



YONGE NORTH SUBWAY EXTENSION

Project Update

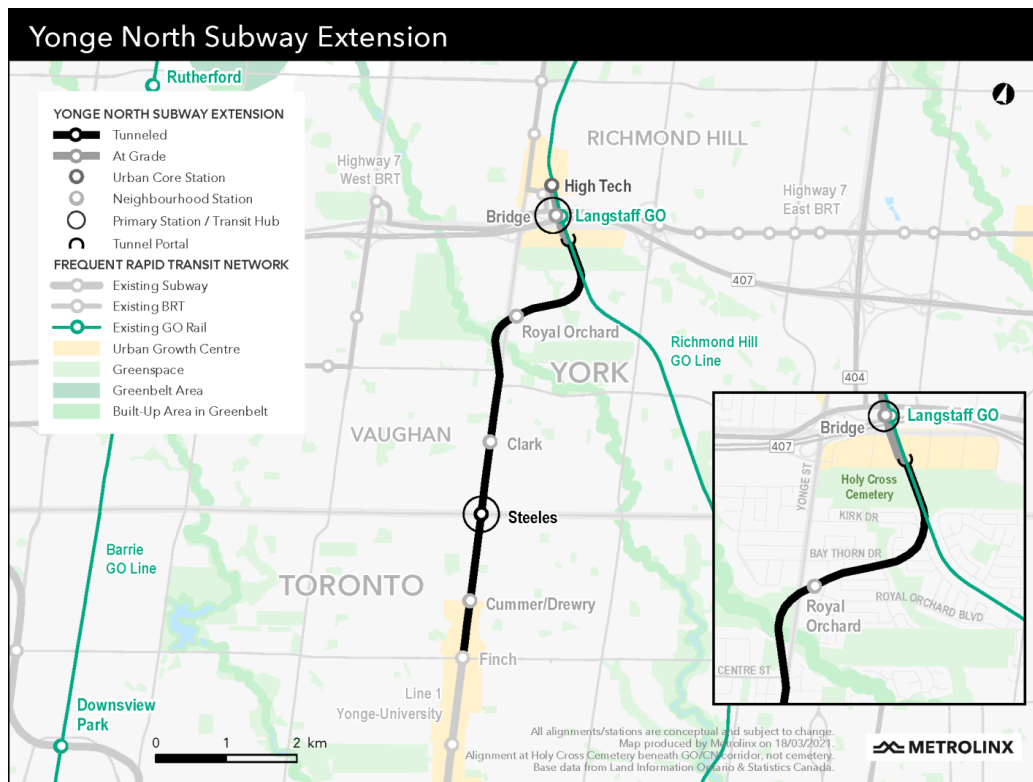
Stephen Collins, Program Sponsor, YNSE

Rajesh Khetarpal, Vice President (A), Community Engagement

April 21, 2021

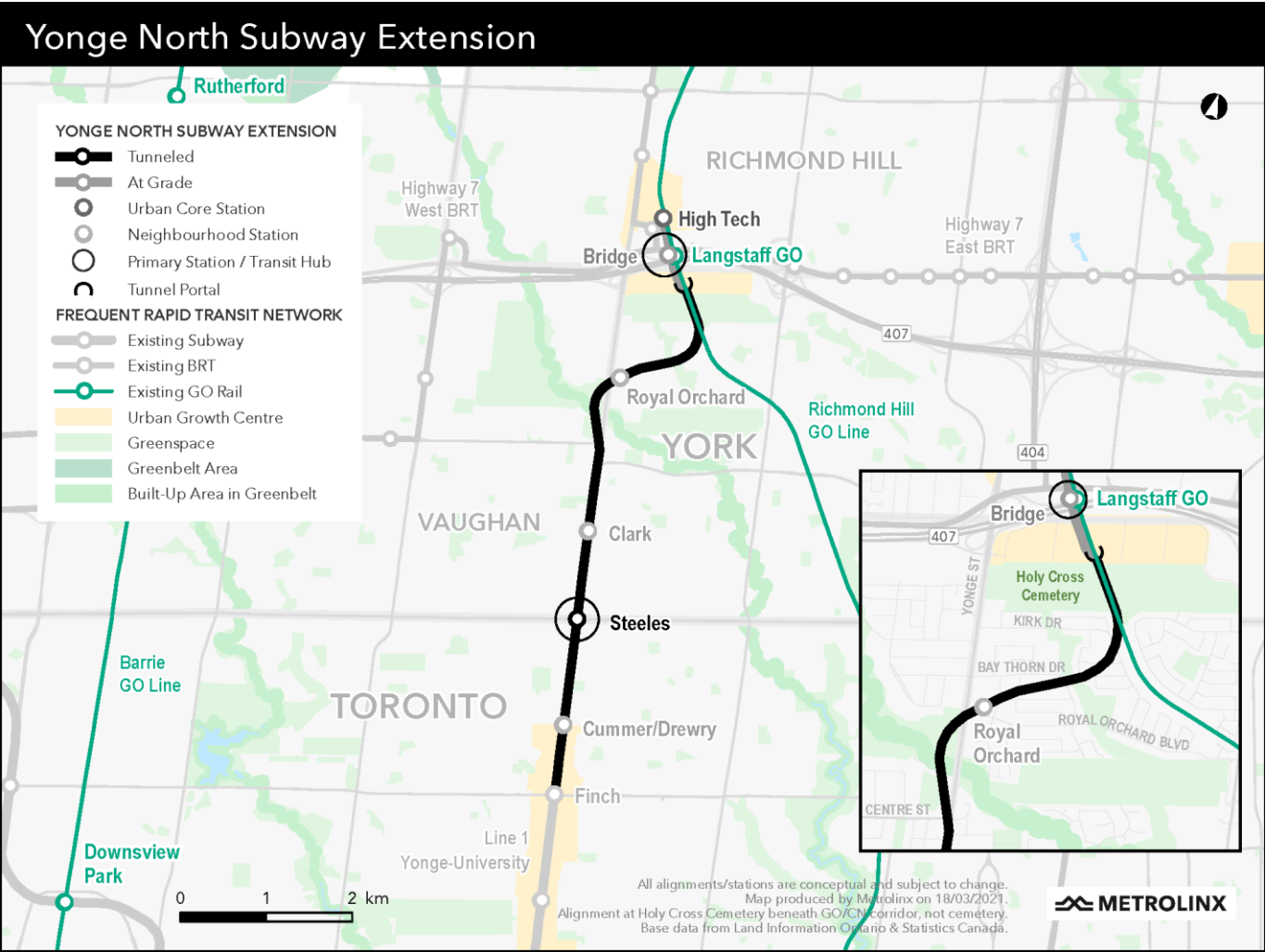
BETTER TRANSIT CONNECTIONS FOR YORK REGION & TORONTO

- Four new stations along an **approximately eight-kilometre extension** of TTC Line 1, from Finch Station north to Richmond Hill.
