Transportation Modelling Symposium

November 26-27, 2020

Register online at:
https://apps.otc.org/Events/

Ontario Traffic Council
www.otc.org

VIRTUAL SYMPOSIUM PROGRAM

Thursday, November 26, 2020	
8:40–8:45 AM	Welcome/Opening Remarks
8:45–9:30 AM	 **The Transportation Modelling Process – An Overview** Rob Pringle *P.Eng.* *WSP* *Transportation modelling underlies much of our transportation planning and traffic engineering. This presentation is intended to provide an overview of the range of modelling approaches available to us. The presentation will briefly discuss such topics as the dimensions of transportation models (macroscopic to microscopic), demand vs. supply-side models and equilibrium, and model calibration and validation. It also includes a discussion of data sources and modelling guidance.*
9:30–10:15 AM	**Traffic Operations Analysis Utilizing Simulation Modelling**  Jeanne-Marie Deletsu *Senior Traffic Design Engineer* *MTO*  Johnson Lau *Senior Traffic Design Engineer* *MTO* *Micro Simulation models provide a detailed and realistic representation of real life traffic operations as it is not practical to try out all operations or alternative improvements in order to select the best option. In Traffic Operations, the use of simulation models requires transparency, reliability, replicability and clarity. It is also important to understand 'why' and 'what will happen' when a particular model is used to enable traffic professionals provide the appropriate technical recommendations to achieve the goal of moving people and goods safely, efficiently and to support the economy. This presentation provides one of the first traffic operations analysis that utilized micro simulation and numerous other sample projects that was undertaken by the ministry. Potential future concepts of real-time simulation being developed will also be discussed.*
10:15–10:30 AM	Break

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Pedestrian Modelling at Toronto’s Union Station

Ana Sasic
Pedestrian Planning Discipline Lead
ARUP

As the busiest transportation facility in Canada and the hub of the Greater Toronto Area’s transportation network, Union Station is unique its regional role. Arup has studied a variety of future demand and layout scenarios in the station, including construction phasing for the Union Station Revitalization project, the impacts of the full build-out, and the effects of the Union Station Expansion Project on movements in the station and surrounding public realm. The development of Arup’s in-house pedestrian modelling software, MassMotion, has evolved around the planning work at the station for over ten years. The work on pedestrian movements around Union Station continues with studies of adjoining spaces and buildings, planning for good experiences for passengers and visitors to the area.
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<td>11:15 AM–12 PM</td>
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Brooklin Multi-Resolution (Macro/Meso/Micro) Traffic Modelling & Forecasting


Dominic Bergeron
Lead Transportation Systems Analyst
BA Group


Adrian Lorion
Lead Transportation Systems Analyst
BA Group

This presentation will go over the multi-resolution (macro/meso/micro) modelling exercise conducted by BA Group, in collaboration with the Region of Durham and the Town of Whitby, to forecast corridor and intersection turning movement traffic following the future development of areas surrounding Brooklin, in the northern portion of the Town of Whitby. Topics covered will include the modelling methodology, calibration process, role of origin-destination floating car data (i.e. Streetlight Data), nature of model outputs and, finally, overall conclusions and recommendations derived from the study. Emphasis will be placed on the advantages and benefits, as well as on the limitations and challenges, associated with the multi-resolution modelling methodology.
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<td>12:00-12:05 PM</td>
<td>Day 1 – Wrap-up</td>
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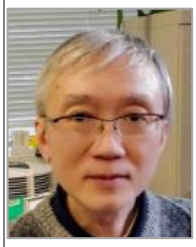
Friday, November 27, 2020	
8:40–8:45 AM	Summary of Day 1
8:45–9:30 AM	 **Large-scale Macro Modeling Projects** Mausam Duggal *Manager–Transportation Planning and Science* *WSP* *Models developed for individual tier 1 regions (Peel, York, Durham etc.), the Greater Toronto and Hamilton Area, the Trans Ottawa region, and the Greater Golden Horseshoe Region are all example of large scale macro modelling projects. But, beyond these are truly mega modelling projects, like the recently concluded Transportation and Economic Simulator of Ontario (TRESO) for the Ministry of Transportation. TRESO covers all North America and model's relationships between commuters, commodities, and freight movement with a focus on Ontario. It sits within a macro-economic framework that takes a global view that is distilled down to interactions between Ontario and world geographies. TRESO is designed to answer a wide diversity of questions, ranging from high-level planning analysis for mega regions, project prioritization, and rural planning from a person and freight travel perspective, and is the focus of this presentation.*
9:30–10:15 AM	**Traffic Modelling for Construction Projects – Challenges and Lessons Learned**  Soroush Salek *Ph.D., P.Eng.* *CIMA+*  Behzad Rouhieh *Senior Project Manager* *CIMA+* *Major construction projects along provincial highways have negative impacts on traffic operations of the surroundings road network. In order to ensure the safety and mobility of all road users, it is critical to accurately predict the traffic operational impacts of the construction projects.* *One of the challenges for this type of analysis is to account for the changes in trip patterns within the affected area as a result of the construction work. It is also important to carefully consider the operational requirements of such projects including temporary traffic signals, lane closures, speed reductions, excessive lane changes, weavings, and queue build ups.* *This presentation discusses the application of transportation modelling tools (Macro and Micro) for construction projects along provincial highway. Case studies of similar traffic assessment work conducted for the MTO and MTQ (e.g. Highway 401, Highway 400, Highway 69) will be presented along with the unique challenges encountered and lessons learned for each project.*

10:15–10:30 AM	Break
10:30–11:15 AM	**York Region Activity-Based Model**  Ahmad Subhani *Program Manager, Data and Forecasting* *Regional Municipality of York*  Mausam Duggal *Manager– Transportation Planning and Science* *WSP* *York Region embarked on a model improvement program in early 2017. The desire was to operationalize a state-of-the-art activity-based model (ABM) to help the Region with project prioritization and bestow staff with an analytical tool that can confidently forecast travel behavior in an increasingly complex environment. Choosing an ABM over its traditional trip and tour counterparts was also necessitated due to the need for elegance and behavioral consistency that cannot be found in other modelling paradigms.* *Cognizant of the effort required to build and design bespoke ABMs, the Region adopted a model transfer approach. This approach relied on adapting a modelling system that has a proven and successful track record, obviating the need to develop new code or models. WSP's CT-RAMP family of ABMs that are responsible for close to 50% of operational ABMs in North America was the modelling system of choice and the focus of this presentation.*
11:15 AM–12 PM	 **What Goes Behind the Macro Transportation Model Outputs and What to Ask if You Have Questions on Them?** Arthur Tai *Team Leader-Systems Analysis and Forecasting, MTO* *Traffic engineers often receive outputs from macro transportation models to carry their own in their disciplines, whether it is for the development of simulation models, intersection analysis, detail designs or cost-benefit evaluations. As macro model becomes more complicated this also becoming a black-box to users of the results. Using MTO's core tool for providing forecasts of multimodal travel, the Greater Golden Horseshoe Version 4, as an example, the speaker will explain the modern macro model: structure, input and output and the interpretations of the results using the appropriate lens.*
12:00-12:05 PM	Closing Remarks