INFORMATION REPORT

TO:	Mayor and Members Light Rail Transit Sub-Committee
COMMITTEE DATE:	July 26, 2016
SUBJECT/REPORT NO:	Light Rail Transit (LRT) Transit Project Assessment Process (TPAP) Update (PED16171) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Trevor Horzelenberg (905) 546-2424 Ext. 2343
SUBMITTED BY: **SIGNATURE:**	Jason Thorne General Manager Planning and Economic Development Department

COUNCIL DIRECTION

On August 14, 2015 Council ratified the report Fostering the Light Rail Transit (LRT) Project (CM15014) (City Wide) (Item 7.2) which, in parts (a) and (c), provided the following direction:

(a) That the City Manager create a light rail transit (LRT) office as a means to coordinate work with Metrolinx and engage the broader community in the building of an LRT in Hamilton;

(c) That Steer Davies Gleave be retained, subject to Metrolinx approval, in order to complete the conceptual design and Environmental Assessment (EA) work for any necessary and required changes to the original A and B Lines, including the pedestrian corridor and the maintenance and storage facility; subject to the A-Line extension to the Waterfront being included in the original $1B Metrolinx budget, to be fully funded by the Province.

BACKGROUND

The Hamilton Light Rail Transit (LRT) Office is currently coordinating work with Metrolinx while engaging the broader community with respect to building an LRT in Hamilton. Staff are also managing the consultant, Steer Davies Gleave (SDG), who is working towards the necessary and required changes to amend the original Environmental Assessment (EA) based on the revised LRT alignment. This information update provides an overview of the information which will be shared with the public at the Public Information Centres (PICs) in September 2016.

During 2010 and 2011 the Hamilton Rapid Transit B-Line project was developed through Preliminary Design and Engineering, and an Environmental Assessment (EA) was prepared in accordance with the Ontario Transit Project Assessment Process (TPAP). The project comprised of an LRT route from McMaster University to Eastgate Square via Downtown Hamilton, running along Main Street West, King Street West, King Street East, Main Street East and Queenston Road. In December 2011 the Ontario Ministry of Environment approved the EA.

On May 26, 2015, the Ontario Provincial Government announced $1B in provincial funding for the LRT project, from McMaster University to Queenston Traffic Circle (B-Line), with a spur (A-Line) from Downtown to serve the West Harbour GO Station and possibly the Waterfront, funding permitting (Figure 1.1). A High Order Pedestrian Connection to the GO Centre on Hunter Street is also included as part of the project.

The City of Hamilton and Metrolinx are co-proponents under the EA process and are working together to obtain TPAP approval of the revised McMaster to Queenston Traffic Circle alignment, the north spur, and the Operating, Maintenance and Storage Facility (OMSF). It is expected that the submission will be made in the Spring of 2017 to allow for the procurement process to be completed by mid-2018 which, in turn, will allow major construction to begin in 2019.

Figure 1.1: Hamilton LRT Project Overview

LRT PUBLIC INFORMATION CENTRES

In September detailed information regarding the LRT project will be released and the public will have the opportunity to provide feedback on key elements of the design. A series of Public Information Centres (PICs) will provide the opportunity for feedback to be provided in person. Information will also be provided on-line for those unable to attend the PICs.

Information will be provided in a number of ways including detailed drawings, renderings, information boards and handouts. Staff and consultants will be available at all the PICs to answer questions and receive feedback.

KEY INFORMATION TO BE PROVIDED AT THE PUBLIC INFORMATION CENTRES:

The Rapid Transit Vision

The City of Hamilton has reconfirmed the Rapid Transit Vision for the project:

> "Rapid Transit is more than just moving people from place to place. It is about providing a catalyst for the development of high quality, safe, environmentally sustainable and affordable transportation options for our citizens, connecting key destination points, stimulating economic development and revitalizing Hamilton".

This Vision not only guides the current LRT project but the subsequent rapid transit projects that are part of the City's BLAST network.

LRT Design Principles - 'Rapid, Reliable and Safe'

The updated alignment of the LRT uses a 'Rapid, Reliable and Safe' approach which provides a more efficient LRT operation, better journey times and improved reliability.