- Steeles Station will be a hub for local bus routes as well as a **future rapid transit line** along Steeles Avenue.



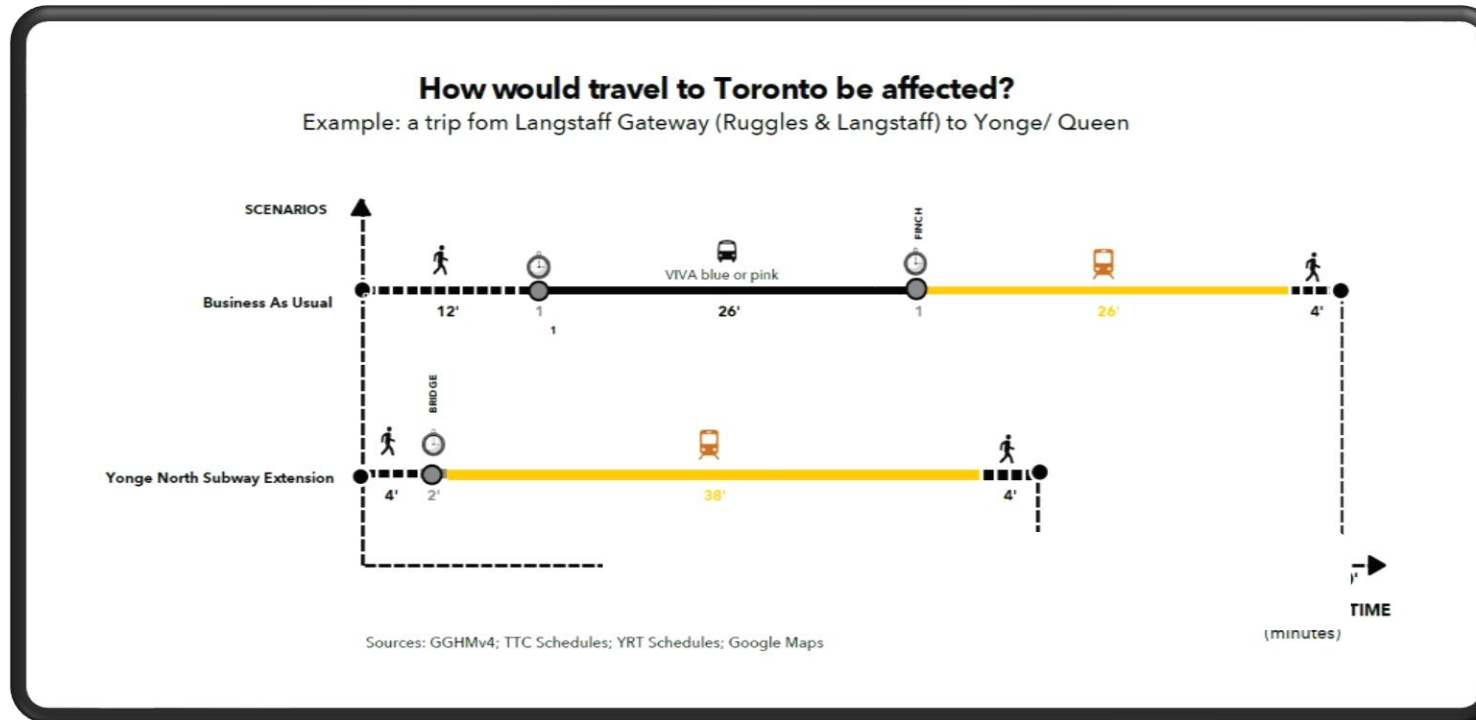
- Bridge Station will **conveniently connect** with GO train, GO bus, and local transit service, including VIVA BRT.
- High Tech Station will **serve future communities** envisioned within the Richmond Hill Centre area.
- Metrolinx is working with municipal partners to **evaluate and determine** the best location for the fourth station as planning work continues.

