



Tunnelling Association of Canada
Association canadienne des tunnels

2020 ANNUAL GENERAL MEETING

Friday, November 6, 2020



Tunnelling Association of Canada Association canadienne des tunnels



Erik Eberhardt

President
Tunnelling Association of Canada



Tunnelling Association of Canada

Association canadienne des tunnels

- | | |
|---|---|
| 1. Welcome, Introductions and Zoom Meeting Rules | <i>Erik Eberhardt</i> |
| 2. TAC By-law Revision to Permit Virtual AGM (<i>motion</i>) | <i>Erik Eberhardt</i> |
| 3. Acceptance of the 2019 AGM Minutes (<i>motion</i>) | <i>Erik Eberhardt</i> |
| 4. President's Report | <i>Erik Eberhardt</i> |
| 4.1 TAC's Response to COVID-19 | |
| 4.2 Special Projects | |
| 4.3 Engineering Institute of Canada | |
| 4.4 ITA, Nordic Forum, America's Forum | |
| 5. 2020 Membership Report and Targets for 2021 | <i>Steve Skelhorn</i> |
| 6. Treasurer's Report | <i>Michelle Richards</i> |
| 6.1 2019 Statements and Auditor's Report | |
| 6.2 Appointment of Auditor for 2020 Financials (<i>motion</i>) | |
| 6.3 2020 Financial Forecast & 2021 Budget (<i>motion</i>) | |
| 7. TAC 2021 Board of Directors (<i>motion</i>) | <i>Rick Lovat</i> |
| 8. Regional Reports | <i>Steve Skelhorn/
Bruce Downing</i> |
| 9. Young Members Report | <i>Nichole Boulton</i> |
| 10. Other Business | |
| 11. Next Annual General Meeting – October 19, 2021 | <i>Erik Eberhardt</i> |
| 12. 2020 TAC Achievement Awards | <i>Erik Eberhardt</i> |



TAC By-law Amendments

Proposed TAC By-law Amendments to Permit Virtual Meetings

Deletions to the existing by-law wording shown as strike-through text. Additions to the existing wording shown as underlined text.

4.06 Participation in Meetings

Participation at meetings shall be in person or by electronic means.

~~Participation by electronic means is prohibited.~~ Voting at in-person meetings is will be by a show of hands, unless a motion is made for a ballot vote. Voting at electronic meetings will be at the discretion of the chair. Participation in voting by proxy is prohibited.

4.07 Annual General Meeting

An annual general meeting open to all members of the Corporation shall be held in Canada each year on a date and at a location and by a format to be selected by the board of directors. Meetings must allow attendance and voting in a manner that permits their subsequent verification.



TAC By-law Amendments

***Motion: Moved by Andre Solecki, seconded by Erik Eberhardt,
that the proposed amendments to sections 4.06 and 4.07
of the TAC By-laws be approved.***

