MECP) <Gavin.Battarino@ontario.ca>; Downing, Gavin (MHSTCI) <Gavin.Downing@ontario.ca>; Hatcher, Laura (MHSTCI) <Laura.E.Hatcher@ontario.ca>; Downarowicz, Ewa (MMAH) <Ewa.Downarowicz@ontario.ca>; Miller, Laurie (MMAH) <Laurie.Miller@ontario.ca>; Rew, Sharon (MNRF) <sharon.rew@ontario.ca>; regional.clerk@york.ca; brian.titherington@york.ca; jsharma@newmarket.ca; twebster@eastwillimbury.ca; mmolinari@eastwillimbury.ca; dkostopoulos@king.ca; sfraser@king.ca; christian.meile@simcoe.ca; gmcknight@townofbwg.com
Subject: Designation Request Decision for the Bradford Bypass Project under the Impact Assessment Act

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Good afternoon,

On February 3, 2021, the Minister of Environment and Climate Change (the Minister) received a request to designate the Bradford Bypass Project (the Project) under subsection 9(1) of the *Impact Assessment Act* (IAA).

On May 3, 2021, the Minister decided that the Project does not warrant designation pursuant to

subsection 9(1) of IAA.

The Impact Assessment Agency of Canada (the Agency), in its analysis to support the Minister, considered the information provided by the Ontario Ministry of Transportation, advice from federal authorities, input from provincial ministries, the views of potentially affected municipalities and Indigenous groups, concerns expressed in the requesters' letters and other public concerns that are known to the Agency.

The Minister's Response with reasons and the Agency's Analysis Report are available on the Canadian Impact Assessment Registry Internet site (Reference number 81382): <https://iaac-aeic.gc.ca/050/evaluations/proj/81382>.

Federal authorities, provincial ministries, and municipal officials with regulatory responsibilities, consistent with information provided to the Agency, are invited to visit the Registry Internet site to view the public and Indigenous comments submitted on the Project and consider them, as appropriate, in support of their regulatory roles.

Further questions can be directed to Conor Anderson, Project Manager, who may be reached by phone at 416-735-1673 or by email at iaac.designationontario.aeic@canada.ca.

Sincerely,

Sean Carriere
A/Regional Director, Ontario Region

From: [Politano, Lou \(IO\)](#) on behalf of [MTO-DMO calendar](#)
To: [Lindsay, Michael \(IO\)](#); [Ho, David](#); [Politano, Lou \(IO\)](#); [Clayton, Angela \(IO\)](#); [Chu, Kelvin \(IO\)](#); [Chinniah, Kanivanan \(MTO\)](#); [Amato, Ryan \(MTO\)](#); [Lloyd, Rhiannon \(MTO\)](#); [LeBlanc, Laurie \(MTO\)](#); [Kim, Michelle \(MTO\)](#); [Oliverio, Stefano \(MTO\)](#); [Graham Harkness, Jennifer \(MTO\)](#); [McInnis, Steven \(MTO\)](#); [Remollino, Dan \(MTO\)](#); [White, Jason \(MTO\)](#); [Aujla, Ramneet \(MTO\)](#); [Fung, Felix \(MTO\)](#)
Cc: [Vanek, Denise \(MTO\)](#); [DeRuyter, Michael \(MTO\)](#); [Rudra, Malvika \(MTO\)](#); [Leader, Janet \(MTO\)](#); [McKellar, Kara \(MTO\)](#); [Stokes, Mandy \(MTO\)](#); [Chung, Andrew \(MTO\)](#); [Pasqua, Michelle \(MTO\)](#)
Subject: FW: MO briefing: Bradford Bypass Update
Attachments: [FIPPA s. 12, s. 13, s. 18](#)

-----Original Appointment-----

From: MTO-DMO calendar <MTO DMOcalendar@ontario.ca>
Sent: November 1, 2021 10:05 AM
To: MTO-DMO calendar; Politano, Lou (IO); Chu, Kelvin (IO); Chinniah, Kanivanan (MTO); Amato, Ryan (MTO); Lloyd, Rhiannon (MTO); LeBlanc, Laurie (MTO); Kim, Michelle (MTO); Oliverio, Stefano (MTO); Graham Harkness, Jennifer (MTO); McInnis, Steven (MTO); Remollino, Dan (MTO); White, Jason (MTO); Aujla, Ramneet (MTO); Fung, Felix (MTO)
Cc: Vanek, Denise (MTO); DeRuyter, Michael (MTO); Rudra, Malvika (MTO); Leader, Janet (MTO); McKellar, Kara (MTO); Stokes, Mandy (MTO); Chung, Andrew (MTO); Pasqua, Michelle (MTO)
Subject: MO briefing: Bradford Bypass Update
When: November 1, 2021 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada)
Where: Microsoft Teams Meeting

CAUTION: This email originated from outside of Infrastructure Ontario Do not click links or open attachment(s) unless you recognize the sender and know the content is safe

Material attached

Microsoft Teams meeting

Join on your computer or mobile app

Click here to join the meeting <[Join with a video conferencing device](https://urldefense.com/v3/_https://teams.microsoft.com/l/meetup-join/19*3ameeting_MGY1NmQ3OGUtYWU3YS00YjJlTg5MzltZWYwOTHmNmQxYjNj*40threadv2/0?context=*7b*22Tid*22*3a*22cddc1229-ac2a-4b97-b78a-0e5cacb5865c*22*2c*22Oid*22*3a*2296284aa3-77dc-4435-be5d-d9265e8216aa*22*7d_!JSUIJSUIJSUIJSUIJSUI!!BXdC7eTow7XU2BLsN2pL!R61uRPe6doXciJlA6jxTDgYHY_CVl-3k0wqqnvOydtGLEy8y3cVosesuecewqK0bGqvg8rWjsqFbNeo$>></p></div><div data-bbox=)

teams@msteams.ontario.ca <<mailto:teams@msteams.ontario.ca>>

Video Conference ID [FIPPA s. 18](#)

Alternate VTC instructions

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<\[https://urldefense.com/v3/_https://teams.microsoft.com/meetingOptions/?organizerId=96284aa3-77dc-4435-be5d-d9265e8216aa&tenantId=cddc1229-ac2a-4b97-b78a-0e5cacb5865c&threadId=19_meeting_MGY1NmQ3OGUtYWU3YS00YjJlTg5MzltZWYwOTHmNmQxYjNj@threadv2&messageId=0&language=en-US_!!BXdC7eTow7XU2BLsN2pL!R61uRPe6doXciJlA6jxTDgYHY_CVl-3k0wqqnvOydtGLEy8y3cVosesuecewqK0bGqvg8rWjeD0pT9Q\\\$>\]\(https://urldefense.com/v3/_https://teams.microsoft.com/meetingOptions/?organizerId=96284aa3-77dc-4435-be5d-d9265e8216aa&tenantId=cddc1229-ac2a-4b97-b78a-0e5cacb5865c&threadId=19_meeting_MGY1NmQ3OGUtYWU3YS00YjJlTg5MzltZWYwOTHmNmQxYjNj@threadv2&messageId=0&language=en-US_!!BXdC7eTow7XU2BLsN2pL!R61uRPe6doXciJlA6jxTDgYHY_CVl-3k0wqqnvOydtGLEy8y3cVosesuecewqK0bGqvg8rWjeD0pT9Q\$>\)>](https://urldefense.com/v3/_https://pexip.me/teams/msteams.ontario.ca/1121917679_!!BXdC7eTow7XU2BLsN2pL!R61uRPe6doXciJlA6jxTDgYHY_CVl-3k0wqqnvOydtGLEy8y3cVosesuecewqK0bGqvg8rWjFIOFYI$>></p></div><div data-bbox=)

From: [Chu, Kelvin \(IO\)](#)
To: [Rizwan, Fahad \(IO\)](#)
Cc: [Politano, Lou \(IO\)](#)
Subject: FW: Procurement Schedule - Bradford Bypass
Date: November 5, 2021 12:39:07 PM
Importance: High

Fahad, can you send me the latest procurement schedule put together for Bradford?

Thanks,

K

From: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>
Sent: November 5, 2021 12:36 PM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Cc: White, Jason (MTO) <Jason.White@ontario.ca>; Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>
Subject: Procurement Schedule - Bradford Bypass
Importance: High

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Hi Lou and Kelvin

We have been asked to provide an update procurement schedule for BPP assuming an RFQ release in Spring 2022. Can you please start to put together key dates / milestones assuming a P3 procurement.

I will set up time on Monday morning to discuss further – we have been asked to provide by EOD Monday

Thanks

Dan

Dan Remollino P.Eng.
416 523-4937 Cell

From: [Politano, Lou \(IO\)](#)
To: [Dhushy, Amy \(IO\)](#)
Subject: FW: Tolling - Bradford Bypass and Provincial Strategy Touchpoint
Date: January 13, 2022 10:01:21 AM
Attachments: [Bradford Bypass tolling evaluation progress 200421.pdf](#)

From: Politano, Lou (IO)
Sent: April 29, 2021 4:22 PM
To: Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>
Cc: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Subject: FW: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

Chris, will you be preparing comments?
Kelvin, pl review
thnx

From: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>
Sent: April 26, 2021 1:27 PM
To: Graham, Sheri (MTO) <Sheri.Graham@ontario.ca>; Deletsu, Jeanne-Marie (MTO) <Jeanne-Marie.Deletsu@ontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>; Kalali, Salia (MTO) <Salia.Kalali@ontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Yuen, Vivian (MTO) <Vivian.Yuen@ontario.ca>; Bailey, Sandra (MTO) <Sandra.Bailey@ontario.ca>; Curtis, Calvin (MTO) <Calvin.Curtis@ontario.ca>; Nichol, Susan (MTO) <Susan.Nichol@ontario.ca>; Liegler, Brenda (MTO) <Brenda.Liegler@ontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Kuzmanovic, Sanja (MTO) <Sanja.Kuzmanovic@ontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>; De Decker, Sarah (MTO) <Sarah.DeDecker@ontario.ca>
Cc: McGowan, Sarah (IO) <Sarah.McGowan@infrastructureontario.ca>; Lau, Johnson (MTO) <Johnson.Lau@ontario.ca>
Subject: RE: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

Hi Everyone

Further to my email below – Jeanne-Marie and Sheri would appreciate feedback/comments on what has been done to date and to know if any specific additional sensitivity scenarios has been identified so we can add to the list of scenarios to be undertaken. Also - if there is a preference on scenarios to carry forward for business case development.

Please provide any comments you have directly to Jeanne-Marie and Sheri.

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: Remollino, Dan (MTO)

Sent: April 20, 2021 2:21 PM

To: Graham, Sheri (MTO) <Sheri.Graham@ontario.ca>; Deletsu, Jeanne-Marie (MTO) <Jeanne-Marie.Deletsu@ontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>; Kalali, Salia (MTO) <Salia.Kalali@ontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Yuen, Vivian (MTO) <Vivian.Yuen@ontario.ca>; Bailey, Sandra (MTO) <Sandra.Bailey@ontario.ca>; Curtis, Calvin (MTO) <Calvin.Curtis@ontario.ca>; Nichol, Susan (MTO) <Susan.Nichol@ontario.ca>; Liegler, Brenda (MTO) <Brenda.Liegler@ontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Kuzmanovic, Sanja (MTO) <Sanja.Kuzmanovic@ontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>; De Decker, Sarah (IAO) <Sarah.DeDecker@ontario.ca>

Cc: McGowan, Sarah (IO) <Sarah.McGowan@infrastructureontario.ca>; Lau, Johnson (MTO) <Johnson.Lau@ontario.ca>

Subject: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

Hi Everyone – please see deck from our discussion today. Thank you Jeanne-Marie for the update today.

