

**Carson, Katie**

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**Subject:** FW: Metrolinx Update  
**Attachments:** Item 8 - Regional Express Rail Progress Update (Infrastructure Update).pdf; Item 8 - Regional Express Rail Progress Update (New Station Analysis).pdf; Item 10 - GTHA Fare Integration Update.pdf; Item 9 - Rapid Transit Capital Projects Update.pdf

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**From:** CEO (Metrolinx) [<mailto:CEO@metrolinx.com>]

**Sent:** October-20-15 11:03 AM

**To:** CEO (Metrolinx)

**Subject:** Metrolinx Update

Good morning,

I am writing to provide you with an update on some key Metrolinx projects and planned engagement activities.

Metrolinx is championing long-term transportation and transit solutions that enhance prosperity, sustainability, and quality of life. Currently there are more than 200 projects underway across the region. More than \$16 billion in investment has been made and construction is under way on our First Wave of projects, helping to realize the Big Move vision.

More is yet to come. At our recent Board of Directors meeting, updates were provided on the following projects.

### **GO Regional Express Rail**

Metrolinx is working with the Government of Ontario to bring faster, more reliable service to the GO network, a 10-year program that will provide significant new travel choices across the GTHA. With 63 existing stations and 7 stations currently planned or under construction, the GO Train network is the backbone of our regional transit network. More GO rail service will mean all-day electrified service every 15-minutes or better in both directions through core areas and running four times the number of off-peak trips including evenings and weekends with a mix of all-stop and express service to meet demand and reduce travel times. For an update on our progress read our Board report [Regional Express Rail Progress Update](#).

### **New Station Analysis**

Metrolinx is analysing potential new GO Train station locations to support increases in service and enhance regional transit connections. With work already underway to build a connected transit network that supports more frequent, electric, uninterrupted service, Metrolinx is looking at a number of locations as sites of potential new stations. We know that access to stations, along with frequency of service, are key factors in convincing pedestrians, cyclists, transit users and drivers to use an expanded GO rail service. For an update on our progress read our Board report [New Station Analysis](#).

### **Fare Integration**

Fare integration can be as transformative as infrastructure projects, resulting in a greater number of competitive transit choices and an effectively expanded transit network. We want to make crossing municipal boundaries and switching between transit systems simple and hassle-free. We are working towards one simple, consistent approach to transit fares across the GTHA. This means that transit riders across the region would have a consistent approach for calculating and paying for their fares, regardless

of where in the GTHA they were travelling and which transit service they were using. For an update on our progress read our Board report [GTHA Fare Integration Update](#).

### **Light Rail Transit**

Significant progress is being made on our capital projects. We are planning for new, modern light rail vehicles on tracks separated from regular traffic in Hamilton, Mississauga, Brampton and Toronto. Metrolinx is also improving rapid transit through the construction of dedicated bus lanes – rapidways – that will allow rapid transit buses to move out of congested traffic. For an update on our progress read our Board report [Rapid Transit Capital Projects Update](#).

Our engagement is also increasing. This fall we are bringing updates on our work directly to our municipal stakeholders. We are attending briefings with Regional and Municipal Councils, holding a second round of Corridor Committee meetings, and we are continuing to host municipal planners and transit leaders’ quarterly meetings. This is on top of numerous staff to staff work, that continues on a variety of issues across the region.

I want to thank you again for your interest in Metrolinx work to bring enhanced service to the entire region. I look forward to updating you following our next Board meeting.

Sincerely

Bruce McCuaig  
President & CEO of Metrolinx



## Regional Express Rail Progress Update

Jack Collins  
Chief Capital Officer

James Purkis  
Executive VP, Regional Express Rail

Metrolinx Board of Directors Meeting  
September 22, 2015

# Executive Summary

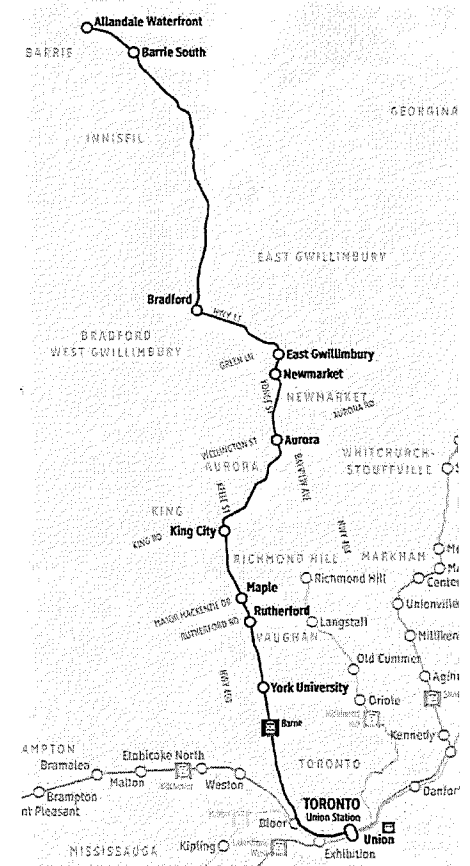
- The GO Regional Express Rail (RER) continues with advancing preliminary and detailed designs, as well as construction activities and the introduction of new services.
- Environmental Assessments continue to progress on:
  - Barrie corridor for double track, new Caledonia station, and Davenport Rail-Rail grade separation.
  - Lakeshore East for corridor expansion between Guildwood and Pickering GO stations.
- July 2015 - West Harbour GO station in Hamilton on the Lakeshore West corridor went into service and was in use for the Pan/Parapan American games.
- August 2015 -The contract for the GO Transit Train Control System was awarded.
- Summer 2015 - Design development for the East Rail Maintenance Facility (ERMF) project was completed and submitted. Mobilization and foundation work are also underway.
- September 2015 – 14 new midday trains began service between Mount Pleasant GO Station and Union Station.



# Barrie Corridor

## Environmental Assessment & Design Progress:

- EA for double tracking underway and approval anticipated December 2016.
- New Caledonia GO station (intersecting with the Eglinton Crosstown) EA and design is underway with the first public meeting scheduled in November 2015.
- Davenport Grade Separation - Residents Panel recommendations are being reviewed and the timing of the EA to be determined.
- Working closely with York Region on their EA for the widening of Rutherford Road.

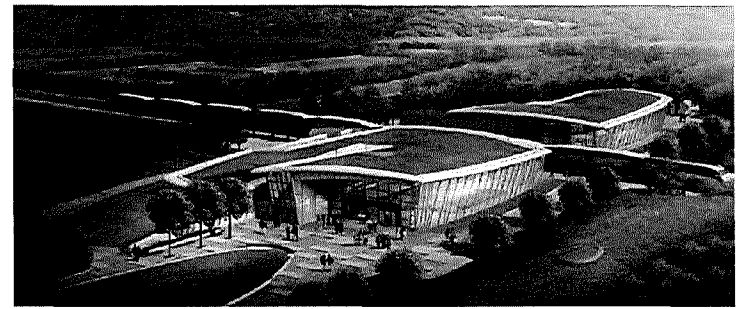


# Barrie Corridor

- Design for station modifications at Aurora, King City, Maple, and Rutherford to facilitate double track and GO RER service is at 30% completion. Tunnel, elevator and stair enclosure construction will commence in Spring 2016.

## **Implementation & Construction Progress:**

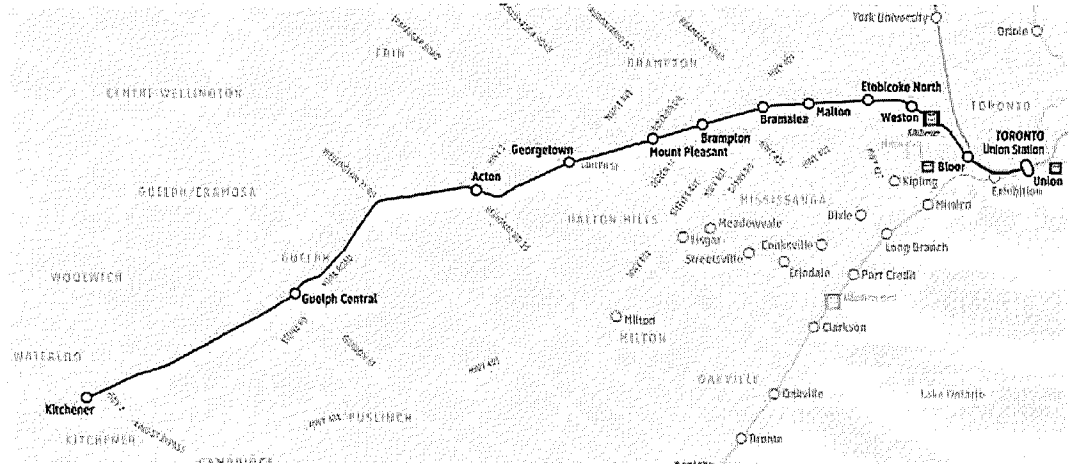
- Grading work and passing track construction underway from Steeles Avenue to Rutherford Road.
- Grade separation prioritization - Consultant has been retained to develop and complete prioritization criteria by the end of September.
- New Downsview Park station is integrated with the new TTC subway station and is under construction, with opening in Winter 2017/18.



# Kitchener Corridor

## EA & Design Progress:

- Design of the Highway 401 structure and Etobicoke North GO station is underway, with construction expected to commence in 2017.
- Dialogue underway with CN concerning additional infrastructure requirements for RER between Bramalea and Georgetown GO stations.
- EA approved for 4th track required for RER.
- Consultant being procured for EA and design of a layover near Mount Pleasant GO station.
- Working with City of Toronto for SmartTrack Feasibility Study options for the Eglinton West segment and its integration with RER.

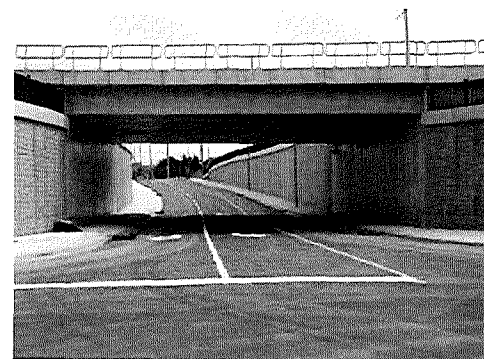


# Kitchener Corridor

## Implementation & Construction Progress:

- Georgetown South Program Wrap-up:
  - All projects have reached substantial completion, except the Noise Wall, Fencing and Landscaping contract, which will be completed in Spring 2016.
  - Remaining works include minor road work at Denison Road and Carlingview Avenue, completion of the John Street (Weston) pedestrian bridge, Bloor, Weston and Etobicoke North Station improvements which will be completed by December, 2015.
- Track improvements at Georgetown GO station by CN to improve GO train access to the Georgetown GO station.
- 14 new midday, two-way GO trains launched on September 8<sup>th</sup>, between Mount Pleasant GO Station and Union Station

*Carlingview Grade Separation*



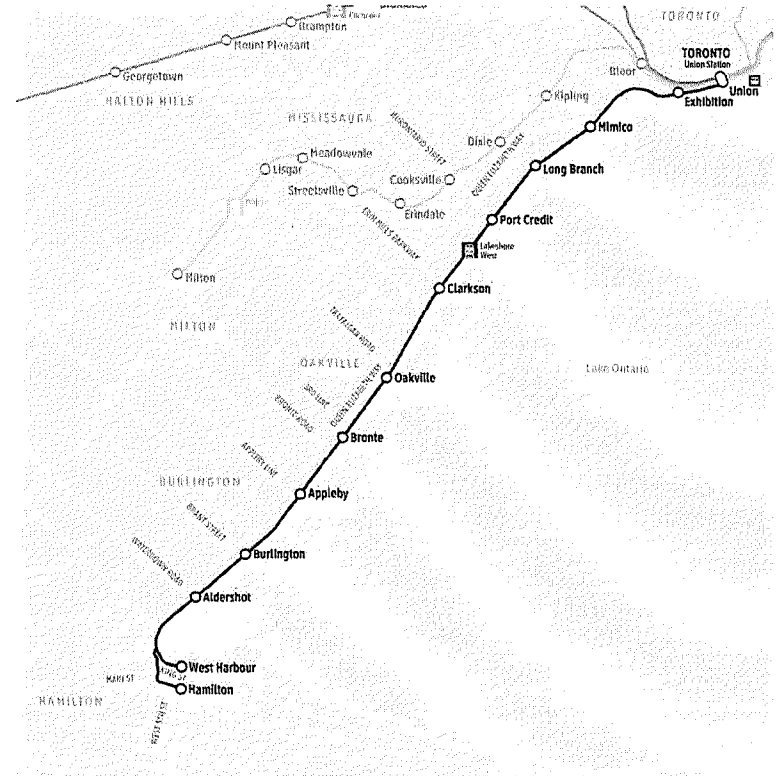
*John Street Pedestrian Bridge Construction*



# Lakeshore West Corridor

## Studies & Design Progress:

- Kerr Street & Burloak Drive grade separations:
  - Grade separation feasibility study report is expected to be complete in September. Meetings scheduled with the Town of Oakville and City of Burlington in October.
- Dialogue underway with CN concerning additional infrastructure requirements to support RER and the new Confederation GO station in Hamilton.



# Lakeshore West Corridor

## Implementation & Construction Progress:

- West Harbour GO station in Hamilton:
  - Service launched as planned on July 9, 2015, on-time for the Pan Am Games. Station building, north platform, and a portion of landscaped outdoor promenade are complete, and work continues to complete south track, parking, and bus loop.
- Exhibition GO station:
  - Platform & station rehabilitation work scheduled to re-commence in September, following temporary stoppage to avoid transit service impacts during the Pan-Am Games.
- Clarkson GO station:
  - Parking structure construction is substantially complete.
- Lewis Road Layover (Stoney Creek):
  - Construction progressing toward Summer 2016 completion.

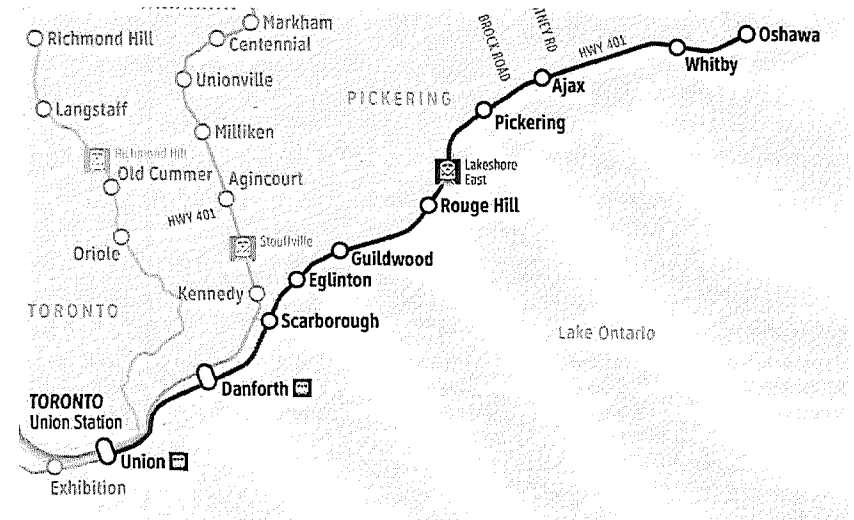


*West Harbour GO Station*

# Lakeshore East Corridor

## EA & Design Progress:

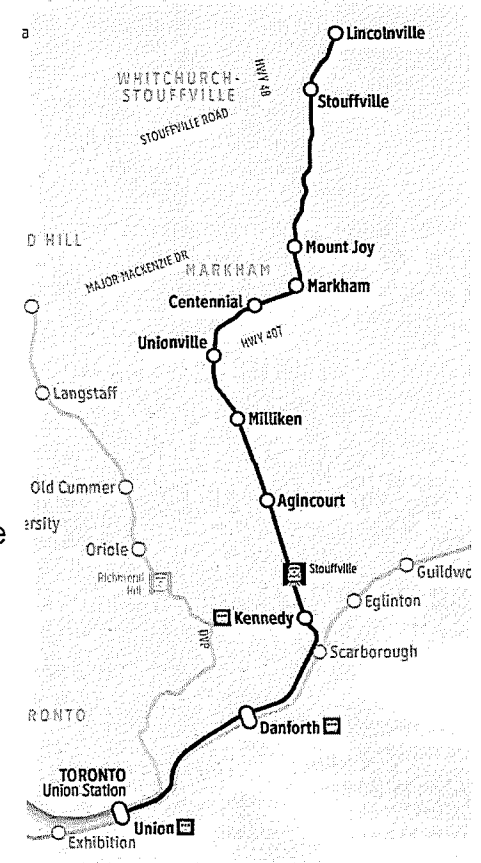
- Corridor expansion between Guildwood and Pickering GO stations: EA is ongoing with community and government engagement commencing in September 2015, and approval anticipated in Summer 2016.
- Corridor expansion between Union and Scarborough GO stations: EA will commence in Fall 2015, with approval anticipated in Summer 2017.
- Highland Creek bridge widening design at 60% completion.
- Rouge River bridge widening design at 30% completion.
- Property impacts and requirements for the grade separations at Morningside Avenue, Scarborough Golf Club Road and Galloway Road have been identified. Community engagement and realty negotiations are commencing in September 2015.