BY THE NUMBERS



Route length	~8 km
Ridership	94,100 daily boardings
Improved access to transit	26,000 more people within a 10-minute walk to transit
Improved access to jobs	22,900 employees within a 10-minute walk to transit
Daily reductions in traffic congestion	7,700 km in vehicle kilometres traveled
Yearly reductions in greenhouse gas emissions	4,800 tonnes

KEY BENEFITS



The extension will save riders as much as 22 minutes on a trip from York Region to downtown Toronto

- Bridge Station **maximizes TOC opportunities** by connecting two communities in Markham & Richmond Hill that are poised for growth.
- Shifting the alignment in the northern section **reduces construction timelines and property needs** by using a dedicated rail corridor that already exists.
- The project will serve **94,100 riders each day** by 2041, cutting the time spent commuting in Toronto and York Region by a combined **835,000 minutes daily**.

Initial Business Case & Supplementary Analysis

INITIAL BUSINESS CASE ANALYSIS - ALIGNMENT OPTIONS

Option 1

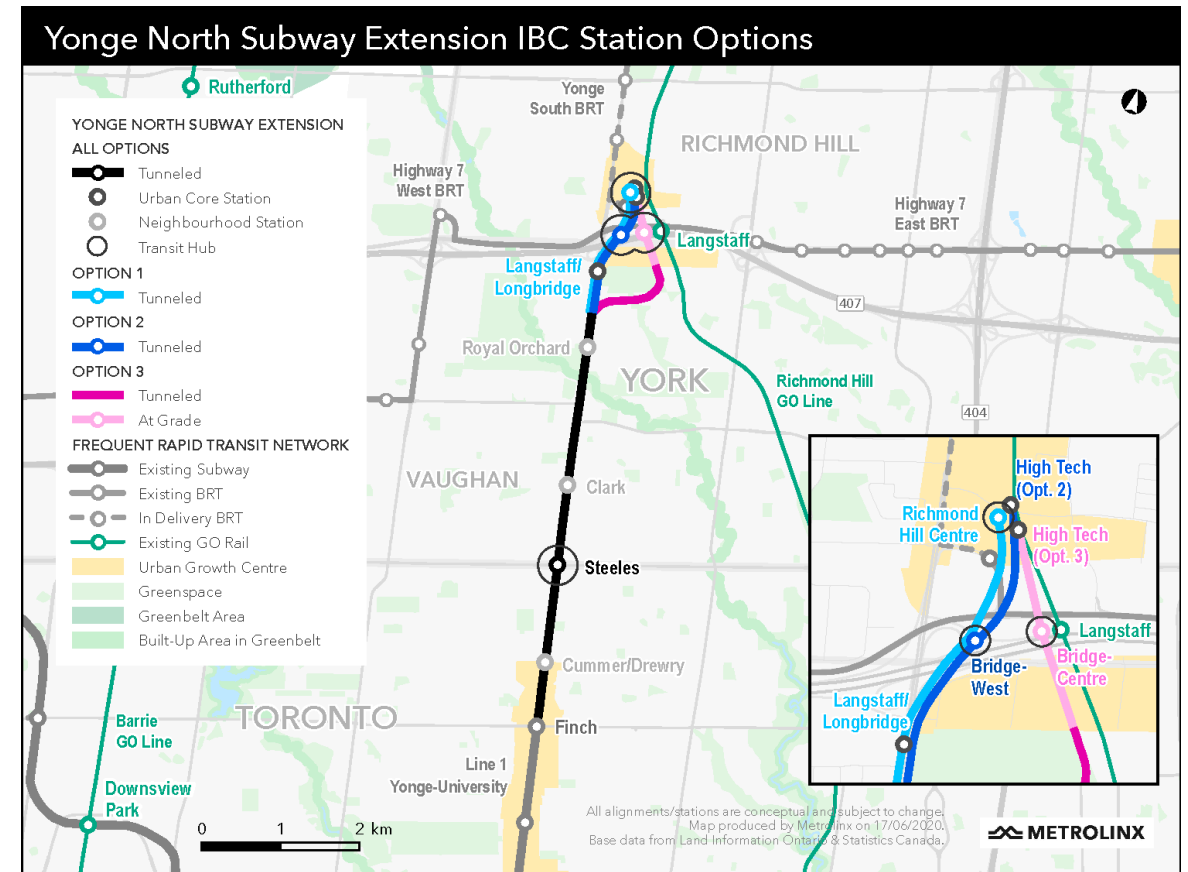
- Same alignment as approved EA, fully underground
- Funding envelope accommodates up to **3 stations**

Option 2

- Alignment curves east slightly to enable a different station placement, fully underground
- Funding envelope accommodates up to **3 stations**