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: [Chu, Kelvin \(IO\) in Teams](#)
To: [Politano, Lou \(IO\)](#)
Subject: Kelvin sent a message
Date: October 20, 2021 9:18:53 AM
Attachments: [ATT00002.png](#)
[ATT00003.png](#)
[ATT00004.png](#)
[ATT00005.png](#)
[ATT00006.png](#)
[ATT00007.png](#)
[ATT00008.png](#)
[ATT00009.png](#)

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Hi,

Your teammates are trying to reach you in [Microsoft Teams](#).

Kelvin sent a message in chat

morning Lou. Regarding Bradford, please let me know your thoughts on Dan's proposed methodology and whether that'll...

[Reply in Teams](#)

Install Microsoft Teams now



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Android

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Microsoft



From: [Remollino, Dan \(MTO\)](#)
To: [Chu, Kelvin \(IO\)](#); [Politano, Lou \(IO\)](#)
Cc: [Adriano, Nancy \(MTO\)](#)
Subject: LOD/LOC for Bradford Bypass
Date: November 25, 2021 4:47:32 PM
Importance: High

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Hi Kelvin and Lou

Michelle just informed me that we would like to get a draft LOD / LOC (not sure which is applicable for Bradford at this stage) ready for early next week.

Kelvin and I shared emails earlier this week and Kelvin was going to start to draft LOD / LOC that contained the following:

- Market Sounding (assume in January 2022)
- Third Party Cost Review (assume final report end of January 2022)
- RFQ
- IO Services

We will need to get a draft ready for early next week – can you advise if it should be a LOD or a LOC? I will try to get some recent examples of both and send – if you have some that would be great as well – if you can provide.

Let me know if we need to have a discussion on the LOD / LOC so we can have ready for early next week.

Thanks

Dan

Dan Remollino P.Eng.
416 523-4937 Cell

From: [Politano, Lou \(IO\)](#)
To: [MTO-DMO calendar](#)
Subject: Meeting Forward Notification: MO briefing: Bradford Bypass Update

Your meeting was forwarded

Politano, Lou (IO) <[mailto:/o=ExchangeLabs/ou=Exchange%20Administrative%20Group%20\(FYDIBOHF23SPDLT\)/cn=Recipients/cn=e619e20e7c264e00a9083629c6078414-Lou%20Politan](mailto:/o=ExchangeLabs/ou=Exchange%20Administrative%20Group%20(FYDIBOHF23SPDLT)/cn=Recipients/cn=e619e20e7c264e00a9083629c6078414-Lou%20Politan)> has forwarded your meeting request to additional people.

Meeting

MO briefing: Bradford Bypass Update

Meeting Time

November 1, 2021 2:30 PM - November 1, 2021 3:00 PM

Recipients

Lindsay, Michael (IO) <[mailto:/o=ExchangeLabs/ou=Exchange%20Administrative%20Group%20\(FYDIBOHF23SPDLT\)/cn=Recipients/cn=d654cd5b3af64a4dbc8c81318a116bb4-Michael%20Lin](mailto:/o=ExchangeLabs/ou=Exchange%20Administrative%20Group%20(FYDIBOHF23SPDLT)/cn=Recipients/cn=d654cd5b3af64a4dbc8c81318a116bb4-Michael%20Lin)> ,Ho, David
<[mailto:/O=EXCHANGELABS/OU=EXCHANGE%20ADMINISTRATIVE%20GROUP%20\(FYDIBOHF23SPDLT\)/CN=RECIPIENTS/CN=DCBA3EFEE584230A1A6DDC30E880329-DAVID%20HO](mailto:/O=EXCHANGELABS/OU=EXCHANGE%20ADMINISTRATIVE%20GROUP%20(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DCBA3EFEE584230A1A6DDC30E880329-DAVID%20HO)> ,Clayton, Angela (IO)
<[mailto:/o=ExchangeLabs/ou=Exchange%20Administrative%20Group%20\(FYDIBOHF23SPDLT\)/cn=Recipients/cn=c592b3f79a874a7d93bfe4abc030a1c7-Angela%20Clay](mailto:/o=ExchangeLabs/ou=Exchange%20Administrative%20Group%20(FYDIBOHF23SPDLT)/cn=Recipients/cn=c592b3f79a874a7d93bfe4abc030a1c7-Angela%20Clay)>

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

From: [Adriano, Nancy \(MTO\)](#)
To: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#); [Rizwan, Fahad \(IO\)](#); [Remollino, Dan \(MTO\)](#); [Adriano, Nancy \(MTO\)](#); [Meijas, Yolibeth \(MTO\)](#); [Kalali, Salia \(MTO\)](#); [VandenBoorn, Richard \(MTO\)](#); [Singh, Harinder \(MTO\)](#); [Kulathinal, Rina \(MTO\)](#); [White, Jason \(MTO\)](#); [Deletsu, Jeanne-Marie \(MTO\)](#); [Lau, Johnson \(MTO\)](#); [Erickson, Victoria \(MTO\)](#)
Subject: MTO-IO Meeting - MyP Projects - Bradford Bypass
Date: June 14 2021 5:37:28 PM
Attachments: [FIPPA s. 12, s. 13, s. 18](#)

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

All, attached are minutes from our meeting on June 7.

Nancy

Nancy Adriano, P.Eng.

Head, Capital Planning & Program Development Central

Mobile: 416-471-5065

Ministry of Transportation

Transportation Infrastructure Management Division, Asset Management Branch

159 Sir William Hearst Ave | 2nd Floor | Toronto ON | M3M 0B7



MTO – IO Meeting Minutes

DATE:

07 June 2021

PROJECT: Bradford Bypass (Hwy 400 to Hwy 404)

Date of Meeting:	Monday, June 7, 2021
Time:	3:00pm – 4:00pm
Location	Microsoft Teams (Online)

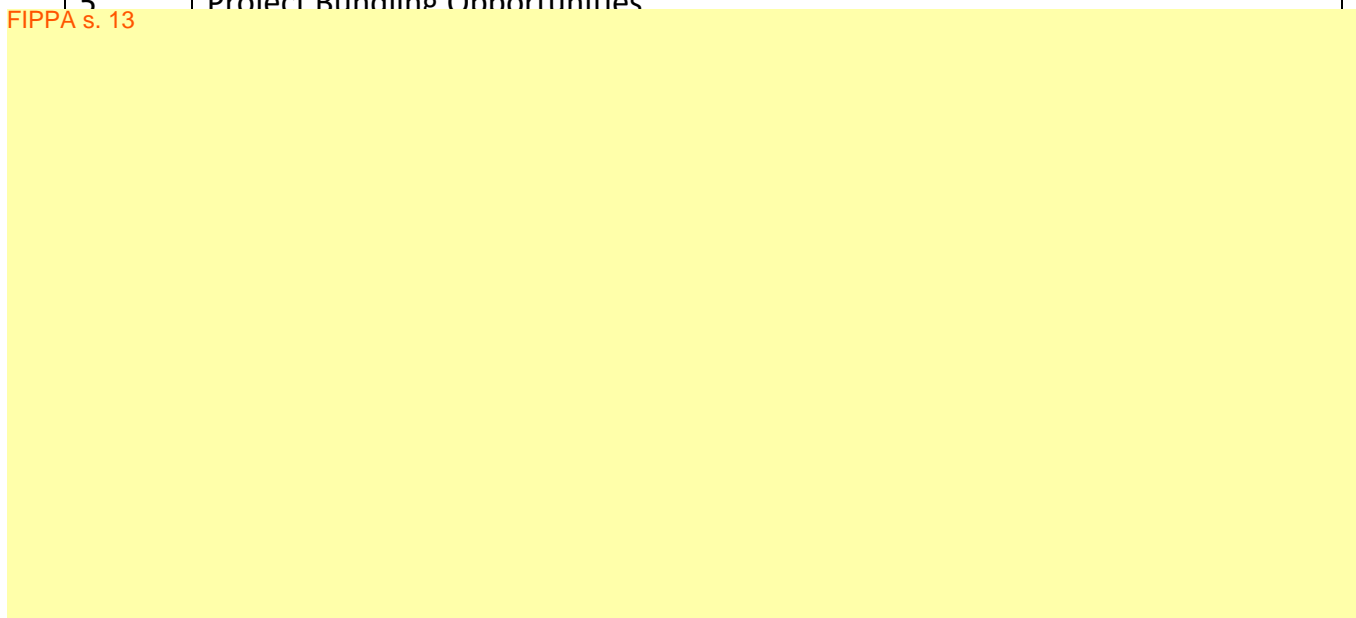
In attendance:

<i>Name</i>	<i>Organization</i>
Kelvin Chu	IO
Fahad Rizwan	IO
Dan Remollino	MTO (AMB)
Nancy Adriano	MTO (AMB)
Yolibeth Mejias	MTO (AMB)
Salia Kalali	MTO (DEB)
Johnson Lau	MTO (HOMB)
Jeanne-Marie Deletsu	MTO (HOMB)
Rina Kulathinal	MTO (DEB)
Harinder Singh	MTO (DEB)
Richard VandenBoorn	MTO (AMB)
Victoria Erickson	MTO (AMB)

0	Introduction/Purpose
	<ul style="list-style-type: none"> • Provide project updated on the Bradford Bypass PDR and EA study and discuss Multi-year Plan requirements for fall 2021
1	Location/Project Details
	<ul style="list-style-type: none"> • The lands have been designated per the 2002 EA
2	Study Process
	<ul style="list-style-type: none"> • PIC #1 – Part 1 (April 22 – May 6, 2021), Part 2 – Live Webinar (May 18 18, 2021) • PIC #2 for fall of 2022
3	EA/PDR Study Status
	<ul style="list-style-type: none"> • Not a new EA approval, just an update, bringing to preliminary design level • August 2002 - Route planning EA approved • Preliminary design – where we are right now • 3rd party agreements - Need is there but specifics are TBD as part of EA/PD study (rail crossings and utility companies, potentially HydroOne and likely municipalities – agreements will be needed); utility relocation TBD • Archaeology stage 2 started 2020 and continuing this spring including community liaisons with FN communities • property: 2 signed agreements <ul style="list-style-type: none"> ○ fieldwork ongoing; property acquisition started early this year (focus on properties based on original EA, and with properties for sale and with willing sellers) • alternatives will be evaluated and come up with preferred alternative for the route / PD; horizontal alignment has shifts in various locations and is quite difficult to reopen after preliminary design, more flexibility in vertical alignment and cuts/fills
4	Key Public Commitments and Stakeholder Concerns
	<ul style="list-style-type: none"> • PIC #1 had two parts <ul style="list-style-type: none"> ○ Part 1 April 22/21 to May 18/21: 2 week review period for public comment ○ Part 2 live webinar on May 18/21 responded to comments from Part 1 and accepted new comments • 30 common themes have been conveyed to the project team

	<ul style="list-style-type: none"> ○ focuses on: environmental, Indigenous concerns (concerns brought from public rather than the community organizations themselves), engineering concerns/ideas, need for project and impact on travel time ○ general support from residents and key stakeholders ● Team will review comments and determine preferred alternative for PIC #2 in fall of 2022
5	Project Bundling Opportunities

FIPPA s. 13



6	Main Risks
	<ul style="list-style-type: none"> ● engineering – poor soil and groundwater drainage issues identified during preliminary design/study; area known for poor geology. <ul style="list-style-type: none"> ○ Traffic may not be managed even with 10 lane Hwy 400 ○ Risk can be managed/transferred as long as information is known in terms of soil conditions and groundwater ● utilities – HydroOne towers <ul style="list-style-type: none"> ○ will utility work be done in advance or risk transferred to potential P3? –Advanced relocation prior to procurement for HydroOne is preferred by IO, other smaller utilities are okay to transfer cost/risk; approach each utility independently ● property – additional property requirements and permission to enter (25 outstanding PTEs)

