

National Transportation Safety Board

Office of Highway Safety

Washington, DC 20594



HWY23FH005

HIGHWAY FACTORS GROUP

Group Chair's Factual Report

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A. CRASH

Location: Louisville, St. Lawrence County, New York
Date: January 28, 2023
Time: 6:00 a.m. Eastern Standard Time

B. HIGHWAY FACTORS GROUP

Group Chair Dan Walsh, P.E.
NTSB - Office of Highway Safety
490 L'Enfant Plaza East, S.W., Washington, DC 20594

C. CRASH SUMMARY

For a summary of the crash, refer to the *Crash Information and Summary Report of the Investigation*, in the docket for this investigation.

D. DETAILS OF THE INVESTIGATION

The Highway Factors Group Chair's Factual Report begins with a discussion on roadway data that includes the crash location, construction history, annual average daily traffic volumes, traffic crash summary, vehicle classification count, speed limit, typical section, horizontal and vertical alignment, signage prior to the crash, centerline rumble strips, and highway lighting. The report documents the findings of the NTSB meteorology report and discusses the snowplow and deicing salt applied to State Route 37 prior to the crash. Finally, the report concludes with photographs taken approximately two and a half hours after the crash illustrating bare pavement conditions on State Route 37 in the vicinity of the crash.

E. ROADWAY DATA

1.0 Crash Location

The crash occurred on State Route 37 at sequence number 548 near Louisville, in St. Lawrence County, New York. **Figure 1** is a crash map that illustrates the crash location was approximately 8 miles west of Massena, New York.

