

# Canada



**Name:** Tunnelling Association of Canada (TAC)

**Type of Structure:** Federally incorporated non-for-profit society

**Number of Members (2019):** 474 (326 full, 54 corporate, 14 retired, 80 student)

**Board of Directors (2019): Officers:** Erik Eberhardt - President, Rick Lovat - Immediate Past President, Bruce Downing - Vice President West, Steve Skelhorn - Vice President East, Michelle Richards - Treasurer, Derek Zoldy - Secretary

**Directors:** Stephanie Robillard - BC Region, Remco Kleinlugtenbelt - Alberta, Jason Mann - Manitoba and Prairies, Dan Ifrim - Ontario, Jean Habimana - Québec and Maritimes, Nichole Boulton, Andrew Caruana, Mark Diederichs, Connor Langford, Boro Lukajic, Andre Solecki, Seamus Tynan

## ASSOCIATION ACTIVITIES DURING 2019 AND TO DATE

### 2019 TAC Technical Workshop

The 2019 TAC Technical Workshop was held October 21-22 in Winnipeg, Manitoba and featured 14 technical presentations from local, Canadian, American and International speakers under the theme The Use of Tunnelling Technologies and Underground Space for Stormwater and Flood Control. This was the first time TAC held an event in Winnipeg, and it attracted over 80 participants and was a tremendous success.

### TAC 2019 Awards Dinner

The Tunnelling Association of Canada

presented achievement awards in 2019 recognizing deserving individuals and projects in the Canadian tunnelling industry.

The following awards were presented:

- Lifetime Achievement Award – Enrique Fernández Gonzáles (posthumous)
- Canadian Innovation Initiative Award – Dragados Canada, gGravity Engineering, Dr. Sauer & Partners, City of Ottawa, SNC Lavalin and Ellis Don for the “Ottawa LRT Construction Sequence and Tension Tie Support for Shallow Urban Caverns”
- Canadian Project of the Year (Up to \$100M CAD) – Ward & Burke Microtunnelling, Metro Vancouver, Stantec and the Langley Concrete Group for the “South Surrey

- Interceptor – Johnston Road Section”
- Dan Eisenstein Memorial Scholarship – Antoine Gagnon

Full 2019 details are posted on the TAC website at [http://www.tunnelcanada.ca/awards\\_2019.php](http://www.tunnelcanada.ca/awards_2019.php).

## Chapter Activities

TAC's Ontario and British Columbia chapters continue to be very active running up to eight meetings (each) annually and featuring presentations on Canadian and international tunnelling projects. The Ontario Chapter closes the year with a December social, which was attended by over 100 members and non-members in 2019. The BC Chapter always opens the year in January with a combined meeting with the Vancouver Geotechnical Society. The Quebec Chapter is partnering with the local section of the Canadian Geotechnical Society to run events in Montreal.

## TAC Young Members

TAC had another successful year running numerous student and young member presentations and tours in Eastern and Western Canada. TAC's student membership grew to 80 members in 2019, up from 48 in 2018, reflecting the success of our YM Group's initiatives.

## CANADIAN TUNNELLING ACTIVITIES ONTARIO

The Ontario tunnelling market continues to be strong and is attracting both local and international competition. Currently

there are a number of tunnelling projects that have just started to break ground or are nearing construction completion. As well, there are a good number of upcoming projects that are in different stages of design and tendering. Below is a summary of most representative current, near term and future projects in Ontario:

**Current Projects**

- Ottawa Combined Sewage Storage Tunnel (CSST) - Anticipated completion: 2020
- Hwy # 401 Rail Tunnel Project, Toronto, Ontario - Anticipated completion: 2021
- Eglinton Crosstown (Stations Contract) - Anticipated completion: 2021
- Coxwell Bypass - Anticipated completion: 2024
- Ashbridges Bay Outfall - Anticipated completion: 2024