	<ul style="list-style-type: none"> • schedule <ul style="list-style-type: none"> ○ delay in EA and permit approvals ○ delay in stage 2 construction approvals • costs – changes to construction cost estimate, additional funding needed • environment – timely acquisition of permits (e.g. permit to take water); timing of completion of class EA process or proposed MECP <ul style="list-style-type: none"> ○ risks surrounding SAR that may be unknown ○ moderate Indigenous opposition to project, following up on any comments or objection to project ○ risk of finding previously unknown archaeological sites • election – risk around timing of sensitive activities during election period
7	Advance 'Early' Works at County Road 4/Yonge St
	<ul style="list-style-type: none"> • 2021 Budget provided Stage 2 approval for early works for Bradford Bypass project • Includes the bridge for County Road 4 over the Bradford Bypass • preliminary draft for the interchange includes – 2 direct on ramps, 2 loop ramps, 2 direct off ramps
8	FIPPA s. 12
FIPPA s. 12, FIPPA s. 18	
9	Tolling Update
	<ul style="list-style-type: none"> • Potential revenue from tolling – base case of 2031 scenario using 407E toll rates, also looked at increased toll rates – optimal toll rate at 60% above 407E baseline • Business Case required to provide the full picture for potential fiscal

	<p>offsets – work still to be done for tolling technology and back office costs</p> <ul style="list-style-type: none"> ○ Confirm what work has been completed to date and what additional work is required and how to include it in MYP Business Case submission ● Future discussions should include what additional work needs to be done <ul style="list-style-type: none"> ○ Previously contacted IO for input on cost generation and how much it would cost for tolling ○ End of this month, a draft Tolling report from consultant should be available ● outline of Tolling key results: 2031 estimated toll rates/utilization/revenue <ul style="list-style-type: none"> ○ lower utilization at higher toll rates ○ need optimal utilization/revenue balance
Other	Key Decisions and Action Items
	<ul style="list-style-type: none"> ● PDR/EA <ul style="list-style-type: none"> ○ PIC #2 anticipated for fall of 2022 ○ TESR anticipated to be completed at the end of 2022 ○ Preliminary design anticipated to be completed in early 2023 <p style="color: orange;">FIPPA s. 12</p> <div style="background-color: yellow; height: 300px; width: 100%;"></div>

FIPPA s. 12

- Next Steps:
 - Discuss hydro towers and property acquisition – directly linked to the project schedule; work needs to be completed to a high degree before contract can be tendered
 - All preliminary work (approvals and agreements) needs to be completed before this project can move to P3
 - MTO suggests: Early 2022 RFQ should be moved to fall 2022 and RFP moved respectively – IO to review potential P3 procurement schedule
 - Regular team meetings going forward for this project; on the radar/high priority. Needs to be ready for this fall to be submitted to current government based on funding interests

Meeting adjourned – 4:06pm

From: [Remollino, Dan \(MTO\)](#)
To: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#)
Cc: [White, Jason \(MTO\)](#); [Adriano, Nancy \(MTO\)](#); [Kulathinal, Rina \(MTO\)](#)
Subject: Procurement Schedule - Bradford Bypass
Date: November 5, 2021 12:36:21 PM
Importance: High

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Hi Lou and Kelvin

We have been asked to provide an update procurement schedule for BPP assuming an RFQ release in Spring 2022. Can you please start to put together key dates / milestones assuming a P3 procurement.

I will set up time on Monday morning to discuss further – we have been asked to provide by EOD Monday

Thanks

Dan

Dan Remollino P.Eng.
416 523-4937 Cell

From: [Anderson, Conor \(IAAC/AEIC\)](#)
To: [Politano, Lou \(IO\)](#); [Evers, Andrew \(MECP\)](#)
Cc: [Martin, Andrea \(OMAFRA\)](#); [Doncaster, Michele \(OMAFRA\)](#); [Downing, Gavin \(MHSTCI\)](#); [Barboza, Karla \(MHSTCI\)](#); [Downarowicz, Ewa \(MMAH\)](#); [Miller, Laurie \(MMAH\)](#); [Rew, Sharon \(NDMNRF\)](#)
Subject: Proponent documents for Designation Request for the Proposed Bradford Bypass Project under the Impact Assessment Act
Date: February 22, 2021 11:08:49 AM

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Dear provincial review team:

Further to the Impact Assessment Agency of Canada's email of February 12, the Ontario Ministry of Transportation has provided additional documentation regarding the Bradford Bypass Project. These items are available from the Agency's Proponent Portal:

- [Bradford Bypass Initial Response to IAAC Requests 1 and 2](#)
- [Bradford Bypass Preliminary Design Environmental Assessment Study Update Terms of Reference \(2019\)](#)
- [Bradford Bypass Preliminary Design Environmental Assessment Study Update Project Schedule \(Sept 2020\)](#)
- [2002 Order-in-Council with Conditions of Approval of Bradford Bypass](#)
- [1997 Bradford Bypass Route Planning Environmental Assessment Study](#)

As a reminder, the Agency requests your input related to this Project no later than **Wednesday, March 3, 2021**. Further, if your ministry has not already provided the names of confirmed working-level contacts for this file, please do so at your earliest convenience.

Conor Anderson
(he/him/il)

Project Manager, Ontario Region
Impact Assessment Agency of Canada / Government of Canada
Conor.Anderson@canada.ca / Tel: 416-735-1673

Gestionnaire de Projets, Région de l'Ontario
Agence d'évaluation d'impact du Canada / Gouvernement du Canada
Conor.Anderson@canada.ca / Tél. : 416-735-1673

From: Ontario Region / Region d'Ontario (IAAC/AEIC) <iaac.ontarioregion-regiondontario.aeic@canada.ca>

Sent: February 12, 2021 5:17 PM

To: lou.politano@infrastructureontario.ca; andrea.l.martin@ontario.ca; kathleen.oneill@ontario.ca; gavin.downing@ontario.ca; ewa.downarowicz@ontario.ca; sharon.rew@ontario.ca

Cc: laurie.miller@ontario.ca; 'Barboza, Karla (MTCS)' (Karla.Barboza@ontario.ca) <Karla.Barboza@ontario.ca>; michele.doncaster@ontario.ca; Anderson, Conor (IAAC/AEIC) <conor.anderson@canada.ca>

Subject: Designation Request for the Proposed Bradford Bypass Project under the Impact

Assessment Act

Good afternoon:

On behalf of Anjala Puvananathan, please see the attached letter regarding the Bradford Bypass Project, for which the Impact Assessment Agency of Canada has received a request to designate the Project under subsection 9(1) of the *Impact Assessment Act*.

Given the legislated timeline to respond to the designation request, the Agency made two requests in the attached letter:

Request 1: Provide a lead contact for the Project by **Wednesday, February 17, 2021**.

Request 2: Complete and submit the form requesting advice from your ministry attached with the letter no later than **Wednesday, March 3, 2021**.

To facilitate your review of the information beyond the original letter from the requestor (Enclosure 1) and information from the Ontario Ministry of Transportation (the proponent) that is publicly available, the Agency has asked the proponent to provide any recent, relevant documents regarding the Project by February 17, 2021. The Agency will provide you these documents as soon as they are available.

Any questions or correspondences related to the content of the attached letter should be forwarded to Conor Anderson, Project Manager at Conor.Anderson@canada.ca or 4167351673. Conor has also been copied on this message.

Sincerely,

Jeremy Schultz

Jeremy Schultz
(he/him/il)

Administrative Officer, Ontario Region
Impact Assessment Agency of Canada / Government of Canada
Jeremy.Schultz@canada.ca / Tel: 416-553-6513

From: [Pasqua, Michelle \(MTO\)](#)
To: [Politano, Lou \(IO\)](#)
Subject: RE: BBP - project governance
Date: November 25, 2021 10:28:48 AM
Attachments: [image001.png](#)

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Hi Lou

Just following up on this item.

Jen will likely be raising it at her 1:1 with Angela today

Thanks

Michelle

From: Pasqua, Michelle (MTO)
Sent: November-19-21 4:52 PM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: BBP - project governance

Hi Lou

I'm reaching out to set up a discussion about project governance for Bradford Bypass.

Attendees so far would include Jen, Steve, Angela, you and I. Let me know if you would like to include others, and whether there are specific agenda items you would like to bring forward.

Thanks

Michelle Pasqua, CPA, CMA | Director
Asset Management Branch, MTO
T: 905-704-2476 | C: 905-708-6318



From: [Remollino, Dan \(MTO\)](#)
To: [Chu, Kelvin \(IO\)](#); [Adriano, Nancy \(MTO\)](#); [Kulathinal, Rina \(MTO\)](#); [Kalali, Salia \(MTO\)](#); [White, Jason \(MTO\)](#)
Cc: [Politano, Lou \(IO\)](#); [Rizwan, Fahad \(IO\)](#)
Subject: RE: BBP Schedule
Date: November 8, 2021 4:12:56 PM
Importance: High

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Sorry – Kelvin / Lou – I need your info now as they want the deck – please send what you can on the schedule.

Salia – please send me the latest version on the deck from sharepoint site to my email – I cannot edit appropriately in the sharepoint site

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

-----Original Appointment-----

From: Remollino, Dan (MTO)

Sent: November 8, 2021 7:48 AM

To: Remollino, Dan (MTO); Kelvin Chu (IO) (Kelvin.Chu@infrastructureontario.ca); Adriano, Nancy (MTO); Kulathinal, Rina (MTO); Kalali, Salia (MTO); White, Jason (MTO)

Cc: Politano, Lou (IO); Rizwan, Fahad (IO)

Subject: BBP Schedule

When: November 8, 2021 12:45 PM-1:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

Hi Everyone – sorry for the lunch meeting but only time that will work to discuss BBP schedule

Thanks

Dan

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

Join with a video conferencing device

teams@msteams.ontario.ca

Video Conference ID: 117 166 599 2
[Alternate VTC instructions](#)

[Learn More](#) | [Meeting options](#)

From: [Chu, Kelvin \(IO\)](#)
To: [Cooper, Michael \(IO\)](#)
Cc: [Rizwan, Fahad \(IO\)](#); [Politano, Lou \(IO\)](#)
Subject: Re: BBP Schedule
Date: November 8, 2021 4:36:59 PM

FIPPA s. 18

Get [Outlook for Android](#)

From: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>
Sent: Monday, November 8, 2021 4:27:48 PM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Subject: RE: BBP Schedule

Working on it now

What are the FC and SC dates ?

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: November 8, 2021 4:26 PM
To: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>
Subject: Re: BBP Schedule

Michael, how soon can you get us the Captilizes interest?

K

Get [Outlook for Android](#)

From: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>
Sent: Monday, November 8, 2021 1:22:45 PM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Subject: FW: BBP Schedule

Hey can we chat at 2pm?

From: Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>
Sent: November 8, 2021 1:20 PM
To: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>; Kalali, Salia (MTO) <Salia.Kalali@ontario.ca>; Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Cc: Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>; White, Jason (MTO) <Jason.White@ontario.ca>

Subject: BBP Schedule

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Further to today's discussion, attached is the latest BBP project schedule.

Nancy

From: [Chu, Kelvin \(IO\)](#)
To: [Sheung, Allan \(IO\)](#); [Law, Carmen \(IO\)](#); [Donoghue, Dan \(IO\)](#)
Cc: [Cooper, Michael \(IO\)](#); [Gallagher, John](#); [Politano, Lou \(IO\)](#); [Rizwan, Fahad \(IO\)](#); [Lorentz, Craig](#); [Langford, Chris \(IO\)](#)
Subject: RE: Bradford Bypass - MYP
Date: July 6, 2021 5:40:23 PM
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Thanks Allan.

