

Toronto Transit City Light Rail Plan





City – TTC Team Progress Update
February, 2008

Transit City Progress Update

CATEGORIES

1. Light Rail Lines and Facilities
2. Vehicles
3. System and Design Standards
4. Processes



	 
	<p>Progress Update – Light Rail Lines and Facilities</p>
	<p><u>PRIORITIZATION OF LINES</u></p> <ul style="list-style-type: none"> • report to Commission : November 14, 2007 • lines evaluated against 31 criteria • results: confirm top 3 priorities: <ul style="list-style-type: none"> – Sheppard East LRT – Etobicoke-Finch West LRT – Eglinton Crosstown LRT • endorsed by Commission, Metrolinx

Criteria for Evaluation of Transit City LRT Lines

Line Performance:

- Ridership
 - Existing
 - Projected
- Current Market Share / Mode Split
- New Rapid Transit Coverage, Reach
 - Area (hectares)
 - Population
 - Full-time Jobs
 - Part-time Jobs
- Major Generators
 - En Route
 - Terminals
 - New (Annual) Passenger-Trips/Route-Kilometre
 - Total (Annual) Passenger-Trips/Route-Kilometre
- Cost/Rider

City- and Region-Building:

- Supports *MoveOntario 2020* Objectives
- Supports *Places to Grow* Principles
- Supports *Toronto Official Plan* Objectives
 - Serves Priority Neighbourhoods
 - Avenues – Re-urbanization Potential
- LRT Network Connectivity, Transfer Opportunities
 - Local
 - Regional
- Inter-Regional Connectivity Potential
- Potential for Extension

Environmental:

- Number of Car-Trips Diverted / Replaced
- Reduction in Greenhouse Gases

Constructability, Physical Challenges:

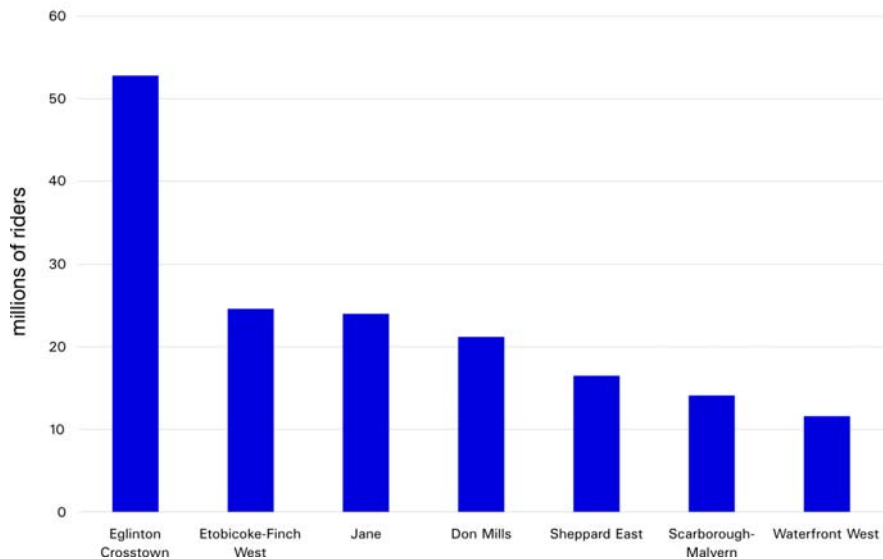
- Major Physical Challenges, Obstacles
- Municipal Right-of-Way Available
- Designated, Recognized in Official Plan
- Community, Political Acceptance, Support
- Access to Yard, Maintenance Facilities