# Stouffville Corridor

## EA & Design Progress:

- EA approved for 2<sup>nd</sup> track from Scarborough Junction to Unionville GO station.
- EA and design assignment for southern grade separations (up to 6) awarded in August 2015.
- Phase 2 - Double track - Scarborough Junction to Agincourt / Milliken to Unionville:
  - Design at 95% completion, and construction planned for Winter 2016/17 to Winter 2018/19; includes track and signals, rail structure modifications, noise walls, and preparation for future electrification.
- GO station modifications at Agincourt, Milliken, and Unionville: Design at 10% for new 2nd track, new and modified rail platforms with elevators, tunnels, canopies and customer service amenities.
- Construction at stations planned to commence in Fall 2016.
- Lincolnville Train Layover expansion feasibility study completed and design to commence in Fall 2015.

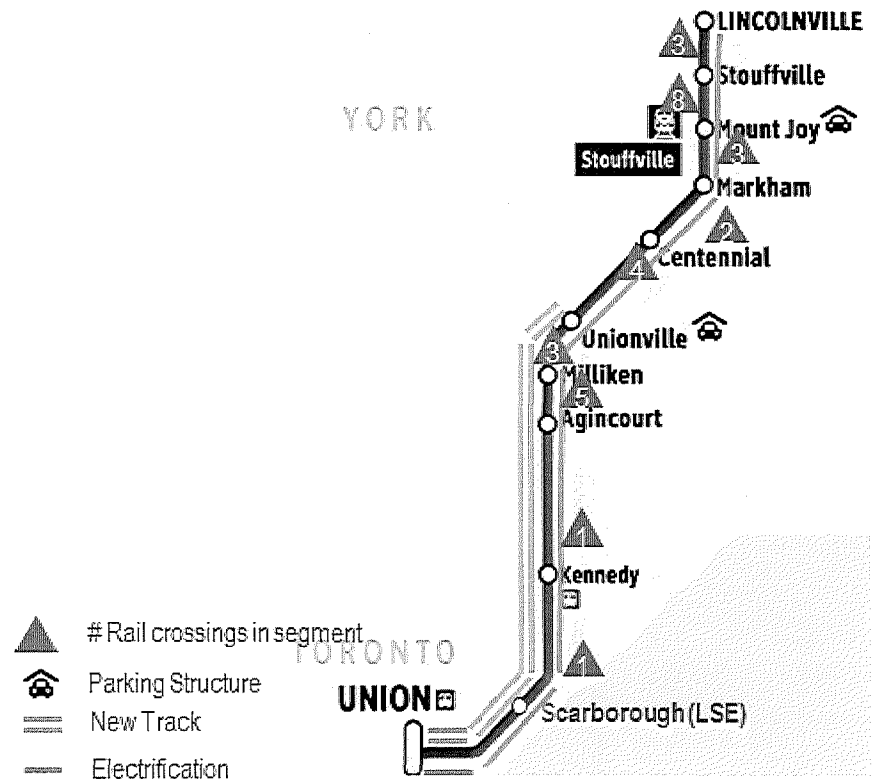




# Stouffville Corridor

## Implementation & Construction Progress:

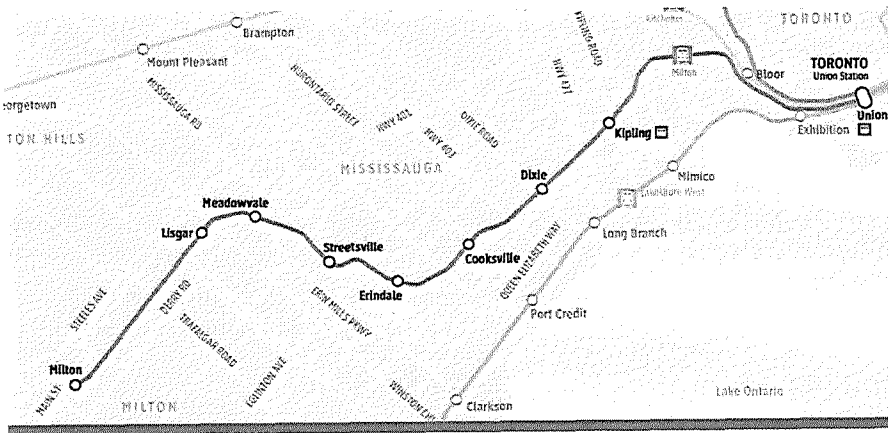
- Phase 1: Double Track (5km) between Agincourt and Milliken GO Stations:
  - Mobilization and preparatory work has started and construction planned to complete Fall 2016; includes noise walls, and preparation for future electrification.
- Community Relations:
  - In progress, consultation with affected residents in September.



# Milton Corridor

## Planning & Design Progress:

- Cooksville GO station: Preliminary design for the parking structure is in progress and feasibility study for the CP bridge on Hurontario Street is underway (linked to Hurontario LRT).
- Milton GO station: Conceptual design for the parking structure in progress.
- Kipling GO station – New bus terminal and station improvements is at 25% design stage.



- Dialogue underway with CP concerning studies required for infrastructure requirements necessary for future service increases.

## Implementation & Construction Progress:

- Milton Layover Expansion: Construction is scheduled to start in Fall 2015 with completion in September 2016.

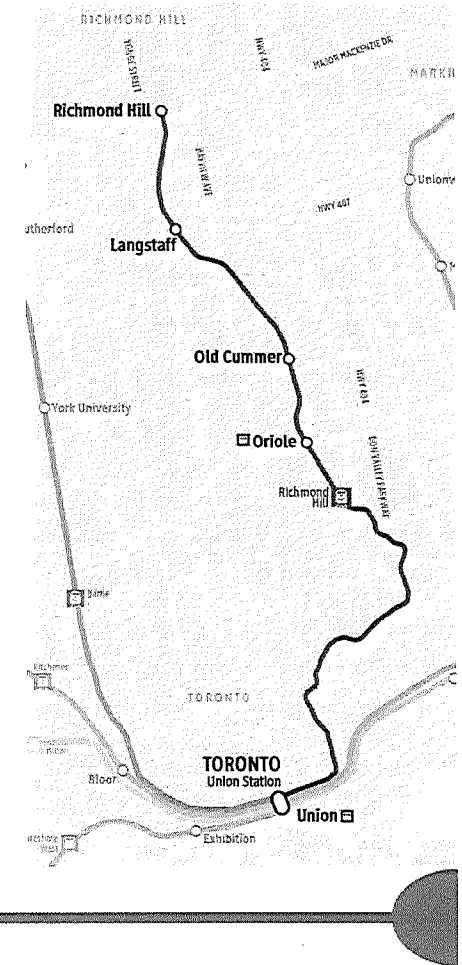
# Richmond Hill Corridor

### Design & Planning Progress:

- Bloomington GO station (new northern terminus of the corridor):
  - Design is approaching 50% completion.

### Implementation & Construction Progress:

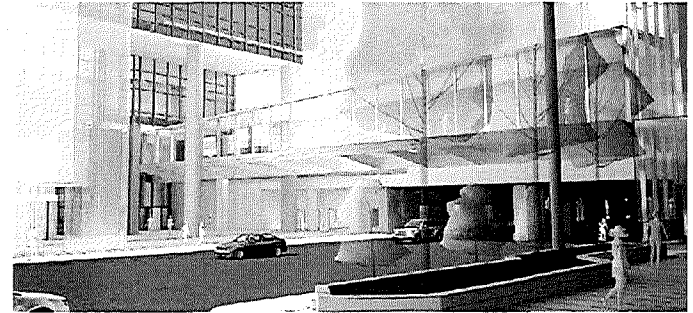
- Gormley GO station:
  - Construction is underway with anticipated completion in Spring 2017.



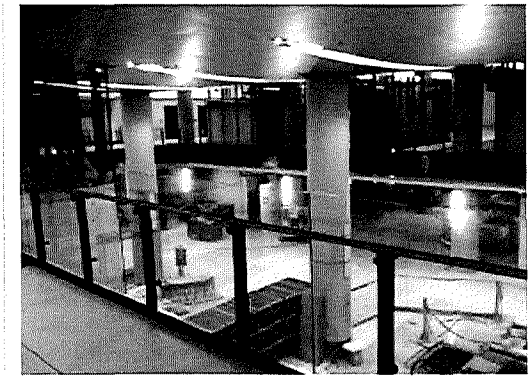
# Union Station Rail Corridor

## Implementation & Construction Progress:

- Union Station:
  - Public access to the Bay Concourse was closed on August 16, 2015 and construction by City of Toronto will begin in September 2015.
- The Trainshed Rehabilitation work:
  - Stage 2 (Tracks 10 and 11 and Platform 20/21) is well underway and on track for completion by December 2015.
  - New smoke vent installations over Track 10 are complete.



*Downtown Bus Terminal Rendering*



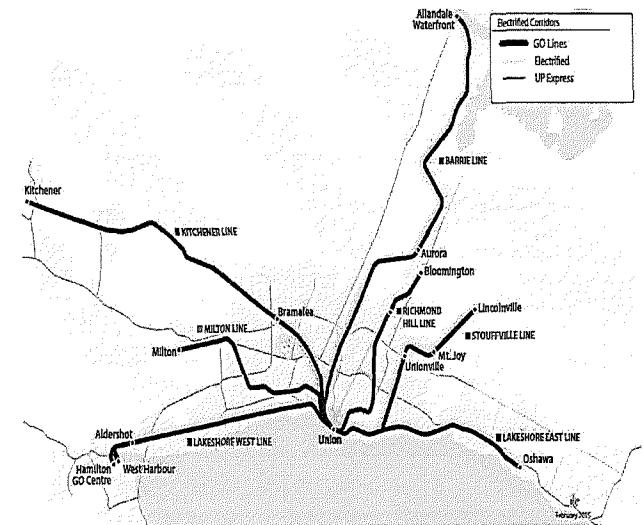
*New York Street Concourse and Retail Area*

# Network Signals and Communications

- GO Fibre Communication Feasibility Study final report was completed in August 2015.
- Preliminary Design for the USRC Signalling System is scheduled to be completed in the Fall 2015. Design work and geotechnical and the preliminary sighting of the signal structures are completed.
- GO Transit Train Control System (GTCS) was awarded in August 2015.
- Signals Packages being prepared for Corridor expansions.
- Enhanced Train Control (ETC) Feasibility Study is completed and work is underway on the Concept of Operations and a draft Migration Strategy. Work has commenced on a procurement strategy for an ETC consultant and the main design/build contract.
- Work has commenced with Electrification consultant to identify the scope to ready the signalling infrastructure for electrification.

# Network Electrification

- Electrification EA for the UP Express corridor is complete.
- Electrification Technical Advisor was awarded in June 2015.
- System wide Electrification EA is in progress with targeted completion of December 2016.
- Technical evaluation & agreement is underway with Hydro One for power requirements.
- Preliminary design is underway and is expected to be completed by December 2016.
- Enabling Works for electrification infrastructure is being evaluated and coordinated with corridor teams.
- Alternate Financing and Procurement (AFP) approach for the main electrification contract and a Value-for-Money analysis is being evaluated with Infrastructure Ontario and is in final stages of completion.



# Network Facilities

- Willowbrook Rail Maintenance Facility:
  - Track improvements and construction of a new sanding station is underway and are scheduled for completion by December 2015.
  - New South Willowbrook Storage Yard (Mimico) construction is underway and scheduled for completion in mid 2016.
  - Tender for the design of a new Crew Centre has closed in August 2015.
- East Rail Maintenance Facility:
  - Design development completed and submitted on August 26.
  - Construction commenced in May 2015 and is scheduled for completion by December 2017.
  - Site Plan Approval (SPA) obtained from the Town of Whitby on July 24 and partial foundation permits are ongoing.
  - Electrification design is included in the contract.
- GO Transit Control Centre:
  - Design is complete; construction contract is targeted to be awarded in November 2015. Construction is scheduled for completion by mid 2017.



**METROLINX**

An agency of the Government of Ontario

# NEW STATION ANALYSIS

Methodology and Process

Leslie Woo, Chief Planning Officer

September 22, 2015





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# Summary

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Recent investments in the transit network in the Greater Toronto and Hamilton Area provide an opportunity to consider new stations and the expansion of stations on the GO network. In support of this work, we have developed a methodology and are completing an analysis of potential new stations.

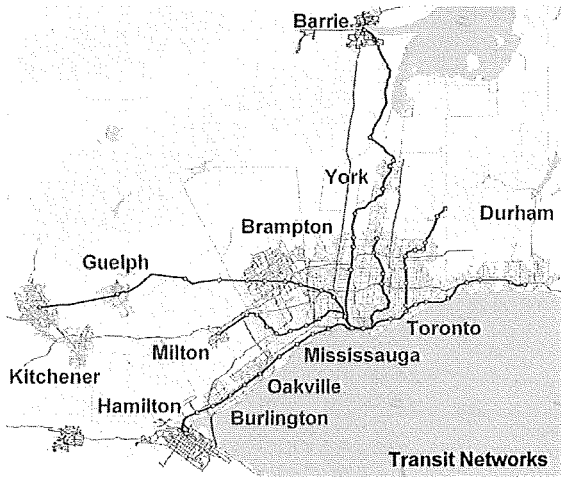
This report provides an overview of:

- The role of new stations and their impact on the network
- The criteria used to identify 120+ potential locations and to focus on the 50+ sites which are moving to the second stage of analysis

The next stage of analysis will lead to a short list of stations that will be determined following municipal and public engagement, and will include business case assessments



# Stations and the GO Rail network



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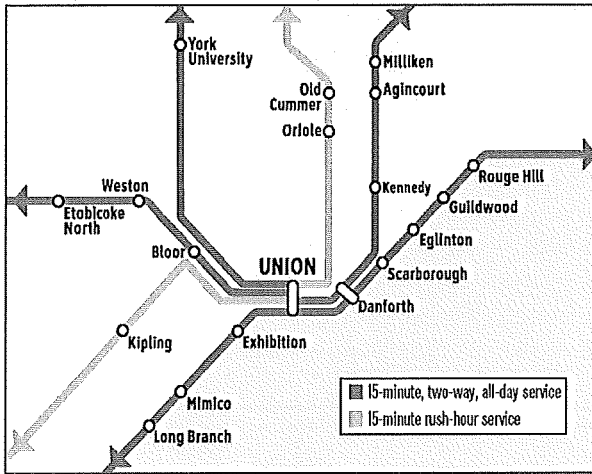
- The GO Rail regional network consists of 7 lines with 63 stations (and 7 underway) linking with 12 local transit networks.
- Stations are where GO, local transit services and communities intersect.

| GO Corridor    | Planned/ In progress |
|----------------|----------------------|
| Richmond Hill  | Bloomington          |
| Lakeshore West | Confederation        |
| Barrie         | Caledonia            |
| Barrie         | Downsview Park       |
| Richmond Hill  | Gormley              |
| Kitchener      | Mount Dennis         |
| Lakeshore West | West Harbour         |

The GO network is the backbone of a regional network linking 12 local networks. The network currently includes 63 stations across the GTHA. Seven new stations are being planned or constructed to serve new areas of growth and enhance regional transit connections. These stations will enhance existing service and support growing ridership, in advance of Regional Express Rail (RER). They represent a significant investment and commitment within the region.

Stations provide the interface where GO, local transit services and communities intersect. They are gateways in the region, part of a network linking residents to jobs, family, and play.

# Regional Express Rail



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- Regional Express Rail (RER) will transform the way GO serves the region.
  - Frequent service can encourage users to reconsider their mode choice.
  - Stations can become important hubs for daily activities, not simply arrival and departure points.
  - Work continues with City of Toronto to integrate analysis on proposed SmartTrack stations



## Regional Express Rail (RER) transforms the way GO serves the region

The introduction of frequent (15min) service can encourage users to reconsider their mode choice:

- With the flexibility to depart and return through the day, customers can be more comfortable with a suite of first and last mile transportation options including local transit, cycling, or walking, less reliant on catching a specific train twice a day.
- Stations can become important hubs for daily activities, not simply arrival and departure points. The dominant park and ride model of many stations today will change, with RER services making passenger pick-up and drop-off, or active transportation choices easier. Stations that are well integrated into the community may be accessed multiple times per day, serving not just trips to and from work, but recreational, or more local journeys for services.
- All-day service will draw customers to GO rail stations throughout the day; creating a need for even better integration of stations with the communities they service and opportunities for station sites to serve the daily needs of users.
- New stations represent both benefits and costs, and the number of new stations may need to be limited, with their merits assessed on a case by case basis.

