BRAMPTON

Report
Staff Report
The Corporation of the City of Brampton
2023/05/10

Date: 2023-03-29

Subject: **Light Rail Transit (LRT) Extension Study Update**

Secondary Title: Light Rail Transit (LRT) Extension Study along Main Street from Brampton Gateway Terminal to Brampton GO Station – 30% Design of Preferred LRT Alignments

Contact: Compton Bobb, LEL, MCSCE, ENV SP, Senior Project Engineer, Higher Order Transit – EA's, Transit

Report Number: Brampton Transit-2023-388

Recommendations:

1. That the report titled: **Light Rail Transit (LRT) Extension Study Update,** to the Committee of Council Meeting of May 10, 2023, be received and

2. That staff be directed to have further dialogue with Metrolinx and Provincial officials to help inform the preferred alignment (Surface or Tunnel) to be taken through the Transit Project Assessment Process (TPAP), and report back in approximately six months on outcome of these discussions.

3. That staff be directed to engage with federal and provincial officials to help explore and discuss potential funding options for the LRT Extension.

4. That a copy of this report be forwarded to Metrolinx, the Province (the Ministry of Transportation, and the Ministry of Infrastructure) and the Federal government (Ministry of Transport, Ministry of Infrastructure).

Overview:

- **In May 2019, Brampton Council approved the study that would update the 2014 approved Transit Project Assessment Process (TPAP) alignment and bring the LRT along Main Street and into Downtown Brampton. Over**

the past 4 years, the project team has advanced this project and provided several updates to Council through various reports and workshops.

- **In early 2021, the project team narrowed down the long list of LRT alignments to a short-list and the Metrolinx Preliminary Design Business Case was developed for each of the short listed LRT alignments. A single surface and tunnel option had emerged as the two preferred alignments.**

- **In July 2021, Council directed staff to take both the preferred surface and preferred tunnel options to the 30% Design and Draft Environmental Project Report (EPR) phase. Council also unanimously supported the tunnel option as the preferred alignment to advance funding advocacy with the current provincial and federal governments.**

- **On February 27, 2023 the project team conducted a Council Workshop to present the findings of the 30% Preliminary Design and Draft EPR's. This report summarizes the materials presented at this workshop and outlines other factors that will influence the project as it advances.**

- **The 30% Preliminary Design and Draft EPR's identified that both the surface and the tunnel options are technically feasible and each comes with its own distinct benefits and costs. The underground option is significantly more costly ($2,804M) compared to the surface option ($933M). However, the underground option also provides real travel time savings for transit riders, pedestrians, cyclists, and motorists and allows the City to achieve its vision for Main St and Downtown Brampton while limiting risks for implementation and operation, compared to the surface option.**

- **The costs estimates for both options increased substantially over the past few years, primarily due to key design updates and inflationary cost pressures. It should be noted that other higher order transit projects have also seen significant cost increases over the past two years (e.g. Ontario Line) and continue to be advanced. Despite the cost increase for both options, the funding required from the federal and provincial governments to deliver higher order transit in Brampton is still comparable to what other cities in the GTHA have received.**

- **In addition to the LRT Extension Study, three additional and significant higher order transit infrastructure projects are concurrently under planning and delivery in downtown Brampton, which include:**
    - **Queen St – Highway 7 Bus Rapid Transit (Metrolinx led)**
    - **Downtown Transit Hub Study (City led)**
    - **GO Rail 3rd Track Expansion and Station Plan (Metrolinx led)**

- **On an annual basis, Metrolinx updates the prioritization of their Frequent Rapid Transit Network (FRTN). This network is made up of various higher order transit projects in the GTHA as outlined in Metrolinx's Regional Transportation Plan. This process helps guide Metrolinx on resourcing and funding decisions. Metrolinx recently released the preliminary results of this year's prioritization and for the first time, the LRT Extension in Brampton ranked as a top priority project.**

- **Based on the advancement of the other various higher order transit projects being planned and delivered in Downton Brampton and the prioritization of the LRT Extension project by Metrolinx, staff see the need for a more dialogue with Metrolinx and provincial officials, to consider aspects of the LRT Extension that may inform all of the transit projects in the downtown.**

- **Staff also see the need for further discussions with various federal and provincial officials on the next stage on the Metrolinx Stage Gate process, and potential funding options for the LRT Extension. Staff will report back to Council in approximately 6 months on the outcome of these various discussions.**

Background:

In September 2014, the Transit Project Assessment Process (TPAP) for Hurontario-Main LRT was approved and in April 2015, the Province announced funding for the Hurontario-Main LRT. Subsequently, in October 2015, Brampton Council endorsed construction of the LRT to Steeles Avenue only and in February 2017 directed staff to study alternative LRT routes into Downtown Brampton. The alternative routes included LRT Steeles Avenue West to McLaughlin Road and north on McLaughlin Road to Downtown Brampton and along Steeles Avenue East to Kennedy Road and North on Kennedy Road to Downtown Brampton.