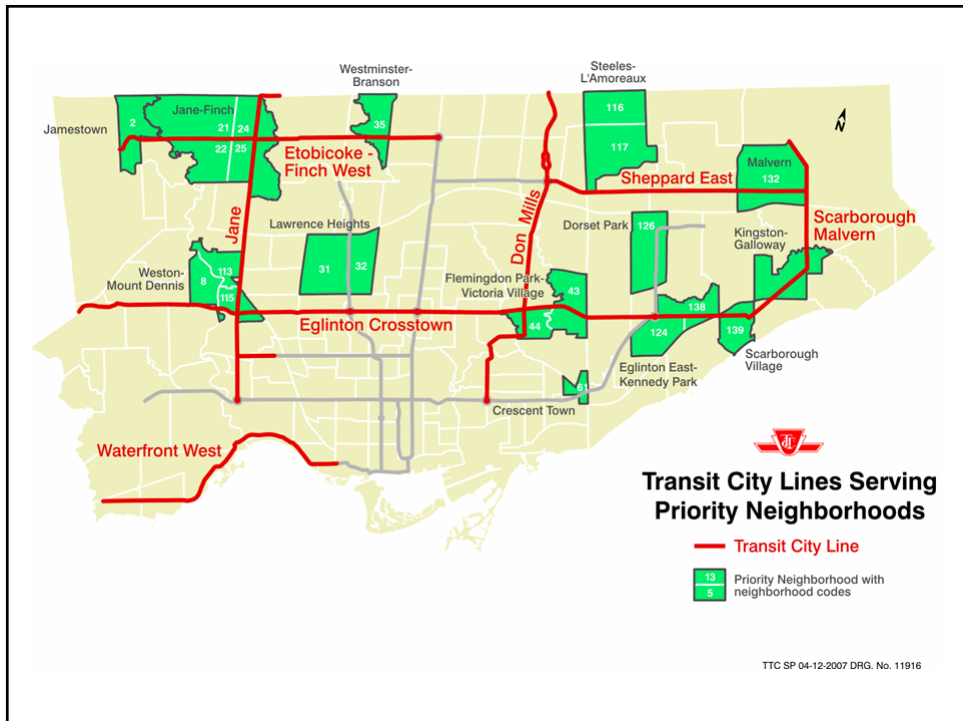
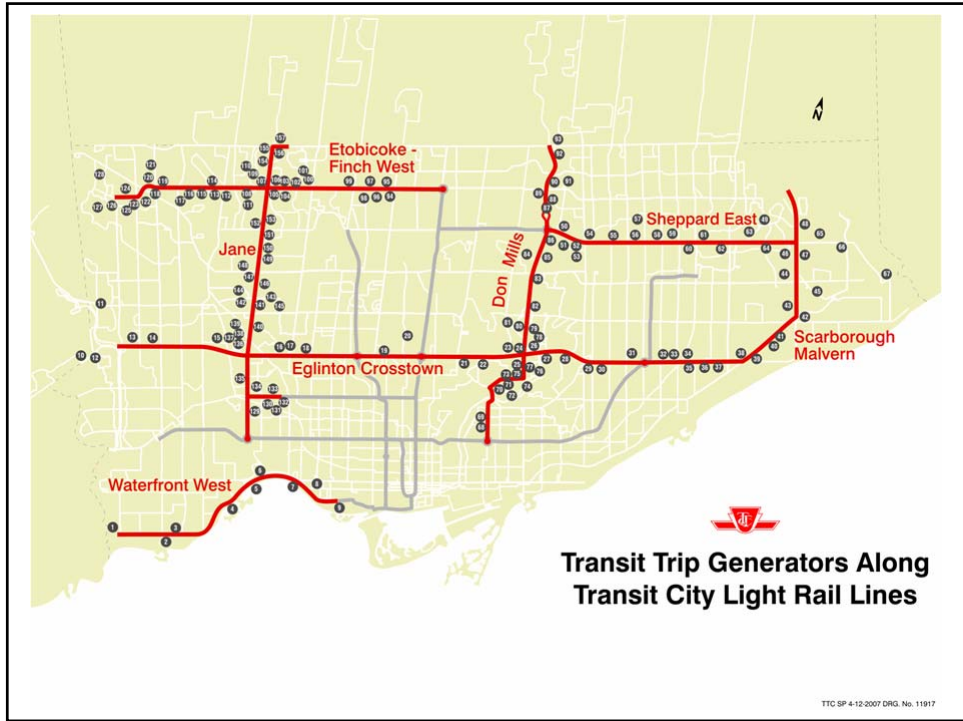
Capital Cost:

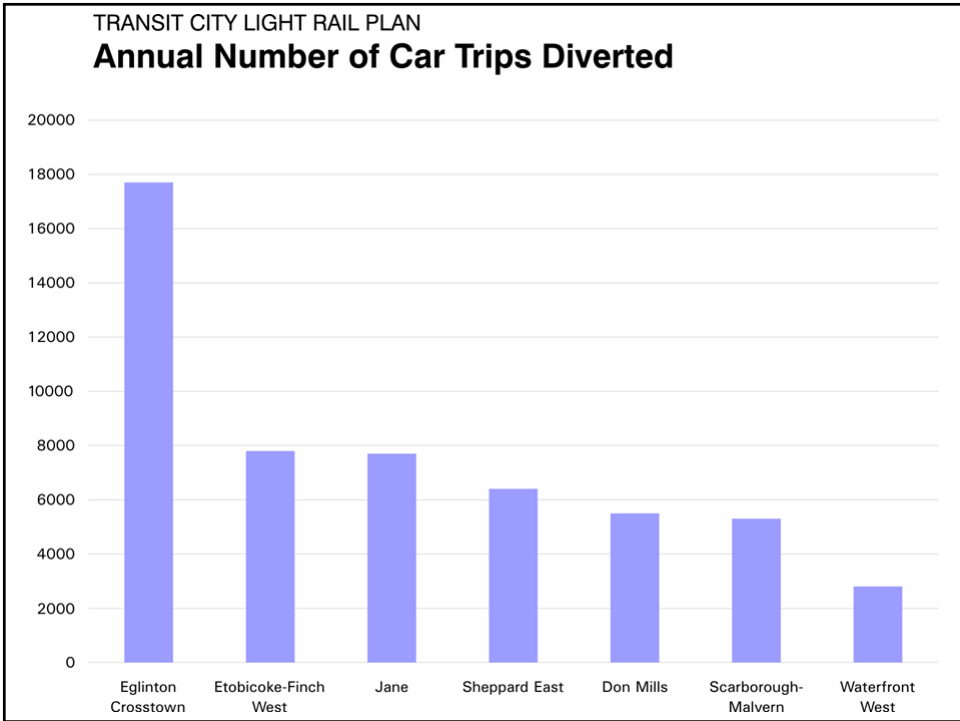
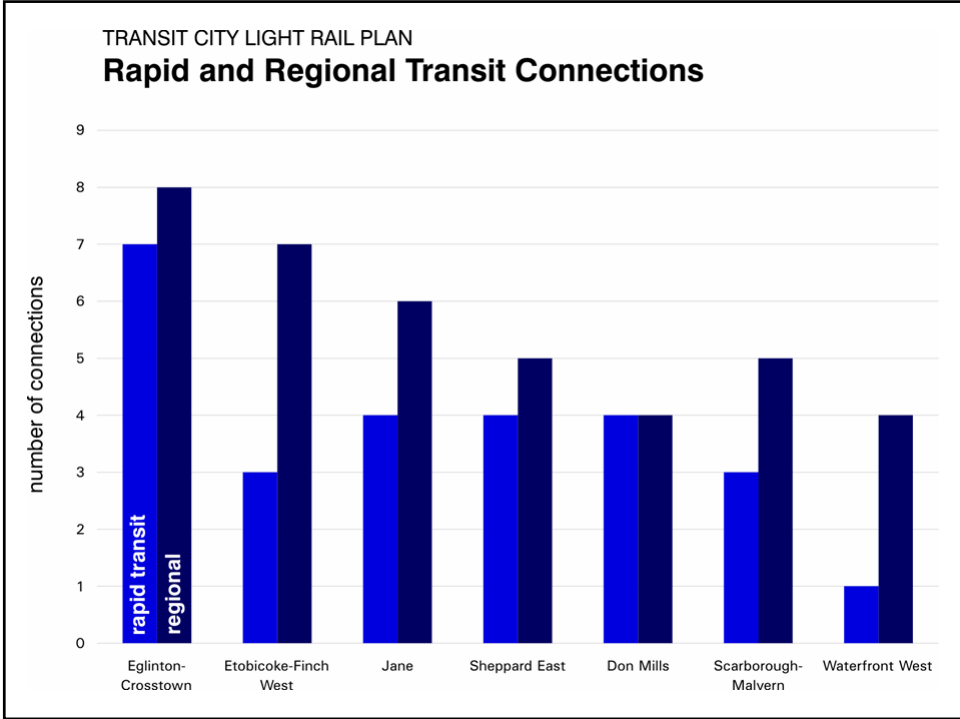
- Construction, Property Costs
- Vehicle Costs
- Pro-rated Maintenance Facility Costs
- Total Cost/Kilometre