# New Stations: Advantages and Impacts

New stations need to balance service frequency, expansion and cost. They can:

## Advantages

- Expand service area, schedule and destinations
- Attract new customers
- Improve access for customers
- Improve integration with other transportation modes
- Be a potential catalyst for development

## Impacts

- Increase travel time on corridor
- Cause delay to, and contribute to the potential loss of upstream riders
- Increase capital costs
- Increase operating, maintenance and energy costs
- Facilitate urban sprawl in remote locations

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New stations have potential positive and negative impacts that need to be considered. In approaching these impacts we identified the service level (network) considerations and high level objectives that apply to all new stations.

Positive effects of new stations may include:

- Expanding the service area to provide a wider market, schedule and number of destinations accessible by transit;
- Attracting new customers by enhancing station access such as walk-in and bike-in ridership in urban areas and facilitating additional parking in suburban locations
- Improving access for existing customers by decreasing the travel time to stations;
- Improving integration with other transportation modes by providing better connections to transit routes; and
- Acting as a potential catalyst for development supporting new land uses and development

Negative effects of new stations may include:

- Increased train dwell time by 2-3 minutes as the train slows, stops and accelerates at the station. This increases travel time on the entire corridor and may discourage riders from further up the corridor and also reduces the overall effectiveness of the service;
- Capital costs associated with the initial construction of the station;
- Operating and maintenance costs associated with the ongoing use of the station;
- Facilitating urban sprawl in remote locations by enhancing station access.

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# New Stations Objectives

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The objectives of new stations are to:

- Improve service and add riders
- Minimize impact on trip time for existing customers
- Maintain appropriate station spacing for the vehicle technology
- Support existing regional and municipal plans
- Consider the different roles and needs of each location, adapt to urban and suburban context

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The objectives of new stations are:

- Improve service and add riders
- Minimize impact on trip time for existing customers
- Maintain appropriate station spacing for the vehicle technology
- Support existing regional and municipal plans
- Consider the different roles and needs of each location

We'll dive further into these objectives as we describe our decision making process, which is elaborated in the appendices.

# New Station Analysis

## **Stage 1. Identified an initial list**

120+ sites identified using key site and network considerations

## **Stage 2. Focusing analysis**

Analyzed site factors, service considerations and historical requests, to scope list to 50+ sites

## **Stage 3. Evaluating**

Analyzed strategic, economic, technical/operational and cost/revenue considerations of 50+ sites

## **Stage 4. Municipal and Public Engagement**

Feedback and review of 50+ sites

## **Stage 5. Moving to Shortlist**

Scope sites for further analysis

## **Stage 6. Further Analysis**

Following public engagement, more detailed business case analysis will begin on shortlisted sites

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Metrolinx has undertaken three phases of analysis to develop a list of new station sites for stakeholder and public engagement.

### **Stage 1. Identified an initial list**

Metrolinx conducted a system wide analysis to identify potential station sites based on key site specific considerations.

- Over 120 possible sites were identified as part of the analysis, including stations which were previously identified by Metrolinx or listed in public documents.

### **Stage 2. Focusing analysis**

- A high level analysis based on network considerations and additional site factors scoped the 120 sites to approximately 50 sites for further evaluation, and included urban and suburban locations and all Smart Track stations.

### **Stage 3. Evaluating**

- The 50+ sites are undergoing more detailed evaluation to assess the locational considerations of each potential station and compare their relative performance.

### **Stage 4. Municipal and Public Engagement (Coming up)**

- Metrolinx will conduct municipal and public engagement on the of 50+ sites.

### **Stage 5. Moving to Shortlist**

- Select locations performing well against key objectives will be shortlisted for further

analysis.

**Stage 6. Further Analysis**

- Metrolinx will conduct Business Case Assessments (BCA's) on the shortlisted locations.

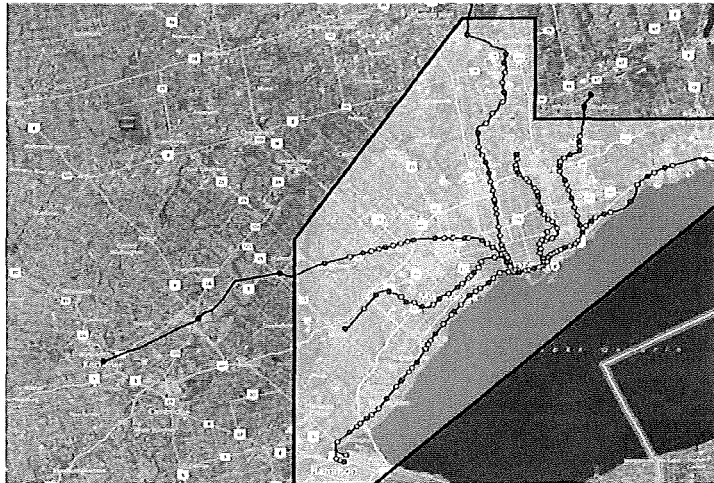
## Stage 1: Identified an initial list of sites

We started with a system-wide analysis that looked at:

- Site and network considerations such as:
  - station spacing
  - key transit connections and intersections
- Sites identified by Metrolinx, and listed in municipal and public documents

Over 120 possible site identified

See Appendix for details of the considerations and initial list of locations



- Metrolinx conducted a system wide analysis to identify potential station sites based on key site specific considerations
- Examined each corridor within “built up area” and considered factors such as:
  - Station spacing
  - Transportation connectivity
  - Spaces needs for the station
  - Technical/operational concerns
- Over 120 possible sites were identified as part of the analysis, including stations which were previously identified by Metrolinx or listed in municipal and public documents.

Details of the site and network considerations and the list of locations are provided in the appendix.

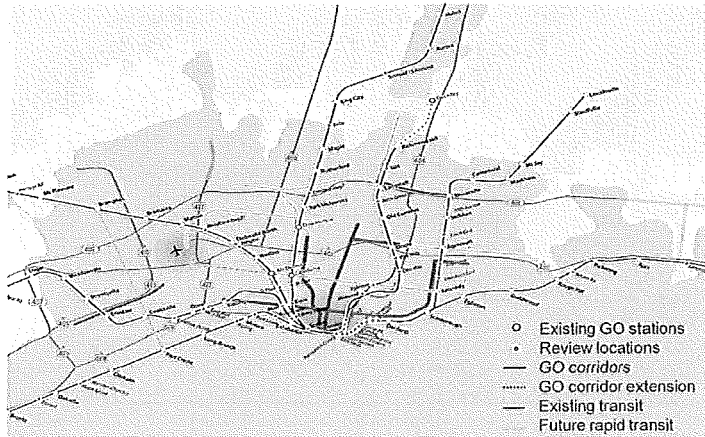


## Stage 2: Focusing Analysis

How did we move from 120+ locations to 50+ ?

- We scored and compared the identified sites based on three categories:
  - Plans and Land Use
  - Transportation Connectivity
  - Technical Feasibility
- Completed March 2015

See Appendix for Stage 2 Methodology and list of 50+ locations



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- Building on the considerations used to identify the initial list of 120+ stations, we conducted a high level evaluation based on planning and land use, transportation connectivity, and technical feasibility categories.
- Urban and suburban locations with at least one high performing category were included, as well as key locations of interest, and all Smart Track locations
- Scoped the 120 sites to approximately 50 sites for more detailed evaluation

More detail on this methodology is provided in the appendix.

## Stage 3: Evaluating

To guide the development of criteria for evaluating the 50+ locations, based on the objectives of new stations, we asked:

- Where will new stations improve service and riders?
- How many stations can we accommodate without negative impact to existing customers?
- Where do they fit in the region and existing plans?

See Appendix for details of Stage 3 criteria development

- In responding to the questions, we identified 40 measures for each location that are captured under the following four categories:

1. Strategic criteria
2. Economic criteria
3. Technical/operational criteria
4. Cost and revenue criteria

- Of the 40 measures, 5 sets of key criteria were identified that significantly differentiate stations from each other and were better predictors of overall performance. These criteria are presented in the appendix.

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The following questions guided the development of criteria for evaluating the 50+ locations, based on the objectives of new stations:

*Where will new stations improve service and riders?*

*How many stations can we accommodate without negative impact to existing customers?*

*Where do they fit in the region and existing plans?*

In responding to the questions, we identified 40 measures for each location that are captured under the following four categories:

1. Strategic criteria
2. Economic criteria
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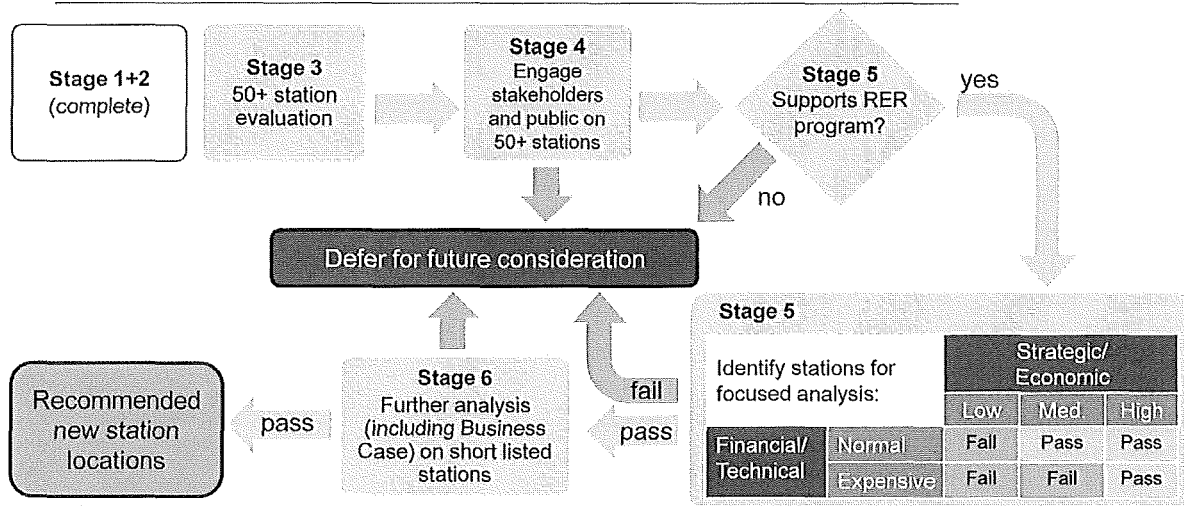
This evaluation has been structured using a preliminary Business Case approach to address: policy/planning (Strategic) considerations, user benefit (Economic) considerations, technical (deliverability/operational) considerations, and cost and revenue (Financial) considerations.

- Considered urban and suburban locations
- Included all proposed SmartTrack stations

- Structured in preliminary Business Case approach to facilitate next steps

Of the 40 measures, 5 sets of key criteria were identified that significantly differentiate stations from each other and were better predictors of overall performance. These criteria are presented in the appendix.

## Stage 3-6



This flowchart outlines the process of selecting locations for further analysis from the 50+ station evaluation.

### Stage 5. Moving to Shortlist

- As a first screen in order to concentrate and advance our analysis, we expect new stations to serve the identified objectives and program of Regional Express Rail, particularly where we are making large capital investments.
- All locations are evaluated based on key strategic and financial measures. Stations are considered “expensive” if they have high estimated capital costs or high technical challenges to overcome.
- Those evaluated as “high” strategically will move forward. “Medium” stations may move forward for further analysis only if they are assumed to have average capital costs, and have no obvious technical challenges.
- If stations score low or medium strategically and are expensive/challenging to build, they may be deferred for future consideration

### Defer for future consideration

- The data gathered across all locations throughout the evaluation process will provide a base for future examination of new stations.
- However, the sequence with which new stations are introduced will impact the performance of others.

# 50+ location list: by corridor

| Lakeshore East                                                                                                                                                                   | Lakeshore West                                                                                                                       | Barrie                                                                                                                                                                                | Stouffville                                                                                                                                                                                          | Kitchener                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| [Parliament-Cherry]<br>[Don Yard]<br>[DVP-Eastern]<br>[Queen-Degrassi]<br>[Dundas-Logan]<br>[Gerrard-Carlaw]<br>[Jones]<br>[Greenwood]<br>[Coxwell]<br>Whites Rd<br>Lakeridge Rd | Bathurst-Spadina<br>Roncesvalles<br>Park Lawn*<br>Kipling<br>Winston Churchill<br>Maple Grove<br>Dorval<br>Walkers Line-Cumberland   | [Bathurst-Spadina]<br>[Liberty Village]<br>[Queen W-Dufferin]<br>[Dundas W]<br>Bloor-Davenport<br>St. Clair<br>Hwy 7-Concord*<br>Kirby<br>Sideroad 15-Bathurst<br>Mulock<br>Innisfill | Parliament-Cherry<br>Don Yard<br>DVP-Eastern<br>Queen-Degrassi<br>Dundas-Logan<br>Gerrard-Carlaw<br>Jones<br>Greenwood<br>Coxwell<br>Lawrence East<br>Ellesmere<br>Finch East<br>14 <sup>th</sup> Av | Bathurst-Spadina<br>Liberty Village<br>Queen W-Dufferin<br>Dundas W<br>St. Clair<br>Islington*<br>Hwy 27-Woodbine<br>Heritage Rd<br>Breslau |
| Richmond Hill                                                                                                                                                                    | Milton                                                                                                                               | Selected sites                                                                                                                                                                        |                                                                                                                                                                                                      |                                                                                                                                             |
| Parliament-Cherry<br>Queen East<br>Dundas East<br>Gerrard East<br>Don Mills-Bond<br>Millwood<br>Eglinton<br>York Mills<br>John-Green<br>16 <sup>th</sup> Av                      | [Bathurst-Spadina]<br>[Liberty Village]<br>[Queen W-Dufferin]<br>[Dundas W]<br>East Mall<br>West Mall<br>Cawthra-Dundas<br>Trafalgar | <p>[ ] - location reviewed under other corridor</p> <p>*Considered in comparison to existing neighboring stations</p>                                                                 |                                                                                                                                                                                                      |                                                                                                                                             |



# Next Steps

## Stage 4. Municipal and Public Engagement

(September) Municipal meetings:

- Background on RER and stations
- Gather local knowledge on specific sites

(Fall 2015) Public meetings:

- Discussion on methodology, criteria and process, identified locations and clusters

## Stage 5. Moving to Shortlist

(Winter 2015/16)

- Based on public engagement and continuing analysis

## Stage 6. Further Analysis

(Winter 2015/16)

- Undertake further study including business case assessment on short list

### Recommend new stations for consideration

(Spring 2016)

- Based on results of further analysis

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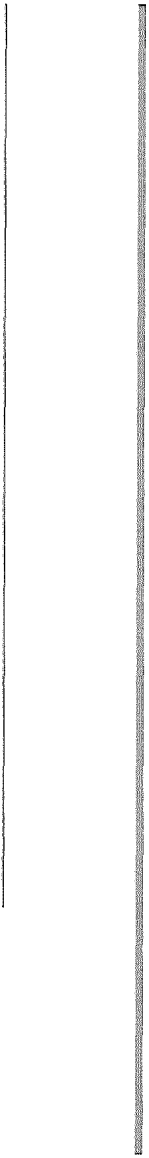
- Following municipal and public engagement and moving to the shortlist (Stages 4 and 5), further analysis, including business case assessments (BCA) (Stage 6) will be undertaken on a shortlist of sites
- The additional analysis and business case work will build upon the information gathered during the previous phases of analysis, including all 40 measures, and will generate more detailed site and economic metrics.
- Undertaking business case assessment will allow better comparison of the shortlisted locations. Lower performing station locations in the shortlisting process will be deferred for further analysis until key factors that may improve their performance changes, e.g. fare integration, increased service, etc.

BCA will incorporate:

- Development of more refined station area concepts if needed
- Economic assessment including valuation of community benefit, and time savings and network impacts
- Additional capital cost evaluation

Refer to Appendix for details of the business case framework





Appendix

# EVALUATION DETAILS





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APPENDIX: STAGE 1

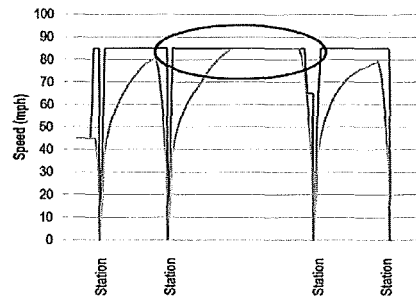
## IDENTIFIED AN INITIAL LIST



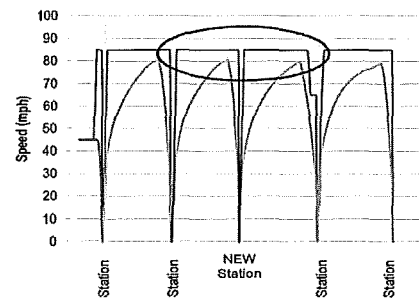
## Stage 1. Identified an initial list Network Considerations

How far apart do stations need to be?

Locating stations too close together will reduce travel speeds and the benefits of electrification



Larger station spacing means trains cover distances at higher speeds



Adding stations mean trains need to stop and accelerate again, slowing travel along the corridor

— Max track speed      - - - Train speed



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How far apart do stations need to be?

