



Human Performance Attachment – New York State Police Collision

Reconstruction Findings Report

Louisville, NY

HWY23FH005

(13 pages)

**Two-Vehicle
Fatal Collision**

**State Highway 37
Town of Louisville
St. Lawrence County**

January 28, 2023 6:02 a.m.



**Troop B
Collision Reconstruction Unit**

**1097 State Route 86, Bldg #2 FIU
Ray Brook, New York 12977
Telephone (518) 354-6000
Facsimile (518) 354-6033**

**Prepared by
Investigator Anthony M. Bissonette**

NYSP Station / Outside Agency: SP Canton	Agency Case Number 11260819	CRU Case Number: CRU 23-002 B2023-0128
---	--------------------------------	---

Collision Date: 1/28/2023	Location: State Highway 37
---------------------------	----------------------------

Time of Collision: 6:02 AM	C/TV: Louisville	County: St. Lawrence
----------------------------	------------------	----------------------

CRU Case Agent: Investigator Anthony M. Bissonette CRU Member(s) Assisting: Trooper Robert Larrabee	Equipment Utilized:		Operated by:
	<input checked="" type="checkbox"/>	Digital Camera	Inv. Bissonette
	<input checked="" type="checkbox"/>	Drone	Inv. Bissonette
	<input checked="" type="checkbox"/>	GNSS Receiver	Tpr. Larrabee
	<input type="checkbox"/>	Total Station	
Report Type: Collision Report	<input type="checkbox"/>	Laser Scanner	
Diagram Attached: Yes			

Did the collision occur at an intersection? No	Is this collision associated with a roadway? Yes
--	--

Primary Roadway: State Highway 37 Roadway Type: Asphalt Condition: Good Speed Limit: Posted 55 MPH Centerline Markings: Two-Way Passing Zone White Fog Lines: Yes	Intersecting Roadway: Roadway Type: Select Option Condition: Select Option Speed Limit: Select Option MPH Centerline Markings: Select Option White Fog Lines: Select Option
---	---

Temperature: 33 °F Weather Conditions: Cloudy Roadway Conditions: Wet Conditions similar to time of Collision: Yes	Secondary Weather Conditions: Light Snow Secondary Roadway Conditions: Other: Described in Report
---	--

Number of Vehicles Involved: 2	Number of Vehicle Occupants: 17	Number of Pedestrians/Bicyclist Involved: -
--------------------------------	---------------------------------	---

Vehicle #1			Vehicle		
Year: 2021	Make: Freightliner	Model: Box Truck	Year: 2013	Make: Chevrolet	Model: Express Bus
Registration: PA: V75377	VIN: 3ALACWFC1MDMS3297		Registration: MT: 593787B	VIN: 1GB6G5BG2D1156753	
Position	Name: Last, First, MI		Position	Name: Last, First, MI	
Driver	Diaz-Baez, Harly, N		Driver	Valero-Torres, Christopher	
	DOB: [REDACTED]	Injuries: Injured		DOB: [REDACTED]	Injuries: Uninjured
	DOB:	Injuries:	Passenger	Hernandez-Gomez, Jonatan	
	DOB:	Injuries:		DOB: [REDACTED]	Injuries: Fatal
	DOB:	Injuries:	Passenger	Aguirre-Tronco, Jesus-Jose	
	DOB:	Injuries:		DOB: [REDACTED]	Injuries: Fatal
	DOB:	Injuries:	Passenger	Vazquez-Valdez, Alejandro	
	DOB:	Injuries:		DOB: [REDACTED]	Injuries: Fatal
	DOB:	Injuries:	Passenger	Galicia-Ignacio, Padro-Pablo	
	DOB:	Injuries:		DOB: [REDACTED]	Injuries: Fatal
	DOB:	Injuries:	Passenger	Martinez-Parra, Jesus	
	DOB:	Injuries:		DOB: [REDACTED]	Injuries: Fatal

Submitted By: Investigator Anthony M. Bissonette [REDACTED]	Shield: 1847	Date Submitted: 4/13/2023	FIU Senior Investigator [REDACTED] Date: 5/8/23
Troop CRU / Station: Troop B, SP Ray Brook			
Peer Reviewed By: Investigator Timothy J. Durkee [REDACTED]	Shield: 2123	Date Submitted: 4/28/2023	
2 nd Peer Review By: Senior Investigator David L. Bly Jr. [REDACTED]	Shield: 295	Date Submitted: 5/5/2023	Date Published: 5/9/2023


NYSP Station / Outside Agency: SP Canton	Agency Case Number 11260819	CRU Case Number: CRU 23-002 B2023-0128
---	--------------------------------	---

Vehicle #2		Choose an option		
		Year:	Make:	Model:
		Registration:	VIN:	
Position	Name: Last, First, MI	Position	Name: Last, First, MI	
Passenger	Lopez-Lopez, Abel De Jesus DOB: [REDACTED] Injuries: Fatal		DOB:	Injuries:
Passenger	Rodriguez-Reyes, Jose J DOB: [REDACTED] Injuries: Injured		DOB:	Injuries:
Passenger	Martinez, Raul Anthony DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:
Passenger	De Leon, Andy-Vera DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:
Passenger	Reyes-Nava, Antonio DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:

