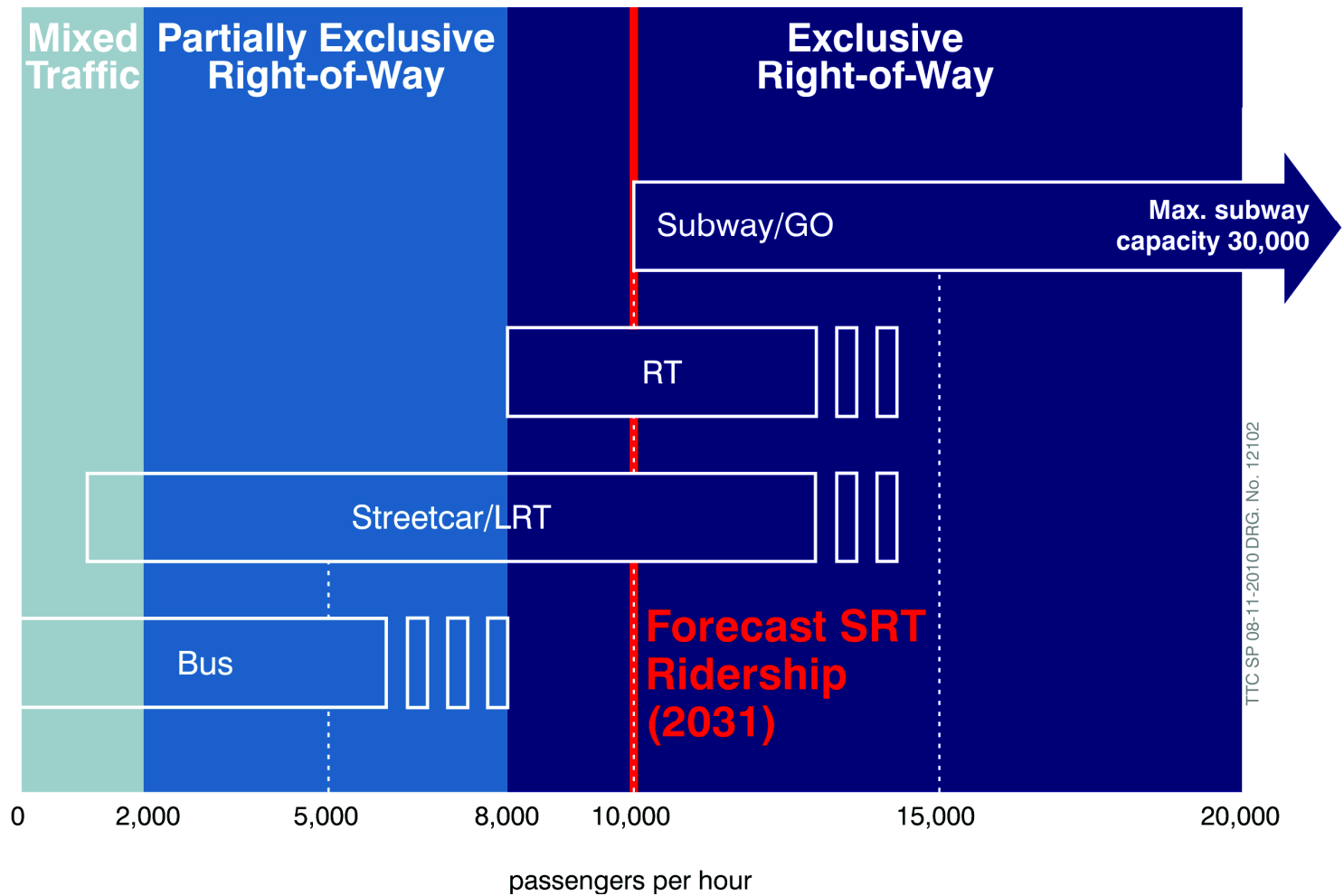


LRT vs. Subway
Scarborough RT and Sheppard

SRT Technology Selection



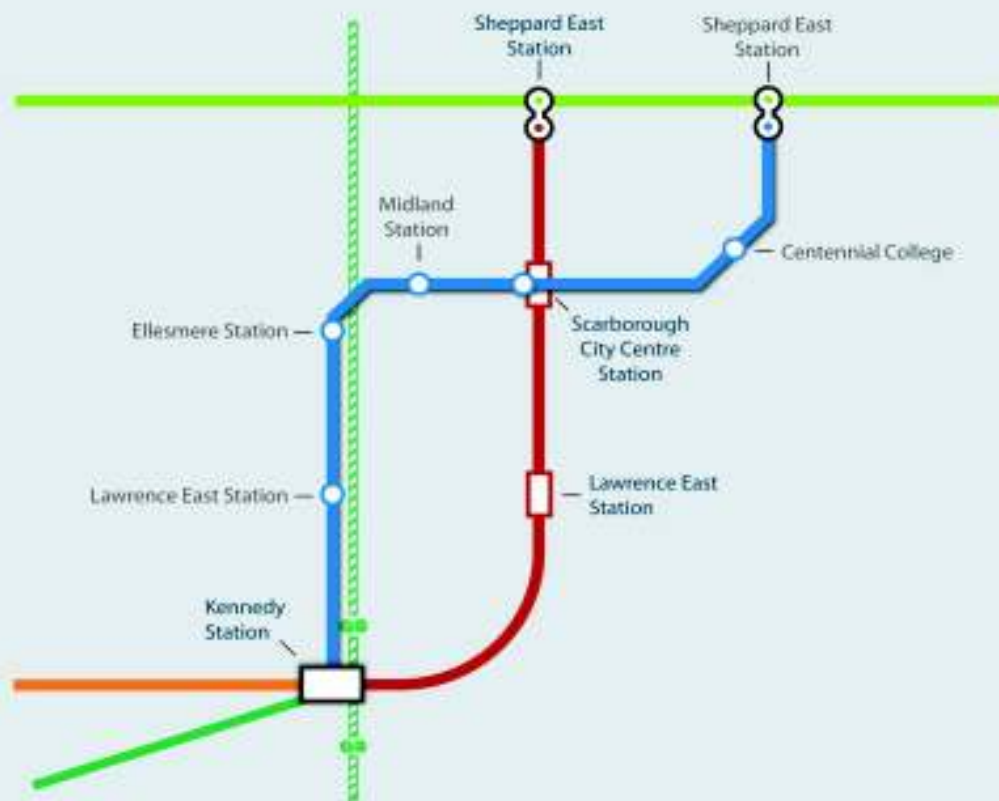
- SRT – highest ridership of all Transit City Lines
- SRT ridership is closest to subway technology

Subway Within Existing Right-of-Way

- The SRT cannot be replaced by Subway within the existing right-of-way
- Radius of curves between Kennedy, Lawrence East, Ellesmere and Midland are too tight
- Tunnel section at Ellesmere does not support Subway
- Subway requires a new alignment



Scarborough RT & Subway Alignment



Legend

- Scarborough RT: Phase One
- SRT Stations
- Subway
- Subway Stations
- Interchange / Station
- Biore-Danforth Subway
- Eglinton Crosstown LRT: Phase One
- GO Transit Stouffville Line
- Sheppard East LRT

Diagram Not to Scale

Transit City Dept. TTC, Oct 2010

Cost Estimates – SRT - LRT vs. Subway

LRT – Kennedy to Sheppard

- 9.9 km, 8 stations
- \$2.5B (includes vehicles and contribution to Sheppard MSF)

Subway – Kennedy to Scarborough City Centre

- 5.9 km, 2 stations
- \$2.6B (including vehicles)
- In addition, a new yard may be required at up to \$500M

Subway – Kennedy to Sheppard

- 7.6 km, 3 stations
- \$3.3B (including vehicles)
- In addition, a new yard may be required at up to \$500M

* All costs in escalated \$

Schedule – SRT - LRT vs. Subway

Based on Metrolinx's "5 in 10" plan:

LRT

- 2010-2015 - status - EA completed
 - design progressing to 30%
- complete design
- 2015-2020 - construction

Subway

- 2010-2015 - requires new EA
 - restart design
- 2015-2022 - complete design
 - construction to Sheppard (2021 to Scarborough City Centre)