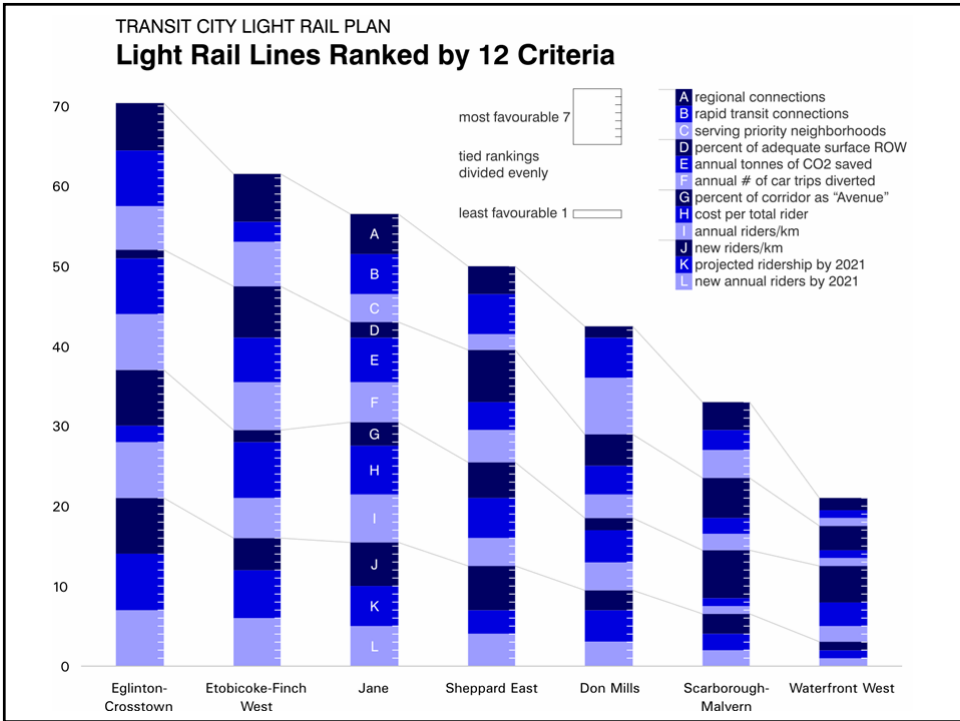
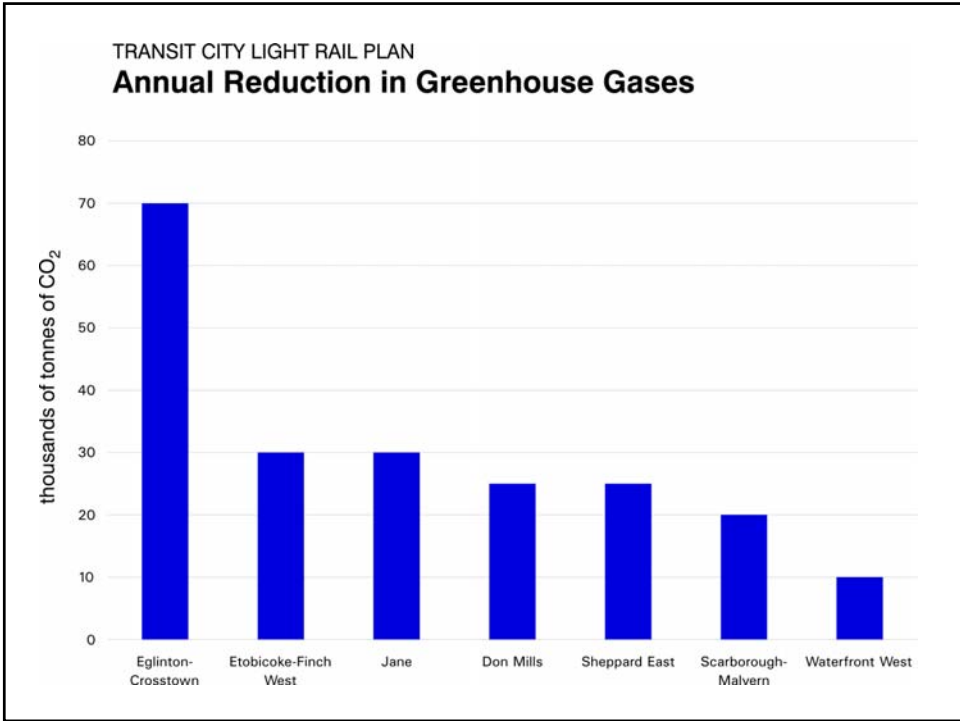
TRANSIT CITY LIGHT RAIL PLAN

