



DOWNTOWN RAPID TRANSIT EXPANSION STUDY

October 2012



Background

Growth, intensification expected in downtown

- no new downtown rapid transit lines in City's Official Plan

Metrolinx Regional Transportation Plan

- 15 yrs - extend Yonge Subway to Richmond Hill
- 25 yrs - "Downtown Core" subway

Yonge Subway at capacity south of Bloor

- improvements being made
- extension to Richmond Hill would significantly increase demand



Yonge Capacity Improvements Underway

- **New Toronto Rocket Trains (2014): + 10% capacity**
- **Automatic Train Control (ATC) (2016):
≤ + 35%**
- **Extension of University-Spadina Subway (2016):**
 - attract customers away from Yonge: + 4% capacity



Toronto City Council, January 2009

Metrolinx: prioritize Downtown Relief Line in advance of Yonge extension to accommodate capacity issues from Yonge Subway extension

TTC: proceed with studies for the Downtown Relief Line



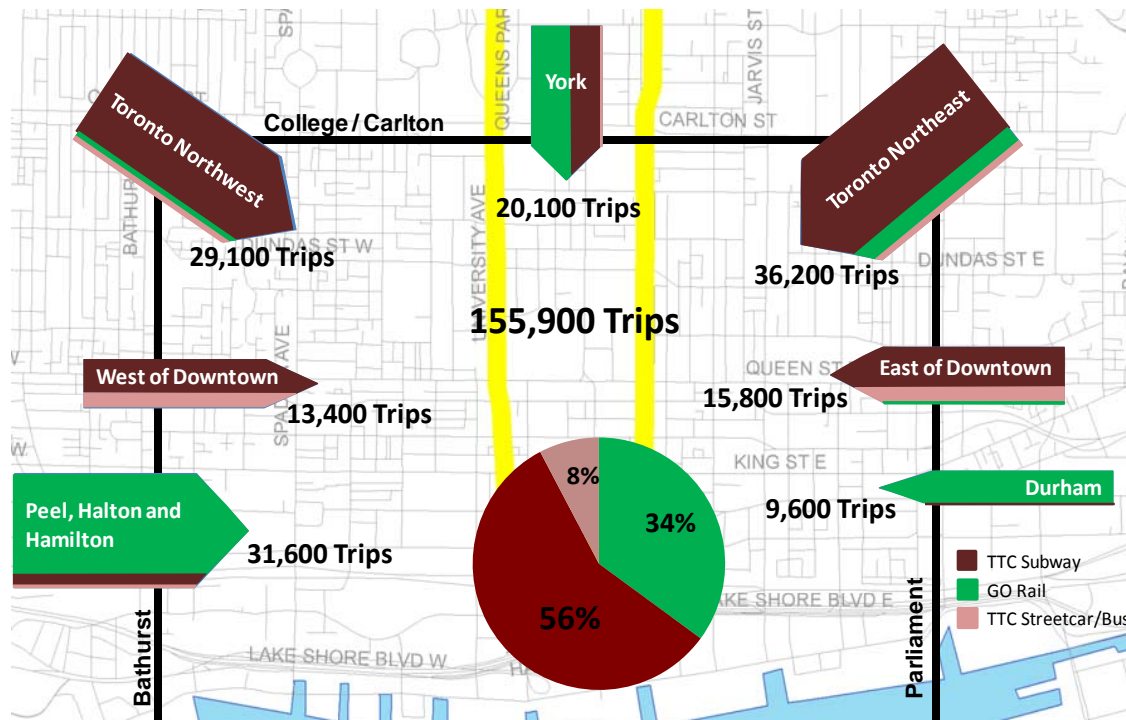
AM Peak Transit Travel to Downtown

Most Toronto trips use subway

- Streetcar/buses serve “shoulders”

