



Minutes of the 2016 TAC Annual General Meeting
Monday, October 17, 2016
Shaw Centre, Ottawa, ON

Members of the TAC Board of Directors in attendance:

Erik Eberhardt (EE), President; Rick Lovat (RL), Past President; Steve Skelhorn (SS), Vice President East; Bruce Downing (BD), Vice President, West; Michelle Richards (MR), Treasurer; Derek Zoldy, (DZ), Secretary; Serge Moalli (SM), Director, BC Region; Heinrich Heinz (HH), Director, Alberta; Jason Mann (JM), Director, Prairies; Walter Trisi (WT), Director, Ontario; André Rancourt (AR), Director, Quebec and Maritimes; Nichole Boulton (NB), Director; Boro Lukajic (BL), Director

Absent Directors:

Rick Staples (RS), Director; Lara Reggin (LR), Director

1. Welcome and Introductions

Erik Eberhardt opened the meeting at 17:15 welcoming all members and guests. He noted that the AGM agenda and the 2015 AGM minutes were available at the door – the minutes are also posted on the TAC website. EE remarked that workshops and conferences provide an opportunity to get together to connect with the members and to plan and review TAC programs, finances, membership and other elements of the Association's business.

2. Minutes from the 2015 AGM – October 5, 2015

Motion: Moved by Erik Eberhardt (seconded by André Rancourt) that the minutes of the 2015 AGM be approved – Carried.

3. President's Report

EE provided a status overview of a number of the TAC projects underway.

The coffee table book will be a celebration of the Canadian tunnelling industry. The project team includes ST, SS, BL and RL – they are hoping to have it ready in 2017. There is still an opportunity for firms and individuals to support the project through sponsorship.

Another ongoing project is renewal of the TAC website. A small committee of the Board is working with the TAC Administrator to fine-tune the design, navigation and content. The goal is to make it a TAC resource with improved functionality for members that would include conference proceedings, white papers, etc.

4. 2016 Membership Report and Targets for 2017

SS reported that total 2016 TAC membership of 367 as of October 10, is down from the 2015 number for the same period (391). However, the number of corporate and student members is up, and young member interest is growing and will continue to be a recruitment focus. It was also noted that care must be taken in directly comparing numbers following a conference year to those following a workshop year, as both come with automatic membership for non-member registrants and the conference attracts more attendees than a workshop.

The 2017 goal is 300 individual, 55 corporate, 60 student and 10 retired members for a total of 425. Membership fees in 2017 will remain at \$75 for individuals, \$500 for corporations, \$15 for students and \$25 for retired members.

SS noted that member benefits in 2017 will remain the same and will include six issues of *T&TNA*, TAC conference and workshop registration at preferred member prices, member-only access to TAC documents, local chapter events, TAC e-newsletters and chapter e-news mailings. Corporate membership includes the above benefits for one individual plus recognition on the TAC website, at the AGM, and in *T&TNA*, and an extra subscription to *T&TNA*.

5. Treasurer's Report

5.1 Financial Statements

MR reported that TAC's financial position remains excellent with an accumulated surplus at the end of 2015 of \$446,205. The slight reduction from the end of 2014 was planned as the membership approved a deficit budget in 2015 to carry out special projects.

A presentation of audited 2014, audited 2015 and 2016 year-to-date (September 30) financials was highlighted. MR noted that 2014 was a conference year so TAC revenues are always higher – we should know the 2016 conference figures by the end of the year. Similarly, 2014 expenses were higher in a conference year and are on track to be similar in 2016. Advertising and promotion were higher in 2014 with the completion of the advocacy video project. In 2016 the coffee table book will generate similar special project expenses to those incurred in 2014.

5.2. Auditor's Report – Fiscal 2015

MR reported that the 2015 audit has been completed and filed with CRA except for some internal EC management review items. The auditor has adjusted his process to be more timely.

5.3. 2016 Forecast & 2017 Budget Approval

MR noted that a \$13K operating loss is currently forecast for the end of 2016, which is very close to the budgeted loss of \$16.5K approved last year. This will be dependent on the financial result of the 2016 conference and may improve based on the apparent success of the Ottawa event. However, should the timing of the coffee table book expenditures be charged more in 2016 than 2017, then the anticipated loss may be closer to the budgeted amount.

The proposed 2017 budget shows a net loss of \$29K, but \$15K in net spending is destined for special projects so the operating (only) budget is a loss of \$14K, which is normal in a non-conference year. A conservative net revenue of \$15K has been budgeted for a Montreal workshop. The 2017 revenue plan also shows \$20K in additional coffee table book sponsorship, over and above the \$17.7 received in 2016. As the book project has not been undertaken before, the sponsorship revenue estimates are essentially targets as there is no past history to base estimates on as there are for the conference.

