

The Ontario Line

Pape-Danforth Open House

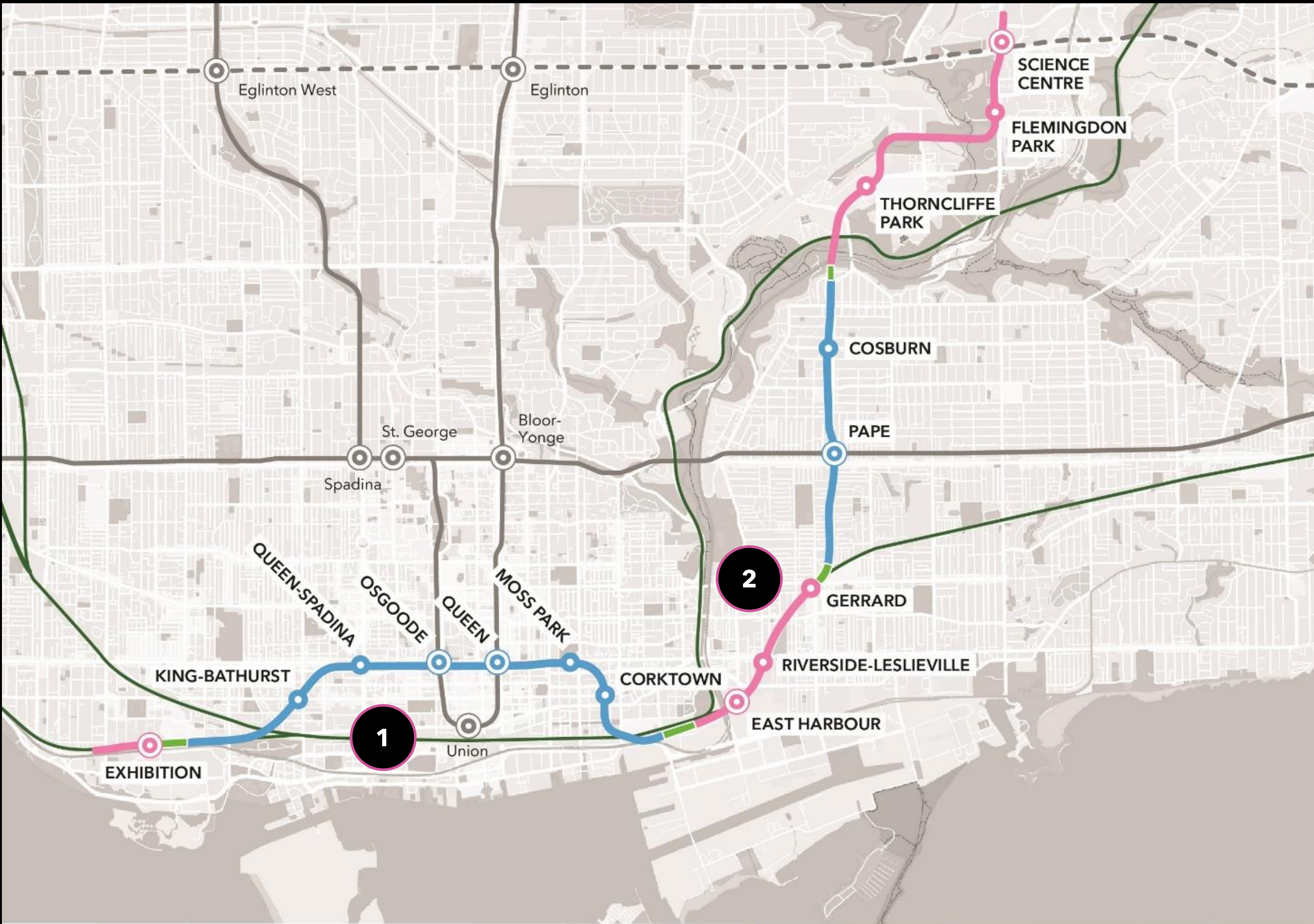
June 19, 2024

Holy Name Parish

71 Gough Avenue, Toronto



Ontario Line Subway



— At Grade / Elevated
  Station
 — Existing GO Rail
 - - - Future Line 5 Eglinton
— Tunnelled
  Interchange Station
— Tunnel Portal
— Existing Subway

 0 0.5 1 km


1 South Alignment of Ontario Line
(Exhibition to Corktown/
Don Yard)

2 North Alignment of Ontario Line
(East Harbour to Science Centre)



15.6 kilometres long



15 stations



As frequent as every 90 seconds during rush hour



227,500 more people within walking distance to transit



388,000 daily boardings



40+ connections to other transit options



Up to 47,000 more jobs accessible in 45 minutes or less, on average



28,000 fewer cars off the road each day

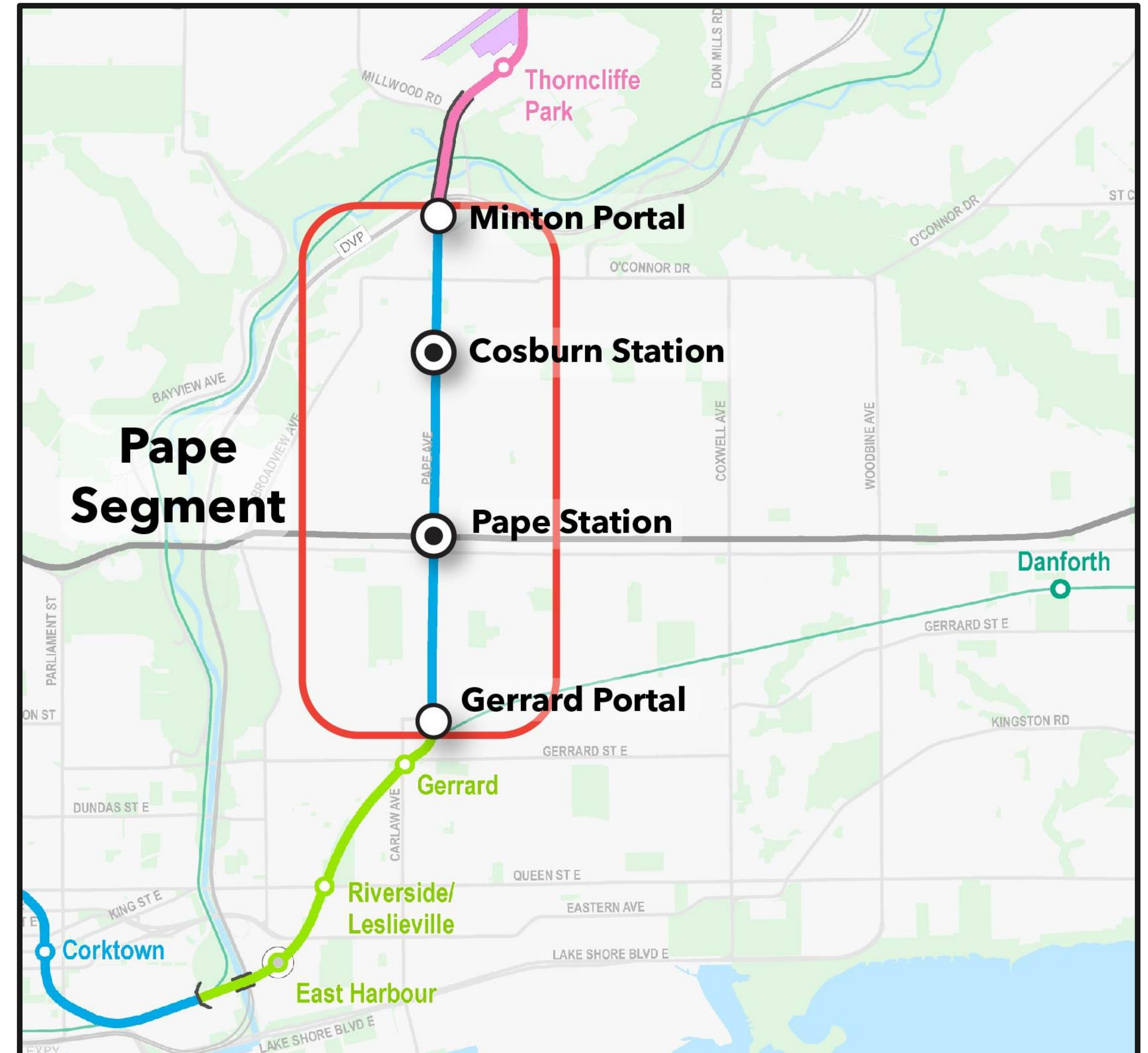
Pape Segment Overview

The Pape Segment of the Ontario Line consists of:

- two underground stations (Pape Station and Cosburn Station);
- two portals which will allow trains to transfer to and from twin underground tunnels to surface-level or elevated segments, and;
- two emergency exit buildings (at Bain Avenue and Sammon Avenue).

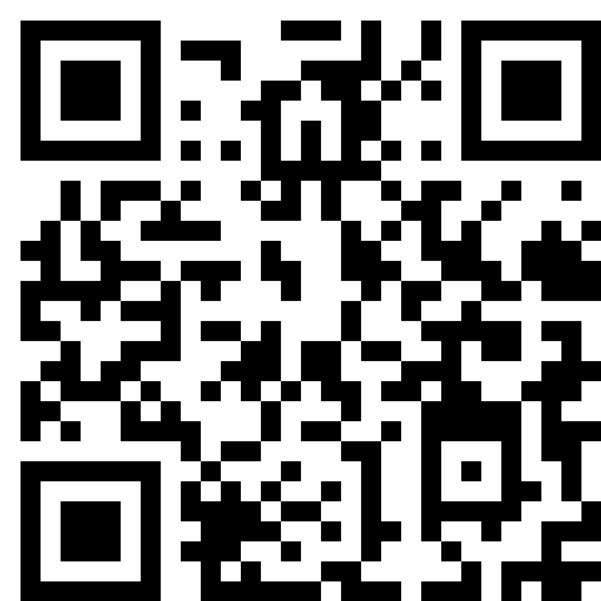
At Danforth Avenue, Pape Station will have a direct connection with the TTC's Line 2.