Very high GO Rail use from Regions

- GO Rail use from York Region much lower than Peel/Durham

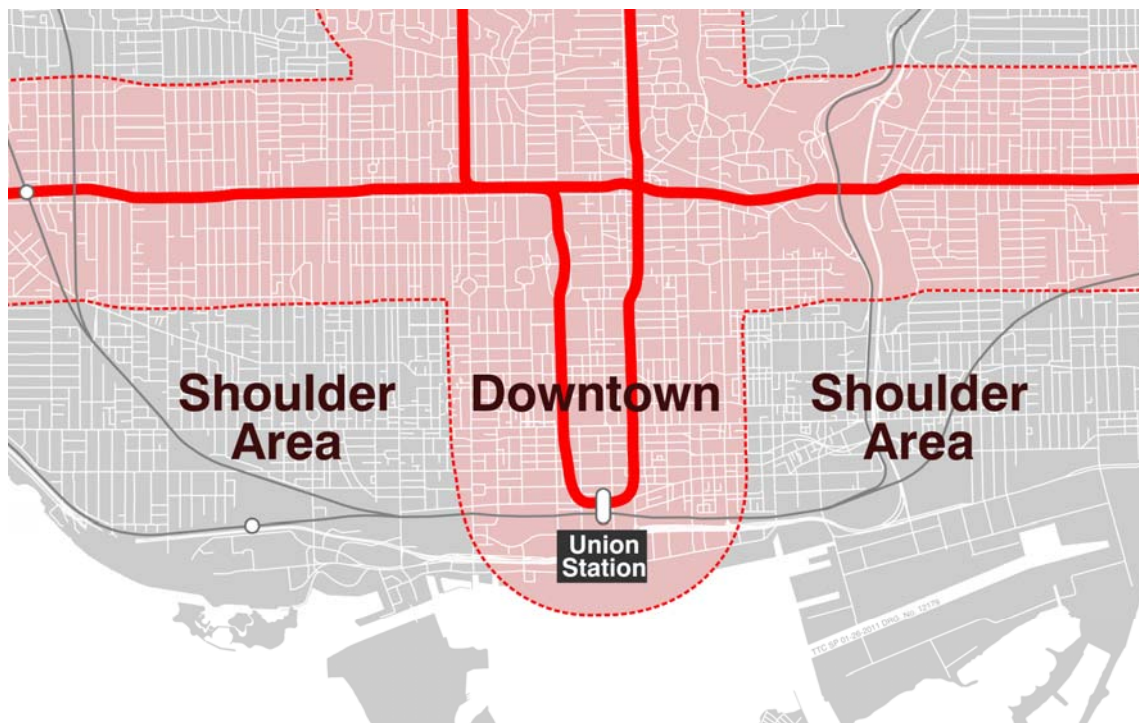


“Shoulder” areas not well served by rapid transit

Downtown: well served by subway and GO Rail

Shoulders: not well served by subway or GO Rail

- population density comparable to downtown



Issues and Opportunities

Issues:

- self-containment of downtown population, employment
- growth in “shoulders” of downtown
- GO Rail’s role for medium length trips (10kms to 25kms from Union)

Rapid Transit Opportunities:

- Downtown Relief Line
- expanded GO services to York Region to off-load Yonge Subway
- improved GO Rail for medium-length trips (more GO Stations, fare strategies, better bus feeder connections)



The Future: 2031

Assume:

- University Subway to Vaughan
- Eglinton-Scarborough LRT: Black Creek - Kennedy
- Sheppard LRT, Finch West LRT

Yonge Subway:

- test effects of extension to Richmond Hill
- new TR trains, Automatic Train Control, Bloor-Yonge Station improvements (increased capacity)

GO Rail:

- double capacity of Union Station
- more frequent/all day service on all lines



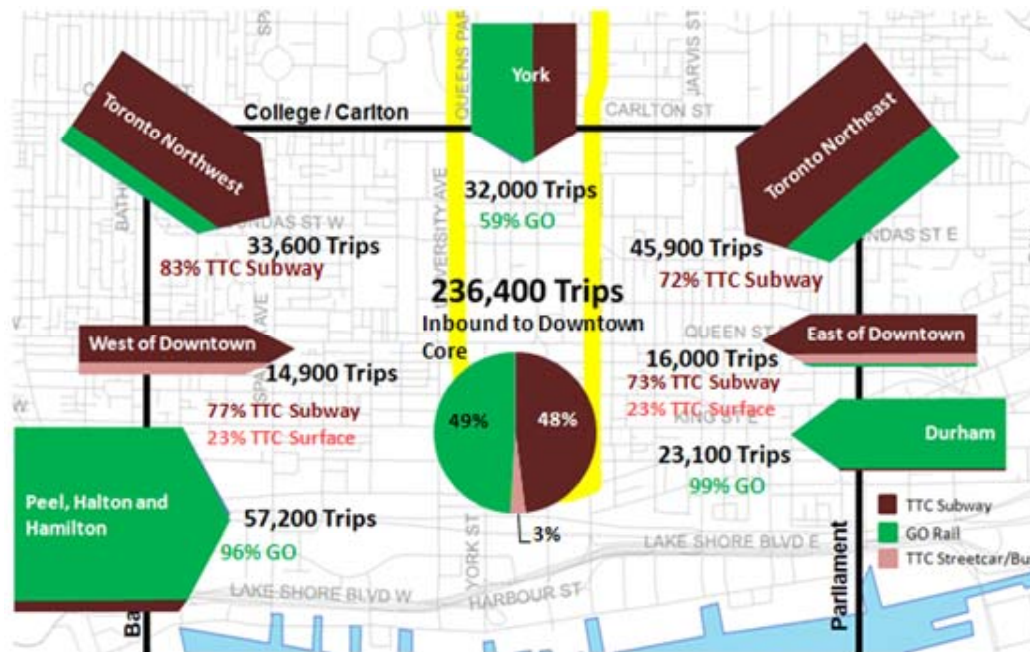
Travel to Downtown in 2031

Growth, 2006 to 2031: +51%

- from outside of Toronto: +83%
- within Toronto: +17%

GO Rail increases from 34% to 49% of inbound trips

High TTC use by York Region



Rapid Transit in Shoulder Areas

Ridership growth: accommodate with new streetcars

Improve reliability, speed

- transit priority
- new rapid transit lines with local stations (ie Downtown Relief Line or Rail corridors)



Downtown Rapid Transit Deficiencies by 2031

From the north:

- Yonge Subway - at capacity
- GO Rail over capacity (Barrie and Stouffville)

From the east:

- GO Lakeshore East - significantly over capacity

From the west:

- GO Rail - at/under capacity (Lakeshore West, Georgetown, Milton)



Effects of Yonge Subway Extension

**Yonge Subway to Richmond Hill
increases Yonge Subway demand
(+ 9%)**

Accelerates overcrowding by 8-10 years



Policy Alternatives

Structured assessment undertaken by TTC, City

- encourage intensification, self-containment
- Transportation Demand Management
- improve transit to shoulder areas

Input to City's Official Plan update, Downtown Transportation Operations Study



RAPID TRANSIT OPTIONS

1. Study focused on new local subway/RT lines

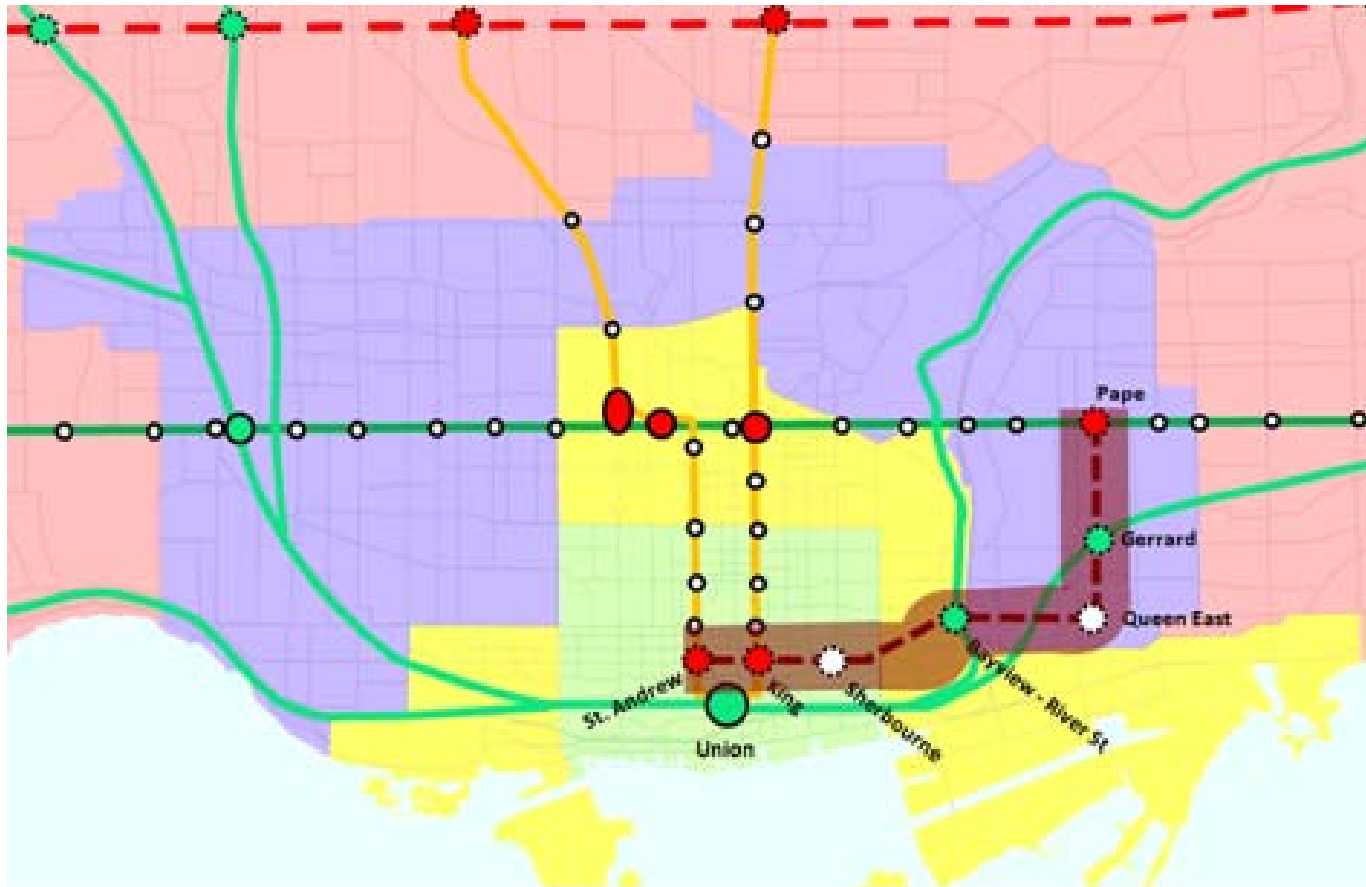
- a) DRL – divert riders from Yonge subway : free-up capacity for York Region trips
- b) Lakeshore RT – divert riders from Bloor-Danforth