Projected Total Annual Ridership by 2021









Progress Update – Light Rail Lines and Facilities

PRIORITIZATION OF LINES

- report to Commission : November 14, 2007
- lines evaluated against 31 criteria
- results: confirm top 3 priorities:
 - Sheppard East LRT
 - Etobicoke-Finch West LRT
 - Eglinton Crosstown LRT
- endorsed by Commission, Metrolinx



Progress Update – Light Rail Lines and Facilities

SHEPPARD EAST LRT

- Project Manager: Gary Carr
- Team: Transportation Plan, Urban Design, Transportation Services, Technical Services, Forestry, Streetcar Infrastructure, TTC Planning, Public Consultation
- Consultant: URS
- Status:
 - engineering feasibility complete
 - EA Started December, 2007
 - strong Councillor support

Progress Update – Light Rail Lines and Facilities

SHEPPARD EAST LRT

- Status:
 - meetings:
 - Councillor Norm Kelly (November, 2007)
 - 3 with BIA's (including Giambrone's)
 - first "official" meeting: April 7, 2008
 - next meeting: mid-May, 2008
 - EA to Council: July, 2008

Progress Update – Light Rail Lines and Facilities

SHEPPARD EAST LRT

- Issues:
 - customer-friendly connection at Don Mills Station
 - branch to Scarborough Centre?
 - alignment with Finch; continuity across Yonge
 - urban design – decisions guide other Transit City lines
 - business concerns about construction effects



Progress Update – Light Rail Lines and Facilities

ETOBICOKE – FINCH WEST LRT

- Project Manager: TBD/Ghaly
- Consultant: Engineering feasibility, field investigations – LEA
EA, Engineering Design – Delcan
- Status:
 - engineering feasibility complete
 - EA start – Spring, 2008
 - public meetings – Emery Village (Giambrone)
 - survey, geotechnical, engineering – Summer, 2008
 - EA completion – Fall, 2008

Progress Update – Light Rail Lines and Facilities

ETOBICOKE – FINCH WEST LRT

- Issues:
 - alignment at Finch Station, continuity across Yonge
 - crossing Highway 400
 - crossing CP MacTier underpass
 - western alignment, terminal (airport, Mississauga)



	 
	<p>Progress Update – Light Rail Lines and Facilities</p>
	<p><u>EGLINTON CROSSTOWN LRT</u></p> <ul style="list-style-type: none"> • Project Manager: TBD/Ghaly • Consultants: EA, Engineering Design – Giffels/UMA/Aecon • Status: <ul style="list-style-type: none"> - engineering feasibility – surface – complete - engineering feasibility – sub-surface – Spring, 2008 - EA start: Spring, 2008 - survey, geotechnical: Summer, 2008 - meetings: Eglinton BIA (Colle, MPP) – January, 2008 - 3 BIA's (Giambone – January, 2008) - EA complete: Spring, 2009

Progress Update – Light Rail Lines and Facilities

EGLINTON CROSTOWN LRT

Issues:

- extent, design of underground section
- interface at Spadina, Yonge, Danforth Subways
- crossing CP MacTier underpass
- western alignment, terminal:
 - airport, Renforth Gateway, Mississauga



Progress Update – Light Rail Lines and Facilities

Scarborough RT Upgrading, Extension

- Project Manager: Rick Thompson
- Consultant: Giffels, URS
- Status: Upgrading:
 - Kennedy Station re-design: in progress, final Fall, 2008
 - dynamic envelope of longer cars – laser survey complete
 - structural assessment, design – RFP issued, complete Summer, 2008

Progress Update – Light Rail Lines and Facilities

Scarborough RT Upgrading, Extension

- Status: Extension:
 - 2 Phases:
 - McCowan-Sheppard
 - EA amendment started: January, 2008
 - Sheppard-Malvern
 - EA started: January, 2008
 - EA completion: Early, 2009
 - meetings: none yet

Progress Update – Light Rail Lines and Facilities

Scarborough RT Upgrading, Extension

- Issues:
 - alignment options north of Sheppard



Progress Update – Light Rail Lines and Facilities

WATERFRONT WEST LRT

- Project manager: Richard Nusink
- Consultants: LEA, Earthtech, Gartner Lee
- Status: CNE-Dufferin:
 - modify previous Waterfront West EA
 - preferred alignment identified
 - EA → MOE: Spring, 2008

Progress Update – Light Rail Lines and Facilities

WATERFRONT WEST LRT

- Status: - Dufferin-Roncesvalles:
 - corridor evaluation complete
 - preferred alignments: Spring, 2008
 - EA → MOE: Summer, 2008
- Park Lawn Loop:
 - modify previous Waterfront West EA
 - minor amendment complete
 - design complete: Spring, 2008
 - construction: Spring, 2009

Progress Update – Light Rail Lines and Facilities

WATERFRONT WEST LRT

- Status:
 - Park Lawn – Long Branch:
 - EA started: February, 2008
 - EA → MOE: Winter, 2008
 - meetings:
 - CNE – Dufferin: 3 (January 24, 2008)
 - Park Lawn: 2 (September, 2007)
- Issues:
 - community concerns about transportation footprint in Lakeshore/rail corridor



