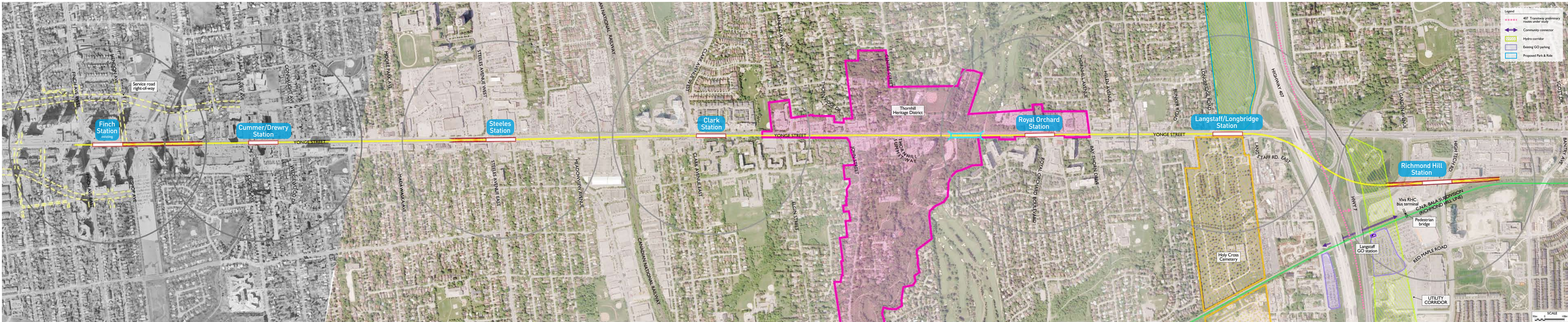


Yonge subway extension: concept plan and profile



The yonge subway extension is part of a GTA-wide transit system



VIVA
Viva Rapid Transit

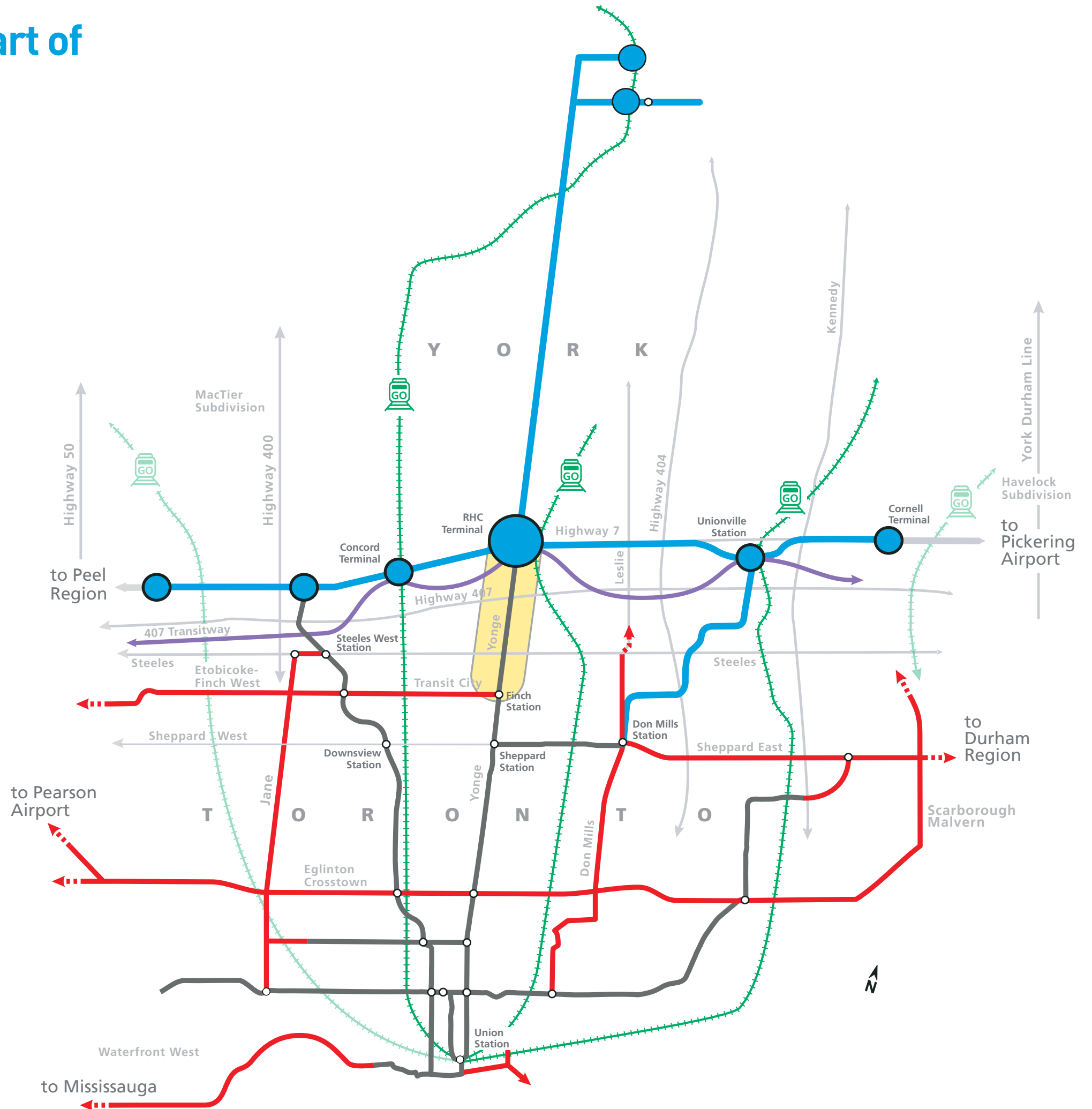
TORONTO
Toronto Transit City
Light Rail Plan

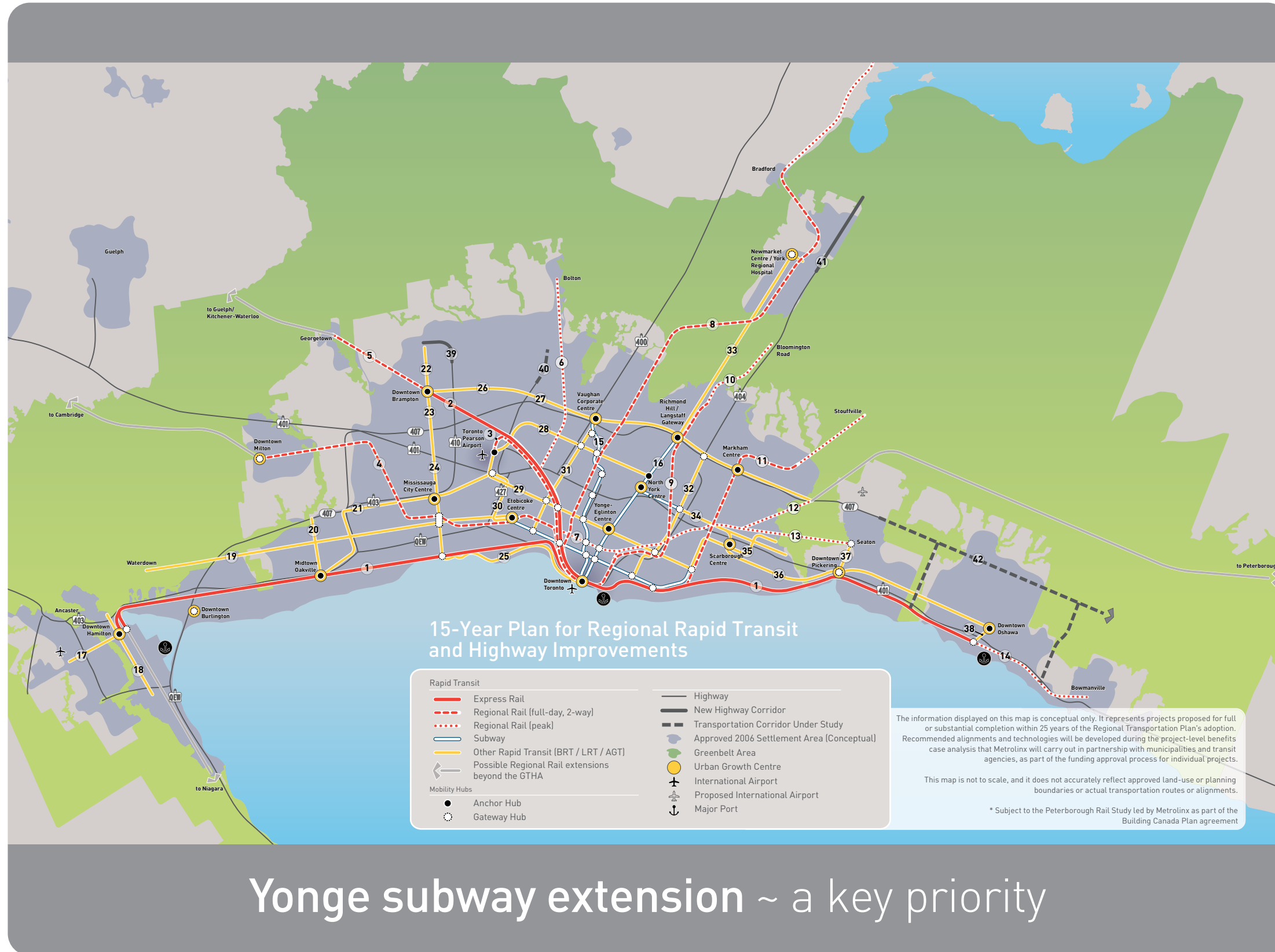
GO Transit

BRAMPTON Transit

YORK
REGION
TRANSIT

Durham Region
Transit





Top 15 Priorities

Within the first 15 years of the Regional Transportation Plan's implementation, the top 15 priorities for early implementation are:

- Yonge subway extension to Richmond Hill Centre
- Eglinton rapid transit from Pearson Airport to Scarborough Centre
- Upgrade/extension of Scarborough rapid transit line
- Finch/Sheppard rapid transit from Pearson Airport to Scarborough Centre and Meadowvale
- Express Rail on Lakeshore line from Hamilton to Oshawa
- Rapid transit in Hamilton from McMaster University to Centennial Parkway
- Hurontario rapid transit from Port Credit to Brampton
- 403 Transitway from Mississauga City Centre to Renforth Gateway
- Rail link between Union Station and Pearson Airport
- Rapid transit service along Hwy 2 in Durham
- Improvements/extension of GO Rail service to Bowmanville
- Early phases of bus rapid transit service on Dundas St in Halton and Peel
- Viva rapid transit on Hwy 7 and Yonge St through York Region
- Brampton's Queen St Acceleride
- Spadina subway extension to Vaughan Corporate Centre

The information displayed on this map is conceptual only. It represents projects proposed for full or substantial completion within 25 years of the Regional Transportation Plan's adoption. Recommended alignments and technologies will be developed during the project-level benefits case analysis that Metrolinx will carry out in partnership with municipalities and transit agencies, as part of the funding approval process for individual projects.

