
To: York Region Rapid Transit Corporation Board of Directors

From: Mary-Frances Turner, President

Subject: Yonge Relief Network Study Update

Ref: YORK# 6212396

Recommendation

It is recommended that:

1. The Board receive the Yonge Relief Network Study Update for information
2. The Board direct staff to work in consultation with Metrolinx, City of Toronto and the TTC to advance the project development of the Yonge North Subway Extension to 15% preliminary design and engineering

Purpose

The purpose of this report is:

- To provide the Board with an overview of the findings of the Metrolinx Yonge Relief Network Study and a summary of next steps

Background

The Yonge subway is the busiest rapid transit line in the GTHA and service is currently operating at capacity during peak periods

- Many people in York Region and The City of Toronto use transit to access employment areas; however, supply has not kept up with demand. In particular, the Yonge Subway, which serves both local and regional trips, is over-crowded today and, even with committed improvements, is projected to be over-crowded in the future beyond 2031.

Metrolinx worked together with the TTC, City of Toronto and YRRTC/York Region on the Yonge Relief Network Study (YRNS) to address crowding on the Yonge Subway line and improve transit along the Yonge corridor

- The Yonge Relief Network Study (YRNS) was both funded and led by Metrolinx. The findings and recommendations of the YRNS were presented to the Metrolinx Board of Directors on June 25, 2015
- The YRNS commenced in September 2013 and included developing regional, network-based solutions to address crowding on the Yonge Subway and lay the groundwork to address regional transportation challenges, create new local and regional travel opportunities and improve mobility across the GTHA
- The YRNS was executed by a Steering Committee, chaired by Metrolinx's Chief Planning Officer along with the President of York Region Rapid Transit Corporation (YRRTC), Chief Planner of City of Toronto and the Head of Engineering for the TTC, as well as a Technical Advisory Committee including staff from the City of Toronto, TTC, YRRTC/York Region, and the Ministry of Transportation
- The YRNS consisted of three major phases
 - Phase 1: Development of a long-list of measures and projects that could address congestion on the Yonge Subway
 - Phase 2: Understanding the problem - future base case
 - Phase 3: Future Scenarios
- The YRNS also considered other 'Next Wave' priority projects included in *The Big Move*, including The Downtown Relief Line (DRL) and the Yonge North Subway Extension (YNSE), as well as regional network options to relieve congestion and improve mobility
- With support from the TTC, the City of Toronto concurrently initiated the Downtown Relief Line Assessment Study to determine route and station options, for a new rapid transit line connecting the central business district to the Danforth subway line.
- YRRTC/York Region concurrently updated and completed technical studies for the YNSE in consultation with the TTC

The YRNS involved a comprehensive approach to ensure all options for congestion relief were considered, including: service improvements, fare and network integration, and new rapid transit

- Future land use and development implications and the economic, environmental and social impacts of different alternatives were also considered
- The YRNS provides a comprehensive network analysis taking into account the current RER service concept, the Toronto-York Spadina Subway Extension (TYSSE), the YNSE, the Eglinton Crosstown and the Scarborough Subway

Since this study began, the commitment for GO Regional Express Rail and some of the short and medium relief options to create more capacity have been confirmed and are now embedded in the study base case

- In June 2014, the Metrolinx Board received the GO Regional Express Rail (RER) report, a significant investment to the GO Transit corridors throughout the GTHA, and provides medium-term relief to the growing congestion issues currently facing commuters
- The YRNS is now based on RER. The focus of YRNS shifted to when additional, longer-term relief would be needed along the Yonge corridor for Yonge Subway line

Analysis

Today, the Yonge Subway south of Bloor is operating at least +11% over capacity and ridership demand will continue to rise

- Existing capacity on the Yonge Line is 28,000 passengers per hour per direction (pphpd). Today, the line is operating at 31,200 pphpd, south of Bloor Station during the morning peak period
- Key factors in determining future ridership demand include employment and population growth. In the City of Toronto, downtown employment as a proportion of City employment is increasing and the need for more transit capacity is dependent on the rate of growth
- Transit modeling for this study used 2031 land-use from a recent amendment to the City of Toronto's Official Plan which included revisions to the City's 2031 population and employment forecasts. Results from this modeling work indicate that ridership demand will reach 37,800 pphpd on the Yonge Line by 2031 if no other transit alternatives are in place.