2. Options to increase GO Rail capacity beyond scope of current study

- divert Yonge Subway trips to GO Barrie, Richmond Hill, Stouffville
- divert Bloor-Danforth trips to GO Lakeshore East and West



TTC Option 1: DRL East (via Queen or King)



Cost:	\$3.2B
Peak Hour Demand:	11,700
Rapid Transit Benefit:	
- Increase in RT ridership:	+ 4%
- Reduce Yonge Subway demand:	- 12%



TTC OPTION 2: DRL EAST TO EGLINTON (QUEEN OR KING)



Cost:	\$5.5B
Peak Hour Demand:	12,900
Rapid Transit Benefit:	
- Increase in RT ridership:	+ 5%
- Reduce Yonge Subway demand:	- 14%



TTC Option 3: DRL to Eglinton (Queen or King)



Cost:	\$8.3B
Peak Hour Demand:	14,900
Rapid Transit Benefit:	
- Increase in RT ridership:	+ 11%
- Reduce Yonge Subway demand:	- 16%



Lakeshore “Rapid Transit” Concept

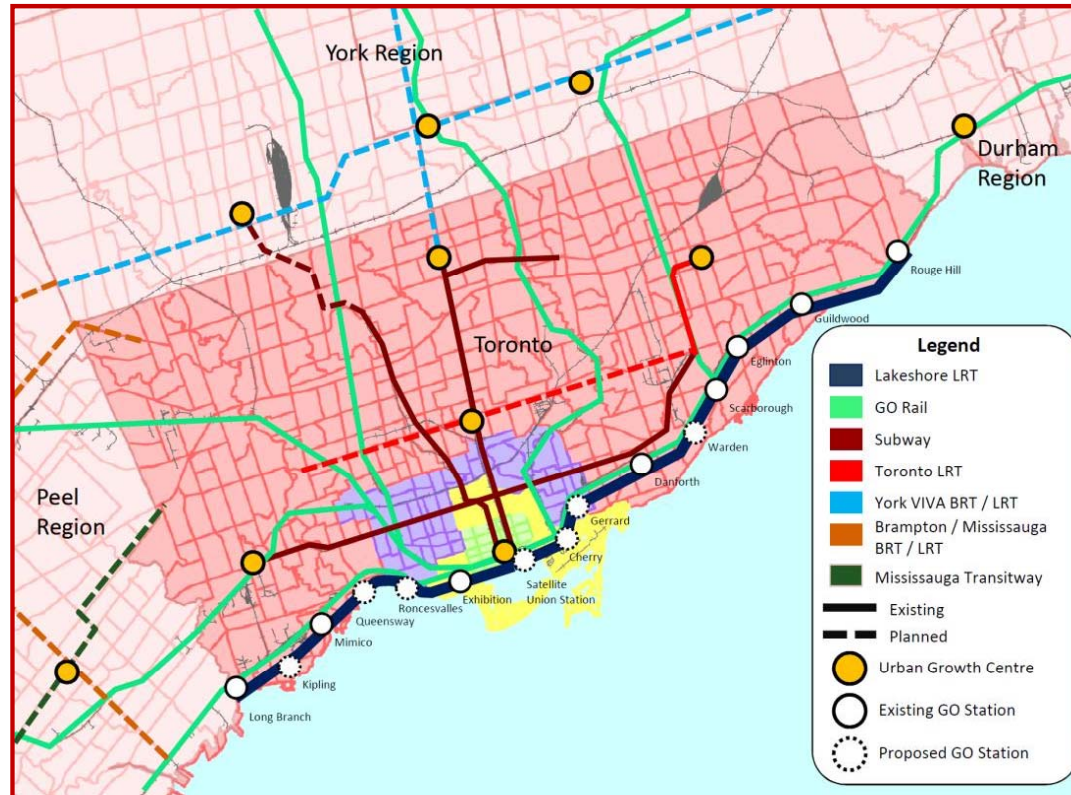
GO Lakeshore service – as planned

**New TTC parallel local rail service (Long
Branch - Rouge Hill**

Tunnel under central section



Lakeshore RT: stand-alone operations, integrated stations



	<u>East Only</u>	<u>Full Line</u>
Cost:	\$5.3B	\$8.0B
Peak Hour Passenger Demand	13,900	14,600
Rapid Transit Benefit:		
- Increase in RT ridership	+ 2%	+ 4%
- Reduce Yonge Subway Demand	-7%	-7%



Infrastructure Alternatives Evaluation

Infrastructure Improvements	2031 Reference Network	2031 Reference Network w/ Yonge Extension	TTC Downtown Relief Line (DRL-1, East)	TTC Downtown Relief Line (DRL-2-A, East + West)	TTC Downtown Relief Line (DRL-2-B, East, North to Eglinton)	TTC Downtown Relief Line (DRL-3, East + West, North to Eglinton)	Lakeshore RT East	Lakeshore RT Full
Requirements								
Relieves Yonge demand south of Bloor	⊘	⊗⊗	✓✓	✓✓	✓✓✓	✓✓✓	✓	✓
Relieves demand at Yonge-Bloor Station	⊘	⊘	✓	✓✓	✓✓	✓✓✓	✓	✓
Relieves demand on other YUS Stations south of Bloor	⊘	⊘	✓	✓✓	✓	✓✓	⊗⊗	⊗⊗