Customers will be able to transfer between the existing Line 2 subway and the Ontario Line through an underground connection.



Pape Transit Oriented Community

- Infrastructure Ontario is managing the proposed Transit Oriented Community in the vicinity of Pape Station. This proposal is split into a south site and north site and would include affordable housing, jobs, retail space for businesses, and connections to transit.
- For more information, visit engageio.ca/pape or scan the QR code below:



Pape Station



Artist's rendering – subject to change. Transit-Oriented Community proposals not shown.

Sammon Emergency Exit Building



Design rendering - final construction may differ

Pape Station Overview



The existing Pape Station will be expanded to accommodate a new concourse and platform for the Ontario Line. Features will include:

- A new platform underneath the existing Line 2 platform.
- A new fully accessible entrance and concourse directly accessible from Danforth Avenue.
- Connection between Line 2 and the Ontario Line.
- A rebuild of the existing TTC bus loop.
- Presto fare gates using the TTC fare system.
- Platform-screen doors on the Ontario Line platform for increased safety and operational reliability.
- Glass exterior walls for increased natural light flow and customer safety.

Cosburn Station and Minton Tunnel Portal

- Further north at Cosburn Avenue and Pape Avenue, Cosburn Station will be constructed. Utility work for the station, including sewer relocation, will begin this summer.
- At the north end of Minton Place and into the slope of the Don Valley, crews will construct the Minton Tunnel Portal. This portal will be the transition point for trains between the underground Pape Segment tunnels and the bridge over the Don Valley towards Thorncliffe Park. An emergency exit building and parkette will also be constructed.
- Metrolinx will arrange a separate community open house to discuss work at both sites in the coming months.



Cosburn Station



Minton Place – Emergency Exit Building & Parkette

How We're Building.

Building a new subway involves a lot of digging. Before crews can start excavating, a strong foundation needs to be built to ensure structural stability is maintained for surrounding structures. This is the Support of Excavation (SOE), the work that will allow for safe and stable excavation.

What method is being used to build the foundation?

A slurry wall is the technique being used to build reinforced concrete walls as the foundation. This is being used for both the Ontario Line connection at Pape Station and the emergency exit building at Sammon Avenue.

How was this technique chosen?

Engineers consider many factors when choosing the best method for the job. This includes the properties of the soil, the size of the site, the surrounding structures, and many others.



Why is it called a slurry wall?

Slurry, a mixture of water and clay, is pumped into the holes that crews dig to build the station's foundation. The thick and dense properties of the slurry keep the holes stable and safe.

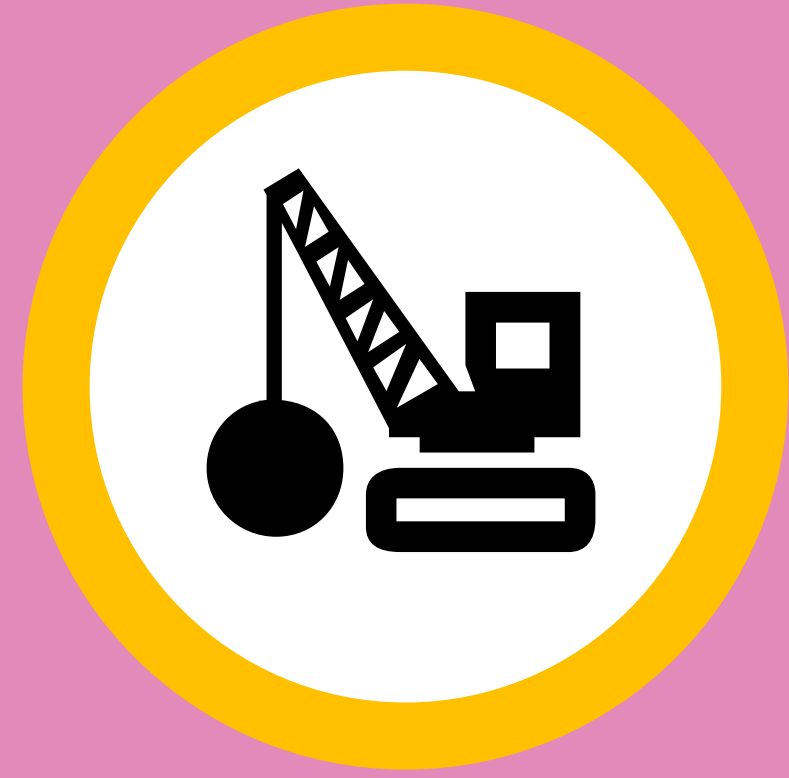


What are the advantages of using a slurry wall?

Building a slurry wall causes less vibration and keeps the surrounding soil more stable. This is especially important due to the proximity of the existing Line 2 subway tunnel.

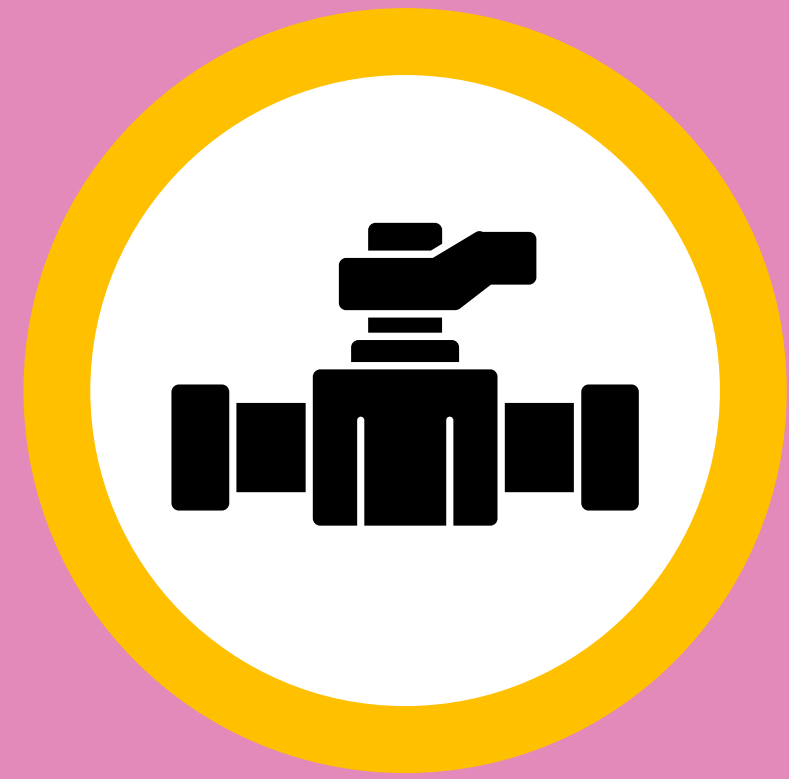
To evaluate ground conditions prior to slurry wall construction, a geotechnical drill is used to retrieve soil samples.

Pape Support of Excavation Works



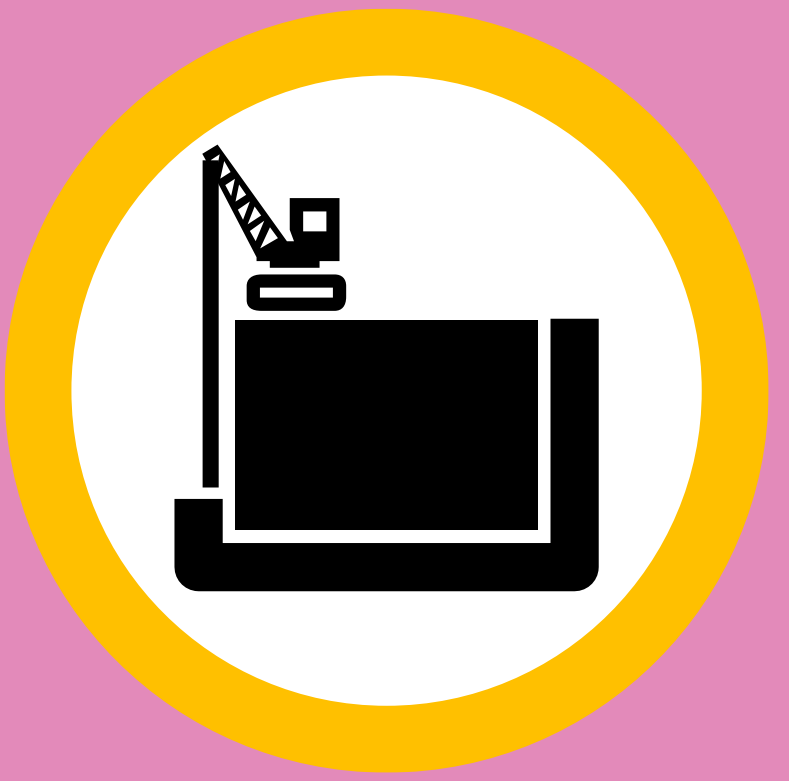
Demolitions

Existing structures have been demolished on the sites of the future Ontario Line connection with Pape Station and the emergency exit building at Sammon Avenue.



