Appendix 2
SmartTrack – GO RER Integration Options
Integrating GO RER and SmartTrack

Leslie Woo, Chief Planning Officer
February 10, 2016
Appendix 2: SmartTrack GO RER Integration Options

Purpose and Scope

To present update on development of options for integrating SmartTrack and GO RER based on the following objectives:

• Successfully integrate GO RER and SmartTrack
• Offer more residents more short-distance transit options, while continuing to increase service to long-distance travellers
• Identify a range of rapid transit options for evaluation that connect people and jobs through Eglinton West
• Integrate the analysis emerging from the RER New Stations Analysis
• Maintain the Provincial commitment to deliver GO RER within 10 years
• Seek to leverage the potential for additional capital investment
What’s new since Sept 2015?

• Since September 2015, Metrolinx and the City of Toronto together have identified the range of options for an integrated GO Regional Express Rail (RER)/SmartTrack service to advance for deeper analysis including:
  – Options for integrating SmartTrack new stations and service with RER
  – Options for enhanced Eglinton West LRT

• City of Toronto staff have been reporting to Executive Committee on updates to their planning analysis, including additional network considerations; key decisions are planned for Toronto Council and Executive Committee reports in Q1 and Q2 2016.

• Metrolinx has been working closely with City to provide input and to ensure coordination
GO RER will reduce travel times and give people more ways to get where they want to go with:

- Trains up to every 15 minutes
- Service in both directions
- More all-day service
- Faster electric trains

More than 50 large cities across the world use Regional Express Rail systems.

Whether it’s the Reseau Express Regional in Paris, the Overground in London, or NSW TrainLink in Sydney, each RER system has these basic traits:

- Frequent all-day service
- Uses electric trains
- Runs on surface rail lines
- Good connections with local transit
Appendix 2: SmartTrack GO RER Integration Options

GO RER is a $13.5B Capital Program

**New Track**
150 kilometres of new dedicated GO track will allow for more uninterrupted service.

**New Trains**
New electric trains will travel faster for longer and reduce travel times.

**New Bridges and Tunnels**
Bridges and tunnels that eliminate intersections with rail and road traffic will provide more reliable GO train service.

**New Renovations**
New and improved stations will make your journey more comfortable, from start to finish.
GO RER and SmartTrack share a number of common objectives:

- Improving access to rapid transit
- Increasing transit ridership
- Reducing congestion on existing transit and roads
- Better integration of GO rail service with municipal transit
- Better integrated GTHA fare structure
- Making best possible use of rail corridors
- Providing all-day, fast and frequent service (15 minutes or better)
- Encouraging transit-oriented development around transit stations
- Creating connections between employment centres
Method for Integrating GO RER and SmartTrack

- Analysis is proceeding using the Metrolinx business case framework
- A range of integrated options were developed, working with the City of Toronto
- Understanding the infrastructure requirements, costs, and impacts to communities are next steps:
  - GO RER utilizes majority of capacity on the rail corridors. Impacts could include property, community, cost and timing considerations
  - Options will be screened based on better understanding of infrastructure requirements and impacts

Iterative refinement of options and infrastructure based on screening, Business Case analysis, and costing
Developing the Options – Two Parts

Options are being developed in two parts: 1) rail service on the Kitchener and Stouffville corridors and 2) rapid transit on Eglinton West.
GO RAIL CORRIDOR OPTIONS
GO RER in the City of Toronto

- There are 7 GO corridors and 19 stations serving the City of Toronto.
- GO RER will bring 15-min 2-way service to five of these corridors, bringing more options for residents and jobs within the City and to the broader region.
- SmartTrack provides an opportunity to build on these benefits, primarily through Scarborough, downtown, and in the west end.
- Metrolinx and the City are working to identify integrated options that:
  - Leverage planned RER investments to deliver new riders and added benefits (e.g. mode shift, time savings)
  - Are deliverable within available funding.
GO Rail Corridor Options

• Four options for considerations have been jointly developed between Metrolinx and the City of Toronto for further analysis and public feedback:
  A. Increased frequencies, 5 new stations
  B. Express and local service, 8 new stations
  C. Committed RER frequencies, 7-8 new stations
  D. Committed RER frequencies, 4-5 new stations

• Additional station analysis to be completed, including integration with broader RER station analysis

• All options include an LRT on the Eglinton West corridor, with the number of stations to be determined

• All options include the 11 existing stations in the City of Toronto and Markham on the Kitchener and Stouffville corridors
SmartTrack and GO Rail Options

Working Assumptions

- **Base case** is the 2015 GO RER Service and Infrastructure Plan
- **New station locations** were assumed as part of the operational feasibility and ridership forecasting work; further detailed analysis as RER New Stations Analysis progresses
- **Operational feasibility and infrastructure requirements** for each option will be tested using prototype scheduling in order to complete initial validation
- **A range of fares will be assumed**, including scenarios emerging from GTHA Fare Integration Strategy
- Implications of the options on **Union Station** capacity and train flows will be validated through further rail simulation
Appendix 2: SmartTrack GO RER Integration Options

Option A for Consideration

- Increased frequencies, above the committed RER program in the peak and off-peak
  - 4-6 minute frequency in the peak
  - 7.5 minute frequency in the off-peak
- 5 new stations
  - Locations to be finalized through RER new stations analysis and discussions with the City
  - Stations tested include Gerrard, Unilever, Bathurst-Spadina, Liberty Village, St. Clair West
- Kitchener and Stouffville through service

New stations shown are conceptual; recommendations for any new stations will come from through RER new stations analysis and discussions with the City.