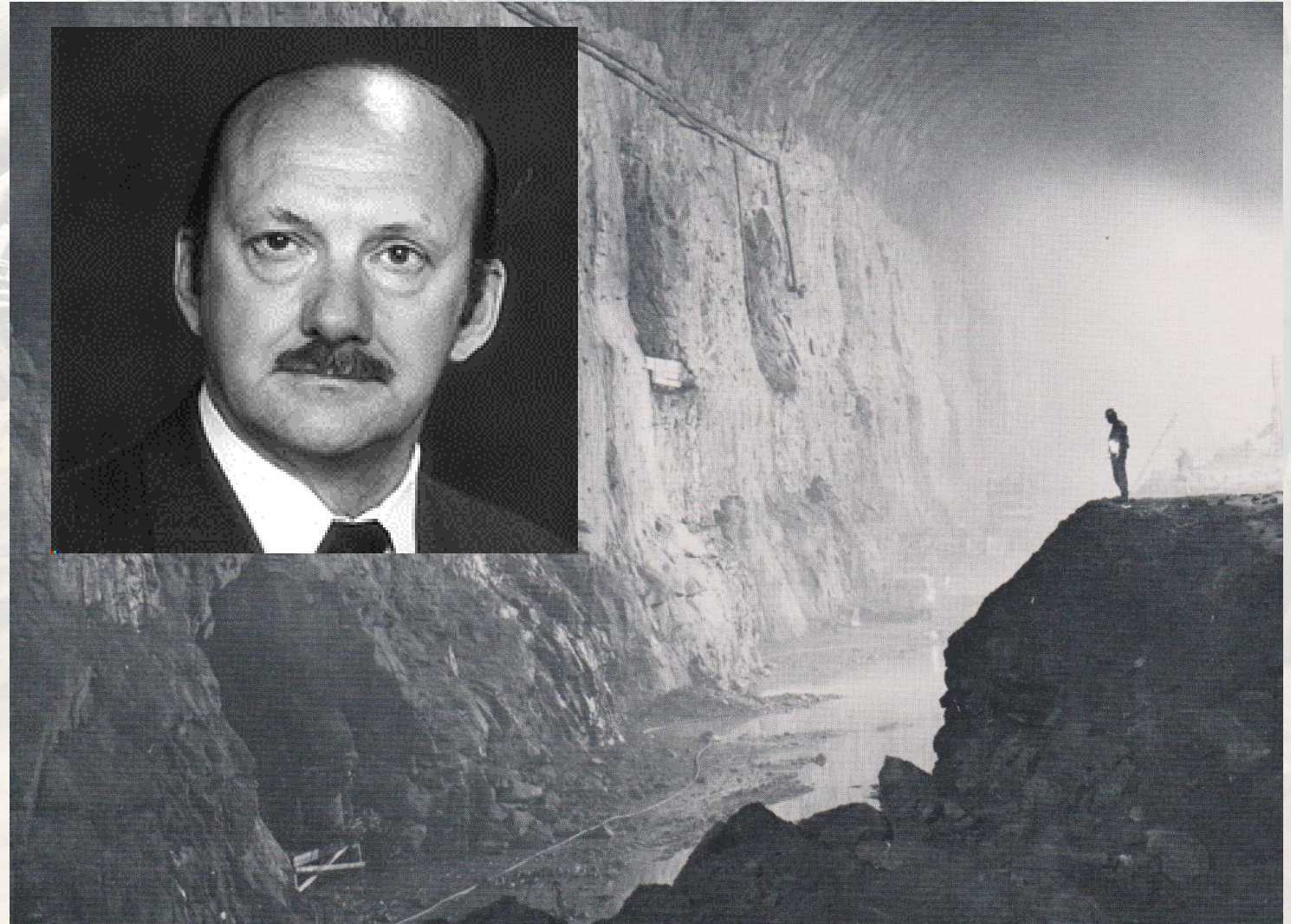


In Memoriam

Dr. Raymond Philip Benson **TAC President (1984-89)**

... A celebrated industry leader and recipient of TAC's 2016 Lifetime Achievement award.

Ray was a former president of Klohn Leonoff and worked on such signature projects as the Gardiner Dam in Saskatchewan, WAC Bennett Dam in B.C., and the Churchill Falls project in Labrador. Ray's contributions to the tunnelling profession were many, especially his work on the design of unlined and lined pressure tunnels.





Minutes of the 2019 AGM

The draft minutes of the October 21, 2019 Tunnelling Association of Canada Annual General Meeting are posted on the TAC website at

https://www.tunnelcanada.ca/downloads/TAC2019AGM_Minutes-to_be_ratified.pdf

***Motion: Moved by Erik Eberhardt, seconded by Steve Skelhorn,
that the minutes of the 2019 AGM be approved.***



2020 Board of Directors

OFFICERS

Erik Eberhardt – President

Rick Lovat – Immediate Past President

Bruce Downing – Vice President West

Steve Skelhorn – Vice President East

Michelle Richards – Treasurer

Andre Solecki – Secretary

DIRECTORS

Stephanie Robillard – Director, British Columbia

Remco Kleinlugtenbelt – Director, Alberta

Jason Mann – Director, Manitoba and Prairies

Dan Ifrim – Director, Ontario

Jean Habimana – Director, Québec and Maritimes

Nichole Boulton – Director

Andrew Caruana – Director

Mark Diederichs – Director

Connor Langford – Director

Boro Lukajic – Director

Leila Sunderani – Director

Seamus Tynan – Director



President's Report

- **TAC's Response to COVID-19**
 - **TAC 2020 Conference moved to 2021 and rebranded as TAC 2020-One**
 - **In-person local chapter meetings suspended; replaced by webinars**

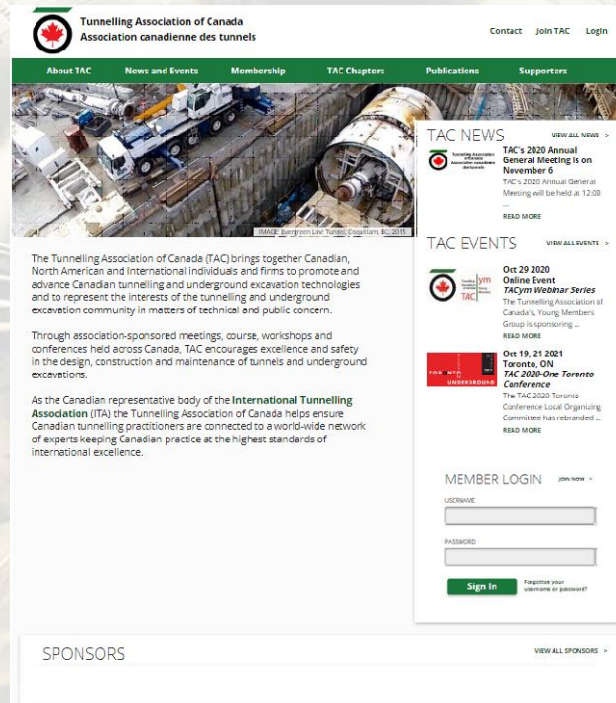


TACym Webinar Series



President's Report

- **Special Projects**
 - **Recent/Ongoing**



- **Proposed (New)**

- A register/database of Canadian tunnels and tunnelling projects (under construction, planned, etc.)
- Other suggestions from membership



President's Report

- **ITA, Nordic Forum, Americas Forum**

- TAC has helped lead a move to reform ITA governance. This resulted in the formation of a Governance Council tasked with conducting an organizational review of the ITA and reports to the Member Nations (via the General Assembly).
- TAC has also pushed for changes in how WTC events are organized and host cities selected. The fiasco arising from the cancellation of the WTC 2020 in Kuala Lumpur have since forced actions to be taken, with recommendations from the ITA to be discussed with Member Nations in early 2021.
- The ITA continues to remain active with key initiatives like the Working Groups. TAC members are invited to get involved and should contact us if they are interested in being a TAC representative for a particular ITA Working Groups .



President's Report

- **Engineering Institute of Canada**

- In April 2020, TAC was accepted as a new member society of the Engineering Institute of Canada (EIC). The EIC is a federation of 14 technical/engineering societies, including the Canadian Geotechnical Society, Canadian Society for Civil Engineering, Canadian Society for Mechanical Engineering and Canadian Dam Association.
- TAC is now eligible to nominate members for EIC awards and honours, such as Fellows of the EIC and the Julian C. Smith Medal and K.Y. Lo Medal recognizing significant engineering contributions to Canada and internationally, respectively.
- The EIC also participates in the Bacon and Eggheads breakfast talk series, which focusses on connecting Parliamentarians with experts in science and engineering.