Motion: Moved by Michelle Richards (seconded by Heinrich Heinz) that the proposed 2017 TAC budget be approved – Carried.

5.4. Appointment of Auditor for 2016 Financials

Motion: Moved by Michelle Richards (seconded by Derek Zoldy) that Bob Adam be appointed as TAC's auditor for fiscal 2016 – Carried.

6. TAC 2017 Board of Directors

RL remarked on the success to date of the TAC book project and the efforts of the committee to implement and lead it. He encouraged all to contribute financially so in the end there will be no net cost to TAC to publish it.

RL presented a table illustrating the TAC Board of Directors and Officers and noted that it is not an election year for the president and vice president positions. He observed that the Board is well balanced geographically (east/west), but that the supplier sector is underrepresented.

The terms of two directors – DZ and NB – are up at December 31. RL reported that both DZ and NB have agreed to serve for another 3-year term and have been appointed by a recent vote of the Board. RS has asked to stand down early at the end of 2016. TAC members were invited to express their interest in serving on the Board to replace RS – from the nominations received, the Board agreed to appoint Jean Habimana to serve from January 1, 2017 to December 31, 2019.

RL thanked Past President Rick Staples for his long service to TAC and reported that he will be recognized locally as he was unable to attend the 2016 conference.

7. Regional Reports

7.1. East (Ontario & Quebec)

SS presented an overview of completed, current and future work in Eastern Canada.

Ontario

Ontario continues to have a substantial amount of work currently underway, plenty of projects currently in the prequalification and tender stage and quite a good outlook for projects on the horizon. Here is a rundown on some current, near term and future projects in Ontario.

The Obayashi/Kenaidan/Kenny Joint Venture have completed the tunnelling on the *Eglinton Cross Town Light Rail Transit West Contract*. The Aecon / Dragados Joint Venture have completed tunnelling on the first of the twin tubes with the second TBM close to breakthrough. TBMs will be removed once the reception shaft is completed.

The *Ottawa Light Rail Transit* project, being constructed by the Rideau Transit Group (Ellis Don, SNC Lavalin, and Dragados Canada) is well underway and scheduled for completion this year. TAC members attending the TAC Ottawa conference in October had an opportunity to visit the site.

The *Hanlan Feedermain* project is now nearing completion with tunnel and pipe installation complete and work commencing on the permanent chambers.

Twinning of the *West Trunk* project was divided into two contracts. Contract one was awarded to McNally Construction and contract two to Technicore last year – tunnelling is progressing well.

Strabag continues with construction of the *Mid-Halton Outfall Tunnel* project. The shafts have been excavated, tunnelling is ongoing, the marine work and riser installation will be performed by Dean Construction. The project is scheduled for completion in mid to late 2017.

C & M McNally Engineering is constructing the *Mid-Halton Zone 1 Interconnect Tunnel* contract. The project is well underway and tunnelling is in full swing.

CRS Tunnelling has completed the 685m long *Bathurst & Teston Rd. Watermain Tunnel*. The tunnel was constructed through water bearing, mixed ground conditions, utilizing an EPB TBM that installed 3m ID prefabricated concrete segment. The watermain has also been installed inside the tunnel, hydrostatically tested, and passed.

There are a slew of projects under design and scheduled to be let for tender in the future, such as: *West Whitby Trunk Sewer, Burnhamthorpe Water Project, Sheppard East LRT, Scarborough Subway Extension, Downtown Relief Line, Coxwell By-pass East River Tunnel, Fairbanks Silverthorn, CP Rail Tunnel* from Windsor to Detroit; *Ontario Power Generation Deep Geologic Repository Tunnels* for nuclear waste; to name a few.

There continues to be a very active microtunnelling market in Ontario. Many projects are currently being constructed all over the province, such as: Britannia Rd., Bradford West Gwillimbury, Rebecca Street, Midblock collector, MTO highway crossings, Streetsville, etc. These projects are being completed by the three main microtunnel contractors in Ontario: Ward & Burke Microtunnelling; Earth Boring; and CRS Tunnelling. Many more microtunnelling projects are scheduled with plenty of activity that will continue into the next year.

Ottawa Combined Sewage Storage Tunnel (CSST), City of Ottawa, prequalification has closed. The outcome of the RFQ is pending. The project consists of approximately 6km of 3m diameter rock tunnelling utilizing a TBM that can install a 3m ID prefabricated concrete segments.