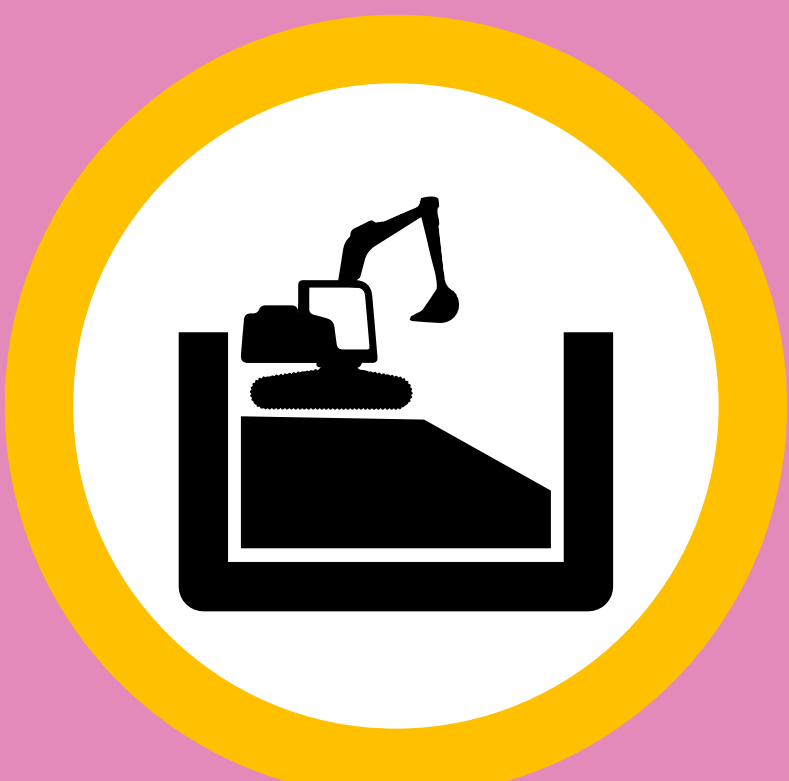
Utilities

Various utilities in the path of future infrastructure must be moved before construction begins. This includes a storm sewer on Gertrude Place and Bell cables along Danforth Avenue.



Excavation Supports

Structures and facilities that will enable excavation will be constructed on-site. Construction of concrete slurry wall foundation will begin.



Excavation

Crews can begin to excavate within the boxes formed by the slurry walls, which stabilize ground conditions.

Completed Work

January - March

Prepared and cleared the site for future work.

Demolished existing buildings at Pape-Danforth and Sammon sites.

Installed temporary hoarding and fencing at construction sites to protect the public from construction and demolition work and mitigate noise.



Pape and Sammon

Current and Future Milestones

April-June

Complete the demolition of existing Pape-Danforth and Sammon buildings.

Begin relocating existing utilities and storm sewer to make room for excavation.

Begin site preparation for installing a plant to prepare slurry and platform drilling.

Begin constructing the guide wall at the Sammon emergency exit site.

Install a permanent barrier to mitigate noise.



July - September

Complete utility and sewer relocation.

Complete the slurry plant installation.

Begin guide wall construction at the Pape-Danforth site.

Begin slurry wall construction at the Pape-Sammon and Pape-Danforth sites.

Slurry Wall Equipment

Excavator

An excavator is a heavy construction machine with a boom, dipper, and bucket. It's used for digging, lifting, and moving earth, rocks, and debris in construction projects.



Clamshell and Chisel

A clamshell and chisel are used for excavation and material handling. The clamshell is for digging and lifting loose materials, while the chisel breaks hard surfaces like rock or concrete.



Slurry Plant

A slurry plant mixes and supplies clay slurry, which stabilizes trench walls during excavation. The thick slurry presses against the trench walls to provide stability while concrete is pumped into the bottom of the trench.



Hydromill

A hydromill is used for deep trench excavation. It precisely cuts and removes soil and rock, creating stable, vertical shafts into which structures like slurry walls and foundations can be poured.

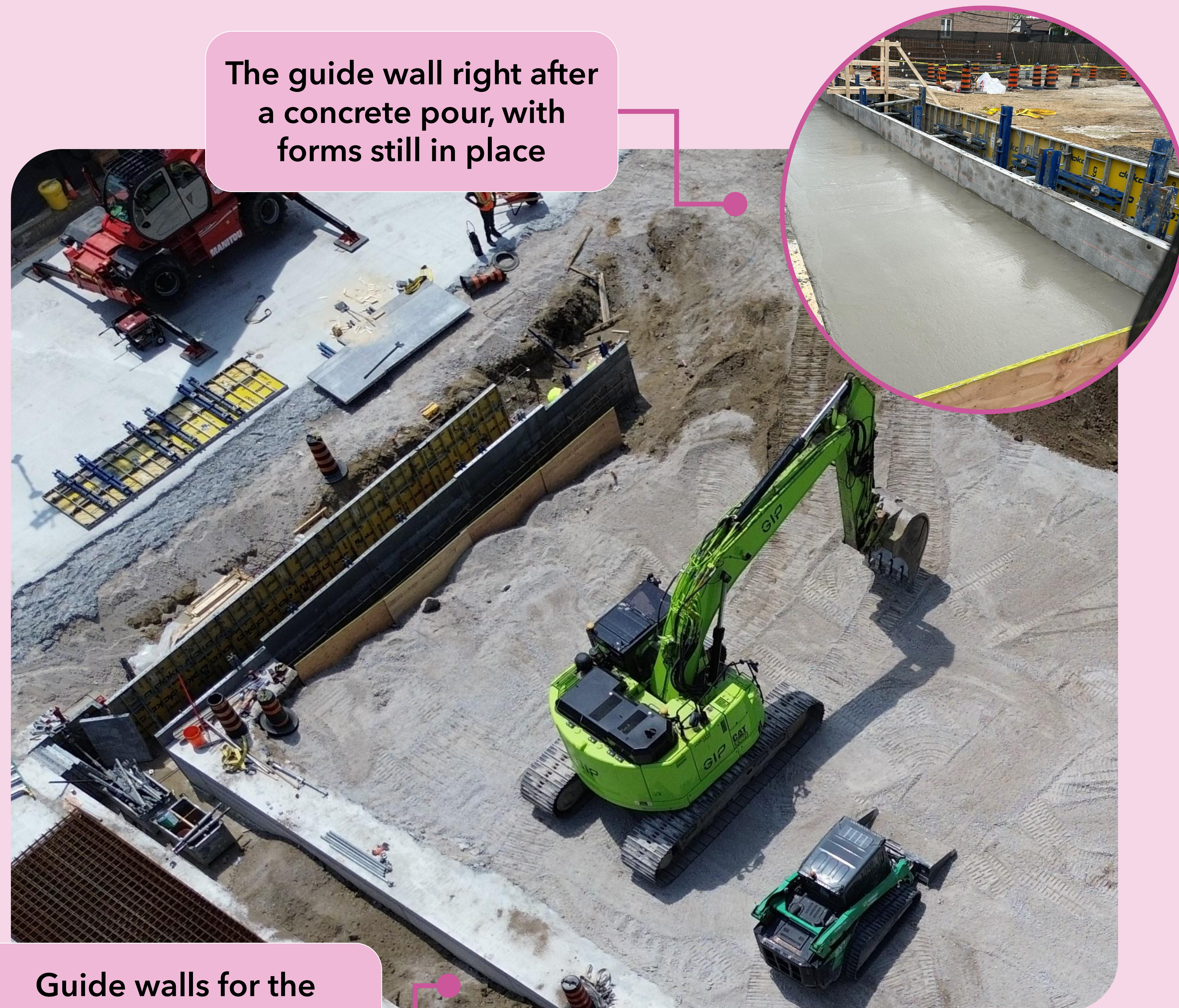


Support of Excavation Overview

How We're Building

1. Install guide walls

- Guide walls are concrete trenches that are built along the perimeter of the future building. Excavation will take place inside the guide wall's trench.
- To build guide walls, the site needs to be cleared. After careful measurements, the layout of the guide wall is dug out and forms are placed.
- Finally, steel rebar is put in place for extra strength before concrete is poured.



The guide wall right after a concrete pour, with forms still in place

Guide walls for the emergency exit building at Sammon and Pape

Support of Excavation Overview

2. Prepare slurry

- With any deep excavation, it's important to make sure that the soil around the excavation is kept stable to prevent collapse.
- On this project, slurry is used to fill in the excavated trench to keep it stable and maintain integrity until concrete is poured.
- Slurry is a mixture of water and bentonite, a type of clay. An on-site slurry plant mixes them together.
- Slurry is pumped into the guide wall trenches, stabilizing the trench and allowing crews to continue digging deeper.



3. Excavate in sections

- With the guide wall and slurry now ready, crews insert a hydromill (pictured below) into the guide wall to excavate deep into the soil.
- The excavation is done in separate sections called panels and in a specific order to make sure structural integrity is maintained.



Support of Excavation Overview

4. Install steel cage, pour concrete

- When concrete is poured over a steel cage and hardens, it becomes incredibly strong - strong enough to support structures like the CN tower.
- With the excavation now complete, a steel cage custom-made to fit the trench is carefully lowered into place.
- Concrete is poured from the bottom up while the slurry is removed from the top and pumped back to the slurry plant.
- This process is carefully monitored by engineers to ensure quality is maintained and that the cage is properly positioned.



24-Hour Work & Site-based Mitigations

Slurry wall construction at both Pape-Danforth and Pape-Sammon will take place on a 24-hour schedule from Monday to Friday. This is done for the following reasons:



Operations: Slurry wall construction requires an extended schedule to avoid interruptions to the work sequence (shown on previous slides). Interruptions may lead to quality and schedule issues.

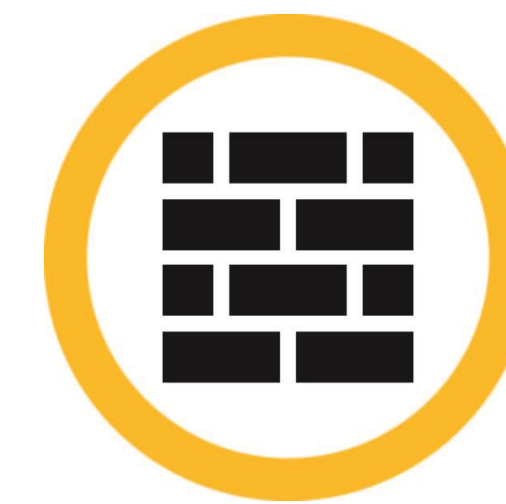


Schedule: Operating continuously allows us to construct slurry walls faster and reduce the overall project timeline and impact to the community.