At its May 22, 2019 meeting (Committee of Council May 15, 2019), Council approved funding and provided direction to staff to update the 2014 Hurontario-Main Light Rail Transit Environmental Assessment Study (2014 HMLRT EA) with consideration for a Main-George one-way loop, tunneling options, the original 2014 HMLRT EA approved surface route, and incorporation of the elements of enhanced streetscaping for Downtown Reimagined, where possible.

Study Purpose

The purpose of this study remained the same, which is to ultimately recommend a preferred alignment for the LRT Extension from the Brampton Gateway Terminal to Brampton GO station following the Main Street corridor.

Study Process

This Study is being carried out under the Transit Project Assessment Process (TPAP, O.Reg. 231/08), and the Metrolinx Business Case Process.

Current Situation:

A long list of potential options was identified and shared for public and stakeholder agencies input at a virtual Open House in June 2020. This long list of options was evaluated and then short listed. The short listed options were further evaluated in a Preliminary Design Business Case (PDBC). Council was updated on the results of the PDBC in March 2021 and the information shared with public and agency stakeholders for input at a virtual Open House in May 2021.

The results of the PDBC identified two emerging options (one surface and one tunnel option) that should be taken forward for further study. In July 2021, Council endorsed Staff's recommendation to advance both the surface and tunnel options the through 30 % Preliminary Design Stage to help further differentiate the benefits of each option. Council also unanimously supported the tunnel option as the preferred alignment to advance funding advocacy with the current provincial and federal governments.

The project team has completed the development of the draft 30 % preliminary design for both the surface and tunnel alignment options with the corresponding draft Environmental Project Report (EPR) for each option. The findings of this work is outlined for each option below.

Preferred Surface Option

Figure 1 below shows the preferred surface alignment along Main St between Steeles Avenue and Downtown Brampton, with LRT stops at Gateway Terminal, Charolaise Blvd, Nanwood, Wellington (southbound only) and Queen (northbound only), and Brampton GO.

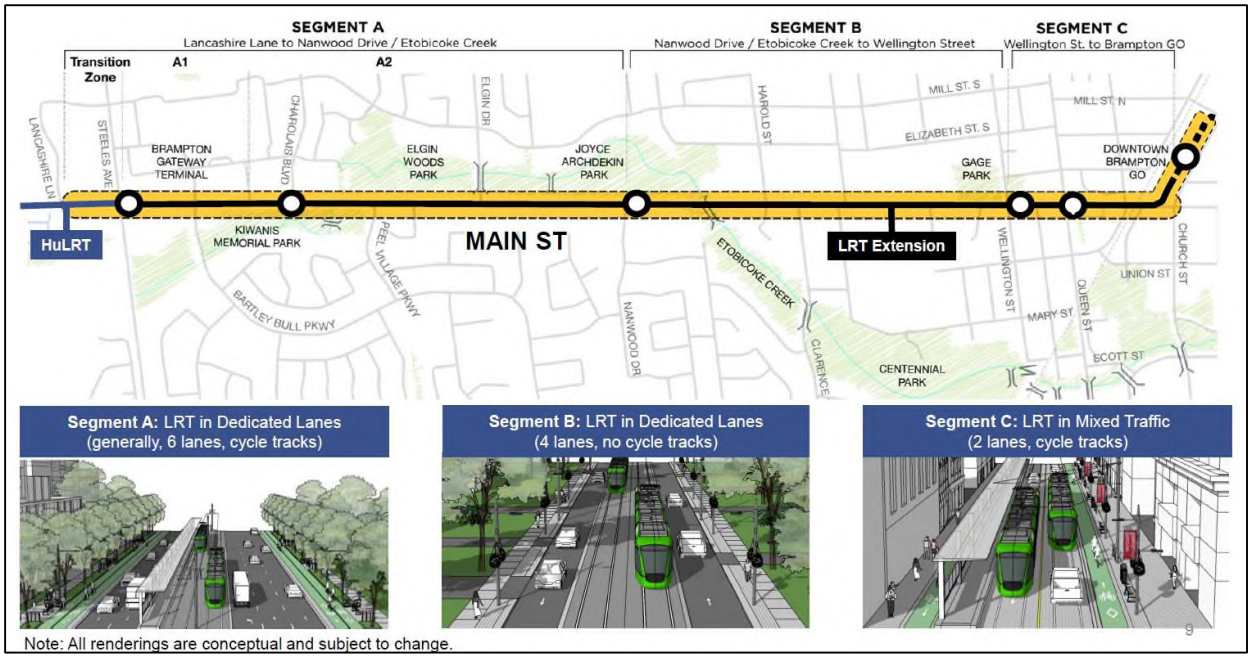

Figure1 – Preferred Surface Alignment

The key design considerations for the surface option identified in the 30% Preliminary Design Stage include:

- Transportations Impacts
- Impacts to Downtown Brampton
- Integration with the Downtown Brampton GO Station.
- Potential for Future Extension to the North
- Operation and Maintenance Risks
- Property Impacts

Transportation Impacts

The transportation impacts for the surface option include higher travel times and access modifications for properties along the corridor. Most residential and business access will be restricted to right-in-right-out. Drivers wishing to turn will require a U-turn at the nearest signalized intersection with a protected left turn phase.

