

# Transportation



# Talk

CANADIAN INSTITUTE OF TRANSPORTATION ENGINEERS MEMBER NEWSLETTER  
Volume 38, Number 1

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Welcome to the Spring 2016 Edition of Transportation Talk! This is our special edition featuring the latest breaking news about this year's annual CITE Conference held, for the first time, in beautiful Kelowna, BC.

Jointly hosted by the BC Interior Chapter and the Greater Vancouver Section, our Local Arrangements Committee (LAC) has developed a diverse technical program full of engaging topics, conversation circles, and panel discussions. Our program theme – Connecting Lifestyles – is very well suited to the Okanagan region as we will focus on how the transportation profession is proactively connecting our lives with our communities and economies.



To complement the technical program and theme, we will be offering unique Okanagan experiences including a bike tour of the impressive Myra Canyon Railway Trestles and a tour of the William R. Bennett Bridge, one of the longest floating bridges in North America. We are also offering cycling and walking tours of the vibrant urban landscape of downtown Kelowna.

As you read this edition of Transportation Talk, you will gain all the information needed to make the decision to join us. Don't forget to continue checking the conference website for the most up-to-date information.

Conference registration and accommodation bookings are available online, so go check it out at [cite7.org/Kelowna2016](http://cite7.org/Kelowna2016).

If you're still waiting to register, this is your personal invitation to join us! Meet new friends, who will soon enough become old friends because that's how these things work. The CITE 2016 Conference is one you don't want to miss and the LAC looks forward to welcoming you and your family to join us from June 5 to 8 as we celebrate our 20<sup>th</sup> Anniversary as a Chapter of CITE!





James Donnelly



Jan Voss

Co-Chairs, Kelowna 2016 Local Arrangements Committee

Find us at  [twitter.com/CITE2016](https://twitter.com/CITE2016) and  [facebook.com/CITE2016/](https://facebook.com/CITE2016/)

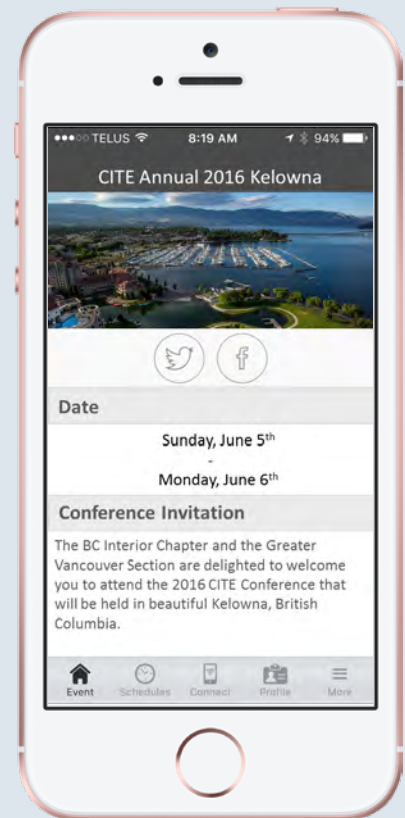
## CONFERENCE APP

After last year's successful debut of the CITE2015 conference app in Regina, the LAC is excited to bring the conference app here to Kelowna! The CITE2016 conference app will be available to download on May 5 from the Apple App Store and the Google Play Store.

The conference app will be your go-to source of information and includes the full technical program, list of speakers, schedule of special events, technical tour information, and a live media feed. In addition, the app will allow delegates to:

- See a map with the locations of all conference events
- Create your own personalized schedule of daily sessions so you don't miss a specific session or speaker
- Gain access to published abstracts
- Connect and exchange contact information digitally
- Get notifications and reminders for key events throughout the conference

We encourage you to download the app before you get here so that you are ready to enjoy everything the conference has to offer!



# REGISTRATION INFORMATION

REGISTRATION TYPE	Early Bird	After May 8
Regular - Full Conference.....	\$625.....	\$675
Student - Full Conference .....	\$100.....	\$100
Single Day.....	\$315.....	\$340
Workshop only (June 8-9).....	\$400.....	\$400

## EVENT TICKETS

Conference Banquet (June 7).....\$95 per ticket

**Early Bird Deadline  
extended to May 8!**

Register now at [cite7.org/Kelowna2016](http://cite7.org/Kelowna2016)

## REGISTRATION NOTES

- Full Conference registration includes one complete set of event tickets.
- Students must provide a valid ITE student member number for Student registration.
- Single Day registration also includes lunch.
- Special Note: British Columbia GST (5%) will be applied in addition to all above noted.

## CANCELLATIONS AND REFUND POLICY

- **100% REFUND:** if request is received in writing 15 days or more prior to the start of the conference.
- **50% REFUND:** if request is received in writing 7 to 14 days prior to the start of the conference.
- **0% REFUND:** if request is received in writing less than 7 days prior to the start of the conference.

Email requests for refunds to  
[kelowna2016\\_registration@cite7.org](mailto:kelowna2016_registration@cite7.org).

# WHERE TO STAY

The Kelowna 2016 LAC has partnered with the beautiful Delta Grand Okanagan Resort to bring you this year's Annual CITE conference! Located in central downtown Kelowna, the Delta Grand Resort is steps away from award winning restaurants and both the cultural and shopping districts. Sitting immediately next to the shimmering Okanagan Lake, the Delta Grand is surrounded by waterfront, parks, beaches, and public plazas. We are absolutely certain you will enjoy your time spent here during the 2016 CITE conference!

Special guestroom rates for the Kelowna 2016 conference delegates have been arranged with the Delta Grand Resort as follows:

Guest Room ..... \$219/night

Deluxe Guest Room ..... \$264-274/night

To book a guestroom, please visit [Book a Room](#) or call the hotel reservation line directly at 1-800-465-4651 or 250-763-4500. If you are having any challenges booking online or if you wish to extend your stay before or after the conference, please call the hotel's local number 250-763-4500 and ask for "On Site Reservations."

*Rates are quoted on a per room, per day basis and are net, non-commissionable. Please note that applicable taxes and fees are not included in the above rates.*



CREDIT: DELTA HOTELS

# TECHNICAL SESSIONS

MONDAY, JUNE 6

Session 1 — 9:00 - 10:30

## Session A1 – Engaging our Public

*How do we ensure taxpayers get what they want (need)?*

- Calgary cycle track network launch
- Cross-Canada walkability survey
- Public engagement process for major bike route implementation in Edmonton
- Calgary 7th Street cycle track: in-service road safety review

## Session B1 – Transportation & Health Workshop

*How do health and transportation sectors build on synergies?*

- The Journey: working towards a healthier built environment in BC – Provincial cross-training workshops
- A case study of the transportation referendum in Metro Vancouver and the new role of the health sector

## Session C1 – Economic Spinoffs of Transportation Projects Roundtable

*How can transportation professionals help support our economies?*

- Kelowna airport
- Crowchild and Flanders interchange
- UBC Point-Grey Campus bus terminal and covered layover facilities

## Session D1 – Connecting BC

- George Massey tunnel replacement project
- TransCanada Highway Program
- The Evergreen Line – connecting communities with Rapid Transit
- Central Okanagan planning study

Session 2 — 13:30 - 15:00

## Session A2 – Data for Decision Makers I

*How do we get the decision makers to read it, understand it, and act on it?*

- Parking lane width within a Complete Streets environment
- Developing a simulation Best Practices with SimCap
- How the City of Vancouver is proactively improving cycling safety
- Innovative approaches to assessing risk exposure on rural road networks

## Session B2 – Connecting Decision Makers & Transportation Planning Workshop

*How much control should go to provincial policy makers over delivery of local planning and budgets?*

- Transportation Governance Panel
- Developer funded Area Structure Plans: Connection & collaboration in land use & transportation planning
- The changing role of provincial highway agencies and their highways
- The case for a provincial active transportation strategy

## Session C2 – Debate: How to Plan for Family-friendly Transportation Systems

*How do we connect realistic targets to successful outcomes?*

- How bicycle facility and network design is supporting complete streets in Kelowna
- The Regina TMP: from uni-mode to multi-mode
- BIKETORIA and the rapid implementation of a city-wide network
- Bikeways to connect the City of Bogota, Colombia



CREDIT: CITY OF CALGARY



CREDIT: BC MINISTRY OF TRANSPORTATION & INFRASTRUCTURE



CREDIT: DYLAN PASSMORE

## MONDAY, JUNE 6

Session 3 — 15:30 - 17:00

### Session A3 – Moving from Vision to Budget

*How can asset management be used for evaluation before infrastructure is built or during its lifecycle?*

- Quantifying the economic benefits of road safety audits for P3 highway projects
- Place-making with pavers
- Robust Multi-modal Trip Generation in Canada
- Prioritizing pedestrian and bicycle infrastructure investments

### Session B3 – Safe Routes & Kids Conversation Circle

*Why aren't more cities doing it, and how can it be more effective?*

- RRFB pedestrian crossing in Port Moody
- Sustainable safety through school site design in St. Albert
- Improving playground and school zone awareness
- The evolution of Surrey's Safe & Active Schools program
- Kelowna's Safe Routes to School program

### Session C3 – Policy to Implementation Conversation Circle

*How do we convince decision makers to relax traditionally strict parking regulations in zoning bylaws?*

- Reducing parking for mixed-use developments, Hamilton - the Connolly parking stackers
- Parking: an important, but overlooked, transportation planning tool

### Session D3 – ExCITE Launch Party!

*Come out to learn more about ExCITE and help shape this new initiative for emerging members*

- We'll kick off with a panel discussion on finding our way in the transportation industry with an intro to ExCITE and special guests.
- A brainstorming session will follow to dig into what ExCITE can do for you or other hot topics.
- We'll wrap with a discussion of the next steps for ExCITE and how you can make your mark.