Safety: Continuous operation reduces risks associated with starting and stopping work, which makes the site safer for both workers and the public.

We understand that 24-hour work is disruptive to the community. We are employing site-based mitigations to reduce impacts the surrounding area:



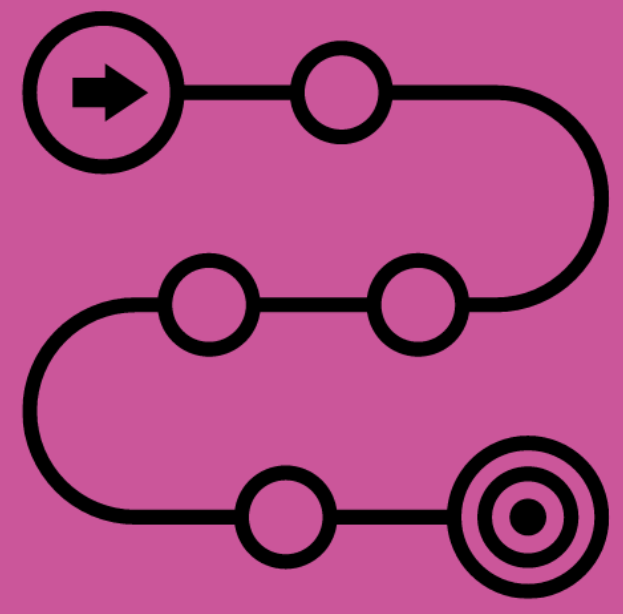
Noise Barriers & Hoarding: Along the perimeter of both sites, wooden hoarding will be constructed to provide a solid barrier between the site and adjacent areas. Where feasible, sound walls will be installed to help to further reduce noise coming from the site.



Broadband Backup Alarms: Construction equipment reversing on site will be equipped with broadband backup alarms, which emit a less abrasive noise as opposed to traditional beeping alarms.



Noise and Vibration Limits: Work will comply with noise and vibration limits mandated by Metrolinx. A noise and vibration monitoring program is in place to provide real-time data and alert the contractor to any exceedances. Exceedances will be addressed in real-time.

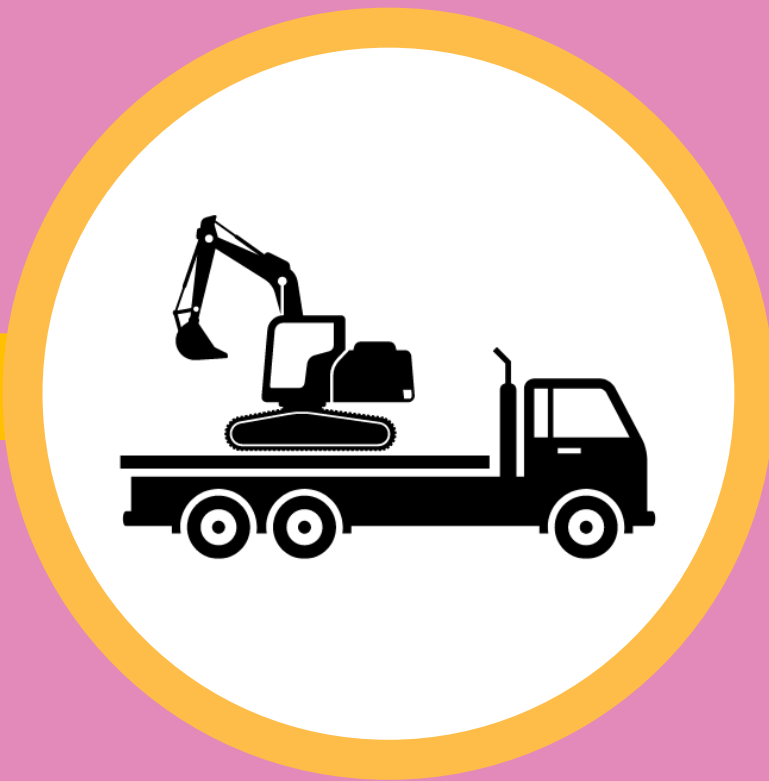


Pape Support of Excavation Timeline

Spring 2024 - Spring 2026

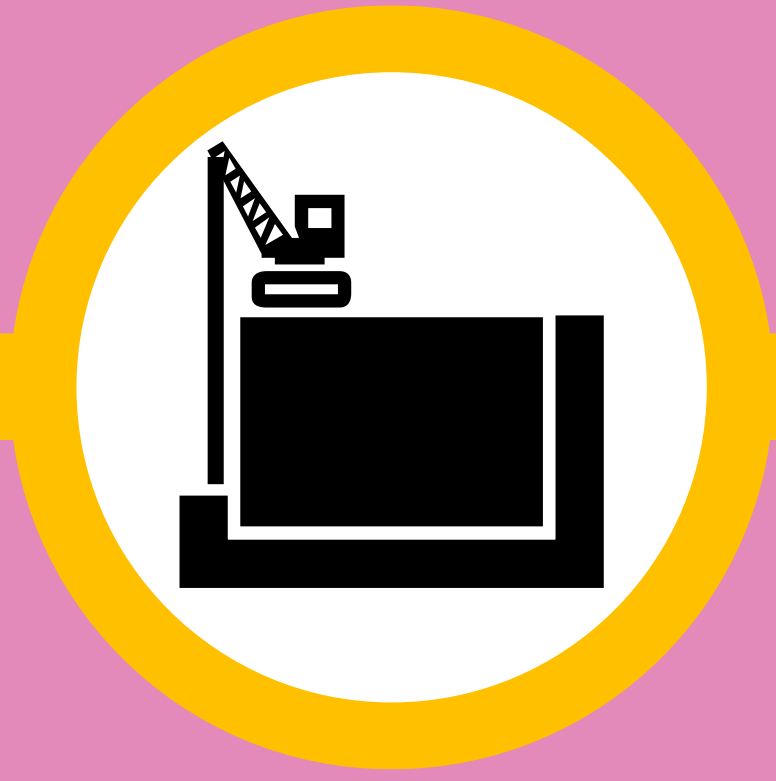
Sammon

June 2024 to
October 2024



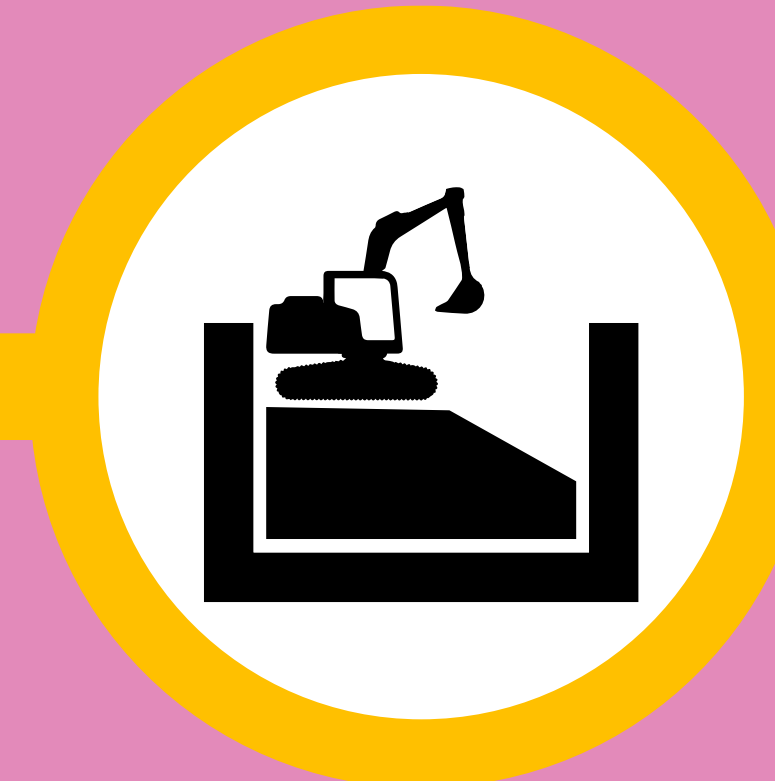
Mobilization

July 2024 to
October 2024



Slurry Wall Installation

October 2024 to
March 2025



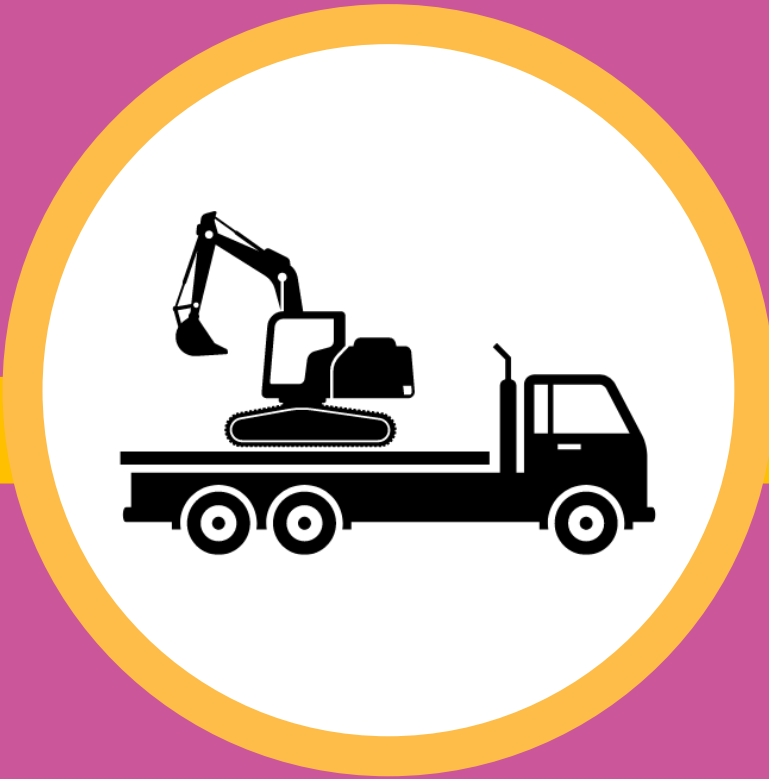
Excavation

Spring 2025

Emergency Exit
Construction
(Future Contract)