In addition, another key impact is no provision for cycling in Segment B (the heritage section). The width of the existing right-of-way in this segment cannot accommodate cycling infrastructure without the widening of the corridor, which would require the removal of a significant number of trees. To mitigate the cycling gap on the corridor, three parallel cycling connections were identified:

a) Mill Street South on-street, one-way cycling facility
b) Elizabeth Street South on-street, one-way cycling facility
c) The existing Etobicoke Creek recreational trail.

While these parallel routes help to fill the cycling gap, the absence of a dedicated cycling facility in Segment B (approx. 1.3) km stands out in a 21 km corridor that incorporates dedicated cycling infrastructure within the public right-of-way from Port Credit GO to just south of Downtown Brampton.

Travel times were generated for both auto and transit between Steeles Avenue and Downtown Brampton for each of the options. **Table 1** below highlights the significantly higher travel times, especially for auto trips with the surface alignment.

Mode	Direction	Surface Option Travel Time (min)	Underground Option Travel Time (min)
Transit	NB	10 min	7 min
	SB	9 min	7 min
Auto	NB	24 min	7 min
	SB	7 min	7 min

Table 1- Travel Times by Mode

Impacts to Downtown Brampton

The LRT surface option in Segment C (Wellington Street to Downtown Brampton) have significant impacts in the downtown area. Main Street between Queen Street and Church Street must be lowered by approx. 1.0m under the CN Bridge to accommodate the LRT overhead catenary system (OCS) for the LRT. The current clearance height under the CN Bridge is 4.4m and CN Rail requires a clearance of height of 5.3 m. **Figure 2** below indicates where Main Street would be lowered.

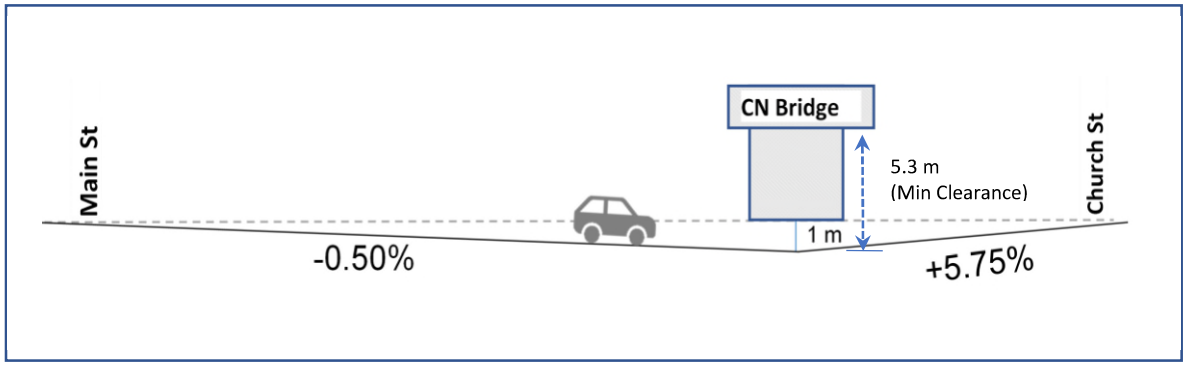

Figure 2 – Lowering of Main St and CN Bridge at Main Street Clearance Height

The lowering of Main Street would also then require the installation of ramps, railings at intersections, and a more constrained pedestrian environment. Some of the elements envisioned in the Downtown Revitalization cross-section would be impacted, such as furnishing/planting zones and the buffer between pedestrians and cyclists.

The approved 2014 EA proposed the use of battery operated LRVs that would not have required the use of OCS in the downtown segment. However, the current LRT Extension is guided by the assumption that the LRV technology being used for the Hazel McCallion LRT would be used for LRT Extension from Steeles Avenue to Brampton GO Station. These LRV's cannot be operated without an OCS.

Integration with the Downtown Brampton GO Station

Figure 3 and **Figure 4** below conceptually depict the integration of the Brampton GO station, and the LRT Terminus under the Surface alignment. The Brampton GO LRT terminus is proposed to be built underground (cut and cover). This is an update from the previous 2014 HMLRT EA design wherein the LRT terminus station was on the surface and situated closer to Main Street.