Locating stations too close together will reduce train travel speeds and the benefits of electrification. Larger station spacing means trains have time to reach higher speeds. Adding stations mean trains need to stop and accelerate again, slowing travel along the corridor, and increasing energy use.

To identify potential new stations, we examined each corridor within “built up area” and considered any potential sites at 1km distance (which works with Electric Multiple Unit train technology (EMU) for when the corridor is electrified) and at 2km (which works with the current diesel trains).

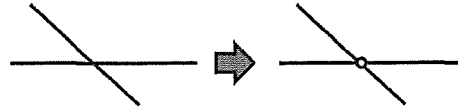
## Stage 1. Identified an initial list

### Site Considerations

#### Considerations when planning for new stations:

##### Transportation Connectivity

- e.g. transport network connectivity



##### Plans and Land Use

- e.g. proximity to urban growth centre
- e.g. mix and scale of surrounding development, and potential destinations

##### Technical Feasibility

- e.g. track geometry
- e.g. property availability for appropriate station typology



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In addition to station spacing, we looked at the primary factors that determine a site's ability to accommodate a new station, including:

- Potential transportation connectivity, surrounding land use and planning policy
- The space needs for appropriate station type for the location (e.g. urban – primarily walkup and transit access, or parking-dependent)
- High level technical/operational concerns (alterations to existing grade separations, track curvature, etc.)

We also added in stations identified in public documents or identified by staff.

## Stage 1. Identified an initial list

### Initial location list

| Lakeshore East            | Lakeshore West                 | Barrie                 | Stouffville             |
|---------------------------|--------------------------------|------------------------|-------------------------|
| Laker Ridge Rd S, Ajax    | Ottawa St                      | Innisfil               | Elgin Mills Rd E        |
| Harwood Av E              | Chapel/Gage/Tim Horton's Field | Holland Yard           | Major MacKenzie Dr E    |
| Durham Live Casino/Bailey | Queen St S                     | Mulock Dr              | 16th Av                 |
| Brock Rd                  | Dundum St. St/Cathedral Park   | St John's Sideroad     | Kennedy Rd              |
| Whites Rd                 | Plains Rd W                    | Yonge St               | Hwy 7                   |
| Rosebank Rd               | King Rd                        | Bathurst St/Side Rd 15 | 14th Av                 |
| Morningside Av            | QEW                            | Dufferin St            | McNicol Av              |
| Markham Rd                | Guelph Line                    | Kirby Rd               | Finch Av E              |
| Brimley Rd                | Walker's Line/Cumberland       | Keele St/Teston Rd     | Ellesmere Rd            |
| Birchmount Rd             | Burloak Dr                     | Langstaff Rd           | Lawrence Av E           |
| Warden/Danforth           | Bronte Rd                      | Hwy 7 (Concord)        | Danforth Rd/ Midland Av |
| Victoria Park             | Third Line                     | Steeles Av             |                         |
| Woodbine Av               | Fourth Line                    | Finch Av               |                         |
| Coxwell Av                | Dorval                         | Downsview Park         |                         |
| Greenwood Av              | Maple Grove                    | Wilson Av              |                         |
| Jones Av                  | Ford Dr                        | Lawrence Av            |                         |
| Gerrard St E/Carlaw Av    | Winston Churchill Bly          | Caledonia              |                         |
| Dundas St E/Logan Av      | Lorne Park Rd                  | Rogers Rd              |                         |
| Queen St E                | Mississauga Rd                 | St Clair Av W          |                         |
| Eastern Av                | Cawthra Rd                     | Davenport Rd           |                         |
| Cherry St                 | Thirteenth St                  | Dupont St              |                         |
| Parliament St             | Kipling Av                     | Bloor St               |                         |
| Lower Sherbourne St       | Park Lawn Rd                   |                        |                         |
|                           | Windemere Av                   |                        |                         |
|                           | Roncesvalles Av                |                        |                         |
|                           | Bathurst St                    |                        |                         |
|                           | Spadina Av                     |                        |                         |



## Stage 1. Identified an initial list

### Initial location list (cont'd)

| Richmond Hill         | Milton                    | Kitchener                  |
|-----------------------|---------------------------|----------------------------|
| Elgin Mills           | Trafalgar Rd              | Rockwood                   |
| 9th Line              | Britannia Rd W            | Heritage Rd                |
| Weldrick Rd           | Eglinton Av W             | Chinguacousy Rd            |
| 16th Av               | Mavis Rd                  | McLauchlan Rd N            |
| Bantry Av             | Cawthra Rd/Dundas St E    | Kennedy Rd S               |
| Under Hwy 407         | The West Mall             | Hwy 410                    |
| Bayview Av            | The East Mall             | Dixie Rd                   |
| John St               | Shorncliffe Rd            | Hwy 427                    |
| Steeles Av E          | Islington Av              | Hwy 27/ Woodbine           |
| Cummer Av             | Royal York Rd/Dundas St W | Islington Av               |
| Finch Av E            | Runnymede Rd              | Jane St                    |
| York Mills Rd         | Bloor St                  | St Clair Av W              |
| Don Mills Rd          |                           | Dupont                     |
| Lawrence Av E         |                           | Dundas/College/Landsdovine |
| Eglinton Av E         |                           | Dufferin/Queen W           |
| Don Mills Rd          |                           | King St                    |
| Millwood Rd           |                           |                            |
| Eglinton Av E         |                           |                            |
| Millwood Rd           |                           |                            |
| Bayview Av            |                           |                            |
| Brickworks            |                           |                            |
| Prince Edward Viaduct |                           |                            |
| Gerrard St E          |                           |                            |
| Dundas St E           |                           |                            |
| Queen St E            |                           |                            |
| Eastern Av            |                           |                            |



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APPENDIX: STAGE 2

# FOCUSING ANALYSIS



## Stage 2. Focusing Analysis

# Methodology

### Plans and Land Use

#### Criteria:

- Proximity to urban growth centres, regional centres
- Supportive land use and density
- Number of destinations in proximity
- Land availability

**High:** meets all criteria  
**Medium:** meets at least 2 criteria  
**Low:** meets only 1 or no criteria

### Transportation Connectivity

#### Criteria:

- (Potential) connection to high order transit (subway, LRT, streetcar)
- Connection to high quality active transportation route or facility
- Highway connection
- Good local transit connections

**High:** meets all criteria  
**Medium:** meets at least 2 criteria  
**Low:** meets only 1 or no criteria

### Technical

- **High:** few obvious difficulties in building a platform and connecting
- **Medium:** some challenges constructing platform or adjacent connections, which may require higher than usual investment to overcome
- **Low:** obvious challenges with platform location or connections, may require undue effort to overcome

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This is the method we used to focus from 120+ to 50+ stations. The sites were assessed - based on the same categories of Plans and Land Use, Transportation Connectivity, Technical used to first identify the 120 sites - as "low", "medium", "high" for overall performance in each category.

Each category considered the following:

#### Plans and Land Use category included:

- Proximity to Urban Growth Centres as identified in the Growth Plan for the Greater Golden Horseshoe, Regional Centres identified in municipal plans
- Proximity to mix and scale of development offering multiple destinations and high densities (as defined in the Growth Plan and municipal official plans, transportation master plans, air photo context)
- Station area conducive to active transportation
- Land Availability (qualitative, not quantitative analysis of parcels available to be assembled)
- Spatial requirements of potential station typologies

#### Transportation Connectivity category included:

- Connections to higher order transit (inc. streetcars), local transit, road/hwy network, AT paths

#### Technical/Operational/Implementation Issues (qualitative, not quantitative analysis)

- Adjacent spur lines; crossings; junctions; tracks; adjacent curvature;



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APPENDIX: STAGE 3

# EVALUATING



## Stage 3. Evaluating

# Developing the criteria

Where will stations improve service and add riders?



### **Suburban stations...**

- Depend heavily on auto mode share

### **New suburban stations may...**

- Redistribute existing riders between stations
- Shorten automobile trips (and decrease regional vehicle-kilometres travelled)
- Improve walking, biking access



## Stage 3. Evaluating

# Developing the criteria (cont'd)

Where will stations improve service and add riders?



25

### Urban stations...

- Rely on transit and active transportation for ridership

### New urban stations may...

- Encourage new GO riders from congested local transit
- Provide more opportunities to access employment on the approaches to Union

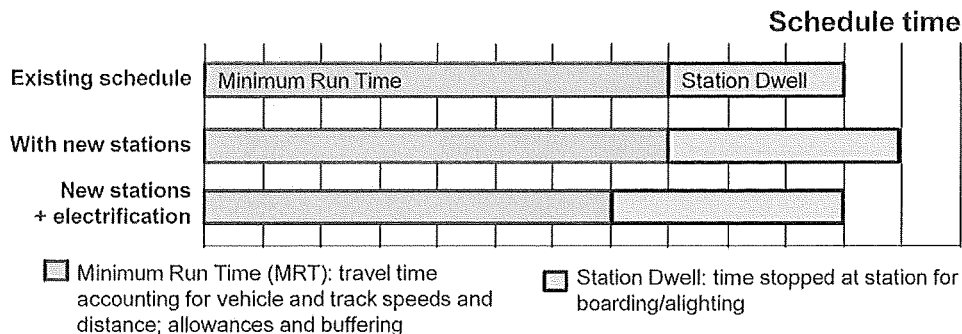


## Stage 3. Evaluating

### Developing the criteria (cont'd)

How will stations impact journey time?

- New stations will increase dwell time by 2-3 minutes each
- Electrification will reduce the travel time – e.g. from Oshawa to Union by about 5 minutes



How many stations can we accommodate without negative impact to existing customers?

As noted earlier, new stations will increase train dwell time (the amount of time the train is stopped) by 2-3 minutes each. Electrification will improve the service by reducing overall minimum run time (MRT) (the fastest time a train can get between stop points) with improvements varying by corridor. For example, electrification will reduce the MRT from Oshawa to Union by about 5 minutes, which could either improve travel times for existing customers or allow for 2 new stations and maintain existing travel times.

## Stage 3. Evaluating Developing the criteria (cont'd)

Where do they fit in the region and existing plans?



Land use defines ridership: *how many people* there are to use a service and *how they will use it*

### Density:

- Suburban stations: lower densities work because there is ample parking, facilitating large catchment areas. Need residential intensification to add new riders within existing catchment area
- Urban stations: high residential density may not mean large number of new GO riders, since transit users have more alternatives and less demand for trips to Union

### Mixed Use:

- Urban stations are most effective with significant employment in close proximity

### Focus/Timing:

- Concentrate development capacity on identified growth centres and mobility hubs
- Stations are not always a catalyst for significant growth

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Where do they fit in the region and existing plans?

Land use defines ridership: *how many people* there are to use a service and *how they will use it*.

**Density:** At suburban stations, lower densities work because there is ample parking, facilitating large catchment areas (sometimes several kilometers). Need to intensify residential areas within the catchment area or locate higher density office close to the station to significantly increase ridership within existing suburban catchment areas.

At urban stations high residential density does not equal a large number of new GO riders, since transit users have more alternatives and less demand for trips to Union. However, they may provide relief to existing local transit.

**Mixed Use:** Urban stations are most effective as they are close to significant employment

**Focus/Timing:** Development capacity should be concentrated on identified growth centres and mobility hubs. However, stations are not always a catalyst for significant growth.

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## Stage 3. Evaluating Strategic Criteria

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### Considerations

Over 30 measures reviewed covering:

- Policy Alignment (Provincial, Regional, Local)
- Connectivity (transit, active transportation)
- Land use and destinations
- Market demand
- Land value uplift, development propensity
- Social inclusion
- Community impact (construction, fit)

### Method

- System-wide evaluation by planning consultant
- Level of detail for analysis dependent on available data
- Framework allows for ongoing refinement of data



Even though some of these strategic criteria, such as transit connectivity, were considered earlier in the decision making process, those criteria were carried through and in most cases examined in more detail.

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## Stage 3. Evaluating Economic Criteria

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### Considerations

- Travel time savings
- Potential for land value uplift
- Potential for Metrolinx land value capture
- VKT reduction and mode shift potential

### Method

- High level evaluation of surrounding market by real estate consultant
- Time savings analysis for each location by Metrolinx staff



Economic criteria such as travel time savings and potential land value uplift were looked at.

---

## Stage 3. Evaluating Technical/Operational Criteria

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### Considerations

- Grades and curves
- Corridor width and track spacing
- Efficient train movement and flow through
- Platform and passenger capacity
- Operational requirements

### Method

- High level evaluation by engineering consultant
- Input from other studies (e.g environmental assessments)
- Feedback from internal delivery groups



Again, more refined and broader analysis of technical and operational considerations was performed at this stage.



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## Stage 3. Evaluating Cost and Revenue Criteria

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### Considerations

- Construction costs
  - Early works and site improvements
  - Related/dependent infrastructure
- Operating costs
- Potential revenue
  - Boardings
  - Land value capture from joint development

### Method

- Magnitude of costs assumed based on comparison to existing station typologies
- Further site planning work required for more detail



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## Stage 3. Evaluating Assumptions

---

The 50+ evaluation requires a consistent scenario to determine the relative performance of each station location. The following assumptions have been made for the analysis:

- Today's land use
- Today's fare structure
- Today's service structure (mostly)
- Single station analysis
- Coarse grain ridership estimates

Changing the scenario assumptions, such as fare integration and RER service patterns, may improve the performance of sites at a later time.

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The 50+ evaluation requires a consistent scenario to determine the relative performance of each station location. The following assumptions have been made for the analysis:

- Today's land use
- Today's fare structure
- Today's service structure with the exception of time savings factored in from the use of electrical multiple unit trains

The impact of adding each station is being considered in isolation, and adding multiple stations within close proximity will change the results e.g. station clusters. Coarse grain ridership estimates are being generated for each station by analogy to adjacent (or similar nearby) stations in GO network; however, it is not expected to change significantly with full forecasting.

These scenario assumptions are being used to prioritize known factors over unknown and maximize accuracy of the station scorings. Changing the scenario assumptions, such as fare integration and RER service patterns, may improve the performance of other sites.

## Stage 3. Evaluating Key criteria

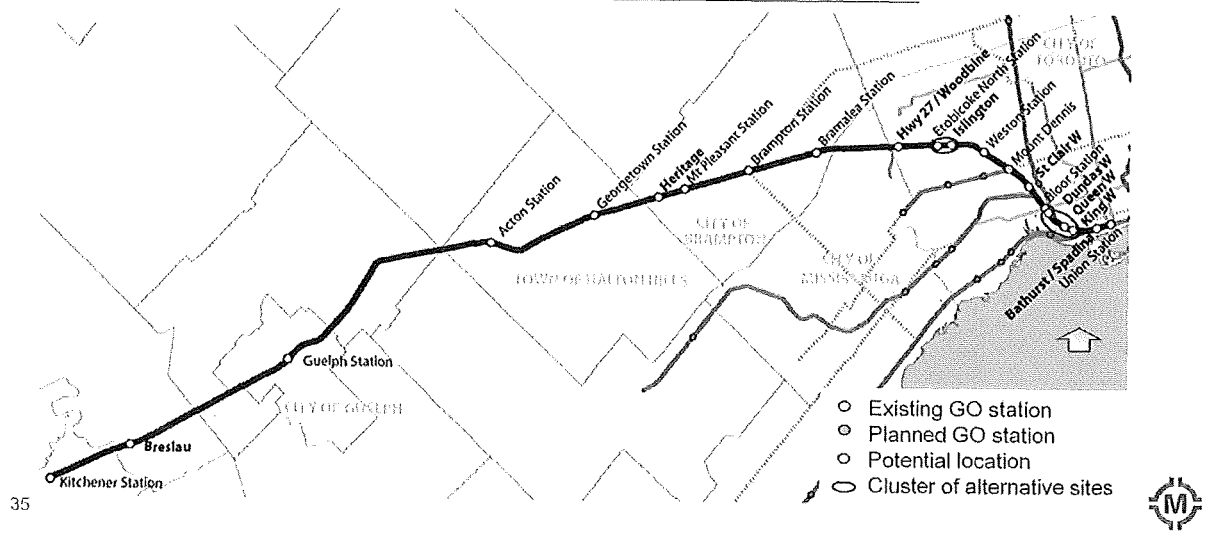
- Of the 40 measures, these key criteria differentiate stations from each other and are better predictors of location performance

| Category                           | Objective                                        | Criteria                                                                                                                    | Measure/Metric                                                                   |
|------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Strategic/<br>Economic<br>Planning | Connectivity and Ridership Drivers               | How many trips will start and end at this station?                                                                          | Sum of boardings+ alightings                                                     |
|                                    |                                                  | Does the station connect to other higher order transit modes and have potential to improve network and/or corridor service? | Distance to existing and planned routes                                          |
|                                    |                                                  | Does the station connect to key destinations?                                                                               | Number of nearby destinations and places of interest                             |
|                                    | Travel Time Savings                              | What are the time savings associated with the new station?                                                                  | Ratio for time penalty of existing riders to minutes saved for new station users |
|                                    | Potential for Surrounding Area Land Value Uplift | How well situated is the station in relationship to future market demand?                                                   | High level assessment of market potential                                        |

