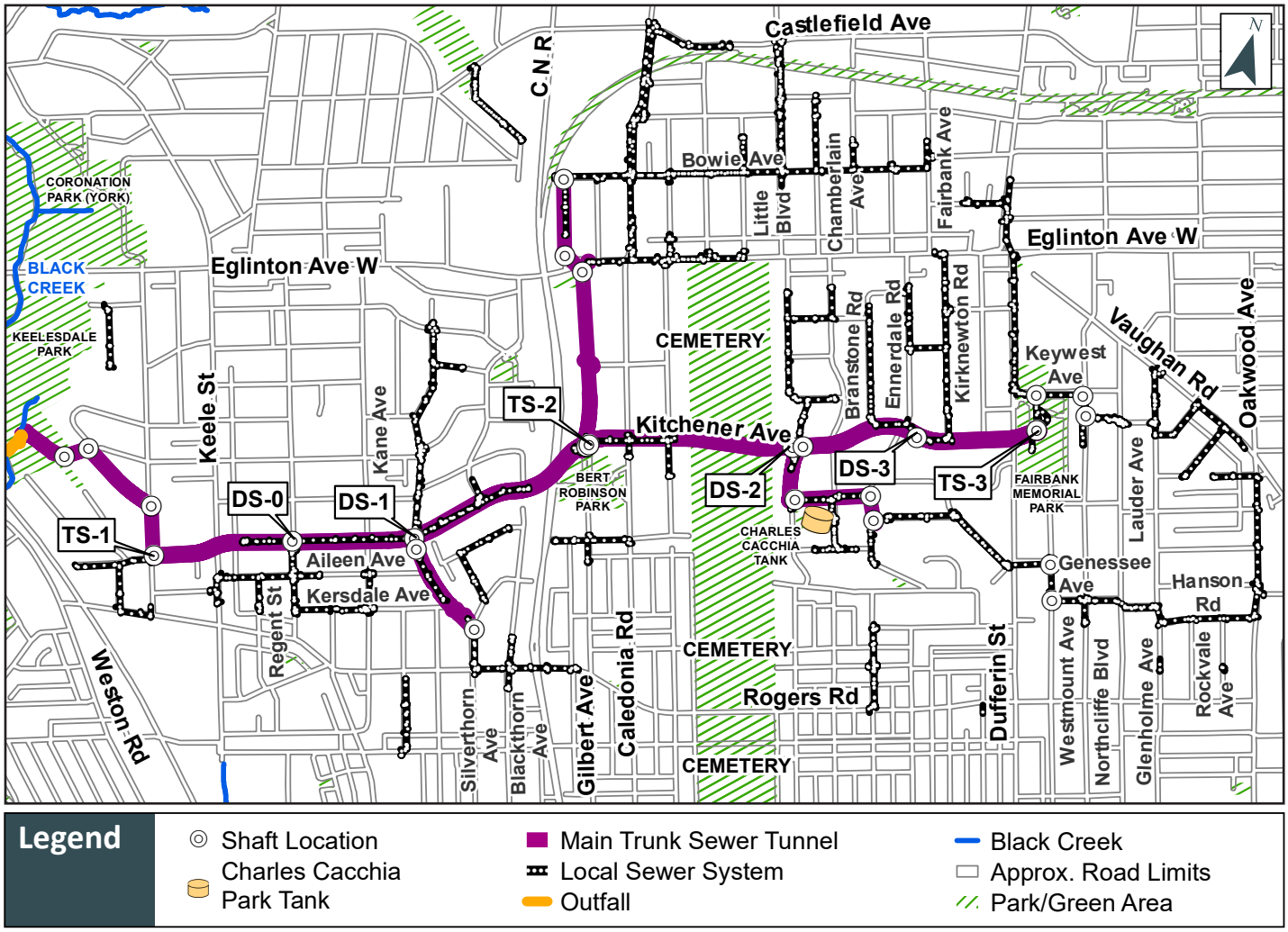
Fairbank Storm Trunk Sewer System

Newsletter Issue 1, 2021



Location of the New Fairbank Storm Trunk Sewer and Local Sewers

The City of Toronto, with support from the Government of Canada, is moving forward with a major investment to help protect against basement flooding in the Fairbank-Silverthorn community. In the summer of 2021, the City will begin constructing a new three-kilometre-long storm trunk sewer that will collect, store and convey stormwater (rainwater and melted snow) from the area to Black Creek. Upgrades will also be made by constructing more than 17 kilometres of local storm sewers that will connect to the new storm trunk sewer. Once complete, the new sewer system will reduce the impacts of heavy rainfall to 4,645 homes from sewer backups and provide flood protection to a 140-hectare area.

