CITY OF Thunder Bay
Superior by Nature

Infrastructure & Operations Department **Memorandum**

TO:	Krista Power, Director – Legislative Services & City Clerk	**FILE:**
FROM:	Kayla Dixon, Commissioner Infrastructure & Operations	
DATE:	06/18/2025 (mm/dd/yyyy)	
SUBJECT:	Designated Truck Route – Response to Information Request	
MEETING & DATE:	Committee of the Whole – 06/23/2025 (mm/dd/yyyy)	

This memorandum provides responses to questions on the Designated Truck Route posed by members of Council on the information report presented June 2, 2025. Questions generally involved traffic and collision data, results of the modelling, impact within the City versus outside of the City, impacts of trucks on other communities along the TransCanada Highway, GHG emissions, Bill 49 impacts, details of the Hwy 11/17 Shabaqua extension, and MTO traffic loop detection.

The Traffic Engineer who completed the traffic analysis for the DTR implementation as well as City Administration continue to recommend the implementation of a Designated Truck Route as it improves the safety of the transportation network and it is responsible traffic engineering to divert heavy truck traffic to higher order facilities that are designed for them including with fewer conflict points, wider lanes, rights-of-way, and turning radii.

Traffic and Collision Data

The following table shows breakdowns of collisions and the daily traffic volumes on different segments of Highway 11/17, Dawson Road, and Highway 102.

Collision Category	Highway 11/17		Highway 102	Dawson Road		TOTAL
	Dawson Road to Harbour Expressway	Harbour Expressway to Sistonens Corners	Townline Road to Sistonens Corners	Dog Lake Road to Townline Road	Highway 11/17 to Dog Lake Road	Total recorded collisions
Fatal	3	4	2	3	0	12
Injury	12	17	4	14	24	71
Property Damage Only	272	250	28	105	168	823
Total	**287**	**271**	**34**	**122**	**192**	**906**
Intersection or intersection-related	137	35	5	10	126	313
Auto-Truck	21	14	7	14	25	81
Truck only	0	13	12	30	2	57
Total truck-involved	**21**	**27**	**19**	**44**	**27**	**138**
Truck at Fault	12	5	2	7	19	45
Animal Related	54	126	5	24	18	227
Vulnerable Road User	3	1	0	0	3	7
Average Annual Daily Traffic	19,000	2,400 to 6,300	3,400	5,700	10,000 to 15,000	N/A
Average Annual Daily Truck Traffic	710	400 to 510	1,100	1,300	1,600 to 2,500	N/A

Modeling Results and Reliability

The traffic analysis and modeling efforts have focused on predicting collisions that result in fatalities or serious injuries, aligning with best practices in road safety engineering, following Vision Zero and safe systems principles. Property damage only collisions were not evaluated as part of the predictive model.

The predictive models used have been developed by the MTO and thoroughly tested. The analysis used the MTO's Safety Performance Functions (SPF), which are mathematical equations developed for a particular area that best describe the relationship between traffic volumes and collisions. The SPF estimates the long-term average value of predicted collisions, based on factors including traffic volume and road type (i.e. urban or rural, 2 lane or 4 lane, etc.). This methodology does not have a margin of error or statistical significance for collision predictions as it relies on long-term averages.

To predict future changes in collisions, the Empirical-Bayes methodology was utilized to combine the predicted collision frequency with the observed collision frequency to provide a weighted average collision frequency as per industry-standards. Collision estimates are conservative, as the prediction analysis did not include increases in traffic volumes, which have historically continued to escalate, and collisions are directly related to volumes.

The SPFs were used to predict the collisions based on existing conditions and found:

- On Highway 11/17, the average number of recorded collisions (all severities) per year is higher than expected based on the Safety Performance Function and current traffic volumes.
- On Highway 102, the average number of recorded collisions (all severities) per year matches expectations based on the Safety Performance Functions and current traffic volumes.

The following table provides a summary of the expected number of fatality and serious injury collisions over a 20 year period with and without the designated truck route.

Table 1: Expected Number of Fatal and Injury Collisions over 20 Years

Location	Expected Number of Fatal and Injury Collisions over 20 Years		
	Maintain Existing By-law	Implement DTR By-law	Difference
Highway 11/17 (Dawson Road to Harbour Expressway)	120	126	6
Highway 11/17 (Harbour Expressway to Sistonens Corners)	89.7	122	32.3
Dawson Road (Highway 11/17 to Dog Lake Road)	130	115	-15
Highway 102 (Dog Lake Road to Sistonens Corners)	75.4	50.8	-24.6
Arthur Street/ Highway 130	41.4	39.6	-1.8
Highway 61	39.0	39.5	0.5
Total	**495**	**493**	**-2**

Note: All values rounded to three significant digits. Total may not equal the sum of the values shown as a result of rounding.