Membership Report

TAC Membership Update

Presented by: Steve Skelhorn, Vice President East

Contributions by: Wayne Gibson, TAC Administrator



Membership Report

Current 2020 Membership

As of November 2, 2020, total TAC membership was 404 individuals and firms broken down as follows (with a comparison to the figures at last year's AGM):

➤ Individual Members	288 (326)	decrease of 38
➤ Corporate Members	59 (54)	increase of 5
➤ Student Members	46 (80)	decrease of 34
➤ Retired Members	11 (14)	decrease of 3

In 2019, total membership was 474 – our current count of 404 represents a 15% year over year decrease. We surmise that the downturn is primarily due to COVID-19 effects, particularly the student membership numbers.

On a positive note, it was encouraging to see Corporate membership increase by 8% in 2020.



Membership Report

In 2021, we recommend setting a goal of 475 members, to return to the membership count achieved by the end of 2019:

➤ Individual members	325
➤ Corporate members	60
➤ Student members	75
➤ Retired members	15

All members, and particularly corporate members, are asked to ensure their colleagues and staff who should be TAC members renew or sign up in 2021.



Membership Report

Membership benefits in 2021 will continue to include:

- Subscription (six issues annually) to *Tunnels and Tunnelling North America*
- Access to TAC conference proceedings and preferred member prices for the TAC 2020-One conference
- Access to electronic documents from other conferences and workshops sponsored by TAC
- Access to local chapter events at preferred TAC member prices
- Regular TAC and chapter E-News on society updates/events and news of other association tunnelling events, such as the World Tunnel Congress

Corporate membership includes the above benefits (for one individual) plus:

- Logo and hyperlink to firm from the Corporate Members page on the TAC website.
- Recognition of corporate membership at least once annually in *Tunnels and Tunnelling North America*.
- One additional subscription to *Tunnels and Tunnelling North America*
- Dedicated financial support for TACym events



Membership Report

TAC proposes to maintain membership dues in 2021 at 2020 pricing:

Corporate Member:	\$500.00 per year
Individual Member:	\$ 75.00 per year
Retired Member:	\$ 25.00 per year
Student Member:	\$ 12.50 per year

All members are encouraged to log into the membership portal of the TAC website www.tunnelcanada.ca to keep their membership contact details up to date.



Financial Report

2019, 2020 and 2021 Financial Update

Presented by: Michelle Richards, CPA, Treasurer

Contributions by: Wayne Gibson, TAC Administrator

2019 Auditor: Bob Adam, CPA



2019 Balance Sheet

Tunnelling Association of Canada *Statement of Financial Position*

		Dec 31, 2018	Dec 31, 2019
		x \$1,000	
Assets	Cash and Short Term Investments	401.7	420.7
	Accounts Receivable	30.7	1.5
	Prepaid Expenses		25.6
TOTAL ASSETS		432.4	447.8
Liabilities	Accounts Payable and accrued liabilities	9.6	22.9
	Deferred Revenue (Membership Dues)	12.5	19.8
TOTAL LIABILITIES		22.1	33.7
Equity	Retained Earnings, Beginning of Year	415.3	410.3
	Net Period Earnings (Loss)	-5.0	3.8
Total Equity		410.3	414.1
TOTAL LIABILITIES & EQUITY		432.4	447.8



2019 Income Statement

Tunnelling Association of Canada

Statement of Operations

	Dec 31, 2018	Dec 31, 2019	to Sep 30, 2020
	Revenue (x \$1,000)		
Conference, Workshop and Event Revenues	37.0	50.6	1.1
Membership Fees	46.3	52.5	53.0
Donations/Sponsorships	4.0	31.0	1.0
Interest	0.1	0.2	0.8
Total Revenue	87.4	134.3	55.9
	Expenses (x \$1,000)		
Professional Fees	23.6	32.0	21.4
TAC Workshop	0.0	26.2	0.0
Chapter and Other Events	19.3	21.1	5.2
Scholarships and Awards	17.9	18.0	8.0
National Office Overhead	21.7	17.5	6.1
Website	5.9	6.9	3.5
History Book Project	4.0	8.8	3.0
Total Expenses	92.4	130.5	47.2
Deficiency of Revenues over Expenses	-5.0	3.8	8.7



2019 Auditor's Report

ROBERT

ADAM

CPA PROFESSIONAL CORPORATION

36 BROWNLEE DRIVE, BRADFORD, ON L3Z 2K4 P: (416)567-5586 E:BOB.ADAM.CPA@GMAIL.COM

INDEPENDENT AUDITOR'S REPORT

To the Board of Directors of the Tunnelling Association of Canada / Association Canadienne Des Tunnels

Report on the Financial Statements

I have audited the accompanying financial statements of the Tunnelling Association of Canada / Association Canadienne Des Tunnels, which comprise the statement of financial position as at December 31, 2019, and the statements of operations, changes in net assets and cash flows for the year ended December 31, 2019, and notes, comprising a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I comply with ethical requirements and plan and perform an audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on my judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient to provide a basis for my audit opinion.

Opinion

In my opinion, the financial statements present fairly, in all material respects, the financial position of the Tunnelling Association of Canada / Association Canadienne Des Tunnels as at December 31, 2019, and its results of operations, changes in net assets and cash flow for the year ended December 31, 2019 in accordance with Canadian accounting standards for not-for-profit organizations.

June 17, 2020
Robert Adam, CPA Professional Corporation
Public Accountant
Licence 1-12277
Bradford, Ontario

Summary excerpt from fiscal 2019 auditors report:

"In my opinion, the financial statements present fairly, in all material respects, the financial position of the Tunnelling Association of Canada / Association canadienne des tunnels as at December 31, 2019, and its results of operations, changes in net assets and cash flow for the year ended December 31, 2019 in accordance with Canadian accounting standards for not-for-profit organizations."