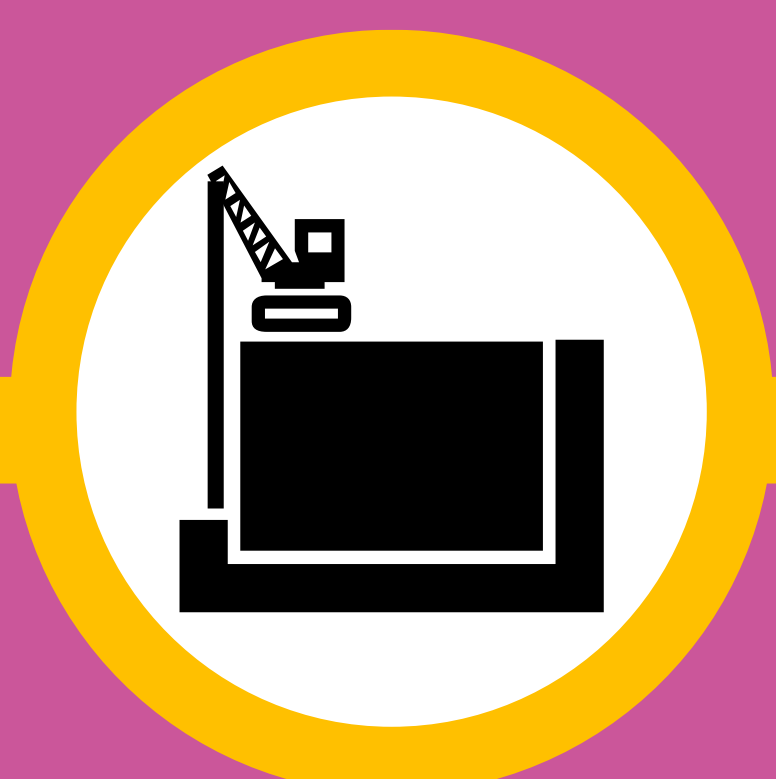
Pape- Danforth

June 2024 to
October 2024



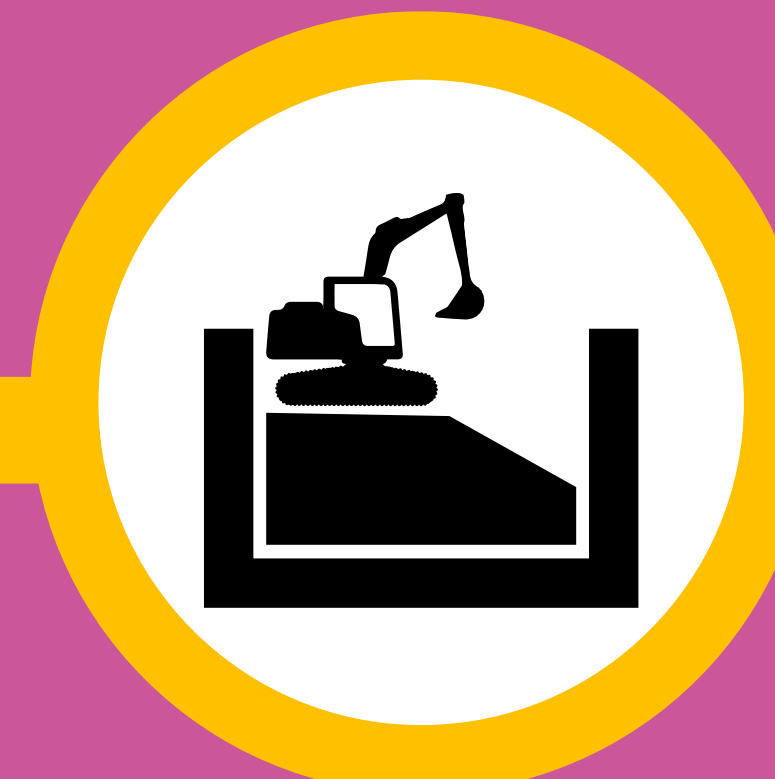
Mobilization

July 2024 to
Jan 2025



Slurry Wall Installation

Jan 2025 to
April 2026

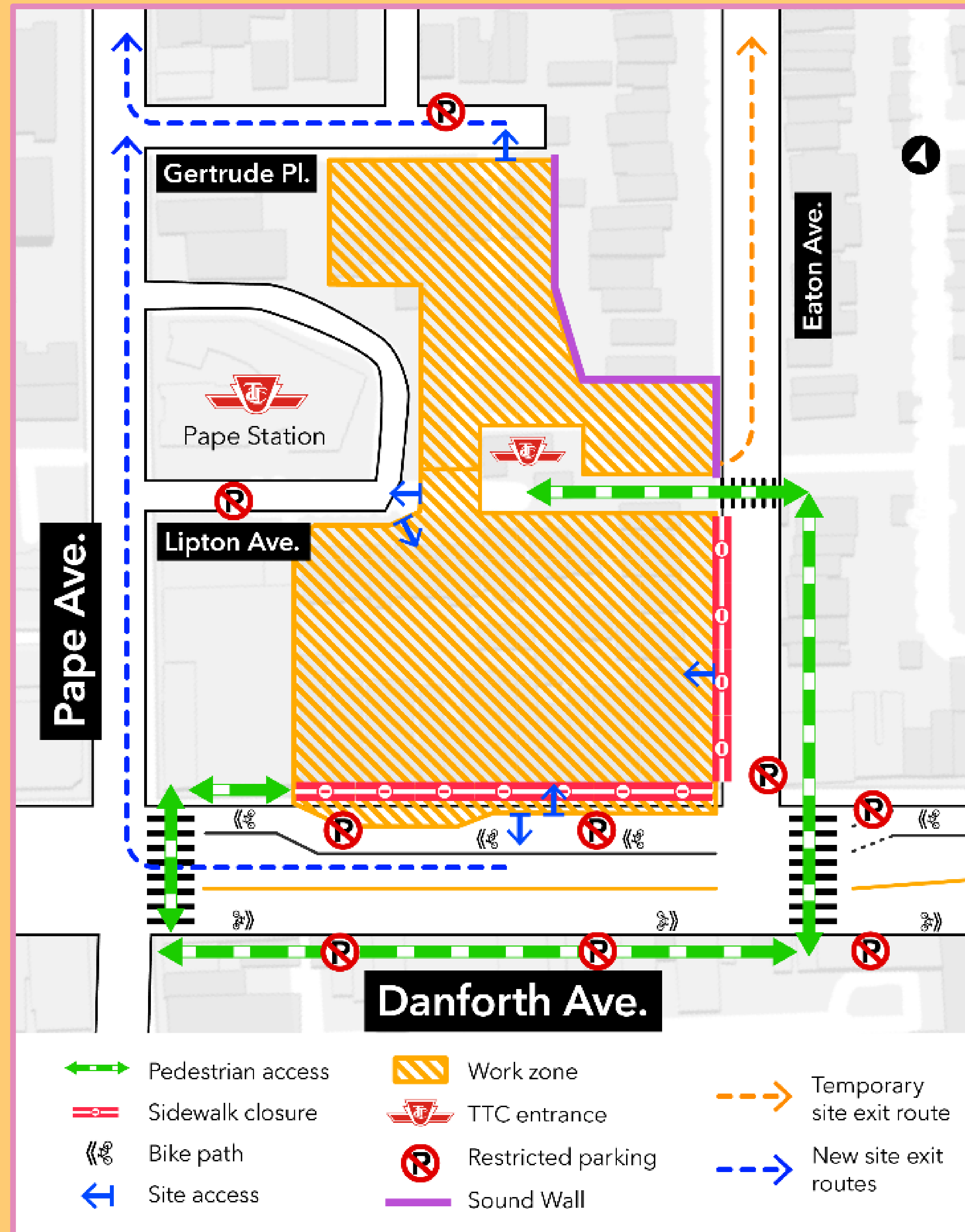


Excavation

Spring 2026

Station
Construction
(Future Contract)