33

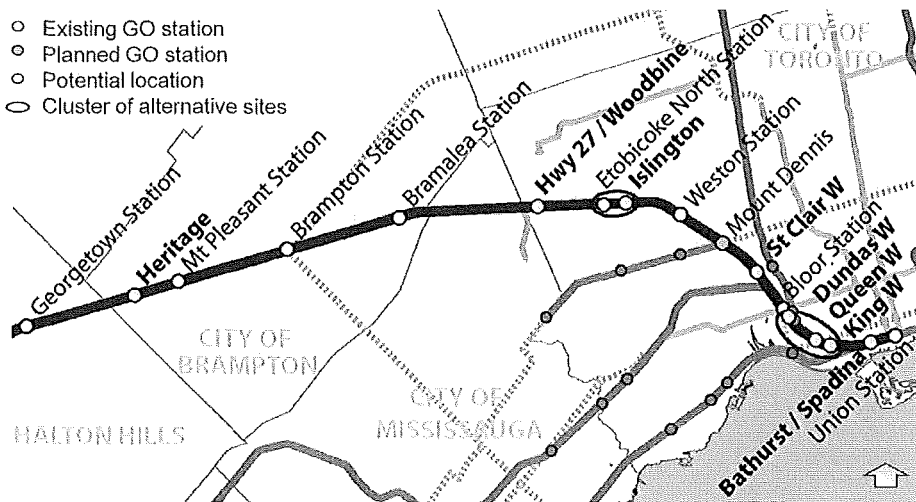


## Stage 3. Evaluating Kitchener Corridor

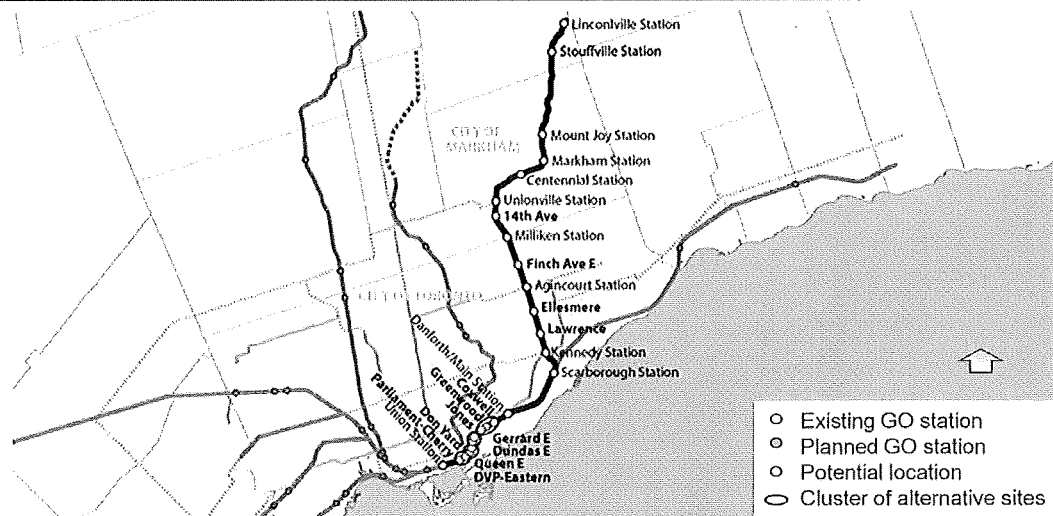


## Stage 3. Evaluating Kitchener Corridor - Enlargement

- Existing GO station
- Planned GO station
- Potential location
- Cluster of alternative sites

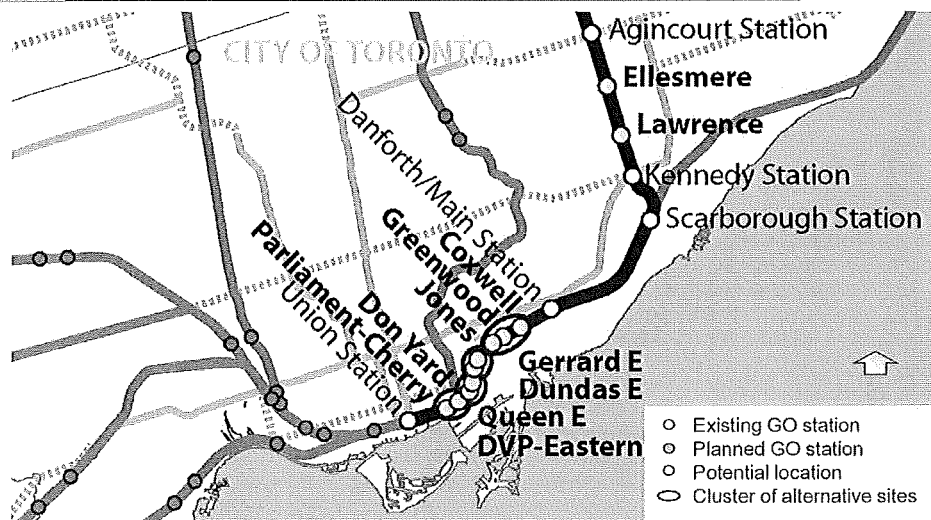


## Stage 3. Evaluating Stouffville Corridor

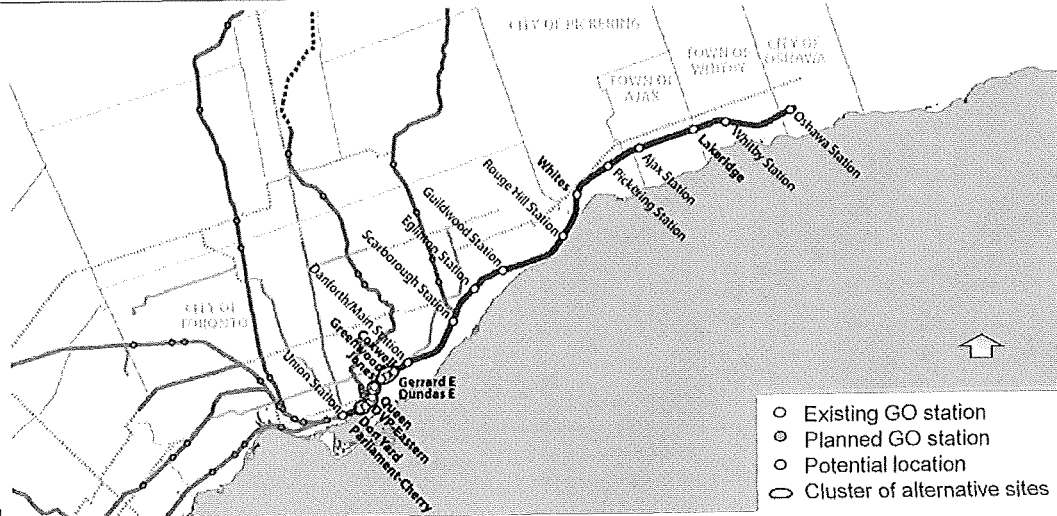


Clusters = showing either/and/or locations based primarily on station spacing

## Stage 3. Evaluating Stouffville Corridor - Enlargement



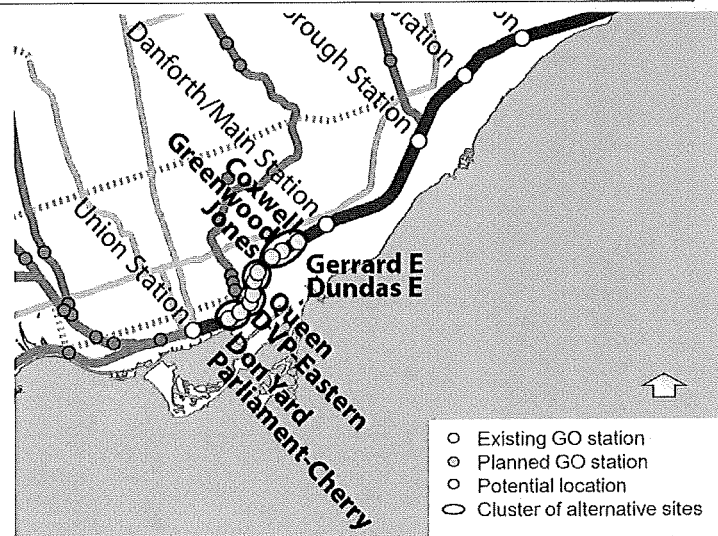
## Stage 3. Evaluating Lakeshore East Corridor



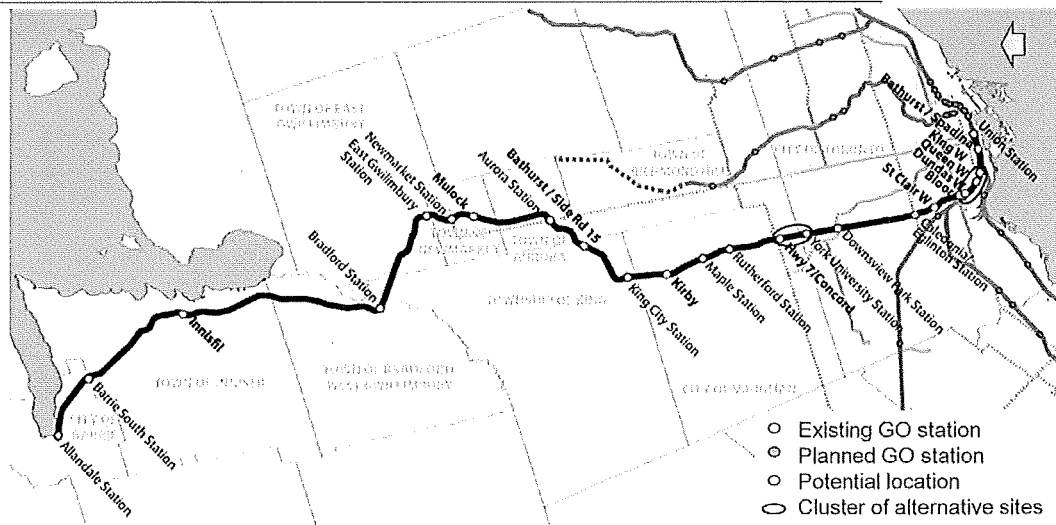
Clusters = showing either/and/or locations based primarily on station spacing



### Stage 3. Evaluating Lakeshore East Corridor - Enlargement

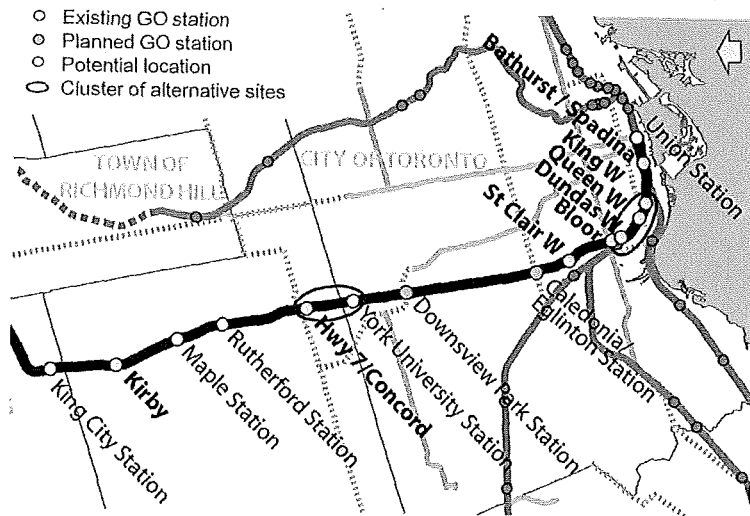


## Stage 3. Evaluating Barrie Corridor

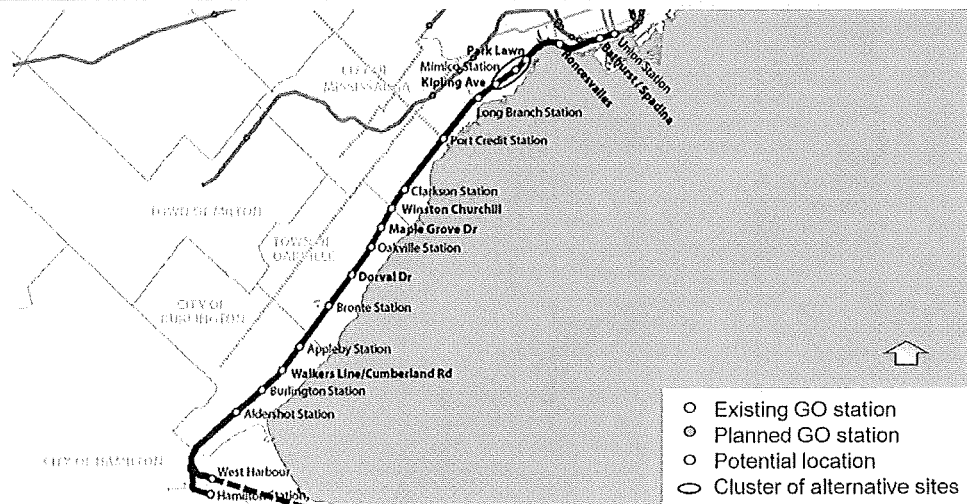


Clusters = showing either/and/or locations based primarily on station spacing

## Stage 3. Evaluating Barrie Corridor - Enlargement



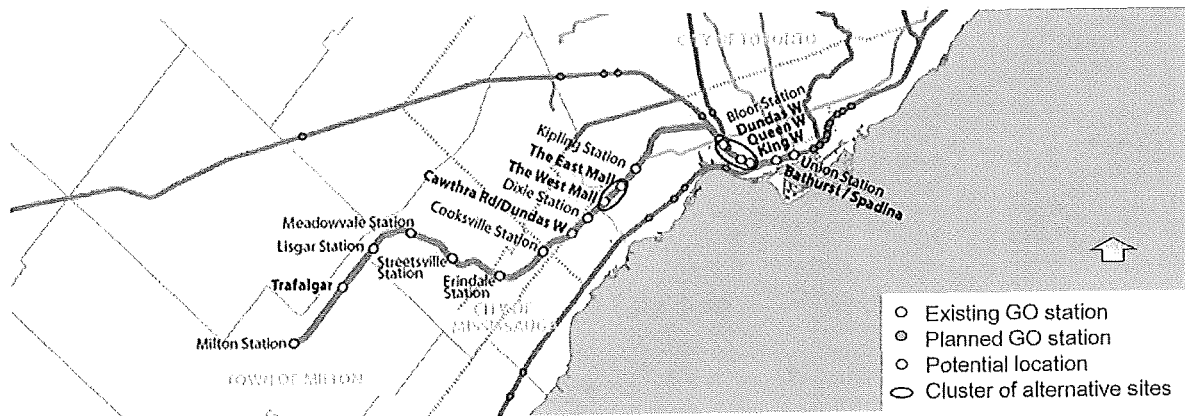
## Stage 3. Evaluating Lakeshore West Corridor



43

Clusters = showing either/and/or locations based primarily on station spacing

## Stage 3. Evaluating Milton Corridor

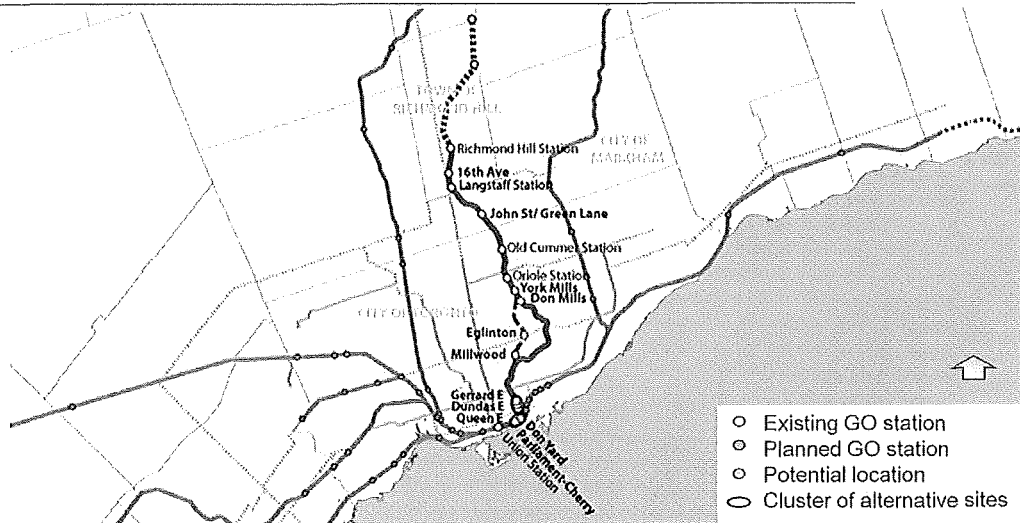


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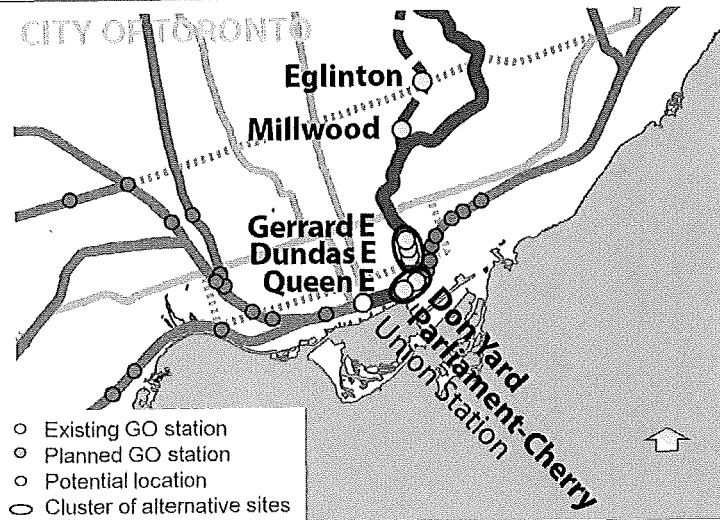
Clusters = showing either/and/or locations based primarily on station spacing