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Looping in Chris/Craig here, and whether further action is needed from us to complete the tolling-related assessment for MYP this Fall.

K

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Sent: July 6, 2021 5:32 PM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>; Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>
Cc: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>
Subject: RE: Bradford Bypass - MYP

Thanks Kelvin. [FIPPA s. 13, FIPPA s. 18](#)

[@Donoghue, Dan \(IO\)](#) Dan, what's your opinion?

[FIPPA s. 13, FIPPA s. 18](#)

Cheers

Allan



Allan Sheung (he, him)

Infrastructure Ontario

Director, Cost Estimates, Budget and Cost Estimating

Allan.Sheung@infrastructureontario.ca

Mobile: 416-728-1878 | Mobile: 416-606-5724 | Office: 647-265-4667

www.infrastructureontario.ca

Follow IO at: 

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Sent: July 6, 2021 5:11 PM

To: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Law, Carmen (IO)

<Carmen.Law@infrastructureontario.ca>

Cc: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Gallagher, John

<John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO)

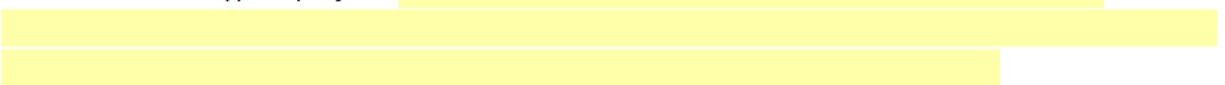
<Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO)

<Fahad.Rizwan@infrastructureontario.ca>

Subject: Bradford Bypass - MYP

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Regards,



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To: [Sheung, Allan \(IO\)](#); [Chu, Kelvin \(IO\)](#); [Law, Carmen \(IO\)](#)
Cc: [Cooper, Michael \(IO\)](#); [Gallagher, John](#); [Politano, Lou \(IO\)](#); [Rizwan, Fahad \(IO\)](#)
Subject: Re: Bradford Bypass - MYP
Date: July 6, 2021 6:12:19 PM
Attachments: [image007.png](#)
[image008.png](#)
[image009.png](#)
[image010.png](#)
[image001.png](#)

Allan,

FIPPA s. 13, FIPPA s. 18



Dan

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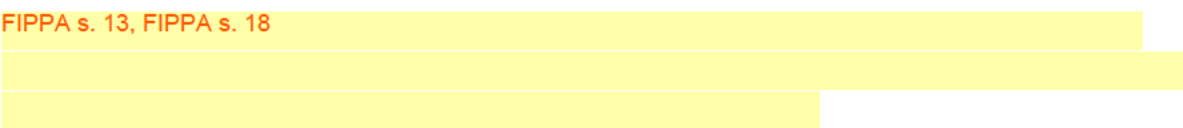
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Subject: RE: Bradford Bypass - MYP

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FIPPA s. 13, FIPPA s. 18



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Allan



Allan Sheung (he, him)




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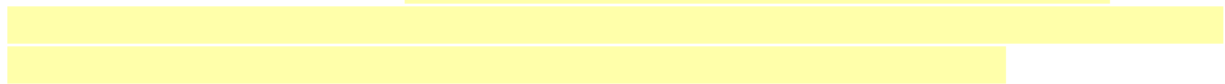
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Director, Roads and Special Projects

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Mobile: 416-436-9192

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Follow IO at:



From: [Langford, Chris \(IO\)](#)
To: [Chu, Kelvin \(IO\)](#); [Sheung, Allan \(IO\)](#); [Law, Carmen \(IO\)](#); [Donoghue, Dan \(IO\)](#)
Cc: [Cooper, Michael \(IO\)](#); [Gallagher, John](#); [Politano, Lou \(IO\)](#); [Rizwan, Fahad \(IO\)](#); [Lorentz, Craig](#)
Subject: RE: Bradford Bypass - MYP
Date: July 6, 2021 6:42:13 PM
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Thanks, Kelvin – just to clarify, for this group, Craig and I have not been involved in the tolling analysis led by MTO, since PD originally brought us in some months ago as part of the broader BBP project team. Given the lack of subsequent engagement on this, our understanding is that MTO continues to lead the tolling policy/analysis for BBP without any (or limited?) involvement from IO.

FIPPA s. 13, FIPPA s. 18



Thanks,
Chris

Christopher Langford (he, him)
Infrastructure Ontario
Vice President, Procurement

Mobile: [416-709-1822](tel:416-709-1822) | Office: [647-264-9761](tel:647-264-9761)

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: July 6, 2021 5:40 PM
To: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>; Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>
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FIPPA s. 13, FIPPA s. 18

Cheers

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Director, Roads and Special Projects

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Cc: [Gallagher, John](#); [Politano, Lou \(IO\)](#); [Rizwan, Fahad \(IO\)](#)
Subject: RE: Bradford Bypass - MYP
Date: July 7, 2021 9:31:39 AM
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Kelvin, Lou

I agree with your idea of having a meeting – but maybe we expand it to discuss the list of MTO projects coming up ahead of MyP.

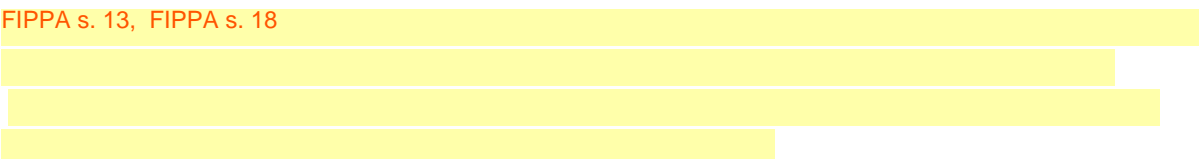
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Michael

From: Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>
Sent: Tuesday, July 06, 2021 18:12
To: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>
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Subject: Re: Bradford Bypass - MYP

Allan,

FIPPA s. 13, FIPPA s. 18

The content of this email is partially redacted with yellow bars. The redaction covers the main body of the message, likely containing sensitive information under FIPPA s. 13 and s. 18.

Dan

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From: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>
Sent: Tuesday, July 6, 2021 5:31:52 PM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>; Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>
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<John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO)
<Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO)
<Fahad.Rizwan@infrastructureontario.ca>
Subject: RE: Bradford Bypass - MYP

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FIPPA s. 13, FIPPA s. 18

Cheers

Allan



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Infrastructure Ontario

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Cc: [Gallagher, John](#); [Politano, Lou \(IO\)](#); [Rizwan, Fahad \(IO\)](#)
Subject: RE: Bradford Bypass - MYP
Date: July 7, 2021 10:54:28 AM
Attachments: [FIPPA s. 18](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

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Subject: Re: Bradford Bypass - MYP

Allan,

FIPPA s. 13, FIPPA s. 18

Dan

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Subject: RE: Bradford Bypass - MYP

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FIPPA s. 13, FIPPA s. 18

Cheers

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Cc: [Gallagher John](#); [Politano Lou \(IO\)](#); [Rizwan Fahad \(IO\)](#)
Subject: RE: Bradford Bypass - MYP
Date: July 8, 2021 5:54:35 AM
Attachments: [image013.png](#)
[image014.png](#)
[image015.png](#)
[image018.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

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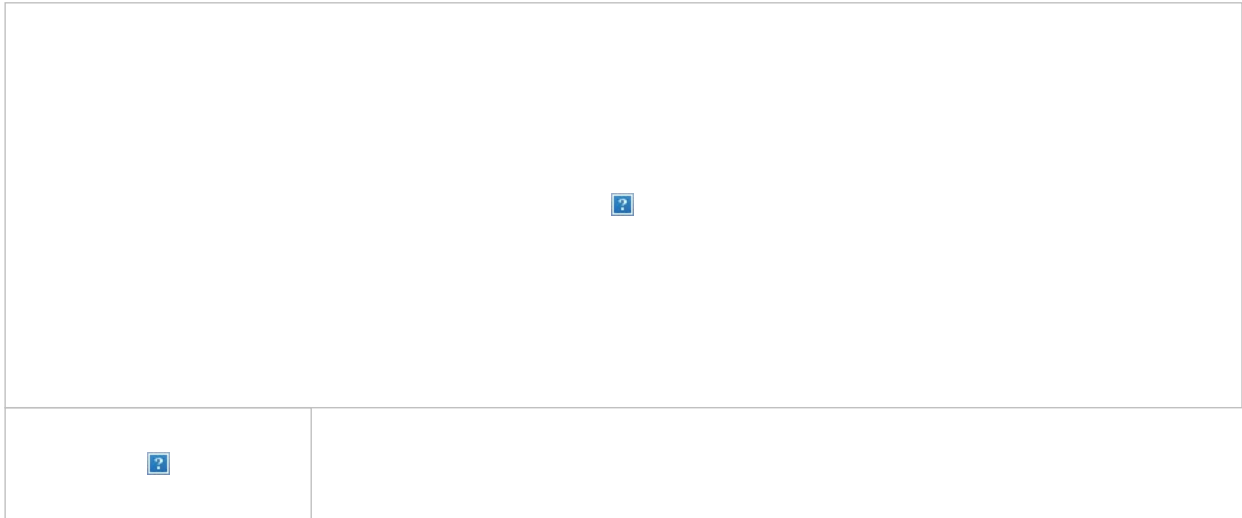
Kelvin/Michael/Fahad, my suggestion is to setup all new project DOAT tables below in mid-July, to get the first sense in project cost magnitude and potential risk/challenges. We hope all construction costs will be refreshed, escalated in current market condition, and backed up by July – September 2021 independent cost estimate or peer review reports.

1. Bradford Bypass (TBC in DBFM/DBF/Tolling)

Not responsive NR

Cheers

Allan



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FIPPA s. 13, FIPPA s. 18

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Allan



Allan Sheung (he, him)
Infrastructure Ontario
Director, Cost Estimates, Budget and Cost Estimating
Allan.Sheung@infrastructureontario.ca
Mobile: 416-728-1878 | Mobile: 416-606-5724 | Office: 647-265-4667
www.infrastructureontario.ca
Follow IO at:   

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: July 6, 2021 5:11 PM
To: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>
Cc: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>
Subject: Bradford Bypass - MYP

Allan/Carmen,

Given what we learned yesterday, we may need to prepare estimate in support of a DBFM approach for the Bradford Bypass project. Do you
FIPPA s. 13, FIPPA s. 17, FIPPA s. 18

I also wish to follow up whether or not we need to do a POA assessment prior to completing the DOAT tables for September. **John**, your thoughts?

All of the ongoing and planned work is needed for early September, so we have little time to complete. Upon feedbacks, we should reconvene quickly with a follow up call to discuss.

Regards,



Kelvin Chu, P.Eng
Infrastructure Ontario
Director, Roads and Special Projects
kelvin.chu@infrastructureontario.ca
Mobile: 416-436-9192
www.infrastructureontario.ca

Follow IO at:   

From: [Rizwan Fahad \(IO\)](#)
To: [Sheung Allan \(IO\)](#); [Chu Kelvin \(IO\)](#); [Cooper Michael \(IO\)](#); [Donoghue Dan \(IO\)](#); [Law Carmen \(IO\)](#)
Cc: [Gallagher John](#); [Politano Lou \(IO\)](#)
Subject: RE: Bradford Bypass - MYP
Date: July 8, 2021 8:45:43 AM
Attachments: [image006.png](#)
[image008.png](#)
[image009.png](#)
[image011.png](#)
[image012.png](#)
[image014.png](#)
[image015.png](#)

Thanks Allan. I have setup a meeting for July 15th with everyone on this email chain.