There is new government funding for transit which could translate to more tunnel opportunities to come. The outlook for Ontario continues to look promising.

Quebec

In Quebec, hydroelectrical projects continue with *Romaine-3* (395 MW) wrapping up the work on final dam construction: pressure tunnel excavation has been completed. *Romaine-4* (245 MW) is the final site to be constructed on the river. Work is just beginning on the access roads and bridge construction.

The market is still looking strong for Quebec tunnelling with the following projects on the horizon:

- *Metro Extension East – Blue Line* (Agence Metropolitaine de Transport, AMT) is adding five new stations to the line towards the east to Anjou. The project has been announced, but is still waiting for Government approval
- *Jarry Tunnel* – excavation of the 4.1 km long City of Montréal tunnel for the installation of a water main of 1.2 m is ongoing.
- *Lavigne Retention Pool* – 3 tunnels of 2m diameter will be excavated for a total length of 2.1 km in Montreal to manage storm water (project yet to be started)

- *Melocheville Tunnel* – Road tunnel maintenance project for the Jacques-Cartier and Champlain Bridges
- *Hydro-Canyon project* – 800 m long pressure tunnel near Quebec City, 4.8 m wide D-shaped D/B tunnel section, Axor Group, ±10MW

The Caisse de Dépôts et de Placement du Québec have announced a \$5.5B light rail train project that involves construction of two new tunnels and refurbishing of the existing Mont-Royal tunnel. The new downtown tunnel of ± 2 km will reach the existing train station from the south shore. The other new airport tunnel of ± 3 km will link the airport from the north part of the train line. Major refurbishing of the existing 5 km Mont-Royal tunnel will be undertaken in order to bring the tunnel up to NFPA 130 standards for fire safety. The project is also studying the possibility to add two underground stations to link the existing Metro line to the new train line at Edouard-Montpetit and McGill stations.

SS thanked WT and AR for sending the project information on their Chapters.

7.2. West (Alberta, British Columbia and Prairies)

BD presented an overview of completed, current and future work in Western Canada.

Alberta

Despite the severe economic downturn in the Province of Alberta, there is considerable tunnelling activity underway. On the small diameter water/sanitary range, highlights are an upcoming deep storm sewer tunnel located along 105 Street in the downtown core, for which a design build delivery has been established. In Calgary, a number of microtunnels have been recently completed successfully by specialist contractor Ward and Burke, and a few more were about to get underway at the time of writing.

In the Light Rail Transit (LRT) transportation sector, there are two large ongoing projects. In Edmonton, work is now underway in the \$1.8B *Edmonton Valley Line LRT* (Stage 1), with construction of a 500m soft ground tunnel segment scheduled to start in the first half of 2017. This segment, located between the Muttart and Quarters stops and on the north side of the North Saskatchewan River, will extend from the river bank to just west of Jasper Avenue and 95 Street, where the tracks return to street level. It will consist of twin single track bores excavated using the SEM (Sequential Excavation Method). This is a public-private partnership (P3) project that includes a five-year design-build stage and a 30-year operation and maintenance (O&M) term, which was awarded to TransEd Partners, a consortium led by EllisDon, Bombardier and Fengate Capital Management.

In Calgary, after considering a number of options which entailed several combinations of at grade, elevated and underground tracks, the *Green Line LRT* Owner's Engineer's team, which includes Hatch, Stantec and Thurber Engineering, made its recommendation for tunnelling a significant portion of the City Centre alignment. The tunnel segment is approximately 3 km long and includes twin single track tunnels and five underground stations, which are envisaged to be constructed as a combination deep open cut boxes and/or SEM. It also includes crossings of the Bow River and several railway tracks, in a very congested area of the town. This underground option was evaluated by an independent City of Calgary Committee, and was approved by city council, in principle, on October 4, 2016.

British Columbia

British Columbia remains one of the most active markets in Canada for tunnelling and

underground works. While a few projects are nearing completion this year, many projects are expected over the next few years.

Metro Vancouver's Port Mann 1km-long x 3.5m-diameter tunnel was completed last year under pressures up to 6 bar. Mechanical and electrical work is being completed and final commissioning is expected by year end.

Metro Vancouver has more tunnel projects planned: The *Second Narrows Water Supply Tunnel*, a 1.1km-long, 5m diameter tunnel connecting the Vancouver suburbs of North Vancouver and Burnaby below Burrard Inlet. Geotechnical drilling investigation for the detailed design work took place on both sides of Burrard Inlet in 2015 and was completed in January 2016. Detailed design work should be completed by fall 2017. Construction is expected to take place from 2018 to 2022. The Annacis Main No. 5 Water Tunnel is a proposed water supply tunnel beneath the Fraser River connecting the Greater Vancouver suburbs of New Westminster and Surrey. The project is in the early stages of planning and construction is anticipated to begin in 2020. Conceptual design for Metro Vancouver's Coquitlam Water Intake No. 2 tunnel (7km x 4m min diameter) began in 2015.