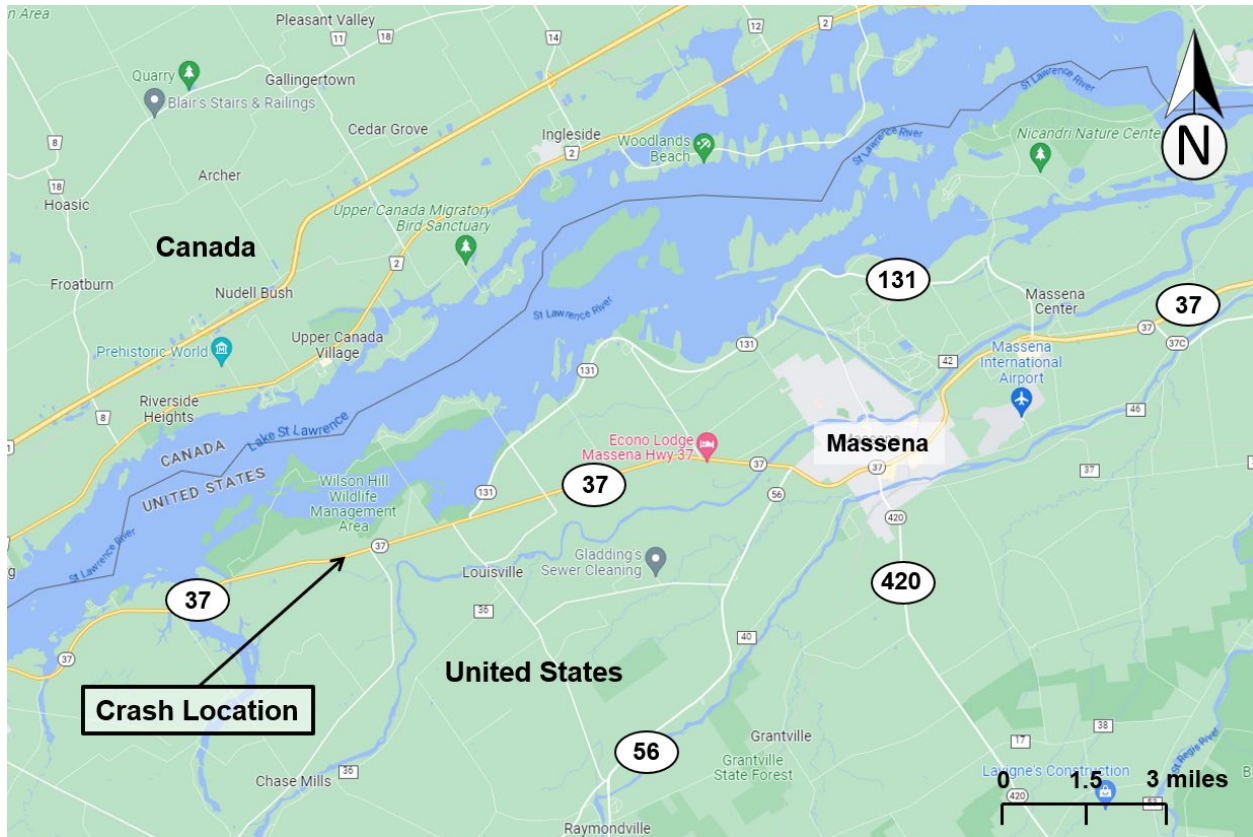


Figure 1 - Crash map (Source: Google Maps revised)

2.0 Construction History of State Route 37

State Route 37 in the vicinity of the crash was reconstructed in 1976. The most recent pavement construction project occurred in 2012.

3.0 Annual Average Daily Traffic Volumes

Table 1 summarizes the annual average daily traffic volumes (AADT) on State Route 37 in the eastbound and westbound directions from 2017 through 2022.¹

Table 1 - Annual average daily traffic volumes on State Route 37

Year	Eastbound	Westbound	Total
2022	1,480	1,489	2,969
2021	1,519	1,505	3,024
2020	1,384	1,371	2,755
2019	1,537	1,615	3,152
2018	1,540	1,619	3,159
2017	1,544	1,623	3,167

¹ See Highway Factors Attachment - Annual Average Daily Traffic and Vehicle Classification Count on State Route 37 in the vicinity of the crash.

4.0 Traffic Crash Summary

Table 2 summarizes the traffic crash summary on State Route 37 within a 1-mile radius of the crash for the last 5 years. No fatal crashes were reported during that timeframe.

Table 2 - Traffic crash summary on State Route 37 within a 1-mile radius of the crash

Year	Collision with Deer / Animal	Collision with Signpost or Guiderail	Collision with Motor Vehicle	Collision with Snow Embankment	Overtaken	Total
2022	6	0	0	1	0	7
2021	2	1	1	0	0	4
2020	3	1	0	0	0	4
2019	1	1	0	0	0	2
2018	2	0	0	0	1	3
Grand Total	14	3	1	1	1	20

5.0 Vehicle Classification Count

Table 3 summarizes the vehicle classification count on State Route 37 in the eastbound and westbound directions for 2022. The percentage of trucks in the traffic mix was 13.4 percent.

Table 3 - Vehicle classification count on State Route 37

Year	ADT	Passenger Cars	Single Unit Trucks	Trailer Trucks
2022	2,969	2,570 (86.6%)	190 (6.4%)	209 (7%)

6.0 Speed Limit

The posted regulatory speed limit for State Route 37 in the vicinity of the crash was 55 miles per hour (mph).

7.0 Typical Section

State Route 37 was a two-lane road, one lane in each direction.² Each of the travel lanes, eastbound and westbound, measured 12-foot-wide. A paved shoulder existed adjacent to each of the travel lanes that was approximately 8-foot-wide. A 4-inch-wide dashed yellow line separated the eastbound lane from the westbound lane,

² See Highway Factors Attachment - Typical Section for State Route 37.

and 6-inch-wide solid white lines separated the travel lanes from the paved shoulders.³ A 7-inch-wide centerline rumble strip existed along State Route 37. **Figure 2** illustrates the typical section for State Route 37.