Not Responsive NR

From: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>
Sent: July 8, 2021 5:55 AM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>
Cc: Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>
Subject: RE: Bradford Bypass - MYP

Thanks Kelvin.

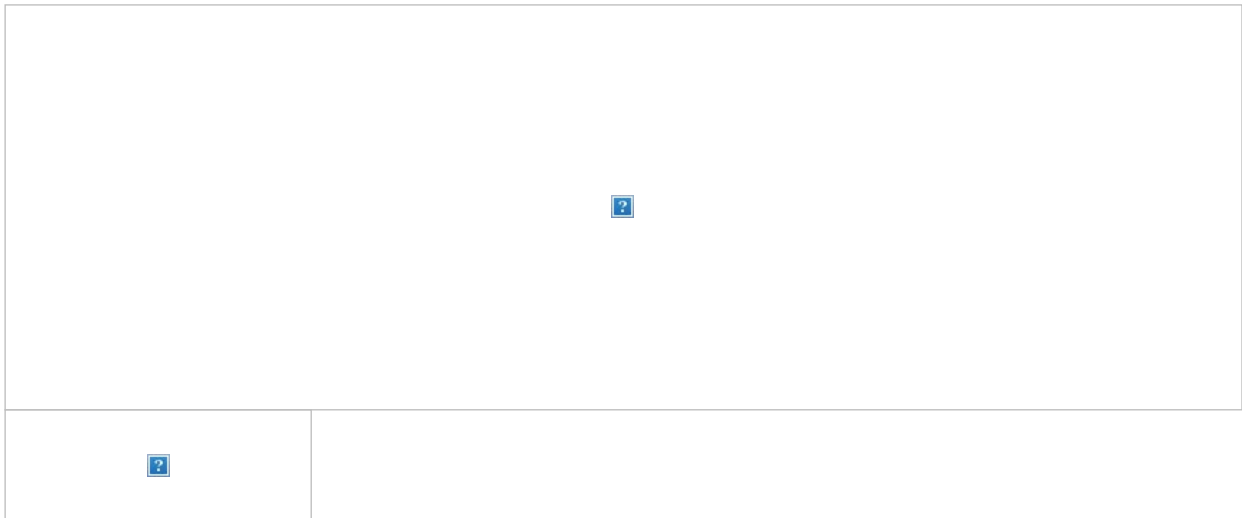
Kelvin/Michael/Fahad, my suggestion is to setup all new project DOAT tables below in mid-July, to get the first sense in project cost magnitude and potential risk/challenges. We hope all construction costs will be refreshed, escalated in current market condition, and backed up by July – September 2021 independent cost estimate or peer review reports.

1. Bradford Bypass (TBC in DBFM/DBF/Tolling)

Not Responsive NR

Cheers

Allan



Allan Sheung (he, him)
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Allan.Sheung@infrastructureontario.ca
Mobile: 416-728-1878 | Mobile: 416-606-5724 | Office: 647-265-4667
www.infrastructureontario.ca

Follow IO at:   

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>

Sent: July 7, 2021 10:54 AM

To: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>; Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>

Cc: Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>

Subject: RE: Bradford Bypass - MYP

Hi Michael...I can't believe a month passed by since last update on the various Highway projects. The list pretty much remained the same, and Allan has put together a short summary in the attached excel spreadsheet for the various project budget needed for Fall.

I will arrange something for later this week/early next week so we can run through what we have on each of those to date. Fahad, can you assist in setting this up?

Thanks,
K

From: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>

Sent: July 7, 2021 9:32 AM

To: Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>; Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>

Cc: Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>

Subject: RE: Bradford Bypass - MYP

Kelvin, Lou

I agree with your idea of having a meeting – but maybe we expand it to discuss the list of MTO projects coming up ahead of MYP.

Allan and I briefly discussed earlier in the week, and it seems like there are quite a number of projects that will need to be worked on in the next few months.

Michael

From: Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>

Sent: Tuesday, July 06, 2021 18:12

To: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>

Cc: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>

Subject: Re: Bradford Bypass - MYP

Allan,

FIPPA s. 13, FIPPA s. 18

Dan

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From: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>

Sent: Tuesday, July 6, 2021 5:31:52 PM

To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Law, Carmen (IO) <Carmen.Law@infrastructureontario.ca>; Donoghue, Dan (IO) <Dan.Donoghue@infrastructureontario.ca>

Cc: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>

Subject: RE: Bradford Bypass - MYP

Thanks Kelvin. FIPPA s. 13, FIPPA s. 18

[@Donoghue, Dan \(IO\)](#) Dan, what's your opinion?

FIPPA s. 13, FIPPA s. 18

Cheers

Allan



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Cc: Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>; Gallagher, John <John.Gallagher@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>
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Follow IO at:   

From: [Chu, Kelvin \(IO\)](#)
To: [Politano, Lou \(IO\)](#); [Fredericks, Andrew \(IO\)](#)
Cc: [Lorentz, Craig](#); [Langford, Chris \(IO\)](#); [Lu, Tad \(IO\)](#); [Rao, Ankita \(IO\)](#)
Subject: RE: Bradford Bypass - tolling - MTO WSP report
Date: November 3, 2021 9:39:54 AM
Attachments: [Bradford Bypass tolling evaluation - draft final report 210821.pdf](#)
[Bradford Bypass tolling update 270721.pdf](#)

Something I might have shared from early days..... attached MTO's preliminary assessment on tolling for Bradford and presentation they provided back in July/August.

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Sent: November 3, 2021 9:18 AM
To: Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Cc: Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>; Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>
Subject: Re: Bradford Bypass - tolling

Great! Thanks for the flexibility

The MTO MO has asked that they look at shadow tolling and other tolling approaches to get the cost of the project down

From: Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>
Sent: Wednesday, November 3, 2021 9:07:47 AM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Cc: Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>; Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>
Subject: RE: Bradford Bypass - tolling

Hi Lou/Kelvin,

We resolved it. We can divide and conquer as follows. Please schedule the meeting.

11:30a – 12:00a – Chris/Tad attend MTO with you.

11:00a-12:00a – Andrew/Ankita attend the CIB meeting.

Regards,

Andrew Fredericks | Vice President, Commercial Advisory & Strategy
Infrastructure Ontario
1 Dundas Street West, Toronto, Ontario, M5G 1Z3
T: 1.416.460.0989
Andrew.Fredericks@infrastructureontario.ca
www.infrastructureontario.ca

From: Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>
Sent: November 3, 2021 7:51 AM
To: Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>
Subject: RE: Bradford Bypass - tolling

Thanks, Lou and Craig. I'm tied up on another matter during the same time slot, so I will be unable to join today, as well.

([@Politano, Lou \(IO\)](#) – Hoping to catch you and/or Fahad today on the separate matter re: E&Y's work on the Hwy. 427 lessons learned assignment. Please stay tuned for my reach-out.)

Chris

Christopher Langford (he, him)
Infrastructure Ontario
Vice President, Procurement
Mobile: [416-709-1822](tel:416-709-1822) | Office: [647-264-9761](tel:647-264-9761)

From: Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>
Sent: November 3, 2021 6:42 AM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>
Subject: Re: Bradford Bypass - tolling

Apologies, but that time doesn't work. Looping in Andrew in the event the can join.

Craig

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From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Sent: Tuesday, November 2, 2021 10:22:55 PM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>
Subject: Bradford Bypass - tolling

Are you guys available for a call with MTO at 11:30 wed am? There is a request from the MO to do a quick analysis

Lou

From: [Fredericks, Andrew \(IO\)](#)
To: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#)
Cc: [Lorentz, Craig](#); [Langford, Chris \(IO\)](#); [Lu, Tad \(IO\)](#); [Rao, Ankita \(IO\)](#)
Subject: RE: Bradford Bypass - tolling
Date: November 3, 2021 11:32:00 AM

Sorry everyone. Has the invite gone out – or can I dial in?

Regards,

Andrew Fredericks | Vice President, Commercial Advisory & Strategy
Infrastructure Ontario
1 Dundas Street West, Toronto, Ontario, M5G 1Z3
T: 1.416.460.0989
Andrew.Fredericks@infrastructureontario.ca
www.infrastructureontario.ca

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Sent: November 3, 2021 9:18 AM
To: Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Cc: Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>; Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>
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Infrastructure Ontario

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www.infrastructureontario.ca

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Sent: November 3, 2021 7:51 AM

To: Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>

Subject: RE: Bradford Bypass - tolling

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Chris

Christopher Langford (he, him)

Infrastructure Ontario

Vice President, Procurement

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Sent: November 3, 2021 6:42 AM

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Subject: Re: Bradford Bypass - tolling

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From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>

Sent: Tuesday, November 2, 2021 10:22:55 PM

To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>

Subject: Bradford Bypass - tolling

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Lou

From: [Langford, Chris \(IO\)](#)
To: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#)
Cc: [Lorentz, Craig](#)
Subject: RE: Bradford Bypass - tolling
Date: July 6, 2021 6:30:56 PM
Attachments: [image001.png](#)

Thanks, both – as Lou noted, I just wanted to confirm that Craig and I have not been involved in the tolling analysis led by MTO since you guys brought us in some months ago as part of the broader BBP project team.

If the project is now progressing to a point at which tolling policy and technologies will be contemplated as part of broader approvals through MYP, then I'd suggest that we seek that confirmation from MTO, in order to effectively advise re: additional due diligence/analysis that will be required to inform (near-term) downstream decisions.

Kelvin – I'll follow-up on your e-mail to the broader IO group to clarify, as I think you may have inadvertently attributed tolling policy/analysis to Craig and I, whereas that remains a stream of work that MTO is leading, with seemingly little/no engagement of IO since early conversations some time ago.

Thanks,
Chris

Christopher Langford (he, him)
Infrastructure Ontario
Vice President, Procurement

Mobile: [416-709-1822](tel:416-709-1822) | Office: [647-264-9761](tel:647-264-9761)

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Sent: July 6, 2021 11:09 AM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>
Subject: RE: Bradford Bypass - tolling

We haven't had an update from MTO on tolling for a couple of months now. Not sure MTO is looking at technologies for Bradford. They were only doing a revenue study. (we had flagged that they should do a tech study as well)

Craig...any updates that I haven't been involved with?.

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: July 6, 2021 10:33 AM
To: Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>
Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: Bradford Bypass - tolling

Gents,

Are you guys still involved in the tolling study for the Bradford Bypass?

My understanding relating to the latest finding is that the current technologies (used on H407) will not be cost effective and for implementing on Bradford. I'm wondering if there are other methods and still ongoing assessment to be done for Fall MYP for this project?

Regards,



Kelvin Chu, P.Eng

Infrastructure Ontario

Director, Roads and Special Projects

kelvin.chu@infrastructureontario.ca

Mobile: 416-436-9192

www.infrastructureontario.ca

Follow IO at:   

From: [Fredericks, Andrew \(IO\)](#)
To: [White, Jason \(MTO\)](#); [Remollino, Dan \(MTO\)](#); [Rao, Ankita \(IO\)](#); [Lu, Tad \(IO\)](#)
Cc: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#)
Subject: RE: Bradford bypass - tolling
Date: November 3, 2021 2:18:43 PM

Hi Dan and Jason,

Appreciate the call today.

Tad and Ankita will lead the development/consolidation of IO's one-pager.

As we approach the deadline, they will be available for direct coordination/inquiries.