This design change is necessary, as the LRT station had to be located further west on to the GO Station property, to respond to updated track geometry, provision for connection to Brampton GO, further integrate the LRT and the GO station, and maintain the GO Station parking. The underground station option was chosen due to the grade difference as the LRT line moves westerly from the Main Street towards the GO Station.

Figure 3 – Alignment of Downtown Brampton Station for Surface Option

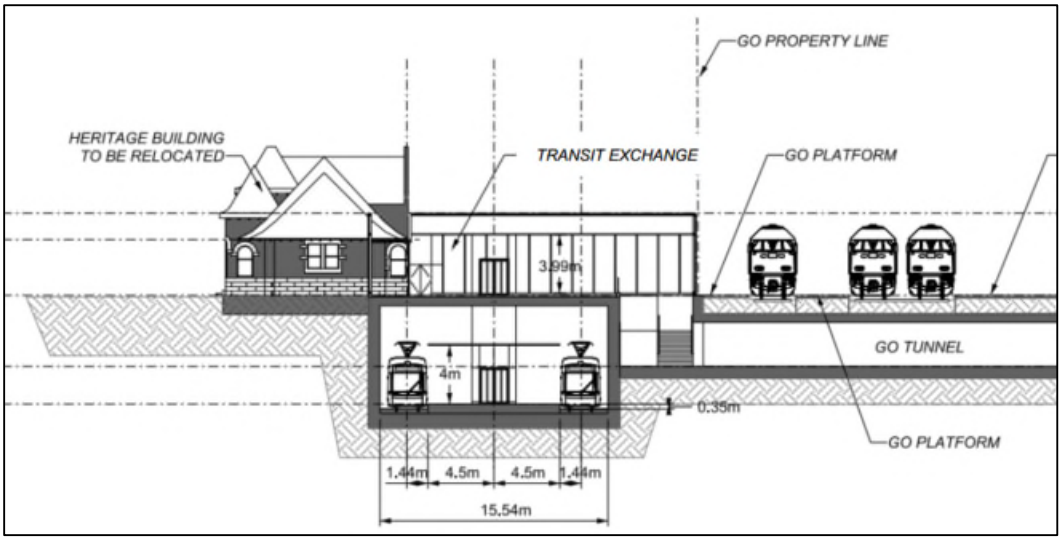

Figure 4 – Concept of Integrated Downtown Brampton LRT and GO Station

Potential for Future Extension to the North

While a potential extension of the LRT is being protected for in the longer term, it is important to consider this eventuality as the city continues to grow, intensification occurs along Main St north of Downtown Brampton and demand for transit also increases. With the updated LRT Terminus for the surface alignment, the options to extend the LRT in the future to the north becomes more complicated primarily due to the track geometry and the LRT Station being underground.

Operation & Maintenance Risks

Operating the LRT surface option in a constrained corridor presents several operational and maintenance related risks. With the LRT in mixed traffic, service disruptions can be anticipated due to mode conflicts, emergency vehicles (fire, EMS) and maintenance activities for utilities including street lighting. Some of these service disruptions could be significant depending on the circumstances.

In addition, it is anticipated there will not be adequate clearance between the overhead catenary system (OCS) conductors and street light infrastructure for maintenance. These maintenance activities (planned and unplanned) will have to be completed while the LRT is not in operation, which could cause significant impact on LRT service depending on the time of day.

Property Impacts (Surface Option)

There are property requirements associated with the surface alignment. This includes potential impact on a listed heritage property due to location of TPSS near Guest St as well as permanent property taking for the LRT and TPSS near the Brampton GO Station. Consultation with affected property owners will occur once a preferred option is selected to be taken forward through TPAP.

Preferred Underground Option

Figure 5 below shows the tunnel alignment along Main St between Steels Avenue and Downtown Brampton with LRT stations at Brampton Gateway, Charolais Blvd, Nanwood (underground), and Brampton GO (underground).