Pape-Danforth Traffic and Pedestrian Impacts



Starting
Friday, July 12
Until Spring 2025

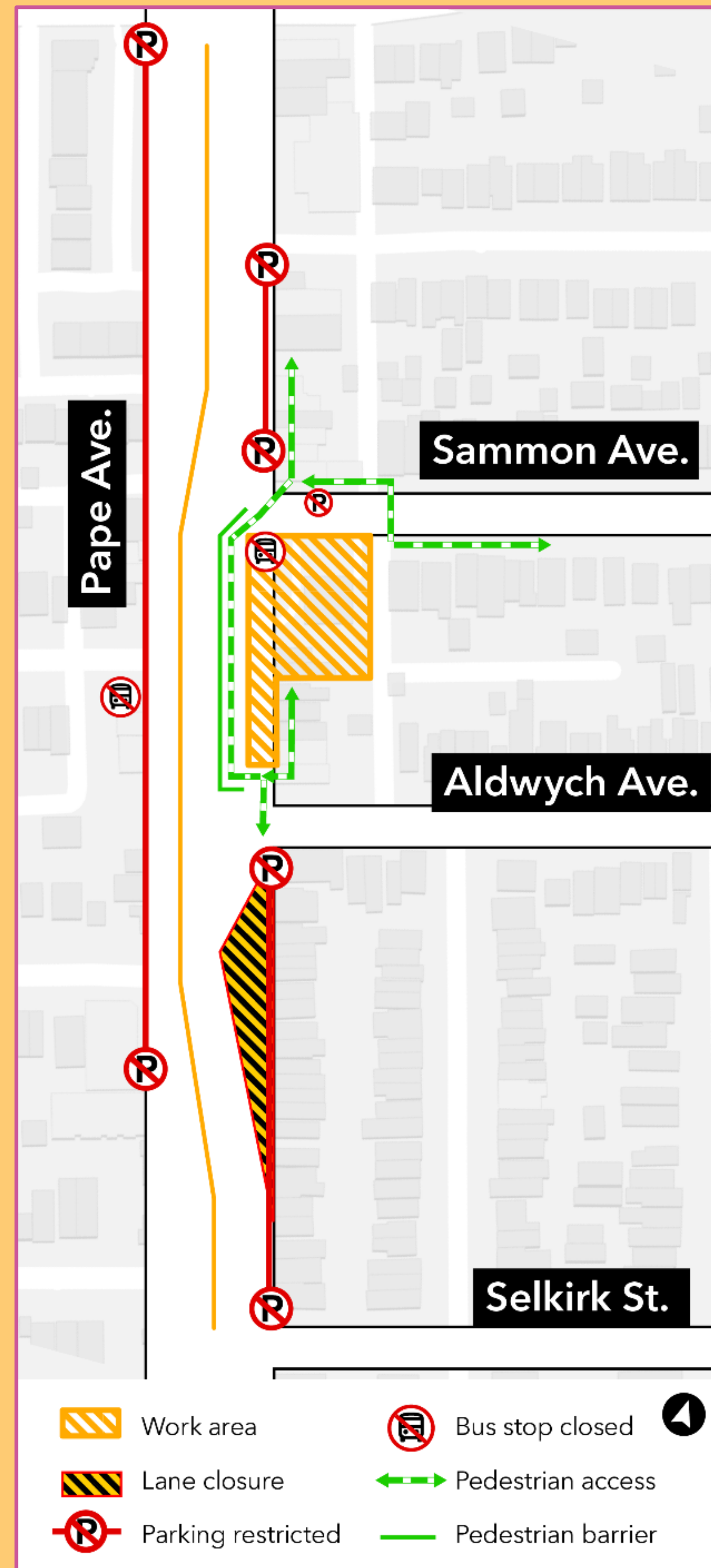
Monday
to Friday
24 hours

Saturday
6 a.m.
to 7 p.m.

- **As early as June 25, 2024, traffic setup will begin to prepare for the construction of the underground concrete support walls for the future Ontario Line interchange at Pape Station. Construction on the walls will begin as early as July 12.**
- To complete this work safely, the north sidewalk on Danforth Avenue will be closed. A temporary crosswalk at Eaton Avenue will be installed to allow pedestrians to safely cross Danforth Avenue.
- Trucks are currently using a temporary haul route, exiting the work site and accessing Pape Avenue by going northbound on Eaton Avenue and westbound on Selkirk Avenue. This is a temporary haul route.
- As early as late June, trucks will begin entering the site via Eaton Ave. and exiting via Gertrude Place and Danforth Avenue access and exit points are indicated on the map.
- The westbound bike lane on Danforth Avenue will be shifted south into the on-street parking spots to allow cyclists to safely navigate around the site.

Pape-Sammon Traffic and Pedestrian Impacts

Extended work hours are required to accommodate the time concrete needs to dry. This keeps work safe.



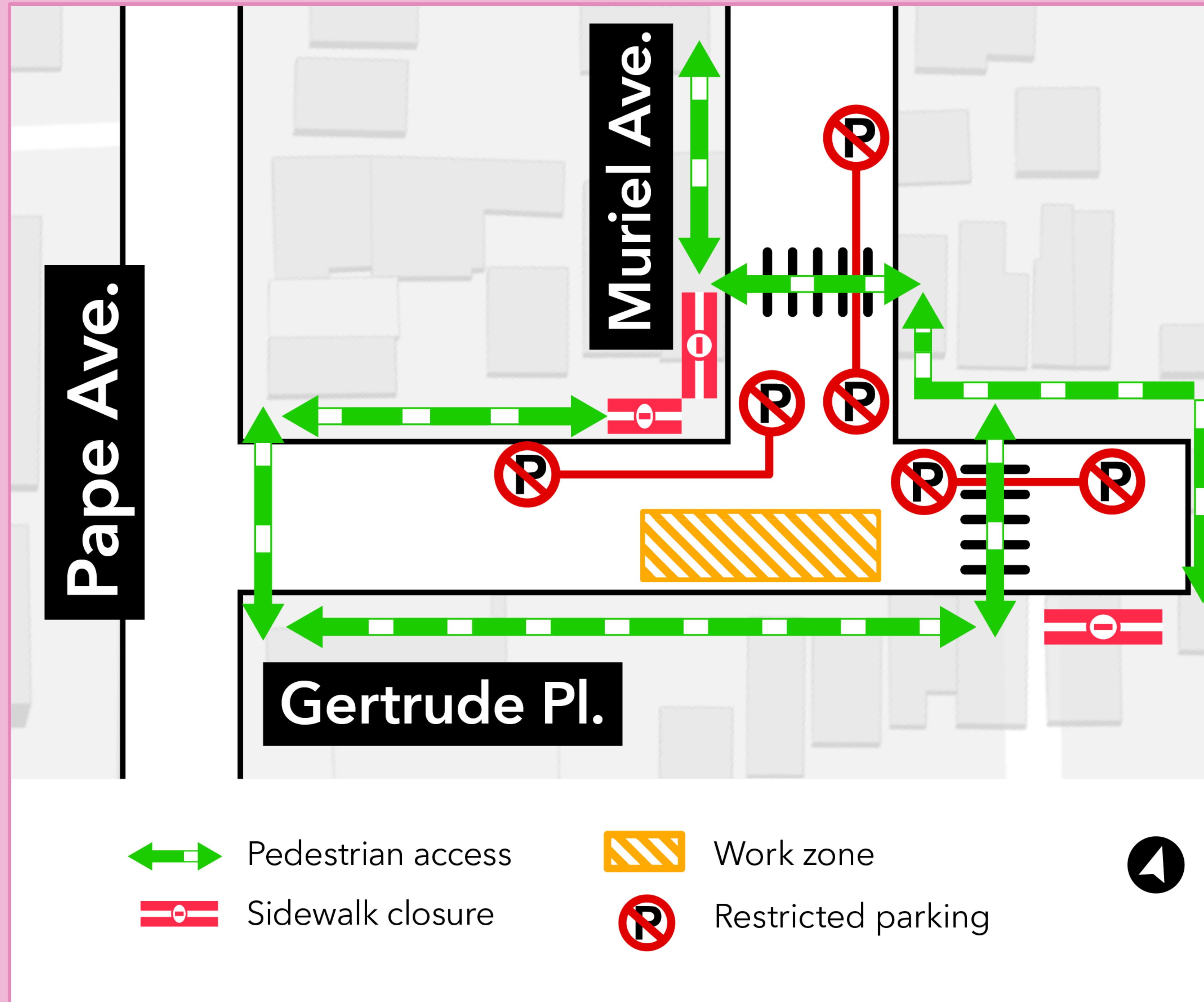
Starting
Tuesday, June 25
Until Spring 2025

Monday
to Friday
24 hours

Saturday
6 a.m.
to 7 p.m.

- **As early as June 25, 2024, construction will begin on the underground concrete support walls for the future Ontario Line emergency exit at Sammon Avenue.**
- Northbound lanes on Pape Avenue between Selkirk Street and Sammon Avenue will be closed to allow for construction.
- Northbound and southbound traffic will be shifted to the west side of Pape Avenue, with one traffic lane open in each direction.
- The sidewalk on the south side of Sammon Avenue between Pape Avenue and the laneway east of Pape Avenue will be closed.
- The pedestrian route adjacent to the site will be rerouted onto Pape Avenue. Concrete barriers will separate traffic from the pedestrian walkway.
- On-street parking will be restricted on the east side of Pape Avenue between Selkirk Street and Aldwych Avenue and between Sammon Avenue and Kings Park Boulevard.
- On-street parking will be restricted on the west side of Pape Avenue between Mortimer Avenue and north of Canning Avenue.
- The TTC bus stops at Pape Avenue and Sammon Avenue, and Pape Avenue at Fulton Avenue will be relocated.