Eglinton West LRT shown in red.
Option B for Consideration

- 20 minute frequency for each of express service and local service (10 min combined service); Unionville – Union Station – Bramalea
  - Express service stopping at existing stations only
  - Local service stopping at existing + new stations
- 8 new stations
  - Locations to be finalized through RER new stations analysis and discussions with the City
  - Stations tested include St. Clair, Liberty Village, Bathurst-Spadina, Unilever, Gerrard- Carlaw, Ellesmere, Lawrence, and Finch
- Kitchener and Stouffville through service
Option C for Consideration

- Funded and committed GO RER frequencies in the peak and off-peak
  - 5 to 10 minute peak service
  - 15 minute off-peak service
- 7 to 8 new stations
  - Locations to be finalized through RER new stations analysis and discussions with the City
  - Stations tested include St. Clair, Liberty Village, Unilever, Gerrard-Carlaw, Ellesmere, Lawrence, and Finch
- Kitchener and Stouffville through service

New stations shown are conceptual; recommendations for any new stations will come from through RER new stations analysis and discussions with the City

Eglinton West LRT shown in red
Option D for Consideration

- Funded and committed GO RER frequencies in the peak and off-peak
  - 5 to 10 minute peak service
  - 15 minute off-peak service
- 4 to 5 new stations
  - Locations to be finalized through RER new stations analysis and discussions with the City
  - Stations tested include St. Clair, Liberty Village, Unilever, Gerrard- Carlaw
- Kitchener and Stouffville through service
Preliminary Analysis

- All options provide significant new opportunities to access rail services within the City of Toronto.
- Ridership levels will be driven by many factors including level of service, fare policy, and integration with local service.
- Options A and B require significant incremental infrastructure that leads to increased cost and community impacts; capacity challenges at Union Station are also a factor.
- Option C provides more access within the City of Toronto, slows travel for some long distance trips and speeds travel for other trips.
- Option D provides some increased access within the City of Toronto, but has less impact to travel times than Option C.
- Additional analysis be undertaken in collaboration with the City of Toronto.
GO Rail Options Next Steps

- Ongoing consultation with municipalities
- Public engagement and input
- Business case analysis, including:
  - Feasibility analysis and screening
    - Infrastructure requirements for each option
    - Operational analysis
    - Community impact analysis
  - Strategic analysis assessing options against objectives and understanding impacts to broader GO RER program
- Ridership modelling
- Capital cost and operating cost estimates
- Economic analysis
Appendix 2: SmartTrack GO RER Integration Options

EGLINTON WEST OPTIONS
Identifying Viable Options for Eglinton West

• City of Toronto study prepared by HDR, entitled “SmartTrack Western Corridor Feasibility Review” looked at extending a heavy rail corridor between Mt. Dennis and the Mississauga Airport Corporate Centre along two potential corridors – Eglinton Ave. and a northern corridor option.

• Study findings show:
  – A new heavy rail corridor would need to be grade separated and tunneled
  – Extensive technical challenges with infrastructure, service levels and traveller convenience with large community impacts
  – Costs range from $3.6B to $7.7B (excluding any additional infrastructure required in the Kitchener corridor)
  – LRT ridership (EA approved alignment) is 3 times higher than heavy rail

• Based on these findings, City staff will recommend moving forward towards an optimized LRT extension

• Metrolinx is leading an alternatives analysis to identify a preferred rapid transit option for Eglinton W in collaboration with the City of Toronto
Appendix 2: SmartTrack GO RER Integration Options

EA Approved LRT Option (2009)

- 14 stops
- Surface alignment
- Link between Mississauga Transitway and Eglinton Crosstown (currently under construction)
## Eglinton West LRT Options for Consideration