## TUESDAY, JUNE 7

Session 4 — 8:30 - 10:00

### Session A4 – Research to Practise

*Technology and Methods to Promote Efficiency*

- Methods to estimate pedestrian AADT from short duration counts
- Advanced traffic signal control using Bluetooth detectors
- Using transit AVL data to estimate the reliability of vehicular speeds in Toronto
- Using WiFi signals to estimate intersection travel time

### Session B4 – Policy to Implementation

*Getting the ideas off the drawing board and built*

- Application of Complete Streets in the greenfield context
- Evolution of cycle track designs in Kelowna
- Implementation of bicycle signals for a two-way cycle track on a one-way street
- Bernard Avenue revitalization

### Session C4 – Policy to Implementation Conversation Circle

*What's new and what's in it for you?*

- BC RSS - a snapshot of road safety in BC communities
- Variable speed signs on BC highways
- Information on the new grade crossing regulations

### Session D4 – Transportation Camp Unconference

*Hosted by Young Professionals in Transportation*

- Do you have a burning transportation topic you want to talk about? Want to learn more about what others are doing in transportation?
- Transportation Camp provides you with a unique opportunity to propose, lead, and shape open and engaging conversations about transportation
- An unconference is multiple rounds of sessions with different topics, group sizes, and formats (presentation, group discussion, Q&A, workshop) which are all proposed by attendees themselves.
- Perfect for attendees who want to generate ideas, talk about topics they feel passionate about, or inspire others in the field of transportation!

# TECHNICAL SESSIONS

TUESDAY, JUNE 7

Session 5 — 10:30 - 12:00

## Session A5 – All About Research

*Using High Tech Data Sources & ITS to Promote Safety & Complete Streets*

- Winnipeg’s safety performance functions and network screening project
- Road user analytics using computer vision techniques
- ITS and Complete Streets: a case study of Springfield Road in Kelowna
- Collision prediction models for Calgary arterials

## Session B5 – Connecting History to Present

*Lessons learned from historic transportation projects*

- Safety impacts of red light cameras - Hamilton
- A decade of parking and TDM at Royal Jubilee Hospital in Victoria
- Niagara Frontier cross-border travel patterns
- Okanagan Valley E-Rail

## Session C5 – Protecting our Public

*Community-based strategies for managing traffic*

- Community traffic management planning
- Main Streets update to a Complete Streets policy
- The effectiveness of SLOWS trailers in reducing speed
- The health benefits of Helmcken bikeway

Session 6 — 13:30 - 15:00

## Session A6 – More on Research

*Innovations in improving the efficiency of our transport infrastructure*

- Transportation impacts of Interior Health Authority’s building relocation
- Using Bluetooth detectors to evaluate arterial traffic signal retiming
- Emerging research and practice with AADT
- Modelling transit utilization impacts on land use in the central Okanagan

## Session B6 – Vision Zero World Café

*Designing safer transport systems – Proven ways 2 stop the biggest killer of our youth*

- Building Coalitions - Safe and Smooth: process and outcome
- Rural - Community safer solutions
- Education - Vision Zero adoption in Canadian Municipalities
- Built Form – Neighborhoods that sustain improved road safety
- Funding – We need data driven solutions via improved data quality and quantity – how?

## Session C6 – Connecting Big to Small Conversation Circle

*What do big cities do that we can too?*

- Placemaking Bolton
- New bicycle counters in Kelowna
- Planning an integrated multi-use pathway in Castlegar

## Session D6 – Innovative Technology Connections

*Using emerging technologies and information for improved designs*

- Data driving drones
- York TMP
- Making roundabouts accessible for all users



CREDIT: COMPLETE STREETS FOR CANADA

# TECHNICAL SESSIONS

## TUESDAY, JUNE 7

Session 7 — 15:30 - 17:00

### Session A7 – Big City Ideas For You II

#### Successful area-wide strategies

- Mississauga – The Evolving Story
- Dixie Road reconfiguration and bike lanes
- Road cross sections for all ages and abilities
- Agent-based approach to integrated transit-land use planning for small and rural communities

### Session B7 – ITE Leadership Council Conversation Circle

### Session C7 – Present to Future Conversation Circle

#### Car sharing, autonomous vehicles & real-time ridesharing – why are they driving change?

- Trip and system characteristics of one-way car sharing
- Traffic control signal timing parameters for autonomous vehicles
- Car sharing in Kelowna
- Autonomous vehicles

## WEDNESDAY, JUNE 8

Session 8 — 10:30 - 12:00

### Session A8 – Data for Decisions

#### Promoting Best Practises in Transportation – Decision-making tools

- Mode choice decision support system to promote transit
- CITE Traffic Calming Guide update
- CITE Driveway Turn Lanes Guide

### Session B8 – Our Eco-System, do we care? World Cafe

#### What more can be done to kick-start local government sustainability initiatives?

- Anti-idling policies to reduce emissions
- ComPASS
- Kelowna's GHG reduction strategy

### Session C8 – Tourism and Events Debate

#### Was it a great PR campaign or was it great transportation planning?

- 2015 PanAm/Para Games in Toronto
- 2010 Vancouver Winter Olympics
- North Park Street
- Regina Stadium event planning

Session 9 — 13:30 - 15:00

### Pecha Kucha – Best of the Best

#### 10 presentations in 20 minutes



CREDIT: RICHARD DRDUL



CREDIT: KELOWNA DAILY COURIER

# WORKSHOP

WEDNESDAY, JUNE 8 AND THURSDAY, JUNE 9

## Safe Systems Approach to Bicycle Facility Design Workshop

Based on the internationally acclaimed Dutch Sustainable Road Safety principles, which are the basis for the Safe Systems Approach used worldwide, the workshop will take participants through a user-centric approach that employs the latest in emerging psychology and engineering research findings on cyclist behaviour in relation to road and vehicle design.

In addition to short lectures, the workshop will include small exercises to illustrate the findings. Critical success factors will be shared, including those on cyclist behaviour, such as hazard perception and distraction. An interactive discussion will be facilitated on how to translate these findings for planning cycling safety strategies. Such strategies need to address the infrastructure, but also education, enforcement and adequate bicycle design. Examples of how to assess the impact of such measures will be presented. Finally, the (potential) impact of the emergence of new technology such as self-driving cars, as well as electric bicycles will be addressed.

The workshop will be hosted by Dr Divera Twisk, Senior Researcher with the Dutch Traffic Safety Research Institute, and Dr Marjan Hagenzieker, Professor of Civil Engineering at the Technical University of Delft, Netherlands.

### AFTER ATTENDING THIS COURSE, YOU WILL BE ABLE TO:

- Develop a better understanding of user-centred design in a historical context
- Contribute to the development of integrated road safety strategies
- Develop and implement safe bicycle facilities

### COURSE OUTLINE

#### Wednesday: 1:00 p.m. – 5:00 p.m.

- An introduction into the safe system approaches
- Human behaviour in the control of danger

#### Thursday: 9:00 a.m. – 1:00 p.m.

- Effective Measures to improve safety for cyclists
- The Nanny state: overprotection or personal freedom
- Innovation in bicycle design: opportunities and barriers
- Future challenges: the potential impact of emerging technology

### WHO SHOULD ATTEND

Those involved in road design and road safety strategies, planners, cycling professionals, consultants, developers, policy makers.

### REGISTRATION INFORMATION

- Price: \$400 + tax
- You may register for the workshop alone or as an add-on to the conference.

**REGISTER NOW ONLINE**

For more information, go to [www.cite7.org/Kelowna2016](http://www.cite7.org/Kelowna2016) or contact Gordon Lovegrove at [gord.lovegrove@ubc.ca](mailto:gord.lovegrove@ubc.ca)





# TECHNICAL TOURS

## SUNDAY, JUNE 5

### MYRA CANYON TRESTLES CYCLING | TOUR A

The Myra Canyon Trestles bike tour provides incredible views of Okanagan Lake and Kelowna along the Kettle Valley Railway. The railway was originally opened in 1915 and the Myra Canyon section provided service from Midway to Penticton, BC until 1973. The segment has since been converted to a multi-use recreational trail. Several of the trestles have been reconstructed following the 2003 Okanagan Mountain Park Fire which claimed 12 of the 18 trestles on the Myra Canyon section.

The tour will consist of a 20 km ride with 18 trestles and 2 tunnels. Grades along the repurposed railway are no more than 2% thereby facilitating an easy ride for cyclists. [Monashee Adventures](#) will be facilitating the tour and will provide bike rentals, snacks, and water. Dr. Gord Lovegrove, Associate Professor in Civil Engineering at the University of British Columbia Okanagan Campus will be guiding the tour and providing information of the history, design, and operations of the corridor.

*Price: \$100*

*Time: 1:00 p.m. - 5:00 p.m.*



CREDIT: FLICKR - KORTE PHOTOGRAPHY

CREDIT: FLICKR - KORTE PHOTOGRAPHY

## MONDAY, JUNE 6

The W.R. Bennett Bridge tour will deliver an on-site tour of the bridge highlighting the history, P3 process, design, construction, operations, and maintenance of the bridge. High visibility vests and hard hats will be provided. Appropriate footwear is required.



*Price: \$25*

*Time: 1:00 p.m. - 4:30 p.m.*

*Spaces Available: 20*

## TUESDAY, JUNE 7

### URBAN CYCLING | TOUR C

The urban cycling tour will showcase a variety of cycling facility types in Kelowna. The tour will be comprised of a 10+ km loop that will feature on- and off-street facilities, bike signals, pedestrian and cycling overpass, waterfront trails and more. Key locations include the Cawston Avenue multi-use corridor, the Rails with Trails corridor, Springfield Road / Cadder Avenue bike lanes, Abbott Street multi-use corridor and City Park trail. Tour guides will occasionally stop with the group to discuss the challenges and merits of the various facilities.

[Monashee Adventures](#) will be facilitating the tour and will provide bike rentals, snacks, and water. City of Kelowna staff will provide the technical content of the guided tour. The tour will commence at the conference venue and a brief introductory presentation will be provided.

*Price: \$50*

*Time: 8:30 a.m. - 12:00 p.m.*

*Spaces Available: 30*



CREDIT: CITY OF KELOWNA

## MONDAY, JUNE 6

### W.R. BENNETT FLOATING BRIDGE | TOUR B

The William R. Bennett Bridge provides the only crossing over Okanagan Lake, forming an integral transportation link for the Region. The bridge came into service in May 2008, replacing the Okanagan Lake Bridge which was in service for 50 years. The Ministry of Transportation and Infrastructure entered into a Public-Private Partnership (P3) with SNC-Lavalin to design, build, finance, operate, maintain, and rehabilitate the bridge over a 30-year term. The structure is supported by floating pontoons and provides two lanes eastbound, three lanes westbound, and a shared pedestrian and cycling pathway on the south side of the bridge.