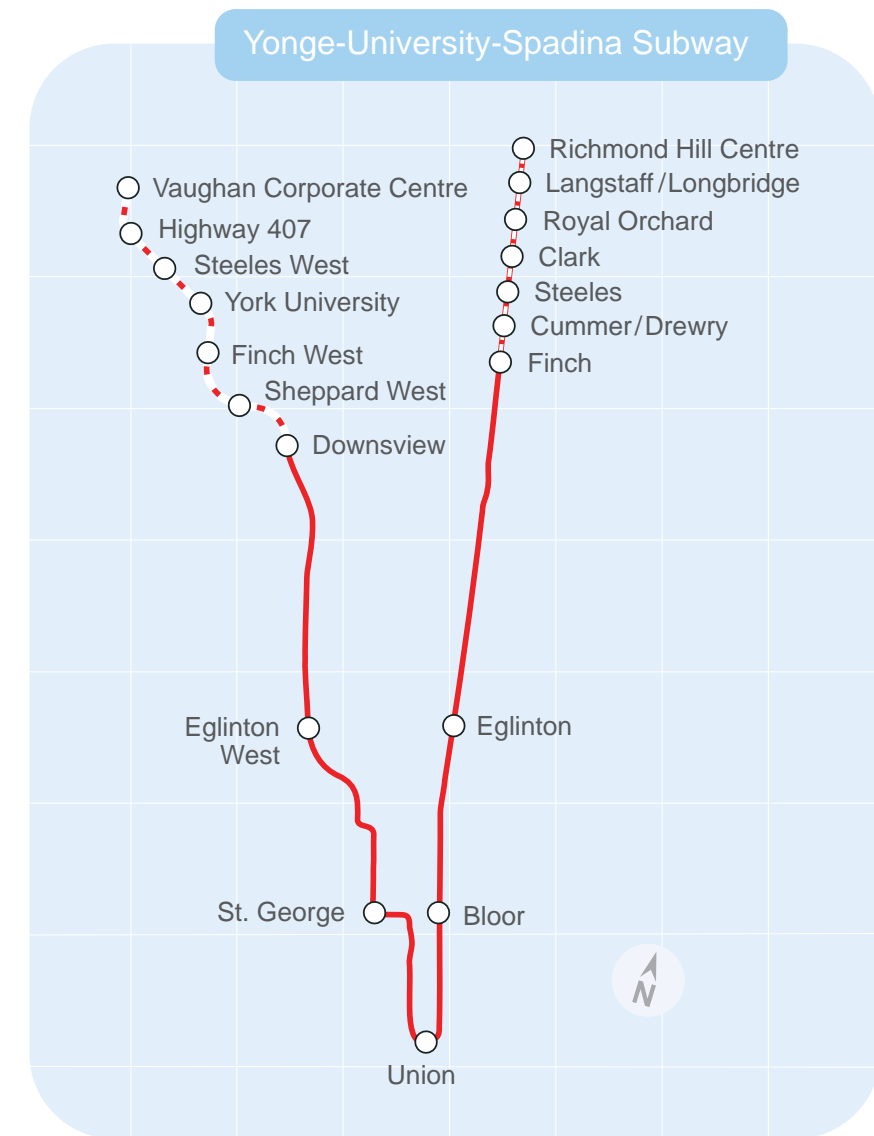
This map is not to scale, and it does not accurately reflect approved land-use or planning boundaries or actual transportation routes or alignments.

* Subject to the Peterborough Rail Study led by Metrolinx as part of the Building Canada Plan agreement

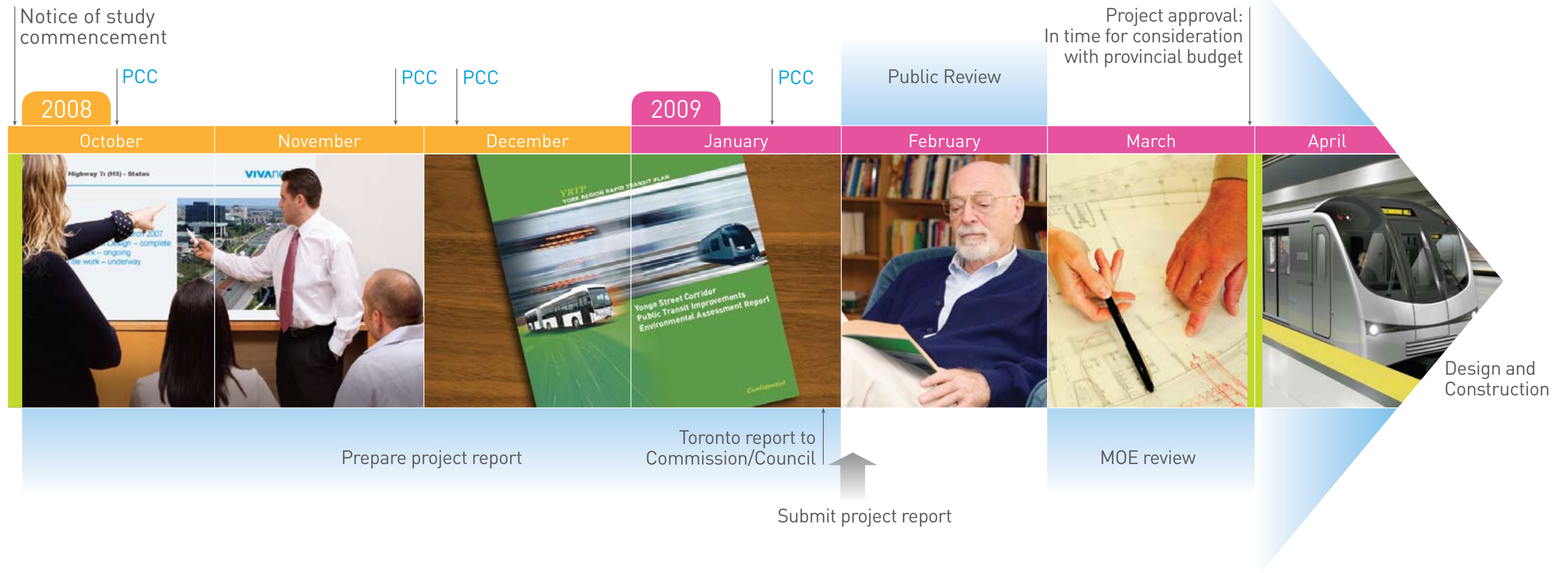
What we studied

To develop recommendations for the Yonge subway extension project, we assessed options and obtained public input for:

- Alignment
- Numbers and locations of stations
- How the subway will cross the East Don River
- The location of the terminus of the subway at Highway 7, its features and how it works



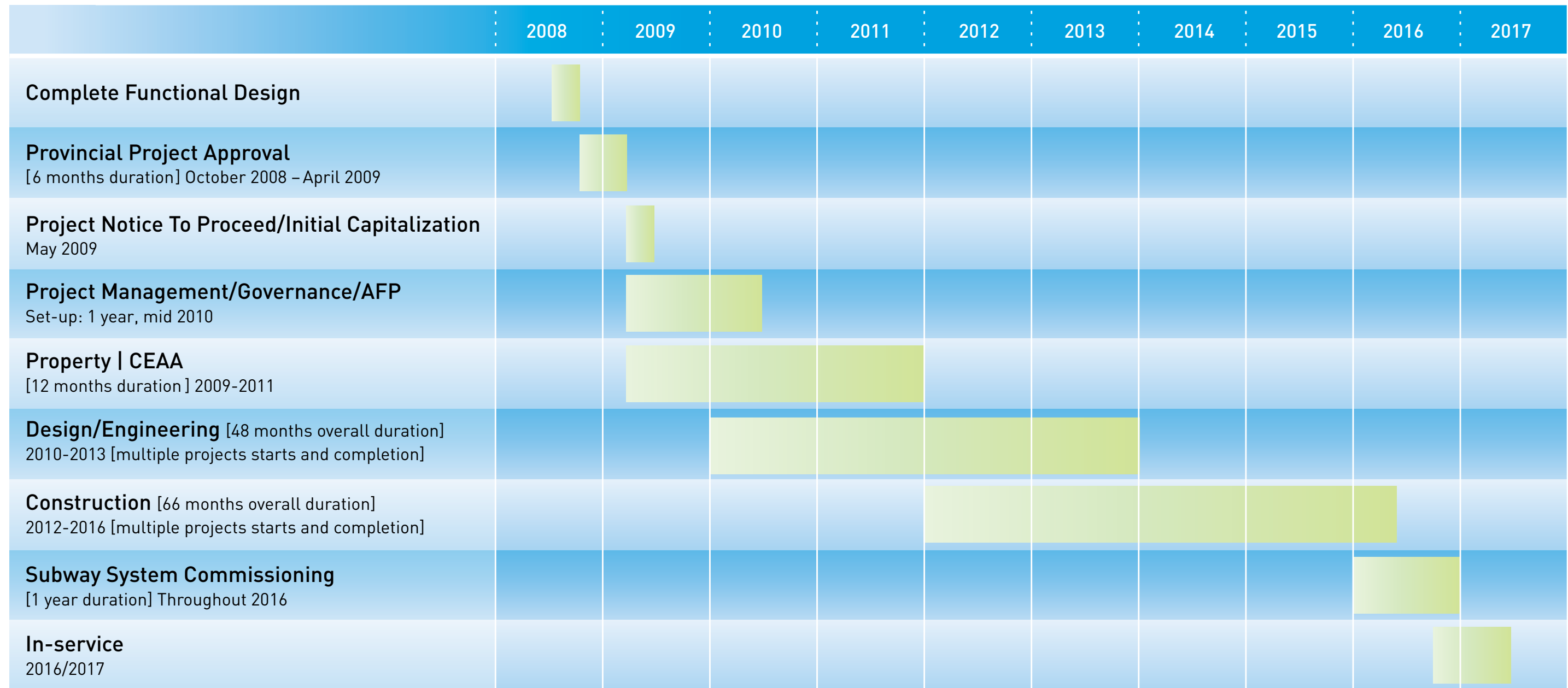
Where are we today?



be involved

Visit vivayork.com for updates

What are the major phases of planning and building a subway?



Key targets

- > project begins: 2009
- > design/engineering: 2009
- > construction: 2012
- > open: 2016/2017

What comes with a subway?

