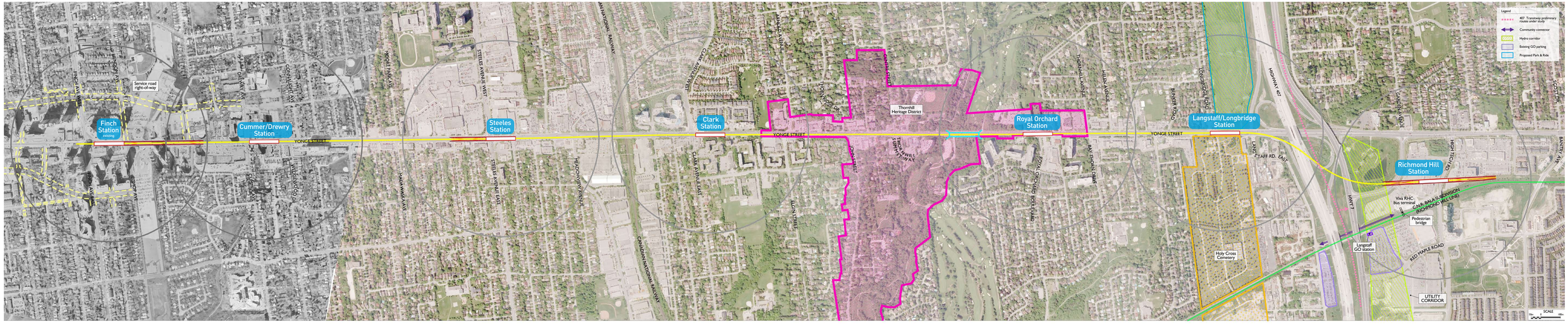
Yonge subway extension: concept plan and profile



VIVA York Region

VIVAnext

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

VIVA
Viva Rapid Transit

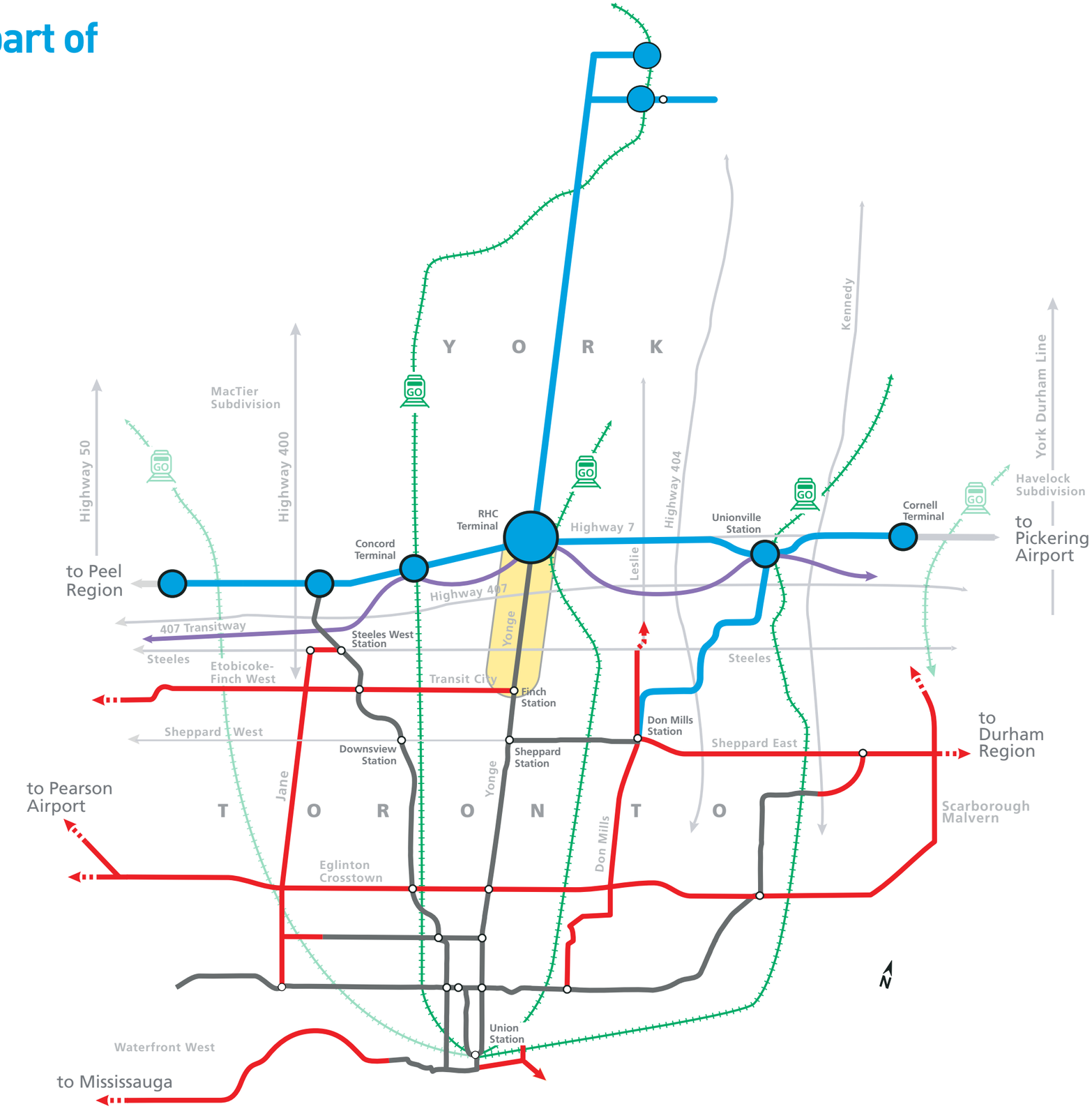
TORONTO
Toronto Transit City Light Rail Plan