Option 3

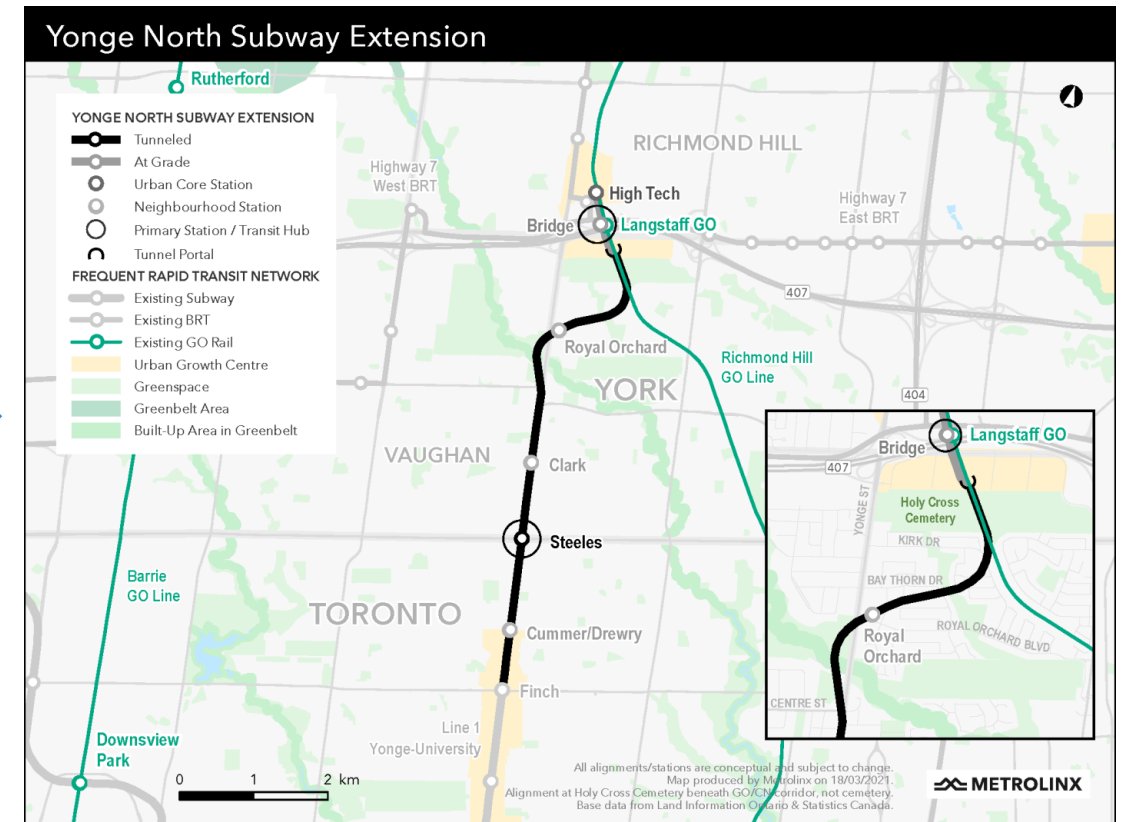
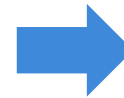
- Alignment curves east before turning again to run at-grade and within the CN/GO rail corridor
- Funding envelope accommodates up to **4 stations**
- *Challenges:* tunneling and excavation in additional residential areas, near Holy Cross Cemetery



OPTION 3 - REFINEMENTS



PRESENTED IN IBC



REFINED ALIGNMENT

- ✓ Key transit benefits
- ✓ Number of stations
- ✓ Design innovations
- ✓ Removes challenges of tunneling under Holy Cross Cemetery

