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## Expert Summary

Alex is a transportation safety engineer with TNS. He has over 14 years of experience in the areas of road user safety, pedestrian and cycling safety, rail safety, transportation engineering, and transportation planning. Alex provides safety consulting services and independent forensic investigations relating to transportation facility design, construction, operations, and maintenance. He has been qualified in the Quebec Court of Justice and British Columbia Human Rights Tribunal as an expert in road safety. He recently received his Road Safety Professional Level 1 certification.

## Specialized Professional Competencies

- Road User and Pedestrian Safety
- Forensic Assessments of Roadway Design, Signage and Maintenance
- Winter Maintenance and Minimum Maintenance Standards
- Human Factors and Positive Guidance
- At-Grade Rail Crossings
- Transportation Engineering and Peer Reviews

## Professional Experience

- True North Safety Group: 2018-present
- Paradigm Transportation Solutions: 2017-18
- 30 Forensic Engineering: 2015-2017
- CIMA+: 2008-2014

## Academic Background

- Master of Engineering, Transportation and Planning, University of Toronto, 2014
- Bachelor of Civil Engineer, Laval University, 2008

## Additional Courses

- Deicing, American Association of State Highway and Transportation, 2021
- Anti-icing/RWIS: Weather Basics, American Association of State Highway and Transportation, 2021
- Barriers & the Social Meaning, Center for Inclusive Design and Environment, University of Buffalo, 2021
- Road Safety Professional – Level 1 Certification, 2020
- Snow School, Ontario Good Roads Association, 2015

## Project Experience

### Safety Reviews

**Trillium Line Road Safety Audit – SNC-Lavalin, Ongoing** - Retained to conduct a Road

Safety Audit (RSA) and review the human factors aspects of the Trillium Line Project in Ottawa. The RSA consisted of a review of a new three-kilometre spur line providing access to Macdonald-Cartier International Airport, along which a multi-use path will be constructed.

**Traffic Operations Safety Study – Region of Halton, 2020** Retained to review the existing safety programs in place in the Region and to evaluate how it compares to other safety initiatives such as Vision Zero. A total of twenty operational and procedures/practices aiming to reduce the number of injury and fatal collisions were reviewed and updated.

**Operational and Safety Review of Six Signalized Intersections, Region of Durham, ongoing** - Retained to complete a comprehensive safety review of six major signalized intersections. This project involves the review of conflict data collected with cameras and comprehensive field investigations.

**Operational and Safety Review of Rural Skewed Intersections, City of Ottawa, ongoing** - Retained to develop an innovative approach to capture and rank the relative collision risk and severity of sites with low-volume and collision experience, and to select appropriate remedial actions representative of the risk level. The study area consisted of 31 curved-tangential intersections.

**In-Service Road Safety Audits – Region of Peel, 2019-2020** - Retained to complete a comprehensive safety review of five major signalized intersections.

**Operational and Safety Review of Rural Skewed Intersections, Region of Durham, 2019** - Retained to develop an innovative approach to capture and rank the relative collision risk and severity of sites with low-volume and collision experience, and to

select appropriate remedial actions representative of the risk level. The study area consisted of 22 curved-tangential intersections.

**Safety Assessment of Proposed CN Logistics Hub, Milton, Ontario, CN, Ongoing** – Retained to review the safety effects of the increased traffic and truck volume on the expected travel routes between the CN facility and the major destinations and freeway facilities. The study area includes approximately 100 intersections and midblock segments.

**In-service Road Safety Review – City of Toronto, 2019** – Retained to complete a comprehensive safety review of the road segment of Victoria Park Avenue from Parma Court to Jonesville Crescent/Craigton Drive.

**In-Service Road Safety Audits – Region of Peel, 2019-2020** - Retained to complete a comprehensive safety review of five major signalized intersections.

**Tillsonburg Corridor Study – Town of Tillsonburg, 2017** - Retained to conduct a Corridor Management Study for Quarter Town Line. The purpose of this study was to develop economically feasible countermeasures to existing and anticipated traffic operations and safety concerns within the corridor.

**Corridor In-Service Safety Review – City of Calgary, 2017** – Retained to complete a comprehensive safety review of an industrial arterial road corridor, which included three intersections and a number of private accesses.

**Curve Assessment and Warning Sign Recommendations, Region of Halton, 2018** – Retained to assess all curves on Regional roadways against the Ontario Traffic Manual Book 6 – Warning Signs and make

recommendations for the non-compliant curves.

**In-Service Road Safety Review of Dundas Street from McLaren Avenue/Pollock Avenue to Franklin Boulevard, Region of Waterloo, 2017** – Retained to conduct a safety review of a 850 metres road section of Dundas Street in Cambridge which included the review of two signalized intersection, one stop controlled intersection, one roundabout and several commercial accesses.

**Safety Assessment of the Don Mills Road and Eglinton Avenue Environs, Wynford Green Limited, 2016** – Comprehensive safety reviews of thirteen intersections located in the surroundings of the proposed development on the existing Celestial Lands in the City of Toronto.