The key features of this approach are:

- Dedicated centre running on Main Street West together with an LRT only bridge over Highway 403.
- Exclusive LRT right of way with centre running on the remainder of the B-Line route to Queenston Traffic Circle, except in parts of the Downtown core and International Village.
- Two-way traffic on King Street West, King Street East and Main Street East (except in International Village).
- Minimized number of locations where road vehicles are permitted to cross the LRT tracks. The majority of side road intersections thus become right-in/right-out only.
- U-turns at signalized intersections are permitted to maintain local accessibility.
- Provide 'Far Side' stops wherever possible. Far side stops are platforms that allow the Light Rail Vehicle (LRV) to "pull through" an intersection, so that advance notice of LRV arrival can be provided to the traffic signal controllers, maximizing the opportunity for LRT priority through the signals. This layout also allows left turn lanes and U-turn traffic movements to be provided ahead of the intersection in the 'shadow' of the platforms.

- Pedestrian access to platforms primarily at the intersection end of stop platforms to assist with controlling passenger movements and enhance safety. In some instances, access from both platform ends will be used for passenger convenience.
- Platforms 60m in length (B-Line only) to accommodate future use of coupled 30m LRVs to increase system capacity.
- Possible use of a curb alongside the exclusive LRT alignment to minimize incursion by other vehicles. Emergency services vehicles would be able to use the guideway, while other vehicles would be discouraged from doing so. To accomplish this a mountable roll curb to demark the LRT lanes is proposed.

Route Descriptions

Through detailed drawings and renderings the public will be able to review the full LRT route. A summary of the route is as follows:

B-Line (McMaster University to Queenston Traffic Circle)

- Route is centre running and segregated from traffic over its full length.
- Commences at McMaster University, with a new combined LRT and bus terminal (serving local HSR buses, regional GO and other bus services) to be constructed in the vicinity of the university campus.
- Route continues in the centre of the two-way section of Main Street West to Paradise Road, from where it continues on the north side of the one-way eastbound section of Main Street West to Highway 403.
- Route then crosses Highway 403 (The Chedoke Expressway) and the associated ramps to and from King and Main Street. Then proceeds on the south side of King Street West over the CP Rail line to Dundurn Street.
- From Dundurn Street the B-Line LRT route continues in the centre of King Street West to James Street, where it connects with the A-Line.
- The route continues along King Street East through Downtown and International Village, generally with a single traffic lane on one side.
- From Wellington Street the route continues in the centre of King Street East to The Delta.
- From The Delta to Queenston Traffic Circle the B-Line runs in the centre of Main Street East.
- A newly proposed off-road LRT and Bus Terminal is provided at Queenston Traffic Circle allowing for a possible future extension to Eastgate Square.

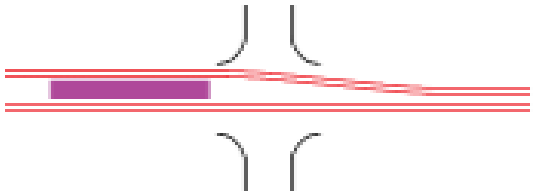
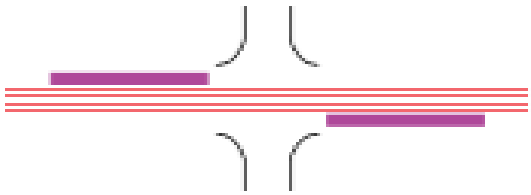
A-Line (King Street to the Waterfront)

- Route runs along James Street North to the northern terminus at the Waterfront. Route is shared running with other traffic.
- Connections are provided between the A- and B-Lines at the King Street / James Street intersection.

Stop Types

At the PICs details regarding the type of stops along the LRT route will be displayed as part of the detailed drawings. A summary of stop types is as follows:

Figure 1.2: Stop Types

Central Island Platform 	**B-Line** • McMaster • Scott Park **A-Line** • Waterfront
Opposite-side Platforms 	**B-Line** • Mary • Wellington • Queenston Traffic Circle **A-Line** • West Harbour GO
Far-side Platforms 	**B-Line** • Longwood • Dundurn • Queen • James • Wentworth • Sherman • Ottawa • Kenilworth **A-Line** • Cannon • Ferrie

Platform Length

B-Line platform lengths have been increased to 60m to accommodate two LRVs. A-Line platforms are 30m, accommodating 30m single LRVs.