Regards,

Andrew Fredericks | Vice President, Commercial Advisory & Strategy

Infrastructure Ontario

1 Dundas Street West, Toronto, Ontario, M5G 1Z3

T: 1.416.460.0989

Andrew.Fredericks@infrastructureontario.ca

www.infrastructureontario.ca

-----Original Appointment-----

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>

Sent: November 3, 2021 11:33 AM

To: Politano, Lou (IO); Remollino, Dan (MTO); Chu, Kelvin (IO); Lorentz, Craig; Langford, Chris (IO)

Cc: Graham, Sheri (MTO); Chochla, Megan (MTO); Deletsu, Jeanne-Marie (MTO); White, Jason (MTO); De Decker, Sarah (MTO); Dhanjal, Sundip (MTO); Traianopoulos, John; Gallagher, John; Fredericks, Andrew (IO)

Subject: Bradford bypass - tolling

When: November 3, 2021 11:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

-----Original Appointment-----

From: Politano, Lou (IO)

Sent: November 2, 2021 10:24 PM

To: Politano, Lou (IO); Remollino, Dan (MTO); Chu, Kelvin (IO); Lorentz, Craig; Langford, Chris (IO)

Cc: Graham, Sheri (MTO); Chochla, Megan (MTO); Deletsu, Jeanne-Marie (MTO); White, Jason (MTO); De Decker, Sarah (MTO); Dhanjal, Sundip (MTO); Traianopoulos, John; Gallagher, John

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Where: Microsoft Teams Meeting

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From: [Remollino, Dan \(MTO\)](#)
To: [Fredericks, Andrew \(IO\)](#); [White, Jason \(MTO\)](#); [Rao, Ankita \(IO\)](#); [Lu, Tad \(IO\)](#)
Cc: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#)
Subject: RE: Bradford bypass - tolling
Date: November 3, 2021 2:30:53 PM

CAUTION: This email originated from outside of Infrastructure Ontario. Do not click links or open attachment(s) unless you recognize the sender and know the content is safe.

Hi Andrew

Thanks for follow up and thanks again to IO team that participated today on the call on very short notice.

We appreciate your input into on the tolling.

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>
Sent: November 3, 2021 2:19 PM
To: White, Jason (MTO) <Jason.White@ontario.ca>; Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>; Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>
Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
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From: [Rao, Ankita \(IO\)](#)
To: [Remollino, Dan \(MTO\)](#); [White, Jason \(MTO\)](#)
Cc: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#); [Lorentz, Craig](#); [Fredericks, Andrew \(IO\)](#); [Lu, Tad \(IO\)](#)
Subject: RE: Bradford bypass - tolling
Date: November 4, 2021 3:43:05 PM
Attachments: FIPPA s.13, s. 18

Hi again, Dan

Please find attached IOs thoughts on shadow tolling vs. conventional tolling as it relates to the Bradford Bypass. We hope this provides a sufficient preliminary overview of key differences between shadow tolling and traditional tolling, along with some questions for consideration.

As always, we are happy to continue the discussion as and when useful.

Thank you,

Ankita Rao | Director, Commercial Advisory & Strategy
Infrastructure Ontario
1 Dundas Street West, Toronto, Ontario, M5G 1Z3
T: 1.416.346.1378
ankita.rao@infrastructureontario.ca
www.infrastructureontario.ca

From: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>
Sent: November 4, 2021 12:18 PM
To: Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; White, Jason (MTO) <Jason.White@ontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>
Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>
Subject: RE: Bradford bypass - tolling

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Thanks for the update

Dan

Dan Remollino P.Eng.
416 523-4937 Cell

From: Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>
Sent: November 4, 2021 12:06 PM
To: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; White, Jason (MTO) <Jason.White@ontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>
Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO)

<Kelvin.Chu@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>

Subject: RE: Bradford bypass - tolling

Good afternoon, Dan and Jason

Nice to virtually meet you both.

We wanted to send a quick note to keep you updated from our end – we are in the process of ensuring our IO team’s thoughts have been appropriately captured before sharing the document with you, targeting for mid-to late afternoon.

Ankita Rao | Director, Commercial Advisory & Strategy

Infrastructure Ontario

1 Dundas Street West, Toronto, Ontario, M5G 1Z3

T: 1.416.346.1378

ankita.rao@infrastructureontario.ca

www.infrastructureontario.ca

From: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>

Sent: November 3, 2021 2:31 PM

To: Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; White, Jason (MTO) <Jason.White@ontario.ca>; Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>

Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>

Subject: RE: Bradford bypass - tolling

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Hi Andrew

Thanks for follow up and thanks again to IO team that participated today on the call on very short notice.

We appreciate your input into on the tolling.

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>

Sent: November 3, 2021 2:19 PM

To: White, Jason (MTO) <Jason.White@ontario.ca>; Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>; Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>

Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO)

<Kelvin.Chu@infrastructureontario.ca>

Subject: RE: Bradford bypass - tolling

Hi Dan and Jason,

Appreciate the call today.

Tad and Ankita will lead the development/consolidation of IO's one-pager.

As we approach the deadline, they will be available for direct coordination/inquiries.

Regards,

Andrew Fredericks | Vice President, Commercial Advisory & Strategy

Infrastructure Ontario

1 Dundas Street West, Toronto, Ontario, M5G 1Z3

T: 1.416.460.0989

Andrew.Fredericks@infrastructureontario.ca

www.infrastructureontario.ca

-----Original Appointment-----

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>

Sent: November 3, 2021 11:33 AM

To: Politano, Lou (IO); Remollino, Dan (MTO); Chu, Kelvin (IO); Lorentz, Craig; Langford, Chris (IO)

Cc: Graham, Sheri (MTO); Chochla, Megan (MTO); Deletsu, Jeanne-Marie (MTO); White, Jason (MTO); De Decker, Sarah (MTO); Dhanjal, Sundip (MTO); Traianopoulos, John; Gallagher, John; Fredericks, Andrew (IO)

Subject: Bradford bypass - tolling

When: November 3, 2021 11:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

-----Original Appointment-----

From: Politano, Lou (IO)

Sent: November 2, 2021 10:24 PM

To: Politano, Lou (IO); Remollino, Dan (MTO); Chu, Kelvin (IO); Lorentz, Craig; Langford, Chris (IO)

Cc: Graham, Sheri (MTO); Chochla, Megan (MTO); Deletsu, Jeanne-Marie (MTO); White, Jason (MTO); De Decker, Sarah (MTO); Dhanjal, Sundip (MTO); Traianopoulos, John; Gallagher, John

Subject: Bradford bypass - tolling

When: November 3, 2021 11:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

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From: [Rao, Ankita \(IO\)](#)
To: [Remollino, Dan \(MTO\)](#); [White, Jason \(MTO\)](#)
Cc: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#); [Lorentz, Craig](#); [Fredericks, Andrew \(IO\)](#); [Lu, Tad \(IO\)](#)
Subject: RE: Bradford bypass - tolling
Date: November 4, 2021 4:35:15 PM
Attachments: [FIPPA s.13, s. 18](#)

Hi Dan,

Absolutely – please find attached

Ankita Rao | Director, Commercial Advisory & Strategy
Infrastructure Ontario
1 Dundas Street West, Toronto, Ontario, M5G 1Z3
T: 1.416.346.1378
ankita.rao@infrastructureontario.ca
www.infrastructureontario.ca

From: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>
Sent: November 4, 2021 4:05 PM
To: Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>; White, Jason (MTO) <Jason.White@ontario.ca>
Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; Lu, Tad (IO) <Tad.Lu@infrastructureontario.ca>
Subject: RE: Bradford bypass - tolling

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Hi Ankita – thank you for the material can you please a word version so we can use the material

Thanks

Dan

Dan Remollino P.Eng.
416 523-4937 Cell

From: Rao, Ankita (IO) <Ankita.Rao@infrastructureontario.ca>
Sent: November 4, 2021 3:43 PM
To: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>; White, Jason (MTO) <Jason.White@ontario.ca>
Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; Lu, Tad (IO)

<Tad.Lu@infrastructureontario.ca>

Subject: RE: Bradford bypass - tolling

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Thanks for the update

Dan

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Sent: November 4, 2021 12:06 PM

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Subject: RE: Bradford bypass - tolling

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Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Subject: RE: Bradford bypass - tolling

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Regards,

Andrew Fredericks | Vice President, Commercial Advisory & Strategy

Infrastructure Ontario

1 Dundas Street West, Toronto, Ontario, M5G 1Z3

T: 1.416.460.0989

Andrew.Fredericks@infrastructureontario.ca

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-----Original Appointment-----

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>

Sent: November 3, 2021 11:33 AM

To: Politano, Lou (IO); Remollino, Dan (MTO); Chu, Kelvin (IO); Lorentz, Craig; Langford, Chris (IO)

Cc: Graham, Sheri (MTO); Chochla, Megan (MTO); Deletsu, Jeanne-Marie (MTO); White, Jason (MTO); De Decker, Sarah (MTO); Dhanjal, Sundip (MTO); Traianopoulos, John; Gallagher, John; Fredericks, Andrew (IO)

Subject: Bradford bypass - tolling

When: November 3, 2021 11:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

-----Original Appointment-----

From: Politano, Lou (IO)

Sent: November 2, 2021 10:24 PM

To: Politano, Lou (IO); Remollino, Dan (MTO); Chu, Kelvin (IO); Lorentz, Craig; Langford, Chris (IO)

Cc: Graham, Sheri (MTO); Chochla, Megan (MTO); Deletsu, Jeanne-Marie (MTO); White, Jason (MTO); De Decker, Sarah (MTO); Dhanjal, Sundip (MTO); Traianopoulos, John; Gallagher, John

Subject: Bradford bypass - tolling

When: November 3, 2021 11:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

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From: [Adriano, Nancy \(MTO\)](#)
To: [Remollino, Dan \(MTO\)](#); [White, Jason \(MTO\)](#); [Kulathinal, Rina \(MTO\)](#); [Kalali, Salia \(MTO\)](#); [Chu, Kelvin \(IO\)](#); [Cooper, Michael \(IO\)](#); [Sheung, Allan \(IO\)](#); [Lamptey, Stephen \(MTO\)](#); [Rizwan, Fahad \(IO\)](#)
Cc: [Law, Carmen \(IO\)](#)
Subject: RE: Bradford Bypass Budget - MTO IO
Date: October 25, 2021 2:52:50 PM
Attachments: [FIPPA s. 18](#)

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Attached is the updated BBP Budget with an added worksheet for cash flow.

Nancy

-----Original Appointment-----

From: Adriano, Nancy (MTO)
Sent: October-22-21 12:55 PM
To: Adriano, Nancy (MTO); Remollino, Dan (MTO); White, Jason (MTO); Kulathinal, Rina (MTO); Kalali, Salia (MTO); Chu, Kelvin (IO); Cooper, Michael (IO); Sheung, Allan (IO); Lamptey, Stephen (MTO); Rizwan, Fahad (IO)
Cc: Law, Carmen (IO)
Subject: Bradford Bypass Budget - MTO IO
When: October-25-21 1:00 PM-1:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

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Video Conference ID: 114 964 863 3

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From: [Fredericks, Andrew \(IO\)](#)
To: [Politano, Lou \(IO\)](#); [Chu, Kelvin \(IO\)](#); [Gallagher, John](#); [Traianopoulos, John](#); [Lorentz, Craig](#); [Langford, Chris \(IO\)](#)
Cc: [Rao, Ankita \(IO\)](#); [Lu, Tad \(IO\)](#)
Subject: RE: Bradford Bypass tolling - shadow tolls
Date: November 3, 2021 2:30:00 PM

All,

To choreograph next steps on the 1-pager.

Tad and Ankita are putting together the table. Given the tight timelines, will circulate a quick 30-min at 11:30a tomorrow to finesse comments.

Concurrently, will email file for those that want to type comments.

Our delivery time to Ministry will be mid-afternoon – will manage tomorrow once we see how far we get today.