passenger
pick up and
drop off



parking
facility



pedestrian
entrance



substation



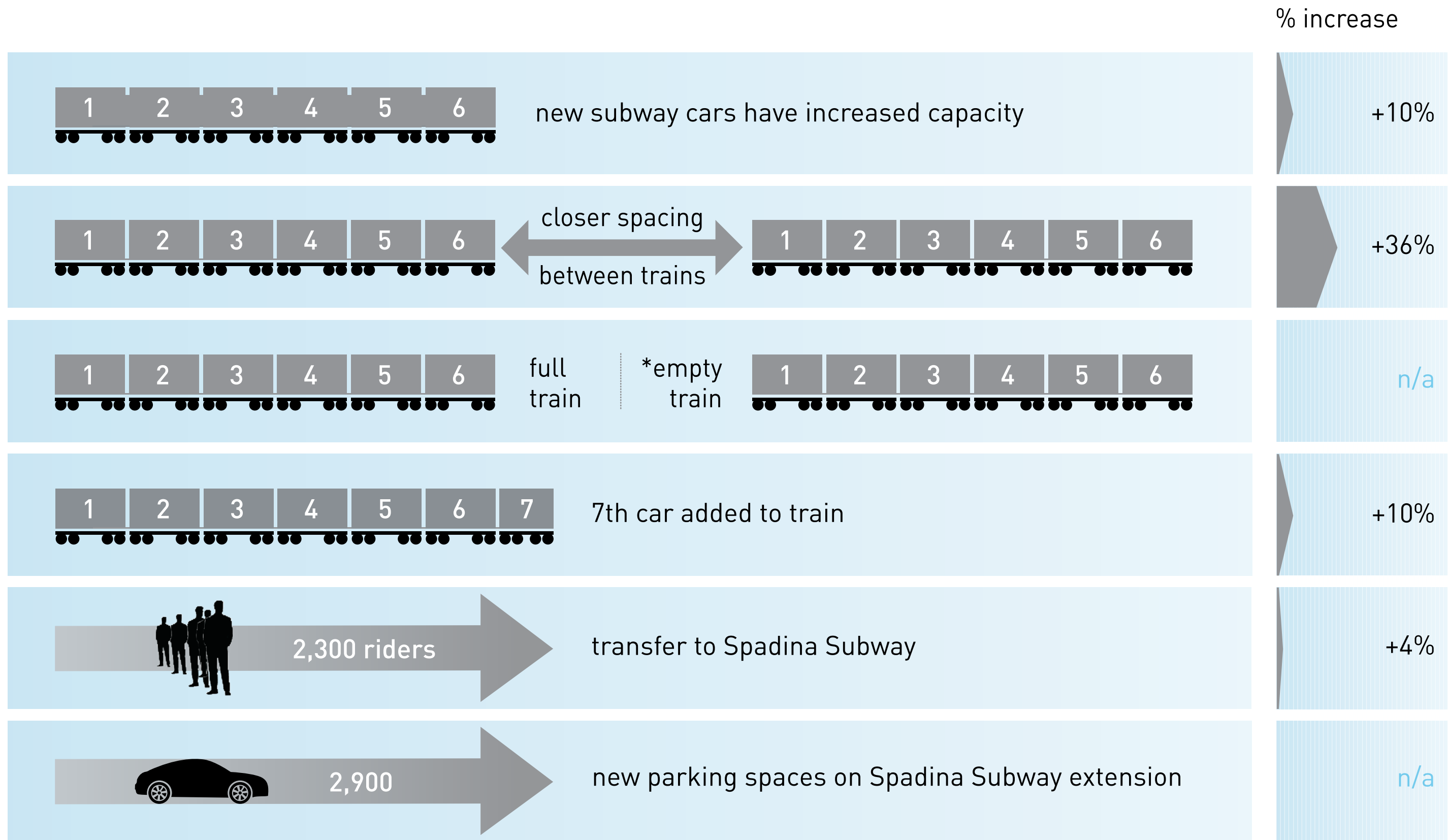
bus
terminal



emergency exit
building



Yonge subway capacity improvements

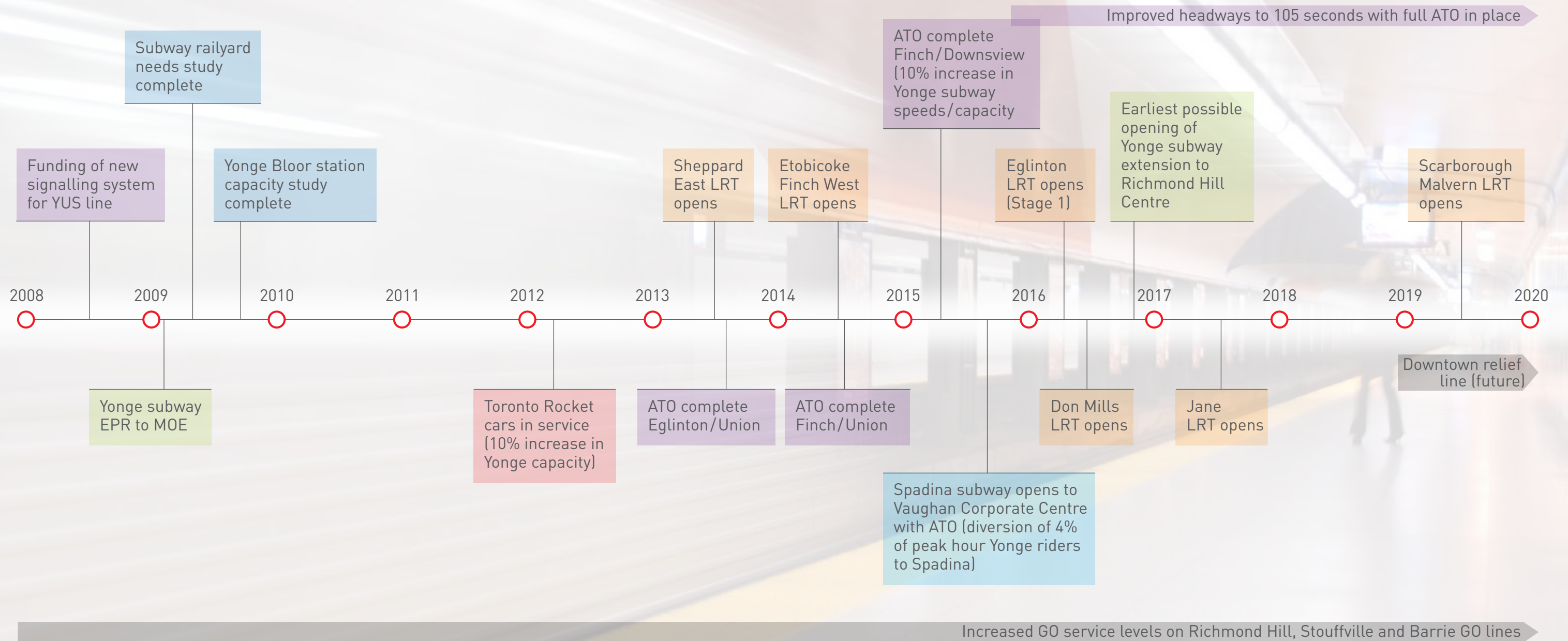


* Every other train makes a short turn at Finch station in morning peak period.

Timeline for yonge subway capacity/ridership milestones

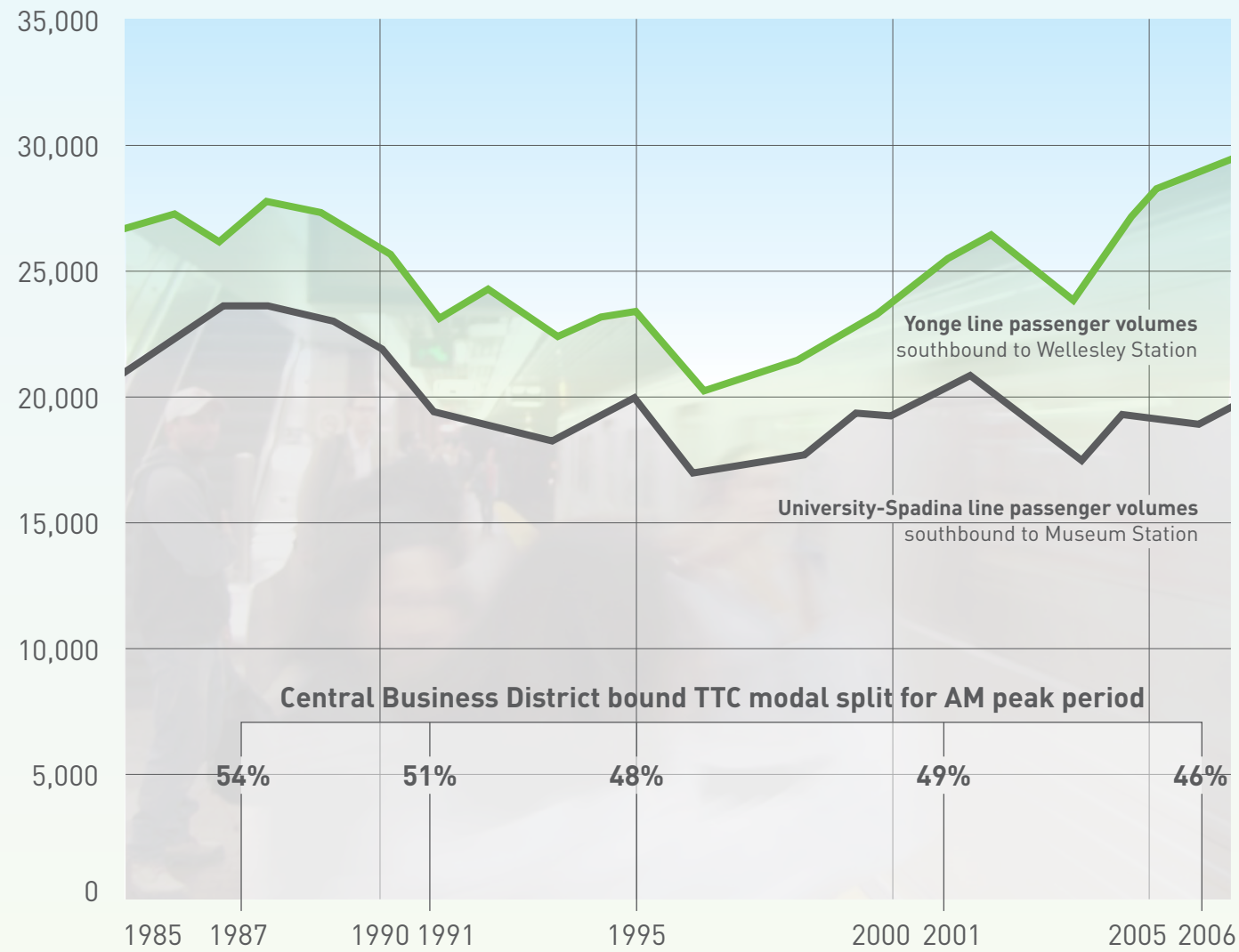
Legend

- New signalling for Yonge-University-Spadina line
- Transit City initiatives
- Yonge subway extension
- Toronto-York Spadina subway extension
- Toronto Rocket cars
- Related studies
- AT0: Automatic Train Operation
- EPR: Environmental Project Report
- LRT: Light Rail Transit
- MOE: Ministry of Environment
- YUS: Yonge University Spadina line



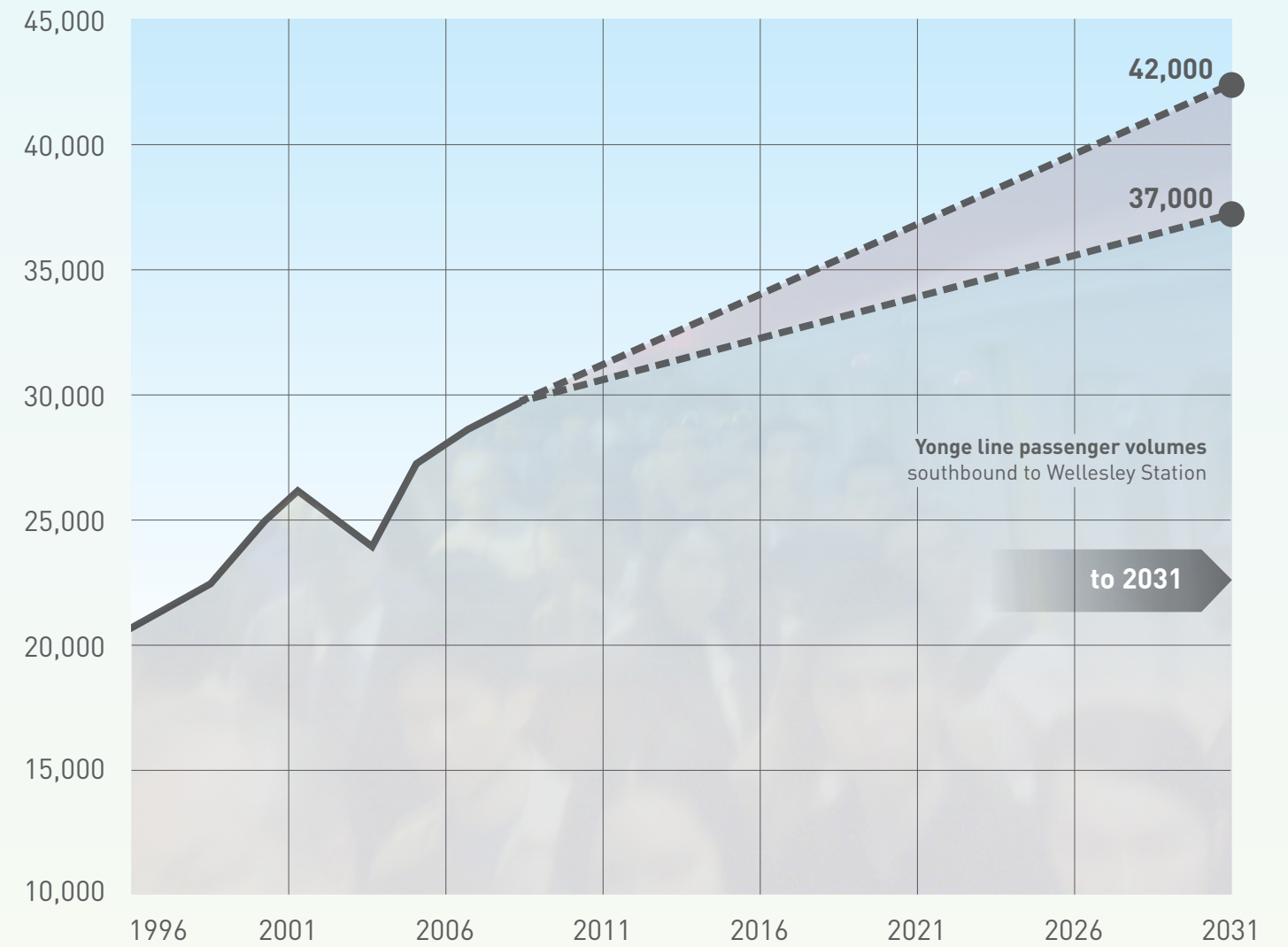
AM peak hour / peak direction subway volumes