Progress Update – Light Rail Lines and Facilities

DON MILLS LRT



- Project Manager: Joanna Kervin
- Consultant: IBI
- Status:
 - EA re-activated after 7-month suspension
 - work plan revisions:
 - BRT → LRT
 - include Sheppard ↔ Steeles
 - meetings: planned:
 - April – May, 2008
 - September, 2008
 - EA to Council: December, 2008

Progress Update – Light Rail Lines and Facilities

DON MILLS LRT

- Issues:
 - connection at Don Mills Station – subway, LRT
 - intersection of Don Mills, Eglinton LRT's
 - Leaside Bridge: structural capacity for LRT
 - tunnel under Broadview/Pape → Danforth; geotechnical



	 
	<p>Progress Update – Light Rail Lines and Facilities</p>
	<p><u>SCARBOROUGH MALVERN LRT</u></p> <ul style="list-style-type: none"> • Project Manager: TBD/Ghaly • Consultant: IBI • Status: <ul style="list-style-type: none"> - engineering feasibility, EA start: Spring, 2008 - meetings: none yet - EA to Council: December, 2008 • Issues: <ul style="list-style-type: none"> - alignment, connectivity at UofT@Scarborough - environmentally-sensitive wetlands on Morningside - intersection with Highway 401, Sheppard - north-end alignment, terminal



	 
	<p>Progress Update – Light Rail Lines and Facilities</p>
	<p style="text-align: center;"><u>JANE LRT</u></p> <ul style="list-style-type: none"> • Project Manager: TBD/Ghaly • Consultant: Hatch Mott MacDonald • Status: <ul style="list-style-type: none"> - engineering feasibility, EA start: Spring, 2008 - meetings: March (Giambrone) - complete feasibility: Summer, 2009 - EA to Council: Spring, 2009

Progress Update – Light Rail Lines and Facilities

JANE LRT

- Issues:
 - narrow right-of-way south of Eglinton
 - options: tunnel, rail corridor
 - crossing Highway 401

Progress Update – Light Rail Lines and Facilities

CONNECTIVITY WITH AIRPORT

- Lead: Mitch Stambler
- Consultant: N/A
- Status:
 - 2 meetings with GTAA staff
 - support for LRT connections
 - Metrolinx highly supportive of connecting to airport
 - report to EDC: February 20, 2008
 - meeting with GTAA: February 26

Progress Update – Light Rail Lines and Facilities

CONNECTIVITY WITH AIRPORT

- Issues:
 - not currently in airport master plan
 - no location identified for LRT terminals
 - present focus on Blue 22 (premium service, downtown)

Progress Update – Light Rail Lines and Facilities

LRV MAINTENANCE FACILITIES

- Project Manager: Richard Nusink
- Consultant: Parker & Associates, Totten Sims Hubicki
- Status:
 - draft report prepared
 - internal review ongoing
 - meetings: internal/team only
 - present to Commission: Spring, 2008
 - next:
 - property acquisition for facilities
 - design interim maintenance facility

Progress Update – Light Rail Lines and Facilities

LRV MAINTENANCE FACILITIES

- Issues:
 - new LRV's arrive before facilities
 - can't maintain LRV's at existing facilities
 - interim facility required
 - LRV capacity shortfall by 2013

Light Rail Vehicles

Progress Update – Light Rail Vehicles

LIGHT RAIL VEHICLES

- Project Manager: Stephen Lam
- Consultants:
 - Booz Allen Hamilton – technical
 - Blake, Cassels & Graydon – Canadian content
 - (retired) Justice Coulter Osborne – fairness

Progress Update – Light Rail Vehicles

LIGHT RAIL VEHICLES

- Status:
 - milestone decisions:
 - 100% low-floor design
 - double-ended
 - RFP released: January 17, 2008, closes April 11, 2008
 - contract award for base (legacy) LRV's: September, 2008
 - contract award for Transit City LRV's: mid-2010
 - meetings:
 - 4 consultation open houses: June - July, 2007
 - interactive website:
 - >300,000 visits, 10,000 respondents
 - mock-ups at CNE: August - September, 2007





Progress Update – Light Rail Vehicles

LIGHT RAIL VEHICLES

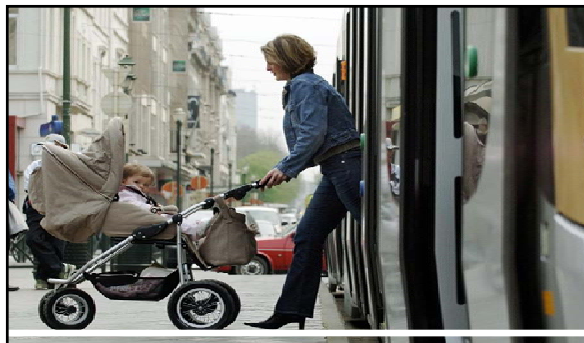
- Issues:
 - modifications to existing facilities for initial commissioning, testing
 - decisions regarding on-board fare equipment
 - life-cycle costing evaluation model
 - lack of committed funding