Robert Adam, CPA
Public Accountant, Licence 1-12277
Bradford, Ontario



Appointment of Auditor

***Motion: Moved by Michelle Richards, seconded by Boro Lukajic,
that Bob Adam, CPA, be appointed to audit the Tunnelling
Association of Canada's 2020 financial statements.***



2020 Forecast and 2021 Budget

2020 Budget and Forecast Year End, and Proposed 2021 Budget

REVENUE	Budget 2020	2020 Forecast	2021 Budget
Member Fees	27,500.00	23,982.38	25,000.00
Corporate Membership	30,000.00	29,000.00	30,000.00
Investment Income	5,000.00	2,823.98	4,000.00
Workshop or Net Conference	50,000.00	0.00	50,000.00
Chapter and Other Events	8,400.00	1,095.04	3,500.00
TAC History Book Sponsorship	5,000.00	6,000.00	0.00
TOTAL REVENUE	125,900.00	62,901.40	112,500.00
OPERATING EXPENSES			
External Services Total	32,000.00	31,208.75	31,750.00
Chapter and Other Events (including YM)	31,000.00	6,440.35	20,650.00
National Office Overhead Total	18,750.00	7,267.90	13,900.00
Scholarships and TAC Awards Total	20,000.00	26,500.00	26,000.00
Special Projects - TAC Commemorative Book	50,000.00	3,000.00	50,000.00
	0.00	0.00	0.00
TOTAL OPERATING EXPENSES	151,750.00	74,417.00	142,300.00
NET INCOME/(LOSS)	-25,850.00	-11,515.60	-29,800.00



2021 Budget

**Motion: Moved by Michelle Richards, seconded by Erik Eberhardt,
that the proposed 2021 TAC Budget be approved.**



TAC Board of Directors

Election of TAC Officers and Directors

Presented by: Rick Lovat, Past President



2020 TAC Board of Directors

OFFICERS

NAME	POSITION	RESPONSIBILITY	REGION	SECTOR	TERM
Erik Eberhardt	Officer - President	ITA Rep, Nordic Forum Rep, T&TNA Panel,	W	AC	DEC 31, 2020
Rick Lovat	Officer - Immediate Past President	Nomination Com Chair, Awards Com Chair, TAC Book	E	CS	DEC 31, 2020
Bruce Downing	Officer - VP, West	T&TNA Chairman	W	CS	DEC 31, 2020
Steve Skelhorn	Officer - VP, East	Membership, TAC Book, BTS Representative	E	CT	DEC 31, 2020
Michelle Richards	Officer -Treasurer	Budget, Cash Management, Banking	W	CS	DEC 31, 2021
Andre Solecki	Officer - Secretary	By Laws, Governance	E	CS	DEC 31, 2022
Stephanie Robillard	Director, British Columbia Chapter	T&TNA Panel	W	CS	DEC 31, 2020
Dan Ifrim	Director, Ontario Chapter	T&TNA Panel	E	CS	DEC 31, 2020
Connor Langford	Director	Scholarships	W	CS	DEC 31, 2020
Seamus Tynan	Director	TAC Book Chairman	E	CT	DEC 31, 2020
Remco Kleinlugtenbelt	Director, Alberta & Prairies Chapter	T&TNA Panel	W	CS	DEC 31, 2021
Jason Mann	Director, Manitoba & Prairies Chapter	T&TNA Panel	W	CS	DEC 31, 2021
Leila Sunderani	Director	Social Media	E	CS	DEC 31, 2021
Boro Lukajic	Director	By-Laws, T&TNA Panel, TAC Book	E	CS	DEC 31, 2021
Jean Habimana	Director, Quebec & Maritimes Chapter	AFTES Representative, T&TNA Panel	E	CS	DEC 31, 2022
Nichole Boulton	Director	Young Members	W	CS	DEC 31, 2022
Mark Diederichs	Director	University Outreach, Professional Development	E	AC	DEC 31, 2022
Andrew Caruana	Director	Social Media	E	SP	DEC 31, 2022

DIRECTORS

Abbreviations: CS = Consultant, AC = Academia, CT = Contractor, SP = Supplier, E = East, W = West



TAC Directors – Election and Term

SECTION 5 – DIRECTORS

5.01 Election and Term

Nominees for offices of President and Vice Presidents shall be selected by a Nominating Committee comprised of **three (3) members**.

All members of the Nominating Committee shall be Corporate or Individual members of the Corporation.

The **Chairman shall be the Immediate Past President**.

Other members of the Nominating Committee shall be appointed by the Board of Directors.



TAC Directors – Election and Term

2020 Nominating Committee (NC):

- **Rick Lovat (E) – TAC President, 2012 - 2014**
- **Rick Staples (E) – TAC President, 2008 - 2012**
- **Garry Stevenson (W) – TAC President, 2004 - 2008**

Invited Advisers:

- **Boro Lukajic (E) – TAC President, 1994 - 1998**
- **Frank Policicchio (W) – TAC Vice President, 2008 - 2012**



TAC Directors – Election and Term

Nominating Committee meeting of April 22 >> recommendation to the TAC Board.

*“Given the uncertainty in these extraordinary times and the large turn-over of the Board, the Nominating Committee recommended to **extend all Officers and Directors terms by one year**;”*

- TAC Board meeting, June 17 - ***Approved unanimously, subject to member feedback***
- No objections and primarily positive feedback from membership
- TAC Board meeting, September 9 - ***Approved for presentation at the AGM***



TAC Directors – Election and Term

SECTION 5 – DIRECTORS

5.01 Election and Term

The slate of nominees selected by the Nomination Committee and Directors, shall be submitted to the entire membership of the Corporation with the notice of the Annual General Meeting.

The slate of nominees shall be submitted to the membership at the Annual General Meeting.