**Near-term Projects**

- East Brampton Watermain Contract 2, Peel Region – 4.5km of twinned watermain. Anticipated Tender: 2020
- Upper York Sewage Servicing (UYSS) – York Durham Sewage System Modifications, Newmarket – 5km of a combination of conventional tunnelling and micro tunnelling with internal diameters ranging from 1.8m to 3m. Anticipated Tender: 2020
- Fairbanks Silverthorn Storm Trunk Sewer System, City of Toronto – 2.5km of 3m to 4m diameter storm sewer tunnels and approximately 12km of new local storm sewers ranging from 250mm to 1800mm diameter. Anticipated Tender: 2021

**Future Projects**

- Massey Creek Tunnel, Toronto – Part 2 of the Don River and Central Waterfront Projects connects to the Coxwell Bypass. 6.0km of 4.4m diameter soft ground tunnelling, at depths ranging from 12m to 60m below grade. RFQ is anticipated to be in 2021 and construction in 2024.
- Scarborough Subway Extension, Toronto, Ontario – 6km of single bore tunnel 11m internal diameter and a terminus station. The project design is approaching 100% submission and is expected to go to tender after design approval by the Owners.
- Relief Line South / Ontario Line, Toronto, Ontario – The 7.5km twin tunnel Relief Line South is to relieve crowding on the existing Line 1 subway. Date: TBD

- Yonge Subway Extension, Toronto/ Richmond Hill, Ontario – A 7.4km extension on the existing Yonge Subway. Potentially utilizing a very large TBM. Date: TBD
- Inner Harbour Tunnel, Toronto, Ontario – Part 3 of the Don River and Central Waterfront Projects initiated by the City of Toronto, (The other being the Coxwell Bypass and Massey Creek). Date TBD
- West Vaughan Sewage System Project, York Region, Ontario – Approximately 14km of 3m id sewer tunnel. Date 2028

**Microtunnelling Projects**

Along with tunnelling, microtunnelling continues to contribute to the active underground work in Ontario. Many projects are being constructed all over the province, such as:

- Scarborough Watermain
- South Service Rd, Burlington
- Dixie Rd & QEW Crossing
- Seaton-Pickering - Rossland Rd
- Streetsville, and various MTO highway crossings

**QUEBEC**

**Current Projects**

- Réseau Électrique Métropolitain (REM) – The construction of the REM is well underway. The launch shaft for the approximately 3km long single tube tunnel is almost finished and TBM parts arrived on site and were assembled in the fall of 2019 to begin mining in winter in order to be driven underneath the Montreal Airport runways in spring next year. On the other hand, excavation for the 70m deep underground station at Edouard Montpetit is well underway on the

University of Montreal main campus as well as the McGill Station.

- Atwater – Two deep shafts and approximately 1km of tunnel by drill and blast. Work is almost complete, and it is expected to be commissioned in early 2020.
- Garage Cote Vertu – Approximately 2.5km by roadheader and deep shafts. Excavation completed and concrete work ongoing. Expected to finish end of 2020.

**Future Projects**

- Montreal’s Metro Blue Line Extension – Will add five underground stations to the east of the existing line for approximately 6km. Has secured federal and provincial funding. Preliminary design is ongoing. Project delivery method to be announced in fall 2019. Final design for this \$3.9G will start early 2020 and construction is expected to start in 2021.
- Quebec Tramway – The City of Quebec has secured federal and provincial funding to build 23km of new tramway that will include two sections of tunnels. Preliminary design is underway. Project delivery by design-build. Tender is expected in summer 2020.
- Louis H. Lafontaine Tunnel – Tender design for the major upgrades is nearing completion. The goal of the project is to prolong the lifespan the approximately 1.5km long double tube immersed tunnel. Bids are due end of the year; contract award is expected early next year, and construction work is expected to start in spring 2020.
- Quebec Levis Tunnel – The Quebec Provincial Government has decided on the tunnel option to link the Cities



SEM excavation of the Laird Station tunnel for the Eglinton Crosstown LRT project, Toronto

Successful completion of microtunnel through difficult clays in Winnipeg.



of Quebec and Levis underneath the Saint Lawrence River. Conceptual design is underway. The project delivery method as well as its budget are expected to be announced at the end of 2020

## PRAIRIES (SASKATCHEWAN AND MANITOBA)

### Current Projects

From a busy 2018 construction season, 2019 continued with several tunnelling projects planned for the City of Winnipeg as part of two overlapping City programs, the Basement Flood Relief program (BFR), and the Combined Sewer Overflow (CSO) Management program.