APPROVED REFERENCE ALIGNMENT

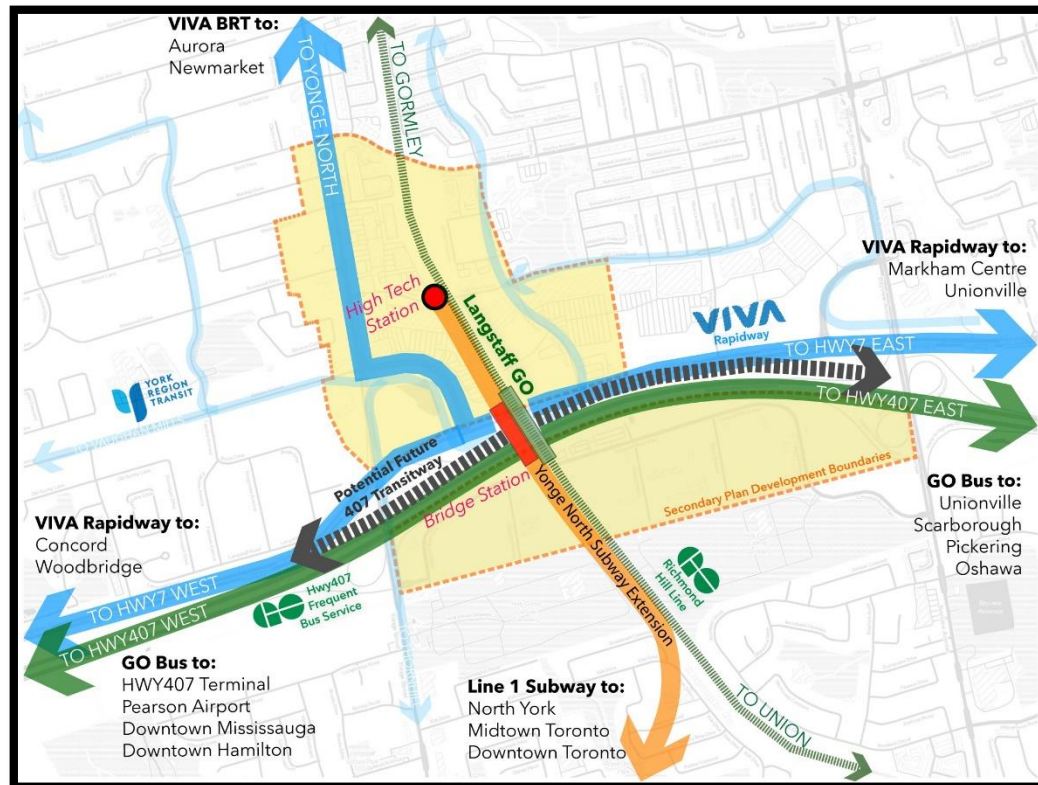


- **Expected Benefit-to-Cost Ratio:**
0.79 (from 0.74 to 0.86)
- Potential for **highest number of stations** within \$5.6 billion project funding envelope
- **Primary Stations/Transit Hubs:**
Steeles, Bridge
- **Complementary Urban Core Station:** High Tech
- **One Neighbourhood Station:**
Cummer / Clark / Royal Orchard

** Further analysis on Neighbourhood Station selection to be conducted through next stage of business case process*

STATIONS - RICHMOND HILL

Bridge Station and High Tech Station will serve the highest density areas to make it faster for riders to use the subway, and better for supporting growth and curbing local traffic congestion.



- **Fast and hassle-free** transfers to GO train/GO bus/local transit
- **Convenient access** to the subway at the heart of Richmond Hill Centre and Langstaff Gateway development areas
- More than half of Richmond Hill Centre residents will live within **walking distance** of High Tech Station by 2041
- Bridge Station site preserves nearby development space to allow the area to evolve into a **thriving urban centre**



Source: City of Richmond Hill 2010 Regional Centre and Land Use Study

SURFACE LEVEL ALIGNMENT

Running the extension at surface level along the CN railway corridor means we can finish the project sooner.

- At-grade subway lines have **been proven around the world** as a way to improve transit connections and strengthen communities
- **Completes construction faster**, and moves people further within the approved budget
- **Cuts down on disruptions** of hydro, natural gas, and water service
- Positions northern stations to provide **better transit connections** and more opportunities for nearby communities to grow



TRAIN STORAGE FACILITY

A train storage facility is proposed to be built at surface level partially alongside and within the existing CN Railway corridor.

- This important facility will be built north of the station proposed at **High Tech Road**
- A train storage facility is a **vital organ** of any public transit operation
 - It's where subway trains will be **stored, inspected and cleaned when not in service**, and from where they will be **dispatched into operation**.
- The TTC's five existing subway train maintenance and/or storage facilities **are also at grade**
- Noise and vibration will be monitored during **construction**
 - Metrolinx will introduce **mitigation measures** where and when possible



NOISE AND VIBRATION MITIGATION - CONSTRUCTION

- We are preparing an addendum to the existing **environmental assessment** (EA) that will cover off any changes to existing conditions since that EA was completed and evaluate the updated route.
 - The EA will study things like:
 - Noise and vibration mitigation
 - Soil and groundwater quality
 - The natural environment
 - Land use
 - Crews are already **collecting ground samples** along the route to inform this work.
- Data and **public input** will help Metrolinx make sure all the necessary solutions are put in place to keep things as quiet and peaceful as possible in each neighbourhood
- We are committed to working with our neighbours to address any concerns and develop **mitigation plans**.