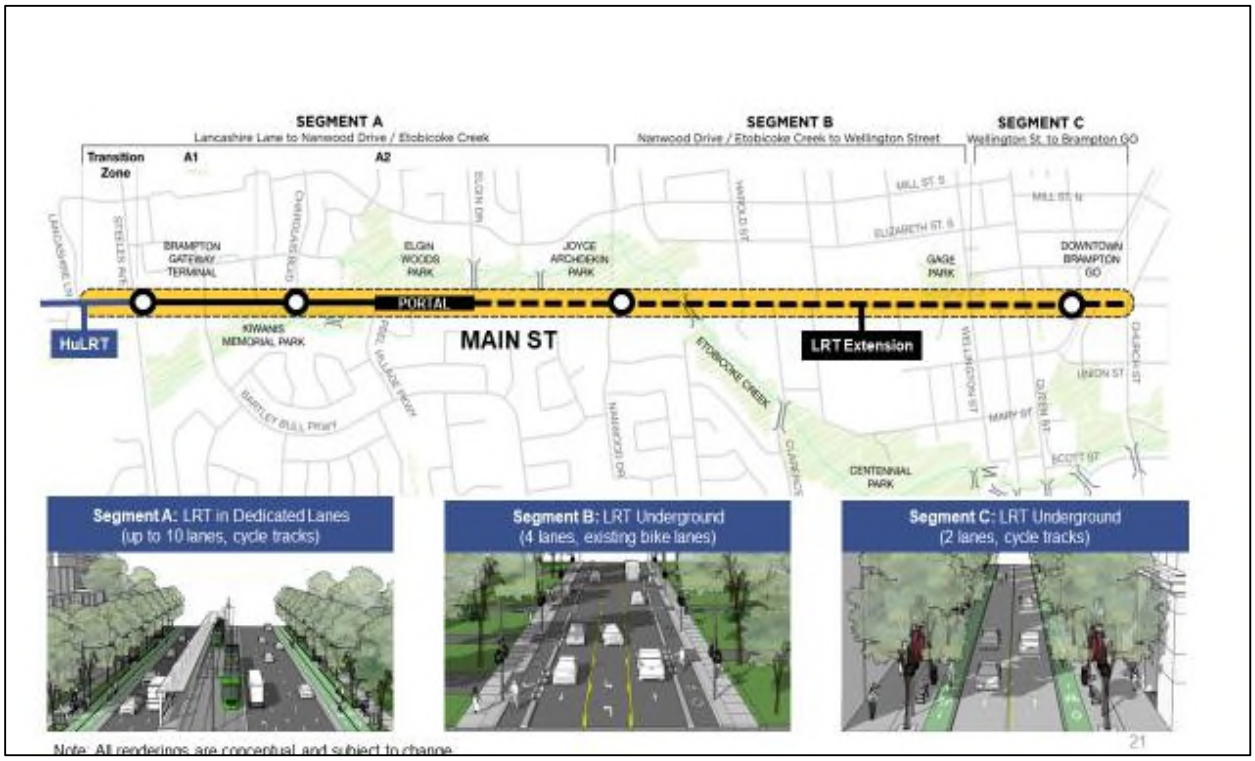

Figure 5 – Preferred Tunnel Alignment

The key design considerations for the tunnel option were as follows:

- Tunnel Approach (construction methodology),
- Underground Stations
- Portal Relocation.
- Property Impacts

Tunnel Approach

Cut and cover construction is proposed between the tunnel portal (south of Elgin Drive) to Nanwood Drive. The Nanwood Station is proposed to be constructed via open cut construction partially within the existing street right-of-way. The remainder of the corridor north of Nanwood Station to Brampton GO station terminating at Church Street will constructed using Sequential Excavation Method (SEM). The opportunity for a second mining operation has been protected for at the Brampton GO station that could help fast track the work as required.

Underground Stations

The size of the station footprint for the Nanwood Station has increased slightly due to further design development. Similarly, the size of the Downtown Brampton station has also increased due to design development and the inclusion of a secondary station entrance/exit (with stairs and escalators) to serve the Queen Street/Main street intersection. The addition of the secondary entrance improves access to the LRT for more residents and businesses in Downtown Brampton. This access will also bring LRT patrons directly into the Garden Square area of Downtown Brampton. Figure 6 below shows the approximate location of the station accesses in Downtown Brampton.

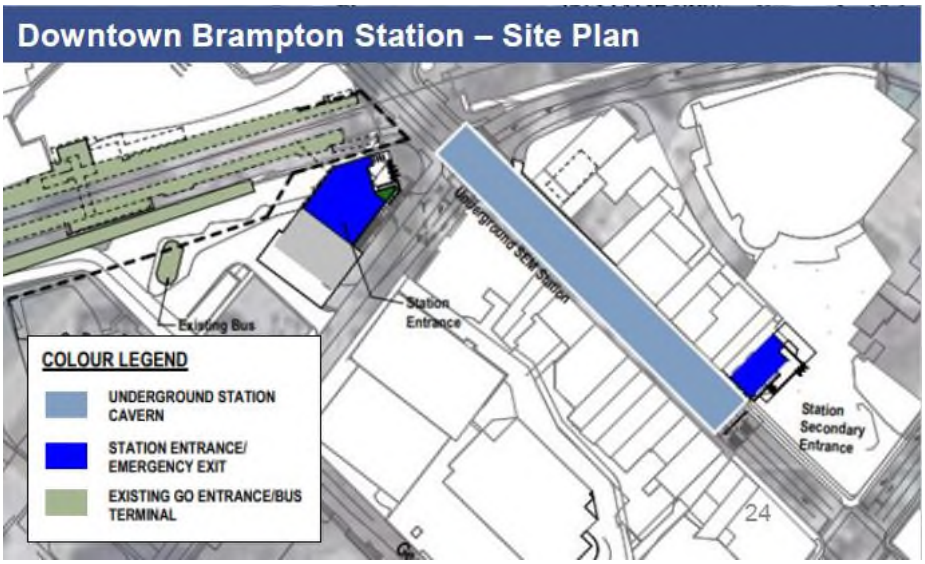

Figure 6 – Downtown Brampton Underground Station & Access Points

Portal Relocation.