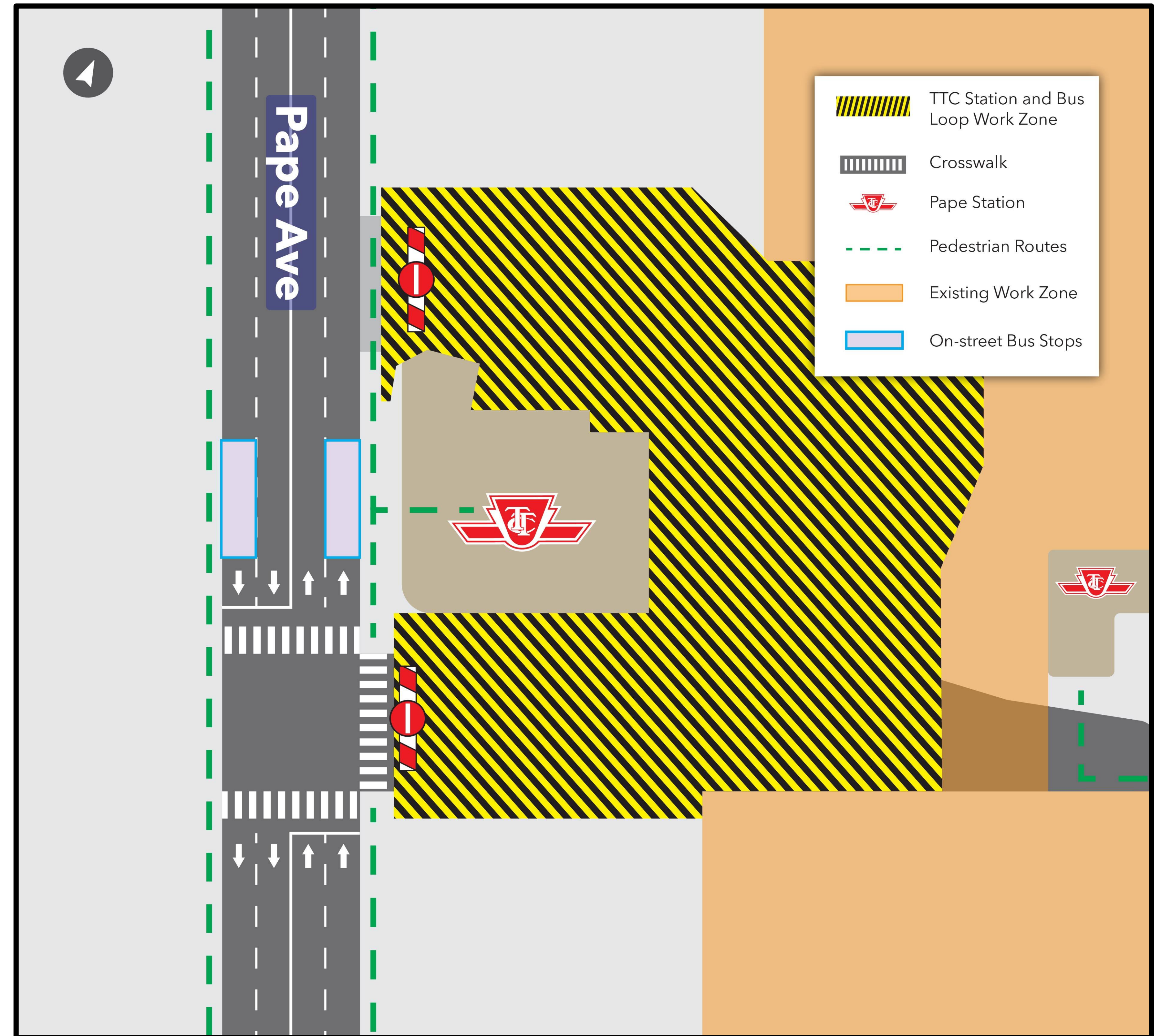
Gertrude Place Sewer Relocation



- **Sewer relocation work will begin on Gertrude Place near Muriel Avenue as early as Tuesday, June 11, 2024.**
- **The sewer relocation is required to make space for the future Ontario Line connection at Pape Station.**
- To complete this work safely, a portion of the sidewalk on the northwest corner of Gertrude Place and Muriel Avenue, as well as a portion of the south sidewalk at the east end of Gertrude Place will be closed.
- Temporary crosswalks on Muriel Avenue and Gertrude Place will allow pedestrians to safely navigate around the site. A flag person will be at the intersection of Gertrude Place and Muriel Avenue to help direct vehicles and pedestrians.
- On-street parking on sections of Muriel Avenue and Gertrude Place will be restricted.
- A light pole will be removed on Gertrude Place to accommodate the work.

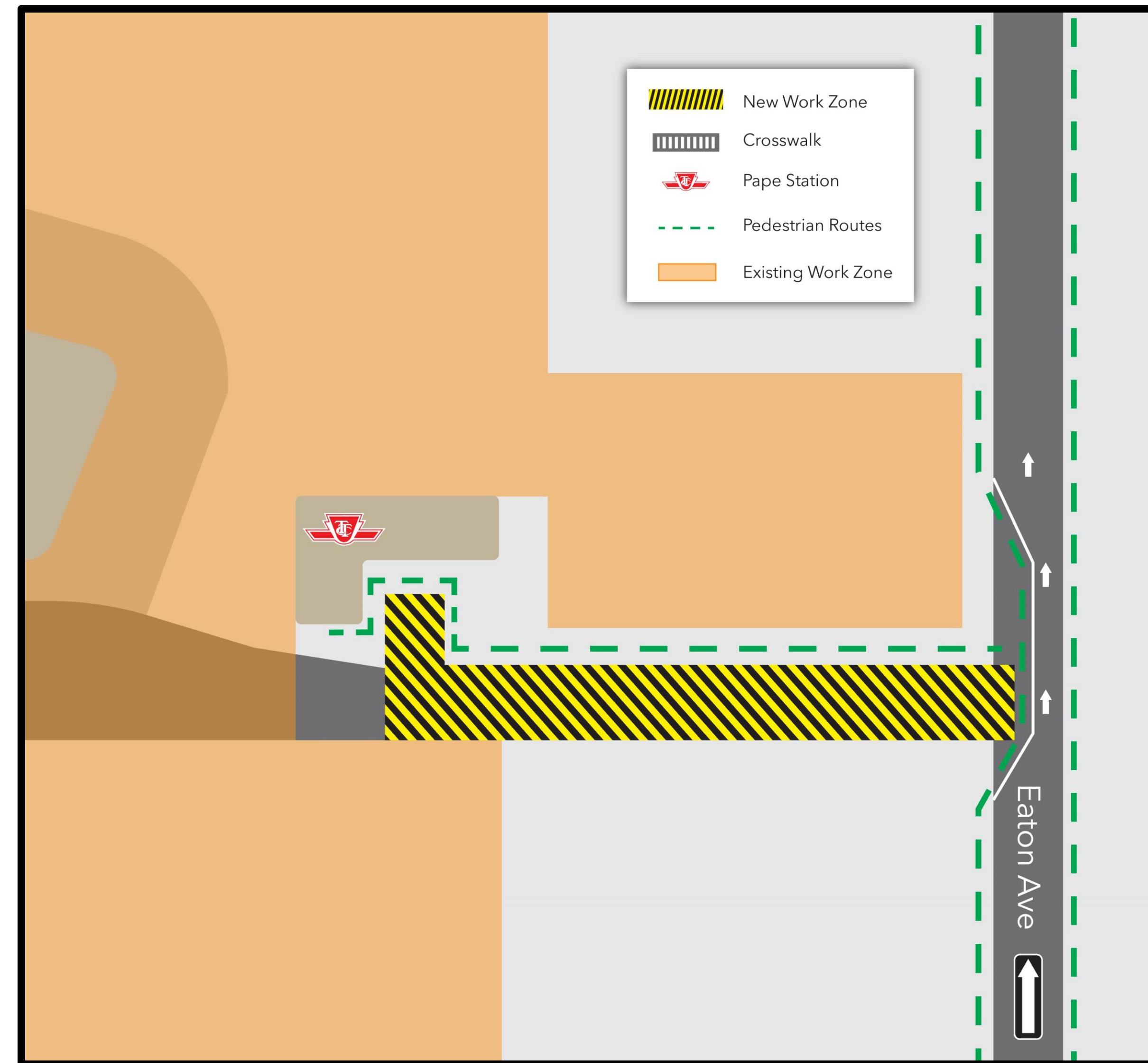
Pape Station Advanced Works - Bus Loop Closure

- Since May 12, the bus loop at Pape Station has been closed as crews perform bus loop canopy demolition, wet utility relocations within the bus loop, and demolition of the existing tunnel ventilation shaft.
- This closure will be in place until Fall 2024.
- For more information regarding TTC impacts, visit www.ttc.ca/riding-the-ttc/Updates/Pape-Station-construction or scan the QR code below.