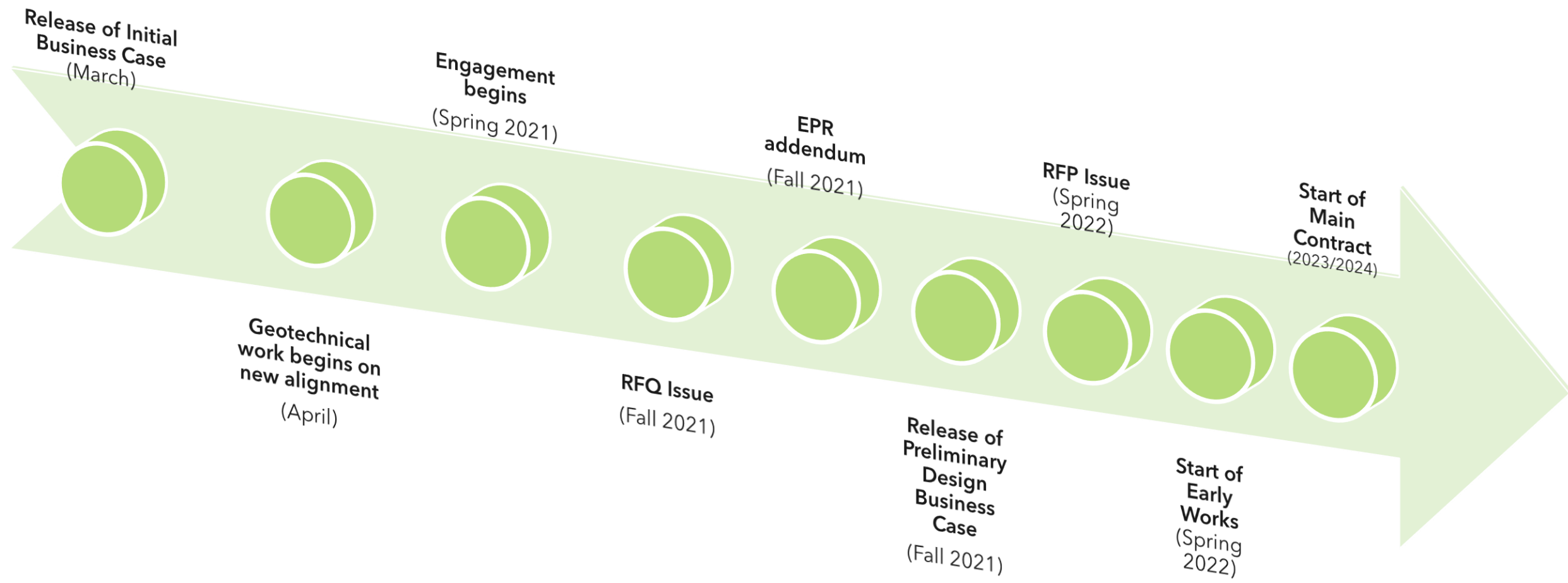
NOISE AND VIBRATION MITIGATION - LATEST TECHNOLOGY

We will work with your community to ensure a comprehensive array of solutions are in place to address noise or vibration impacts. These solutions can include, but are not limited, to:

- **resiliently supported rail ties**, which have an elastic pad under them to prevent from them from coming into direct contact with the crushed rock that forms the track bed;
- **ballast mats**, which provide a continuous layer of material that reduces the vibration transmitted into the ground;
- **high-grade rail fasteners**, which keep all the track parts tightly together and compress to absorb vibration;
- **rubber rail dampers**, which attach to the rails and help soak up the vibration energy to reduce the sound of passing trains
- **noise barriers**, which help block the sound of passing trains.



PROJECT MILESTONES



*Dates/timelines are subject to change

Communications, Community and Stakeholder Engagement

THE RIGHT PROJECT AT THE RIGHT TIME

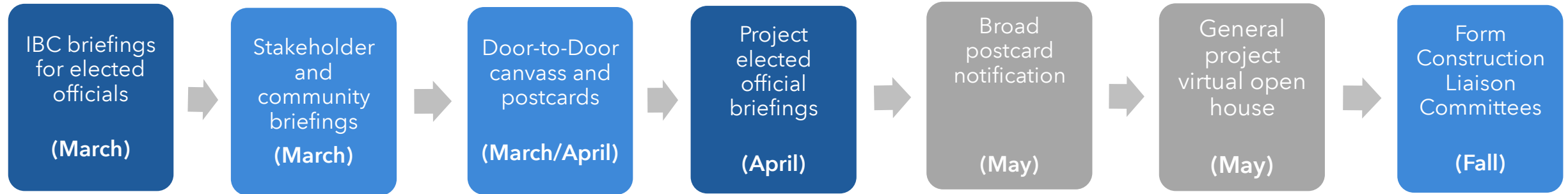
Flagship Project in Metrolinx's Innovative Subway Program

New Yonge North Subway Extension transit connections - open up new travel possibilities in every direction across the region's growing transit network.

Project will serve the heart of major growth centres and significantly cut travel times - creating a critical and long awaited extension of our transit network.