With the committed capacity improvements underway, the Yonge Subway will accommodate the future 15-year demand even with significant growth in the downtown Toronto population and employment

- The YRNS concluded that the number of already committed/funded initiatives underway will increase the capacity of the Yonge subway and divert existing and future riders to other corridors. This will result in substantial increase in capacity on the Yonge Line to accommodate growth to 2031
- The TTC is currently using new higher capacity subway trains and implementing Automatic Train Control on the Yonge Subway. By 2021, this will increase capacity by 28% to 36,000 pphpd
- Based on 2031 population and employment growth estimates, additional riders on the Yonge Subway will be offset by riders moving to RER and the Spadina Subway services. With 15-minute frequencies in core areas and service in both directions, RER will provide significant relief by attracting riders from the Yonge Subway and when the TYSSE is completed in 2017, it will also attract riders. The combined ridership diversion of these two committed initiatives is 5,500 pphpd
- The upward pressures of population and employment growth will be offset by the committed and funded network improvements listed above, resulting in about the same demand for ridership on the Yonge Subway in 2031 as we see today – however, we will have higher capacity. In 2031, capacity is estimated to be 36,000 pphpd and ridership demand is estimated to be 32,300 pphpd, giving us a volume to capacity ratio of 89%
- The Yonge North Subway Extension would further increase demand on the Yonge Subway Line. However, even with the extension, the ridership demand would rise to 34,600 pphpd and the volume to capacity ratio would become 96%. The Yonge Subway will still be under the projected 2031 capacity of 36,000 pphpd.
- As you can see in Attachment 1, the capacity improvements offset the immediate need for the Downtown Relief Line. The study also concludes that the DRL project is a post-2031, longer-term project consideration

The YRNS used short, medium and long-term improvement scenarios for congestion relief

- The short and medium relief options included the following:
 - *GO service modifications to be considered as part of RER development* - such as increased frequencies, new stopping patterns including shuttles, longer service hours and new stations

- *Fare Policy to be considered as part of fare and service integration study* - Fare parity with TTC and GO, Co-Fare GO/TTC/York, Peak premium (or off-peak discount)
 - *Service integration* - including TTC/GO connections and increased express bus routes
- With RER providing significant relief in the short/medium term, the initial findings from Scenario 1 and 2 are already being addressed by appropriate agencies and the focus has been shifted to longer term (post 2031) relief.
- The longer term relief projects that were developed, assessed and compared included:
 1. *RER Plus* – Even more improvements to the GO Network - with more frequency and potentially new stations to provide a high quality service in the Yonge corridor
 2. *Relief Line Options* - fully grade separated with route and phasing options that include
 - Danforth to Downtown
 - Sheppard Subway to Downtown
 - Danforth to Bloor (through downtown)
 3. *Surface Transit LRT* - A new rapid transit corridor to provide a high quality, attractive alternative to travel on the Yonge Subway line
- Out of these, only options 2 and 3 proceeded to be fully evaluated by Metrolinx. The YRNS concluded that the planning for the Relief Line should continue in order to determine the optimal project and potential phasing. This will include revisiting modeling work and ongoing business case evaluation in line with good project planning practices
- Based on the combined analysis of the above information, Metrolinx concluded that there will be sufficient capacity on the Yonge Subway to 2031 and recommend the following to the Metrolinx Board of Directors:

“Direct staff to work in consultation with York Region, City of Toronto and the TTC to advance the project development of the Yonge North Subway Extension to 15% preliminary design and engineering”

Financial Implications

- Staff are awaiting confirmation of funding to advance the Yonge North Subway Extension to 15% preliminary design and engineering, as per the recommendations in the Yonge Relief Network Study Report presented at the Metrolinx Board Meeting on June 25, 2015.

Conclusion

Yonge North Subway Extension

- Today, the Yonge Subway is currently operating at about +11% over capacity
- While the Yonge North Subway Extension would increase demand on the Yonge Subway Line, significant relief to the line will be achieved through committed transit improvements, including the TTC's automatic train control and new subway trains, TYSSE and GO Regional Express Rail
- With these improvements in place, the Yonge North Subway Extension can be built and the Yonge Subway will still be under capacity in 2031

Downtown Relief Line (DRL)

- More rapid transit to the downtown area will not be required in the next fifteen years assuming the City of Toronto's current forecasts on downtown employment growth and implementation of committed projects
- The City and TTC are conducting planning work on station locations and alignments for the DRL between the Danforth Subway and downtown
- The YRNS study affirms the importance of the DRL project in reducing crowding on the Yonge Subway and at the Yonge-Bloor interchange station beyond the year 2031. The DRL Project Assessment work should continue to be guided by the findings of this study