1985 - 2007, with selected modal splits



Sources: TTC subway count surveys, Cordon Count surveys

1996 - 2007, projected to 2031



Yonge-Bloor station

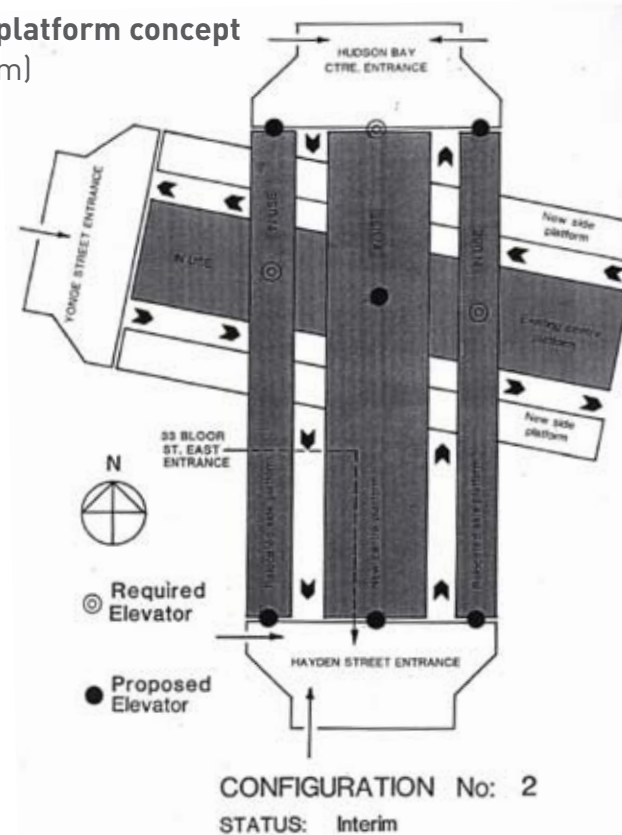
- Key to improving Yonge Subway capacity
- Bottleneck to adding more trains, with existing or new signalling system
- Must cut train 'dwell' time in half
- Add a third platform at Yonge Subway level
 - Train doors will open on **both** sides
 - Unload to new centre platform
 - Load from relocated side platform
 - Unloading/loading at the same time
 - Will cut theoretical dwell time by 50%
- Could also add platforms on BD level



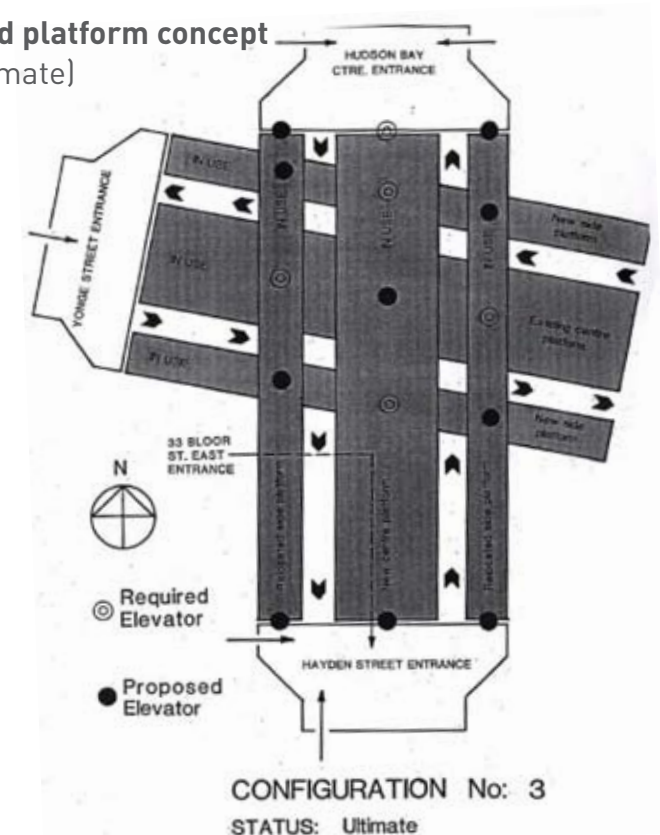
Capacity Study

- Initiated in January 2009
- To be completed by Fall 2009
- Confirm previous concepts for expansion
- Identify other operational strategies to increase capacity
- \$450 million project
- Currently not funded
- 4-5 years to design/construct
- Station will be operational throughout construction

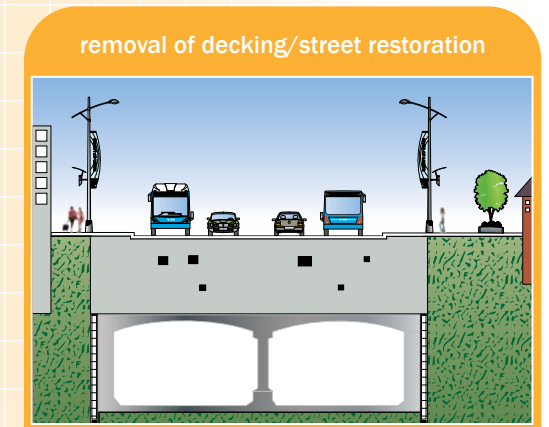
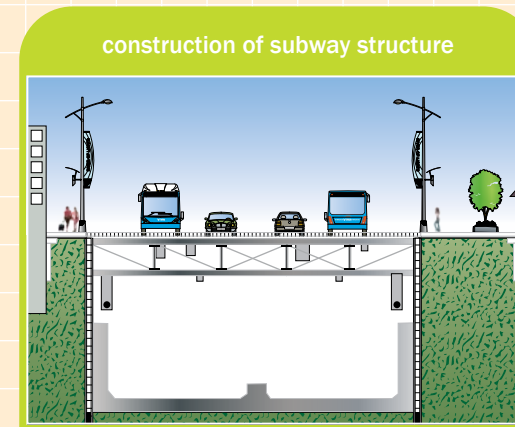
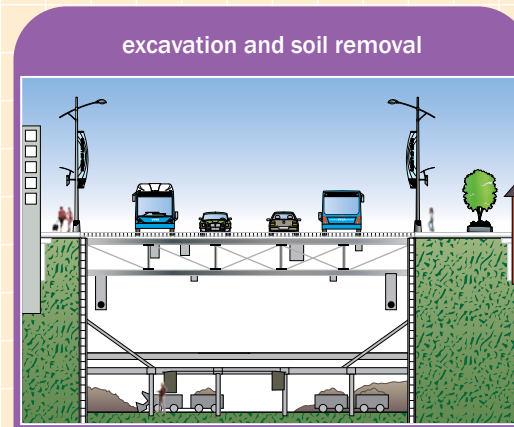
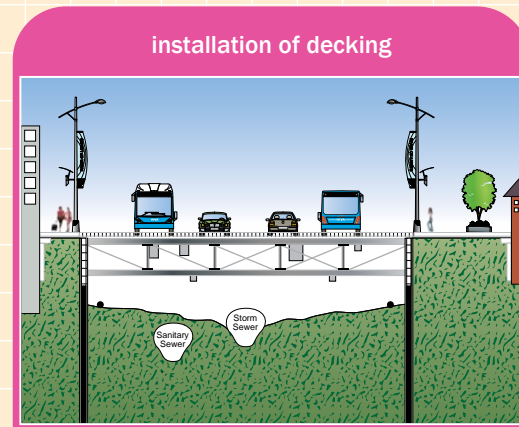
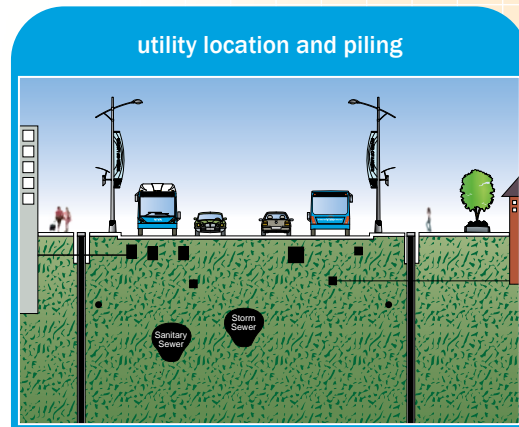
Third platform concept (interim)



Third platform concept (ultimate)



How is a subway built?



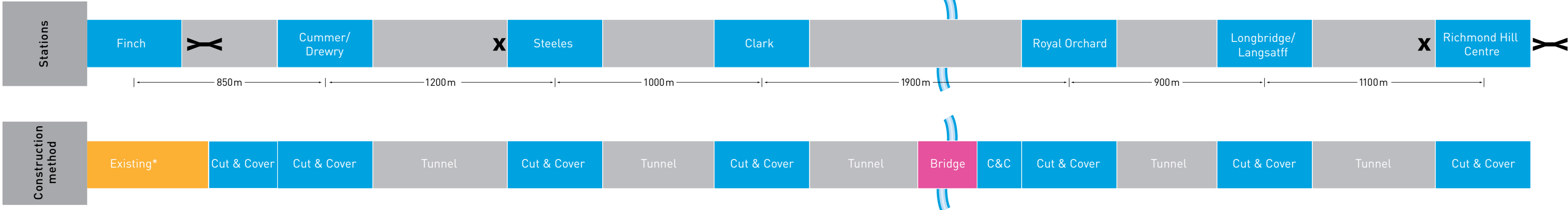
Construction principles

Our goal is to minimize disruption and inconvenience to the community during subway construction. Every effort will be made to:

- Use tunnelling, wherever possible
- Ensure the design of subway related structures is sensitive to existing neighbourhoods
- Maintain property access at all times
- Ensure appropriate number of lanes of traffic are always available in the peak direction
- Minimize the size of construction work areas
- Contain work areas to maintain community and pedestrian safety
- Provide timely construction updates to the community
- Complete construction as quickly as possible



Yonge subway extension: station planning



Surface facilities/connections	13-bay TTC bus terminal [existing]; 6-bay after subway extension**	bus turn-around loop	25-bay underground bus terminal	PPUDO	Substation	Substation	Substation	Substation	Substation	Approx. 2000 to 2500 park-n-ride	Substation	Substation	
	17-bay Regional bus terminal [existing]; 4-bay after subway extension												28-bay bus terminal
	Proposed Finch West LRT											Proposed 407 Transitway	Richmond Hill GO Rail
	PPUDO											PPUDO	PPUDO
	3214 park-n-ride (existing)												
	Substation												Substation

Screening criteria

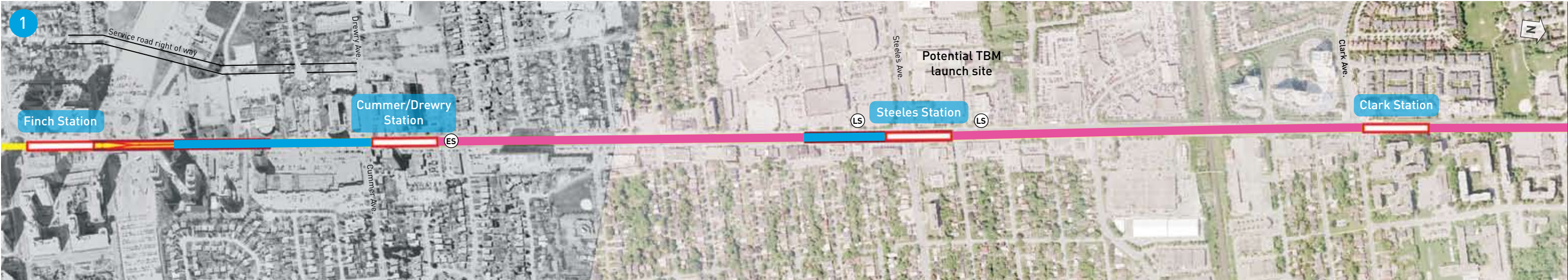
Existing densities			80		85		110		80		30		40
Planned densities†			110 - 120		280 - 520		145 - 180		100 - 130		144 - 266		295 - 550
Transportation connection			✓		✓						✓		✓
Natural environment			✓		✓		✓		✓		✓		✓
Cultural environment			✓		✓		✓		✓		✓		✓

Tail track:
 Cross track:
 * Some reconstruction of existing tail tracks will be required
 ** 4-bay after Finch LRT is completed
 † Persons and jobs per hectare

Not to scale

Preliminary construction methodology

While significant lengths of the subway extension will be tunnelled, the construction of subway stations and special track work structure is done using the cut and cover method.