2021 TAC Board of Directors

OFFICERS

DIRECTORS

NAME	POSITION	RESPONSIBILITY	REGION	SECTOR	TERM
Erik Eberhardt	Officer - President	ITA Rep, Nordic Forum Rep, T&TNA Panel,	W	AC	DEC 31, 2021
Rick Lovat	Officer - Immediate Past President	Nomination Com Chair, Awards Com Chair, TAC Book	E	CS	DEC 31, 2021
Bruce Downing	Officer - VP, West	T&TNA Chairman	W	CS	DEC 31, 2021
Steve Skelhorn	Officer - VP, East	Membership, TAC Book, BTS Representative	E	CT	DEC 31, 2021
Michelle Richards	Officer -Treasurer	Budget, Cash Management, Banking	W	CS	DEC 31, 2022
Andre Solecki	Officer - Secretary	By Laws, Governance	E	CS	DEC 31, 2023
Stephanie Robillard	Director, British Columbia Chapter	T&TNA Panel	W	CS	DEC 31, 2021
Dan Ifrim	Director, Ontario Chapter	T&TNA Panel	E	CS	DEC 31, 2021
Connor Langford	Director	Scholarships	W	CS	DEC 31, 2021
Seamus Tynan	Director	TAC Book Chairman	E	CT	DEC 31, 2021
Remco Kleinlugtenbelt	Director, Alberta & Prairies Chapter	T&TNA Panel	W	CS	DEC 31, 2022
Jason Mann	Director, Manitoba & Prairies Chapter	T&TNA Panel	W	CS	DEC 31, 2022
Leila Sunderani	Director	Social Media	E	CS	DEC 31, 2022
Boro Lukajic	Director	By-Laws, T&TNA Panel, TAC Book	E	CS	DEC 31, 2022
Jean Habimana	Director, Quebec & Maritimes Chapter	AFTES Representative, T&TNA Panel	E	CS	DEC 31, 2023
Nichole Boulton	Director	Young Members	W	CS	DEC 31, 2023
Mark Diederichs	Director	University Outreach, Professional Development	E	AC	DEC 31, 2023
Andrew Caruana	Director	Social Media	E	SP	DEC 31, 2023

Abbreviations: CS = Consultant, AC = Academia, CT = Contractor, SP = Supplier, E = East, W = West



2021 TAC Board of Directors

***Motion: Moved by Erik Eberhardt, seconded by Rick Lovat,
that the Tunnelling Association of Canada Officers and
Directors for the period 2021-2023 be approved.***



Regional Reports

Presented by: **Steve Skelhorn – Vice President East**
 Bruce Downing – Vice President West

Contributors: **Jean Habimana – Director, Quebec & Maritimes**
 Dan Ifrim – Director, Ontario
 Jason Mann – Director, Manitoba & Prairies
 Remco Kleinlugtenbelt – Director, Alberta
 Stephanie Robillard – Director, British Columbia



Eastern Canada

Quebec – Current Projects

- **REM:** The \$6.3B REM light rail train project will be the fourth largest automated transportation system in the world after Singapore, Dubai and Vancouver. It comprises the rehabilitation of the existing 100-year-old Mont Royal Tunnel to house two underground stations at McGill University and the University of Montreal. One of the stations will be the second deepest station in the world at approximately 70 m. Excavation work is nearing completion for the two stations – installation of inside structures will follow. The project includes an additional two underground stations and an approximately 3 km long tunnel to run under the Montreal International Airport runways. The launch of the EPB 6.5 m diameter tunnel occurred in October.
- **Garage Cote-Vertu:** Excavation work and the majority of concrete work is already completed for this approximately 2.5 km long underground storage and maintenance facility that will house 10 new trains and connect to the existing tail track at the Cote Vertu Station.
- **Romaine-4, Quebec:** The final 245 MW site to be constructed as part of the total 1550 MW project on the river. Work continues on the diversion tunnel awarded to EBC.



Eastern Canada

Quebec – Current Projects

- **Atwater Conveyance Tunnel:** Provisional acceptance of the project was approved over the summer and tunnel work is now underway that involves a new raw water intake tunnel, two deep shafts and an approximately 2 km long conveyance tunnel. Firms include CRT and Hammel constructors of Quebec, and Hatch as the designer and construction manager.
- **Bassin Lavigne:** This 2.1 km long, 2.4 m inside diameter tunnel constructed by drill and blast with carrier pipe installation has recently been completed. Contractor: EBC. Designer & Construction Manager: City of Montreal & Hatch.
- **Lafontaine Tunnel Rehabilitation Project:** This \$1.2B project was recently awarded to a joint venture of Vinci, Eurovia & Pomerleau. Construction to start spring 2021.



Eastern Canada

Quebec – Pending and Possible Future Projects

- **Montreal's Metro Blue Line:** The eastern Blue Line extension will add five new stations to reach Anjou, and a retention pool at Lavigne to manage storm water (3 tunnels of 2 m diameter with total length of 2.1 km). Expected contract packaging in early 2021.
- **Quebec Tramway:** Approximately 2.5 km of tunnels and 4 underground stations. Qualifications of 3 teams occurred in the summer 2020. The RFQ is expected at the end of 2020 pending additional environmental and ridership studies.
- **Collecteur Industriel:** Wastewater tunnel east of Montreal. Expected tender for final design anticipated at the end of 2020.
- **Third Link between Québec and Lévis:** Feasibility studies ongoing.



Eastern Canada

Ontario

The strong tunnelling market in Ontario continues to keep local contractors busy and attract more international competition from the US and around the world.