Platform Width
The standard platform width is set at 3.0m to maintain right-of-way requirements. Where necessary, platform widths will be increased based on ridership assessments. Platform widths may be reduced to 2.5m, the minimum width for AODA compliance to reduce possible property impacts.

Platform Height
The platforms will be approximately 300mm high above rail level, allowing level boarding onto the vehicles and provide easy access for passengers with mobility impairments, strollers etc.

Platform Ramps
Access ramps to the platforms are designed with a 1:20 slope to meet the exterior paths of travel requirements under the Design of Public Spaces Standards (Accessibility Standards for the Built Environment), (Part IV.1 of O. Reg. 191/11: Integrated Accessibility Standards, under AODA). Typically, ramps will only be available at the intersection end of the platform to facilitate and control access to the signalized crosswalk and reduce interaction with LRVs. Where appropriate to meet passenger demands, ramps at opposite ends may also be provided.

LRT Guideway Separation
The centre guideway is separated from regular traffic lanes by a mountable curb. The curb (design details to be determined) is intended to restrict regular traffic access to the guideway, while permitting emergency vehicle access to cross the tracks or use the guideway in emergencies.

Traffic Lane Width
The centre-running design includes a single traffic lane in each direction on either side of the guideway. This single lane has a desirable width of 4.0m to permit traffic to make right turns into and out of side streets without encroaching on the guideway. Where necessary, lanes may be reduced to 3.5m, with a minimum of 3.3m if multiple lanes are present.

Sidewalk Width
Desirable sidewalk widths are 2.5m with a minimum 1.5m at obstruction points. To comply with AODA requirements, minimum 1.5m clearances must be maintained at all times, and are permissible only at locations of obstructions and not for significant distances. These minimums will also apply to platform clearances when placing benches, signs, shelters, poles, ticket vending machines and any other platform features.

Light Rail Vehicle Type
The design is based on the use of modern low floor LRVs approximately 30m long and 2.65m wide, capable of operating in both directions singly or coupled with multiple passenger doorways on both sides.

While the exact vehicle for Hamilton's LRT has not been determined, the Bombardier Flexity Freedom vehicle, selected by Metrolinx for other Greater Toronto Hamilton Area (GTHA) LRT projects, is a typical example of this vehicle type.

Powering the LRVs

The overhead lines will be fed from a number of traction power substations (TPSS) along the route. These will take power from the grid and transform it to the power used by the LRVs. A power study is to be carried out to confirm the actual requirement for TPSS locations and rating, to enable the specific site requirements to be determined.

Designing for Different Road Vehicles Types

Intersections are designed to accommodate the variety of vehicles expected on the streets along the LRT routes. This includes:

- Large tractor and semi-trailer - at truck route intersections
- Standard bus/truck - at U-turns
- Buses (all types) - for HSR bus routes
- Standard delivery trucks – at all intersections

Property Impacts

It is an objective of the project to minimize property impacts while maintaining the integrity of the 'Rapid, Reliable and Safe' design. Where possible, the design has been amended to reduce property impacts with the following measures, in priority order:

- alignment adjustments
- platform configuration changes
- reduced lane width, if multiple lanes
- reduced sidewalk width, but not below AODA minimum requirements
- reduced lane width, if single lane
- reduced platform width

A Real Estate Protocol was approved by Council and staff are currently being hired. All real estate transactions are directed by Metrolinx. Affected property owners will be notified by Metrolinx in advance of any public release of property impacts. Real estate staff will also be available at the PICs.

Operations, Maintenance and Storage Facility (OMSF)

Work is still underway. Information regarding the location and configuration of the OMSF may be provided in September, pending completion.

