Yonge Subway Extension
Preliminary Planning for Transit Project Assessment

Public Consultation – Toronto
October 16, 2008
Where we are today
Public outreach

- 6,000+ letters to Toronto residents
- Newspaper ads:
  - Toronto Star
  - North York Mirror
- 4,000+ email notices
September 23, Metrolinx released its draft RTP

Top 15 priorities for early implementation include:

- Finch/Sheppard rapid transit from Pearson Airport to Scarborough Centre and Meadowvale
- Eglinton rapid transit from Pearson Airport to Scarborough Centre
- Viva Hwy. 7 and Yonge St. through York Region
- Spadina Subway extension to Vaughan Corporate Centre
- Yonge Subway extension to Richmond Hill Centre
Prior to Metrolinx Regional Transportation Plan (RTP)

- Project initiated by York Region
- TTC/City staff participating but project had not been a TTC/City priority
- Spadina Subway/Transit City are top priorities

Metrolinx’s Regional Transportation Plan announced September 23

- RTP supports Yonge Subway extension in the first 15 years
- RTP also committed to Spadina Subway/Transit City initiative
- Provincial funding previously announced for Yonge Subway capacity improvements
- TTC/City now supportive of Yonge Subway project
Major project considerations

**TTC/City**
- Capacity of Yonge Subway must be addressed before Yonge Subway extension is operational
- Station locations/facilities at new stations within Toronto
- Impact on Yonge Street corridor/Finch Station

**York Region**
- Over/under East Don River
- Alignment into Richmond Hill Centre

**York/TTC/City**
- Number/spacing of stations
- Construction methods
Yonge Subway capacity

- Nearing capacity south of Bloor
- Capacity improvements to existing line are urgently needed prior to operating the extension
- Funding commitment to re-signal YUS subway line ($350 million)
- Will significantly increase capacity with closer spacing between trains:
  
<table>
<thead>
<tr>
<th>Current:</th>
<th>141 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>With new signal system:</td>
<td>90 seconds (36% increase)</td>
</tr>
</tbody>
</table>

- New Toronto Rocket Car will increase capacity approximately 10%
- Additional improvements:
  - Add a 7th car to trains
  - Effect of Spadina Subway extension

- 7th car added to train
Effect of Spadina Subway extension

- 8.6 km extension to Vaughan Corporate Centre/Highway 7
- 6 new stations (4 in Toronto)
- 2,900 new parking spaces (2,200 net)
- 2,300 peak period Yonge Subway riders moved to Spadina line
- Opens before Yonge extension

Connections include:
- Barrie GO line (Sheppard West Station)
- Finch LRT (Finch West Station)
- Jane LRT (Steeles West Station)
- Highway 407 Transitway (407 Station)
- Viva/YRT (Vaughan Corporate Centre)

Will help “dilute” the ridership on Yonge Subway for people from north/west destined to downtown
Summary of capacity improvements

1. New subway cars have increased capacity.
2. Closer spacing between trains.
3. 7th car added to train.
4. Transfer to Spadina Subway for 2,300 riders.
5. New parking spaces on Spadina Subway extension for 2,900.
Yonge Subway: Initial service levels

- Every second northbound train will short-turn at Finch station
  - These trains will be empty for southbound departures at Finch station
- Every other train will start at Richmond Hill Centre station
- Capacity improvements will also help to increase Yonge subway seat availability for existing riders
Various projects add additional trains to the Yonge line

No convenient yard location/capacity

Davisville Yard at capacity

Wilson Yard requires trains to go through Union Station to access Yonge line

Alternatives

- New yard north of Finch
- Construct Sheppard Subway to Downsview Station and supply trains from Wilson Yard
- Expanded Richmond Hill Centre terminal tracks to store trains

Subway Rail Yard Needs Study underway to answer these and other questions

Completed by early 2009
Potential grouping of station locations considered

option 1

option 2

option 3

option 4

option 5

option 6

Recommended

Richmond Hill Centre

Langstaff/Longbridge

Royal Orchard

Clark

Steeles

Cummer/Drewry

Finch
Justification for Cummer/Drewry Station

- Threshold of 100 persons per hectare (pph)
- At or above this level = successful transit station
  - Cummer/Drewry currently at 82 pph
- Station expected to meet this threshold close to opening day
Benefits of Yonge Subway extension

- Southbound buses destined to Finch Station will now go to Steeles Station
  - Significant reduction in bus volumes on Yonge St.
  - Reduced noise, fumes, bus traffic on Yonge St.
  - Local Yonge bus service will remain

- Two new stations (Cummer/Drewry and Steeles)
  - Improved bus and walk-in access to new stations
  - New bus terminal at Steeles

- Frees up space at Finch Station commuter lots
Yonge Street bus volumes (Finch – Steeles)

<table>
<thead>
<tr>
<th></th>
<th>Number of Buses in Peak Period/Direction (6-9 am/southbound)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>350+</td>
</tr>
<tr>
<td>With Yonge Subway Extension</td>
<td>Less than 10</td>
</tr>
</tbody>
</table>
## Finch bus bay usage