GO Transit

BRAMPTON Transit

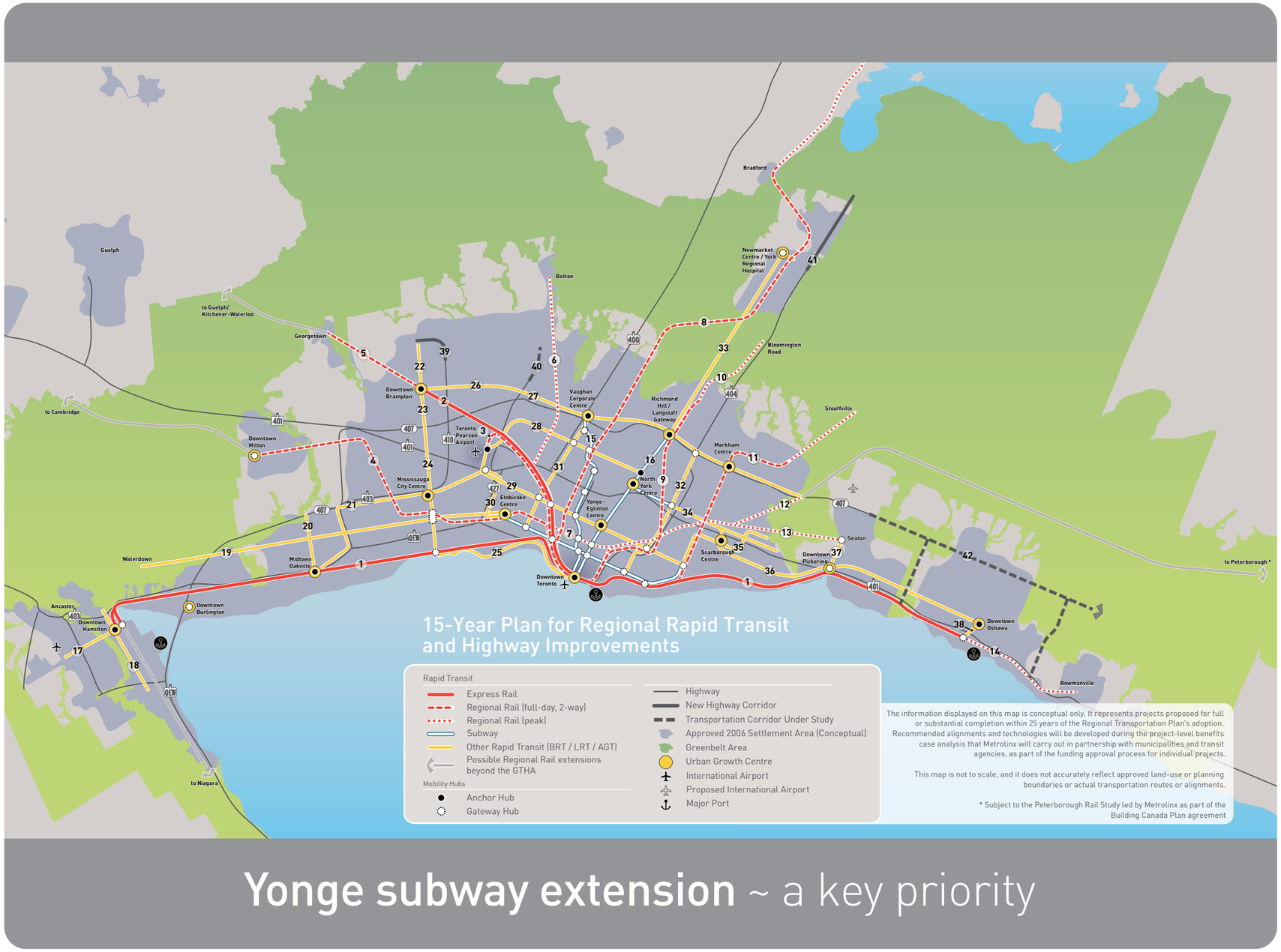
YORK REGION TRANSIT

DurhamRegion Transit



VIVAnext

Metrolinx | the big move



Yonge subway extension ~ a key priority

Top 15 Priorities

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

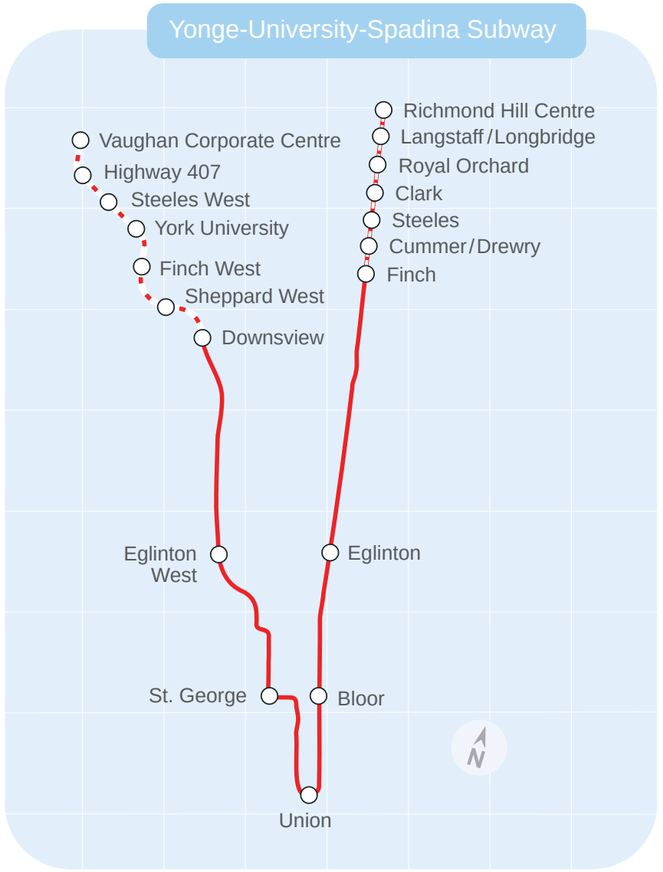
- Yonge subway extension to Richmond Hill Centre
- Eglinton rapid transit from Pearson Airport to Scarborough Centre
- Upgrade/extension of Scarborough rapid transit line
- Finch/Sheppard rapid transit from Pearson Airport to Scarborough Centre and Meadowvale
- Express Rail on Lakeshore line from Hamilton 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

VIVA York Region TORONTO VIVAnext

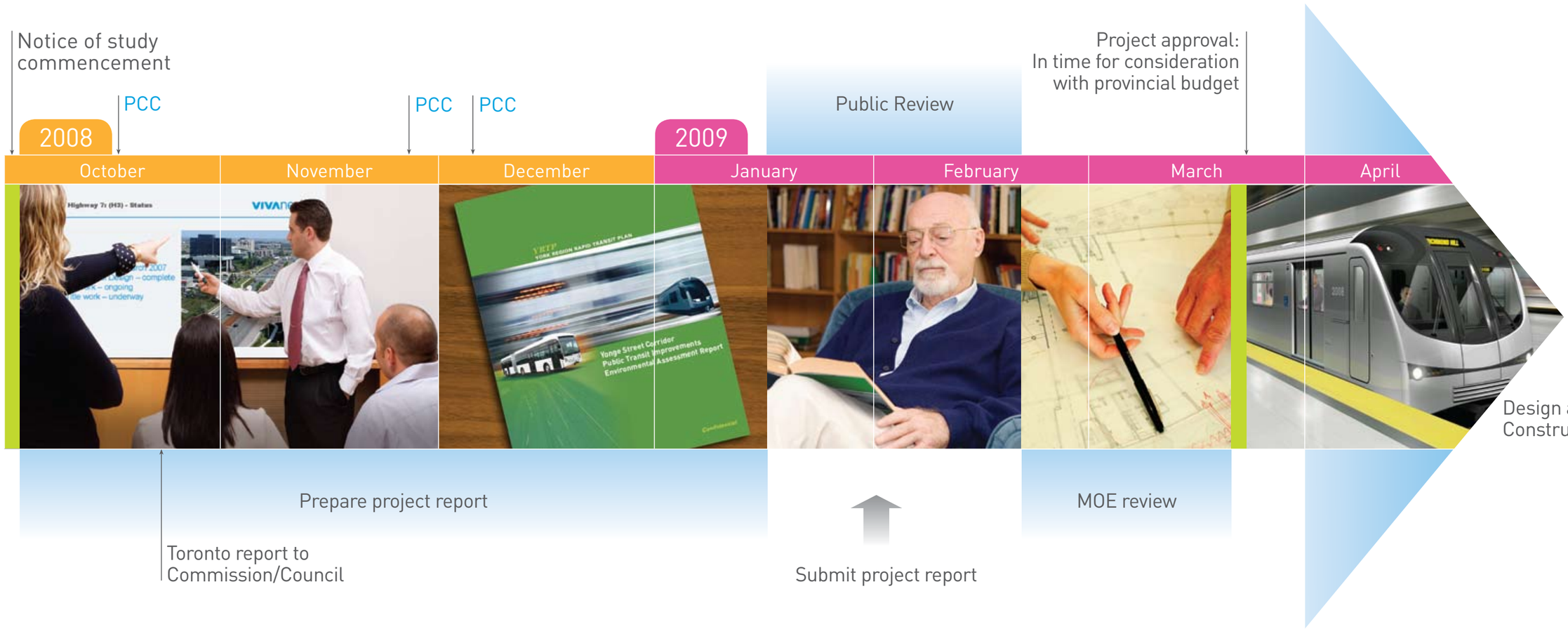
What we studied

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?