Investing in Canada
#fedinvest

The Government of Canada has committed $73.2 million in funding for this project through the Disaster Mitigation and Adaptation Fund, a Canada-wide program to support large-scale infrastructure projects and help communities better manage the risks of disasters triggered by natural hazards. The City of Toronto is providing remaining estimated funding of $250 million.

TORONTO

311

Project History

- **2010:** Investigation of Chronic Basement Flooding - Study Area 3 Environmental Assessment completed.
- **2013-2017:** Sewer upgrades and storage tank constructed at Charles Caccia Park (Harvie and Kitchener Avenue area).
- **2018:** Preliminary engineering design completed.
- **2019:** Detailed Design Commenced.
- **2020:** Inlet control devices (ICDs) installed in catch basins (square grates at the side of the road that collect stormwater) connected to combined sewers in the Keele Street and Beechborough Avenue area. ICDs slow the flow of stormwater into the sewers to help reduce sewer back-ups into basements.
- **2021:** Construction contracts issued and the start of the construction project.

Infrastructure to help reduce basement flooding

The Fairbank-Silverthorn neighbourhood is serviced primarily by what are known as combined sewers. These sewers can be found in some of the city's older areas, built many years ago, and is one pipe that carries both sewage and stormwater. During periods of intense, heavy rainfall, the volume of stormwater that enters these combined sewers may exceed the system's capacity causing the sewers to back-up resulting in basement flooding.

New local storms sewers

To help relieve pressure on the existing combined sewer system, more than 17 kilometres of new local storm sewers will be added to improve drainage on local streets to help reduce basement flooding. These local storm sewers will connect to the new storm trunk sewer.

New storm trunk sewer

During heavy rainstorms, excessive stormwater will be carried from the new local storm sewers to the new large storm trunk sewer (4.5 metres in diameter, 2.4 kilometres long, ranging from 15 to 40 metres deep). The new storm trunk sewer will be able to convey up to 9,500 litres of stormwater per second to Black Creek. This new sewer is designed to also serve as temporary storage (tunnel) during heavy rainfall and will slow down the release of stormwater to Black Creek. A new stormwater outfall will also be constructed at Keelesdale Park.

Underground storage tank in Charles Caccia Park

The underground storage tank located in the Charles Caccia Park has been built, is in service and stores combined sewer flows during large storms from the areas around the park. This 6,000 cubic meter storage tank helps to relieve the combined sewer system during rainfall. Using pumps, the tank is drained when the downstream sewer system is able to safely accept the flows (for example, after a large rainstorm is over) and carry the flow to the wastewater plant for treatment.

The tank provides storm protection to the immediate neighbourhood surrounding the tank, however, it is the construction of the new storm trunk sewer that will provide the critical enhanced protection to the entire area.

Inlet control devices (ICD)

These devices will decrease the speed of stormwater entering the sewer system through catch basins on the road. This will reduce the risk of sewage backing up into basements by relieving pressure on the sewer systems. The ICDs will be placed at some catch basins which are still connected to combined sewers to relieve the combined sewer. As ICDs slow the flow of water into the combined sewer, they will temporarily increase the amount of stormwater ponding on the street for about one to two hours during heavy rainstorms. The water levels will decrease fairly quickly once the storm passes.

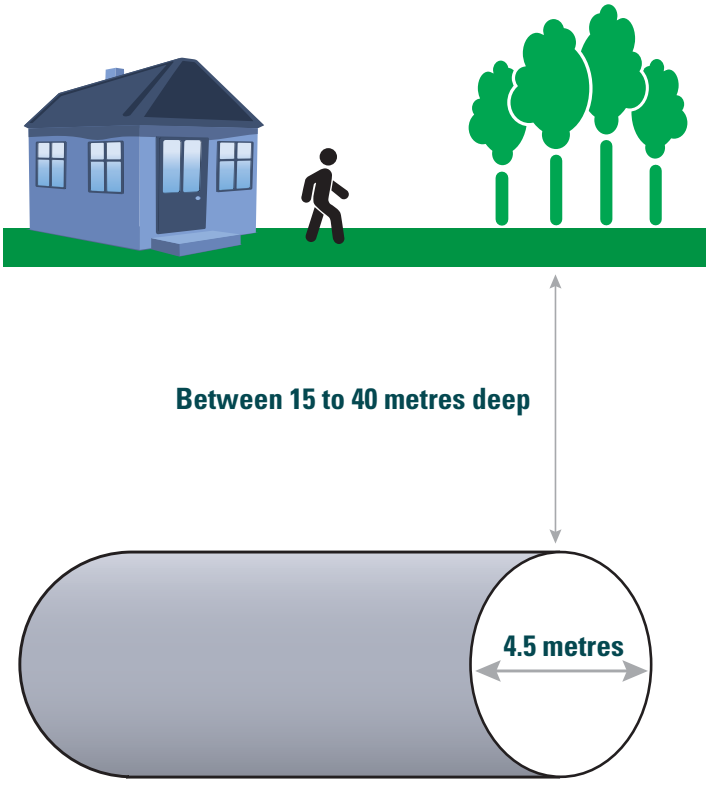
Construction of the new storm trunk sewer system