Currently there are numerous tunnelling projects nearing construction completion, several new projects that have just started to break ground, and a good number of upcoming projects that are in the design phase. A summary of the most representative current, near term and future projects in Ontario includes:

– Current Projects

- **Hwy # 401 Rail Tunnel Project, Toronto:** Anticipated completion: 2021
- **Eglinton Crosstown (Stations Contract):** Anticipated completion: 2021
- **Coxwell Bypass:** Anticipated completion: 2024



Eastern Canada

Ontario – Current Projects

- **Ashbridges Bay Outfall:** Anticipated completion: 2024
- **East to West Diversion Sanitary Trunk Sewer:** Anticipated completion: 2022
- **Toronto Island Watermain Revitalization:** Anticipated completion: 2021

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 the **York Durham Sewage System (YDSS) Forcemain Twinning Project** in the Town of Newmarket, estimated to be completed by the end of 2021



Eastern Canada

Ontario – Near-term Projects

- **East Brampton Watermain Contract 2, Peel Region:** 4.5km of twinned watermain. Anticipated tender 2020
- **Scarborough Subway Extension**, Toronto: 7km of single bore tunnel 11m internal diameter and 3 stations including terminus station. The project went to tender as DBF, with the expected award in January 2021.
- **Eglinton Crosstown West Extension:** ECWE Phase 1 consists of 7km of tunnel and 3km of at grade and elevated guideway. Includes 7 stations – 4 underground, 2 elevated and 1 at grade. Advance tunnels went to tender as DBF, expected award in Jan 2021.
- **Fairbanks Silverthorn Storm Trunk Sewer System, 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
- **Upper York Sewage Servicing (UYSS), Newmarket:** 5km of a combination of conventional tunnelling and micro tunnelling with internal diameters ranging from 1.8m to 3m. Anticipated Tender: 2021



Eastern Canada

Ontario – Future Projects

- **Ontario Line, Toronto:** A 15.5km long tunneled, aerial and at grade alignment to relieve crowding on the existing Line 1 subway.
 - Conceptual Design complete.
 - RSSOM (systems & vehicles) DBFOM – RFQ out now
 - Southern Civil, Stations & Tunnel (DBF) – RFQ out now
 - Northern Civil, Stations & Tunnel (DBF) – RFQ 2021
- **Yonge Subway Extension, Toronto/Richmond Hill:** A 7.4 km tunnel, 6-station extension of the existing Yonge Subway, potentially utilizing a very large TBM. Twin @ 6.1 m OD or Single Bore @ 17.3 m OD TBD
 - Conceptual Design complete.
 - RFQ 2022
- **Eglinton West Extension Airport Segment:** Metrolinx and Infrastructure Ontario are planning the construction of an approximately 4.5 km long second extension of the under-construction Eglinton Crosstown Light Rail Transit (ECLRT), from Renforth/Commerce Station to the Pearson Airport Terminus Station at Viscount Road
 - Concept Design ongoing



Eastern Canada

Ontario – Future Projects

- **Inner Harbour West, Toronto:** Part 3 of the Don River and Central Waterfront Projects initiated by the City of Toronto, (the other parts being the Coxwell Bypass and Massey Creek), consists of a 5.6km tunnel.
 - Design awarded summer 2020.
 - DBB Construction estimated 2023.
- **Taylor-Massey Creek Tunnel, Toronto:** Part 2 of the Don River and Central Waterfront Projects connects to the Coxwell Bypass. Six km of 4.4m diameter soft ground tunnelling at depths ranging from 12m to 60m below grade.
 - RFQ is anticipated in 2021 and construction in 2024.
- **West Vaughan Sewage System Project, York Region:** Approximately 14km of 3m inside diameter sewer tunnel.
 - Project Shelved.



Eastern Canada

Ontario Chapter News

Activities of the Ontario Chapter of the Tunnelling Association of Canada have been limited since March to online presentations given the COVID-19 pandemic.

The annual year-end social has not yet been cancelled – Chapter Executive members are looking at alternative virtual options should COVID-19 pandemic event attendance restrictions continue into December.

Ontario Chapter members are involved in the final edits of the TAC Coffee Table Book as well as Local Organizing Committee planning for the rescheduled TAC 2020-One Conference that will be hosted in Toronto in October 2021.



Western Canada

Prairies (Saskatchewan and Manitoba) Current Projects

2020 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. Together, these projects have over 14 km of pipe installations in excess of 1,200 mm, and include pipe diameters up to 3,000 mm.

For 2020:

Contract 5 on **Cockburn Sewer Relief** (700 m of 2100/2400 mm pipe using 2 pass method)
Jefferson Sewer Relief 2100 mm trunk sewer – ongoing using 2 pass method



Western Canada

Near Term to Future Projects

Near-term City of Winnipeg:

- Contract 6A on Cockburn Sewer Relief – 2100 mm trunk sewer
- Contract 6B on Cockburn Sewer Relief – 1600 mm trunk sewer

Soon:

- Additional Ferry Rd. sewer relief projects in the works
- Several river crossings, including the Omands Creek Interceptor and the Newton Force Main





Western Canada

Alberta

Under Construction

- ***Valley Line LRT, Edmonton, Alberta***

Construction of two 500 m long soft ground NATM tunnels as part of a \$1.8B P3 project awarded to TransEd Partners. Operational and accessible to the public as early as 2021.

- ***Calgary Inglewood Sanitary Trunk Project***

Complete a total of 4km Microtunnel - Fall 2020.

Future Work

- ***Green Line LRT***

Calgary has approved the \$4.5B Green Line LRT, which includes over 3 km of tunnel in the City's downtown area.





Western Canada

British Columbia

The British Columbia tunnel market continues to be very busy with many of the large projects under construction and more in design/procurement.

The local chapter has not met in person since March 2020. A “Meet a Tunneller” presentation at UBC is planned for November. Stay tuned for interactive virtual events for early 2021.

In Construction

- ***North Shore Conveyance***

This DB Metro Vancouver project connects the existing Lions Gate Wastewater Treatment plant with the new Treatment plant and ties into the existing outfall below the Lions Gate Bridge. Tunnelling operations began in 2019 and is ongoing with 4 of 8 tunnel runs now complete.