# TECHNICAL TOURS

TUESDAY, JUNE 7

## DOWNTOWN WALKING | TOUR D

The downtown walking tour will highlight key transportation projects in the city core including the Bernard Avenue Streetscape, Urban Braille Design, and the Queensway Transit Exchange.

The Bernard Avenue Revitalization was undertaken to provide wider sidewalks, street furniture, and street trees along with other key urban design features to breathe new life into Bernard Avenue and to restore it as the centerpiece of Kelowna's Downtown. Patrick McCormick, Urban Design Planner with the City of Kelowna, will guide delegates on key features, challenges, and opportunities of the Revitalization project.

As part of the Bernard Avenue Revitalization, the City of Kelowna incorporated various design elements of Urban Braille to provide a system of "wayfinding" consisting of sensory information, landmarks and environmental cues, and streetscape design to enhance the efficient and safe travel for persons with special needs. Joyce Mainland will facilitate a vision loss simulation for delegates so they may experience the available information provided by urban braille first hand. Joyce is a Certified Orientation and Mobility Instructor for the Blind and Visually Impaired and a former member of the City of Kelowna's Accessibility Advisory Committee. During the development and construction of the Bernard Street Revitalization, Joyce provided and contributed her expertise and understanding of Urban Braille Design to the City of Kelowna and design partners.

Situated in downtown Kelowna, the Queensway Transit Exchange serves as a key central destination and transit hub in Kelowna. It is the largest of nine transit exchanges in the Kelowna Regional Transit System. Originally built

in 1998, the Exchange has undergone major redesign as part of BC Transit's Kelowna RapidBus Project, to provide greater emphasis on transit, walking, and cycling. The Exchange has a unique wood structure, providing all-weather shelter for riders and covered bike parking. Ron Westlake, the Director of Regional Services for the City of Kelowna, will share the key project elements, merits, and challenges.

*Price: Free*

*Time: 1:00 p.m. - 5:00 p.m.*

*Spaces Available: 30*

## WEDNESDAY, JUNE 8



CREDIT: PROV OF BRITISH COLUMBIA

## WINERIES | TOUR E

The Okanagan Valley is the premier grape growing region in British Columbia boasting over 80% of the total vineyard acreage in the Province. See amazing Okanagan vistas while sampling a wide variety of local wines.

We have scheduled some time in the program when we encourage you to visit Okanagan Wineries. If the time in the schedule does not work for you, feel free to book a tour before or after the conference. Winery tours are provided by [Distinctly Kelowna Tours](#). Registrants can receive 10% off regular tour rates by indicating they are a CITE Conference attendee when they book a tour.

Go to [www.cite7.org/Kelowna2016](http://www.cite7.org/Kelowna2016) for full details on all tours



CREDIT: CITY OF KELOWNA

# SPECIAL EVENTS

## SUNDAY, JUNE 5

### WELCOMING RECEPTION

The traditional Sunday evening Welcoming Reception will provide you with the opportunity to catch up with fellow attendees and friends while you enjoy beverages and appetizers in the relaxed atmosphere of our conference exhibitor area.

### WOMEN IN CITE RECEPTION

This gathering is a great opportunity to meet and get to know professional women in the transportation industry. This year's event will be hosted by influential women active at all levels of our ITE community: Paula Flores (ITE International President), Jen Malzer (CITE President), and Karen Reimann (UBC Okanagan CITE Student Chapter President). We encourage you to join us for this exclusive occasion at the conference venue. Please RSVP in advance to Karen Reimann at [karen.reimannf@gmail.com](mailto:karen.reimannf@gmail.com).

## MONDAY, JUNE 6

### STREET HOCKEY CHALLENGE

Once again delegates will meet for a game of street hockey. The location of this year's hockey challenge will be announced soon. Bring your "A" game – equipment will be supplied.

### STUDENT MIXER AT BNA BREWING CO.

Following the street hockey challenge, we will be hosting our annual Student Mixer at BNA Brewing Co. & Eatery, a recently opened and popular community pub. This event is the perfect occasion for professionals and students to



Street Hockey Challenge competitors in Regina 2015

get acquainted while enjoying the local craft brews + bar and fantastic dishes. Also, we will be doing some fun networking activities throughout the night, so don't forget to bring business cards! The location is within walking distance from the street hockey venue and the conference venue.



CREDIT: BNA BREWING CO.

## TUESDAY, JUNE 7

### ANNUAL BANQUET

Join us on Tuesday, June 7 for an evening of live jazz and wine sampling at The Laurel Packinghouse. The structure was built in 1917 and was a working packing house until the 1970s. It was slated for demolition in 1982 until members of the community rallied to save it, making it Kelowna's first designated heritage building. This unique venue is walking distance from the conference and always provides an atmospheric backdrop for a memorable evening.

It would not be a visit to the Okanagan without sampling a few of our world famous wines. Let our local experts provide an introduction to wines and some basics on tasting, all while enjoying live music by an award winning four piece jazz band, Anna Jacyszyn and The Jazz Cafe.

Please note that this is a ticketed event, and your full registration package includes one (1) banquet ticket and two (2) complimentary beverage tickets. Up to two additional tickets (\$95) may be purchased online along with your conference registration. For anyone requiring special meal considerations, please make appropriate note during the online registration process.



The Laurel Packinghouse - venue of the 2016 Annual Banquet

CREDIT: TOURISM KELOWNA

# 2016 SPONSORS

## Platinum

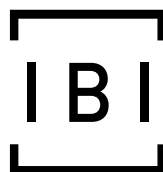


MMM GROUP

## Gold



## Silver



## Bronze



# president's ponderings



**JEN MALZER, P.ENG.**  
Canadian District President  
[president@cite7.org](mailto:president@cite7.org)

Dear members,

I hope everyone is starting to see signs of spring. Everything from kids' sports registration to spring streets maintenance like gravel cleaning has started – at least in Calgary, which means pot hole filling and line painting is on the way! Nothing quite like transportation in Canada; there is definite renewed interest in our special conditions with all of the recent emphasis on autonomous / connected vehicles, which is the inspiration for this edition's feature article. Urban transportation planning has never been more interesting. As we debate what this future might look like, I can't help but think we need more discussion on how we can position cities to fulfill the goals of our municipal plans. There is a scenario where focusing on people movement in key corridors will balance against the benefits of new technology. At the end of the day, the economic, health, and social benefits of good urban form and infrastructure spending should guide the uptake and usage of future driverless vehicles. I hope this article to be the formal start of our role in this area.

Registration for our annual conference in Kelowna has opened! We are seeing significant interest so have extended our room commitment with the Delta Grand Okanagan. There are few other options in the immediate vicinity of our conference, so I do encourage you to book as soon as you can. This will also help us gauge whether we try to continue to block rooms.

The conference program will offer both a triple track of technical sessions and also tours within Kelowna and the immediate region. The City of Kelowna has made significant investments in their waterfront and downtown, which will really provide a great backdrop to discussing emerging topics like complete streets and urban renewal.

We, of course, have our regular social program planned – replete with sometimes intense street hockey, wine tasting, and student mixing – as well as an inaugural participation by ExCITE, our new initiative for emerging members!



#### CITE's TAC Appointees

*L-R: Andy Harvey (Geometric Design), John McGill (Chief Engineers Council), Pedram Izadpanah (Road Safety Standing Committee)*  
*Missing from the photo: Maureen (Education and HR Development), Tom Baumgartner (TOMSC), Kelly Schmidt (TOMSC), Shannon Noonan (TOMSC), Greg O'brien (TOMSC)*

Earlier this month, I attended the TAC spring meetings as CITE's appointee to the Urban Transportation Council and as a member of the Automated Vehicle / Connected Vehicle Working Group. In addition to these meetings, I had the pleasure of sitting down with our current group of appointees to brainstorm how to best represent CITE and report back to our membership on the meetings. We had a great conversation and have agreed to meet more often to better update on possible research topics, and to better inform the CITE membership.

I just want to end by thanking everyone for a strong interest in volunteering for CITE. It's an exciting time for our District and I, along with our executive and Local Arrangements Committee, look forward to welcoming you to Kelowna in June!

A handwritten signature in blue ink that reads "Jen Malzer".

**Jen Malzer, P.Eng.**  
Canadian District President

# district director's message



**GENE CHARTIER,  
M.A.SC., P.ENG.**  
*Canadian District Director*  
[director@cite7.org](mailto:director@cite7.org)

Have you ever thought about how you became involved in ITE and why you remain a member? Those were two of the important questions posed in the [February 2016 Needs Assessment Survey](#) conducted by ITE. Over 4,000 individuals responded to the survey sent to nearly 17,600 current, past, and prospective members to seek their opinion on the organization and the transportation industry.

The survey revealed that most people:

- Learn about ITE through their schools or professional networks. Like me, nearly half of respondents were introduced to ITE by a colleague, professor, classmate, or through a department at their school, and more than one-third of respondents heard about the organization through an ITE Student Chapter.
- Remain members of ITE for the same reason they joined – to meet and network with other transportation practitioners, to stay informed of the latest developments and news in the profession, and for access to technical resources.

Maybe the most important conclusion drawn from the survey is that ITE remains a strong and trusted brand – and is the organization of choice for many transportation practitioners. Members value their association with ITE, especially when they are engaged and participate in organization activities.

ITE will be using the survey results to better align its products/services and branding/messaging with member needs and interests. You will be hearing more about the survey findings and resulting initiatives over the coming months. Thanks to everyone who participated!

I have recently returned from the mid-year ITE International Board of Direction (IBOD) Meetings in Nashville. The meetings were held in conjunction with the LeadershipITE program session and the ITE Southern District annual conference. The Southern District meeting is steeped in tradition and features several long standing rituals, such as the opening session Section Roll Call, the Sunday evening sponsor hospitality suites, and the Traffic Bowl playdowns and grand final. I can tell you that the event rivals our Canadian District conference, but without the Street Hockey Game.

ITE is in the midst of reshaping itself under the leadership of new Executive Director Jeff Paniati. Despite the ongoing financial challenges reported in my previous column, the organization has ambitious plans to keep ITE at the forefront of the transportation industry.

