



ONTARIO CHAPTER
Tunnelling Association of Canada
Association Canadienne Des Tunnels

INVITATION

DESIGN AND CONSTRUCTION OF THE BILLY BISHOP TORONTO CITY AIRPORT PEDESTRIAN TUNNEL



- Presenters:** Andrew Cushing, Arup
- Date & Time:** Thursday, March 26, 2020
Doors and registration: 5:30pm
Presentation: 6:00pm
- Location:** Lone Star Texas Grill
930 Dixon Rd, Toronto, Ontario
- Cost:** TAC Members: \$5 at the Door
Non-Members: \$10 at the Door
Government Employees: \$5 at the Door
- RSVP:** It isn't required to RSVP, but please notify onttac@gmail.com if you plan to attend.

Presentation Overview

As lead designer for the Billy Bishop Toronto City Airport Pedestrian Tunnel, Arup was responsible for the highly challenging design of a 185m long tunnel excavated through shale bedrock at a depth of up to 35m below the surface of Lake Ontario. The 10m cut diameter of this tunnel makes it one of the largest size tunnels to be constructed in shale bedrock of the Greater Toronto Area. The intact strength of the shale is relatively low, and the rock mass is both very thinly bedded and under a rather high in-situ horizontal stress state. These geologic factors presented the risk of slabs of rock falling from above during tunnel excavation, requiring innovative design solutions.

This presentation will focus on geologic factors which influenced the tunnel design and construction for this award-winning project.

Speaker Bios:

Andrew Cushing is a Senior Geotechnical and Tunnelling Engineer with Arup, currently based in the Toronto office (since 2012). Andrew completed a bachelor's Degree in Civil Engineering from the State University of New York at Buffalo (1997) and a master's Degree in Geotechnical Engineering from Cornell University's School of Civil and Environmental Engineering (2001). In late 2011, Andrew enrolled in a second master's program in Tunnelling and Tunnel Boring Machines at the Polytechnic University of Turin in Italy, which he completed in late 2012. The topic of his thesis was the Billy Bishop Toronto City Airport Pedestrian Tunnel.