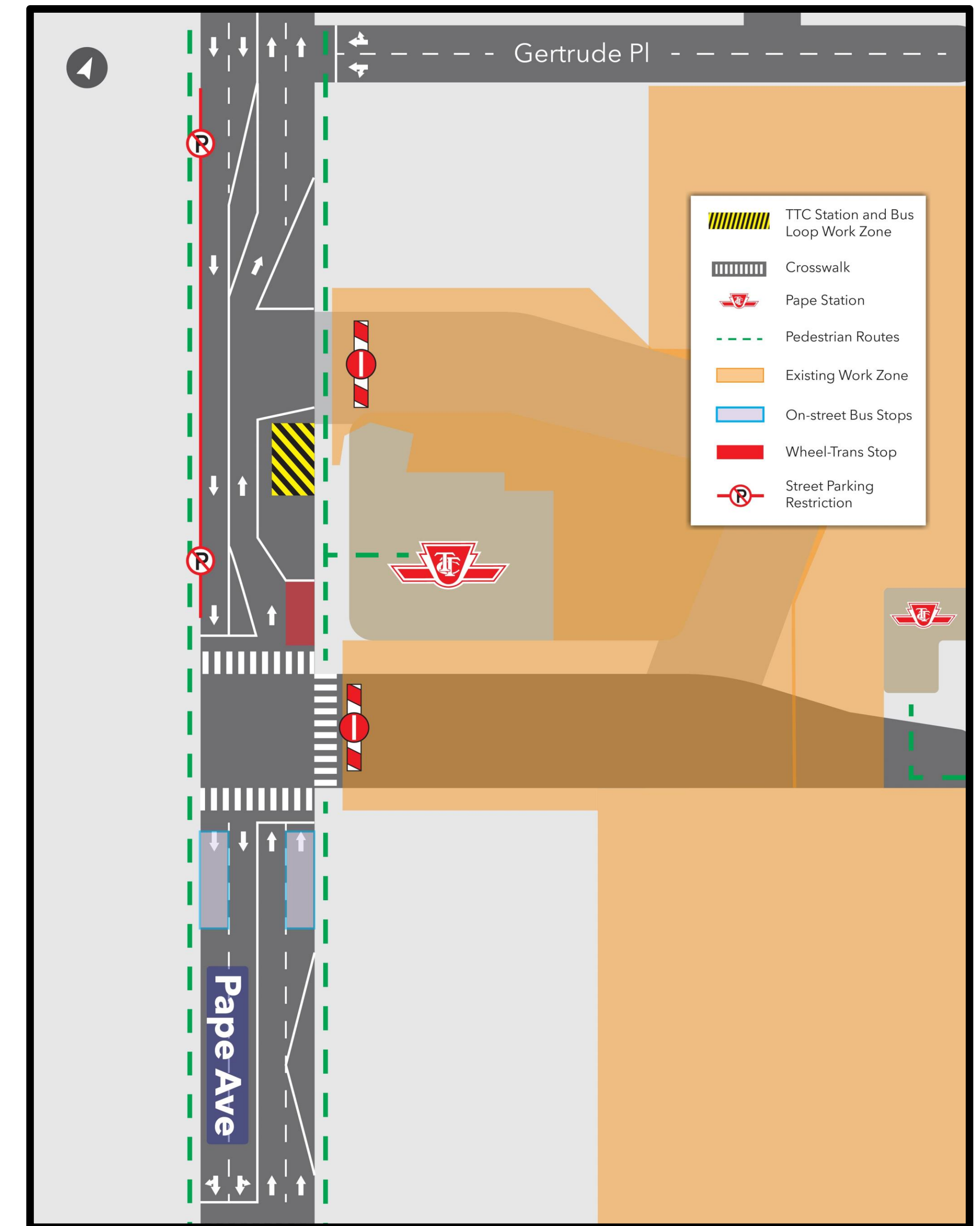


Pape Station Advanced Works - Wet Utility Relocations

- Starting in late June, crews will begin relocating a water main on Eaton Avenue and a storm sewer on Pape Avenue.
- This work will take place concurrently with the ongoing bus loop closure and associated TTC station work, and will last approximately three weeks.



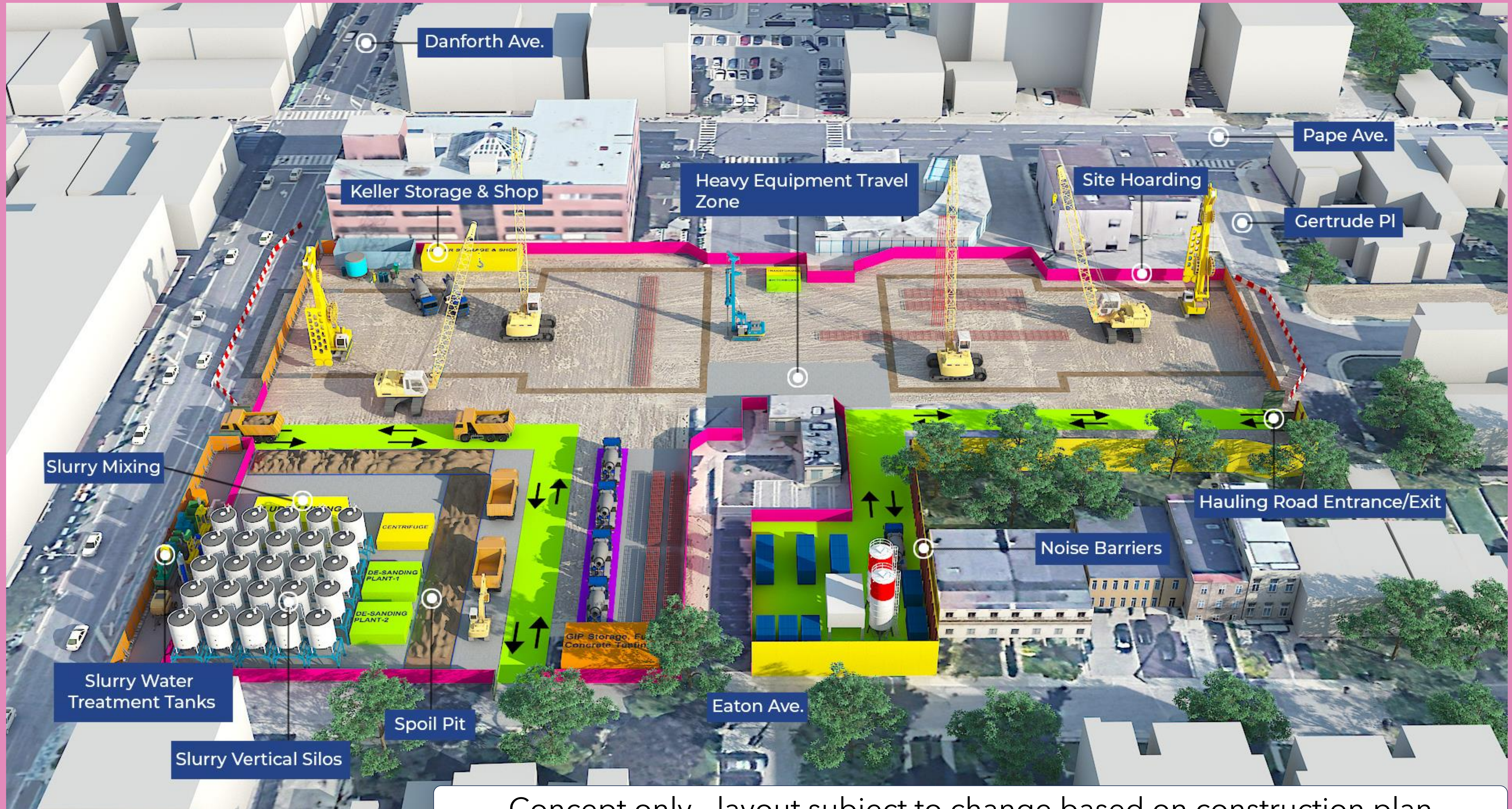
Area 1 – Eaton Avenue



Area 2 – Pape Avenue

Pape-Danforth Aerial View

This drawing provides an overview of the layout of the construction site at Pape and Danforth. Each component is carefully planned to ensure a smooth flow of activities, from storage of equipment to route for trucks.



Concept only - layout subject to change based on construction plan

Construction Mitigations



Noise Barriers

Where possible, temporary barriers will surround loud equipment to reduce noise.



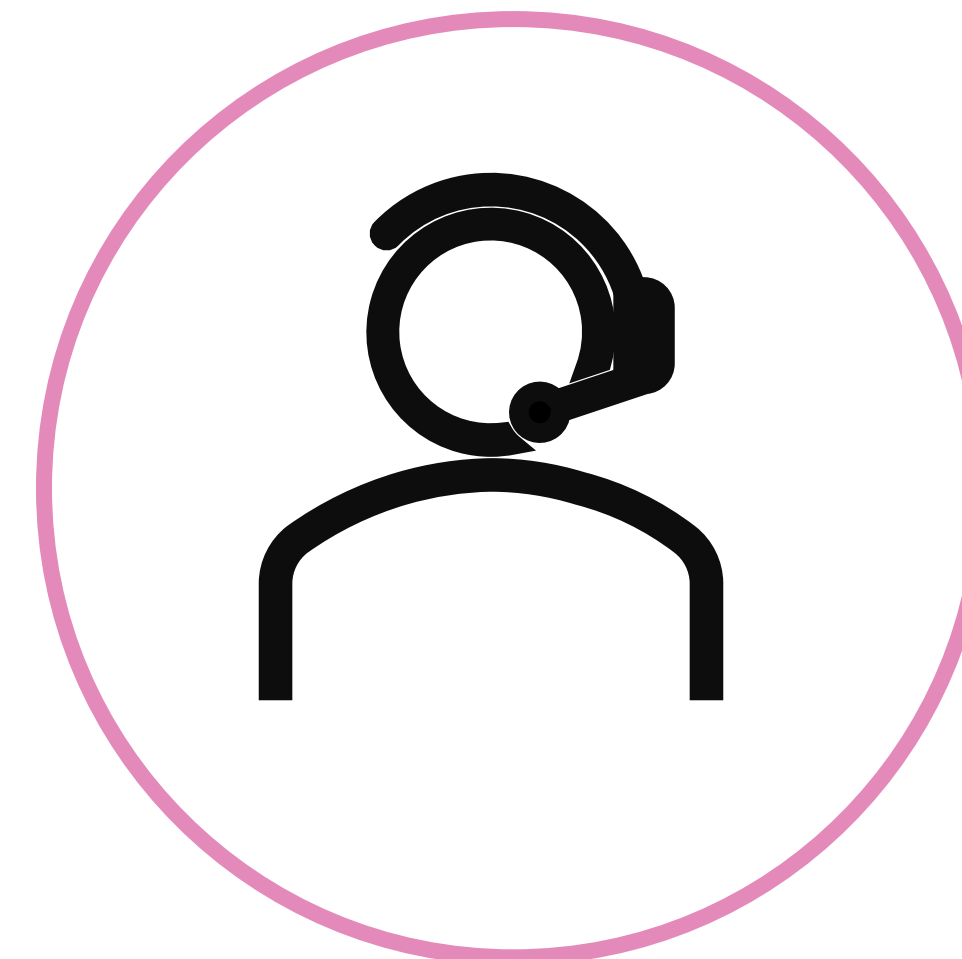
Hoarding and Signage

Hoarding provides a protective barrier between the construction site and the public. Signage informs of ongoing and upcoming work, as well as way-finding.



Advance Notice

Providing notice ahead of construction to give local stakeholders the opportunity to ask questions and plan for the work.



24-Hour Support

Providing a 24-hour call number at (416) 202-5100 to address complaints and issues.



Site Maintenance

Keeping the site clean and tidy to support the positive appearance of the neighbourhood.



Noise Monitors

Located throughout the work sites, these monitors measure noise to make sure proper levels are maintained. As the work proceeds, the amount of noise monitors will simultaneously grow.