Regards,

Andrew Fredericks | Vice President, Commercial Advisory & Strategy

Infrastructure Ontario

1 Dundas Street West, Toronto, Ontario, M5G 1Z3

T: 1.416.460.0989

Andrew.Fredericks@infrastructureontario.ca

www.infrastructureontario.ca

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>

Sent: November 3, 2021 10:28 AM

To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Gallagher, John <John.Gallagher@infrastructureontario.ca>; Traianopoulos, John <John.Traianopoulos@infrastructureontario.ca>; Fredericks, Andrew (IO) <Andrew.Fredericks@infrastructureontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>

Cc: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>

Subject: Bradford Bypass tolling - shadow tolls

FYI.

http://www.financingtransportation.org/funding_financing/financing/other_finance_mechanisms/shadow_tolls.aspx

Shadow tolling mechanics, benefits, cost will be discussed at the 11:30 meeting today. I found this online which is a good summary of shadow tolling.

Andrew, John..... if you guys have any further insights on this, please raise at meeting. MTO's question will be: Can shadow tolls be used to reduce

1. Overall project cost
2. Initial capital cost

Shadow Tolls

Shadow tolls are a set payment by a public agency or authority for each vehicle that uses the facility, levied on a per-vehicle or per-vehicle-mile basis. Payments are made either to a private concessionaire or another public entity as reimbursement for particular services. Shadow tolls may be adjusted based on safety, congestion, or pre-established floors and ceilings. One advantage over real tolls is that traffic diversion to non-tolled facilities is avoided, because motorists themselves do not pay tolls.

Shadow toll concessions have been extensively used in the United Kingdom. In the United States, they have been used in public-public agreements in Texas under the term [pass-through financing](#) to repay local agencies for their upfront investments in a project.

Under the shadow toll concession model, payment is made in exchange for the concessionaire's responsibility to design, build, maintain, and/or operate a roadway for an agreed period of time. Shadow toll payments are dependent upon the volume of traffic using the road and provide an incentive for the concessionaire to optimize the facility's construction and/or operation. One disadvantage when used in a concession is that revenue to repay the concessionaire's investment must come from other public sources, which may be constrained.

Most, but not all, U.K. shadow toll projects have involved upgrades of existing roads. This has been an important attraction for private investors as historic traffic data reduces traffic risk and the need to depend on forecasts for revenue projections. In certain cases, it can also provide opportunities for generating cash flows during construction. As with conventional tolling, shadow tolls can amortize capital costs over the useful life of the investment and can create early completion and other incentives by sharing traffic forecasting and other risks with the private partners. Additional advantages include:

- Minimizing traffic risks, making it easier for private investment partners to find more advantageous financing
- Capturing the profit-seeking motives of the private sector, often resulting in capital construction costs savings
- Capitalizing on the cost efficiencies of lifecycle costing
- If structured properly, reducing the effect of lower than expected traffic volumes
- Transferring of operating and maintenance risk to the concessionaire
- Capping the public sector's exposure, thereby eliminating the risk of super-profitability by the concessionaire
- Reduced public equity requirements
- Avoiding the need for toll collection equipment

In 1999, FHWA prepared a report titled [The Selective Use of Shadow Tolls in the](#)

[United States](#) on the UK's experience with shadow tolls, analyzing shadow toll-related financial and capital market issues, and exploring the potential applicability of this technique in the U.S.

From: [Politano, Lou \(IO\)](#)
To: [Ho, David](#)
Subject: Re: Bradford Bypass
Date: October 22, 2021 8:39:42 AM
Attachments: [image001.png](#)

Will do

From: Ho, David <David.Ho@infrastructureontario.ca>
Sent: Friday, October 22, 2021 8:38:05 AM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: Bradford Bypass

Can you schedule an update for Angela & Bruce? Or send them a note with me copied that the 4 of us should touch base?

Will make sense given that I had to catch Michael in the hall at the end of the day yesterday before we spoke.



David Ho (he, him)

Infrastructure Ontario

Executive Vice President, Procurement and Program Management

david.ho@infrastructureontario.ca

+1 416 357 9542

www.infrastructureontario.ca

Follow IO at:   

From: [Chu, Kelvin \(IO\)](#)
To: [Politano, Lou \(IO\)](#)
Subject: RE: Bradford latest
Date: October 22, 2021 10:00:31 AM
Attachments: [FIPPA s. 18](#)
[image001.png](#)

From: Chu, Kelvin (IO)
Sent: October 22, 2021 9:21 AM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: Bradford latest

Regards,



Kelvin Chu, P.Eng
Infrastructure Ontario
Director, Roads and Special Projects

kelvin.chu@infrastructureontario.ca
Mobile: 416-436-9192
www.infrastructureontario.ca

Follow IO at:   

From: [Cooper, Michael \(IO\)](#)
To: [Chu, Kelvin \(IO\)](#); [Rizwan, Fahad \(IO\)](#)
Cc: [Ho, David](#); [Hajekzadeh, Afshin \(IO\)](#); [Mahon, Liane](#); [Donoghue, Dan \(IO\)](#); [Sheung, Allan \(IO\)](#)
Subject: RE: Bradford touch point
Date: October 21, 2021 5:32:00 PM
Attachments: [image009.png](#)
[image010.png](#)
[image011.png](#)
FIPPA s. 18
[image002.png](#)

Hi Kelvin,

We have something (see the attached), but before we share with MTO, can we have a discussion with you and Lou?

Thanks,

Michael

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: October 21, 2021 5:29 PM
To: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>; Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>
Subject: RE: Bradford touch point

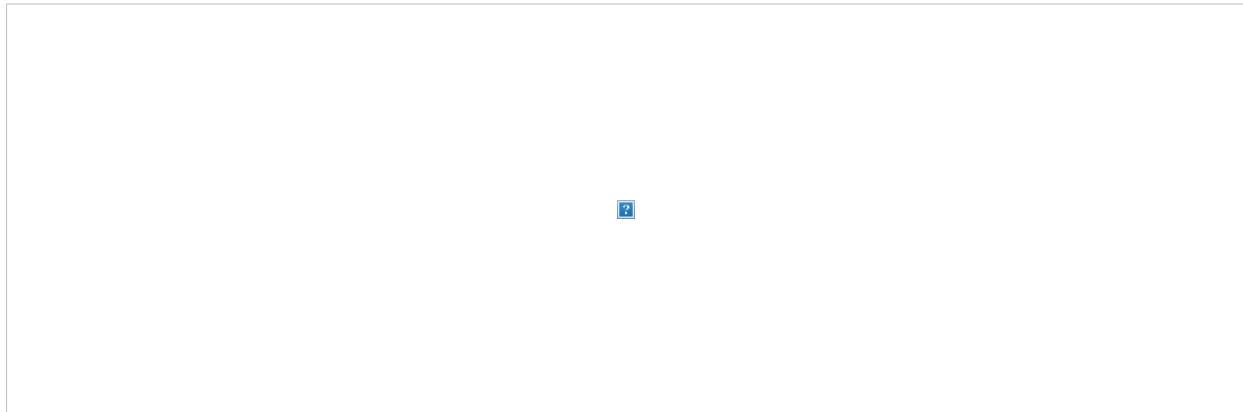
Michael, will we have something today and prior to our meeting with MTO tomorrow?


From: Sheung, Allan (IO) <Allan.Sheung@infrastructureontario.ca>
Sent: October 21, 2021 11:24 AM
To: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>; Rizwan, Fahad (IO) <Fahad.Rizwan@infrastructureontario.ca>; Cooper, Michael (IO) <Michael.Cooper@infrastructureontario.ca>
Subject: RE: Bradford touch point

Hi Kelvin,

Here s my suggestion Happy to discuss in the meeting

Allan



Allan Sheung (he, him)
Infrastructure Ontario
Director, Cost Estimates, Budget and Cost Estimating
Allan.Sheung@infrastructureontario.ca
Mobile: 416-728-1878 | Mobile: 416-606-5724 | Office: 647-265-4667
www.infrastructureontario.ca
Follow IO at:   

-----Original Appointment-----

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: October 21, 2021 10:25 AM
To: Chu, Kelvin (IO); Chu, Kelvin (IO); Rizwan, Fahad (IO); Cooper, Michael (IO); Sheung, Allan (IO)
Subject: Bradford touch point
When: October 21, 2021 11:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada)
Where: Microsoft Teams Meeting

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From: [Politano, Lou \(IO\)](#)
To: [Ontario Region / Region d'Ontario \(IAAC/AEIC\)](#)
Subject: RE: Designation Request for the Proposed Bradford Bypass Project under the Impact Assessment Act
Date: February 17, 2021 10:01:00 AM

Contact for Infrastructure Ontario:

Lou Politano, P. Eng.
Senior Vice President, Civil Infrastructure, Roads and Special Projects
Infrastructure Ontario
1 Dundas Street, W, Suite 2400
Toronto, ON M5G 1Z3
Phone: 647-264-3437
Mobile: 416-553-0126
Email: lou.politano@infrastructureontario.ca

From: Ontario Region / Region d'Ontario (IAAC/AEIC) <iaac.ontarioregion-regiondontario.aeic@canada.ca>

Sent: February 12, 2021 5:17 PM

To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Martin, Andrea (OMAFRA) <Andrea.L.Martin@ontario.ca>; O'Neill, Kathleen (MECP) <Kathleen.Oneill@ontario.ca>; Downing, Gavin (MHSTCI) <Gavin.Downing@ontario.ca>; Downarowicz, Ewa (MMAH) <Ewa.Downarowicz@ontario.ca>; Rew, Sharon (MNRF) <sharon.rew@ontario.ca>

Cc: Miller, Laurie (MMAH) <Laurie.Miller@ontario.ca>; Barboza, Karla (MHSTCI) <Karla.Barboza@ontario.ca>; Doncaster, Michele (OMAFRA) <michele.doncaster@ontario.ca>; Anderson, Conor (IAAC/AEIC) <conor.anderson@canada.ca>

Subject: Designation Request for the Proposed Bradford Bypass Project under the Impact Assessment Act

Good afternoon:

On behalf of Anjala Puvananathan, please see the attached letter regarding the Bradford Bypass Project, for which the Impact Assessment Agency of Canada has received a request to designate the Project under subsection 9(1) of the *Impact Assessment Act*.

Given the legislated timeline to respond to the designation request, the Agency made two requests in the attached letter:

Request 1: Provide a lead contact for the Project by **Wednesday, February 17, 2021**.

Request 2: Complete and submit the form requesting advice from your ministry attached with the letter no later than **Wednesday, March 3, 2021**.

To facilitate your review of the information beyond the original letter from the requestor (Enclosure 1) and information from the Ontario Ministry of Transportation (the proponent) that is publicly available, the Agency has asked the proponent to provide any recent, relevant documents regarding the Project by February 17, 2021. The Agency will provide you these documents as soon as they

are available.

Any questions or correspondences related to the content of the attached letter should be forwarded to Conor Anderson, Project Manager at Conor.Anderson@canada.ca or 4167351673. Conor has also been copied on this message.

Sincerely,

Jeremy Schultz

Jeremy Schultz
(he/him/il)

Administrative Officer, Ontario Region
Impact Assessment Agency of Canada / Government of Canada
Jeremy.Schultz@canada.ca / Tel: 416-553-6513

From: [Chu, Kelvin \(IO\)](#)
To: [Clayton, Angela \(IO\)](#)
Cc: [Politano, Lou \(IO\)](#)
Subject: RE: IO Team re: Highway 17 and Bradford Bypass
Date: October 13, 2021 12:02:20 PM

Apologies Angela but I have a prior engagement for tonight. I'll follow up with Lou/yourself later for any follow ups.