<table>
<thead>
<tr>
<th>Transit Operator</th>
<th>Current Operation</th>
<th>With Yonge Subway Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTC</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>GO</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Viva/YRT</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>30</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>
## Toronto station requirements

<table>
<thead>
<tr>
<th>Station</th>
<th># of Entrances</th>
<th>Electrical Substation</th>
<th>Commuter Parking</th>
<th>Bus Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cummer/Drewry</td>
<td>2</td>
<td>No</td>
<td>No</td>
<td>Bus loop only</td>
</tr>
<tr>
<td>Steeles</td>
<td>2-3</td>
<td>Yes</td>
<td>No</td>
<td>Bus terminal (25 bays)</td>
</tr>
</tbody>
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Other project considerations

- Steeles bus terminal
- Crossing East Don River
- Alignment into Richmond Hill Centre
Recommended Yonge Subway Extension

- Six stations
- Two bus terminals
  - Steeles
  - RHC
- Bridge over East Don River
- Alignment into Richmond Hill Centre

Where we are today

<table>
<thead>
<tr>
<th>Station</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finch</td>
<td>Part of existing transit system</td>
</tr>
<tr>
<td>Cummer/Drewry</td>
<td>Good transit connections to local routes, Good opportunity for future</td>
</tr>
<tr>
<td>Steeles</td>
<td>High potential for intensification, Numerous connections between bus</td>
</tr>
<tr>
<td>1204 m</td>
<td>and subway</td>
</tr>
<tr>
<td>Cummer/Drewry</td>
<td>Good transit connections to local routes</td>
</tr>
<tr>
<td>794 m</td>
<td></td>
</tr>
<tr>
<td>Royal Orchard</td>
<td>Good opportunity for intensification of existing medium density</td>
</tr>
<tr>
<td>1668 m</td>
<td>development</td>
</tr>
<tr>
<td>Longbridge/Langstaff</td>
<td>High potential for intensification, Key location for future commuter</td>
</tr>
<tr>
<td>964 m</td>
<td>parking</td>
</tr>
<tr>
<td>Richmond Hill Centre</td>
<td>Key intermodal passenger terminus of subway, High potential for</td>
</tr>
<tr>
<td>1123 m</td>
<td>intensification</td>
</tr>
</tbody>
</table>
Steeles Station surface bus terminals

Steeles Avenue

Yonge Street
Steeles Station underground bus terminal options

- Minimizes land use impacts
- Three ramps from north, east and west

Issues:
- Impacts on development access
- Higher capital cost
- Higher operating/maintenance cost
- Air quality and natural light
- Disruption during construction
- Future flexibility
How do you build the subway?

- Two major construction choices
  - Cut and cover with decking
  - Tunnels using tunnel boring machines (TBM)
- Stations/crossovers must be cut/cover construction
- Running structures in between stations/crossovers can be tunneled or cut/cover
Tunnel boring machine (TBM)

- **CONVEYOR BELT**
- **COMPLETED TUNNEL**
- **EXCAVATED SOIL**
- **TUNNEL BORING MACHINE**
- **PRECAST TUNNEL LINING SEGMENTS**
- **SEGMENT ERECTOR ARM**
- **SHOVE RAMS**
- **ROTATING CUTTING HEAD**
- **DOORS**
- **CUTTING TEETH**
- **ROCK CUTTING DISCS**
- **TUNNEL BORING MACHINE (TBM)**

**Locations:**
- Don Mills Station
- Bayview Station
- Sheppard Young Station
- Bessarion Station
- Leslie Station

**Terms:**
- Cut and Cover Tunnel Boring
TBM launch and related activities
TBM extraction
Cut and cover process

1. Utility location and piling
2. Installation of decking
3. Excavation and soil removal
4. Construction of subway structure
5. Removal of decking/street restoration
Surface impacts of construction at stations
Benefits of tunneling

- Limited disruption to surface traffic, business
- Surface impacts at TBM launch and extraction locations
- Major mobilization site at launch shafts
  - Delivery of tunnel liners
  - Storage of excavated soil
  - Trucking of excavated soil
  - Systems installation (track, etc.)
Construction: Finch to Cummer/Drewry

- Existing Finch Station and trail track built by cut and cover
- Extended tail tracks to be built by cut and cover
- Cummer/Drewry to be built by cut and cover
- Remaining distance between cut and cover areas is approx. 200m
  - Not long enough for tunneling
  - Likely means Finch to Cummer/Drewry to be cut and cover
Traffic management issues

- Comprehensive plans developed for each construction contract
- Extension of Ring Road from Finch to Drewry is planned
- Investigate timing on Ring road to coordinate with Subway construction
- Helps to reduce Yonge Street impacts

Source: North York Centre Secondary Plan
Next steps

- Stakeholder Consultation – Ongoing
- Toronto Co-ordination – Ongoing
- PCC in Richmond Hill – November 26
- PCC in Toronto - TBD
Get Your Keypads Ready…
Have your say