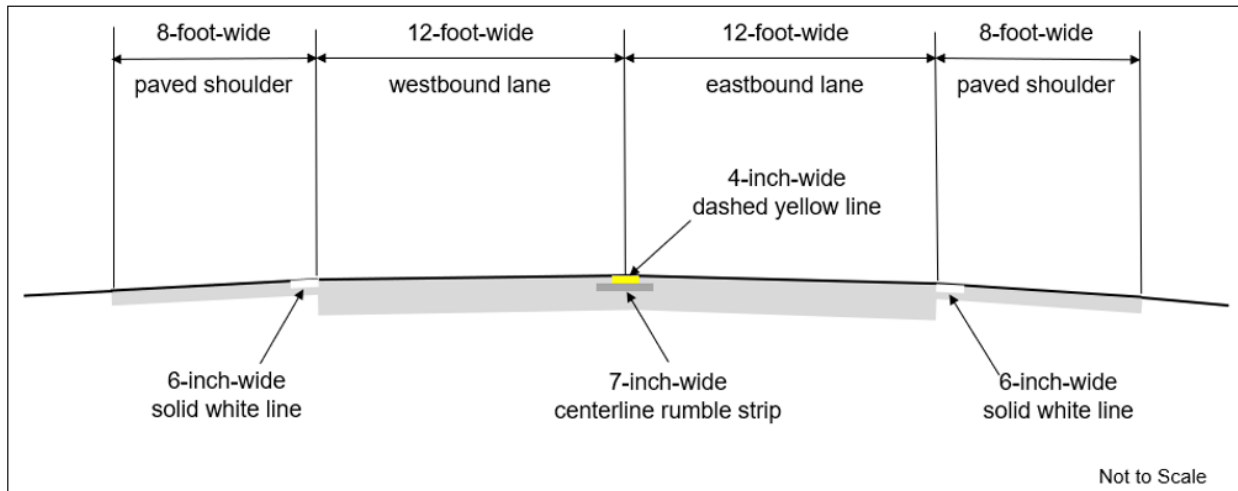


Figure 2 - Typical section for State Route 37



8.0 Horizontal and Vertical Alignment

The horizontal alignment in the vicinity of the crash was located on a straight tangent. The vertical alignment consisted of an upgrade slope positive (+) 0.72% grade for motorists travelling in the westbound direction of travel.⁴

9.0 Signage Prior to the Crash

Table 4 summarizes the signage prior to the crash on State Route 37 in the eastbound and westbound directions.⁵

Table 4 - Signage prior to the crash on State Route 37

Signage	Distance from Signage to Crash	Direction
	1.5 miles	Westbound
	2.9 miles	Eastbound

³ All of the highway markings were retroreflective.

⁴ See Highway Factors Attachment - Vertical Alignment for State Route 37.

⁵ See Highway Factors Attachment - Signage Plans for State Route 37.

10.0 Centerline Rumble Strips

Centerline rumble strips existed along State Route 37 in the vicinity of the crash.⁶ **Figure 3** illustrates the centerline rumble strips were 7 inches wide by 12 inches long with a depth of one-half inch and spaced approximately 24 inches apart.⁷



Figure 3 - View of centerline rumble strips along State Route 37 in the vicinity of the crash

Additional information and reference materials associated with centerline rumble strips can be found at the following:

⁶ See Highway Factors Attachment - NYSDOT Centerline Rumble Strip Standard Sheet.

⁷ FHWA's Technical Advisory Center Line Rumble Strips dated November 7, 2011, indicated most crash studies referenced evaluated center line rumble strips of 7 inches wide by 16 inches long with a depth of one-half inch.

- State of the Practice for Shoulder and Center Line Rumble Strip Implementation on Non-Freeway Facilities, U.S. Department of Transportation Federal Highway Administration, March 2017.
- Decision Support Guide for the Installation of Shoulder and Center Line Rumble Strips on Non-Freeways, U.S. Department of Transportation Federal Highway Administration, October 2015 - August 2016.
- Federal Highway Administration Technical Advisory Center Line Rumble Strips, November 7, 2011.

11.0 Highway Lighting

No highway lighting was available nor required on State Route 37 in the vicinity of the crash.

