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Report
Committee of Council
The Corporation of the City of Brampton
2019-04-03

Date: 2018-12-18

Subject: **Budget Amendment and Recommendation Report: Hurontario-Main Street Light Rail Transit Extension Study and Related Transportation Initiatives - Wards 1, 2, 3, 4, 5, 7 & 8 (File IA.A (16-3130-101))**

Contact: Chris Duyvestyn, Director, Transportation Special Projects,
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Recommendations:

1. That the report from Chris Duyvestyn, Director, Transportation Special Projects, Public Works & Engineering, dated December 18, 2018, to the Committee of Council Meeting of April 3, 2019, re: **Budget Amendment and Recommendation Report: Hurontario-Main Street Light Rail Transit Extension Study and Related Transportation Initiatives - Wards 1, 2, 3, 4, 5, 7 & 8 (File IA.A (16-3130-101))**, be received; and
2. That staff be directed to update the Hurontario-Main Light Rail Transit Environmental Assessment study to include consideration for a Main-George One-Way Loop in addition to underground tunneling options and the original Hurontario-Main Light Rail Transit approved route, and incorporate elements of the enhanced streetscaping for Downtown Reimagined where possible; and
3. That a budget amendment be approved in the amount of \$1,000,000 to top-up Project #174115-001 – Light Rail Transit Extension study with funding of \$1,000,000 from General Rate Stabilization Reserve; and
4. That staff be directed to examine rapid transit on Kennedy Road, McLaughlin Road and Hurontario-Main Street north of Brampton GO to Mayfield Road/Highway 410 as part of the next update to the Brampton Transportation Master Plan; and
5. That staff report back to Committee of Council once further discussions with Metrolinx have progressed to define the scope of work for the Downtown Mobility Hub, and additional information is obtained about Metrolinx's transit oriented development strategy for possible ways to build partnerships in Downtown Brampton.

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Overview:

- **The Hurontario-Main Street Light Rail Transit (LRT) Environmental Assessment (EA) update study (Brampton Gateway Terminal to Brampton GO station) shall consider three options (HMLRT TPAP approved, Main-George one-way loop, and tunneling) and look to incorporate elements of the enhanced streetscaping for Downtown Reimagined where possible.**
- **The estimated cost to update the Hurontario-Main LRT EA study is \$4.0 million, requiring a budget amendment of \$1,000,000 to top-up the remaining funding from the previous LRT Extension study for Kennedy Road and McLaughlin Road.**
- **Based on preliminary transit ridership modelling results, the following should be examined further as part of the next update to the Brampton Transportation Master Plan:**
 - **Züm service on Kennedy Road from Heart Lake Terminal to Brampton/Mississauga boundary.**
 - **Potential for Züm service on McLaughlin Road connecting to Sheridan College.**
 - **Priority bus/BRT on Hurontario/Main Street between Brampton GO and Mayfield Road/Highway 410.**
- **Staff will report back to Committee of Council once further discussions with Metrolinx have progressed to define the scope of work for the Downtown Mobility Hub, and additional information is obtained about Metrolinx's transit oriented development strategy for possible ways to build partnerships in Downtown Brampton.**

Background:

At the December 12, 2018 Meeting of Council (December 5, 2018 Committee of Council), staff was directed to revise the Brampton Light Rail Transit (LRT) Extension Study as follows:

- Update the Hurontario-Main LRT Environmental Assessment (EA), including study and consideration of an underground tunneling option
- Use Bus Rapid Transit (BRT) as the technology for Kennedy Road and McLaughlin Road and consider extending those alignments further north and/or south
- Study rapid transit options from the Brampton GO Station to Mayfield Road on Main Street as contemplated in the Brampton Transportation Master Plan (TMP)

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- Report on an implementation strategy for a downtown Mobility Hub

In addition, staff was asked to report back about expediting the Queen Street Rapid Transit study in order to commence an EA study and secure Provincial and Federal funding as well as consider electric buses for any BRT project. An update on these last two items was provided at the March 20, 2019 Committee of Council meeting.

Following the previous Council decision to not proceed with the Hurontario-Main LRT north of Steeles Avenue (Brampton Gateway Terminal) on October 27, 2015, the Region of Peel proceeded with the design for the replacement and renewal of their servicing infrastructure in Downtown Brampton. As a result, staff was directed by Council to consider enhanced streetscaping as part of Downtown Reimagined in order to provide pedestrian capacity, provision for all modes of transportation and ensure the downtown core as a destination place as part of the Region's infrastructure replacement project. On December 12, 2018, the Downtown Reimagined project was paused pending further work to reduce the uncertainty associated with project costs and the development of an implementation plan for the various projects in the downtown core including LRT on Main Street in Downtown Brampton.