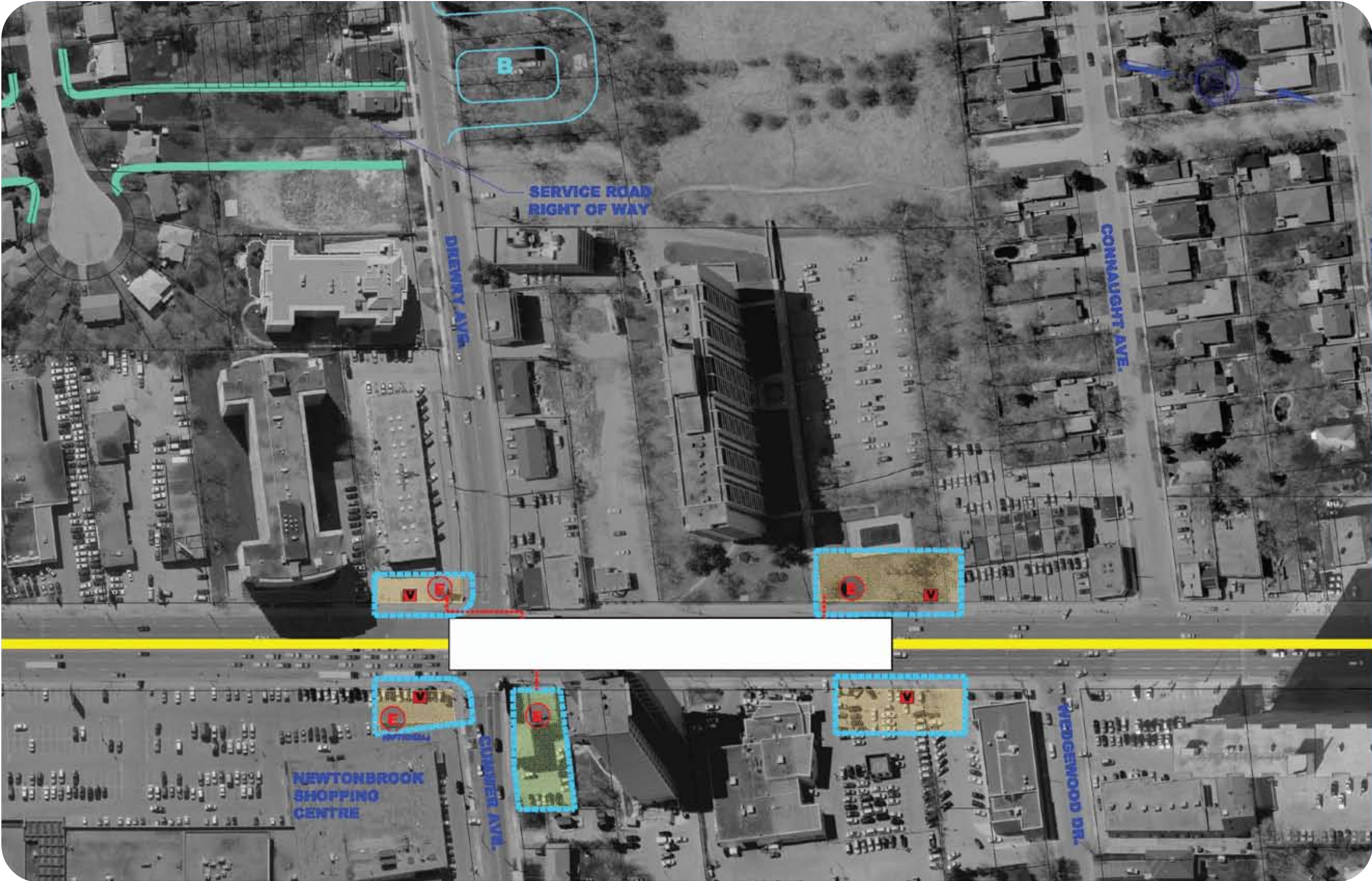
Matchline - Section 2 -












Matchline - Section 1 -

- Legend**
- Subway station
 - Cut and cover
 - Tunnelling
 - Bridge construction
 - Tail tracks
 - Launch shaft
 - Exit shaft

Cummer/Drewry station

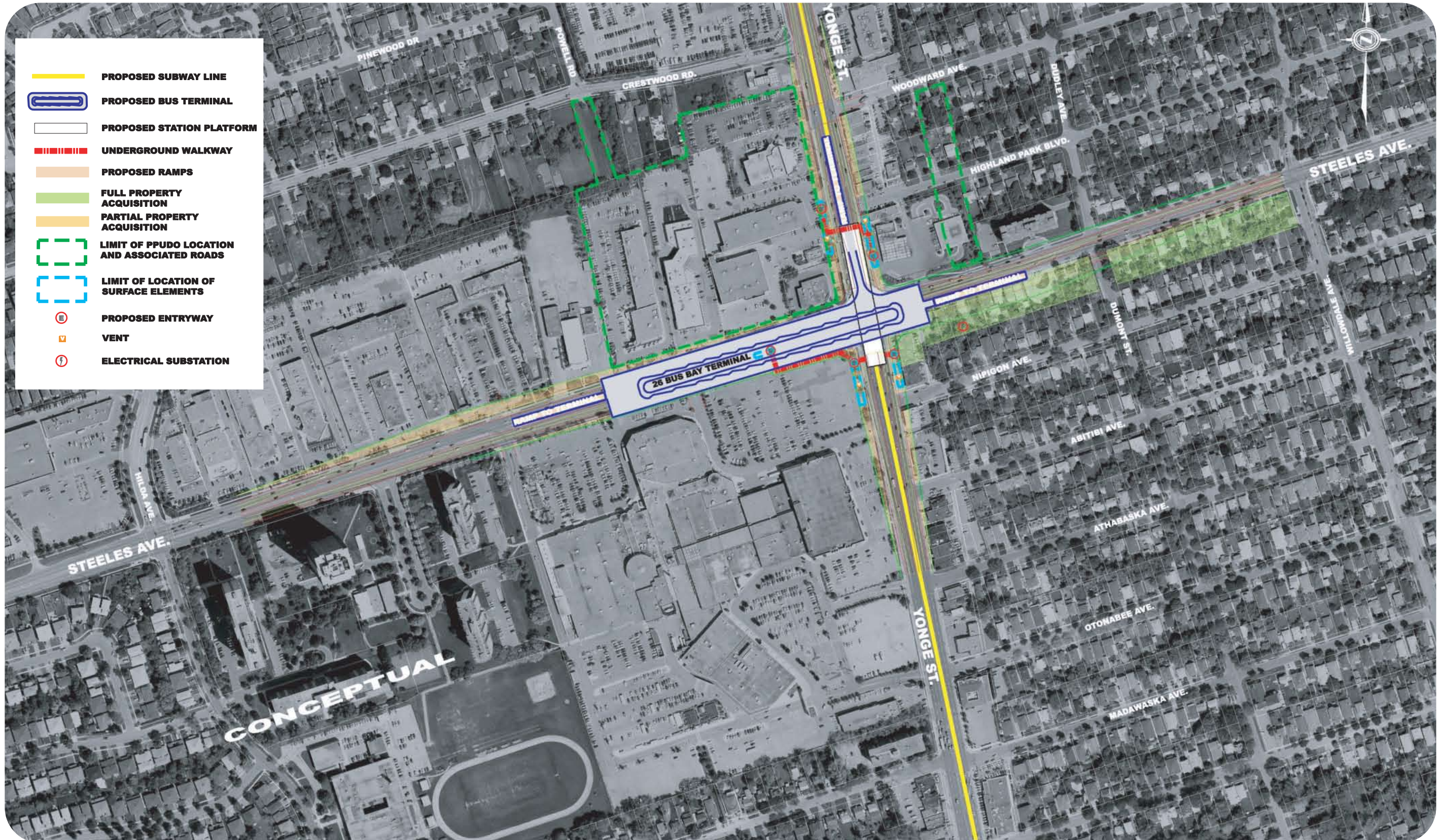


Legend

-  Subway station
-  Subway line
-  Entrance
-  Limit of surface elements
-  Underground walkway
-  Full property acquisition
-  Partial property acquisition for surface elements only
-  Vent structure
-  Bus loop