The TRCA required that the portal to the tunnel portion be relocated further south, outside of the Etobicoke Creek floodplain to minimize the risk to loss of property or life. This resulted in a 270 m longer underground tunnel, which moved the portal access for the tunnel from just south of Nanwood, to just north of Elgin Dr.

Property Impacts (Tunnel Option)

There are property requirements associated with the tunnel alignment. This includes permanent and temporary takings required for station entrance building, emergency exit building, active transportation improvements and for construction staging area (tunneling activities). Consultation with affected property owners will occur once a preferred option is selected to be taken forward through TPAP.

Cost Update

The capital cost estimates developed as part of the draft Preliminary Design Business Case (PDBC) have been updated through subsequent design development and inflationary factors between 2019 and 2023. **Table 2** and **Table 3** below summarize the updated cost estimates (Class 4/ 5 estimates) for the Surface Option, and the Underground Option respectively.

	Item	Class 4/5 Estimate
	Previous Cost Estimate	**$ 422 M**
	Design Updates	+ $ 310 M
1	Tail tracks	$ 42 M
2	Gateway Terminal Station relocation cost	$ 9 M
3	Brampton GO LRT Terminus Station	$ 216 M
4	Lowering of Main Street between Church and Queen St	$ 43 M
	Inflation and New Cost Data Obtained	+ $ 201 M
	Current Cost Estimate	**$ 933 M**

Table 2 – Surface Option Cost Update

The cost drivers for the surface option include the increase in track length to accommodate tail tracks, the Brampton Gateway Station Relocation costs, design updates at Brampton GO LRT Terminus and the lowering of Main Street in the downtown under the CN Bridge to accommodate over the overhead catenary (OCS) for LRVs.

	Item	Class 4/5 Estimate
	Previous Cost Estimate	**$ 1,700 M**
	Design Updates	+ $ 460 M
1	Tail tracks	$ 92 M
2	Gateway Terminal Station relocation	$ 9 M
3	Brampton GO Station	$ 75 M
4	Nanwood Station	$ 46 M
5	Portal Relocation	$ 167 M
6	Other Costs	$ 71 M
	Inflation and New Cost Data Obtained	+ $ 644 M
	Current Cost Estimate	**$ 2,804 M**

Table 3 –Underground Option Cost Update

The cost drivers for the underground option include the increase in track length to accommodate tail tracks, the Brampton Gateway Station Relocation costs, design updates at Brampton GO Station (including a secondary entrance), design updates at Nanwood Station, relocation of tunnel portal and other costs including the increase in earth, bridge, streetscaping, and utility works costs.

As noted in the tables above, inflation has had a significant impact on the updated cost estimates. Inflation on large scale infrastructure projects appears to be significantly higher than the overall inflation rates with costs increasing by 21% between May of 2021 and January of 2023 alone. In addition, other higher order transit projects have seen significant cost increases over the past two years (e.g. Ontario Line) and continue to be advanced. Staff completed a high level scan of Transit Projects (Light Rail and Subway) in and around the Greater Golden Horseshoe area and is summarized in Appendix 1. The cost per km for the Brampton LRT Extension (for both surface or tunnel) remain in line with the costs for similar light rail infrastructure projects.

Summary Comparison of the Preferred Surface and Tunnel Options

Table 4 below provides a factual summary comparing the key differentiators between the surface and tunnel option. These differentiators are based on the criteria used in the Metrolinx Preliminary Design Business Case.

Key Differentiators		Surface Option	Underground Option
Transportation Impacts	Transit Travel Time	Higher (~ 9 – 10 min)	Lower (~ 7 min)
	Auto Travel Time	Higher (~ 7 – 24 min)	Lower (~ 7 min)
	Daily Ridership	Lower (29,500)	Higher (30,400)
	Access Restrictions	RIRO restrictions and banned left turns	RIRO restrictions in Segment A only
	Bridge Modifications	Required for Etobicoke Creek North and South Bridge	Required only for Etobicoke Creek South Bridge
	Cycling Infrastructure	No cycling in Segment B	Continuous cycling facilities on Main St
Impacts to Downtown	Lowering of Main Street	Results in constrained cross-section, ramps/railings	No lowering, no impacts
	Downtown Revitalization	Does not achieve Downtown Revitalization vision	Accommodates Downtown Revitalization design
Future Extension	Ease of Extension	Challenges in extending the LRT line in the future	No challenges in extending the LRT line in the future
Operations & Maintenance	O&M Risks	Risks to LRT service (disruption), roadway maintenance activities (illumination), emergency services (fire, EMS).	LRT underground, minimal risks
Property Impacts	Heritage Impacts	TPSS2 impacts "listed" heritage property	Minimal impact to built and cultural heritage
	Permanent and Temporary Takings	Fewer Permanent Property Takings Higher Temporary Property Takings	Higher Permanent Property Takings Fewer Temporary Property Takings
Other	Cost	Lower ($933 M)	Higher ($2.8 B)
	Schedule	Shorter total implementation schedule (6 years)	Longer total implementation schedule (7 to 8 years)