<table>
<thead>
<tr>
<th>Option</th>
<th>Number of Stops</th>
<th>Suggested Stop Locations</th>
<th>Degree of Grade Separation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EA Approved - Designed for Local Access</td>
<td>14 + 3 at Airport</td>
<td>Pearson, Renforth Gateway, Kipling, Scarlett, Mt. Dennis</td>
<td>At grade</td>
</tr>
<tr>
<td>2. Speed and Access Balance</td>
<td>8 +3 at Airport</td>
<td>Pearson, Renforth Gateway, Kipling, Scarlett, Mt. Dennis</td>
<td>At grade</td>
</tr>
<tr>
<td>3. Maximize Speed</td>
<td>3 + 3 at Airport</td>
<td>Pearson, Renforth Gateway, Kipling, Scarlett, Mt. Dennis</td>
<td>At grade</td>
</tr>
<tr>
<td>4. Grade Separated at Intersections</td>
<td>3 + 3 at Airport</td>
<td>Pearson, Renforth Gateway, Kipling, Scarlett, Mt. Dennis</td>
<td>Grade separated at major arterials</td>
</tr>
<tr>
<td>5. Reduced Stops + Highest Speed</td>
<td>3 + 3 at Airport</td>
<td>Pearson, Renforth Gateway, Kipling, Scarlett, Mt. Dennis</td>
<td>Elevated or underground</td>
</tr>
</tbody>
</table>
Eglinton West LRT Next Steps

- Public and stakeholder consultations
- Business case analysis, including:
  - Strategic analysis advancing understanding of the effects of stop spacing and grade separation on traveller behaviour and travel patterns
  - Ridership modelling
  - Community impacts analysis
  - Capital cost and operating cost estimates
  - Economic analysis
  - Feasibility analysis
OTHER TORONTO INITIATIVES
City of Toronto Scarborough Transit Planning Update

- Staff report to City of Toronto January 28th Executive Committee describes transit network for Scarborough in advance of March 2016 Council report on SmartTrack
- Based on 2 key priorities:
  1. Support the development of Scarborough Centre as a vibrant urban node
  2. Support the development of complete communities along the Avenues and improve local accessibility
City of Toronto Scarborough Transit Planning Update

Recommends that technical work and public consultation proceed for several key elements of a proposed transit network for Scarborough:

- Extension of Line 2 (Bloor-Danforth Subway) focussed on serving Scarborough Centre via a McCowan Road alignment
- Extension of Crosstown LRT east to the University of Toronto, Scarborough Campus
- New SmartTrack station on the Stouffville corridor (focus on Lawrence and also includes Ellesmere and Finch)
- Rapid transit on the Sheppard East Corridor
Other Toronto Initiatives

- **Eglinton Crosstown LRT East** extension:
  - 2009 Environmental Approval includes 20 stops (including Kennedy) along 13 km of LRT
  - Proposed rapid transit corridor is identified in the regional transportation plan
  - Further work required to confirm design/alignment, capital costs and timing including
    - the interchange of the Line 2 Scarborough subway extension and a Eglinton Crosstown LRT east extension at Kennedy Station
    - Maintenance and storage facility requirements
    - Design of terminus at University of Toronto – Scarborough (UTSC)
  - Two potential GO RER interfaces at existing Eglinton and Guildwood GO stations

- **Relief Line**
  - Metrolinx will continue to work with the City and TTC to advance Relief Line project planning, consistent with the recommendations of the Yonge Relief Network Study
NEXT STEPS
Public Engagement

- Metrolinx will be engaging throughout the GTHA in February/March on:
  - Electrification
  - RER existing and new stations
  - Fare integration
  - Regional Transportation Plan Review
- Joint consultation planned, including Metrolinx, the City of Toronto, City of Mississauga and York Region:
  - SmartTrack will be presented jointly by the City of Toronto and Metrolinx
  - City of Toronto will also be consulting on other Toronto projects, including Scarborough Subway Extension and Relief Line
  - York Region will be consulting on the York Region Transportation Master Plan
Other Related Issues

A number of related studies are converging in Spring and Fall 2016, enabling a more complete sequencing:

- **New station locations** – need to determine the specific station sites in partnership with municipalities and informed by the new stations analysis and public consultation

- **GTHA Fare integration strategy** - ultimate success of integrating RER and SmartTrack also relies on developing an integrated fare structure for the region

- **Union Station capacity** - All options will require further analysis in terms of Union Station capacity

- **Funding** – additional capital and operating funding beyond current Provincial commitment to GO RER will shape decision-making
### Next Steps Timeline

<table>
<thead>
<tr>
<th>Timing</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>February/March</td>
<td>• Metrolinx will be engaging throughout the GTHA</td>
</tr>
<tr>
<td></td>
<td>• Joint consultation planned, including Metrolinx, the City of Toronto, City of Mississauga and York Region</td>
</tr>
<tr>
<td>Early March/Late March</td>
<td>Toronto City Executive Committee / Toronto City Council</td>
</tr>
<tr>
<td></td>
<td>• SmartTrack planning and technical analysis</td>
</tr>
<tr>
<td>Late May/Early June</td>
<td>Toronto City Executive Committee / Toronto City Council</td>
</tr>
<tr>
<td></td>
<td>• SmartTrack project definition and implementation considerations</td>
</tr>
<tr>
<td>June 28</td>
<td>Metrolinx Board</td>
</tr>
<tr>
<td></td>
<td>• GO RER and SmartTrack Integration, New GO RER</td>
</tr>
</tbody>
</table>