Changes to Bus Transit Services

The City of Hamilton is developing amended bus services to complement the LRT: service. These include:

- Withdrawing bus services replaced by LRT on the B-line;
- Changes to local bus service;
- Use of the new bus terminals at McMaster and Queenston;
- Increased service levels to reflect growth over time.

Information regarding proposed route changes will be provided at the PICs.

Traffic Circulation

There are two principal and significant changes to traffic circulation along the route corridor:

- The conversion of King Street from one-way westbound to two-way traffic over most of the length between Dundurn Street and The Delta (noting that some sections remain one-way westbound or become one-way eastbound); and
- The prohibiting of left turns at many of the side street intersections along the route, these becoming right-in/right-out only.

The removal of left turns and introduction of right turn only intersections are mitigated by the provision of left turn and U-turn lanes at the main road intersections where all movements are permitted.

All traffic issues relating to the LRT design will be subjected to more detailed assessments, and any required changes will be incorporated in subsequent design updates. At the PICs the public will be able to see how individual streets and intersections are affected and provide feedback on how that may impact traffic circulation to homes and businesses.

Traffic Modelling

Staff are currently refining the traffic model using inputs from the current City of Hamilton Transportation Master Plan, traffic counts, signal timings, intersection configurations, current and proposed roadway cross sections, etc. This traffic modeling is used to determine the anticipated impacts on the traffic network up to 2031 with or without LRT.

The output of the traffic model will identify the mitigation measures required on the peripheral network. It is anticipated that a majority of the modeling work will be completed in August. Upon completion of the modeling scenarios, it is intended to run traffic simulations of the network which can readily identify areas where congestion can be anticipated.

Parking and Servicing

The conversion of much of the B-Line route to centre running with a single traffic lane on either side results in the loss of on-street parking and servicing along the route. In September, residents and business owners will have the opportunity to identify specific parking and loading concerns.

Staff are also reviewing various mitigation measures to offset the loss of on-street parking and loading. A number of studies have been completed by the City within the last 8 years, with the most recent in 2011, which addresses parking issues in the LRT corridors and parking management within the Downtown Core. Staff are currently building on the strategies presented in those reports and developing site specific strategies to mitigate any impacts on property and business owners in the corridor.

Staff intend on engaging property owners, as required, to determine the frequency, time and type of commercial vehicle deliveries. The following are some of the options under review:

- In the International Village, some streets on the north side of King Street will be closed to traffic due to the LRT alignment. It is intended to provide some parking and loading on these sections of closed streets.
- Provide better connectivity in the rear alleys and through widening of alleys, where feasible and required, for improved loading and access to the rear of the properties fronting on the corridor.
- Determine opportunities to provide off-street loading and parking opportunities.
- Possibility of providing loading bays with time limit restrictions on sections of the corridor where space permits. Innovative approaches to combining this behind the curb in a shared pedestrian realm are being reviewed.

Streetscaping

To support the overall LRT project vision of stimulating economic development and revitalizing Hamilton, work is being undertaken to identify the urban realm streetscaping improvements that will be included in the TPAP. DIALOG has been retained as a sub-consultant, to SDG, to undertake a corridor streetscape plan and the design of the GO High-Order Pedestrian connection that will link the Hunter Street GO Station to the LRT stop at the intersection of King and James.

The corridor streetscape plan will be comprehensive and define public realm elements including sidewalk design, street furniture and amenities, landscaping opportunities, pedestrian crossings, surfaces and treatments (such as urban braille), lighting, placemaking, and more. The plan will consider alignment constraints and key focus areas in order to maximize the 1.5% of construction budget Metrolinx has committed as funding for streetscaping improvements along the LRT corridor. To date, design objectives and an approach to creating streetscaping typologies for the corridor have been completed. This work was presented for discussion and feedback at two workshops for both internal and external stakeholders. These workshops had over 40 participants from a wide range of City departments and representing organizations such as BIAs, Neighbourhood Associations, Committees, and educational institutions.

Next steps include creating draft guidelines for the corridor streetscaping plan and GO High Order Pedestrian Connection design options. These options will be presented in September. Consultation with key internal and external stakeholders will be ongoing throughout the process.