- ***Second Narrows Water Supply Tunnel***

The DBB project includes two deep shafts and 6 m diameter tunnel under the Burrard Inlet. The tunnel will house 3 welded steel water mains. North slurry wall shaft excavation is complete. South shaft excavation in sandstone is underway with 80 m out of 110m complete. Tunnelling with a slurry TBM has started with 70 m complete of the 1100 m long drive.

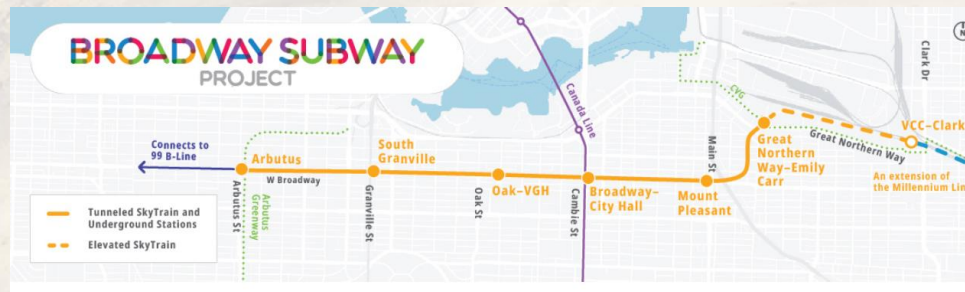
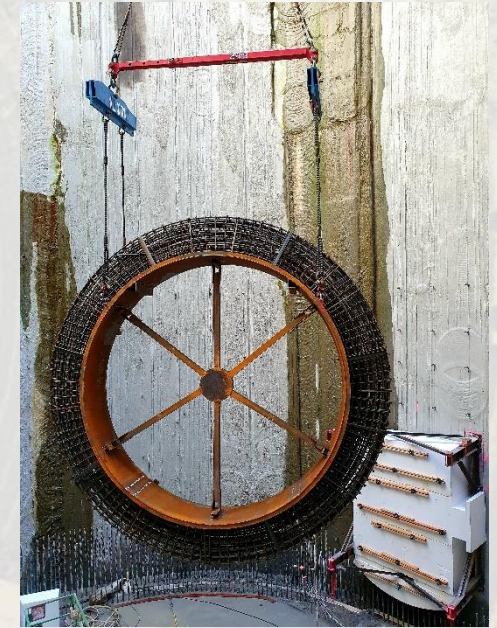




Western Canada

BC – In Construction

- ***Annacis Island Wastewater Treatment Plant Outfall***
Construction is underway with excavation and initial lining in both shafts complete. Tunnelling will start in early 2021. The DBB project includes a challenging marine operation to complete the tunnel drive under the Fraser River and install a riser structure and diffuser for the outfall. The construction of the in-river cofferdam is underway.
- ***Broadway Subway Project - Millennium Line Extension***
\$1.7B DBF contract to construct 6 km twin bore tunnels in downtown Vancouver as well as six underground stations. The tunnels will house an extension to the existing Millennium Line Skytrain. Project was recently awarded to Acciona-Ghella with start of construction in early 2021, running through 2025.





Western Canada

BC – Future Projects

- ***Eagle Mountain Gas Pipeline***

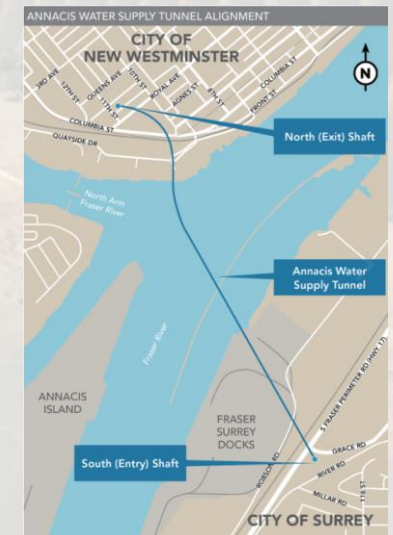
Project consists of a 9 km long, 4 m diameter tunnel to house the 24" pipe as part of the 47 km gas pipeline extension from Coquitlam to the new Woodfibre LNG facility on Howe Sound. The tunnel alignment crosses both hard rock and recent sand deposits. Design Build contract RFP release data is scheduled for late 2020, with start of construction mid 2021.

- ***The Annacis Water Supply Tunnel***

Another major Metro Vancouver marine crossing to provide reliable drinking water to the region. The DBB project consists of a 2.3 km long 4.5m OD tunnel located between New Westminster and Surrey. Contractor qualifications received this fall. RFP planned for late 2020 and construction planned for Q2 2021-2027.

- ***Stanley Park Water Supply Tunnel***

The project consists of a 1.4 km long bedrock tunnel that will house a 2.6 m diameter water main. The project involves the excavation of 3 shafts and 2 tunnel drives through weak sedimentary bedrock as well as construction of two new valve chambers. The Project team is completing Detailed Design. RFP planned for early 2021 with construction late 2021 through 2026.





Western Canada

BC – Future Projects

- **Coquitlam Intake No. 2**

This Project includes 3 km soft ground TBM tunnel and 6 km hard rock tunnel as well as an intake shaft and 3 lake taps. The project is currently at a conceptual level of design. RFP for future design phases are anticipated for 2021/2022.

- **Coquitlam Main No. 4**

The scope of work includes 2 km long tunnel to install two 3 m water pipes to support future expansion of Coquitlam water supply network. Design teams have been shortlisted and RFP for design phase slated for 2021.

- **Cambie-Richmond Water Supply Tunnel**

This Metro Vancouver project is currently in conceptual design phase. The marine crossing between Vancouver and Richmond comprises a tunnel and deep shafts for conveyance of clean water. Start of construction is planned for 2027.