## Stage 3. Evaluating Richmond Hill Corridor



Clusters = showing either/and/or locations based primarily on station spacing

### Stage 3. Evaluating Richmond Hill Corridor - Enlargement



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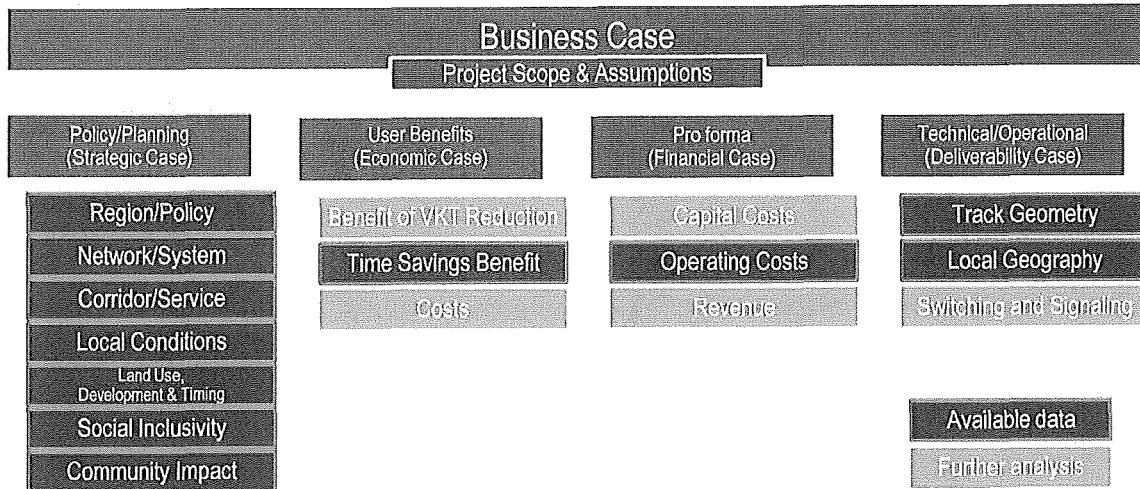
APPENDIX: STAGE 6

# FURTHER ANALYSIS - BCA





# Business Case Framework





**METROLINX**

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Une agence du gouvernement de l'Ontario

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# GTHA FARE INTEGRATION

Leslie Woo

Chief Planning Officer

Metrolinx Board of Directors Meeting  
September 22, 2015

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## Progress Update

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- The March 2015 Board report on Regional Fare Policy presented a global practices review and high-level regional fare structure options.
- There has been active municipal transit agency involvement to narrow the range of potential of Fare Structure Types to take forward for in-depth analysis.
- This report updates the Board on emergent findings before proceeding with in-depth analysis of selected Fare Structure Types.
- Recommendations on GTHA Fare Integration are planned for Spring 2016.

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# A Regional Problem

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- A Fragmented Fare Structure:
  - Reduces transit ridership and revenue by placing transit at a disadvantage against competing options (cross boundary barriers, double fares or transfer policies)
  - Reduces the number and quality of transit options available to customers
  - Treats different customers taking similar trips inconsistently
  - Prompts siloed, inefficient or duplicative local transit services, driving up operating costs
- A Pressing Issue:
  - Current regional rapid transit expansion in the GTHA makes addressing fare integration a pressing issue e.g. Regional Express Rail, Toronto York Spadina Subway Extension

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# A Regional Solution Needed

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- **The Big Move (Strategy #6) and Metrolinx 5-Year Strategy** (objective 3) call for need to “Implement an Integrated Transit Fare System”
- The Metrolinx **Investment Strategy** (2013) responded to public input by recommending that a regional fare integration plan be developed starting in 2014.
- Work began in 2014, with Metrolinx bringing all 10 GTHA transit agencies together.



“The Big Conversation” region-wide public consultation

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# A Customer-First Vision

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The long-term vision and goals for the GTHA fare integration strategy has been developed in consultation with local transit agencies, and focuses on the customer perspective:

## Vision Statement

- The *GTHA Regional Fare Integration Strategy* will increase customer mobility and transit ridership while maintaining the financial sustainability of GTHA's transit services.
- This strategy will remove barriers and enable transit to be perceived and experienced as one network composed of multiple systems/service providers.

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# Goals

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## **Goal 1: Simplicity**

- The fare strategy will simplify customer experience and agency fare management/operations, attracting travellers to transit services throughout the GTHA.

## **Goal 2: Value**

- The fare strategy will reflect the value of the trip taken, and maintain the financial sustainability of transit services.

## **Goal 3: Consistency**

- The fare strategy will create a common fare structure with consistent definitions and rules across the GTHA.

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# Elements of Fare Integration

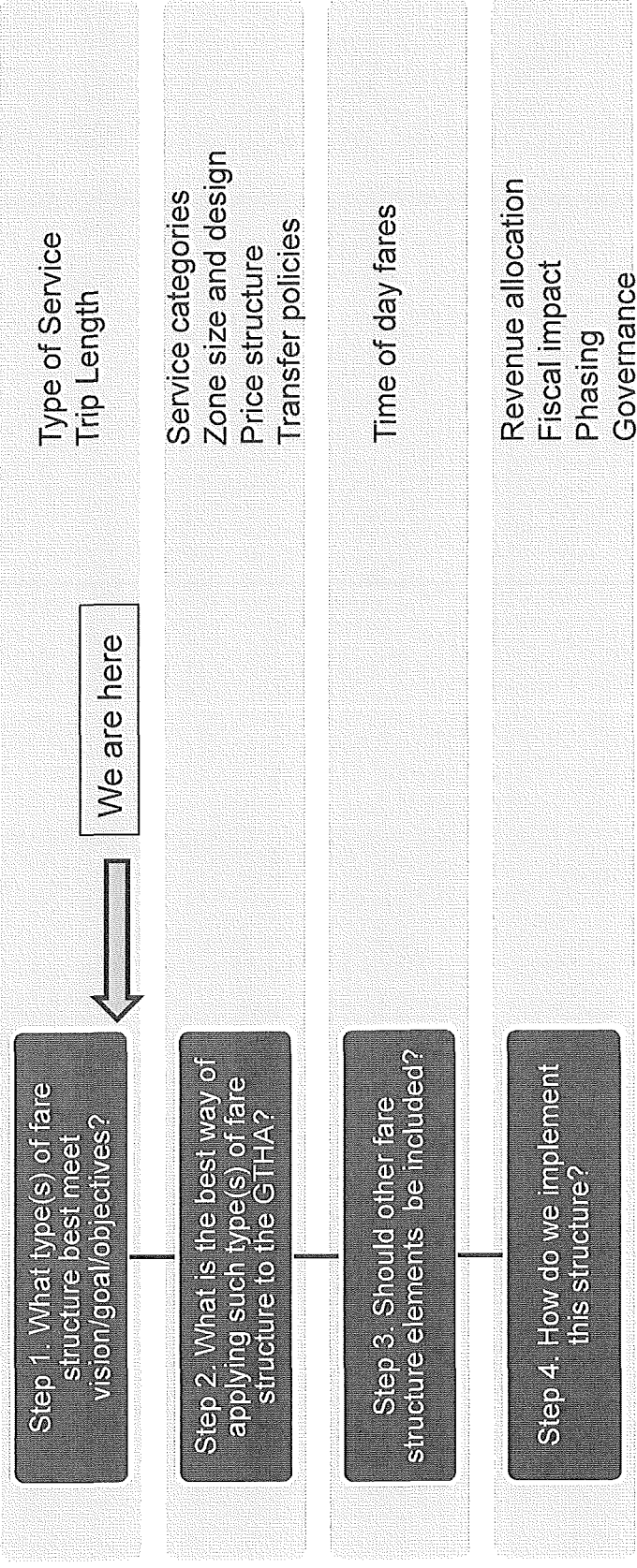
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The elements of fare integration contribute to an easy fare payment experience.

| Element               | What it is                                                                                                  | Customer Expectation                                                                                                    |
|-----------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Payment System        | System for fare collection: Farecard, mobile device, credit card, etc.                                      | One method to pay anywhere<br>Consistent fare structure for multi-agency travel                                         |
| <b>Fare Structure</b> | System for determining base fares (e.g.. flat fare, by zone, by distance) and related transfer policies.    | Consistent fare structure throughout region<br>Fares that are seen to reflect the value (length, quality) of trip taken |
| Concessions           | Customer types, e.g., child, youth, senior eligible for fare discounts                                      | Consistent concession definitions throughout region                                                                     |
| Products              | Fare products to reflect customer travel and volume of use (ticket, pass, volume discount),                 | Products encourage multi-agency travel where appropriate and reward frequent transit use.                               |
| Price                 | Amount paid for travel, with fares for products and concessions typically derived from the adult cash fare. | Consistent price for similar trips throughout region                                                                    |



# Fare Structure Development



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## Defining the Range of Fare Structure Types

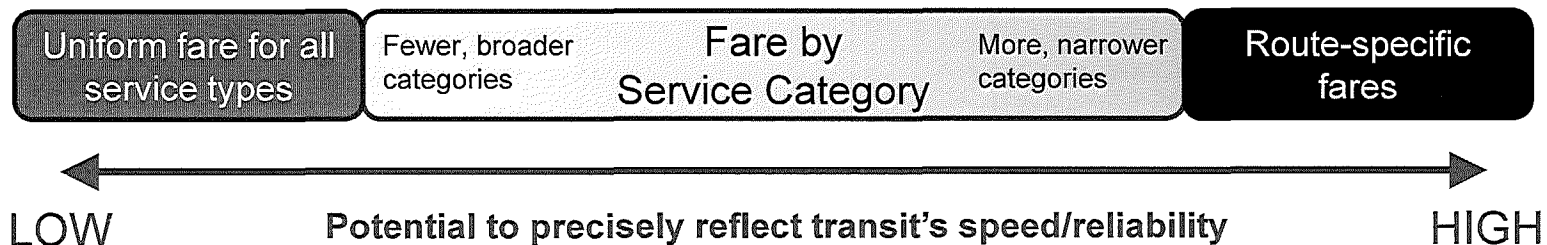
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# Service

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- Type of service (e.g. local, rapid transit, express) is associated with different speed/reliability performance; higher speed and higher reliability are typically seen by customers as more valuable
- Type of service is used in this analysis to represent speed/reliability
- Fares can be set uniformly for all types of services, services may be grouped in categories with fares set by category, or a different fare could theoretically be set for every individual route



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# Current GTHA Environment

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The current fragmented GTHA fare structure uses four service categories:

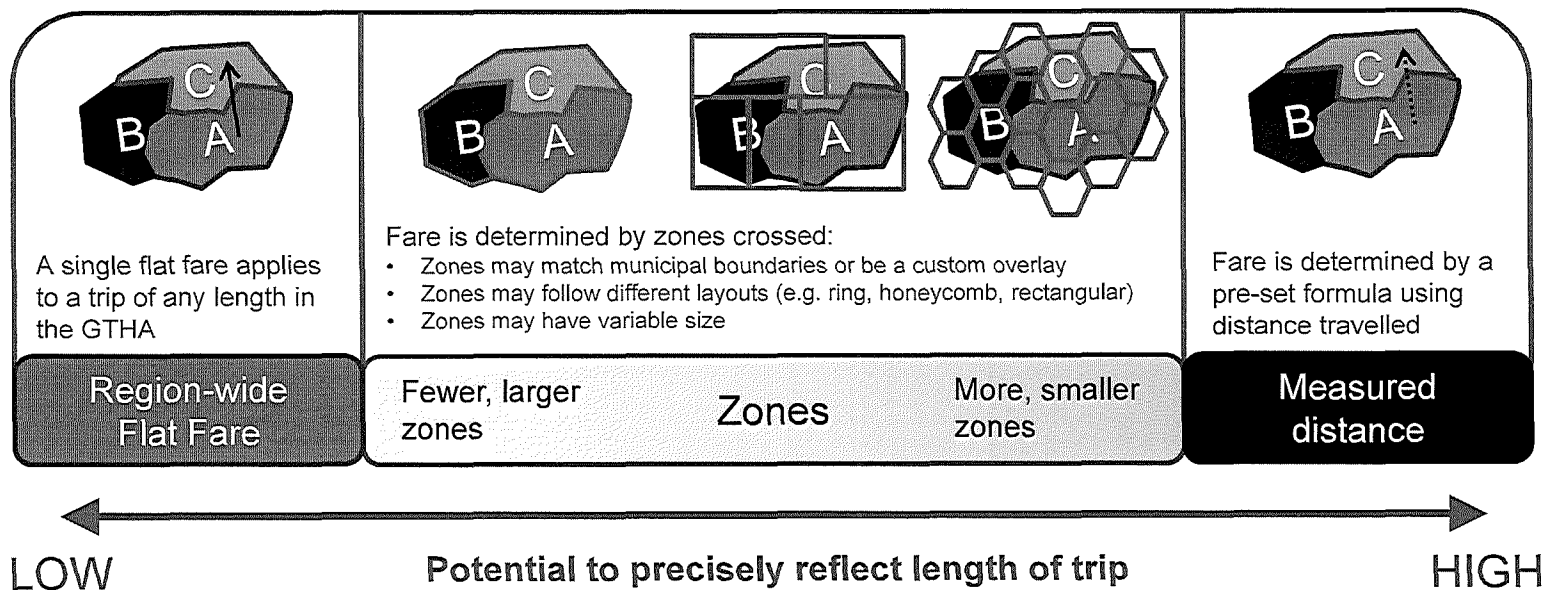
1. **Municipal\*** (bus, streetcar, BRT, subway/RT)
2. **Municipal premium express\*** (TTC 140-series & YRT 300-series buses)
3. **Regional** (GO rail and GO bus)
4. **Specialized airport link** (UP Express)

\* pricing within category varies by service provider



# Trip Length

1. Trip length may be considered directly through a spectrum of geographic approaches:



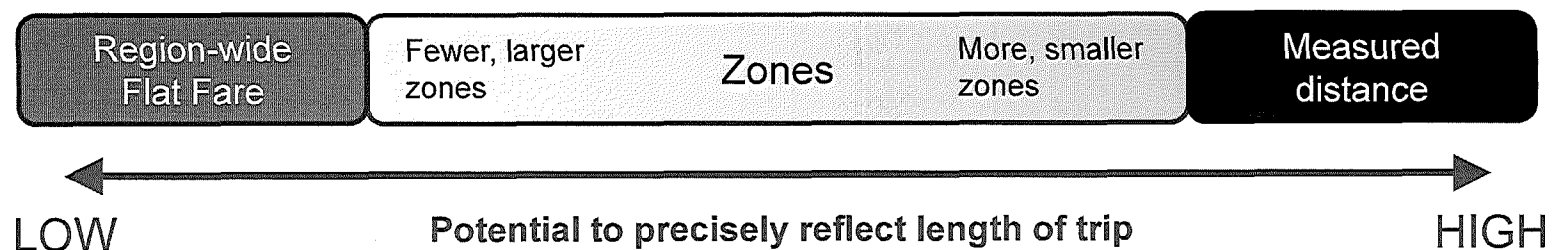
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## Trip Length (cont'd)