In order to build the new storm trunk sewer, a tunnel boring machine (TBM) will be used to tunnel below ground to a depth of 40 metres. A TBM uses rotating disc-shaped cutting wheels that bores through soil and installs pipe segments to create the tunnel walls. It typically excavates 8 to 10 metres per day. The TBM will be launched in an area of the Fairbank Memorial Park and move west below Dynevor Road, Kitchener Avenue, Dunraven Drive and Nashville Avenue.

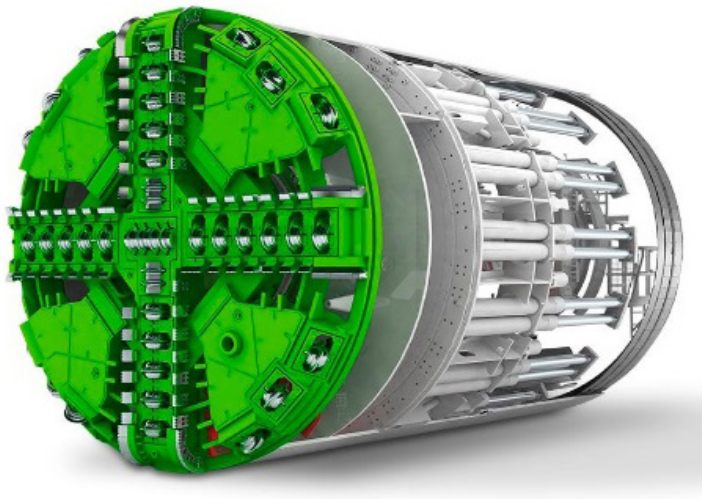
At the intersection of Nashville and Bicknell Avenue, the new storm trunk sewer will be reduced to a smaller pipe (from a 4.5-metre to a 1.8 metre diameter pipe) to slow down the stormwater released into Black Creek. This section will be built using micro-tunneling followed by standard open-cut excavation to install the final section from Keelesdale Park to Black Creek.

To help minimize disruption during construction, much of the work involving the new storm trunk sewer system will be completed through underground tunneling. As well, several deep, vertical shafts will be constructed at access points for the TBM to link the main and local storm sewer tunnels (see map on page 1). The storm trunk sewer will be accessed at four locations along its route to connect to the new local storm sewers. The new storm sewers will be constructed along various streets using a smaller micro-tunneling machine, or by open-cut excavation.

The tunnel will also pass underneath the Barrie GO rail corridor and the new sewers will cross the Eglinton Crosstown near the Caledonia GO Station.



Tunnel boring machine in place



Example of a tunnel boring machine

Example of a vertical shaft

Construction schedule

Construction is anticipated to start in summer 2021 and will take four years to complete. Updates will be provided as the construction work progresses including pre-construction and construction notices. From 2022-2025 there will be several contractors working simultaneously on all aspects of the project. We apologize for the inconvenience this may cause, but this approach will help to complete the work more quickly providing basement flooding protection sooner. Please find below the current construction plan (some dates may be subject to change).

Timing	Construction Work	Locations
Summer 2021 to 2024	New Fairbank storm trunk sewer	Fairbank Memorial Park, Dynevor Road, Kitchener Avenue, Dunraven Drive, Nashville Avenue, Bicknell Avenue, Westbury Crescent to Black Creek
2022 to 2025	New storm sewers, connecting catch basins to new storm sewers and installation of 330 inlet control devices	Entire project area
2024 to 2026	Restore local roads and tunnel shaft locations	Entire project area

Contact us

This is critical work to improve the existing infrastructure in the Fairbank-Silverthorn community. It is complex and of long duration and we appreciate your patience.

If you have further questions or would like to attend an online Project Update meeting this summer, please contact:
Mae Lee, Senior Public Consultation Coordinator, City of Toronto, Email: fairbanksewer@toronto.ca

Fairbank Storm Trunk Sewer System project website: www.toronto.ca/fairbank

Phone: 416-392-8210

TTY Hearing Impaired Service 416-338-0889 (7 days/ week, 8 a.m. – 5 p.m., closed holidays)

General Inquiries please call 3-1-1

For basement flooding prevention tips and City subsidies, please visit: toronto.ca/basementflooding