Minimize rapid transit (GO and subway) capacity deficiencies	⊘	⊘	✓	✓✓	✓	✓✓	✓✓	✓✓✓
Minimize local transit capacity deficiencies	⊘	⊘	✓	✓✓	✓	✓✓	✓	✓
Impact to Boardings and Alightings at TTC Union Station	⊘	⊗	✓	✓✓	✓	✓✓	⊗⊗	⊗⊗
Impact to Boardings and Alightings at GO Union Station	⊘	⊘	✓	✓✓	✓	✓✓	✓✓	✓✓
Additional Benefits								
Improves total transit capacity in shoulder areas outside the downtown core	⊘	⊘	✓✓	✓✓✓	✓✓	✓✓✓	✓✓	✓✓
Increases rapid transit (GO and subway) modal share and transit ridership	⊘	⊘	✓	✓✓	✓✓	✓✓	✓✓	✓✓
Improves flexibility in transit operations	⊘	⊘	✓	✓✓	✓✓	✓✓✓	⊘	⊘
Increases accessibility to rapid transit (larger catchment area, ease of access)	⊘	⊘	✓	✓✓	✓✓	✓✓✓	✓	✓
Supports Waterfront development through improved rapid transit accessibility	⊘	⊘	✓	✓	✓	✓	✓✓	✓✓
Opportunity for intensification / revitalization of shoulder areas	⊘	⊘	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓✓
Provides a significant alternative to inbound automobile travel	⊘	⊘	✓✓	✓✓	✓✓	✓✓✓	✓	✓
Construction Feasibility								
Risk Complexity	⊘	⊘	⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗
Cost (High Estimate)*	⊘	⊘	~ \$3.2B	~ \$6.2B	~ \$5.5B	~ \$8.3B	~\$5.3B	~\$8.0B

Conclusions

- 1. Relieving congestion on Yonge subway south of Yonge-Bloor critical regional strategic issue**
- 2. New subway trains, Automatic Train Control, provide Yonge subway capacity for 15-20 years**
 - extending Yonge Subway to Richmond Hill brings overcrowding 10 years earlier



Conclusions (cont'd)

3. Fundamental Metrolinx issues (beyond scope of this study):

- almost all growth coming from regions
- role of GO Rail within Toronto, improved use of rail corridors

4. New Rapid Transit to downtown required to relieve congestion

- funding yet to be determined
- requires continuing work with Metrolinx on options and funding
- continue TTC work to determine alignment of new RT line