Table 4 – Summary Comparison of Preferred Surface and Tunnel Options

The 30% Preliminary Design and Draft EPR's identified that both the surface and the tunnel options are technically feasible and each came with its own distinct benefits and costs. Neither option has distinguished itself as the preeminent alignment however, the tunnel alignment has distinct benefits that will support a vibrant downtown including:

- Time savings. The tunnel alignment will travel from Steeles to downtown Brampton in about 7 minutes.
  - almost 40% faster than current Züm BRT service (11 min)
  - almost 25% faster than proposed surface alignment of the LRT (9 min)
  - and almost 3.5x faster for auto trips travelling the same corridor with the surface LRT (24 min)
- It is easier to extend the line further north along Main Street as intensification builds north of downtown Brampton.

- It will be more reliable compared to a surface alignment as all of the supporting infrastructure is underground.
- Peak hour ridership will increase by a further 5% over the surface alignment.

By comparison, the surface alignment, while significantly less costly:

- Will require Main Street to be closed to traffic through the downtown when maintenance needs to be performed on both the LRT and other City infrastructure (e.g., street lighting).
- Has various operations and maintenance risks, particularly through downtown Brampton when the LRT will be in mixed traffic (e.g., accidents can affect LRT operations or disabled LRT vehicle could stop traffic).
- Has impacts to heritage listed properties close to downtown Brampton.
- Makes it more challenging to harness downtown Brampton as a place-making destination (e.g., farmer's market and New Year's Eve celebrations) which would attract more intensification and more passengers on the LRT.

Funding Advocacy

Over the past two years, the City of Brampton has been strongly advocating to the federal and provincial governments to fund rapid transit projects in Brampton, which includes the tunnel alignment for the LRT Extension, as well as the Queen St. – Highway 7 BRT. These initiatives will put in place the critical transit infrastructure to move people along high growth areas, and connect urban growth centres as well as economic activity hubs, while supporting both provincial and federal priorities such as economic growth, housing and sustainability.

Another focus of this advocacy has been the strong demand for transit in Brampton. Brampton Transit experienced one of the highest transit growth rates in all of Canada during the ten years before the pandemic and led the GTHA in ridership recovery following the pandemic.

Recently staff have identified that the funding required from the federal and provincial governments to deliver higher order transit in Brampton is comparable to what other cities in the GTHA have received (even with the recent cost updates noted above). **Table 5** below compares recent higher order transit projects that the federal and provincial governments have funded in the GTHA and highlights the change in transit demand both before and after the pandemic.

GTHA Rapid Transit Projects	Municipal Population (2021 Census)	Total Cost of Project(s)	Provincial Funding	Federal Funding	Provincial & Federal Funding per Capita	Change in Transit demand between 2009 and 2019	Covid Ridership Recovery (Dec. 2022)
City of Toronto* Scarborough Subway Extension Ontario Line Finch West LRT Eglinton Crosstown	2,794,356	$39.8B	$31.32B	$8.48B	$14,240	12%	-31%
City of Hamilton Hamilton LRT	569,353	$3.4B	$1.7B	$1.7B	$5,970	3%	-18%
City of Brampton Brampton LRT Extension (Tunnel) Queen St - Highway 7 BRT	656,480	$3.3B	$1.65B	$1.65B	$5,030	160%	+16%

Notes: *City of Toronto projects does not include Yonge Subway Extension as it is primarily a York Region Project

Table 5 – Comparative Higher Order Transit Funding, GTA Projects

Brampton leads the GTHS in ridership growth and Covid-19 recovery, yet the funding for rapid transit projects has not been forthcoming from both the federal and provincial governments. Moving forward, this will remain a focus in the City's funding advocacy efforts with the different levels of government.

Coordination with Metrolinx on Higher Order Transit Projects in Downtown Brampton

In addition to the LRT Extension Study, three additional and significant higher order transit infrastructure projects are concurrently under planning and delivery in downtown Brampton, which include:

- Queen St – Highway 7 Bus Rapid Transit (Metrolinx led)
- Downtown Transit Hub Study (City led)
- GO Rail 3rd Track Expansion and Station Plan (Metrolinx led)

On an annual basis, Metrolinx updates the prioritization of their Frequent Rapid Transit Network (FRTN). This network is made up of various higher order transit projects in the GTHA as outlined in Metrolinx's Regional Transportation Plan. The RFTN network prioritization process helps guide Metrolinx decisions on resourcing and funding. Metrolinx recently released the preliminary results of this year's prioritization and for the first time, the LRT Extension in Brampton ranked as a top priority project.