“ ITE is in the midst of reshaping itself... the organization has ambitious plans to keep ITE at the forefront of the transportation industry. ”

A few ways ITE intends to enhance member value, improve operations, and make the organization relevant to more people include:

- Improving outreach to Districts and Sections, including partnering for joint conferences and meetings;
- Simplifying the membership and dues structures. Currently, there are more than 160 different membership categories, making administration and communication challenging;
- Issuing technical publications in a timelier manner, in different formats;
- Collaborating with other organizations for meetings and publications, such as NACTO on the production of the Transit Street Design Guide and forthcoming Application Supplement, scheduled for release at the ITE International Annual Meeting and Exhibit (more on that event to follow);
- Pursuing more International Sections and Chapters to grow ITE's global role and expand membership outside North America;
- Enhancing the online Career Center to make more resources available to student and young members. An internship portion will be added to highlight opportunities;
- Refining the ITE website and news services, including upgrades to the Learning Hub, e-commerce module, ITE Community, and ITE Spotlight;
- Updating ITE's leading publication, Trip Generation, and revisiting some of the underlying principles of the guidebook as they relate to urban and multi-modal conditions;
- Offering more relevant and timely webinars, focusing more on quality than quantity;
- Introducing a joint ITE and TCN (The Capital Network) Thought Leadership Podcast Series that will debut in May;
- Establishing a Vision Zero Task Force to explore opportunities to enhance transportation safety; and
- Initiating a Strategic Initiatives Committee, under the leadership of Dale Bracewell from the City of Vancouver. The Committee is helping ITE be the leading organization within the transportation industry by providing "big picture" direction to the IBOD in the form of key annual strategic priorities.

# district director's message

Planning for the [ITE 2016 Annual Meeting and Exhibit](#), scheduled for [August 14 to 16, 2017](#) in [Anaheim, CA](#) is in high gear. Highlights of the event include:

- A Sunday Transportation Camp. This unstructured event allows participants to create the session content – an innovative, high-energy start to the meeting;
- A “First-Timer’s Reception” on Sunday afternoon;
- The Sunday evening “California Dreamin” Welcome Reception in the exhibit hall;
- Family-friendly events like the Traffic Bowl and a child’s ticket price for the Tuesday Game Night;
- An International version of the Western Districts’ MiteY Race;
- An Opening Plenary that will feature leaders from new mobility companies (e.g., Uber and Hyperloop) that are transforming the way transportation is delivered; and
- A Closing Plenary that will feature senior appointed officials from different levels of government offering their thoughts on the intersection of transportation policy and technology as well as the role of government in a rapidly changing environment where the private sector is bringing forward new services that challenge traditional norms.

If you have never been to an ITE International conference or have never visited Anaheim, this is your chance! The meeting will showcase the latest developments in transportation and offer unparalleled opportunities to network with and learn from your peers.

In closing, I leave you with this challenge. The Needs Assessment Survey showed that past and prospective members are aware of the potential opportunities and services available through membership in ITE, but need to better understand how and why they can benefit from being a member. As an ITE member, you can help do that! Share stories with people you think should become members that demonstrate the value of what ITE offers, the technical resources available, and the many opportunities for networking and job searches. Invite them to attend Section and District events to observe the power of ITE membership first-hand. Let’s do everything we can to make ITE and CITE the best organizations around!

If there is anything you want to share about ITE, feel free to drop me an email at [director@cite7.org](mailto:director@cite7.org). See you in Anaheim!



**Gene Chartier, M.A.Sc., P.Eng.**  
Canadian District Director



## Candidate for ITE International Vice President



### Michael Sanderson P.E., PTOE, LEED AP, FITE

President/CEO, Sanderson Stewart, Billings, MT USA  
[msanderson@sandersonstewart.com](mailto:msanderson@sandersonstewart.com)  
[@mpsanderson1](#) | [LinkedIn](#)

The world of transportation is transforming before our eyes. Big advances in technology, generational demographic shifts, and globalization are among the many forces that will transform our profession. This type of change can either be a threat, or it can present great opportunities. To seize the opportunities, ITE must take a leadership role to ensure that our members have the right information, the right connections, and the right opportunities to succeed.

- **Develop a strong ITE brand.** ITE needs to clearly define its space among transportation organizations and then provide decisive leadership where it can be most effective.
- **Leverage technology and social media.** ITE must modernize its approach to service delivery and communication by better utilizing technology, fully embracing online and cloud-based platforms, social media, and mobile technology.
- **Embrace & encourage diversity.** In our changing profession, ITE must position itself as the organization of choice for professionals of all diverse origins and backgrounds.
- **Define ITE's global role.** A global economy more strongly dominated by Asia and other emerging economies is impacting the transportation industry, even for those that never work outside North America. ITE needs to identify how it can best engage and support transportation professionals globally.
- **Leadership.** In our own organizations, in our profession, and in society, ITE members need to be the technical experts and the advocates leading the conversations and delivering the solutions to the transportation challenges of the 21st century.

ITE is the organization that I have devoted my career to serving for the last 20 years. I have served ITE as an elected leader at the chapter, section, district, and international levels, and I have served on many committees, task forces, and technical councils. I love ITE for what it has done for me professionally and for the many personal relationships I value so much. ITE is at a crossroads and change is needed for ITE to be successful into the future. With your help and collaboration, I look forward to applying my knowledge of ITE, along with my education and experience as a business leader, to effectively lead our Institute through this transformative time.



Dear CITE Members,

I am pleased to share CITE's 2015 Financial Statement. The attached has been reviewed by Tim Hayes, Certified Accountant, and approved by your Board of Directors. These steps are consistent with the recommendations put forward by the Financial Review Committee (<https://www.cite7.org/wpdm-package/cite-financial-review-committee-report-2011/>).

Overall, the 2015 Financial Statement is quite positive due to the success of our conference and continued growth in our employment advertisements.

Consistent with the direction of the Financial Management Plan, the financial reserves have been supplemented to a level that is equivalent to 40% of the annual operating expenses within a guaranteed investment. The John Vardon and Van Aerde scholarship are financially sound and, due to their self sustainability, have been increased to provide greater financial assistance to our student membership in 2016.

The GST/HST return and the NPO submission have been completed and filed with Revenue Canada for the 2015 year end and all outstanding issues have been rectified with historical financial and Revenue Canada documentation requirements.

It has been a pleasure serving as the Treasurer for the organization over the last two years. Our conferences have achieved financial success due to the hard work by the Local Arrangement Committees in Waterloo and Regina. The organization has enhanced its various revenue generating initiatives while at the same time advancing its financial stewardship and practices. All of which have contributed to a financially sound organization.

If you have any questions regarding the 2015 Financial Statements, please contact the undersigned.

Regards,

**Edward Soldo, P.Eng. (FITE)**  
**Vice President, Canadian Institute of Transportation Engineers**  
[vicepresident@cite7.org](mailto:vicepresident@cite7.org)

# CITE 2015 financial statement

## INCOME STATEMENT

	2013 ACTUAL	2014 ACTUAL	2015 BUDGET	2015 ACTUAL
<b>INCOME</b>				
Annual Conference	200,900.00	215,395.60	135,000.00	151,809.30
Currency Exchange	1,620.67	4,441.12	-	12,384.12
Education/Training	-	22,152.21	15,000.00	-
Interest Income	4,559.91	2,635.16	5,000.00	6,520.86
John Vardon Scholarship	2,670.00	1,777.00	2,000.00	1,940.00
Membership Dues	81,743.21	61,256.80	83,000.00	50,882.62
Transportation Talk Advertising	7,706.50	9,250.00	9,250.00	7,500.00
Website Advertisements	71,325.00	83,700.00	66,000.00	68,150.00
Award/Scholarship Donations	-	16,000.00	4,500.00	4,500.00
<b>TOTAL INCOME</b>	<b>\$374,037.29</b>	<b>\$416,607.89</b>	<b>\$319,750.00</b>	<b>\$303,686.90</b>
<b>EXPENSES</b>				
Administrator	-	-	-	9,512.47
Awards - Awards/Scholarships	5,419.98	4,860.12	6,000.00	5,064.15
Awards - Travel	1,814.33	4,612.41	5,000.00	5,999.04
Bad Debt	26,513.42	-	-	9.00
Bank Charges	2,812.33	3,692.16	4,000.00	3,484.86
Bookkeeping	2,460.00	2,035.00	2,500.00	2,018.50
CITE Appointee Travel	6,663.54	4,576.36	7,000.00	4,033.34
CITE Elections	-	-	-	639.78
Communications	17,977.00	11,776.80	18,000.00	6,319.50
Conference Expenses	163,822.29	162,668.84	135,000.00	118,890.43
Director Expenses	9,808.07	8,468.42	15,000.00	12,421.34
Executive Expenses	36,463.51	17,469.93	24,000.00	18,036.84
Insurance	5,016.60	5,151.00	5,250.00	5,157.24
Membership Support Programs	6,395.72	5,092.86	7,500.00	3,471.37
Miscellaneous	212.34	455.87	250.00	7.34
Postage, Mailing Service	727.68	579.46	500.00	517.13
Printing and Copying	-	-	250.00	99.98
Section/Chapter Rebates	3,750.00	3,750.00	7,000.00	3,750.00
Student Presentation Comp.	1,900.00	2,000.00	4,000.00	3,200.00
Telephone, Telecommunications	10,116.89	859.53	6,000.00	1,360.28
TLC - Administration	6,075.97	5,100.88	7,000.00	5,616.98
TLC - Tech Project Dev.	2,047.62	15,057.65	5,000.00	1,274.45
TLC Project - TAC Sponsorship	5,000.00	10,000.00	10,000.00	-
TLC Project - Traffic Calming	15,000.00	-	5,000.00	17,500.00
TLC Active Transportation CLASP	5,464.75	732.04	10,000.00	6,000.00
Traffic Bowl	8,249.36	5,309.74	6,000.00	6,275.50
Transportation Talk	13,038.96	13,561.16	13,500.00	6,651.00
Vardon/Van Aerde Scholarship	4,000.00	2,000.00	4,000.00	4,000.00
Website	11,885.73	13,448.18	12,000.00	12,686.15
Revenue Canada Penalties and Interest	-	-	-	1,763.94
<b>TOTAL EXPENSES</b>	<b>\$371,551.09</b>	<b>\$301,539.35</b>	<b>\$319,750.00</b>	<b>\$265,760.61</b>
<b>NET INCOME (LOSS)</b>	<b>\$2,486.20</b>	<b>\$115,068.54</b>	<b>-</b>	<b>\$37,926.29</b>