The *John Hart Generating Station Replacement Hydro Project* in Campbell River, on Vancouver Island, was awarded to InPower BC, a joint venture of SNC and Aecon. The underground works were performed by a JV of SNC-Aecon and Frontier-Kemper. As of the end of August 2016, the surge shaft tunnel, the underground powerhouse, the main access tunnel had been completely excavated: 2/3 of the 1575m long power tunnel and 3/4 of the 520m long tailrace tunnel remained to be excavated. It took 13 months, 485 blasts, to excavate the 60,000 cubic metres of rock for the powerhouse cavern. Commissioning of this new generating facility is scheduled for fall 2018.

Approximately 60km north of Pemberton, Innergex Renewable Energy is developing the *Upper Lillooet and Boulder Creek Hydroelectric Facilities (HEF)*. The construction of both facilities is being carried out by CRT-EBC, a joint venture of EBC Inc. and CRT Construction Inc.

The *Upper Lillooet HEF* is an 81.4 MW plant with a water conveyance system consisting of 1.35km of 3.2m diameter penstock and approximately 2m-long inverted D tunnel shaped 6m wide and 5.5m high: the Upper Lillooet tunnel was completed at the end of July after successfully managing some difficult mixed face ground with high water inflows using a grouted pipe umbrella system with lattice girders and shotcrete.

The *Boulder Creek HEF* is a 25.3 MW run-of-river hydro project and includes a 2,900m-long inverted D shaped tunnel 3.6m wide x 4.5m high excavated from the downstream portal with approximately 2km of that tunnel being excavated with a 13% uphill grade. The Boulder Creek excavation tunnel was completed at the end of August 2016. The Upper Lillooet HEF is expected to be commissioned by the end of 2016, while the Boulder Creek HEF is expected to be commissioned in early 2017.

The *Evergreen Line Rapid Transit Project* included a 2km-long concrete segment tunnel excavated with a 10m diameter CAT EPB tunnel boring machine: started in June 2014, tunnel excavation is now complete and TransLink, Metro Vancouver's regional transportation authority, expects to have the line in service in early 2017.

TransLink and the City of Vancouver are both supporting the tunnel option for the

Millennium Line Broadway-UBC Extension. TransLink is working with its partners to advance planning and design work for this project: if funding from all three levels of governments is confirmed in 2017, construction could begin as early as 2019 with final commissioning expected 4 to 6 years later.

Manitoba and Saskatchewan

To open up the southeast quadrant of the city for further development, the City of Saskatoon undertook a major extension of their sanitary and storm trunk sewer systems. The *McOrmond Drive Sanitary and Storm Trunk Extensions* included over 1,500 m of 1,200 mm sanitary trunk sewer installed along McOrmond Drive from Willowgrove Boulevard to College Drive (Highway 5) and a parallel 2,400 mm storm trunk sewer of similar length. The City issued design-build tender was awarded to the Michels Canada Co./Stantec Consulting Ltd. Team. Each sewer was installed using a two-pass tunnelling system with initial support provided by steel ribs and wood lagging and the final tunnel liner provided by grouted in place HOBAS pipe. The tunnels were installed at depths of up to 15 m. With the completion of the sanitary and storm trunk extensions, an additional population of 80,000 can be serviced as growth in the southeast area of Saskatoon continues.

The proposed *50 MW Tazi Two Hydroelectric Project* is located on Black Lake and the Fond du Lac River in northern Saskatchewan. It will be the first new Saskatchewan hydro project in over 30 years, and will be the first hydro facility built entirely on reserve land. The project will help to meet a growing demand for power in northern Saskatchewan. Black Lake First Nation selected SaskPower as their preferred partner, and an agreement in principle was signed in 2013. Federal environmental approvals are in place, and community members recently voted in favour of proceeding with the \$630M project.