Transit City Light Rail Plan Standards

Progress Update – Transit City Light Rail Plan Standards

ACCESSIBILITY – VEHICLES AND FACILITIES

- Lead: Bob Hughes
- Consultants: TBD
- Status:
 - AODA standards development underway
 - Transit City standards defined, out front:
 - audible pedestrian signals
 - textured, contrasting wayfinding
 - ramped access
 - platform width (2.6 – 3.0m)
 - level loading from platforms



at grade access



~350mm step

Progress Update – Transit City Light Rail Plan Standards

ACCESSIBILITY – VEHICLES AND FACILITIES

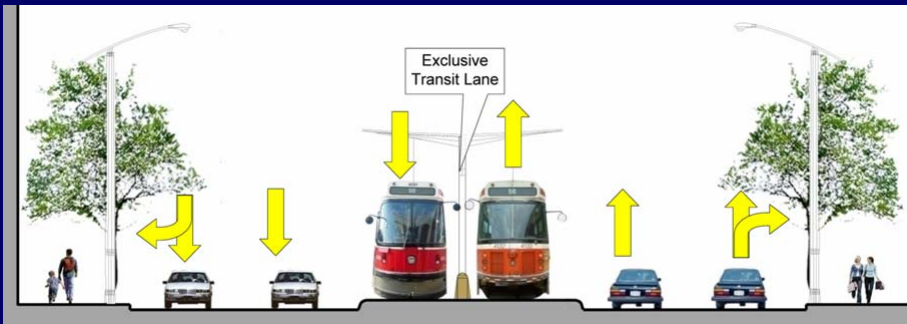
- Issues:
 - legacy system: no room for platforms
 - accessibility from street level
 - review international best practices
 - retain expert consultant

Progress Update – Transit City Light Rail Plan Standards

URBAN, CIVIL DESIGN STANDARDS

- Project Manager: John Mende
- Consultants: Planning Partnership
- Status: - general consensus on:
 - holistic approach: property line-to-property line
 - streetcar right-of-way width, location
 - road lane widths
 - bicycle lane widths
 - lighting, hydro (area-specific)
 - sidewalks
- team meetings continuing

Typical Mid-Block Cross Section

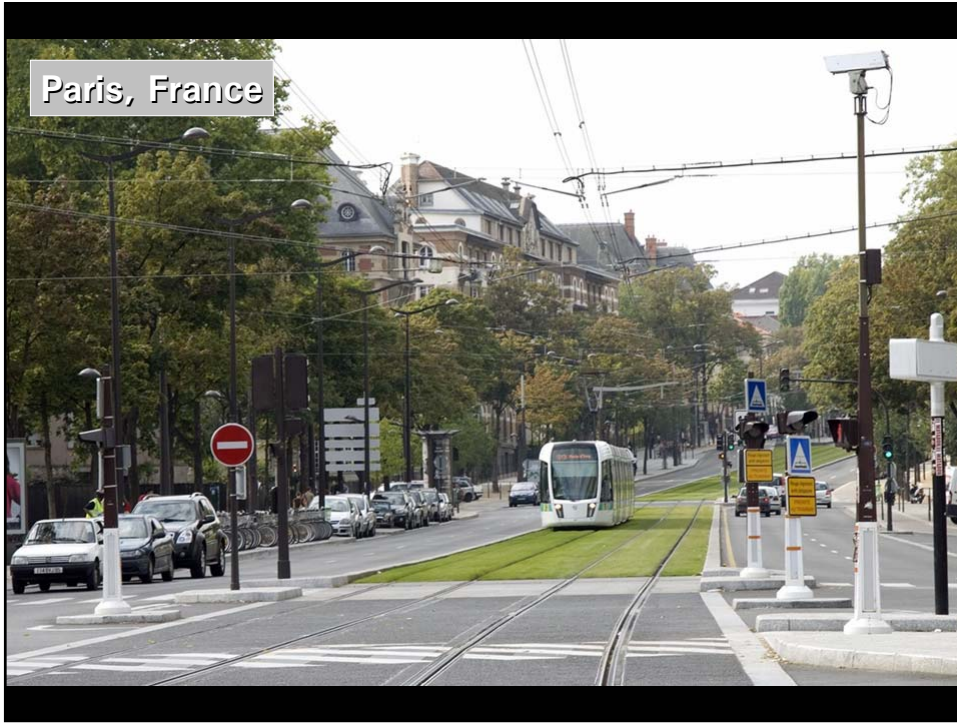


Progress Update – Transit City Light Rail Plan Standards

URBAN, CIVIL DESIGN STANDARDS

- Issues:
 - “universal” urban design standards
 - tree pits, trenches, planting
 - boulevards

Paris, France



Barcelona, Spain





Progress Update – Transit City Light Rail Plan Standards

FARE COLLECTION AND ENFORCEMENT

- Project Manager: Bob Hughes
- Consultant: N/A
- Status:
 - borrowing from work on GTA (smart) farecard
 - analysing pro's and con's of on-board vs. platform, station fare transactions
 - "rough-in" provision for on-board equipment in LRV specification
 - determining staffing requirements for P.O.P. enforcement over Transit City network



All door loading



All door loading





On-board fare vending equipment







	 
	<p align="center">Progress Update – Transit City Light Rail Plan Standards</p>
	<p><u>OPERATING, DESIGN STANDARDS AND CRITERIA</u></p> <ul style="list-style-type: none"> • Signal System - Project Manager: Keith Watling • Status: <ul style="list-style-type: none"> - review of state-of-the-art technology complete - analysis of wayside vs. on-board signalling complete - on-board recommended: <ul style="list-style-type: none"> - enforcement of speed, movements, separation - safety: locking, detection of switches - centralized control - better protection with close headways - full-time train tracking


	 
	<p align="center">Progress Update – Transit City Light Rail Plan Standards</p>
	<p><u>OPERATING, DESIGN STANDARDS AND CRITERIA</u></p> <ul style="list-style-type: none"> • Electrical Systems – Project Manager: Mladen Jeftic • Status: <ul style="list-style-type: none"> - substation spacing, design complete - AC power supply confirmed with Toronto Hydro - DC power voltage, distribution decided - overhead traction power: <ul style="list-style-type: none"> - centre-pole recommended over side-pole/span wire