F. NTSB METEOROLOGY REPORT

The NTSB meteorology report indicated, at the time of the crash, light snow conditions prevailed at Massena International Airport located approximately 9 miles east of the crash site.⁸ For the 1-hour period leading up to the crash, the snowfall accumulation was between 0.00 and 0.02 inches. For the 3-hour, 6-hour, and 12-hour periods leading up to the crash, the snowfall accumulation was between 0.01 and 0.05 inches.

G. SNOWPLOW AND DEICING SALT APPLIED TO STATE ROUTE 37

The Town of Louisville has a subcontract through the New York State Department of Transportation (NYSDOT) to maintain State Route 37.⁹ **Table 5** illustrates the Town of Louisville snowplowed between 1730 and 2000, on January 27th in the vicinity of the crash, at which time, 6.25 cubic yards of salt was applied.¹⁰

Table 5 - Snowplow and deicing salt applied to State Route 37

Equipment Number	Date	Clock Time		Lane Miles Plowed	Deicing Salt Used (cubic yards)
1	January 27, 2023	0700	0900	48	4.8
		1730	2000	50	6.25

⁸ For additional information, see the NTSB meteorology report located in the docket for this investigation.

⁹ The snowplow equipment operators are employees of the Town of Louisville.

¹⁰ See Highway Factors Attachment - NYSDOT Snow and Ice Equipment Operator's Report.

The recommended maximum allowable snowfall accumulation during a storm on state highways to maintain a regular level of service is 2.5 inches.¹¹

H. PHOTOGRAPHS OF BARE PAVEMENT AFTER THE CRASH

Figure 4 taken on January 28, 2023, at 8:26 a.m., approximately 2 hours and 24 minutes after the crash looking to the west, illustrates bare pavement conditions on State Route 37 in the vicinity of the crash.¹²

NTSB investigators were able to obtain a video from an Econo Lodge surveillance camera located approximately 6 miles east of the crash site. The location of the Econo Lodge is referenced on **Figure 1**. The Econo Lodge is located on the south side of State Route 37. The surveillance camera is orientated to the north such that video is captured of the parking lot in the foreground and traffic along State Route 37 in the background. At approximately 5:52:08 a.m. EST, the surveillance camera detected a snowplow truck traveling eastbound on State Route 37. It is indiscernible from the video whether the snowplow was engaged with the roadway pavement.



Figure 4 - Taken on January 28, 2023, at 8:26 a.m., approximately 2 hours and 24 minutes after the crash looking to the west, illustrates bare pavement conditions on State Route 37 in the vicinity of the crash (Source: New York State Police)

¹¹ See Highway Factors Attachment - NYSDOT Snow and Ice Control, Highway Maintenance Guidelines, Chapter 5, April 2006 (Revised January 2012), page 10.

¹² Bare pavement is pavement that is free of any ice or snow, or the centerline of the road is visible.

Figure 5 taken on January 28, 2023, at 8:32 a.m., approximately 2 hours and 30 minutes after the crash looking to the east, illustrates bare pavement conditions on State Route 37 in the vicinity of the crash.



Figure 5 - Taken on January 28, 2023, at 8:32 a.m., approximately 2 hours and 30 minutes after the crash looking to the east, illustrates bare pavement conditions on State Route 37 in the vicinity of the crash (Source: New York State Police)

I. LIST OF ATTACHMENTS

The following attachments are included in the docket for this investigation:

Highway Factors Attachment - Annual Average Daily Traffic and Vehicle Classification Count on State Route 37 in the vicinity of the crash

Highway Factors Attachment - Typical Section for State Route 37

Highway Factors Attachment - Vertical Alignment for State Route 37

Highway Factors Attachment - Signage Plans for State Route 37

Highway Factors Attachment - NYSDOT Centerline Rumble Strip Standard Sheet

Highway Factors Attachment – NYSDOT Snow and Ice Equipment Operator's Report

Highway Factors Attachment - NYSDOT Snow and Ice Control, Highway Maintenance Guidelines, Chapter 5, April 2006 (Revised January 2012)

Highway Attachment: Photographs

Submitted by:

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NTSB