



**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF HIGHWAY SAFETY
WASHINGTON, D.C.**

**HIGHWAY FACTORS GROUP CHAIRMAN'S
FACTUAL REPORT**

A. CRASH INFORMATION

Location: State Highway 2 (SH-2), Randolph, in Coos County, New Hampshire

Vehicle #1: 2016 Ram 2500 Crew Tradesman Pick-up pulling a flatbed trailer

Operator #1: 23-year-old male (no injuries)

Vehicle #2: 1998 Harley Davidson FLHT

Operator #2: 59-year-old male (deceased)

Vehicle #3: 2019 Harley Davidson FLTRXS

Operator #3: 48-year-old male (no injuries)

Passenger #3: 47-year-old female (no injuries)

Vehicle #4: 2006 Harley Davidson FLSTI

Operator #4: 45-year-old male (injured)

Vehicle #5: 2012 Harley Davidson FLHTCUSE7

Operator #5: 58-year-old male (deceased)

Vehicle #6: 2012 Harley Davidson FLSTI

Operator #6: 57-year-old male (injured)

Vehicle #7: 2005 Harley Davidson FLHTCU

Operator #7: 62-year-old male (deceased)

Vehicle #8: 2007 Harley Davidson FLHTCU

Operator #8: 58-year-old male (deceased)

Passenger #8: 58-year-old female (deceased)

Vehicle #9: 2012 Harley Davidson FLHTK EL

Operator #9: 45-year-old male (deceased)

Passenger #9: 42-year-old female (deceased)

Vehicle #10: 2015 Harley Davidson FLST

Operator #10: 52-year-old female (injured)
Vehicle #11: 2007 Harley Davidson FLHRSE3
Operator #11: 51-year-old male (injured)
Vehicle #12: 2019 Harley Davidson FLXH
Operator #12: 53-year-old male (not injured)
Vehicle #13: 2006 Harley Davidson FLTRI
Operator #13: 70-year-old male (injured)
Passenger #13: 69-year-old female (injured)
Vehicle #14: 2015 Harley Davidson FLHTKS
Operator #14: 46-year-old male (not injured)
Passenger #14: 48-year-old female (injured)
Date: Friday, June 21, 2019
Time: 6:26 p.m. local time
NTSB #: **HWY19MH010**

B. HIGHWAY FACTORS GROUP

Dan Walsh, P.E., Senior Highway Factors Investigator, Group Chairman
NTSB Office of Highway Safety
490 L'Enfant Plaza East, S.W., Washington, DC 20594

Keith A. Cota, P.E., Chief Project Manager, Bureau of Highway Design
New Hampshire Department of Transportation
7 Hazen Drive, PO Box 483, Room 200, Concord, New Hampshire 03302-0483

C. CRASH SUMMARY

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

D. DETAILS OF THE HIGHWAY FACTORS INVESTIGATION

The Highway Factors Factual report focused on roadway data collected on US Highway 2 that included the following: crash location, roadway design (including horizontal and vertical alignment), speed limit, latest resurfacing project completed, average daily traffic, vehicle classification count, and accidents involving more than one vehicle.

1. Crash Location

The crash occurred in the eastbound travel lane of US Highway 2 in the vicinity of mile marker (MM) 12.8, in Randolph, Coos County, New Hampshire. **Figure 1** is a crash map that illustrates the crash location was approximately 13.6 miles southwest of Berlin, New Hampshire.



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

Figure 2 is a directional map that illustrates the pickup truck was travelling in the westbound direction of US Highway 2 as shown in the red dashed line and the group of motorcyclists was travelling in the eastbound direction as shown in the yellow dashed line. The pickup truck crossed the center of the road, entered the eastbound lane, and collided with the approaching motorcycles.



Figure 2 – Directional map (Source: Google Maps revised)

Figure 3 illustrates tire markings left by the pickup truck as it crossed the center of the road and entered the eastbound lane. After colliding with the approaching motorcycles, the pickup truck continued across the eastbound lane of US Highway 2 and came to rest on an earthen embankment next to the eastbound shoulder. A fire ensued after the crash.



Figure 3 – View of westbound approach to crash location on US Highway 2

2. Roadway Design

The cross section of US Highway 2 in the immediate vicinity of the crash consisted of two travel lanes, a westbound travel lane and eastbound travel lane. Each of the travel lanes was approximately 12-foot wide separated by a solid double yellow line. The paved shoulder adjacent to the westbound and eastbound travel lanes was approximately 4-foot wide separated by a solid white line.