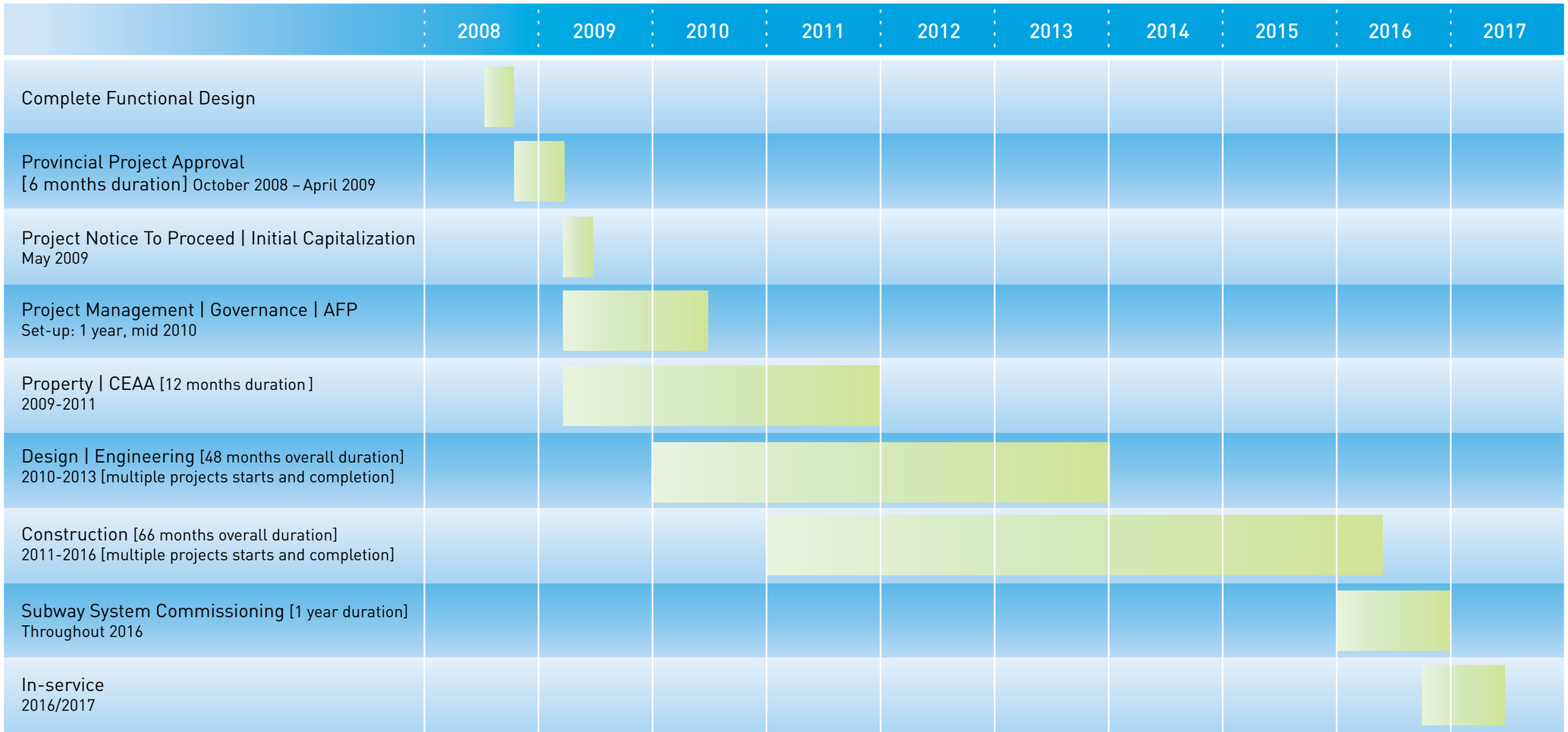
be involved

Visit vivayork.com for updates

VIVA York Region TORONTO

VIVAnext

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



Key targets

- project begins: 2009
- design/engineering: 2009
- construction: 2011
- open: 2016/2017

What comes with a subway?

passenger pick up and drop off

parking facility

pedestrian entrance

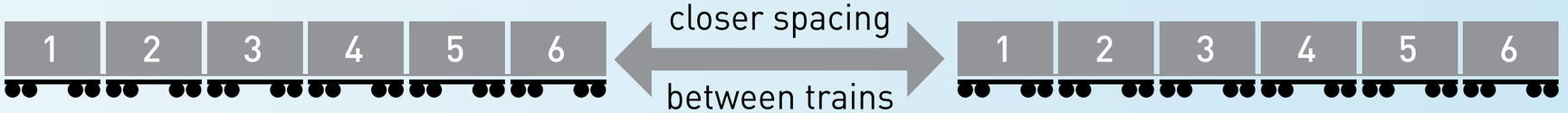
substation

bus terminal

emergency exit building

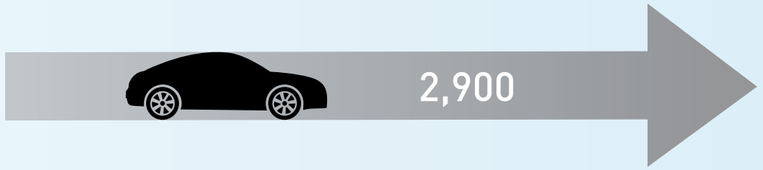
Yonge subway capacity improvements

new subway cars have increased capacity



7th car added to train

transfer to Spadina Subway

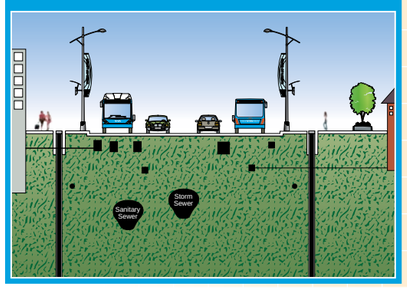


new parking spaces on Spadina Subway extension

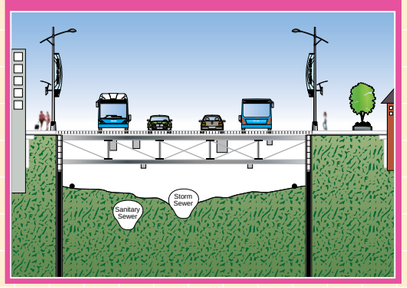
* Every other train makes a short turn at Steeles station in morning peak period.

How is a subway built?

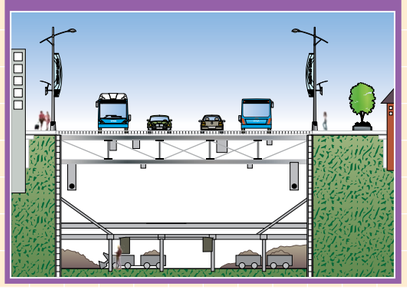
utility location and piling



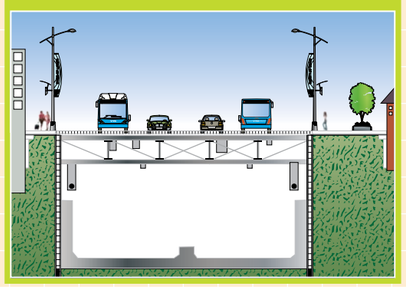
installation of decking



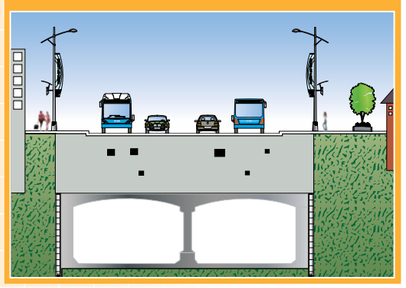
excavation and soil removal



construction of subway structure



removal of decking/street restoration

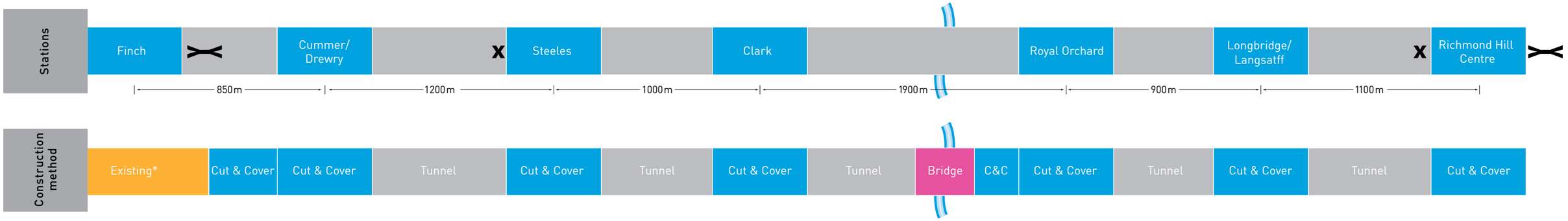


Construction principles

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								28-bay bus terminal
	17-bay Regional bus terminal [existing]; 4-bay after subway extension												Proposed 407 Transitway
	Proposed Finch West LRT												Richmond Hill GO Rail
	PPUDO				PPUDO						PPUDO		PPUDO
	3214 park-n-ride (existing)										Approx. 2000 to 2500 park-n-ride		
	Substation				Substation		Substation		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: X