**Ramp Configuration Safety Assessment – First Gulf, 2015** – A quantitative safety assessment of the “hybrid option” ramp configurations between the Gardiner Expressway, Lakeshore Boulevard and Don Valley Parkway in the City of Toronto.

**In-Service Safety Reviews – Region of Halton, 2015** – Comprehensive operational safety reviews of four intersections and two road sections in the Region of Halton.

**Configuration of Safety Analyst Software for Efficient and Effective Safety Management of MTO’s Road Network, Ministry of Transportation Ontario – Head Office, 2012 – 2013** – Configured the Safety Analyst software for efficient safety management of MTO’s road network, and developed the training material (PowerPoint slides and hands-on exercises) for a two-day training given to MTO staff.

**Review of Safety Impacts of Static Electronic Advertising Signs and Bus Shelter Scrolling Advertisements, City of Toronto, 2013** –

Conducted a before and after study to identify the safety impacts of both static electronic advertising signs and bus shelter scrolling advertisements, and performed statistical calculations to determine whether the signs impact the number of collisions.

**Montreal Speed Limit Assessment, City of Montreal, 2012** – Statistically assessed whether the reduction of the speed limit on local roads in the City of Montreal from 50 km/h to 40 km/h has reduced the operating speed.

**Traffic Engineering Services on Retainer, Ministry of Transportation Ontario, Eastern Region, 2013** – Managed the review and development of a new version of the OTM Book 12 – Justification 6. Justification 6 provides a warrant system for the installation of pedestrian crossings. This project included a literature review, a survey of municipalities, the development of a new warrant system and a presentation to MTO staff.

**Pedestrian Operational Safety Review – Region of Durham, 2015** – A review of pedestrian safety and operations along Victoria Street in the Town of Whitby. The area included GO Transit station and parking facilities, high density residential and recreational facilities.

**City of Hamilton Mobility Pedestrian Master Plan, City of Hamilton, 2011** – Involved in the quantitative tasks of this project. Calculated probability of collisions involving pedestrians for road sections and intersections, and ranked road elements according to their potential for safety improvements.

### Vulnerable Road User Safety

**Rural Active Transportation Strategy – City of Burlington, Ongoing** – Retained to

undertake safety reviews of five existing midblock uncontrolled Bruce Trail crossings located in rural areas.

#### **Westmount Road Preliminary Risk Assessment – Region of Waterloo, 2020**

Retained to complete a preliminary risk assessment comparing the relative risk between on-road bicycle facilities and an off-road share use path on Westmount Road between Glasgow Street and Erb Street in the Region of Waterloo. The findings were incorporated into the overall decision-making in the planning and design phases of the project.

**Preliminary Hazard Assessment at the Aurora GO Station Platform, Metrolinx and Amec Foster Wheeler, 2016** – Retained to conduct a preliminary hazard assessment of the at-grade pedestrian crossing at the Aurora GO Station platform. The study consisted of a field investigation during peak arrival and departure periods, and an assessment of future operating conditions along with a hazard assessment.

**Traffic study for the St. Matthew Catholic School, Toronto District Catholic School Board, 2017-2018** – Conducted a comprehensive operational and safety assessment to determine how to address the traffic congestion and safety concerns on Lavender Road and in vicinity of the school.

**Design of a multi-use trail at an at-grade railway crossing, Town of Notre-Dame-des-prairies (QC), 2017-2018** – Retained to determine safety measures that should be implemented in advance of the rail corridor to ensure adequate levels of safety are provided to cyclists and pedestrians travelling on the multi-use trail.

#### **At-Grade Railway Crossing Reviews**

Retained to conduct compliance reviews for each of the railway grade crossings, which involved identifying existing deficiencies, determining the appropriate remedial

measures and the associated budget level cost estimate. It also involved identifying eligibility of the safety improvements for federal funding. Such projects were completed for the following road authorities:

- City of Pickering, Ontario (ongoing) – 16 crossings
- City of Mississauga, Ontario (2017-2018) – 32 crossings
- City of Kamloops, British Columbia (2017-2018) – 22 crossings
- Halifax Regional Municipality (2018) – 28 crossings
- Region of Waterloo (ongoing) – 34 crossings
- City of Grande Prairie, Alberta (2018) – 16 crossings
- Town of Joliette, Québec (2017) – 8 crossings
- City of Woodstock, Ontario (2017) – 6 crossings
- Region of Durham, Ontario (2016-2017) – 30 crossings
- Town of Whitby, Ontario (2017) – 5 crossings
- City of Cambridge, Ontario (2016-2017) – 23 crossings
- City of Waterloo, Ontario (2016-2017) – 18 crossings
- City of Belleville, Ontario (2016)- 25 crossings
- Town of Woolwich, Ontario (2016) – 6 crossings
- Town of Augusta, Ontario (2016) – 2 crossings

#### **Whistling Cessation Studies**

Retained to undertake railway train whistle cessation studies, which involved on-site investigation of the crossings by the project team as well as a representative of the railway company. An assessment of the railway crossing for compliance, identification of deficiencies and countermeasures with

budgetary level estimates were provided. Such projects were completed for the following road authorities:

- Oxford County, Ontario (2019) – 1 crossing
- Municipality of Shuniah, Ontario (2016) – 1 crossing
- Town of Didsbury, Alberta (2017) – 8 crossings
- Town of Coaldale, Alberta (2017) – 6 crossings
- City of Lacombe, Alberta (ongoing) – 5 crossings

### **Traffic Data Analysis**

**Operational and Safety Review of a Rural Intersection, Bruce County, 2019** - Retained to conduct an operation and safety review of the Grey Road 25 and Grey Bruce Line/Grey Road 10 intersection. As part of this project, conflict analysis data was collected, which were analyzed by TNS to understand the safety concerns and identify remedial measures.

**Before and After Conflict Analysis Study, Prince George, 2019** – Retained to conduct a before and after assessment of conflict data to evaluate the effectiveness of converting a permissive left-turn phase to a protected-only eastbound left-turn phase, installing pedestrian countdown timers, and extending the pedestrian phases.

**Development of Safety Performance Functions and Network Screening, York Region (2010)** Developed SPFs for road segments and intersections and for various collision types. This project involved a network screening to determine the sites with the greatest potential for safety improvements.

**Development of Safety Performance Functions (SPF) and Network Screening, Ministry of Transportation of Quebec, 2013** - Managed the development of SPFs for rural midblock segments and for various collision types. This project included the collection and preparation of the required data (collisions,

traffic volume and physical characteristics) and the use of statistical techniques to develop mathematical equations.

**Development of Safety Performance Functions (SPF) and Network Screening, City of Mississauga, 2013** - Developed methodologies to estimate AADTs for intersections with no AADT, and modeled SPFs for various collision types and severity.

**Development of Safety Performance Functions (SPF) and Network Screening, Halton Region, 2010** - Developed SPFs for road segments and intersections and for various collision types. This project included the collection and preparation of the required data (collisions, traffic volume and physical characteristics) and the use of statistical techniques to develop mathematical equations.

**Site Selection for Deployment of Red-Light Cameras, Regional Municipality of Halton, 2012** - Developed a methodology for the identification of the most appropriate 4-leg signalized intersections for red-light cameras deployment. The methodology was also incorporated in the Traffic Engineering Software (TES) to automate the site selection process that could be used in the following years by the Region.

**Site Selection for Development of Red-Light Cameras, Regional Municipality of York, 2013** – Developed a methodology to identify the most appropriate 4-leg signalized intersections for red-light cameras deployment. The methodology was also incorporated in the Traffic Engineering Software (TES) to automate the site selection that could be used by the Region in the following years. Managed the field investigation task.

## Professional Societies and Associations

- Member, Professional Engineers of Ontario (PEO)
- Member, Ordre des ingénieurs du Québec
- Chair of the Accessibility Guidelines Committee, CITE (2017-2018)
- President of the Canadian Association of Road Safety Professionals (CARSP) (2019-2021)
- Member, Association Québécoise des transports, AQTR

## Publications/Presentations

- Completing In-Service Road Safety Reviews using Video Based Surrogate Safety Techniques, Transoft, September 2020
- An Innovative Approach to Assessing the Relative Risk at Rural Curved-Tangential Intersections, CARSP, June 2020
- Pedestrian Safety One-Day Workshop, ITE Toronto Section in Thunder Bay, 2020
- Transit Stop: Locating and Designing for Safety, CUTA, October 2019
- Fundamentals and Practical Applications of the AASHTO Highway Safety Manual, ITE Toronto, October 2019
- A Review of Public Right-of-way Accessibility Experiences in Canada, CARSP Conference, Victoria, June 2018
- A Review of Public Right-of-way Accessibility Experiences in Canada, CITE Conference, Edmonton, June 2018
- Bicycle Safety and Risk Management One-Day Workshop, Ontario Traffic Conference, 2017 & 2018 & 2019
- Above Grade – Implications of the New Regulations on Private Owners of At-grade Railway Crossings, Canadian Underwriter, September 2017

- Pedestrian Safety and Risk Management One-Day Workshop, Ontario Traffic Conference, 2017 & 2018 & 2019
- Formation sur la sécurité des piétons sur le réseau routier, One-Day Workshop, « Association québécoise des transports », 2017
- Pedestrian Safety at At-grade Railway Crossings, CARSP Annual Conference, Toronto, June 2017
- La sécurité des passages à niveau, « Association québécoise des transports » Workshop on at-grade railway crossings in Montreal, November 17, 2016
- Les implications du nouveau Règlement sur les passages à niveau, « Association québécoise des transports » Annual Conference in Quebec City, April 2016
- Canada's New Grade Crossings Regulations: Know Your Road Authority's Responsibilities, Municipal World, March 2016

## Expert Testimony

- Qualified as an expert in road safety in the Court of Justice, Quebec
- Qualified as an expert in road safety in the BC Human Rights Tribunal