	 
	<p align="center">Progress Update – Transit City Light Rail Plan Standards</p>
	<p><u>OPERATING, DESIGN STANDARDS AND CRITERIA</u></p> <ul style="list-style-type: none"> • Trackwork – Project Manager: Warren Bartram • Status: <ul style="list-style-type: none"> - base design standards identified: <ul style="list-style-type: none"> - centre track: storage/disablement - storage tracks at terminals - double crossovers at terminals (similar to subway) - crossovers for recovery, turnback: spaced @ 4km - special trackwork: double-point switches (safer)

	 
	<p align="center">Progress Update – Transit City Light Rail Plan Standards</p>
	<p><u>OPERATING, DESIGN STANDARDS AND CRITERIA</u></p> <ul style="list-style-type: none"> • Tunnel Parameters: <ul style="list-style-type: none"> - dimensions - clearances - dynamic envelopes - cover - safety walkways • Status: in progress

	 
	<p align="center">Progress Update – Transit City Light Rail Plan Standards</p>
	<p><u>OPERATING, DESIGN STANDARDS AND CRITERIA</u></p> <ul style="list-style-type: none"> • Conceptual Design: <ul style="list-style-type: none"> - stop spacing - minimum headways, hours of service - planned short-turn operation - station design principles - platform, shelter design - transfer interfaces - customer information technology • Status: in progress

	 
	<h1 style="text-align: center;">TRANSIT CITY LIGHT RAIL PLAN PROCESSES</h1>

	 
	<p style="text-align: center;">Progress Update – Transit City Light Rail Plan Processes</p>
	<p><u>PUBLIC, BUSINESS CONSULTATION AND OUTREACH</u></p> <ul style="list-style-type: none"> • Lead: Adam Giambrone, staff • Status: <ul style="list-style-type: none"> - pro-active outreach effort to inform, educate: <ul style="list-style-type: none"> - Sheppard East: 4 meetings - Etobicoke-Finch West: 2 meetings - Eglinton Crosstown: 6 meetings - ongoing meetings with councillors

Progress Update – Transit City Light Rail Plan Processes

COMMUNICATIONS: TRANSIT CITY INFORMATION BOOKLET

- Lead: Kevin Beaulieu
- Status: - booklet intended for broad distribution, including public meetings:
 - Transit City concept
 - about Light Rail technology, examples
 - environmental, city-building advantages: businesses, communities
 - construction methods, effects
 - public participation
 - photos, graphics
 - draft version complete