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

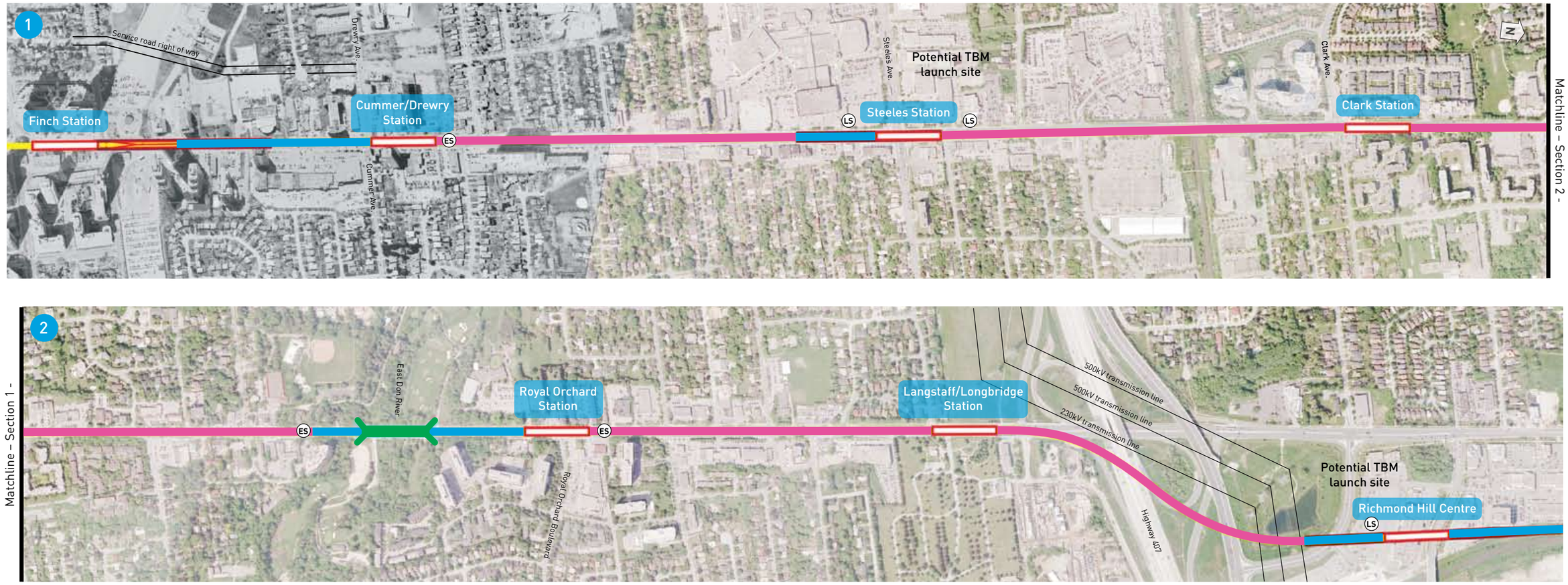
Not to scale

VIVA York Region TORONTO

VIVAnext

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.



Legend

- Subway station
- Cut and cover
- Tunnelling
- Bridge construction
- Tail tracks
- LS Launch shaft
- ES Exit shaft