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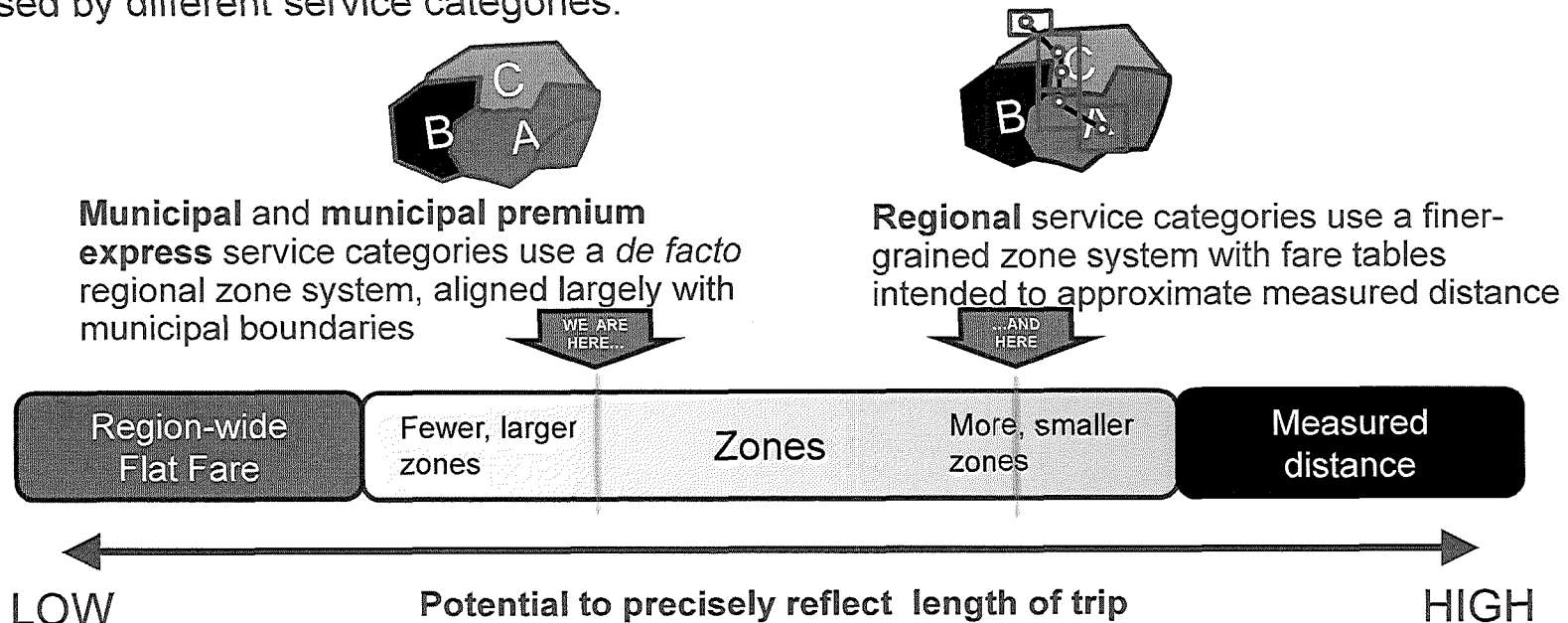
2. Trip length may also be considered indirectly, with fares based on total **travel time**
3. “**Hybrid**” structures are possible that combine multiple approaches to considering trip length, with the approach (region-wide flat, one or multiple zone structures, measured distance, time) depending on the service category

*Any structure (other than region-wide flat) can either scale consistently by distance travelled, or include features such as minimum/maximum fares, fixed/variable components or differential rates.*



# Current GTHA Environment

Current fragmented GTHA fare structure is a **Hybrid**, with two separate zone structures used by different service categories:



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# Fare Structure Types

The combinations of possible responses to service and trip length produce nine reference Fare Structure Types being assessed in Stage One:

| Consideration of<br>Service Type | Consideration of Trip Length          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------|---------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                  |                                       | Region-wide<br>Flat                                                               | Zones                                                                              | Measured<br>Distance                                                                | Travel Time                                                                         | Hybrid                                                                              |
|                                  | Uniform fare for<br>all service types |  |  |  |  | N/A                                                                                 |
|                                  | Multiple service<br>categories        |  |  |  |  |  |



Reference Fare Structure Type

Peak/Off-peak pricing, different transfer policies, and fare capping can be applied to any of these structures.



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## Narrowing the Range of Fare Structure Types

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# Using the Metrolinx Business Case Framework to Assess Fare Structure Types

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| Case                                  | Seeks to answer questions such as...                                                                                                                                                                                                                                |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strategic</b>                      | Will the fare structure type grow ridership?<br>Does it enable the network to function as a seamless whole?<br>Does it distribute demand efficiently and logically throughout the network?<br>Will customers perceive fares as offering value for service received? |
| <b>Financial</b>                      | How will the fare structure type affect revenues and service operating costs?<br>What are the impacts on fare collection costs?                                                                                                                                     |
| <b>Economic</b>                       | Will the fare structure type encourage economic growth?<br>Will it reduce automobile use and greenhouse gas emissions?<br>What are the impacts on social equity/inclusion?<br>What are the impacts on built form?                                                   |
| <b>Operations/<br/>Deliverability</b> | Can the fare structure type be practically implemented?<br>Will it be easy for customers to use?<br>Will it be adaptable to future conditions?                                                                                                                      |

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# Initial Evaluation

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- The nine reference Fare Structure Types each represent numerous possible variations of that type; each is being evaluated to gauge how the range of options of that type would generally perform.
- An Initial Business Case is being prepared for each of the nine Fare Structure Types:
  - Each Fare Structure Type is being qualitatively assessed against objectives
  - Modelling to estimate quantitative performance (i.e. revenue, ridership, vehicle-km travelled) is being used to understand how each reference Fare Structure Type is expected to perform.

# Service Findings

|                                        | Fare Structure Types that Reflect Service                                                                                                                                                                                                                                                                                                              | Fare Structure Types that Do Not Reflect Service                                                                                                                                                                                  |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strategic Case</b>                  | <ul style="list-style-type: none"> <li>• <i>Fares reflect service value to customer, supporting ridership development and varying travel needs</i></li> <li>• <i>Positions service types to distribute demand between services in an integrated network</i></li> <li>• <i>Communications tools required for easy customer understanding</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Fares do not reflect value to user- overprices some services and underprices others resulting in ridership and equity impacts.</i></li> <li>• <i>Simple to communicate</i></li> </ul> |
| <b>Financial Case</b>                  | <ul style="list-style-type: none"> <li>• <i>Supports financial sustainability of transit operations</i></li> </ul>                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• <i>Limits ability to maintain financial sustainability</i></li> </ul>                                                                                                                    |
| <b>Economic Case</b>                   | <ul style="list-style-type: none"> <li>• <i>Provides flexibility to support policies for growth, equity, built form and sustainability</i></li> </ul>                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• <i>Limits flexibility to support policies for growth, equity, built form and sustainability</i></li> </ul>                                                                               |
| <b>Operations/ Deliverability Case</b> | <ul style="list-style-type: none"> <li>• <i>Has greater complexity to implement</i></li> <li>• <i>Offers flexibility to fit to service type operational characteristics</i></li> </ul>                                                                                                                                                                 | <ul style="list-style-type: none"> <li>• <i>Less complex to implement</i></li> </ul>                                                                                                                                              |

# Trip Length Findings

|                                        | Reference Fare Structures that Reflect Trip Length                                                                                                                                                                                                                                                                | Reference Fare Structures that Do Not Reflect Trip Length                                                                                                                                                                        |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strategic Case</b>                  | <ul style="list-style-type: none"> <li>Fares <i>reflect trip value</i> to customer, supporting ridership development and varying travel needs.</li> <li>Communications tools required for <i>easy customer understanding</i>.</li> <li><i>Time-based fares do not provide a consistent trip price.</i></li> </ul> | <ul style="list-style-type: none"> <li>Fares <i>do not reflect value to user</i>- overprices short trips and underprices long trips resulting in ridership and equity impacts.</li> <li><i>Simple to communicate.</i></li> </ul> |
| <b>Financial Case</b>                  | <ul style="list-style-type: none"> <li><i>Supports financial sustainability</i> of transit operations.</li> </ul>                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li><i>Limits ability to maintain financial sustainability.</i></li> </ul>                                                                                                                    |
| <b>Economic Case</b>                   | <ul style="list-style-type: none"> <li><i>Provides flexibility to support policies</i> for growth, equity, built form and sustainability.</li> </ul>                                                                                                                                                              | <ul style="list-style-type: none"> <li><i>Limits flexibility to support policies</i> for growth, equity, built form and sustainability.</li> </ul>                                                                               |
| <b>Operations/ Deliverability Case</b> | <ul style="list-style-type: none"> <li><i>Has greater complexity</i> to implement.</li> <li><i>Offers flexibility</i> to fit to service type operational characteristics.</li> </ul>                                                                                                                              | <ul style="list-style-type: none"> <li><i>Less complex</i> to implement.</li> </ul>                                                                                                                                              |

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# Summary Findings

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- Fare Structure Types that are not responsive to service and trip length should not be investigated further. This removes uniform fares for all service types, and region-wide flat fares from further consideration.
- Time-based fares are variable and unpredictable and should not be investigated further.
- Flat fares should be considered for local transit services only.
- Measured distance-based fares should be considered for higher order service only.
- Zone-based and Hybrid Fare Structure Types should be retained for more detailed investigation.

# Summary Findings

| Consideration of<br>Service Type |                                       | Consideration of Trip Length        |                                  |                                        |                       |                                  |
|----------------------------------|---------------------------------------|-------------------------------------|----------------------------------|----------------------------------------|-----------------------|----------------------------------|
|                                  |                                       | Region-wide<br>Flat                 | Zones                            | Measured<br>Distance                   | Travel Time           | Hybrid                           |
|                                  |                                       |                                     |                                  |                                        |                       |                                  |
|                                  | Uniform fare for<br>all service types | <input type="radio"/>               | <input type="radio"/>            | <input type="radio"/>                  | <input type="radio"/> | N/A                              |
|                                  | Multiple service<br>categories        | <input type="radio"/><br>local only | <input checked="" type="radio"/> | <input type="radio"/><br>hi-order only | <input type="radio"/> | <input checked="" type="radio"/> |



Structure Type Retained



Structure Type Retained with Conditions



Not advancing

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## Next Step:

# Detailed Analysis of Fare Structure Types

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- The detailed analysis of the Fare Structure Types will address:
  - Service categories, including number and which types of service to be included in each
  - Fare structure for each service category
  - Zone number and design (for applicable structures)
  - Price structures
  - Transfer policies
- Consultation with municipalities and other stakeholders and public outreach planned for key decision points



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# Future Milestones

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- **Winter 2016:** Consultation and outreach
- **Spring 2016:** Report to Metrolinx Board of Directors:
  - Recommended GTHA Fare Integration (addressing fare treatment of service types, length of trip and transfers) as a potential *transformational* implementation
- **Ongoing:** GTHA agreements on concession definitions, fare products, concession discounts



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# Appendices

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# GTHA Fare Integration Strategy Objectives: Customer Perspective

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The fare strategy objectives, developed with the local transit service providers, reflect customer, service provider and regional policy perspectives, and provide the basis for evaluating the fare structure alternatives.

| Category    | Label | Objective                                                                                         |
|-------------|-------|---------------------------------------------------------------------------------------------------|
| Simplicity  | C1    | Enables travellers to perceive the GTHA's various transit options as one network                  |
|             | C2    | Delivers a fare structure that is readily understood by customers                                 |
|             | C3    | Convenient and suitable for different trip and traveller types                                    |
| Value       | C4    | Creates fares that travellers perceive as reflecting the value for service received               |
|             | C5    | Promotes equity by fair pricing of trips.                                                         |
|             | C6    | Provides the customer a user friendly point of purchase experience                                |
| Consistency | C7    | Allows for common fare concessions and products that meet a range of traveller needs              |
|             | C8    | Creates standardized fare payment and transaction experience for travellers using one fare medium |
|             | C9    | Provides easy fare payment for trips involving multiple services and/or services.                 |

# GTHA Fare Integration Strategy Objectives: Service Provider Perspective

| Category    | Label | Objective                                                                                                                   |
|-------------|-------|-----------------------------------------------------------------------------------------------------------------------------|
| Simplicity  | S1    | Adaptable to changes in agency service provision, operations, and infrastructure                                            |
|             | S2    | Has manageable requirements for implementing, maintaining and revising/enhancing the fare strategy over its lifecycle       |
|             | S3    | Allows for use of fare data for monitoring and service planning                                                             |
| Value       | S4    | Supports competitive services, ridership development, and service development and promotion policies/preferences/guidelines |
|             | S5    | Provides value for money on investment in fare infrastructure/assets and related operating costs.                           |
|             | S6    | Generates revenue required to meet cost recovery plans and minimizes fare underpayment and avoidance                        |
| Consistency | S7    | Allows service providers to adapt to meet changing customer needs                                                           |
|             | S8    | Enables seamless transfer between agencies through the implementation and use of common fare media                          |
|             | S9    | Distributes demand efficiently throughout the network and supports the roles of differing service types                     |

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# GTHA Fare Integration Strategy Objectives: Regional Perspective

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| Category    | Label | Objective                                                                                                                         |
|-------------|-------|-----------------------------------------------------------------------------------------------------------------------------------|
| Simplicity  | G1    | Provides a flexible fare system that is practical to implement                                                                    |
|             | G2    | Supports transit planning and management across the GTHA including integrated transit services and data collection                |
|             | G3    | Creates a readily understandable fare system                                                                                      |
| Value       | G4    | Supports transit ridership development within services and across the GTHA                                                        |
|             | G5    | Generates revenue in support of cost recovery plans across the GTHA.                                                              |
|             | G6    | Support strategic policy for the GTHA, including economic growth, built form, social inclusion, and environmental sustainability. |
| Consistency | G7    | Supports consistent fare media and products across the GTHA                                                                       |
|             | G8    | Implements a common approach to fare management that enables regional planning/investment                                         |
|             | G9    | Supports future service developments                                                                                              |



## **Rapid Transit Capital Projects Update**

Jack Collins  
Chief Capital Officer

John Jensen  
Vice President, Rapid Transit

Metrolinx Board of Directors Meeting  
September 22, 2015

# Executive Summary

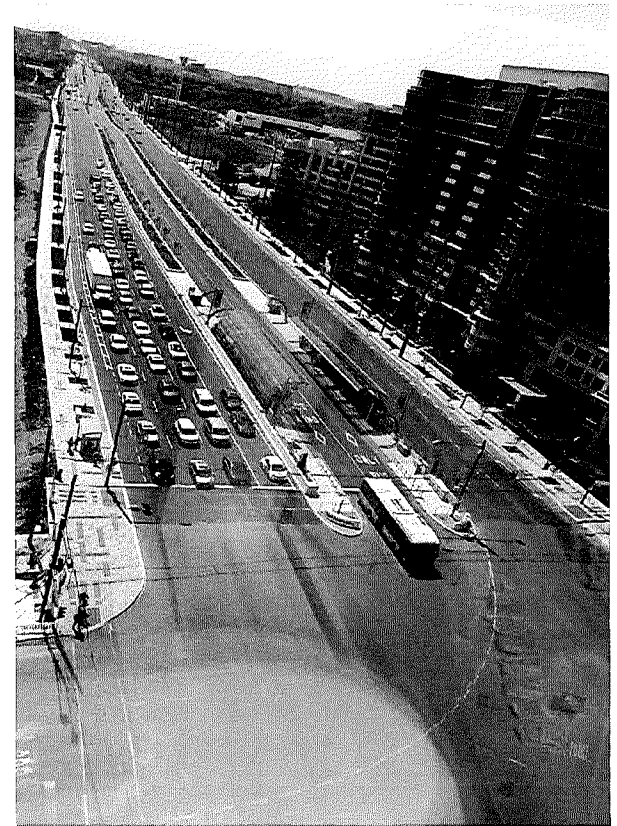
This update is submitted to the Board for information

- vivaNext BRT
  - DBF contract of the H2 segments in Vaughan and Richmond Hill reached Financial Close in September 2015, with EDCO, a joint venture of EllisDon and Coco Paving, as the Preferred Proponent.
- Eglinton Crosstown
  - Commercial and Finance Close of the DBFM contract with Crosslinx was reached in July 2015.
  - The Independent Certifier contract was awarded to BTY Group in July 2015 and the On-site Technical Compliance and Quality Activities contract was awarded to 4Transit in August 2015.
- Finch LRT
  - Provincial approvals were received in July and August to move forward with Infrastructure Ontario on Alternative Financing Procurement.
  - Request for Qualifications for DBFM contractors will be issued in September 2015.