Progress Update – Transit City Light Rail Plan Processes

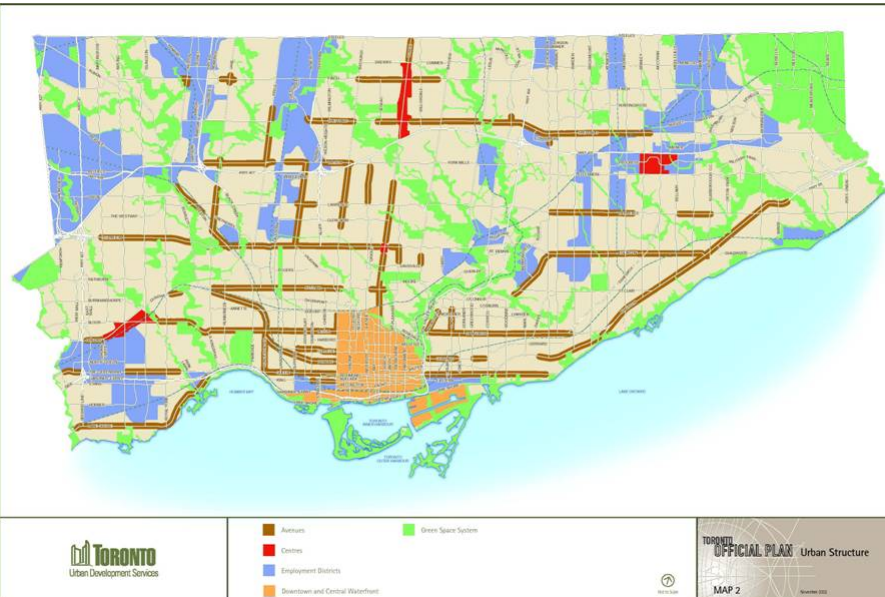
ENVIRONMENTAL ASSESSMENT PROCESS IMPROVEMENTS

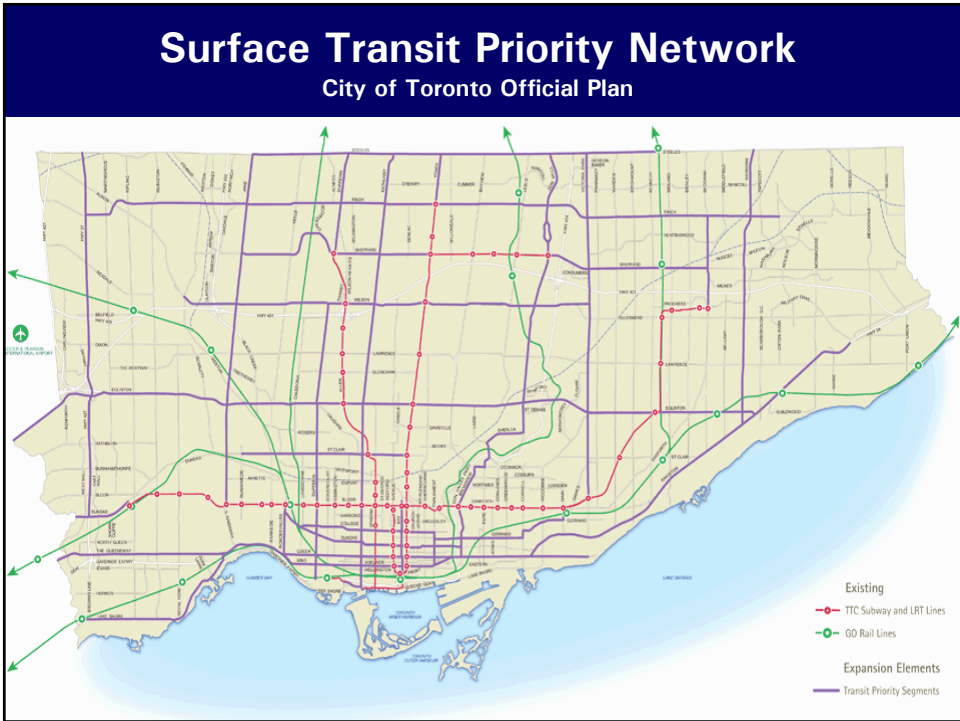
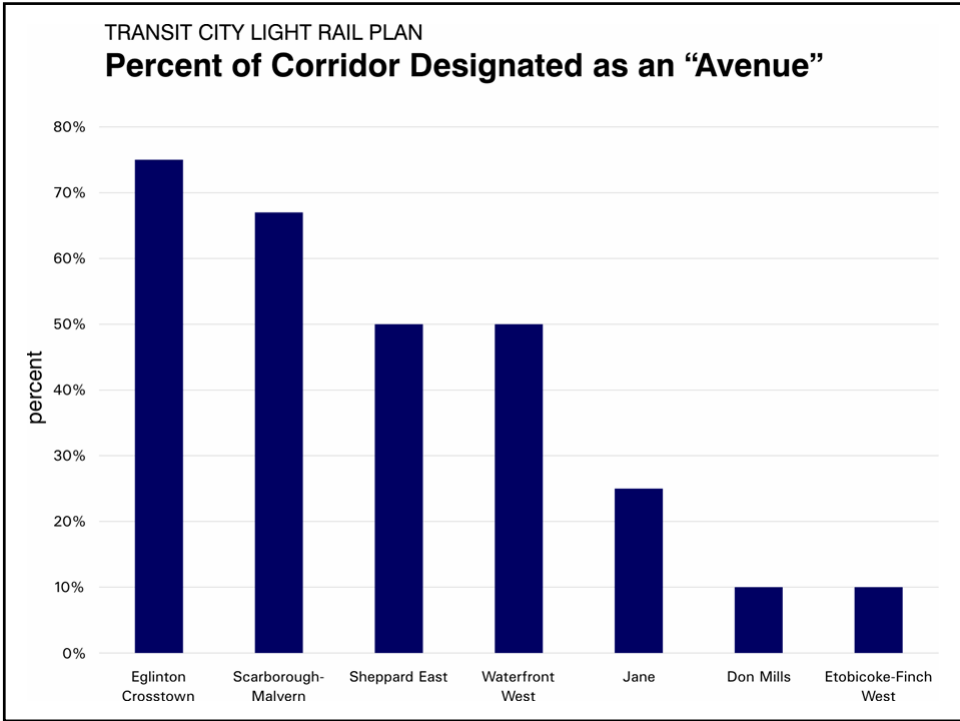
- Lead: Rod McPhail
- Status: - September, 2007: transit component added to municipal class EA process
 - eliminated most provincial involvement
 - streamlined, simplified transit EA's
 - Premier McGuinty: 6-month transit EA's
 - Metrolinx recruited Jim O'Mara from MOE
 - O'Mara developing new, simpler, faster process
 - consultation ongoing with City, TTC, and York

Progress Update – Transit City Light Rail Plan Processes

OFFICIAL PLAN AMENDMENTS

- Lead: Gary Wright, Rod McPhail
- Status:
 - Transit City ↔ OP designation varies by corridor
 - preferable that TC lines designated higher-order/priority
 - requires amendments to Official Plan
 - City Planning undertaking necessary work







<p align="center">Progress Update – Transit City Light Rail Plan Processes</p>	
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Progress Update – Transit City Light Rail Plan Processes

METROLINX TECHNICAL TEAMS

- Lead: Mitch Stambler, Sameh Ghaly
- Status:
 - Technical Team: Metrolinx, Infrastructure Ontario, York Region, Mississauga, City, TTC
 - Topics:
 - Transit City
 - Scarborough RT
 - Eglinton Crosstown LRT
 - Sheppard East LRT
 - Etobicoke-Finch West LRT
 - Benefits Case template
 - AFP suitability/risk analysis
 - weekly meetings
 - focussed, intense
 - Metrolinx report by Spring

Progress Update – Transit City Light Rail Plan Processes

STAFFING

- Status:
 - City, TTC departments short of qualified staff
 - aggressive recruitment efforts
 - few qualified respondents

Progress Update – Transit City Light Rail Plan Processes

FUNDING

- Status:
 - funding for EA's (\$7 million) approved by Commission
 - additional \$13 million requested:
 - detailed engineering design
 - property acquisition
 - utility re-location
- Commission approved \$4 million till Provincial Budget (March)
- no funding plan, budget for 2009 in absence of provincial funding
- staff to assess, report after provincial budget

Toronto Transit City Light Rail Plan



City – TTC Team Progress Update
February, 2008