Current Situation:

Main Street LRT (Brampton Gateway Terminal to Brampton GO)

Based on Council's direction and previous work undertaken, staff propose the following options in Table 1 be considered as part of an update to LRT on Main Street between Brampton Gateway Terminal and Brampton GO station (see Appendix A – Map of Main Street LRT Options).

Table 1: Main Street LRT Options

No.	Option	LRT Stops	Length	Cost (\$)
1.	Original Hurontario-Main LRT TPAP approved surface (at-grade) route on Main St from Steeles to Brampton GO	<ul style="list-style-type: none"> • Charolais (at-grade) • Nanwood (at-grade) • Wellington/Queen (at-grade) • Brampton GO (at-grade) 	3.5 km	\$400 M
2.	Downtown Main-George one-way loop at-grade route connecting Main St-Brampton GO-George St-Wellington St (same as TPAP approved route south of Wellington St)	<ul style="list-style-type: none"> • Charolais (at-grade) • Nanwood (at-grade) • Queen (at-grade) • Brampton GO (at-grade) 	3.9 km	\$450 M

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3.a	Surface route to south of Nanwood Dr, and tunnel from south of Nanwood Dr to Brampton GO under Main St	<ul style="list-style-type: none"> • Charolais (at-grade) • Nanwood (underground) • Queen (underground) • Brampton GO (underground) 	1.2 km at-grade & 2.1 km underground (3.3 km total)	\$1.4 B – \$1.7 B
3.b	Surface route to south of Nanwood Dr, and tunnel from south of Nanwood Dr to Brampton GO under Main St	<ul style="list-style-type: none"> • Charolais (at-grade) • Elgin (at-grade) • Downtown/Brampton GO (underground) 	1.2 km at-grade & 2.1 km underground (3.3 km total)	\$1.0 B – \$1.15 B
3.c	Surface route to south of Nanwood Dr, and tunnel from south of Nanwood Dr to Brampton GO under Main St with diversion under George St in Downtown Brampton	<ul style="list-style-type: none"> • Charolais (at-grade) • Elgin (at-grade) • Downtown/Brampton GO (underground) 	1.2 km at-grade & 2.2 km underground (3.4 km total)	\$1.05 B – \$1.2 B

Option #1 is the Hurontario-Main LRT TPAP approved at-grade route with dedicated LRT lanes in the centre of the roadway south of Nanwood Drive, shared running LRT/vehicular traffic lanes in the centre of the roadway between Nanwood Drive and Wellington Street, and dedicated LRT in the curb lanes north of Wellington Street into the Brampton GO station.

Option #2 is a one-way loop at-grade that travels northbound on Main Street, connects to the Brampton GO station, and travels southbound on George Street and eastbound on Wellington Street West before travelling further southbound on Main Street (same as HMLRT TPAP approved route south of Wellington Street). This option was discussed as part of the facilitated sessions with Council in the Fall of 2015, and was presented at the October 27, 2015 Council meeting.

Option #3.a is an at-grade route to south of Nanwood Drive and a tunnel from south of Nanwood Drive to the Brampton GO station with one at-grade LRT stop and three underground LRT stops.

Option #3.b is similar to Option #3.a except that the underground Nanwood LRT stop is replaced with an at-grade LRT stop further south at Elgin Drive, and the two LRT stops in Downtown Brampton are combined into one underground LRT stop, significantly reducing its cost compared to Option #3.a as discussed below.

Option #3.c is similar to Option #3.b except the LRT tunnel diverts from under Main Street to under George Street in Downtown Brampton. This option avoids any potential constraints on Main Street in downtown such as the underground channel if needed.

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These high level cost estimates range from \$400 million to \$450 million for the at-grade options to \$1.0 billion to \$1.7 billion for the underground tunnel options. These cost estimates should be considered as high level order of magnitude costs as there are several unknowns that may affect these options. For instance, further investigation is required for the buried drainage channel in downtown, and the method of construction for the tunnel portion is assumed to be sequential excavation method (mining), which will need to be confirmed through the geotechnical and hydrogeology investigations for soil and water table conditions.

The EA study will be coordinated with the Centre of Innovation, University, Downtown Transit Terminal, Downtown Reimagined, and other downtown projects. The LRT stop at the Brampton GO station will likely be on the north side of the CN tracks with a pedestrian connection underneath since the City is looking at the Centre of Innovation to be located south of the CN tracks. Possible integration with Shoppers World will also be examined as part of the EA study, which will be coordinated with the proposed redevelopment of the site by RioCan.