# CITE 2015 financial statement

## BALANCE SHEET

	December 31 2013 ACTUAL	December 31 2014 ACTUAL	December 31 2015 ACTUAL
<b>ASSETS</b>			
<b>CURRENT ASSETS</b>			
Chequing/Savings/Cash			
Scotiabank Chequing	35,045.32	69,505.42	70,392.89
Scotiabank Conference	58,281.61	49,285.61	79,853.20
Cash	480.25	-	-
Total Chequing/Savings/Cash	93,807.18	118,791.03	150,246.09
Total Accounts Receivable	14,485.44	480.25	2,000.00
<b>TOTAL CURRENT ASSETS</b>	<b>\$108,292.62</b>	<b>\$119,271.28</b>	<b>\$152,246.09</b>
<b>INVESTMENTS</b>			
John Vardon Scholarship	54,775.09	56,137.26	56,941.53
Scotia GIC	26,113.37	91,947.80	103,084.17
Michel Van Aerde Scholarship	58,806.87	59,865.09	62,460.07
Cash Holdings	-	30,023.37	20,008.61
<b>TOTAL INVESTMENTS</b>	<b>\$139,695.33</b>	<b>\$237,973.52</b>	<b>\$242,494.38</b>
<b>TOTAL ASSETS</b>	<b>\$247,987.95</b>	<b>\$357,244.80</b>	<b>\$394,740.47</b>
<b>LIABILITIES</b>			
<b>CURRENT LIABILITIES</b>			
Accounts Payable	5,877.95	1,357.49	-
Total Accounts Payable	5,877.95	1,357.49	-
<b>OTHER CURRENT LIABILITIES</b>			
GST/HST Payable	1,506.45	-	926.87
Total Other Current Liabilities	1,506.45	-	926.87
<b>TOTAL LIABILITIES</b>	<b>\$7,384.40</b>	<b>\$1,357.49</b>	<b>\$926.87</b>
<b>EQUITY</b>			
Capital Gain (loss)	-	215.22	-
Retained Earnings	238,117.35	240,603.55	355,887.31
Net Income	2,486.20	115,068.54	37,926.29
<b>TOTAL EQUITY</b>	<b>\$240,603.55</b>	<b>\$355,887.31</b>	<b>\$393,813.60</b>
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>\$247,987.95</b>	<b>\$357,244.80</b>	<b>\$394,740.47</b>
GST REBATE/OWED	-\$1,506.45	-	-\$926.87

# CITE 2017 budget

	2015 ACTUAL	2016 BUDGET	2017 BUDGET
<b>INCOME</b>			
Advertisements	75,650.00	83,000.00	83,000.00
Annual Conference	151,809.30	148,000.00	-
Currency Exchange	12,384.12	5,000.00	5,000.00
Education/Training	-	15,000.00	-
Interest Income	6,520.86	3,000.00	6,000.00
John Vardon Scholarship	1,940.00	2,000.00	2,000.00
Membership Dues	50,882.62	70,000.00	75,000.00
Award/Scholarship Donations	4,500.00	2,500.00	5,500.00
Transfer from Reserves	-	-	26,050.00
<b>TOTAL INCOME</b>	<b>\$303,686.90</b>	<b>\$328,500.00</b>	<b>\$202,550.00</b>
<b>EXPENSES</b>			
Administrator	9,512.47	18,000.00	20,000.00
Awards - Awards/Scholarships	5,064.15	4,000.00	4,500.00
Awards - Travel	5,999.04	5,000.00	7,000.00
Bad Debt	9.00	-	-
Bank Charges	3,484.86	4,000.00	4,000.00
Bookkeeping	2,018.50	2,500.00	2,500.00
CITE Appointee Travel	4,033.34	7,000.00	7,000.00
CITE Elections	639.78	-	700.00
Communications and Marketing	6,319.50	10,000.00	10,000.00
Conference Expenses	118,890.43	135,000.00	-
Director Expenses	12,421.34	14,000.00	12,000.00
Executive Expenses	18,036.84	24,000.00	22,000.00
Insurance	5,157.24	5,400.00	5,500.00
Membership Support Programs	3,471.37	7,500.00	3,500.00
Miscellaneous	7.34	500.00	250.00
Postage, Mailing Service	517.13	600.00	600.00
Section/Chapter Rebates	3,750.00	7,000.00	4,000.00
Student Presentation Comp.	3,200.00	4,000.00	3,500.00
Telephone, Telecommunications	1,360.28	1,000.00	2,000.00
TLC - Administration	5,616.98	9,000.00	9,000.00
TLC - Tech Project Dev.	1,274.45	10,000.00	10,000.00
TLC Project - TAC Sponsorship	-	10,000.00	5,000.00
TLC Project - Traffic Calming	17,500.00	5,000.00	-
TLC Active Transportation CLASP	6,000.00	10,000.00	-
TLC - Turn Lane Warrants	-	-	20,000.00
TLC - Trip Generation	-	-	5,000.00
TLC - Accessibility Guidelines	-	-	1,000.00
Traffic Bowl	6,275.50	6,000.00	8,500.00
Transportation Talk	6,651.00	10,000.00	10,000.00
Vardon/Van Aerde Scholarship	4,000.00	4,000.00	6,000.00
International Initiatives	-	-	4,000.00
Website	12,686.15	15,000.00	15,000.00
Revenue Canada Penalties and Interest	1,763.94	-	-
<b>TOTAL EXPENSES</b>	<b>\$265,760.61</b>	<b>\$328,500.00</b>	<b>\$202,550.00</b>
<b>NET INCOME (LOSS)</b>	<b>\$37,926.29</b>	<b>-</b>	<b>-</b>



Ford is conducting the industry's first autonomous vehicle tests in snow-covered environments.

# Autonomous Vehicles

## The Transportation System of the Future?

BY EDWARD SOLDO, P.ENG. (FITE)

DIRECTOR OF ROADS AND TRANSPORTATION, CITY OF LONDON

Over the last few years, there has been a significant advancement in automated vehicle technology. In the future, autonomous vehicles (AVs) will be the prevailing mode of transportation. It is no longer a question of *if*, rather a question of *when*; similar to the 1990s when everyone was debating how a new concept called “the Internet” would impact society.

While there has been lot of discussion on the potential benefits of driverless vehicles, it is not well understood what that really means to the transportation profession. Now is the time for transportation professionals to evaluate, assess, and plan for the onset of vehicle automation.

AVs have the potential to be a highly disruptive technology that will impact transportation, transit, and logistics. The technology will also be a leap forward for society and lead to changes in how we live and work by transforming our cities and our transportation systems.

The advent of AVs may significantly impact travel demands and transportation planning. Therefore, it is vital that transportation professionals, telecommunication providers, vehicle companies, and software technology companies work together to assess the impacts, develop short and long term implementation policies, and prepare investment strategies to facilitate and mitigate the impacts of this technology.

### SO WHAT ARE AUTONOMOUS VEHICLES?

AVs are driverless or self-driving vehicles that are capable of detecting the surrounding environment using artificial intelligence, sensors, and global positioning system coordinates.

The Society of Automotive Engineers (SAE) has established a new standard (J3016) that provides a classification system for vehicle automated driving systems. The six levels of

SAE level	Name	Narrative Definition	Execution of Steering and Acceleration/Deceleration	Monitoring of Driving Environment	Fallback Performance of Dynamic Driving Task	System Capability (Driving Modes)
<b>Human driver monitors the driving environment</b>						
<b>0</b>	<b>No Automation</b>	the full-time performance by the <i>human driver</i> of all aspects of the <i>dynamic driving task</i> , even when enhanced by warning or intervention systems	Human driver	Human driver	Human driver	n/a
<b>1</b>	<b>Driver Assistance</b>	the <i>driving mode</i> -specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	Human driver and system	Human driver	Human driver	Some driving modes
<b>2</b>	<b>Partial Automation</b>	the <i>driving mode</i> -specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	<b>System</b>	Human driver	Human driver	Some driving modes
<b>Automated driving system ("system") monitors the driving environment</b>						
<b>3</b>	<b>Conditional Automation</b>	the <i>driving mode</i> -specific performance by an <i>automated driving system</i> of all aspects of the dynamic driving task with the expectation that the <i>human driver</i> will respond appropriately to a <i>request to intervene</i>	System	<b>System</b>	Human driver	Some driving modes
<b>4</b>	<b>High Automation</b>	the <i>driving mode</i> -specific performance by an automated driving system of all aspects of the <i>dynamic driving task</i> , even if a <i>human driver</i> does not respond appropriately to a <i>request to intervene</i>	System	System	<b>System</b>	Some driving modes
<b>5</b>	<b>Full Automation</b>	the full-time performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> under all roadway and environmental conditions that can be managed by a <i>human driver</i>	System	System	System	<b>All driving modes</b>

CREDIT: © 2014 SAE INTERNATIONAL

driving automation span from no automation (level 0) to full automation (level 5).

A key distinction is between level 2, where the human driver performs part of the dynamic driving task, and level 3, where the automated driving system performs the entire dynamic driving task. That distinction is important as it leads to the potential for two different AV operating models.

The first is a continuation of the existing model of private vehicle ownership with added autonomous functionality and the second is a mobility-as-a-shared-service model, both of which provide different new opportunities and challenges for the transportation profession.

Not convinced about the technology yet? Check out this video of a Google self-driving car at <https://www.google.com/selfdrivingcar/>.

## BENEFITS OF AUTONOMOUS VEHICLES

There is much research being undertaken on the projected benefits of driverless vehicles. Transportation related benefits include:

### Mobility

- AVs provide increased roadway capacity through the management of congestion and travel times as anonymous real time information from autonomous vehicles will increase the performance of traffic signals systems and transit operations while providing travel time dependability.
- They also offer greater mobility and improved access for non drivers such as children/youth, seniors, persons with disabilities and lower income groups without access to a vehicle.
- AVs may redefine the concept of vehicle ownership and increase opportunities for vehicle sharing.



- Transit systems could be transformed through the integration of autonomous vehicles to provide service outside of high capacity corridors.