VIVA York Region TORONTO

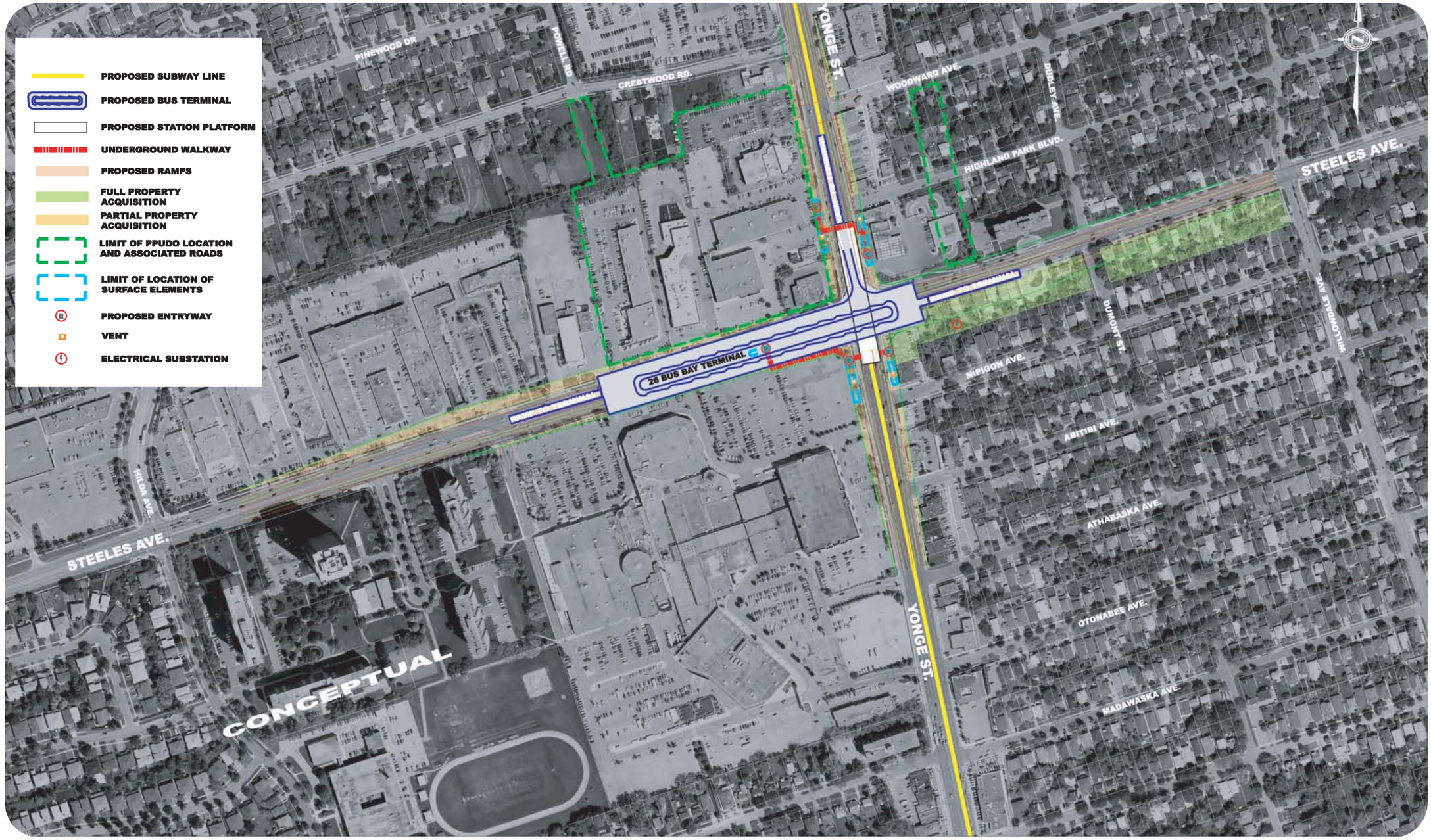
VIVAnext

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

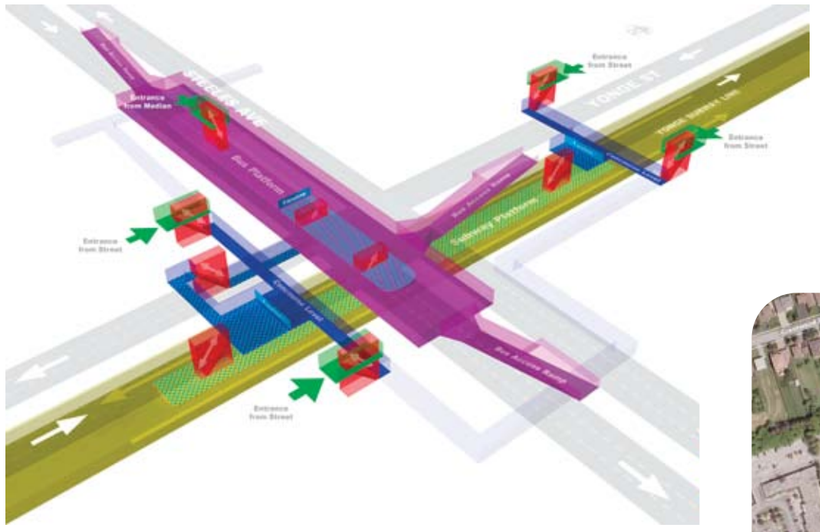


VIVA York Region TORONTO

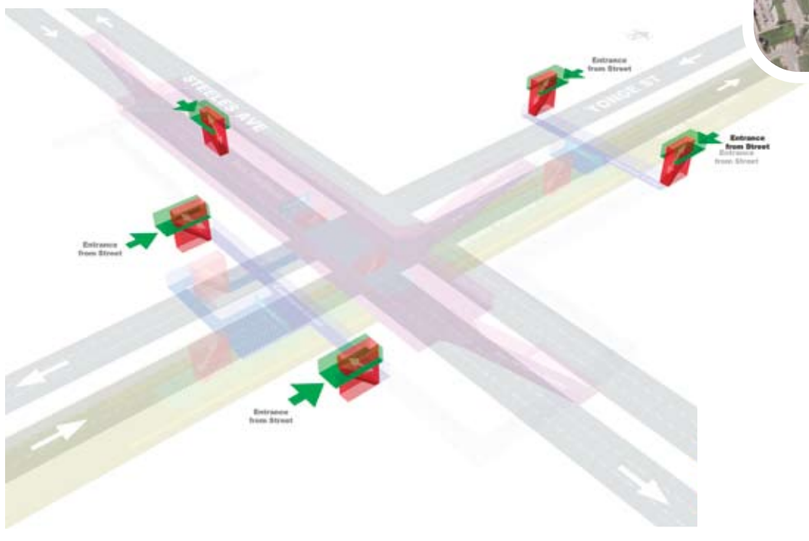
VIVAnext

Steeles station | level by level

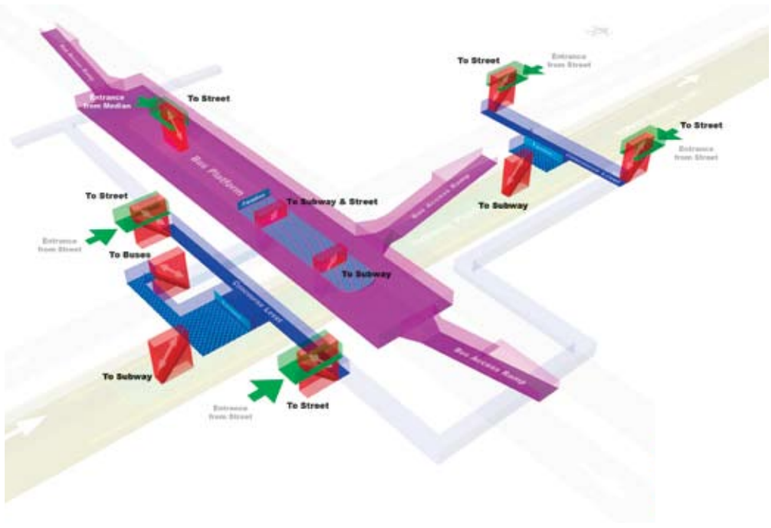
1 **station overview** all levels



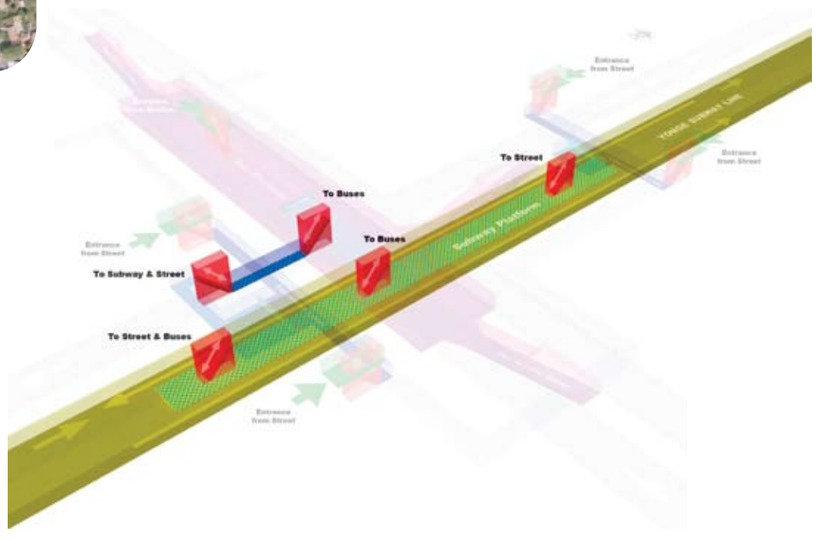
2 street level



3 **bus platform** 1 level below street