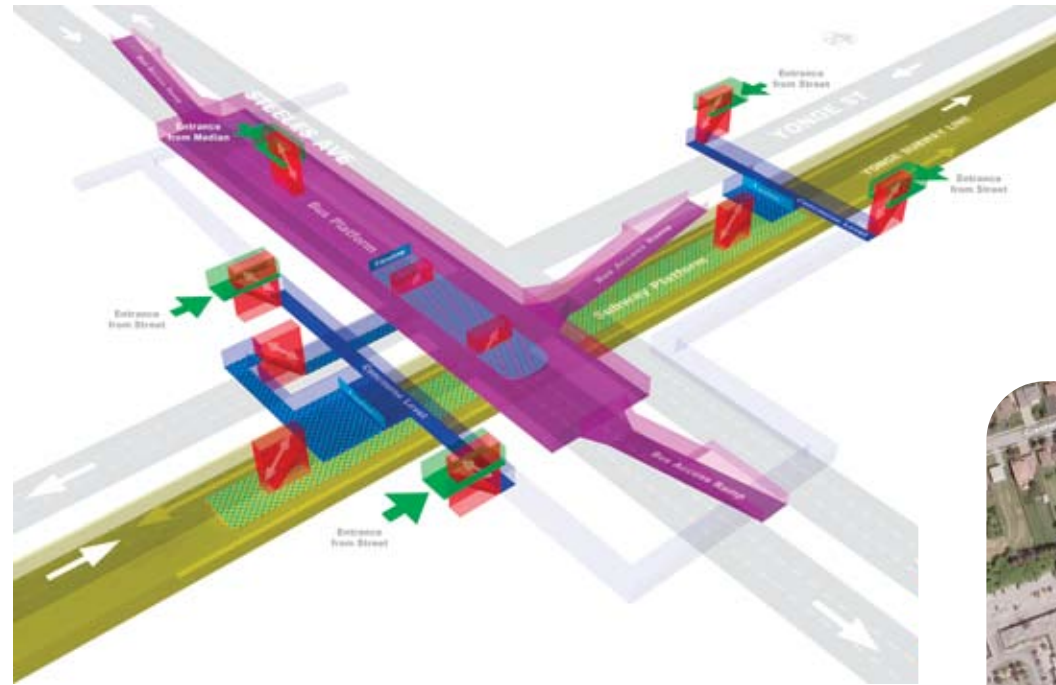


Steeles station

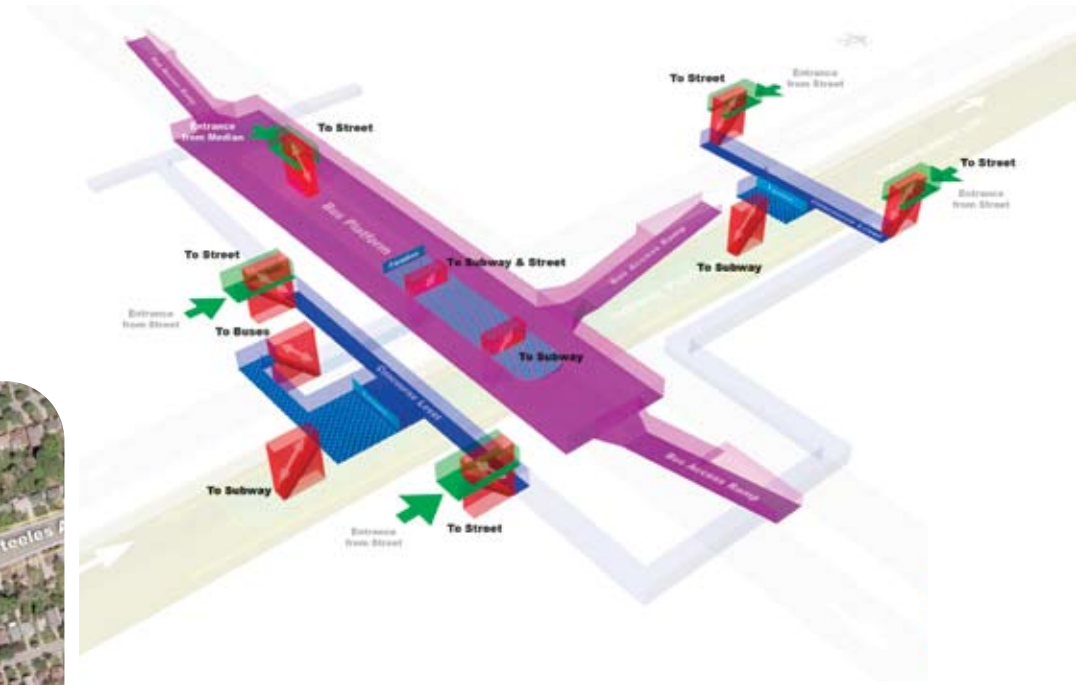


Steeles station | level by level

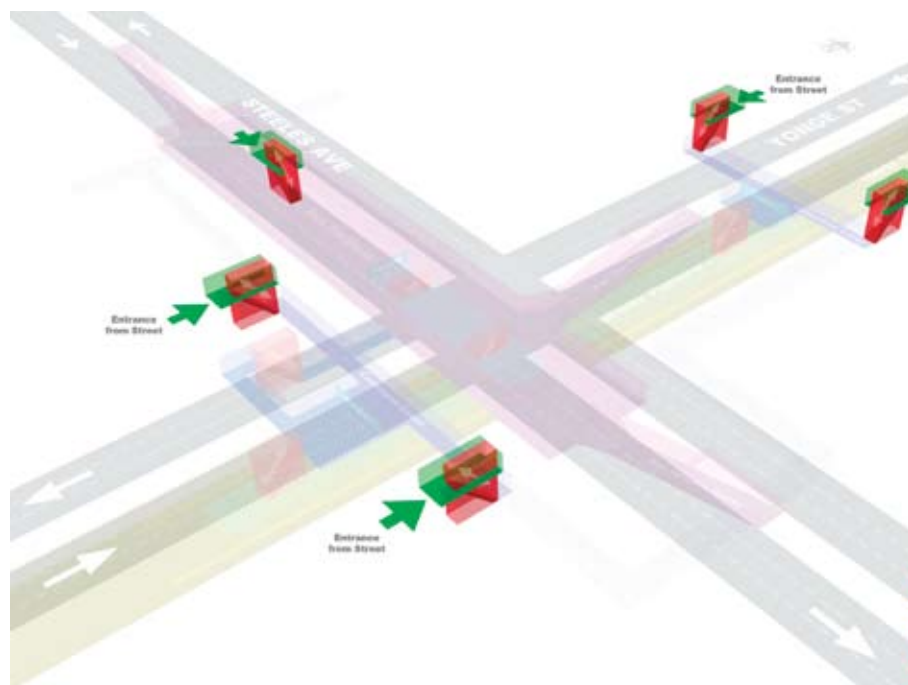
1 station overview all levels



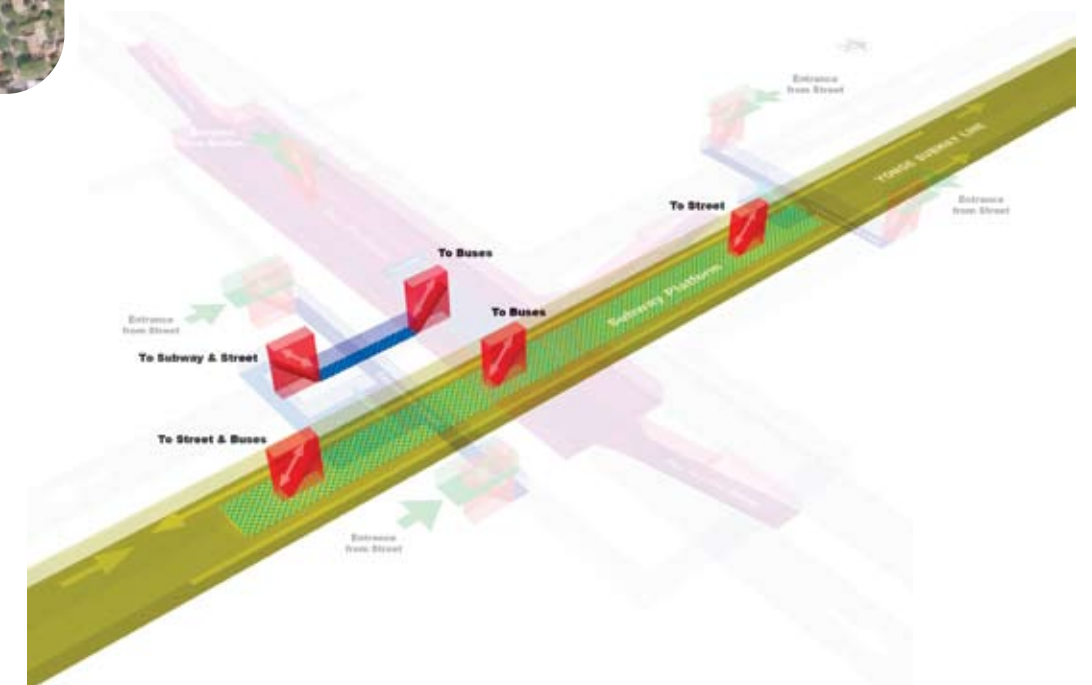
3 bus platform 1 level below street



2 street level



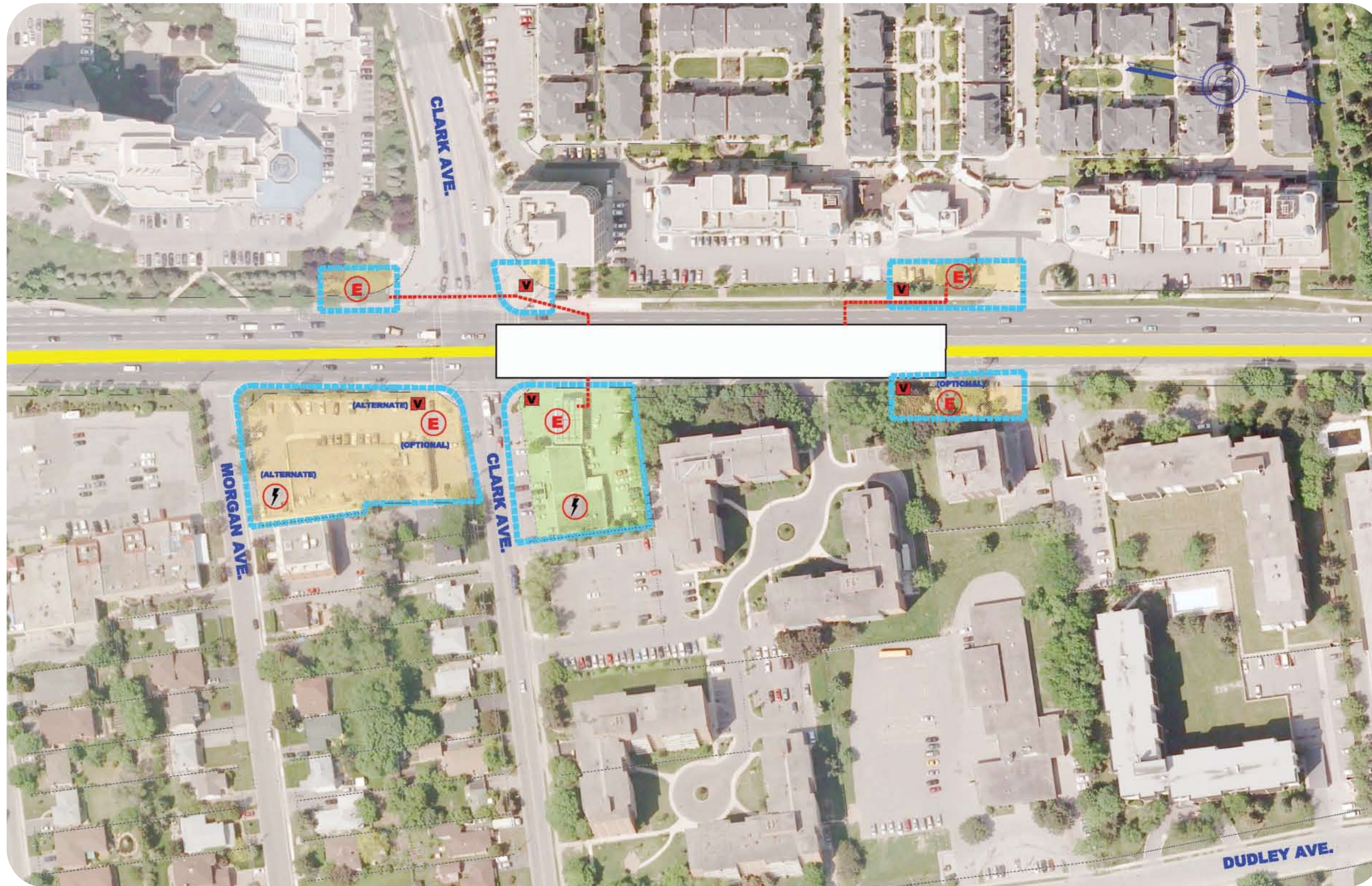
4 subway level 2 levels below street












Legend

- Street Level
- Entrance
- Bus Platform Level
- Concourse Level
- Future Connections
- Subway Platform Level
- Vertical Movement
- Fare Paid Zone

Clark station



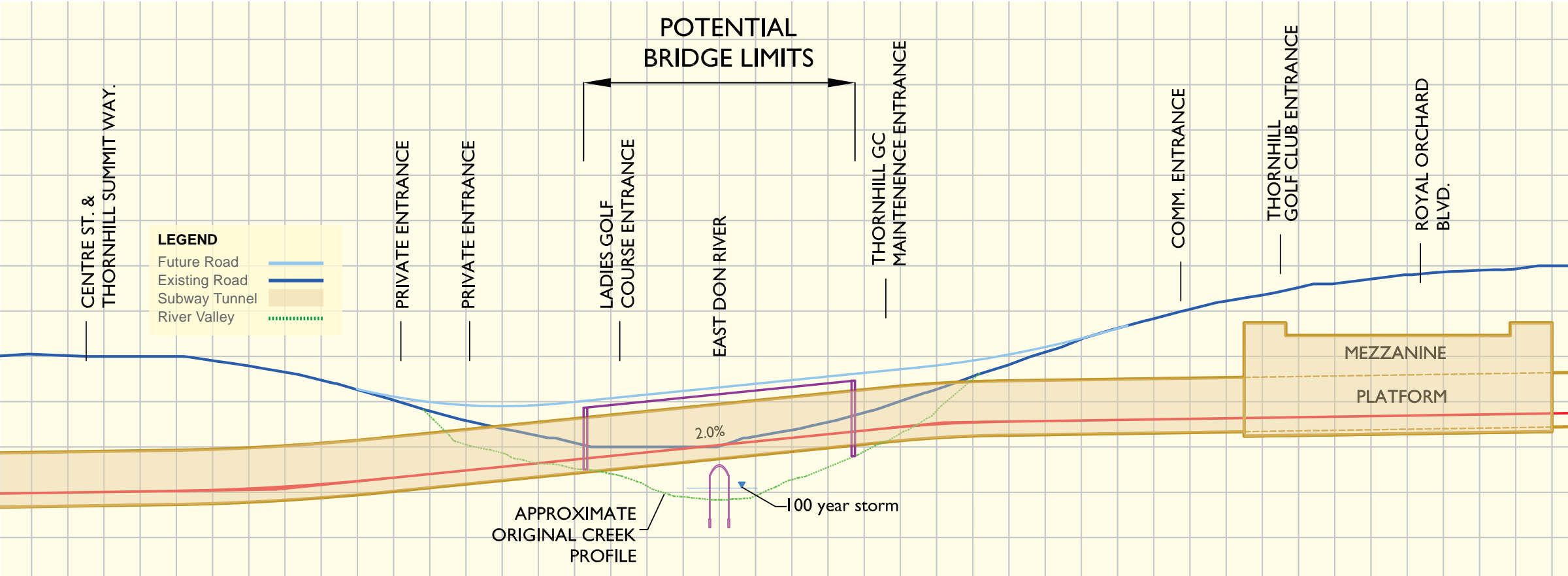
Legend

-  Subway station
-  Subway line
-  Electrical substation
-  Entrance
-  Limit of surface elements
-  Underground walkway
-  Full property acquisition
-  Partial property acquisition for surface elements only
-  Vent structure