In parallel with the streetscaping project is Metrolinx's Design Excellence process. Design excellence will focus on the design of LRT stops and other LRT infrastructure along the Metrolinx-owned portion of the LRT corridor. City and Metrolinx staff will be working collaboratively on both of these processes to ensure a cohesive and seamless design for the LRT corridor.

Planning

On October 28, 2015 the City of Hamilton passed By-law No. 15-245 to establish an Interim Control By-law for properties along the LRT corridor. Since then, Planning staff have created Draft Transit Oriented Corridor (TOC) Zones to prepare for development of the LRT corridor and encourage new investment and/or redevelopment opportunities. The LRT Office has participated on the working group for this project providing feedback and input where required. The Transit Oriented Corridor Zones will be presented at Planning Committee and Council in Fall 2016 in order to meet the Interim Control By-law expiry date.

Environmental Studies

As part of the process to amend the 2012 approved Transit Project Assessment Process (TPAP) the previously completed environmental studies are being updated to reflect proposed design changes and additional project details. Currently being updated:

- *Stage 1 Archaeological Assessment and Cultural Heritage Resource Assessment*
- *Noise and Vibration Study*
- *Air Quality Study*
- *Natural Heritage Study (eg. aquatic ecosystems, vegetation and wildlife)*

Steer Davies Gleave has been retained to update these studies. Field tests are being completed in key locations along the corridor. Initial findings of the updated studies will be available in September, where possible. Final reports will be submitted in late Fall 2016.

Subsurface Infrastructure

The engineering work carried out previously under the approved TPAP in 2011, is currently being reviewed and updated, and extended to cover the changes of the B-Line, addition of the link to the West Harbour GO Station and Waterfront, and OMSF.

Under the 2011 approved TPAP, the following studies were carried to evaluate the impact upon buried water and sewer infrastructure located in and around the proposed B-Line corridor:

- *Underground Impact Study* (AECOM, March 2009)
- *Hamilton LRT – Underground Life Cycle Assessment Report* (AECOM, May 2011)
- *Transit 70% Design Report* (SNC-Lavalin, November 2011)
- *Project Constraints Assessment* (SDG & SNC-Lavalin, February 2012)
- *Relocation Strategy Guidelines* (SDG & SNC-Lavalin, February 2012)

The Technical Advisor (AECOM) is currently updating all the previous studies/reports including plan and profile drawings required for the TPAP amendment. For the purpose of the identification of utility relocation, an existing utility base plan was updated by overlying the new track alignment.

Building on the previous work, the Technical Advisor is currently reviewing all the existing surface and subsurface municipal service and utility infrastructure within the proposed LRT corridor to determine the extent of infrastructure relocation required. Due to the complexity, this investigation will not be complete for release in September. Engineering staff, however, will be available at the PICs to answer any questions related to the infrastructure work.

Public Information Centres (PICs)

As part of the Environmental Assessment public consultation process, seven meetings across the City have been scheduled for September 2016. These meetings will be open house format. City of Hamilton, Metrolinx and other key City staff will be in attendance to share information and gather community and stakeholder feedback.

Monday, September 12 | 5:00pm – 8:00 p.m.
McMaster Innovation Park, Atrium
175 Longwood Road South, Hamilton

Tuesday, September 13 | 3:00pm – 5:00pm & 6:00pm - 8:00pm
City Hall, Council Chambers & Lobby (2nd Floor)
71 Main Street West, Hamilton

Wednesday, September 14 | 5:00pm – 8:00pm
LIUNA Station, Continental Express Ballroom
360 James Street North, Hamilton

Thursday, September 15 | 5:00pm – 8:00pm
Dr. John Perkins Centre, Room A & Atrium
1429 Main Street East, Hamilton

Tuesday, September 20 | 5:00pm – 8:00pm
Battlefield House Museum, Jackson House Cellar
77 King Street West, Hamilton

Wednesday, September 21 | 5:00pm – 8:00pm
Sackville Hill Seniors Recreation Centre, Fireside Lounge
780 Upper Wentworth Street, Hamilton

Thursday, September 22 | 5:00pm – 8:00pm
Dundas Town Hall, Second Floor Auditorium
60 Main Street, Dundas