Regards,
Kelvin

-----Original Appointment-----

From: Clayton, Angela (IO) <Angela.Clayton@infrastructureontario.ca>
Sent: October 13, 2021 10:22 AM
To: Chu, Kelvin (IO); Ho, David; Gray, Bruce
Cc: Politano, Lou (IO)
Subject: IO Team re: Highway 17 and Bradford Bypass
When: October 13, 2021 5:00 PM-5:25 PM (UTC-05:00) Eastern Time (US & Canada).
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From: [Politano, Lou \(IO\)](#)
To: [Chu, Kelvin \(IO\)](#)
Subject: RE: IO Team re: Highway 17 and Bradford Bypass
Date: October 13, 2021 11:54:00 AM

yes

From: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Sent: October 13, 2021 11:48 AM
To: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Subject: RE: IO Team re: Highway 17 and Bradford Bypass

Lou, are you able to attend at this timeslot?

Regards,

K

-----Original Appointment-----

From: Clayton, Angela (IO) <Angela.Clayton@infrastructureontario.ca>
Sent: October 13, 2021 10:22 AM
To: Chu, Kelvin (IO); Ho, David; Gray, Bruce
Cc: Politano, Lou (IO)
Subject: IO Team re: Highway 17 and Bradford Bypass
When: October 13, 2021 5:00 PM-5:25 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

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From: [Langford, Chris \(IO\)](#)
To: [Graham, Sheri \(MTO\)](#)
Cc: [Politano, Lou \(IO\)](#); [Lorentz, Craig](#); [Shah, Chetak \(IO\)](#); [McGowan, Sarah \(IO\)](#); [Kulathinal, Rina \(MTO\)](#); [Nichol, Susan \(MTO\)](#); [Remollino, Dan \(MTO\)](#)
Subject: RE: Tolling - Bradford Bypass and Provincial Strategy Touchpoint
Date: April 19, 2021 3:24:39 PM

Hi Sheri –

I hope that you're well.

Appreciating that we will be meeting tomorrow to delve more deeply into the various component streams of work vis-à-vis the BBP, I'm wondering if you might be able to share any material in advance for us to get up-to-speed? In particular, are you able to provide to us the tolling analysis conducted by WSP?

Please let us know, and looking forward to connecting tomorrow.

Thanks,
Chris

-----Original Appointment-----

From: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>

Sent: February 24, 2021 9:50 AM

To: Remollino, Dan (MTO); Graham, Sheri (MTO); Deletsu, Jeanne-Marie (MTO); Kulathinal, Rina (MTO); Kalali, Salia (MTO); Politano, Lou (IO); Yuen, Vivian (MTO); Bailey, Sandra (MTO); Curtis, Calvin (MTO); Nichol, Susan (MTO); Liegler, Brenda (MTO); Lorentz, Craig; Kuzmanovic, Sanja (MTO); Langford, Chris (IO); Adriano, Nancy (MTO); De Decker, Sarah (MTO)

Cc: McGowan, Sarah (IO)

Subject: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

When: April 20, 2021 1:00 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

Holding this time for follow up discussion and touchpoint on BBP Tolling and Provincial Tolling

Thanks

Dan

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From: [Remollino, Dan \(MTO\)](#)
To: [Graham, Sheri \(MTO\)](#); [Deletsu, Jeanne-Marie \(MTO\)](#); [Kulathinal, Rina \(MTO\)](#); [Kalali, Salia \(MTO\)](#); [Politano, Lou \(IO\)](#); [Yuen, Vivian \(MTO\)](#); [Bailey, Sandra \(MTO\)](#); [Curtis, Calvin \(MTO\)](#); [Nichol, Susan \(MTO\)](#); [Liegler, Brenda \(MTO\)](#); [Lorentz, Craig](#); [Kuzmanovic, Sanja \(MTO\)](#); [Langford, Chris \(IO\)](#); [Adriano, Nancy \(MTO\)](#); [De Decker, Sarah \(MTO\)](#)
Cc: [McGowan, Sarah \(IO\)](#); [Lau, Johnson \(MTO\)](#)
Subject: RE: Tolling - Bradford Bypass and Provincial Strategy Touchpoint
Date: April 26, 2021 1:28:34 PM
Attachments: [Bradford Bypass tolling evaluation progress 200421.pdf](#)

Hi Everyone

Further to my email below – Jeanne-Marie and Sheri would appreciate feedback/comments on what has been done to date and to know if any specific additional sensitivity scenarios has been identified so we can add to the list of scenarios to be undertaken. Also - if there is a preference on scenarios to carry forward for business case development.

Please provide any comments you have directly to Jeanne-Marie and Sheri.

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: Remollino, Dan (MTO)
Sent: April 20, 2021 2:21 PM
To: Graham, Sheri (MTO) <Sheri.Graham@ontario.ca>; Deletsu, Jeanne-Marie (MTO) <Jeanne-Marie.Deletsu@ontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>; Kalali, Salia (MTO) <Salia.Kalali@ontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Yuen, Vivian (MTO) <Vivian.Yuen@ontario.ca>; Bailey, Sandra (MTO) <Sandra.Bailey@ontario.ca>; Curtis, Calvin (MTO) <Calvin.Curtis@ontario.ca>; Nichol, Susan (MTO) <Susan.Nichol@ontario.ca>; Liegler, Brenda (MTO) <Brenda.Liegler@ontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Kuzmanovic, Sanja (MTO) <Sanja.Kuzmanovic@ontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>; De Decker, Sarah (IAO) <Sarah.DeDecker@ontario.ca>
Cc: McGowan, Sarah (IO) <Sarah.McGowan@infrastructureontario.ca>; Lau, Johnson (MTO) <Johnson.Lau@ontario.ca>
Subject: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

Hi Everyone – please see deck from our discussion today. Thank you Jeanne-Marie for the update today.

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: [Langford, Chris \(IO\)](#)
To: [Politano, Lou \(IO\)](#)
Cc: [Chu, Kelvin \(IO\)](#)
Subject: RE: Tolling - Bradford Bypass and Provincial Strategy Touchpoint
Date: April 29, 2021 4:49:37 PM

Thanks, Lou – yes, we are consolidating comments now, and aiming to send back to Dan et al. by Monday.

Kelvin – Would it work to share your thoughts by EOD tomorrow/over the weekend, and we will prepare the final input to be shared on behalf of IO?

Chris

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>
Sent: April 29, 2021 4:22 PM
To: Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>
Cc: Chu, Kelvin (IO) <Kelvin.Chu@infrastructureontario.ca>
Subject: FW: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

Chris, will you be preparing comments?
Kelvin, pl review
thnx

From: Remollino, Dan (MTO) <Dan.Remollino@ontario.ca>
Sent: April 26, 2021 1:27 PM
To: Graham, Sheri (MTO) <Sheri.Graham@ontario.ca>; Deletsu, Jeanne-Marie (MTO) <Jeanne-Marie.Deletsu@ontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>; Kalali, Salia (MTO) <Salia.Kalali@ontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Yuen, Vivian (MTO) <Vivian.Yuen@ontario.ca>; Bailey, Sandra (MTO) <Sandra.Bailey@ontario.ca>; Curtis, Calvin (MTO) <Calvin.Curtis@ontario.ca>; Nichol, Susan (MTO) <Susan.Nichol@ontario.ca>; Liegler, Brenda (MTO) <Brenda.Liegler@ontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Kuzmanovic, Sanja (MTO) <Sanja.Kuzmanovic@ontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>; De Decker, Sarah (MTO) <Sarah.DeDecker@ontario.ca>
Cc: McGowan, Sarah (IO) <Sarah.McGowan@infrastructureontario.ca>; Lau, Johnson (MTO) <Johnson.Lau@ontario.ca>
Subject: RE: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

Hi Everyone

Further to my email below – Jeanne-Marie and Sheri would appreciate feedback/comments on what has been done to date and to know if any specific additional sensitivity scenarios has been identified so we can add to the list of scenarios to be undertaken. Also - if there is a preference on scenarios to carry forward for business case development.

Please provide any comments you have directly to Jeanne-Marie and Sheri.

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: Remollino, Dan (MTO)

Sent: April 20, 2021 2:21 PM

To: Graham, Sheri (MTO) <Sheri.Graham@ontario.ca>; Deletsu, Jeanne-Marie (MTO) <Jeanne-Marie.Deletsu@ontario.ca>; Kulathinal, Rina (MTO) <Rina.Kulathinal@ontario.ca>; Kalali, Salia (MTO) <Salia.Kalali@ontario.ca>; Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>; Yuen, Vivian (MTO) <Vivian.Yuen@ontario.ca>; Bailey, Sandra (MTO) <Sandra.Bailey@ontario.ca>; Curtis, Calvin (MTO) <Calvin.Curtis@ontario.ca>; Nichol, Susan (MTO) <Susan.Nichol@ontario.ca>; Liegler, Brenda (MTO) <Brenda.Liegler@ontario.ca>; Lorentz, Craig <Craig.Lorentz@infrastructureontario.ca>; Kuzmanovic, Sanja (MTO) <Sanja.Kuzmanovic@ontario.ca>; Langford, Chris (IO) <Chris.Langford@infrastructureontario.ca>; Adriano, Nancy (MTO) <Nancy.Adriano@ontario.ca>; De Decker, Sarah (IAO) <Sarah.DeDecker@ontario.ca>

Cc: McGowan, Sarah (IO) <Sarah.McGowan@infrastructureontario.ca>; Lau, Johnson (MTO) <Johnson.Lau@ontario.ca>

Subject: Tolling - Bradford Bypass and Provincial Strategy Touchpoint

Hi Everyone – please see deck from our discussion today. Thank you Jeanne-Marie for the update today.

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell

From: [Ho, David](#)
To: [Politano, Lou \(IO\)](#)
Subject: RE: URGENT - Bradford
Date: November 1, 2021 11:24:47 AM

Sure – I can make time. How about 12 noon?

We should involve Angela?

Is Michael part of the MO briefing?

David Ho (he, him)

Infrastructure Ontario

Executive Vice President, Procurement and Program Management

david.ho@infrastructureontario.ca

+1 416 357 9542

From: Politano, Lou (IO) <Lou.Politano@infrastructureontario.ca>

Sent: November 1, 2021 11:20 AM

To: Ho, David <David.Ho@infrastructureontario.ca>

Subject: URGENT - Bradford

David, have a minute for a call? MO briefing this pm.

From: [Remollino, Dan \(MTO\)](#)
To: [Graham, Sheri \(MTO\)](#); [Deletsu, Jeanne-Marie \(MTO\)](#); [Kulathinal, Rina \(MTO\)](#); [Kalali, Salia \(MTO\)](#); [Politano, Lou \(IO\)](#); [Yuen, Vivian \(MTO\)](#); [Bailey, Sandra \(MTO\)](#); [Curtis, Calvin \(MTO\)](#); [Nichol, Susan \(MTO\)](#); [Liegler, Brenda \(MTO\)](#); [Lorentz, Craig](#); [Kuzmanovic, Sanja \(MTO\)](#); [Langford, Chris \(IO\)](#); [Adriano, Nancy \(MTO\)](#); [De Decker, Sarah \(MTO\)](#)
Cc: [McGowan, Sarah \(IO\)](#); [Lau, Johnson \(MTO\)](#)
Subject: Tolling - Bradford Bypass and Provincial Strategy Touchpoint
Date: April 20, 2021 2:22:20 PM
Attachments: [Bradford Bypass tolling evaluation progress 200421.pdf](#)

Hi Everyone – please see deck from our discussion today. Thank you Jeanne-Marie for the update today.

Thanks

Dan

Dan Remollino P.Eng.

416 523-4937 Cell