COMMUNITY & STAKEHOLDER ENGAGEMENT



OFFICIALS BRIEFINGS

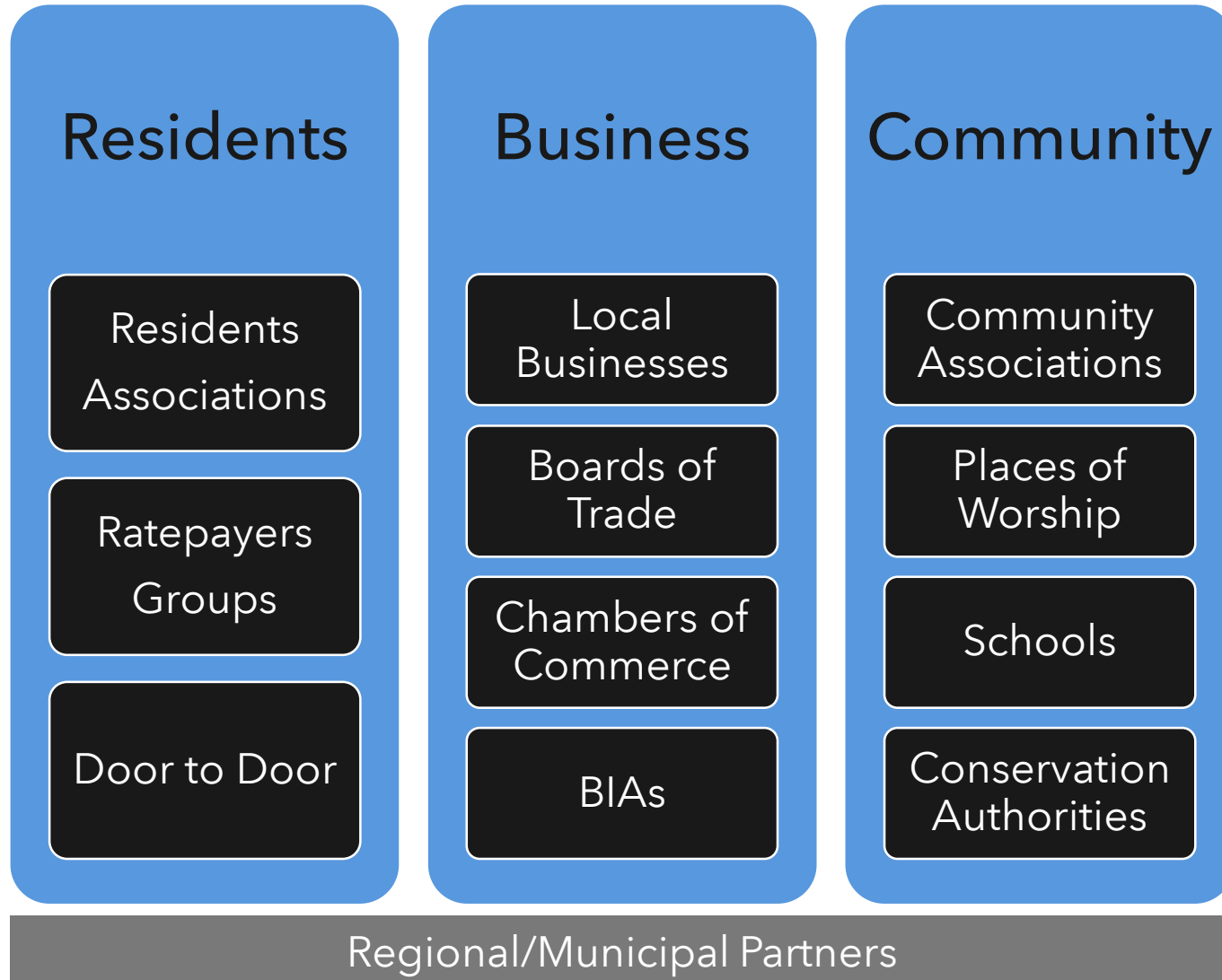
- IBC Briefings for Elected Officials **Ongoing**
- Upcoming Council Presentations
 - Markham **March 22**
 - Richmond Hill **March 24**
 - York Region **March 25**
 - Vaughan **April 7**
- Briefings Elected Officials **April 2021**
- Project Presentations **May 2021**
 - Municipal Partners, Councils, TEO, TTC
- Update Briefings **June 2021-Jan 2022**

COMMUNITY ENGAGEMENT

- Project Briefings to Community Groups **March 2021**
 - Resident Groups, BIAs, Chambers of Commerce
 - Indigenous Communities
- Door-to-Door Canvasses **March/April 2021**
 - Royal Orchard & Bayview Glen communities
 - Willowdale-Newtonbrook community
- Community Virtual Open Houses **April 2021**
 - Royal Orchard & Bayview Glen communities
- Project Meeting/Introductory Post Card **May 2021**
- Stakeholder Briefings **April-Aug 2021**
- Project Virtual Open Houses **May-Aug 2021**
- Project E-Newsletters **Bi-weekly**
- Form Construction Liaison Committees **Fall 2021**
- Community Walking Tours **Fall 2021**

Collaboration with Communications Partners (Municipal/Regional Communicators, TTC, YRRTC)

COMMUNITY & STAKEHOLDER ENGAGEMENT



Week of April 19:

- Richmond Hill Virtual Open House
- Project postcard mail distribution

Week of April 26:

- Markham Development Services Committee meeting
- Elected official briefings

Week of May 3:

- Northern York Region municipalities Virtual Open House
- Elected official briefings

Week of May 10:

- Ongoing briefings for resident, business and community groups

Ongoing Metrolinx News articles

UPCOMING ACTIVITIES

Field work begins this spring:



- Noise & vibration monitoring
- Natural Environment/Archeology surveys
- Exploratory work for tunnels & launch shaft
- Utility investigations

Our commitment to keeping communities informed

Residents near planned field work and natural environment/archeology surveys will receive **notification flyers** at least two weeks in advance

Updates on major field work, and natural environment/archeology surveys will be distributed regularly via **email newsletter**

Major notices of work will be posted on the **Metrolinx Engage** website

Construction Liaison Committees will open the lines of communication about all aspects of the project

STAY CONNECTED - WE'RE HERE FOR YOU!