## Improved Safety

- The increased awareness and ability to identify hazards through the use of sensor technology has the potential to reduce many common accidents.
- AVs will automatically know what the speed limit is, when they are in a school zone, when a curve in the road is coming up, where stops signs are located and what the level of congestion is.
- High risk driving, such as speeding, red light running and impaired driving will be mitigated.
- The safety of other travel modes, such as cycling and pedestrians, will be enhanced through the use of sensor technology.



## Environmental Impact

- The increase in fuel efficiency through more efficient driving will help reduce pollution and GHG emissions.
- Infrastructure improvements, such as narrower lanes and the reduction in parking requirements, will lead to a lower environmental footprint.



AVs will also provide a number of quantifiable social and economic benefits that range from fewer deaths, reduction

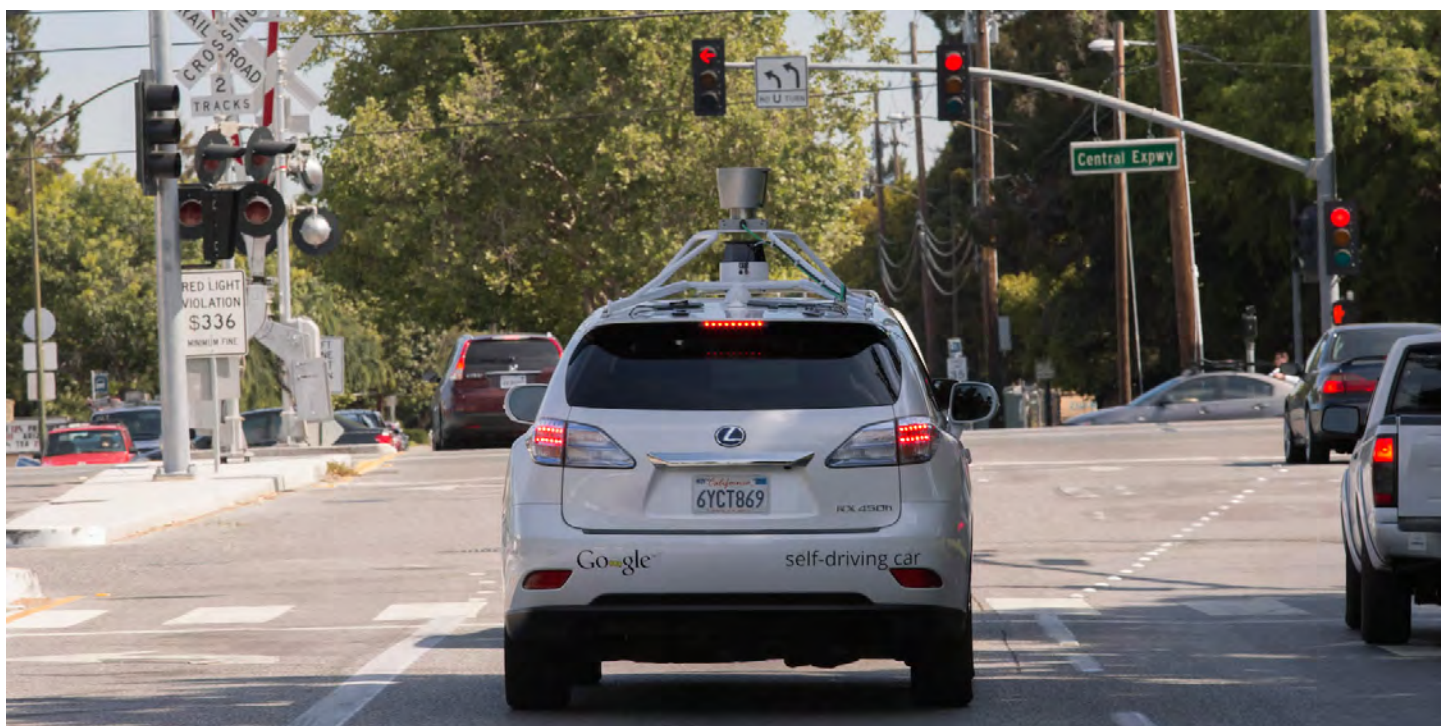
in driver stress, vehicle ownership savings, insurance savings, and productivity gains in many business sectors.

## NEGATIVE CONSEQUENCES OF AUTONOMOUS VEHICLES

The implementation of autonomous vehicles will largely be driven by economics. The arrival of transportation companies such as Uber and Lyft has transformed the mobility landscape across the globe. The introduction of autonomous vehicles that are integrated with mobile apps, operated either publicly or privately, will encourage more intermodal trips and expand mobility by providing lower cost travel options.

While the technology has the ability to help governments reduce rising infrastructure costs, there are a number of revenue stream consequences that need to be assessed and planned for. The increase in safety will reduce revenue from traffic infractions as vehicles adhere better to traffic regulations. Reduced parking needs may result in less parking revenue generation.

AVs have the potential to dramatically change the environment for public transit services. Integration with other transportation mobility providers that provide lower capacity transit modes in lower ridership areas can reduce operating costs. AVs may provide an alternative point-to-point service to paratransit service providers for people with limited personal mobility.



*A Google self-driving car approaches an intersection with railroad crossing.*





In 2015, the Daimler Trucks Freightliner Inspiration became the first licensed autonomous driving truck in the United States.

## IMPACT ON THE TRANSPORTATION PLANNING AND ENGINEERING PROFESSION

What does the advent of a more integrated transportation mobility environment mean to our profession? Base engineering assumptions such as lane widths, cross sections, and merge lane lengths may need to be reconsidered. Will AVs change how we design our streets, as the need for dedicated AVs lanes, reduced demand, and parking may lead to a more complete streets and road diet transformations? Will new fibre networks and enhanced IT infrastructure become the norm on all road construction projects?

What about parking and trip generation rates that traffic engineers rely on? Might as well throw them away as open source data, realistic traffic simulation, perception, sensor fusion, and trajectory hypotheses will become the new language of transportation profession.

All of these questions will need to be assessed in the short term in order to prepare for the introduction of AVs in Canada. Transport Canada is working with CITE to develop an informational report that would provide provincial/territorial and municipal road authorities, academic centres,

and traffic and transportation engineers with comprehensive information that would help them plan pilot tests of AVs.

## AUTONOMOUS VEHICLE ENVIRONMENT

In Canada, beginning on January 1, 2016, Ontario became the first province to pilot a test program for automated vehicles and related technology on-road. The goal is to enable companies to conduct research and development in Ontario rather than in competing jurisdictions and to support opportunities to bring automated vehicles to market. Read more about this project at <http://www.mto.gov.on.ca/english/vehicles/automated-vehicles.shtml>.

In summary, the time to understand AVs and how they may change the transportation profession and society is now. Instead of waiting to figure out how AVs will impact us, we should be thinking about how we can use them to develop our cities and harness their power to promote sustainable mobility changes. Hopefully this article and the following resource and technical source links will provide some food for thought to CITE members.

## RESOURCES & CONFERENCES

### Automated Vehicles Symposium

Presented by AUVSI and TRB - July 2016, San Francisco  
<http://www.auvsi.org/avs2015/home>

### Driving Changes: Automated Vehicles in Toronto

David Ticoll, University of Toronto - prepared for the City of Toronto  
[http://www1.toronto.ca/City%20of%20Toronto/Transportation%20Services/TSPublications/Reports/Driving%20Changes%20\(Ticoll%202015\).pdf](http://www1.toronto.ca/City%20of%20Toronto/Transportation%20Services/TSPublications/Reports/Driving%20Changes%20(Ticoll%202015).pdf)

### Robot, Take the Wheel: Public Policy for Automated Vehicles

Noah Zon & Sara Ditta - Mowat Centre, University of Toronto  
[https://mowatcentre.ca/wp-content/uploads/publications/118\\_robot\\_take\\_the\\_wheel.pdf](https://mowatcentre.ca/wp-content/uploads/publications/118_robot_take_the_wheel.pdf)

### Preparing for Autonomous Vehicles in Canada

Canadian Automated Vehicles Centre of Excellence - Prepared for the Government of Canada  
[http://www.cavcoe.com/Downloads/CAVCOE\\_AV\\_White\\_Paper.pdf](http://www.cavcoe.com/Downloads/CAVCOE_AV_White_Paper.pdf)

### Automated Vehicles: The Coming of the Next Disruptive Technology

Vijay Gill, Brian Flemming, Paul Godsmark, Barrie Kirk  
<http://www.conferenceboard.ca/e-library/abstract.aspx?did=6744>

### Autonomous Vehicle Implementation Predictions: Implications for Transport Planning

Todd Litman, Victoria Transport Policy Institute  
<http://www.vtpi.org/avip.pdf>

### Local government 2035: Strategic trends and implications of new technologies

Kevin C. Desouza, David Swindell, Kendra L. Smith, Alison Sutherland, Kena Fedorschak, and Carolina Coronel, Brookings Institution  
<http://www.brookings.edu/~media/research/files/papers/2015/05/29-local-government-strategic-trends-desouza/desouza.pdf>

### Preparing a Nation for Autonomous Vehicles: Opportunities, Barriers and Policy Recommendations

Eno Center for Transportation  
<https://www.enotrans.org/wp-content/uploads/2015/09/AV-paper.pdf>

## GARRETT DONAHER



### Current employment

Transportation Engineer, City of St. John's, NL

### Education

Carleton University and University of Waterloo

### First job in transportation engineering

Dillon Consulting as a co-op student

### Personal hobbies

I get outdoors when I can and always enjoy a bit of putting on home improvement projects. Frisbee is the engagement that keeps me reliably active these days.

### What roles/positions have you taken on as a member of CITE?

- 2014 CITE Annual Conference LAC
- TLC Project Manager
- ExCITE Co-chair

### When did you first attend a CITE event? Do you remember what it was?

It would probably be a National Capital Section luncheon many years ago but I can't recall any specifics.

### Please describe what attracted you to transportation engineering?

I mentioned my first job in the field was a co-op position. I didn't really know what I was getting into but, as clichéd as it may be, the problem solving aspect was what hooked me. It could be sorting through piles of data; trying to decipher the underlying principles of a standard to understand how it may be adapted to a new situation; balancing different interests; or, finding a more efficient or effective way of delivering a project. Whatever it is, the challenge and mental engagement of working through a good problem is always the culprit when I look up from my desk and realize that I should have left for home long ago. The many facets of transportation are buried deep in the fabric of our individual lives and our society as a whole. To even begin to wrap my head around some of the implications and never ending challenges this presents is always fascinating. (Well, okay, almost always.)