The scope of work for the EA study update will include technical studies, such as transportation and traffic analysis, hydrogeology, geotechnical, noise and vibration, and other studies, as well as preliminary design, business case analysis, agency and public consultation, and completion of TPAP requirements. The previous studies completed as part of the original TPAP approved Hurontario-Main LRT (HMLRT) Environmental Project Report (EPR) will be used as background and support for the EA study.

EA Study Cost and Schedule

The pre-TPAP work (technical studies, preliminary design, business case, consultation) is expected to be completed by summer 2020 followed by TPAP, which will take up to six months for EA approval by March 2021. Up to three public open houses will be held including one public open house during TPAP if required. Staff will provide update reports to Council at key milestones such as prior to public meetings and the initiation of TPAP. The cost to undertake this EA study update is estimated at \$4.0 million.

Downtown Reimagined Streetscape Project

Each of these options will also look to incorporate elements of the enhanced streetscaping for Downtown Reimagined where possible. The tunnel options (Option #3) will allow Downtown Reimagined to proceed on Main Street as originally planned, except at underground station access points. Option #2 only uses one lane for LRT on Main Street north of Wellington Street, providing an opportunity to accommodate some of the elements of Downtown Reimagined. Option #1 provides minimal opportunities to incorporate the elements of Downtown Reimagined on Main Street as two lanes are used for each of LRT and vehicular traffic (four lanes total), which is similar in width to the four lanes of vehicular traffic and parking that currently exist today. The EA study

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will provide an opportunity to combine the objectives for HMLRT and Downtown Reimagined where possible.

Environmental Assessment Process

Staff has confirmed with the Ministry of Environment, Conservation and Parks (MECP) that both the original TPAP approved HMLRT EPR and the Environmental Study Report for Downtown Reimagined still have valid EA approvals as separate projects. This means that the City could proceed separately with either the original HMLRT route or Downtown Reimagined on Main Street without further EA work. However, any major change such as tunneling or a one-way loop would require an addendum to the approved HMLRT EPR by all three proponents (Brampton, Mississauga, Metrolinx). Alternatively the City of Brampton could complete the EA study as a new project under TPAP if desired, or if there is a change to the HMLRT proponents. The pre-TPAP work would be the same regardless of the EA approval process chosen; however, an addendum to the HMLRT EPR would be shorter in duration (approx. 2-3 months) compared to the six months for a new TPAP approval.

An amendment to the Downtown Reimagined EA may also be required depending on the final Main Street LRT solution. The decision on the EA process will not be determined until after the pre-TPAP work is completed and the final Main Street LRT solution is chosen, which will also depend on further discussions with Metrolinx and Mississauga about co-proponency. Staff had a teleconference with Metrolinx to discuss the scope changes to the LRT extension, business case analysis, and Metrolinx's participation in the EA study including the business case analysis. Staff is awaiting a response from Metrolinx on the business case analysis and their role in the EA study.

Other Related Transportation Initiatives

Following Council's direction to revise the Brampton LRT Extension study for LRT on Main Street, BRT on Kennedy Road and McLaughlin Road, and rapid transit between Brampton GO and Mayfield Road, the project team undertook preliminary transit ridership modelling for each route with the findings summarized below.

Hurontario/Main north of Brampton GO to Mayfield Road

- Metrolinx's 2041 Regional Transportation Plan identifies Hurontario/Main between Brampton GO and Highway 410 as a priority bus corridor.
- There is sufficient ridership to justify priority bus/BRT, and possibly future LRT extension to Bovaird Drive or Sandalwood Parkway in the long-term.
- Recommend looking at priority bus/BRT in the short-to-medium term, and protecting for a future LRT Extension in the long-term.

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Kennedy Road

- 2015 Brampton Transportation Master Plan identified the need for Züm service on Kennedy Road between Heart Lake Terminal and Steeles Avenue by 2041.
- With the parallel transit service of Hurontario-Main LRT extended to Brampton GO, there is less demand to run exclusive BRT service on Kennedy Road.
- The projected ridership on Kennedy Road is appropriate for a Züm service, running between Heart Lake Terminal (Sandalwood Parkway) and the Brampton/Mississauga boundary.

McLaughlin Road

- Similarly, the ridership demand on McLaughlin Road does not support BRT given the parallel Hurontario-Main LRT and that Züm service is planned on Chinguacousy Road in 2022/2023 as part of the current Brampton Transit 5-year business plan.
- Results show that conventional bus service on McLaughlin Road is appropriate.
- Given that Sheridan College is a key destination for transit, the potential for Züm service should be examined on McLaughlin Road as part of the next Brampton Transportation Master Plan.