East Don River crossing

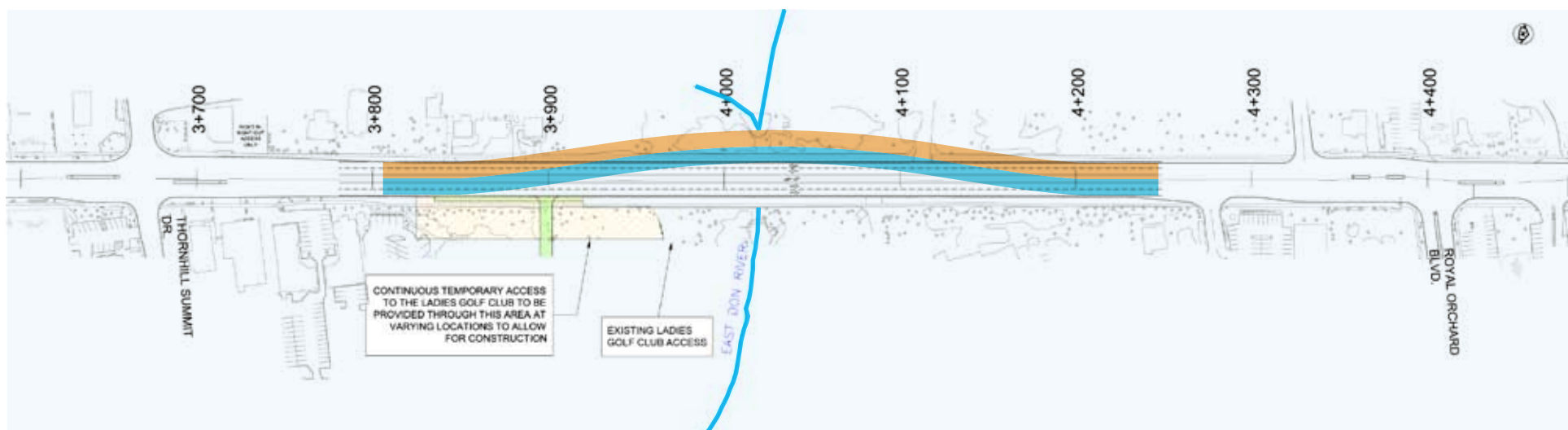
- Heritage features will be designed into the bridge in consultation with the community.



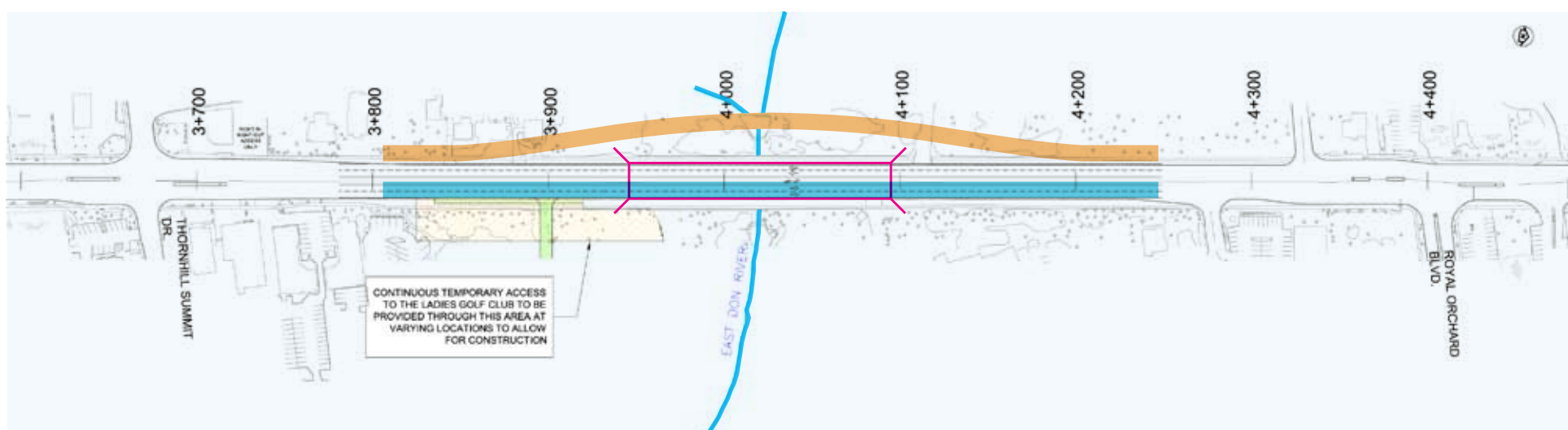
East Don River proposed traffic staging

- Careful removal of existing culvert and embankments will minimize local disruption.

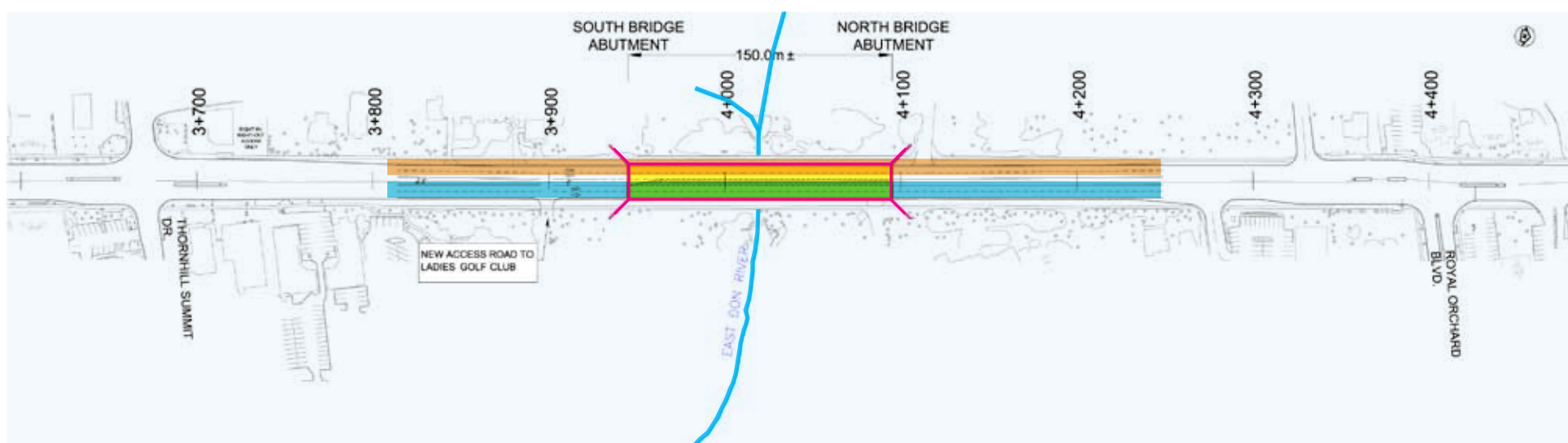
1 stage 1 temporary lanes to the west



2 stage 2 temporary northbound lanes on partially constructed bridge



3 stage 3 final bridge in service



Legend

- Southbound traffic
- Northbound traffic
- Partially constructed bridge
- Bridge in service

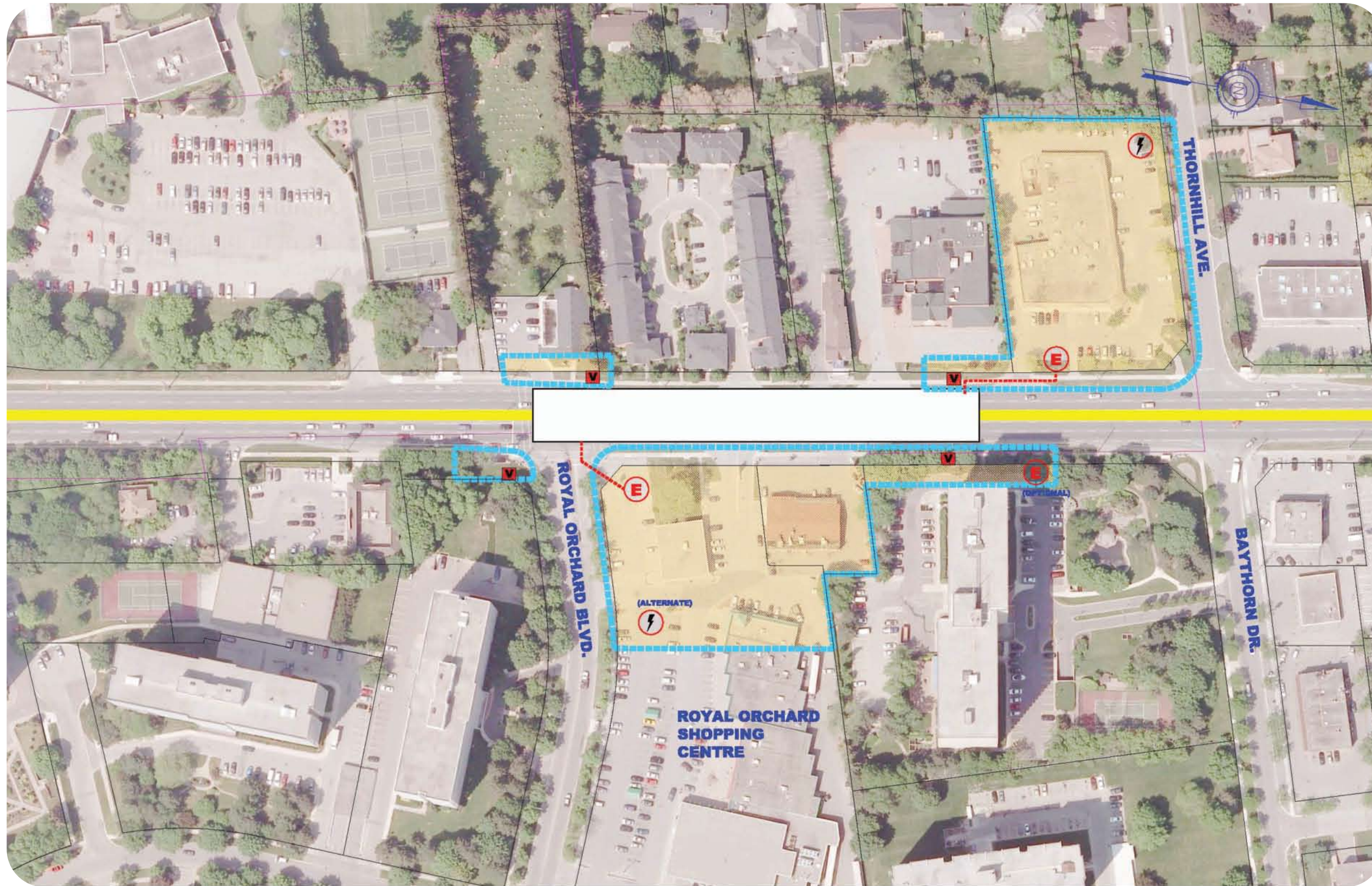
Crossing the East Don River












- 1 Restore the valley to its natural state
- 2 Level Yonge Street to provide continued access to adjacent sites
- 3 Ensure the bridge design includes heritage features in context with the community
- 4 Ensure lighting is designed to be sensitive to adjacent uses in the community
- 5 Provide a safe pedestrian environment to cross between the heritage community north and south of the bridge
- 6 Meet Ministry of Environment guidelines for attenuating traffic and subway noise