### If you did not pursue engineering as a career choice, did you have another career in mind?

It won't come as any surprise to those that know me, but I did earn a couple designations in IT and toyed with the idea of going into banking.

### What grinds your gears?

I have been known to rant from time to time about the application of rules of thumb, standards, or guidelines without regard to where they came from, the purpose they serve, or what impact they will have on the project. I'm not saying that these sources aren't valuable; far from it, I use them every day. But, there are circumstances that might require a bending of a rule or disregard for an outdated standard. If I could wave a wand and have debates between transportation engineers be based on the fundamentals of the problem at hand and the implications of the engineering decision – instead of the what is written in a particular manual – I would do it in a second.

### What is the last book that you read or are currently reading?

Currently working my way through Isaac Asimov's Foundation Series.

## News from the ITE Complete Streets Council

BY STEPHANIE MCNEELY, P.ENG. M.A.SC.

As part of the revamped ITE council structure, a new Complete Streets Council (CSC) has been created. This Council serves as an important puzzle piece within ITE and operates as one of the six technical councils. The Transit and Pedestrian & Bicycle standing committees connect into the Complete Streets Council.

I'm excited about the Complete Streets Council's mandate (see side bar) and the energy and enthusiasm emanating from its members. This prompted me to volunteer as a liaison between the Complete Streets Council and the Canadian District of ITE (CITE). I will provide ongoing updates in Transportation Talk and, for this first installment, simply encourage you to join the Council as a member.

### WHY JOIN?

As Canadian transportation practitioners, we have a lot to learn on the topic of Complete Streets and also a lot to share – whether through new policies, projects or lessons learned. The list of municipalities across Canada that have adopted Complete Streets policies, developed guidelines and/or implemented projects continues to grow. Any of these topics could be offered to the CSC as a webinar idea to share or as a relevant resource to post online.

### HOW TO JOIN?

It's easy. All you need to do is to sign in with your ITE credentials through the [ITE Community portal](#). You can decide how often you would like to receive email updates, if at all.

### WHAT IS IT ABOUT?

It's about complete, multi-modal transportation systems and sharing valuable information and establishing professional relationships with others in the transportation community. Are you curious about how other practitioners are handling a particularly thorny issue? Pose a question on the discussion page and see what suggestions others provide. Do you have advice to offer based on a recent Complete Streets project? Respond to another member's post to impart your tips.

### WHAT IS NEXT?

I would like to highlight a few innovative initiatives within the Canadian context in the next edition of Transportation Talk. Let me know if you have any interesting project stories to share at [smcneely@urbansystems.ca](mailto:smcneely@urbansystems.ca).



**Chair:** Meghan F. Mitman, Fehr & Peers, San Francisco, CA, USA

**Vice Chair:** Dale Bracewell, Active Transportation, City of Vancouver, BC, Canada

The ITE Complete Streets Council (CSC) represents and promotes the needs of pedestrians, bicyclists, transit users, freight, autos, and other forms of travel in the planning, design, construction, operation and maintenance of complete, multi-modal transportation systems. The Council works to position ITE as the go-to resource on multi-modal transportation for its members and as an active partner with other organizations and agencies in this field. As a cross-cutting technical council, the CSC coordinates and showcases ongoing initiatives and evaluates internal and external technical, policy, and institutional opportunities for ITE to become a leader in complete streets.

## GREATER VANCOUVER

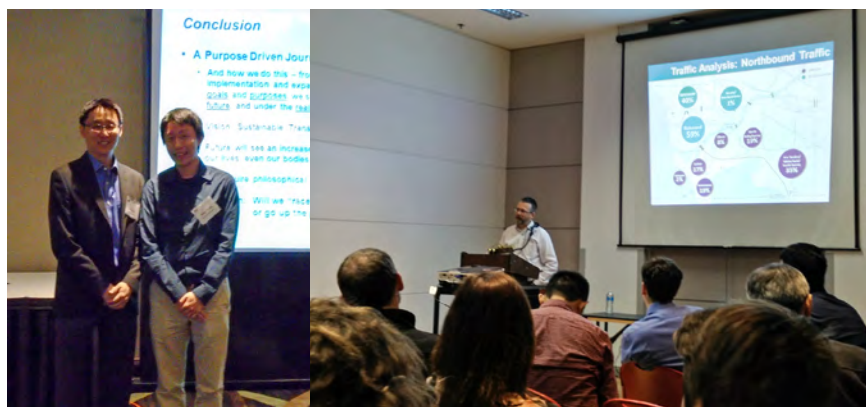
The Greater Vancouver Section of ITE has had an active spring of 2016 with three events happening to start the year.

The first event of the year was the annual Student Industry Night, held on February 11th by the University of British Columbia's ITE Student Chapter. The event took place at the Engineering Student Centre and was well-attended by both students and industry professionals. The event provided a great opportunity for students to network with professionals and for companies to promote transportation engineering and showcase their areas of expertise.

The second event of the year was a breakfast meeting held on March 30th. Clark Lim, Principal of Acuere Consulting, provided a very interesting presentation on the Internet of Transportation Things. The presentation outlined the technological advances of the

transportation industry and where we might be heading.

On April 4th, the Greater Vancouver ITE and CSCE Vancouver co-hosted a presentation on the Massey Tunnel Replacement Project. Daniel Belisle and Joost Meyboom gave an update on the project scope and results of preliminary studies for the project. Both Daniel and Joost are currently working on the project as owner's engineers.



Right: Breakfast Meeting with Clark Lim  
Far Right: Presentation on the Massey Tunnel Replacement Project  
Below: Student Industry Night at UBC





## MANITOBA

The Manitoba section got right down to business in January 2016 with a presentation by Bob Kurylko, P.Eng., a Senior Transportation Engineer at Stantec. Bob presented on the use of GIS to aid in the decision process for the development of a high speed corridor near Brandon Manitoba. The presentation highlighted how GIS was used to document and aid the decision process in a unique manner.

Our February meeting had Judy Redmond from the City of Winnipeg present on the City's new responsibilities under the Provincial Accessibility for Manitobans Act. Judy also

was able to provide our members with an update to the City's Universal Design guide, including real world examples of good and bad practices for building an inclusive environment (see below).

Tanya Worms, P.Eng, a senior transportation engineer with AECOM gave an inside look to the development of the Plessis Underpass project in east Winnipeg. This project faced intense public and political scrutiny over the past few years as it is an important link in the City's road network. Tanya provided insight into the project constraints, safety considerations, and the importance of coordination between all parties involved in large-scale transportation projects. The underpass is now open to vehicles, while construction will continue through 2016.

Future luncheon dates and information are posted on the ITE Manitoba website, so please check out what's coming up at <https://itemanitoba.wordpress.com/>.



*Left: Tanya presents on the underpinnings of the Underpass. Below: Spot the detectable tiles!*



# student chapter news

## UNIVERSITY OF BRITISH COLUMBIA

### City of Vancouver Traffic Management Centre

On January 29, 2016, fifteen members of the ITE Student Chapter from the University of British Columbia had the opportunity to visit the City of Vancouver's Engineering Department. Senior Transportation Engineer for Traffic and Data Management, Winston Chow, presented on some of the projects that he and the City have been working on and gave students a tour of the traffic management centre (TMC). The TMC was mainly used when problems arose at certain intersections, or when traffic data was required for a project. One of the key take aways from this tour was that while it is impossible to satisfy everyone's transportation demands, it is important to provide a solution where the majority of residents and road users benefit. A big thank you to Winston for answering our questions and for taking the time to host us!

### Portland Tour

In collaboration with the UBC Civil Club, the UBC ITE Student Chapter organized a tour to Portland, Oregon, during which members of the Chapter visited various transit infrastructures in Portland, including their Light Rail and Streetcar Systems. Part of the group also took part in a bike tour around Downtown Portland to explore the city's bridges, cycling infrastructures and astonishing scenery. Led by Dr. Bigazzi who recently joined UBC and specialized in transportation engineering, members of the Chapter mingled with like-minded students at the Portland State University, and visited some key infrastructures on the new Portland Orange Line Light Rail. They also went to the Portland Bureau of Transportation (PBOT) where they were presented with the latest development in the Portland Transportation System and the use of new technology in the system. A big thank you to Dr. Bigazzi, the UBC Civil Club, the STEP association at Portland State University and the Portland Bureau of Transportation for making this tour possible!



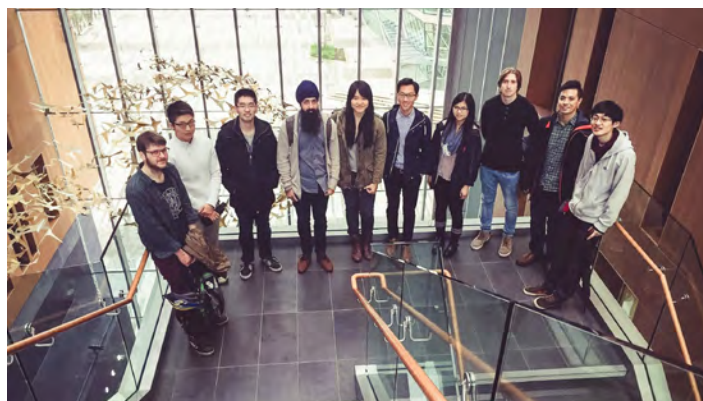
Portland bicycle tour

### Industry Night

Also in February, the student chapter hosted the Annual Industry Night. We had just over a hundred students in attendance, in addition to industry representatives from over twenty different organizations. It was a great evening of networking, food and showing thanks to our fantastic sponsors! Our gold sponsors this year are: Bunt and Associates, Creative Transportation Solutions, ISL Engineering, McElhanney and Watt Consulting Group. Our silver sponsor is Dillon Consulting Group, and our bronze sponsors are Binnie, Greater Vancouver ITE Section, SNC Lavalin, and Vancouver Airport Authority. Thank you all for coming out to attend our industry night, and special thanks to our sponsors for making these events possible.