Subscribe:

- YongeSubwayExt@metrolinx.com
- 416-202-7000

Project information:

- [Metrolinx.com/YongeSubwayExt](https://metrolinx.com/YongeSubwayExt)

Follow:



[@YongeSubwayExt](https://twitter.com/YongeSubwayExt)



[@YongeSubwayExt](https://www.instagram.com/YongeSubwayExt)



[Yonge North Subway Extension](https://www.facebook.com/YongeNorthSubwayExtension)





Appendix

APPROVED REFERENCE ALIGNMENT

Refined Option 3 Alignment	
Strategic Case	
Strong Connections	<ul style="list-style-type: none"> 94,100 daily riders¹
Complete Travel Experiences	<ul style="list-style-type: none"> 835,000 person-minutes daily travel time savings compared to BAU 22 minutes saving on a trip from Langstaff Gateway area (Langstaff/Ruggles) to Downtown Toronto (Yonge/Queen) compared to BAU
Economic Case	
Total Economic Impacts (Benefits) (\$2020, Present Value)	\$3666.5 M
Total Costs (\$2020, PV)	\$4386.3 M to \$5135.5 M
Net Present Value (\$2020, NPV)	\$-1358.6 M to \$-607.9 M
Benefit-Cost Ratio	0.74 to 0.86
Financial Case (\$2020, PV)	
Total Revenue Adjustment	114.4 M
Capital Costs ²	\$4,625.0 M
Operating and Maintenance Costs	\$ -39.0 M
Total Costs	\$4,447.1 M
Deliverability and Operations	
Constructability Matters	<ul style="list-style-type: none"> Coordination with the York Durham Sewage System (YDSS) at Steeles East Don River Crossing Construction within the busy Yonge Street corridor Maintaining services on Line 1 during construction Interface with the Highway 7 and 407 Corridor
Property Impacts	<ul style="list-style-type: none"> No tunneling under Holy Cross Cemetery
Operations	<ul style="list-style-type: none"> Integrated into current Line 1 Operations Fully automated operation allows for higher service frequencies

PROPOSED MAJOR CHANGES TO PROJECT ELEMENTS CONSIDERED IN IBC

Steeles Station

Moving Steeles Bus Terminal from Below Steeles Avenue to at-grade integrated with development

- Original proposal planned the bus terminal below Steeles Avenue perpendicular to and above the subway station
- Value engineering recommended relocating to at-grade to reduce costs and minimize impacts to YDSS and construction disruption

East Don River

Tunneling below instead of bridging over the East Don River

- Original proposal planned a two level (upper for road - lower for subway) bridge spanning the river valley
- Value engineering recommended tunneling below the watercourse to reduce costs and disruptions during construction

Train Storage Facility

Moving the YNSE Train Storage Facility north of High Tech Road from below ground to at-grade

- Original proposal planned a 3-track, 12 train below ground storage facility
- Value engineering recommended bringing the facility to at-grade in order to reduce costs while maintaining similar functionality

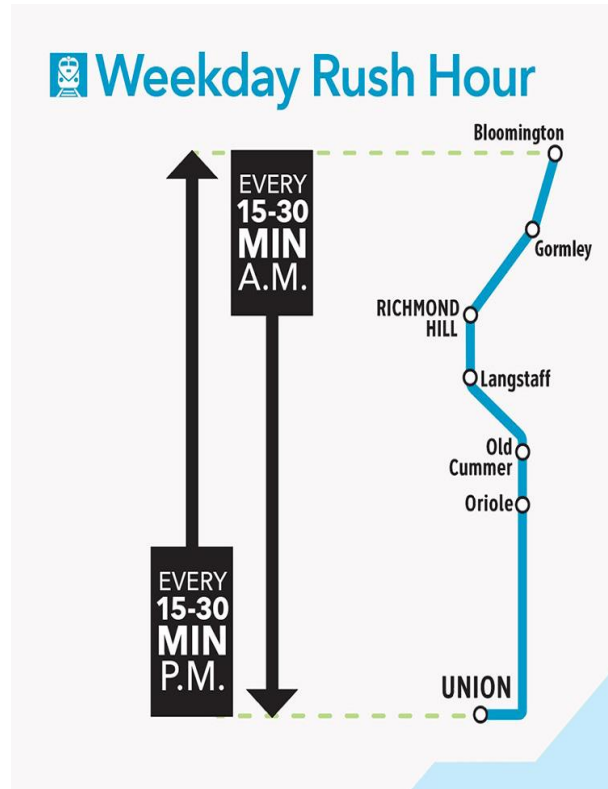
YNSE Alignment

Changing the point where the subway alignment shifts off of Yonge Street

- Original proposal for the alignment to shift east of Yonge Street north of Holy Cross Cemetery
- Value engineering and peer review identified potential benefit increases and cost reductions from bringing the subway to at-grade adjacent to the CN corridor, which will also better serve the central portions of the Richmond Hill Centre and Langstaff Gateway Urban Growth Centre

RICHMOND HILL GO CORRIDOR

- 35% increase in trips
- 15-30 minute service
- New GO Station at Bloomington



BLOOMINGTON GO STATION

- Improved station access
- Three-level parking structure
 - 760 spaces
 - 238 surface spaces
- Full bus loop with local transit connections
- Platform canopy with heated shelters