Four major projects are underway as part of the BFR & CSO programs. These projects include:

- Cockburn and Calrossie Sewer Relief Project
- Ferry Road Sewer Relief Project
- Jefferson Sewer Relief Project
- Transcona Sewer Relief Project

Together, these four projects have over 14km of pipe installations in excess of 1,200mm, and include pipe diameters up to 3,000mm.

### Near Term to Future Projects

Near-term City of Winnipeg tunnelling construction contracts (i.e. within approximately 6-8 months):

- City of Winnipeg Contract 12 and the Jefferson East Combined Sewer Relief (Phase 2) are projected to proceed in 2020.
- Investments in the Winnipeg CSO Program are planned to continue and continues to generate interest from tunnelling companies across North America.

Regina has also embarked on a significant infrastructure renewal project within the critical downtown portion of the City. Monitoring of the project design development continues.

## ALBERTA

### Current Projects

- Valley Line LRT, Edmonton, Alberta – Construction of two 500m long soft ground NATM tunnels as part of a \$1.8bn P3 project awarded to TransEd Partners.

### Future Projects

- Green Line LRT – Calgary has approved the \$4.5bn Green Line LRT, which includes over 3km of tunnel in the City's downtown area.
- Inglewood Sanitary Trunk Project – Microtunnelling of 4km of sanitary pipe.

## BRITISH COLUMBIA

The British Columbia tunnel market continues to be very busy with many of the large projects under procurement last year moving into construction, and many more advancing through procurement.

### Current Projects

- Second Narrows Water Supply Tunnel, Vancouver – 1.1km, 6m diameter tunnel connecting the Vancouver suburbs of North Vancouver and Burnaby below Burrard Inlet.
- Douglas Trunk Sewer – 1.85km alignment of HDPE-lined reinforced concrete pipe (1200mm ID). The project is on schedule for completion by March 2020.
- North Shore Conveyance – North Shore Wastewater Treatment Plant with the existing outfall below

the Lions Gate Bridge. Tunnelling operations began in August of 2019 with a busy final 12 months scheduled to completion.

- BC Hydro Site C Diversion Tunnels, Fort St. John – Twin diversion tunnels to facilitate the construction of the main earth fill dam.
- Second Narrows Water Supply Tunnel – The project includes a 1.1km long, 6m diameter tunnel under the Burrard Inlet, parallel to the Second Narrows Bridge. The tunnel will house 3 welded steel water mains. Construction will take place 2019 through 2023.

### Future Projects

- Annacis Island Wastewater Treatment Plant Outfall – The project will showcase a challenging marine operation to complete the tunnel drive under the river and construct a riser structure and diffuser for the outfall.
- Broadway Subway Project - Millennium Line Extension – 6km extension to the existing Millennium Line Skytrain in downtown Vancouver. Construction is projected to take place 2020 to 2025.
- Eagle Mountain Gas Pipeline – A 9km long tunnel to house the 24" pipe as part of the 47km gas pipeline extension from Coquitlam to the new Woodfibre LNG facility, west of Squamish, BC. Construction is set to start in 2020.
- The Annacis Water Supply Tunnel – Another major Metro Vancouver marine crossing to provide reliable drinking water to the region. The project consists of a 2.3km long, 3.9m ID tunnel located between New Westminster and Surrey, BC RFP planned for mid-2020.
- Stanley Park Water Supply Tunnel – To meet the growing demand for drinking water in the region, Metro Vancouver is planning to construct a major water infrastructure project, called the Stanley Park Water Supply Tunnel, deep underground in Stanley Park. The project consists of a 1.4km long bedrock tunnel that will house a 2.6m diameter water main, which will replace the existing water main through the park that was built in the 1930s. The project involves the excavation of 3 shafts and 2 tunnel drives through weak sedimentary bedrock (primarily sandstone, siltstone and mudstone) as well as construction of two new valve chambers. The project entered Detailed Design in Q4 of 2019 and construction is scheduled to begin in 2021.