Based on the advancement of the other various higher order transit projects being planned and delivered in Downton Brampton and the prioritization of the LRT Extension project by Metrolinx, staff see the need for a more dialogue with Metrolinx and provincial officials, to consider aspects of the LRT Extension that may inform the other transit projects in the downtown.

Staff also see the need for further discussions with various federal and provincial officials on the next stage on the Metrolinx Stage Gate process, and potential funding options for the LRT Extension.

Recent Consultation and Engagement

The project is being coordinated with other Downtown Brampton projects and initiatives. The interdependencies of the LRT Extension project with the other projects in the Downtown Brampton that are currently under various stages of planning or implementation cannot be overstated, and the project is coordinating with the appropriate stakeholders to ensure potential alignment of infrastructure recommendations.

The project team has met individually with Metrolinx, CN Rail, TRCA, Peel Region, multiple times throughout the design development and with other internal and external stakeholders. Feedback and issues brought up by the stakeholders were considered and addressed as part of development of the 30 % preliminary for the two preferred options. The project team is continuing to coordinate with internal and external stakeholders.

Feedback during the Council Workshop held on February 27, 2023, generated interest in the lowering of Main Street from Queen Street to Church Street. The project team was asked to confirm the requirements for the LRT in the area of the CN overpass as documented in the 2014 Approved Environmental Project Report (EPR).

Brampton Gateway Relocation Stop

The City of Brampton has been advocating as part of the current HuLRT construction, to locate the Brampton Gateway LRT Stop to the north side of Steeles Avenue for the past 3-1/2 years. Unfortunately, these requests have been repeatedly declined by Metrolinx and the Minister of Transportation. There continues to be distinct benefits of relocating the LRT Brampton Gateway Stop north of Steeles Avenue, namely its proximity to the existing Gateway Transit Terminal to accommodate safe and convenient passenger transfers. To continue to support this relocation, the relocation of the LRT was incorporated into 30 % preliminary work for the LRT Extension Study. This will allow the city to protect for a possible relocation of the stop as part of the LRT Extension.

Corporate Implications:

N/A

Term of Council Priorities:

The LRT Extension study is in alignment with the 2023-2026 Term of Council Priority – Brampton is a Green City – Equalize all forms of transportation. The LRT Extension will provide a key transit link in the regional transit network connecting Brampton to the GTHA.

Conclusion:

The 30% Preliminary Design and Draft EPR's identified that both the surface and the tunnel options are technically feasible and each comes with its own distinct benefits and costs. The underground option is significantly more costly ($2,804M) compared to the surface option ($933M). However, the underground option also provides real travel time savings for transit riders, pedestrians, cyclists, and motorists and allows the City to achieve its vision for Main St and Downtown Brampton while limiting risks for implementation and operation, compared to the surface option.

Based on the advancement of the other various higher order transit projects being planned and delivered in Downton Brampton and the prioritization of the LRT Extension project by Metrolinx, staff see the need for a more dialogue with Metrolinx and provincial officials, to consider aspects of the LRT Extension that may inform the other transit projects in the downtown. Staff also see the need for further discussions with various federal and provincial officials on the next stage on the Metrolinx Stage Gate process, and potential funding options for the LRT Extension. Staff will report back to Council in approximately 6 months on the outcome of these various discussions.

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Attachments:

- Appendix 1 – Higher Order Transit Infrastructure Cost – Greater Golden Horseshoe Area Order of Magnitude

Appendix - 1

Higher Order Transit Infrastructure Costs – Greater Golden Horseshoe Area Order of Magnitude Comparison

Project	Cost Est Year	Length (KM)	Under ground (KM)	# Stops	Capital Cost ($)	Cost per KM (Million $)	Stops per KM
Light Rail with Tunnel (Underground) Component							
Scarborough Subway Extension	2020	8	8	3	5,500,000,000	688	0.4
Ontario Line	2020	15.6	8.8	15	8,600,000,000	979	1.0
Eglinton Crosstown	2022	19	10	25	12,800,000,000	674	1.3
Brampton LRT Extension (Tunnel Option)	2023	3.8	2	4	2,804,000,000	738	1.1
Light Rail primarily on Surface							
Finch West LRT	2018	10.3		18	2,500,000,000	243	1.7
Hamilton LRT	2021	14		17	3,400,000,000	243	1.2
ION Stage 2 - Waterloo LRT Extension	2023	17.5		8	4,500,000,000	257	0.5
Brampton LRT Extension (Surface Option)	2023	3.8		5	900,000,000	237	1.3

Light Rail Capital Costs per KM (Million $), Order of Magnitude Comparison