High Level Cost for Hurontario-Main LRT and Other Related Transportation Initiatives

A high level cost estimate for these transit projects ranges from approximately \$1.7 billion to \$3.0 billion which includes:

- Hurontario-Main LRT (Brampton Gateway Terminal to Brampton GO)
- Hurontario-Main Priority Bus/BRT (Brampton GO to Highway 410)
- Züm Kennedy Road (Heart Lake Terminal to Brampton/Mississauga boundary)
- Züm McLaughlin Road (from Sheridan College northerly)
- Queen Street BRT (Downtown Brampton to Highway 50)

The range of costs is due to the Hurontario-Main LRT options which range from \$400 million to \$1.7 billion. These costs should be considered as high level costs since detailed studies have not been undertaken to-date, but these costs provide an order of magnitude for funding opportunities from other levels of government.

Downtown Mobility Hub

Staff had an initial conversation regarding the need for a Downtown Mobility Hub with Metrolinx with further detailed discussions required to define the scope of work for the Downtown Mobility Hub and to obtain additional information about Metrolinx's transit oriented development strategy in order to look for opportunities to build partnerships in Downtown Brampton. Once these details are determined, staff will report back to

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Committee of Council regarding the implementation strategy for the Downtown Mobility Hub including any budget requirements.

Corporate Implications:

Financial Implications:

Funding for the Hurontario-Main Street Light Rail Transit (LRT) Environmental Assessment is available in Capital Project #174115-001 – Light Rail Transit Extension Environmental Assessment Study:

Approved Budget	Expenditures	Commitment	Balance
\$4,400,000	\$1,004,890	\$3,382,160	\$12,950

However, additional funds in the amount of \$1,000,000 are required to update the EA study to include consideration for a Main-George One-Way Loop in addition to underground tunneling options and the original Hurontario-Main Light Rail Transit approved route, and incorporate elements of the enhanced streetscaping for Downtown Reimagined where possible.

Therefore, a budget amendment will be required to increase capital project 174115-001 in the amount of \$1,000,000 with funding to be transferred from the General Rate Stabilization Reserve.

There is sufficient funding in General Rate Stabilization Reserve to fund this initiative.

Strategic Plan:

This report achieves the Strategic Plan priorities of Move & Connect and Smart Growth with the delivery of well-planned infrastructure and efficient transit modes to shape a liveable city, and the building of complete communities to accommodate growth for people and jobs. The LRT Extension study is part of Regional Connections – one of the six areas of focus for the Strategic Plan.

Living the Mosaic – 2040 Vision:

This report directly aligns with the vision that Brampton will be a mosaic of safe, integrated transportation choices and new modes, contributing to civic sustainability, and emphasizing walking, cycling, and transit. The Brampton Transit Network Plan is part of the Integrated Transit Network (Action #4-3) and the transit line between Downtown and Uptown (Action #4-4).

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Conclusion:

Staff is recommending that further studies be undertaken including the following:

- Update the Hurontario-Main LRT EA study to include consideration for three options (HMLRT TPAP approved, Main-George one-way loop, tunneling) between Brampton Gateway Terminal and Brampton GO station while looking to incorporate elements of the enhanced streetscaping for Downtown Reimagined where possible. The estimated cost to update the Hurontario-Main LRT EA study is \$4.0 million, requiring a budget amendment of \$1,000,000 to top-up the remaining funding from the previous LRT Extension study for Kennedy Road and McLaughlin Road.
- Based on the preliminary transit ridership modelling results, the following should be examined further as part of the next update to the Brampton Transportation Master Plan:
 - Züm service on Kennedy Road from Heart Lake Terminal to Brampton/Mississauga boundary.
 - Potential for Züm service on McLaughlin Road connecting to Sheridan College.
 - Priority bus/BRT on Hurontario/Main Street between Brampton GO and Mayfield Road.

Staff will report back to Committee of Council once further discussions with Metrolinx have progressed to define the scope of work for the Downtown Mobility Hub, and additional information is obtained about Metrolinx's transit oriented development strategy for possible ways to build partnerships in Downtown Brampton.

Approved by:

Chris Duyvestyn, P. Eng.,
Director, Transportation
Special Projects

Approved by:

Bruce Zvaniga, P. Eng.,
Commissioner, Public
Works & Engineering

Attachments:

- A. Map of Main Street LRT Options

Report authored by: Chris Duyvestyn

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Attachment A – Map of Main Street LRT Options

Option 1: Hurontario-Main
LRT TPAP Approved
At-Grade Route

Option 2: Main-George
One-Way Loop
At-Grade Route

Option 3:
Underground
Tunnel Options