Issues If Pursue Subway on SRT

Sheppard Maintenance and Storage Facility (MSF)

- Intended to accommodate Sheppard LRT and SRT
- Will be reduced in size to only accommodate Sheppard LRT
- Will require redesign, which will delay project

Sheppard LRT

- Will have to absorb 100% of the Sheppard MSF cost
- Cost increase approx \$150M
- Project delayed to redesign MSF

Vehicles

- If 48 SRT vehicles are deleted (26% decrease), the cost/vehicle will likely rise (engineering, prototyping, etc). Result is higher cost to each project
- Sheppard MSF needed for delivery of prototype vehicle. Vehicle delivery will be impacted

SRT

- Operation of existing SRT will be extended to 2022

Sheppard Subway Alignment

- An environmental assessment was approved in 1994 for a subway between Yonge and Scarborough City Centre
- Sheppard Subway is operational from Yonge to Don Mills
- This review is based on an extension of the line from Don Mills to Scarborough City Centre, following the approved alignment

Sheppard – LRT and Subway Alignments



Legend			
	Sheppard East LRT: Underground		Scarborough RT
	Sheppard East LRT: Phase One		Sheppard Subway
	GO Transit Stouffville Line		Sheppard LRT Stops
			Scarborough RT Stations
			Sheppard Subway Stations
			Interchange / Station
			Maintenance & Storage Facility

Diagram not to scale

Transit City Dept. TTC, Nov 2010

Cost Estimates – Sheppard - LRT vs. Subway

LRT

- Don Mills to Conlins Yard
- 12 km, 26 Stops
- \$1.1B (includes vehicles and contribution to Sheppard MSF)

Subway

- Don Mills to Scarborough City Centre
- 8 km, 7 Stations
- \$3.6B (including vehicles)
- In addition, a new yard may be required at up to \$500M

* All costs in escalated \$

Schedule – Sheppard - LRT vs. Subway

Based on Metrolinx's "5 in 10" plan:

LRT

- 2010
 - EA completed
 - design ongoing
 - construction underway
- 2011-2014
 - complete design
 - construction

Subway

- 2010-2015
 - requires new EA
 - restart design
- 2014-2020
 - construction

Issues If Pursue Subway on Sheppard

Sheppard LRT – Costs Incurred

- \$34.1M spent to September 30, 2010
- \$228M committed through November 1, 2010

Subway Yard

- Existing yards cannot accommodate any additional vehicles. A new yard may be required at up to \$500M, if subway is pursued for Sheppard

Sheppard LRT – Maintenance and Storage Facility (MSF)

- Intended to accommodate Sheppard LRT and SRT
- SRT access to Sheppard MSF was via Sheppard LRT
- With elimination of Sheppard LRT, no longer logical to send SRT vehicles to this location
- No need for Sheppard MSF

SRT

- In light of deletion of Sheppard MSF, will require new facility
- Cost will increase by approx \$150M, as costs no longer shared with other projects

Vehicles

- If 35 vehicles are deleted (19% decrease), the cost/vehicle will likely rise (engineering, prototyping, etc). Result is higher cost to each project
- Vehicle delivery would have to be delayed until new SRT MSF was constructed.

Summary - LRT and Subway Costs

	SRT			Sheppard	
	LRT Kennedy to Sheppard	Subway Kennedy to Scarborough City Centre	Subway Kennedy to Sheppard	LRT Don Mills to Conlins Yard	Subway Don Mills to Scarborough City Centre
Scope	9.9 km, 8 Stations	5.9 km, 2 Stations	7.6 km, 3 Stations	12 km, 26 Stops	8 km, 7 Stations
Cost	\$2.5B	\$2.6B	\$3.3B	\$1.1B	\$3.6B
Maintenance Facility	Included	\$500M	\$500M	Included	\$500M
Total	\$2.5B	\$3.1B	\$3.8B	\$1.1B	\$4.1B
Increase over LRT	N/A	\$600M	\$1.3B	N/A	\$3.0 B

Kennedy to Scarborough City Centre is the best candidate for subway.

* All costs in escalated \$