### Surrey Traffic Centre

Students had the opportunity to visit the City of Surrey's Traffic Management Centre, where city engineers demonstrated day-to-day operations, tasks, and the system in use in Surrey. Innovations such as infrared sensors, on-the-go signal adjustments, and more were exhibited. Part of the tour also included other areas of the new City Hall, including places such as the mayor's office. A big thank you to the City of Surrey for the fantastic tour!



Visiting the Surrey Traffic Centre

## UNIVERSITY OF ALBERTA

We elected a new executive team in October 2015 for the new school year. With a team composed mainly of graduate students, we wanted to organize events and really get more undergraduate students involved and interested about transportation. We took the fall term to decide on what we wanted to do and made plans for the Winter 2016 term. These plans included monthly seminars, a Student-Industry Mixer, field trips, and a mentorship program.

## Kickoff Event

We ended the 2015 year with a December ITE Kickoff event, aimed at teambuilding for the transportation graduate students. There was trivia, a Lego replication game, and tower building! Everyone had a great time and came out of the event knowing the other graduate students better.

## ITEUA Transportation Seminar Series

Thus, this term, we organized three guest speakers. The first one we invited Brad Smid from the City of Edmonton, who talked about the technical process involved in the design and operational processes of Edmonton's upcoming Valley Line development. We had a great turnout with a great Q&A session and high engagement from the third and fourth year undergraduate and graduate students.

Our second speaker was Randy Reinhardt, the engineering librarian from within the University. This was more of a learning workshop, where we learned about all the resources the library can offer, as well as how to use RefWorks.

Lastly, we invited Kieran Ryan, one of the co-founders of Pogo Carshare, and he gave us a very interesting and upcoming presentation on Carsharing and the New Transportation Economy. We learned more about how carsharing works, and the key components in order to make carsharing a successful alternative mode of transportation.

Our chapter executives also went to NACITE luncheons and got to listen to three great speakers: Sarah Feldman from the City of

Edmonton on Edmonton's Transit Strategy, Chris Delanoy from ISL Engineering on Interchange Innovations, and Tim Barton on the challenges of TOD development and traffic.

## Student-Industry Mixer

Our big event of the term was our Mixer that we planned together with the Northern Alberta Chapter. We had over 30 industry members from 10 company & organization attendees, and over 80 students attending! The Northern Alberta chapter provided and helped gather the industry members, and we invited students and hosted the event at the University. The mixer started off with some presentations from industry members on their experiences in the transportation industry, and ended off with time for students and industry to chat and learn more. The event was a great success; we couldn't have done it without NACITE and the sponsorship and support from industry. We hope to continue to host this event annually and keep getting more students interested, as well as industry to see more innovated students at the University of Alberta.

## Upcoming Events

*Mentorship Program* – We were really interested in setting up a mentorship program specifically for students interested in the transportation field and connecting them with mentees already in the industry. We used the Mixer to introduce the program and will begin a pilot program running for six months. We plan on facilitating a meetup at the beginning of the term and one six months later, and the program allows for flexibility between paired mentors and mentees to set up their own meeting times.

*Traffic Bowl at Kelowna CITE Annual Conference* – We are currently in the process of selecting our traffic bowl team. We will host a mock competition for all interested students at the University, and from there the winning team will advance to represent us at the annual conference.



Tower Building Challenge; Transportation Graduate Students at Kickoff Party



Brad Smid from the City of Edmonton talking about Edmonton's LRT Design



Presentations during the ITEUA Mixer



ITEUA Executive Team (top row) and volunteers (bottom row)

# student chapter news

## UNIVERSITY OF MANITOBA

Winter term has been amazing for our Student Chapter. We've been fortunate enough to go on technical tours overseas, hold our own workshop on campus, and even do some outreach at local middle schools. This year has been a huge success for our chapter, and thank you to everyone who has had a hand in making our year so great!

Every year our chapter takes a trip during reading week to see the world of transportation through a different lens. This year's destination was Europe, specifically the Netherlands and France. In the Netherlands we stayed in Amsterdam, one of the most bike-friendly cities in the world. The number of cyclists and the accommodations made for them was awe-inspiring. While in the Netherlands, we took a day trip to the near-by city of Delft. During this day trip, we were led on a 16-km cycling tour, learning about the history and, more importantly, the cycling infrastructure of Delft, which is similar to that of Amsterdam.



*Amsterdam bike tour*



*View from the top of the Arc de Triomphe*

After our brief stay in Amsterdam, the group hopped on a train en route to Paris, France. In Paris we were able to go on two excellent technical tours. The first was a visit to a laboratory facility operated by the French Institute of Science and Technology for Transport, Development, and Networks (IFSTTAR). They gave us a short presentation on the institute, including their many labs distributed all across France, as well as the global scope of the projects they work on. We were then taken to test-drive two different simulation machines used by IFSTTAR in some of their behavioural studies – one for cycling and one for motor vehicles.

The final stop on our student chapter's technical tour de France was to Vélib, the bike share program operated in Paris.

Our group went to one of the 1,700 stations in the city. There we saw a maintenance crew and learned about how the bikes and stations operate and how customers can use the system. After seeing all of the front-end details, our group was led to a near-by workshop where we got to see how Vélib is run behind the scenes. There was a crew in the workshop doing major work on bikes that needed repairs, and an entire inventory of parts, stations posts, bikes, and anything else needed to keep the system running smoothly.

Learning about cycling while being in Europe was a wonderful way to spend reading week; we just wish it could have been longer!

Back in Winnipeg, our chapter held its biggest event of the year in March – an Active Transportation Workshop. The workshop featured two invited speakers: Brian Patterson of Urban Systems in Vancouver and Luis Miranda-Moreno, a professor at McGill University. The two spoke about their experiences with active transportation in projects and research they've worked on. The event was a major success, with over twenty members of industry attending, along with six students. We are especially thankful to our guest speakers; without them the event wouldn't have been possible.



*Active Transportation Workshop*



Our latest community involvement initiative has been a great combination of technical learning and fun. Our group visited two local middle schools to teach children about cycling, public transit, and transportation engineering. So far we've visited two schools, with another trip planned this month. Students from our chapter have loved interacting with the children and the children have been excited to learn about how they can travel in the city of Winnipeg. We hope this program can grow into something bigger next year.

We've had a great time this year, and we can't wait to cap it all off with a visit to the CITE conference this June in Kelowna, and perhaps another Traffic Bowl championship!

## MOHAWK COLLEGE

### A Message from Assistant Faculty Advisor Sean Nix

2016 has been extremely busy for the Mohawk College ITE Student Chapter. Not only has Mohawk student participation increased at CITE Hamilton Section events, but the students are now conducting their own activities, with very limited assistance from faculty, in collaboration with a group of students at McMaster University who are interested in forming their own student chapter.

On both Wednesday, March 2nd and Wednesday, March 23rd, students from the Mohawk College ITE Student Chapter hosted one-hour introductory Synchro training sessions to McMaster University students at the Mohawk College computer lab. Because McMaster University does not carry any Synchro licenses, this was an opportunity to allow McMaster students to put their previous coursework on signal timing theory into hands-on practice with software that is commonly used in the workplace. These training sessions were developed exclusively by students, with almost

no assistance from faculty. More sessions are planned in the coming months to cover more advanced material.

Mohawk College also plans to send a team to this year's Traffic Bowl in Kelowna. In Mohawk's second-ever appearance at a Traffic Bowl, Darren Loro, Omar Shams and Lauren Short hope to provide some healthy competition to post-secondary institutions across Canada.



*Mohawk College students Darren Loro & Omar Shams teaching Synchro to McMaster University students.*

## UNIVERSITY OF NEW BRUNSWICK

### A Message from Chapter President Caitlin Sowers

Our student chapter has continued to gain new members since it was founded in 2010. These are students from the undergraduate and graduate program who are passionate about transportation engineering and looking to broaden their experience in this area. We're fortunate to have a strong group of students who are curious and excited about the future of transportation engineering. Without them, the many successful fundraisers and events we have hosted would not have been possible. Our student chapter would also not be possible without the support and involvement from our faculty supervisors, Dr. Eric Hildebrand and Dr. Trevor Hanson. I would like to thank everyone who has made this year possible, and I look forward to serving as president of the UNB student chapter in the upcoming 2016-2017 year.



*From left to right: Mohawk College students Shaymaa Al-Ani, Khulud Sheeraz, Lauren Short, Omar Shams, and Darren Loro with Sean Nix (Faculty) representing Mohawk College at the Inaugural McMaster University ITE Student Group Meeting on Tuesday, February 9th.*



*University of New Brunswick Fundraising Bake Sale*

# student chapter news

## Port of Saint John Terminal Tour – November 5th, 2015

The CITE student chapter had the opportunity to visit the Port of Saint John to learn more about the operations of the facility. The group was given a presentation by Tyler O'Rourke, an engineer with the Port of Saint John, which outlined the operations of the facility and the types of goods and their volumes that are shipped through the facility. One of the highlights of the tour was seeing the huge cranes used to load and unload the container ships. There were two 45 tonne cranes positioned on one of the main terminals, which also has access to the railway track. The group was extremely appreciative of the Port of Saint John for allowing us to visit their facility, as well as Tyler O'Rourke for providing us with a very informative tour!

## Max Wunsch: Transportation in Germany – March 29th, 2016

On March 29th, 2016, a member from our student chapter, Max Wunsch, an exchange student from Germany, shared his knowledge and experience with the transportation network in Germany. Max explained the difference between federal, state, and municipal roadways in Germany as well as the varying amount of traffic used on each facility. Max also discussed the various types of signage used on the roads. One of the most interesting points was that there is only a recommended speed on some of the highway facilities, which means users can travel as fast as they want!



*Touring the Port of Saint John Terminal*

## Darren Charters: City of Fredericton Transit Initiatives – February 16th, 2016

On February 16th, 2016, Darren Charters with the City of Fredericton lent his time to present an overview of the City's bus transit system, as well as a new program to enhance the connectivity and reliability of their bus system. The new program will provide transit users with real time information on the location of the bus, and the expected time of arrival to a particular bus stop via a cellphone app. The use of the application would reduce the waiting time for a bus, eliminate the worry of a missed bus, and would also allow the City to confirm the bus arrival times with their posted schedule, from which adjustments could be made if a discrepancy in arrival time is found. Given the amount of students who rely on the bus system in Fredericton, we're very excited for the app to debut in June 2016!



*UNB chapter awarding a fundraising raffle prize winner*



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