



Stefan Tsang,
B.A.Sc., RSP1, P.Eng.



Expert Summary

Stefan is a Transportation Safety Engineer at TNS with over five years of experience in the transportation industry, specializing in road user safety and traffic operations. Stefan has experience in conducting in-service safety reviews, road safety audits, and operational performance reviews of intersections and corridors in various operating environments across Ontario. These studies consist of data collection, collision record validation, office reviews of historic collision data, predictive safety analysis, field investigations, issues diagnosis, and countermeasure selection/evaluation to improve safety performance for all road users. He is proficient in the use of Synchro, Aimsun, and has experience with VISSIM software.

Specialized Professional Competencies

- Traffic Operations Reviews
- Road Safety Audits
- In-Service Road Safety Reviews
- Active Transportation Plans
- Traffic Data Analysis

Professional Experience

- True North Safety Group: 2022 - present
- IBI Group: 2016 - 2022
- Parsons Corporation: Summer 2016
- BA Consulting Group Ltd.: Summer 2015

Academic Background

- Bachelor of Applied Science Honours, Civil Engineering with Distinction, University of Waterloo, 2017

Additional Courses

- Aimsun Next Expert from A-Z Training Course, March 2018

- PTV Advanced Transit Operations & VISUM Custom Training, July 2015

Project Experience

Road User Safety

Road Safety Strategic Plan (RSSP) – Niagara Region (Ongoing)

Developed a road safety strategic plan using the safe system principles to achieve the long term goal of Vision Zero. Conducted significant stakeholder and public consultation. Developed a 5-year action plan.

Road Safety Management and Plan – City of Niagara Falls (Ongoing)

Produced AADT for intersections and road sections. Developed Safety Performance Functions (SPFs) for intersections and road sections. Conducted network screening to identify locations with a potential for safety improvement. Developed an annual collision report to identify patterns and trends. Developed emphasis areas for Vision Zero plan.

Riley Communities Mobility Study & Improvements Plan - City of Calgary (2022-Ongoing)

Retained as part of the Urban Systems project team to conduct a planning-level safety review of the intersections and roadways within Calgary's Riley Community, supporting Calgary's Safer Mobility Plan.

In-Service Road Safety Reviews for 20 Locations - City of Hamilton (Ongoing)

Conducted in-service road safety reviews for key locations in the City of Hamilton, including 15 intersections and five corridors. This project included an initiation meeting, monthly teleconferences, three meetings to present findings prior to preparing draft reports, two meetings to discuss draft reports and one meeting to present our final reports to city staff and high-level management.

ActiveTO Midtown Yonge Complete Street Pilot – City of Toronto

Stretching from Davisville Avenue in the north to Bloor Street in the south, the ActiveTO Midtown Yonge Complete Street pilot is a transformative 3.4 km long project which brings cycle tracks to Toronto's most significant corridor. Working closely with the CaféTO program, the project accommodates public realm improvements, restaurant patios, dedicated loading spaces, and improvements to pedestrian safety and priority alongside protected cycling infrastructure.

Highway 7 Operational Performance Review – Ministry of Transportation of Ontario

As an assignment under the Eastern Region Traffic Engineering Services Retainer contract, IBI Group was retained to conduct an operational performance review (OPR) on Hwy 7 between Highway 115/Television Road and Peterborough Road 38, near Peterborough, Ontario. The study corridor is approximately 17 km in length, including 15 intersections (4 signalized, 11 unsignalized). The OPR assessed the operational and geometric conditions, identified potential operational and safety concerns, predictive analysis using the Empirical Bayes method, and proposed mitigation measures.

Highway 49 at Airport Road/Bayshore Road Safety Audit – Ministry of Transportation of Ontario

Under the Eastern Region Traffic Engineering Services Retainer contract, IBI Group was tasked with assessing the proposed right-in-right-out (RIRO) configuration at the intersection of Highway

49 at Airport Road/Bayshore Road in the Tyendinaga Mohawk Territory. Using information and findings related to the previous work that IBI Group has done in the area, the RIRO design proposed for traffic management was reviewed from a road user safety and traffic operations perspective. The RSA identified potential safety issues that may manifest during operations of the proposed design, and countermeasures were proposed that could be included to mitigate the identified issues. The detour routes associated with the proposed configuration were also considered as part of the study.

Collision Record Validation – City of Toronto

IBI Group was retained by City of Toronto to conduct collision report validations for 19,000 incidents that occurred within the City of Toronto. The collision reports validated are Self Reporting Collision Reports (SRCR) and Motor Vehicle Accident Reports (MVAR), which are two standard collision report formats that are used across Ontario. The validation process involves reviews of the collision reports and corrections to the collision attributes in the database. The validated data are then distributed to the City of Toronto internal groups and other consultants to assist in further analysis, and data-driven decision making on road safety improvements.