4 **subway level** 2 levels below street



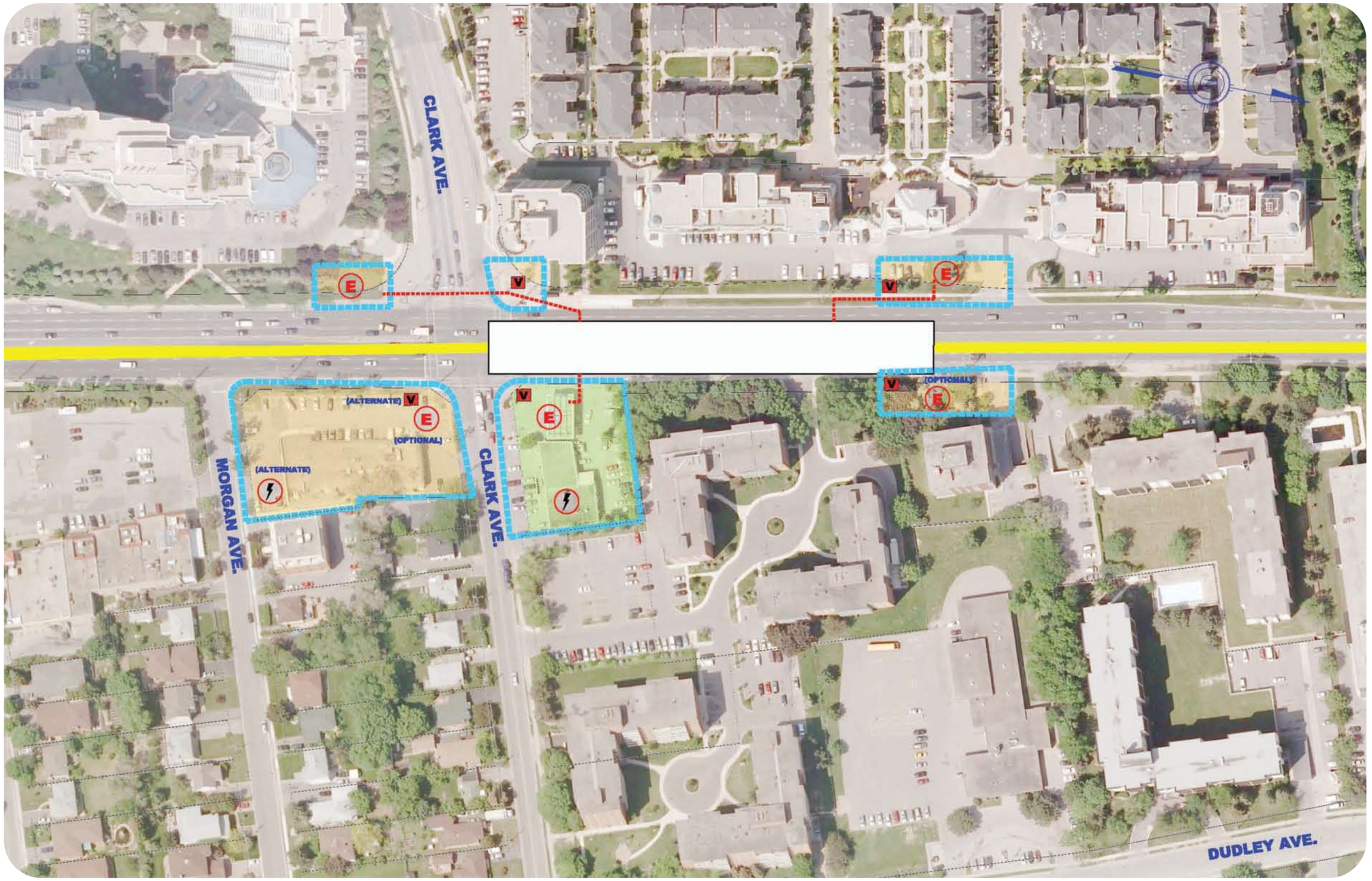
Legend

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

VIVA York Region TORONTO

VIVAnext

Clark station

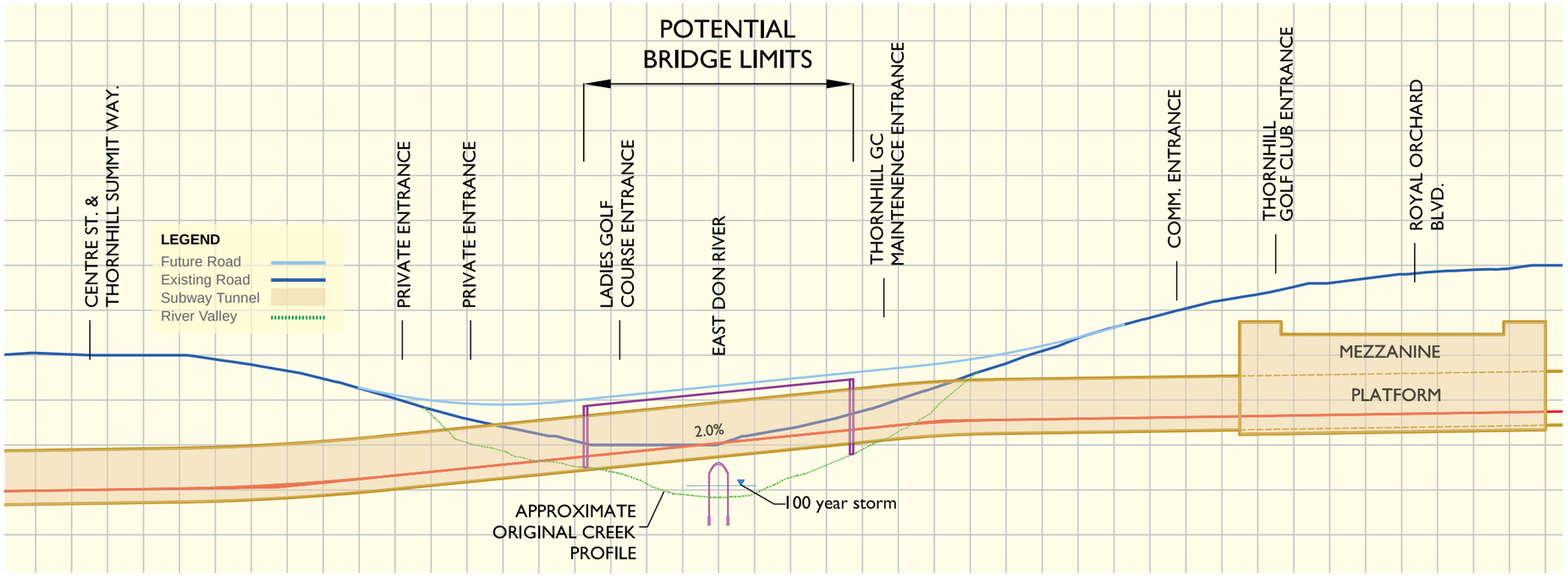


Legend

- 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

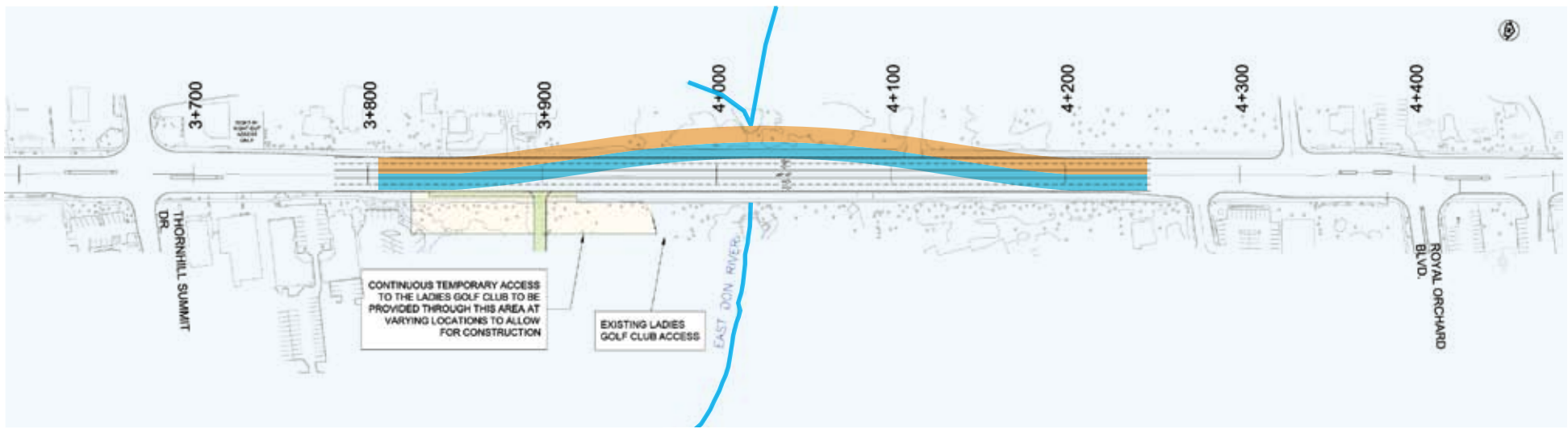
- Heritage features will be designed into the bridge in consultation with the community.