Impact Within the City versus Outside the City

As shown in the Table above, the majority of the collisions that are moved to Highway 11/17 are on the portion of highway from Harbour Expressway to Sistonen's Corner; only six are on the Thunder Bay Expressway section.

Impacts on Communities on the TransCanada Highway

Kakabeka Falls and Ignace

Highway 11/17 passes through the communities of Kakabeka Falls and Ignace, with a similar four-lane cross section through both. The current volume of traffic through Kakabeka Falls is similar to the volume of traffic that travels through Ignace but there is a lower percentage of truck traffic in Kakabeka Falls (9% trucks) compared to Ignace (37 to 48% trucks). With the Designated Truck Route implemented truck volumes in Kakabeka Falls will increase by an estimated 1,300 trucks per day to a similar volume as Ignace.

Collision rates were compared for three locations with similar design characteristics: the urban portion of Dawson Road (Highway 11/17 to Dog Lake Road), Highway 11/17 through Kakabeka Falls (Pole Line Road to Highway 590), and Highway 17 through Ignace (Rand Street North to Lakeshore Drive). Dawson Road between Highway 11/17 and Dog Lake Road has a higher overall collision rate (0.8) compared to Highway 11/17 through Kakabeka Falls (0.5) and Highway 17 through Ignace (0.3). The truck-involved collision rate is highest for Dawson Road between Highway 11/17 and Dog Lake Road. The rate for Highway 11/17 through Kakabeka Falls is nearly zero. The truck-involved collision rate for Ignace cannot be calculated as no data was provided on the types of vehicles involved in the collisions within that community. There were 192 total collisions on Dawson Rd, 11 total collisions in Kakabeka Falls and 4 collisions in Ignace.

GHG emissions

The following is a correction to GHG emissions information provided in Report 200-2025. The DTR will result in an additional 4,557 tonnes of CO2e annually. This is an "emissions by source" calculation where carbon dioxide equivalents are calculated based on estimated total fuel consumption.

In 2021, transportation was responsible for 288,103 tCO2e in the City of Thunder Bay – if everything else stayed consistent, the DTR would result in a 1.58% increase in transportation emissions. The DTR impacts cross country truck traffic not local trucks. According to Statistics Canada in 2019 on-road freight accounted for 38,950,000 tCO2e. Implementing the DTR would result in a 0.001% increase in Canada's on-road freight transportation emissions.

Bill 49 impacts

The proposed amendments under the *Northern Highway 11 and 17 Safety Act, 2025* aim to enhance safety on Highways 11 and 17 through several measures including:

increased inspections at Ministry weigh scales, improved driver licensing and certification, Ministry-managed winter maintenance, and stronger enforcement of unsafe driving behaviours by the OPP.

These changes represent a positive movement in road safety, however their impact on driving habits may take time to materialize. Following the passing of the Bill, it will take time to increase staffing levels that will be required to support the expanded inspection and enforcement efforts. Additionally, the enhanced licensing and certification requirements appear to apply only to new commercial motor vehicle (CMV) drivers, not those already certified. As a result, the full benefits of these changes are likely to be realized gradually over the long term.

The current status of Bill 49 is in the second reading stage.

Highway 11/17 Shabaqua Extension

A map provided by the Ministry of Transportation shows the proposed alignment of the Highway 11/17 Shabaqua Extension. The alignment is shown as the grey line to the west of Kakabeka Falls that crosses north of Mokomon to join the existing Highway 11/17 alignment west of Sistonen's Corner.

MTO Loop Detection on Thunder Bay Expressway

With regard to the detection along the Thunder Bay Expressway (TBE) there are a number of procedures that are completed to monitor the operation of the detection. The Ministry is currently in the process of upgrading the controllers at intersections along the TBE. Currently over 50% have been replaced and added to the traffic control system which allows for monitoring and reporting of failures of such things as detection. The area maintenance staff also physically monitor the equipment at scheduled times. Lastly

if the public raises a concern a review is completed within a short time frame to address the concern.

In the event of a detection failure arrangements are made to fix or replace the issue and or to place the phase in recall until replacement can be completed. Detection systems are very reliable for the most part and failures can occur but are infrequent. Signal timings are based on the traffic utilizing the intersection including speeds and volumes.