2.1. Horizontal Alignment

The crash location was on a straight (tangent) section of roadway as shown in **Figure 3**. The horizontal alignment west of the crash location consisted of a 2,625-foot radius curve to the left for motorists travelling in the westbound direction of US Highway 2. The horizontal curve was approximately 511 feet in length.

2.2. Vertical Alignment

The vertical alignment in the vicinity of the crash consisted of a crest vertical curve with the following characteristics:¹

- Upgrade slope = Positive (+) 3.21% grade (westbound direction of travel)
- Crest vertical curve length = 656 feet
- Downgrade slope = Negative (-) 4.37% grade (westbound direction of travel)

3. Speed Limit

Figure 4 illustrates a photograph of the 50 miles per hour (mph) speed limit sign for motorists travelling in the westbound direction of US Highway 2 located approximately 3,623 feet east of the crash location.



Figure 4 – View of 50 miles per hour (mph) speed limit sign for motorists travelling in the westbound direction of US Highway 2 located approximately 3,623 feet east of the crash location (Source: Google Maps)

4. Latest Resurfacing Project Completed

US Highway 2 in the vicinity of the crash location was reconstructed in 2009 with a 7-inch nominal hot bituminous pavement that consisted of 1.5-inch of wearing course, 2.5-inch of binder course, and 3-inch of base course.

¹A crest vertical curve is a curve that connects inclined sections of roadway, forming a crest. A sag vertical curve is a curve that connects descending sections of roadway, forming a sag.

The latest resurfacing project to US Highway 2 was completed in 2014 that included a 3/4-inch surface preparation overlay.

5. Average Daily Traffic

Table 1 summarizes the average daily traffic volumes on US Highway 2 approximately 1.3 miles west of the crash location.

Table 1 – Average daily traffic volumes on US Highway 2

Year	Average daily traffic volumes (vehicles per day)
2014	5,000
2015	5,130
2016	5,145
2017	6,391
2018	6,474

6. Vehicle Classification Count

Heavy vehicles defined as single-unit trucks, single-trailer trucks, and multi-trailer trucks comprised 20 percent of the average daily traffic on US Highway 2.

7. Accidents involving more than one vehicle

Table 2 summarizes accidents involving more than one vehicle on US Highway 2 in the vicinity of the crash location.

Table 2 – Accidents involving more than one vehicle on US Highway 2

Crash Date	Roadway	Mile Marker	Description
7/11/2014	US Highway 2	16.8	Vehicle #2 was headed east on US Highway 2 in the Town of Randolph. Two moose came into the road in front of Vehicle #2. Driver #2 quickly applied the brakes and was able to steer in between the moose. Vehicle #1 was following behind Vehicle #2. Driver #1 applied the brakes but was unable to avoid Vehicle #2. Vehicle #1 collided into the rear bumper of Vehicle #2. Vehicle #1 received moderate damage and was towed. Vehicle #2 received minor damage and was driven. No injuries were reported as a result of the crash.
3/27/2015	US Highway 2	18.8	Vehicle #1 was travelling west on US Highway 2 in the Town of Randolph, Vehicle #2 was travelling east on US Highway 2 approaching Vehicle #1. Driver #1 lost control of Vehicle #1 and crossed over into the lane of Vehicle #2. Driver #2 attempted to swerve out of the

			way of Vehicle #1 but was unable to do so due to slippery road conditions. Vehicle #1 struck Vehicle #2 causing disabling damages to both units requiring both units to be towed from the scene. The cause of the crash was due to Driver #1 operating Vehicle #1 too fast for the existing conditions of the road. Driver #2 sustained a minor injury.
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E. DOCKET MATERIAL

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

LIST OF ATTACHMENTS

Highway Factors Attachment – NHDOT Construction Plans for US Highway 2 dated April 30, 2009

Highway Factors Attachment – State of New Hampshire Uniform Police Traffic Crash Report for crash on US Highway 2 at Mile Marker 16.8 dated July 11, 2014

Highway Factors Attachment – State of New Hampshire Uniform Police Traffic Crash Report for crash on US Highway 2 at Mile Marker 18.8 dated March 27, 2015

LIST OF PHOTOGRAPHS

Highway Factors Photo 1 – View of westbound approach to crash location on US Highway 2

Highway Factors Photo 2 – View of 50 miles per hour (mph) speed limit sign for motorists travelling in the westbound direction of US Highway 2 located approximately 3,623 feet east of the crash location (Source: Google Maps)

Highway Factors Photo 3 - View of pickup truck and trailer at final rest on eastbound shoulder of US Highway 2 (Source: New Hampshire State Police)

END OF REPORT

Dan Walsh, P.E.

Senior Highway Factors Investigator