South aerial view from York Condominium 300
Artists rendering ~ concept only

Royal Orchard station

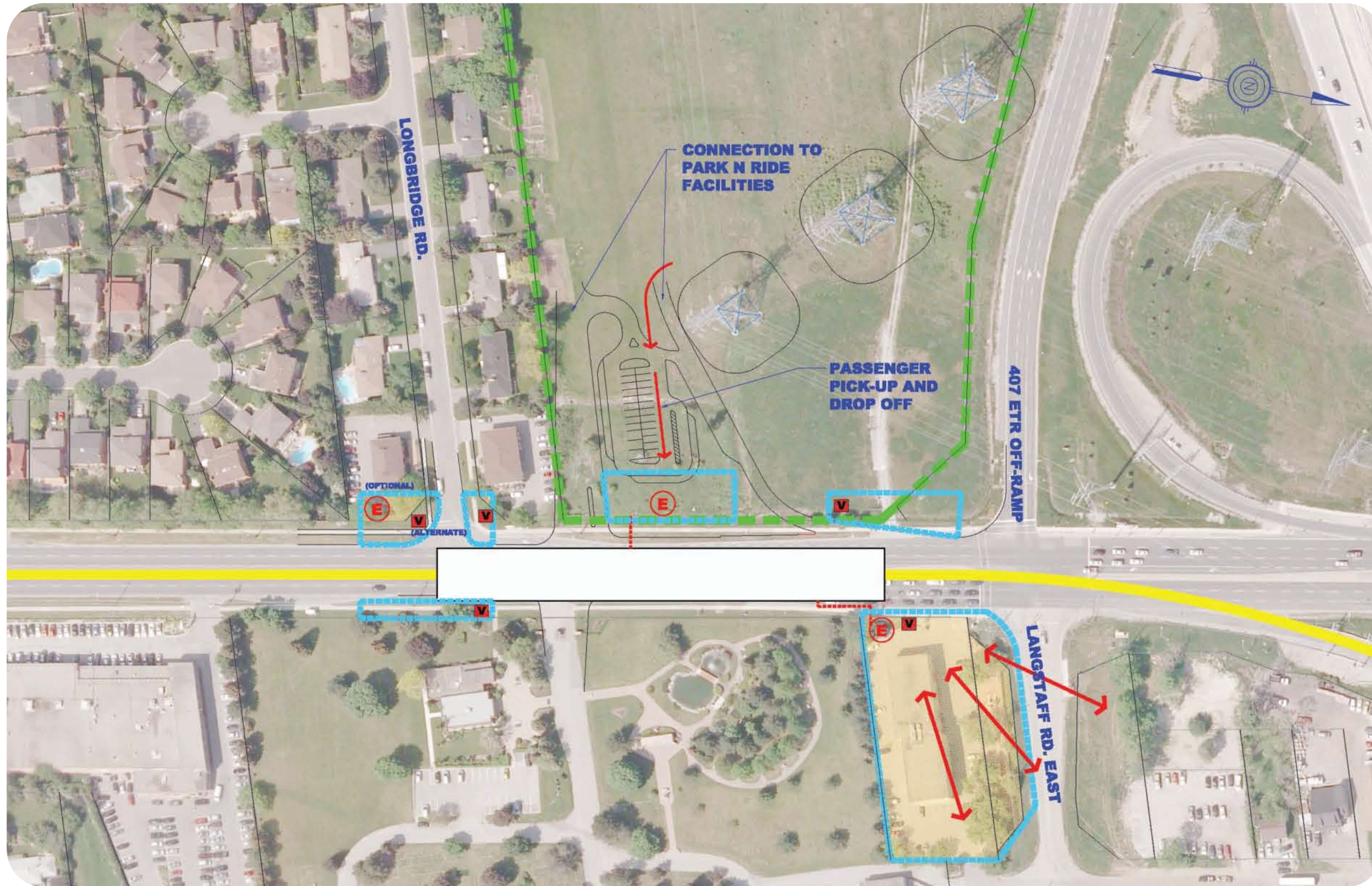


Legend

-  Subway station
-  Subway line
-  Electrical substation
-  Entrance
-  Limit of surface elements
-  Underground walkway
-  Full property acquisition
-  Partial property acquisition for surface elements only
-  Vent structure



Langstaff / Longbridge station



Legend

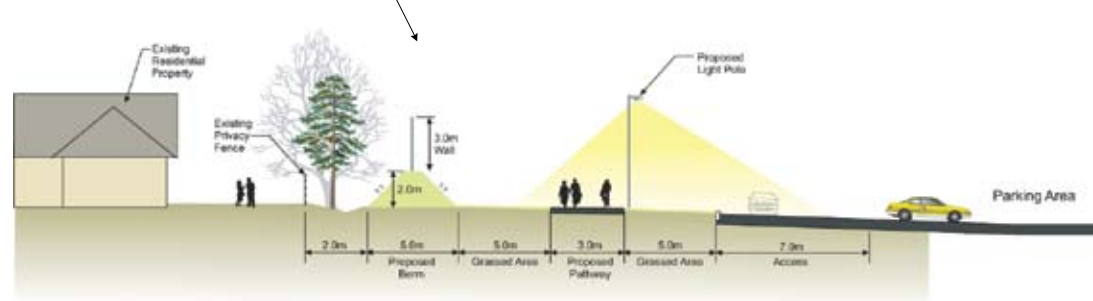
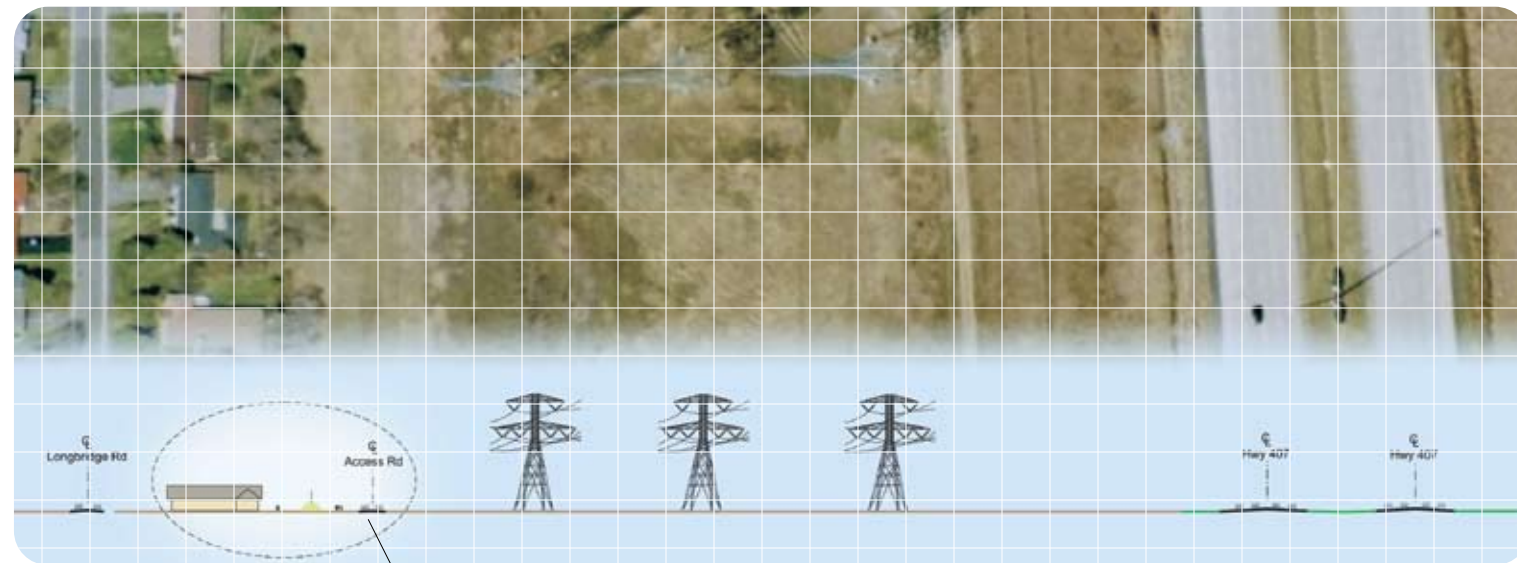
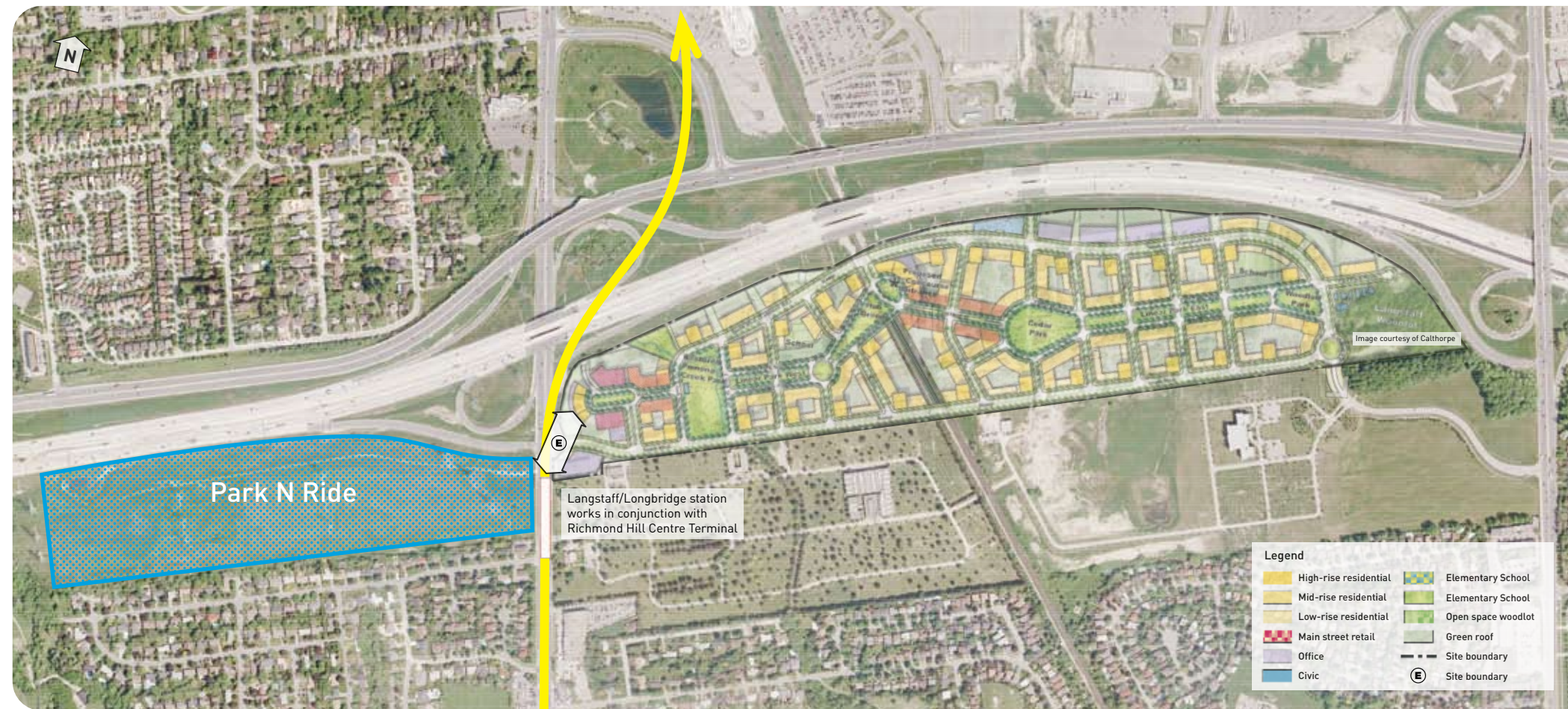
- Subway station
- Subway line
- Electrical substation
- Entrance
- Limit of surface elements
- Underground walkway
- Full property acquisition
- Partial property acquisition for surface elements only
- Vent structure
- Limit of PPUDO, Park 'n' Ride, and associated roads.



Langstaff/Longbridge parking

Design features that address community concerns:

- Noise buffers
- Maintaining a green corridor connection
- Bio swales
- Sustainable treatments for the parking area



Conceptual design, to be further developed in consultation with the community.

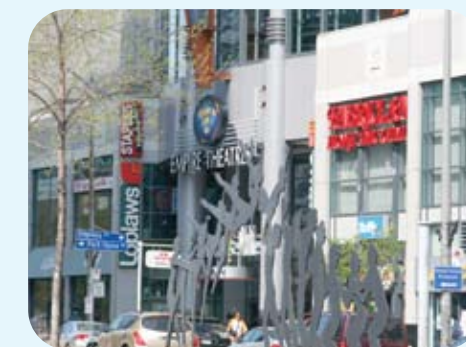
Richmond Hill Centre alignment



scale: 1:2000

Major project costs

major project elements		cost M\$
stations and area facilities		\$650
Finch improvements	\$5	
Cummer/Drewry	\$70	
Steeles	\$195	
Clark	\$70	
Royal Orchard	\$65	
Langstaff/Longbridge	\$85	
Richmond Hill Centre	\$160	
tunnels, special structures and operating systems		\$600
subway trains		\$240
storage and maintenance facilities for subway trains		\$110
engineering and other costs		\$675
property		\$125
project cost estimate, 2008 dollars		\$2.4 billion



Next steps

January/February 2009

- Issue Notice of Completion
- Submit Environmental Project Report to Ministry of the Environment for 30-day public review
- Ministry of the Environment review period [up to 35 days]

March/April 2009

- Issue Statement of Completion

Spring 2009

- Project ready to proceed