Bloor Street at Islington Avenue Bus Terminal Relocation Road Safety Audit – City of Toronto

As part of the City of Toronto's Housing Now Initiative, a redevelopment is proposed for the lands surrounding TTC Islington Station on the northwest corner of Bloor Street at Islington Avenue. IBI Group was retained to provide an independent, proactive, and explicit safety review of the four design options. In support of the City's Vision Zero initiatives, emphasis was placed on the safe movement of vulnerable road users, but other factors such as transit operations, traffic operations, and geometric design were also considered. The road safety audit consisted of background data review, site visits, identification of potential safety issues in each design alternative, and proposing geometric and operational design features that could be included to improve road user safety.

2018 In-Service Road Safety Reviews of Priority Areas for Toronto's Vision Zero Road Safety Plan – City of Toronto

IBI Group, in partnership with CIMA+, was retained to conduct in-service safety reviews of nine corridors across the City of Toronto where concentrations of collisions resulting in injuries and fatalities occurred. The safety reviews have a focus on improving conditions for vulnerable road

users and active transportation users within the study areas. The project involves office review of historical collision data, field investigations, and proposing mitigation measures that align with the City's Vision Zero Road Safety Plan. As an additional task, IBI Group was asked to conduct additional tasks to help the City prioritize the implementation of our recommendations across the study corridors. As part of this task, IBI Group undertook a review of more than 200 unique countermeasures that have been recommended to quantify the collision impacts and provide high-level estimates of implementation costs.

Signalized Intersection Safety Workshop, Toronto – City of Toronto

IBI Group was retained to arrange and host a full-day collaborative workshop to provide an overview of road user safety analysis methods, engage staff in a discussion of signalized intersection design and operational challenges, and to explore safety improvement opportunities. The session was implementation-focused with an open discussion of the trade-offs that typically accompany intersection safety improvements. A series of dashboards displaying traffic volumes and collision data were created to allow for workshop participants to factor in traffic and safety operations into the exercise.

Queen Street: Parkside Drive to Lorne Avenue In-Service Road Safety Review – Town of Newmarket

IBI Group was retained by the Town of Newmarket to conduct an in-service safety review of a 600m section of Queen Street. Queen Street is a collector roadway within a residential area, with a curvilinear alignment that creates some sightline and operating speed challenges. The Town had made several previous attempts at addressing the issues, and IBI Group was asked to provide input on existing conditions and potential further mitigations. The scope of work consists of an office review of historical data, field investigations, and recommendations to mitigate the observed safety issues.

2017 In-Service Road Safety Reviews of Priority Areas for Toronto's Vision Zero Road Safety Plan – City of Toronto

IBI Group was retained to conduct in-service safety reviews of six corridors across the City of Toronto where concentrations of collisions resulting in injuries and fatalities occurred. The safety reviews have a focus on improving conditions for vulnerable road users and active transportation users within the study areas. The project involves office review of historical collision data, field investigations, and proposing mitigation measures

that align with the City's Vision Zero Road Safety Plan. As an additional task, IBI Group was asked to produce a discussion paper on recommended countermeasures that represented significant potential for improvement to safety performance but were not part of the City's existing operations or policy toolbox (e.g., lagging protected left turn phasing, automated enforcement, protected intersection geometry, etc.).

Highway 401 Collision Review – Ministry of Transportation of Ontario

As an assignment under the Eastern Region Traffic Engineering Services on Retainer contract, IBI Group was tasked with conducting an extensive review of collision and full road closures along the entire length of Highway 401 (nearly 400km), in Eastern Region. The review included a comprehensive review of collision trends and attributes, as well as an in-depth investigation of factors, based on historic collision, weather, and construction activity that contributed to full road closures along the study corridor. IBI developed a time-based closure rate for 8 focus areas along the corridor and conducted a comparative geo-spatial and statistical analysis of the relationships between highway closures and a wide range of collision metrics and attributes.

Traffic Operations

Traffic Signal Coordination for Kennedy Road, Willowdale Avenue, Eglinton Avenue West, Avenue Road, and Bloor Street West – City of Toronto

IBI Group was retained to update traffic signal timing plans at 132 intersections across 5 corridors in the City of Toronto, with the goal to improve traffic progression along the corridors. The project included a comprehensive evaluation of the existing conditions, development of a calibrated Synchro model, optimizing the study corridors, and evaluation of the vehicle travel times before and after implementation. Stefan was part of the team responsible for field data collection and traffic signal review, Synchro model development, calibration, analysis, and optimization, TSP parameter optimization, report and timing card preparation, and TransSuite programming.

Traffic Signal Coordination for Finch Avenue, Birchmount Road, Brimley Road, Midland Avenue, Bloor Street and Dufferin Street / Allen Road – City of Toronto

IBI Group was retained to update traffic signal timing plans at 165 intersections across 6 corridors in the City of Toronto. Stefan conducted field visits to the intersections to verify the existing timing plans and observe queue lengths for calibration.

He was a key member in the creation, calibration, optimization and quality control of the Synchro models for the Finch Avenue and Bloor Street corridors.

Professional Societies and Associations

- Member, Professional Engineers of Ontario (PEO)
- Member, Canadian Institute of Transportation Engineers (CITE)
- Road Safety Professional 1, Transportation Professional Certification Board