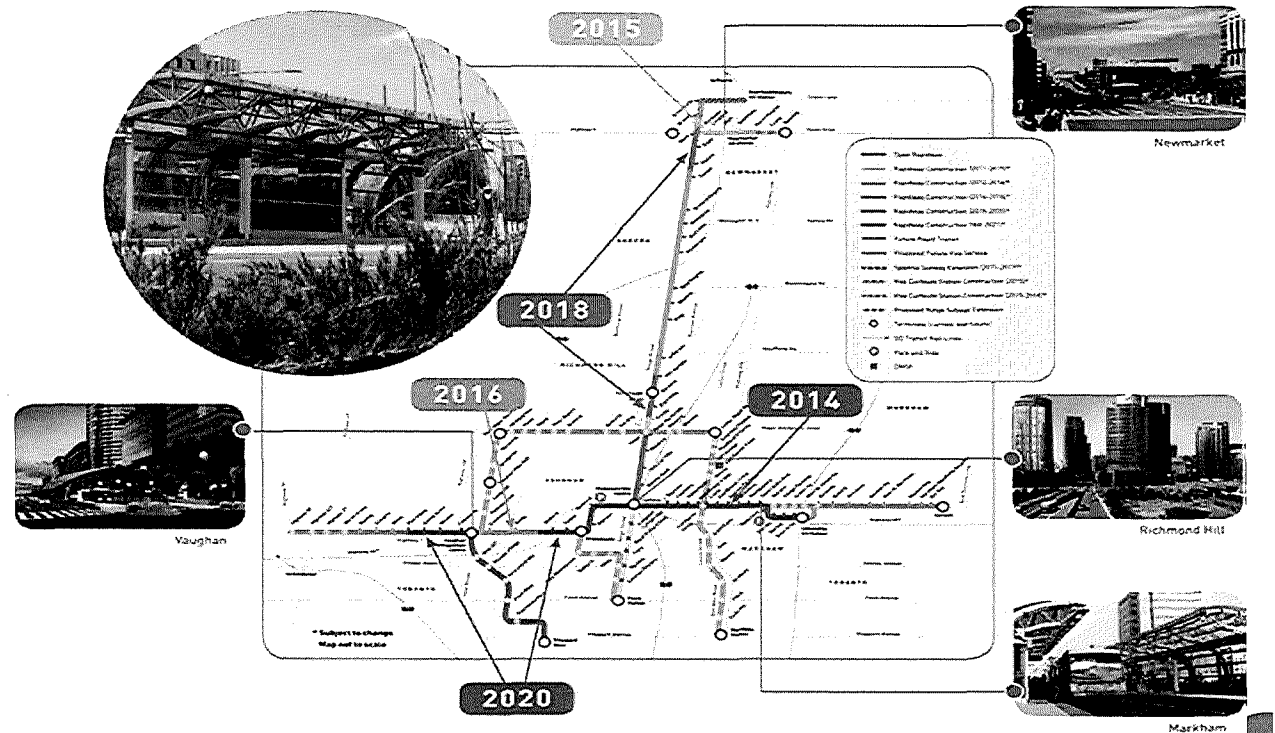
# vivaNext Bus Rapid Transit

- The H3 rapidway segment on Hwy 7 between Richmond Hill Centre and Warden Ave (11 stations – 6.0 km) is fully complete and in service.
- Bus travel time savings of 35% in this segment and a 10% increase in ridership recorded.
- H2-VMC segment on Hwy 7 from Hwy 400 to Bowes Road (3 stations – 3.6 km) is progressing well with anticipated phase completions in 2016 and 2017.
- D1 segment along Davis Drive from Yonge St. to Roxborough Road (5 stations - 2.6 km) in Newmarket is scheduled to be in service by the end of December 2015 with construction over 75% complete.
- Yonge St. segments (10 stations – 10.1 km) are in design stage with commencement of utility works. Construction is anticipated to commence in summer of 2016.
- Commercial and Financial Close for the DBF contract of the H2 segments in Vaughan and Richmond Hill was reached in mid-September, with EDCO as the Preferred Proponent. The project is anticipated to be completed and in-service in late 2020.



# vivaNext Bus Rapid Transit

- Phased openings of vivaNext Segments.
- A total of 6 km of rapid way is in service on Highway 7.
- In December 2015 another 2.6 km will be opened along Davis Drive bringing 25% of total program into service.

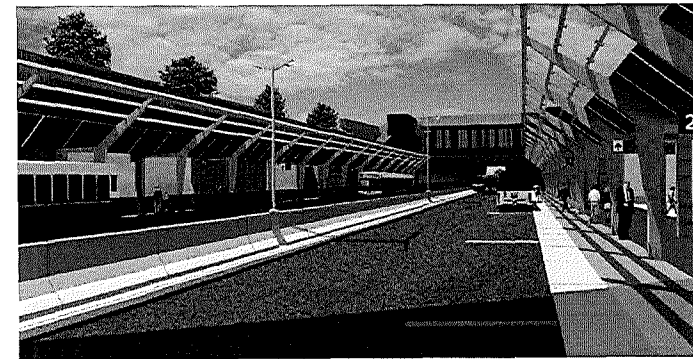
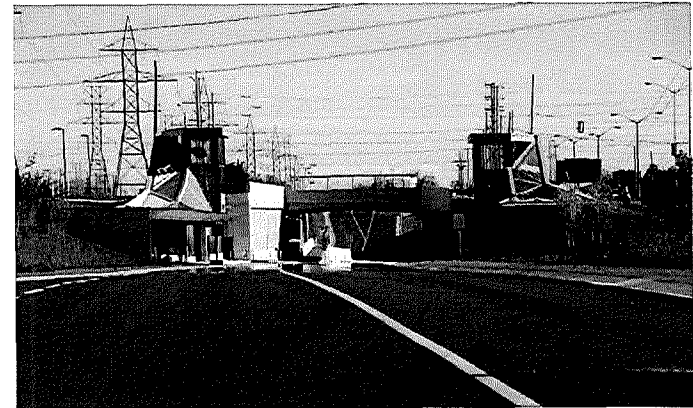


# Mississauga Transitway

Partnership with City of Mississauga, Transport Canada and MTO for building 18 km of dedicated bus transitway with 12 stations for operation of GO and MiWay bus service, with TTC integration at Renforth. A total of 6 km and 4 stations of the transitway are in service.

## Updates:

- Erin Mills station opened on September 5, 2015.
- Square One Bus Terminal station building is scheduled to open by the end of 2015.
- On-track for completion of transitway in 2017, including Renforth.
- Improvements to 407 connectivity from Winston Churchill station expected in 2019.



# Eglinton Crosstown LRT

## AFP Update

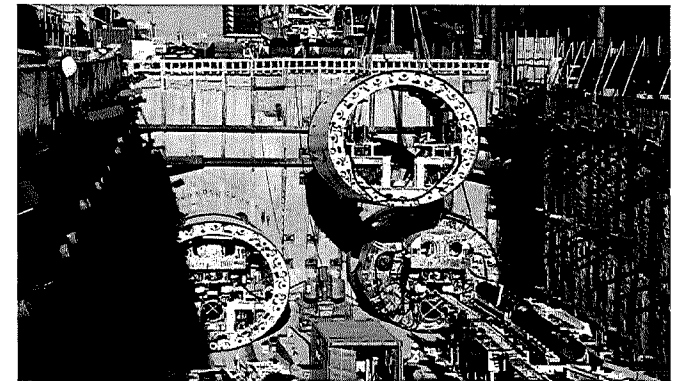
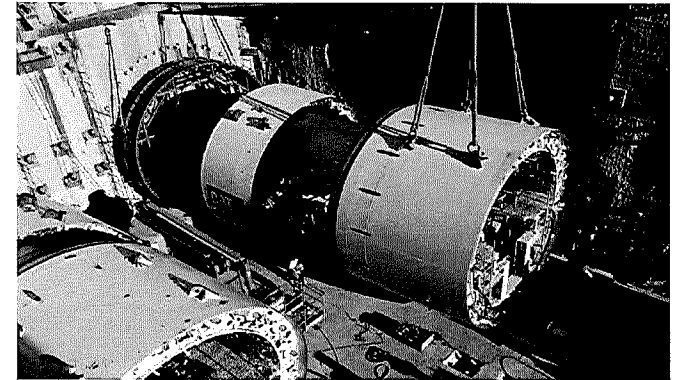
- Commercial and Finance Close of the DBFM contract with Crosslinx was reached in July 2015; Crosslinx and Metrolinx project team are working to mobilize the team and establish a joint project office.
- An update to the 10% design submission is underway to incorporate the changes discussed during the preferred proponent negotiation stage.
- Independent Certifier contract awarded to BTY Group in July 2015.
- On-site Technical Compliance and Quality Activities contract awarded to 4Transit in August 2015.



# Eglinton Crosstown LRT

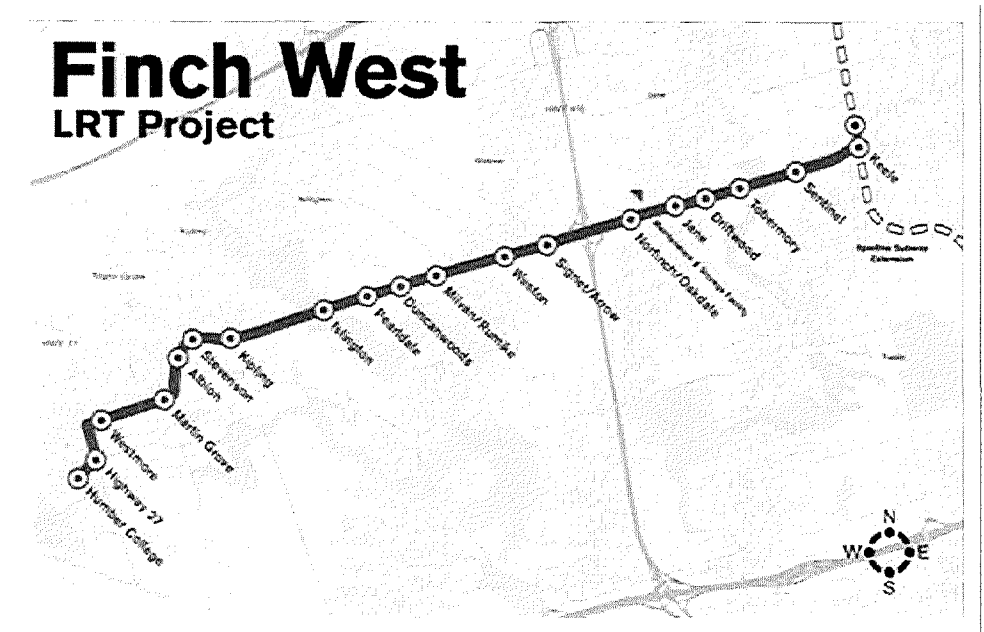
## Tunneling Update:

- West tunneling activities continued throughout the summer and the TBMs are expected to be nearing Bathurst Street by end of September 2015.
- East tunneling commenced at the Brentcliffe Avenue launch site in September, with the first TBM moving westerly towards Yonge Street, and the second TBM expected to begin mining in October.



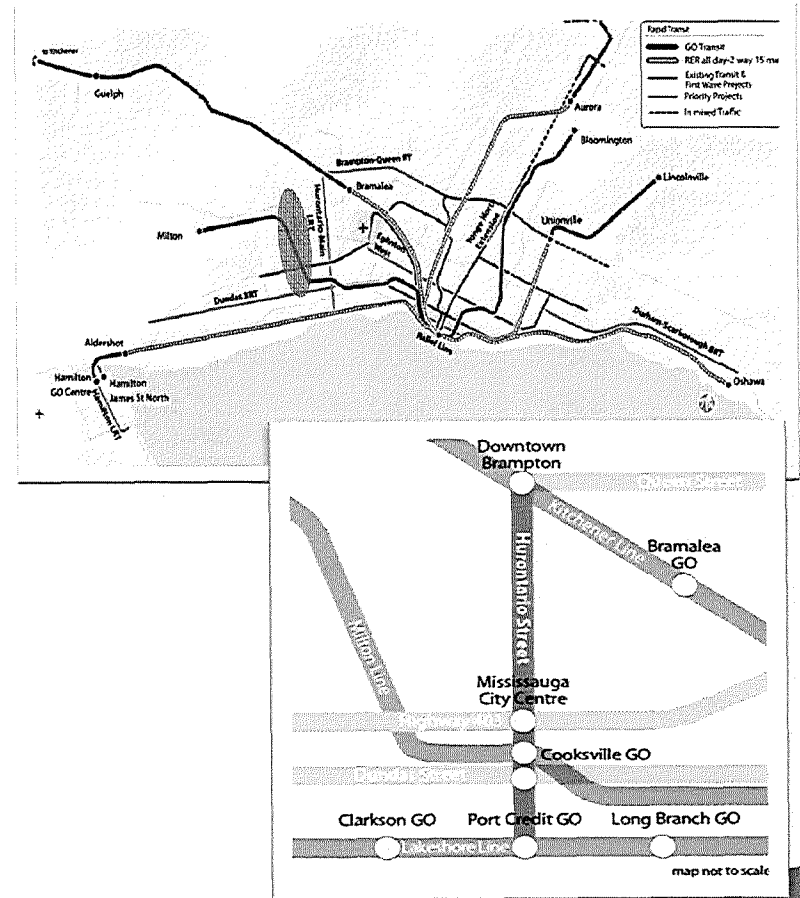
# Finch West LRT

- Notice of Completion of Environmental Project Report for Maintenance and Storage Facility issued in July, with a targeted completion date of late 2015.
- Provincial approvals were received in July and August to move forward with Infrastructure Ontario on Alternative Financing Procurement.
- Request for Qualifications for DBFM contractors will be issued in September 2015.



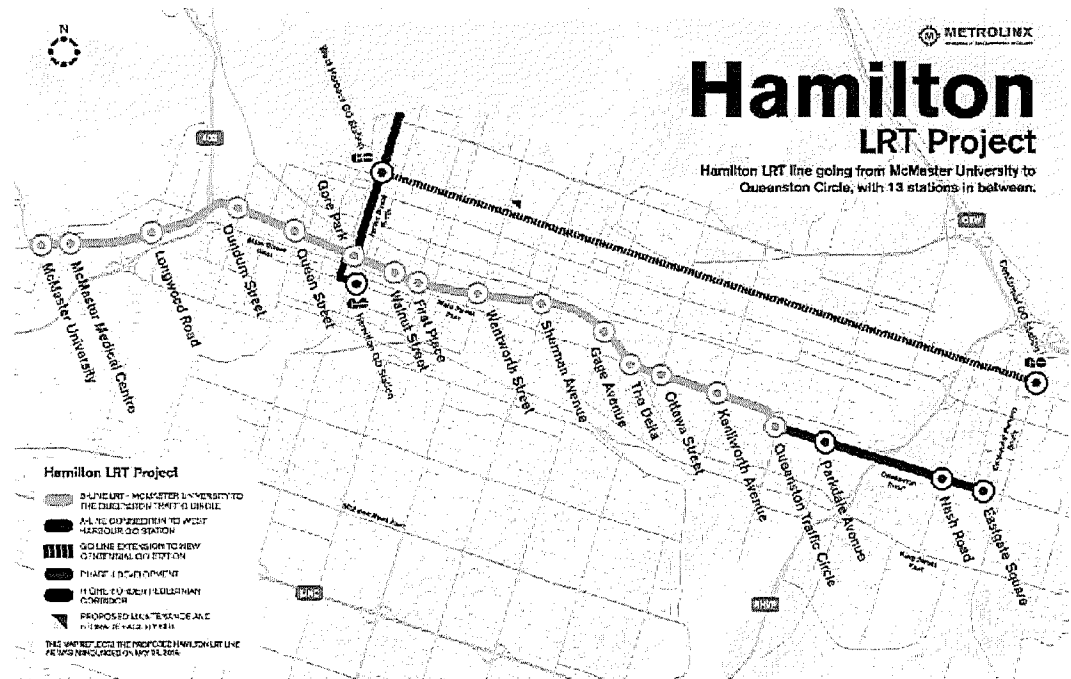
# Hurontario-Main LRT

- Projected cost is \$1.6 billion (2014\$)
  - Seeking federal funding through PPP Canada.
- EA complete
  - Approximately 3 years to start of construction.
- Next steps include:
  - Tendering for Technical Advisory services and providing the board with recommendation for award in fall of 2015.
  - Acquisition of key parcels of property.
  - Development of agreements with local/regional governments.
  - Resolution of Brampton downtown alignment.
  - Development of a risk-based master schedule throughout the RFQ/RFP phase.
  - Development of an early works plan.



# Hamilton LRT

- Light rail transit along Main Street, King Street, and Queenston Road:
  - 13 at-grade stops and 2 terminals from McMaster University to the Queenston Traffic Circle along the current B-Line bus route.
  - May 26 - the Province announced \$1 billion commitment to the line.
  - Spur line will connect to the new West Harbor GO station.
  - Improved pedestrian access to the Hamilton GO station.
- Metrolinx has assigned a dedicated Director to the project.





# Hamilton LRT

- In August 2015, Metrolinx and IO met with City of Hamilton to discuss project governance, establishing a local project office, developing an initial Memorandum of Agreement with the City and initiating additional planning and environmental work.
- Next steps include:
  - Update to Environmental Assessment document for alignment changes with Steer Davies Gleeve.
  - The procurement of advisory services, notably an owner's engineer/technical advisor.
  - Acquisition of key parcels of property.
  - Development of a master agreement with the municipality.
  - Development of an early works plan.