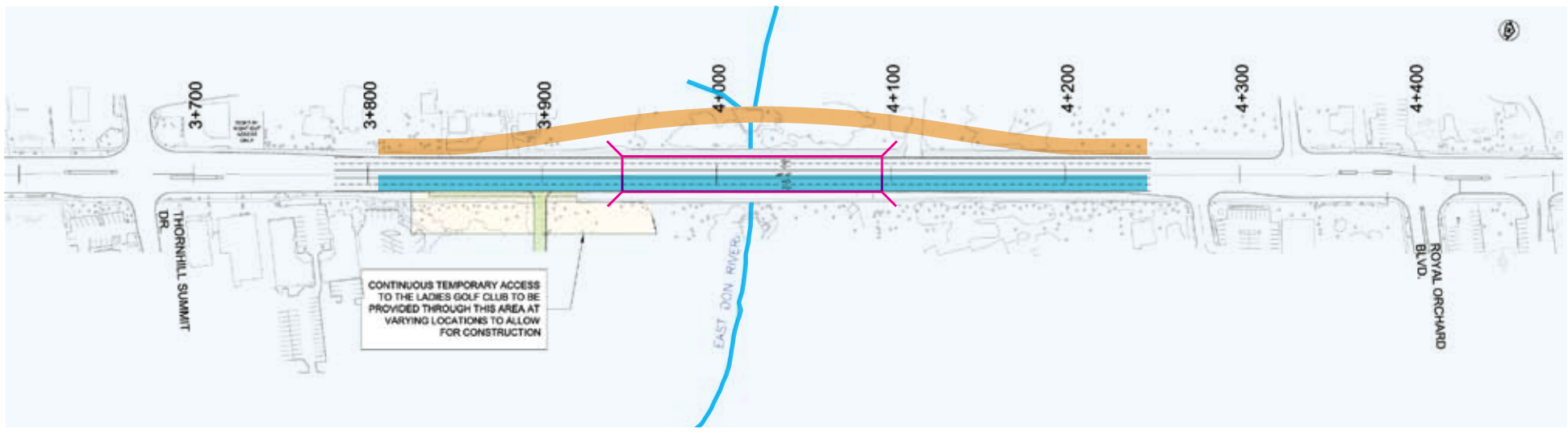
East Don River proposed traffic staging

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

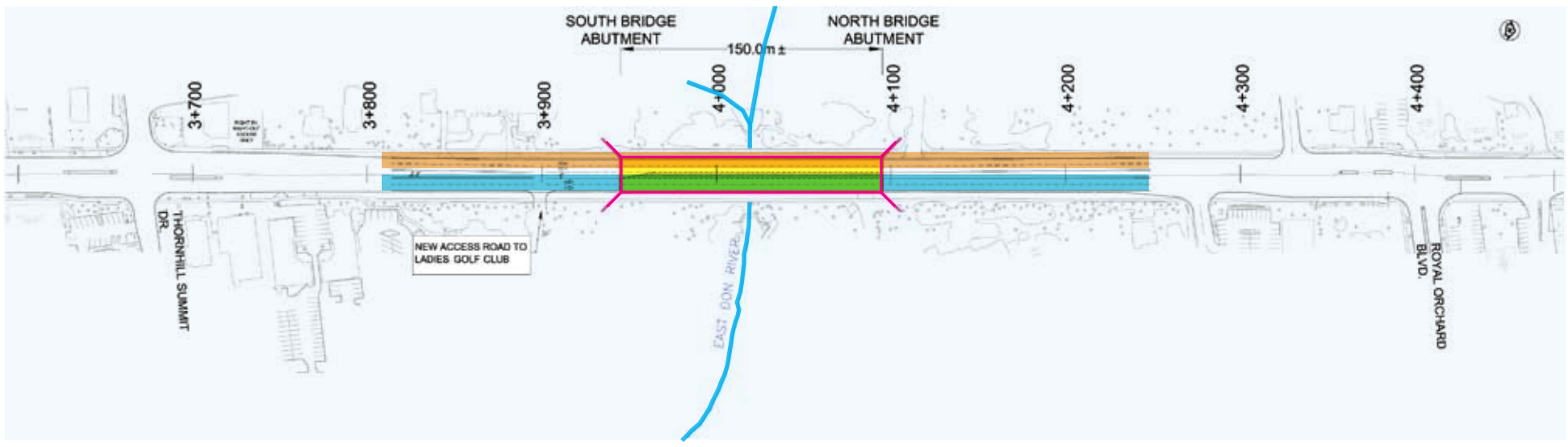
1 stage 1 temporary lanes to the west



2 stage 2 temporary northbound lanes on partially constructed bridge



3 stage 3 final bridge in service



Legend

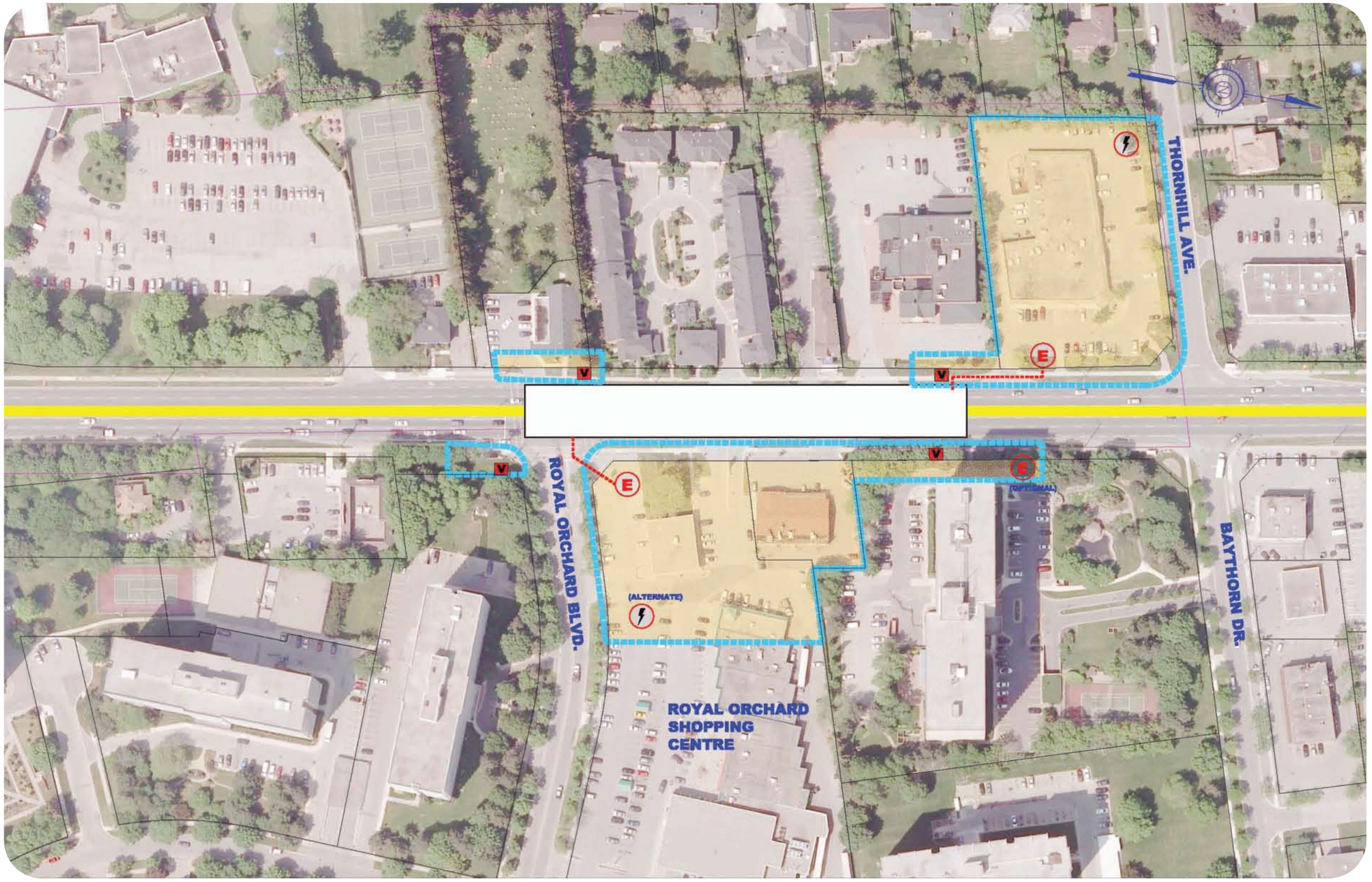
- Southbound traffic
- Northbound traffic
- Partially constructed bridge
- Bridge in service

Crossing the East Don River

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

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

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

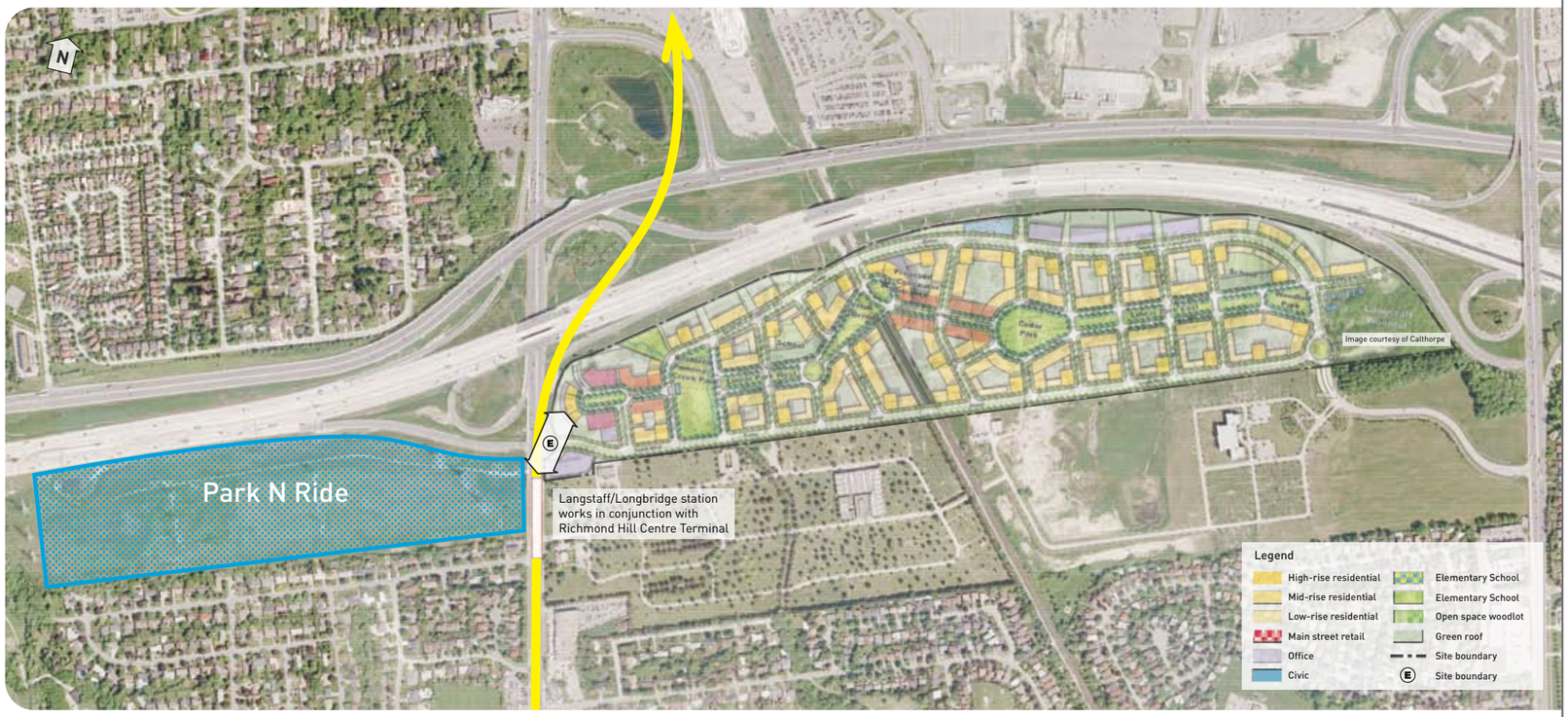
VIVA York Region TORONTO

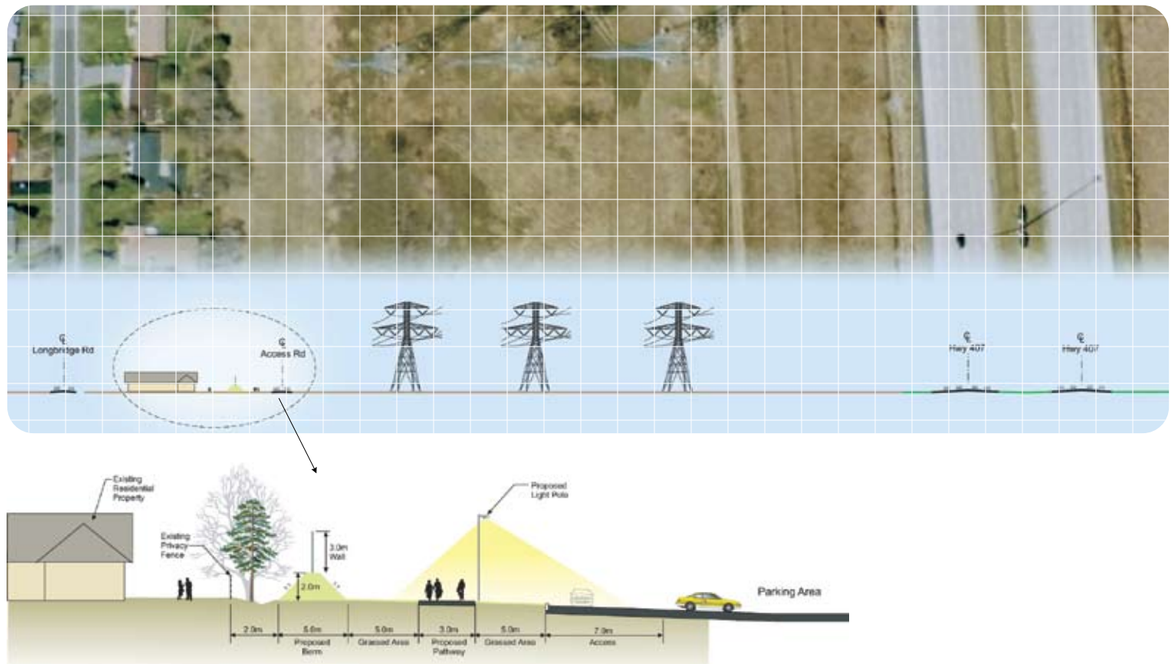
VIVAnext

Langstaff/Longbridge parking

Design features that address community concerns:

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

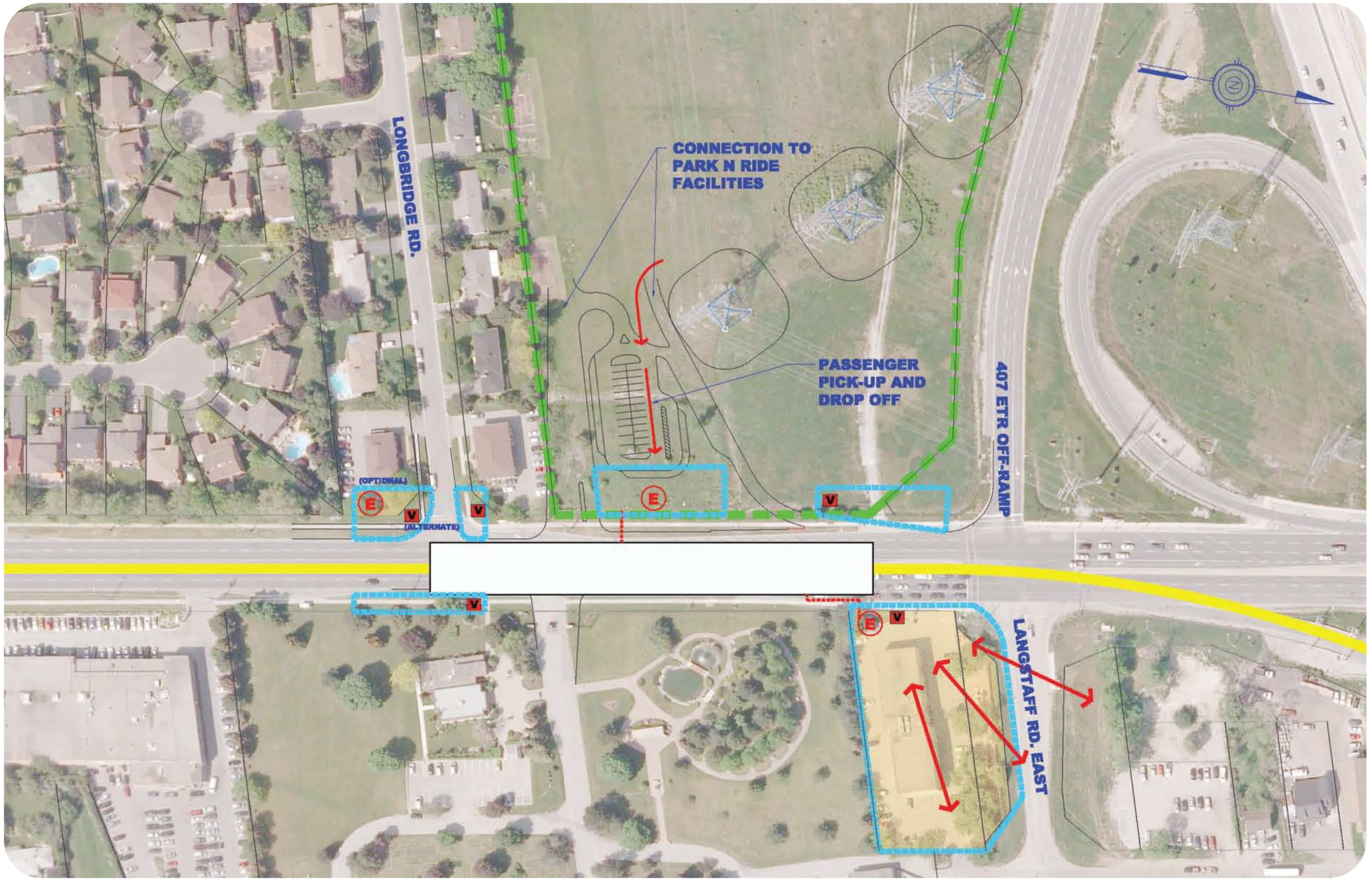




Conceptual design, to be further developed in consultation with the community.

VIVA York Region TORONTO VIVAnext

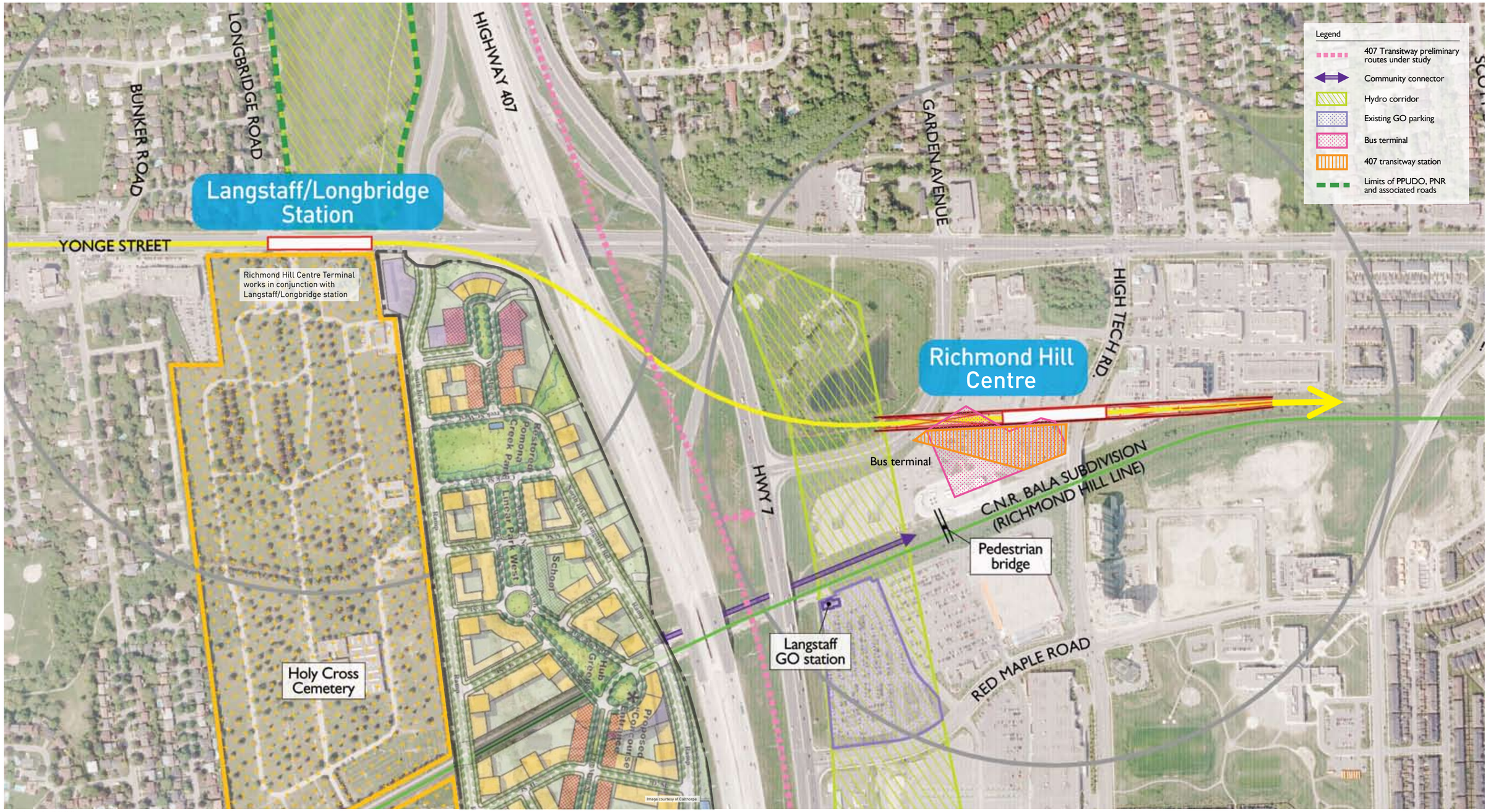
Langstaff / Longbridge station



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.

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

December 2008

- Continue to post draft technical reports on vivayork.com for review and comments
- Draft Environmental Project Report

January 2009

- Issue Notice of Completion
- Submit Environmental Project Report to Ministry of the Environment for 30-day public review

February 2009

- Ministry of the Environment review period [up to 35 days]

March 2009

- Issue Statement of Completion

Spring 2009

- Project ready to proceed