Network Analysis

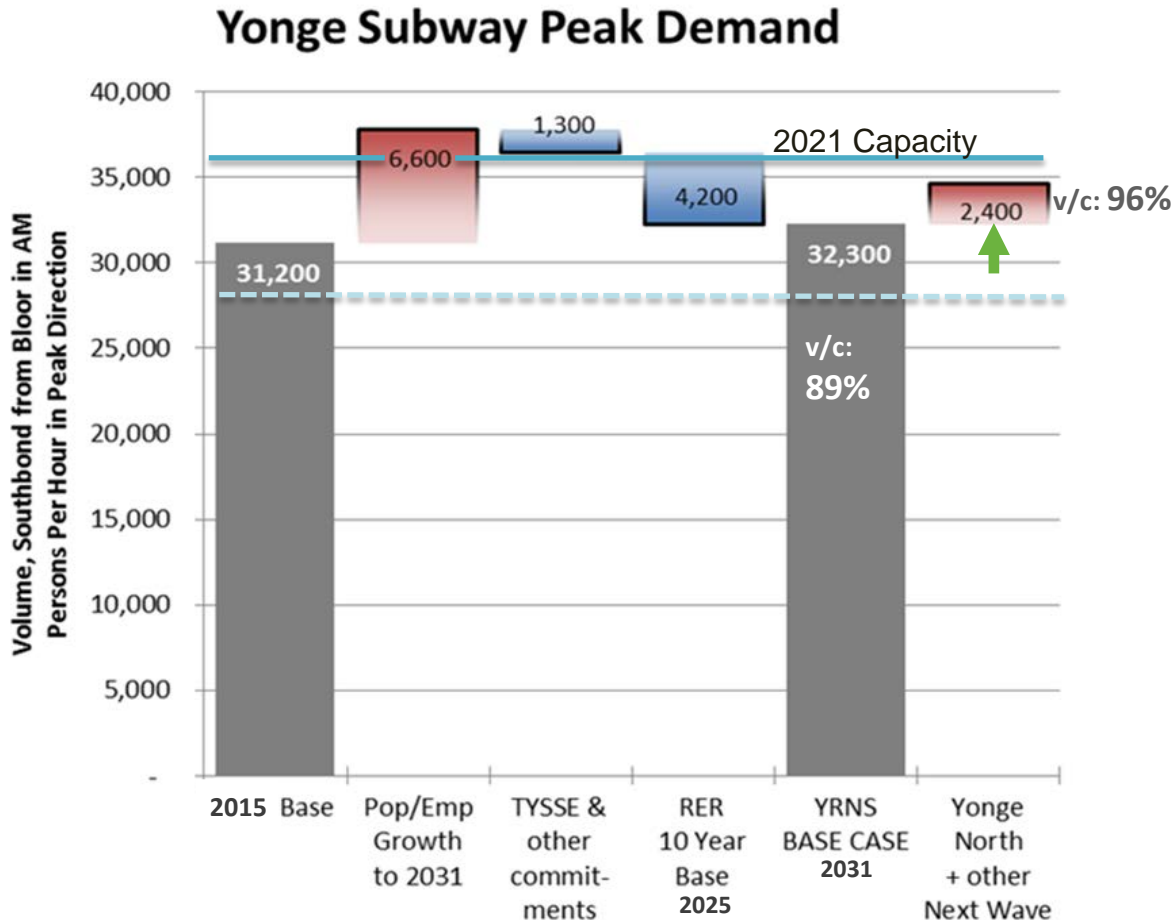
- The DRL is a long term project that will not be needed immediately. The planning, design and construction of the DRL will require many years.
- The planning for the DRL should continue in order to determine the optimal project and potential phasing. This will include revisiting modelling work and ongoing business case evaluation in line with good project planning practices
- The YRNS provides a comprehensive network analysis including the initial RER service concept, the Spadina Subway Extension, the Yonge North Subway Extension, the Eglinton Crosstown and the Scarborough Subway
- Metrolinx plans to conduct more network analysis, to inform Metrolinx, City of Toronto, York Region and the other GTHA municipal transportation planning initiatives, to refine analysis to include fare and service integration, and updated RER service concepts and plans

For more information on this report, please contact: Paul May, Chief Engineer, York Region Rapid Transit Corporation at 905-886-6767, ext. 71030.

Mary-Frances Turner
President

September 17, 2015
Attachment: (1)

Accommodating the Yonge North Subway Extension



- The Yonge North Subway Extension would increase demand on the Yonge Subway
- With the Yonge North Extension, the Yonge Subway will still be under capacity
- The volume to capacity ratio would become 96%