Project conveyance includes an approximately 3 km long drill and blast tunnel in gneissic bedrock, with an 11m wide and 10m high inverted “U” shaped cross section, and a minimum of about 30 m bedrock cover above most tunnel sections. Zones of mafic intrusives (metadiabase, metagabbro) will also be encountered along the tunnel. The intake channel leading into the tunnel portal will be constructed at the Black Lake Shear Zone, where banded gneiss with a mylonitic texture is juxtaposed with Athabasca sandstones lying immediately to the east along the shore of Black Lake. An adit will be constructed to allow for headings to be established in two locations; this adit will daylight at an elevation above Black Lake, and will remain in place as a surge facility to control hydraulic transient pressures during plant operations. A drill and blast rock excavation will also be necessary for the powerhouse, and for an 850m long tailrace channel that will be 20 m wide and on average approximately 7.5 m deep.

Project designer is KGS Group Consulting Engineers (with Golder Associates on the tunnel works). The Early Contractor Involvement (ECI) project delivery process has progressed to the 80% design level, with involvement to date from Peter Kiewit Infrastructure (PKI), with EBC Inc. involved in the tunnel works. Final approvals are anticipated during Q4 of 2016, with early works starting during Q3 of 2017, and first power is currently targeted during 2020.

Several tunnelling projects are in planning 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 currently underway as part of the BFR program. Together, while the final installations may vary somewhat, these four projects have over 14 km of possible pipe installations in excess of 1200 mm.

Capital investment in tunnelling projects for both the BRF and CSP master plan are expected to increase over the upcoming years, with investment in the CSO program beginning as early as 2018. This planned investment in buried infrastructure has and continues to peak the interest of tunnelling companies from across North America.

BD thanked SM, HH and JM for their contributions to the Western Canada report.

8. Young Members Report

NK reported that there are approximately 85 young members on the e-mail list, and student membership might increase by as much as 30 members in 2017 due to field trips planned this fall organized through UBC and SFU. The plans for 2017 include more classroom visits and presentations, technical site visits, and networking events (such as career days).

She noted that she is always appreciative of additional support from other areas of the country and is still looking for young members to help connect to students in Edmonton, Calgary and Quebec.

NK reported that she continues to be active in the ITA Young Members Group and has remained on the Steering Board. The second ITA Young Member AGM held in San Francisco at WTC2016 was a successful event that involved numerous additional countries. ITA YM initiatives include:

- Added 3 new members to the steering board
- Published the 2nd issue of *Breakthrough Magazine* with a focus on Gender equality
- 3rd issue for 2017 will focus on Technology and Industry Developments
- Began distribution of Breakthrough emails
- Started webinar series – 1st webinar was posted in September 2016 and distributed around the world
- Increased social media presence

BL suggested that TAC consider designating regional YM contacts. NB noted that this is underway with Jenn Day assigned to the Maritimes, Tim Packulak covering Kingston/Ottawa, and Danielle Delaloye performing this role in Vancouver.

ST asked how many young members there are in Ontario. NB replied she was not sure of the number as was unaware if all YM's in Ontario as marked as such on her list, but did ask the section to be sure to encourage firms to send YMs to meetings and support their TAC memberships.

9. ITA Update, Nordic Forum

EE reported that the 2016 World Tunnelling Congress in San Francisco broke attendance records – the 2017 WTC will take place in Bergen, Norway. ITA has numerous committees that TAC supports – there was a call last year to members to get involved and TAC will do the same in 2017 before the next meeting.

There was a Nordic meeting in San Francisco and another will be held in Norway. TAC is cooperating on a joint meeting on Wednesday, November 9 with our counterparts from the Norwegian Tunnelling Association – look for more news this week in an upcoming TAC e-news.

10. Motions from the floor

There were no motions.

11. Other Business

HH asked ST and SS about the recognition that a firm will receive for supporting the coffee table book process. ST replied that a firm will receive one signed copy for contributions between \$1000 and \$2500, and firms sponsoring above that level will receive two.

Gary Kramer asked if firms will be able to buy an advertising or advertorial page? ST replied that advertising is not being sought. but that a dedicated page will thank and list all sponsoring firms.

ST reported that firms may still submit project pictures. SS noted that they are only considering project pictures and not pictures that focus on individuals.

HH asked who is writing the text and is there an editorial board? SS reported that they are only seeking project descriptions for the submissions and that there will no be other text – he will send the outline to HH.

Dave Klug reported that UCA is publishing a similar book and that their challenge has been ensuring that those submitted for publishing will be of sufficient resolution to print well. ST reported that has been considered in the project plan and is being taken care of

Andrew Caruana suggested that TAC promote itself more through Twitter, LinkedIn and Facebook as many firms are doing this and it appeals to the young members and students.

12. Next Annual General Meeting

EE reported that a date and location for the 2017 AGM has not yet been determined, but that the meeting will coincide with the 2017 TAC Workshop currently planned to take place in Montreal.

The meeting adjourned at 6:35 pm