- **George Massey Tunnel Replacement**

Project is in conceptual phase but will likely include a large diameter immersed tube tunnels between Richmond and Delta.



Young Members Report

Presented by: Nichole Boulton, Director, Young Members

Current Young Members

- **Student Members: 46**
- **Young Members: unknown as currently not recorded in the TAC database**

Current Social Media Outreach

- **662 followers on Facebook (@TACyoungmembers)**
- **110 followers on Instagram (@tac_young_members)**
- **Goal for this upcoming year is to encourage the webinar attendees to spread the word and encourage colleagues/students to join TAC.**



Young Members

One Specialty, Many Disciplines An Intro to Tunnelling Through Two Case Studies

Presenter: Dale Brunton, MAsc., P.Eng.

Date & Time: Thursday January 16
12:30

Grad Club

Location: (162 Barrie St, Kingston, ON)
2nd Floor – South Side



Due to the COVID-19 pandemic, January was the last time TACym in-person events were held.

Outreach

TACym Kingston Chapter was present at the Queen's Civil Engineering Open House to highlight TAC and the Canadian Tunnelling Industry

Presentations

Dale Brunton (ARUP) was the last in-person YM presentation.

Starting in May the YM's Webinar Series was launched





Young Members

Young Member's Webinar Series

- New initiative to provide continued learning while stuck at home

- Aimed to be a platform for Young Members to present their work and research

Date	Presenter(s)	# of Viewers
May 28	Ali Hashemi	70
June 25	Primo Noegroho Miguel Pestana Abirathan Rajmohan Jan Scheele	42
Sept 3	Neda Dadashzadeh	14*
Sept 24	Ryan Preston	55
Oct 29	Tamara Kondrachova	75

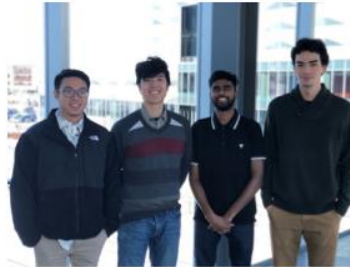
Tunnel Face Pre-Conditioning Using Destress Blasting



NAME: Ali Hashemi, PhD

DATE & TIME: Thursday May 28
3:00 EDT / 12:00 PDT

Theoretical Gardiner Expressway Replacement Tunnel Project (University of Waterloo Undergrad Design Project)



NAMES: Primo Noegroho
Miguel Pestana
Abirathan Rajmohan
Jan Scheele

DATE & TIME: Thursday June 25
1500 hrs EDT (Toronto)
1200 hrs PDT (Vancouver)

Excavation Damage Zone Prediction for Deep Repository Engineering Using a Discontinuum Numerical Modelling Approach



NAME: Neda Dadashzadeh, PhD

DATE & TIME: Thursday September 3
1500 hrs EDT (Toronto)
1200 hrs PDT (Vancouver)

Applying UAV and LiDAR Scanning Technologies to an Underground Gold Mine



NAME: Ryan Preston, MSc, PEng

DATE & TIME: Thursday September 24
1200 hrs PDT (Vancouver)
1500 hrs EDT (Toronto)

Cost Analysis on Greater Toronto Area Tunnelling Projects



NAME: Tamara Kondrachova,
M.Eng, P.Geo

DATE & TIME: Thursday October 29th, 2020
1500 hrs EDT (Toronto)
1200 hrs PDT (Vancouver)

**Thank you to all of
our presenters!**



Young Members

Young Member's Webinar Series

- New initiative to provide continued learning while stuck at home
- Aimed to be a platform for Young Members to present their work and research
- Joint talks with British Tunnelling Society (July 16 and Sept 28) and Greek Tunnelling Society (Aug 13)

Thank you to all of our presenters!

Date	Presenter(s)	# of Viewers
July 16	Michael Dutton	2,800
Aug 13	Nicholas Vlachopoulos	69
Sept 28	Mark Knight	283

Time-Dependent Deformations of Shafts and Tunnels in the Greater Toronto Area



NAME: Michael Dutton, M.A.Sc., P.Eng
DATE & TIME: Thursday July 16, 2020
1800 hrs BST (London) [UCT+1]
1300 hrs EDT (Toronto) [UCT-4]
1000 hrs PDT (Vancouver) [UCT-7]

Joint
With



Eupalinos Tunnel – First tunnel to be excavated simultaneously from both ends in the 6th century B.C.



NAME: Nicholas Vlachopoulos,
PhD, CD, P.Eng, P.E.Gr
DATE & TIME: Thursday August 13, 2020
1900 hrs EEST (Athens) [UCT+3]
1200 hrs EDT (Toronto) [UCT-4]
0900 hrs PDT (Vancouver) [UCT-7]

Joint
With

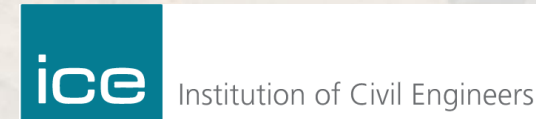


Lessons Learned as A Trenchless Litigation Expert and Designer



NAME: Mark Knight, PhD, P.Eng., M.ASCE
DATE & TIME: Monday Sept. 28, 2020
1830 hrs BST (London) [UCT+1]
1330 hrs EDT (Toronto) [UCT-4]
1030 hrs PDT (Vancouver) [UCT-7]

Joint
With





Tunnelling Association of Canada
Association canadienne des tunnels

2021 TAC ANNUAL GENERAL MEETING

Save the date: Tuesday, October 19, 2021
In conjunction with: TAC 2020-One Toronto
Venue: Toronto Hilton (Downtown)

20 TORONTO VISION
UNDERGROUND OS

OCT
19
20
21
2021



Tunnelling Association of Canada
Association canadienne des tunnels

2020 ANNUAL GENERAL MEETING

Friday, November 6, 2020