Vehicle #2		Choose an option		
		Year:	Make:	Model:
		Registration:	VIN:	
Position	Name: Last, First, MI	Position	Name: Last, First, MI	
Passenger	Velasco-Hernandez, Vincente DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:
Passenger	Lopez-Diaz, Antonio DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:
Passenger	Jimenez-Lopez, Baltazar DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:
Passenger	Rodriguez-Lopez, Johnathan DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:
Passenger	Rodriguez, Isaac DOB: [REDACTED] Injuries: Uninjured		DOB:	Injuries:

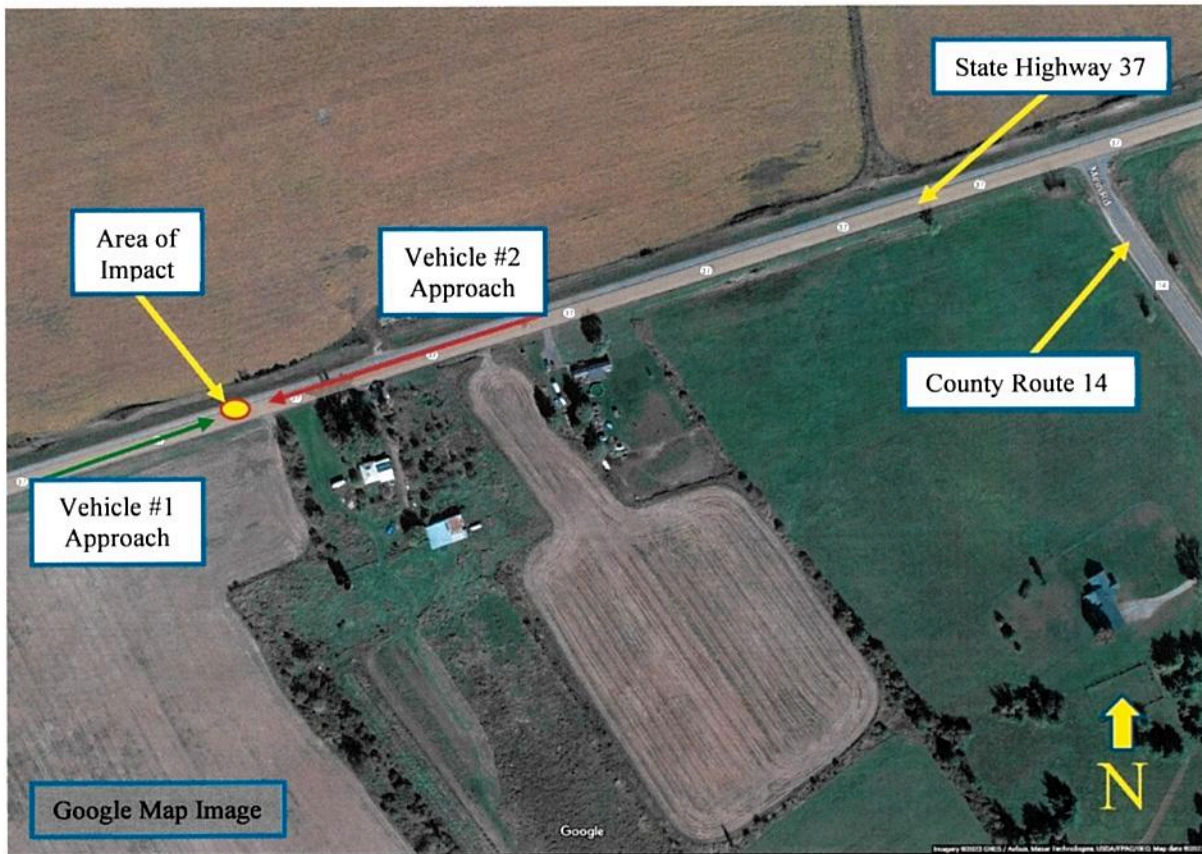
Choose an option		Choose an option			
Year:	Make:	Model:	Year:	Make:	Model:
Registration:		VIN:	Registration:		VIN:
Position	Name: Last, First, MI	Position	Name: Last, First, MI		
	DOB:	Injuries:		DOB:	Injuries:
	DOB:	Injuries:		DOB:	Injuries:
	DOB:	Injuries:		DOB:	Injuries:
	DOB:	Injuries:		DOB:	Injuries:
	DOB:	Injuries:		DOB:	Injuries:

Submitted By:
Investigator Anthony M. Bissonette
Troop CRU / Station: Troop B, SP Ray Brook



On January 28, 2023, I, Investigator Anthony M. Bissonette, Troop B Collision Reconstruction Unit (B-CRU), responded to a two-vehicle, fatal collision that occurred on State Highway 37 in the Town of Louisville, St. Lawrence County, New York. The collision occurred when eastbound Vehicle #1, a 2021 Penske box truck, encroached into the westbound lane and struck Vehicle #2, a 2013 Chevrolet Express bus, in a sideswipe/offset manner. Subsequent to the collision, six passengers of the bus suffered fatal injuries, the operator of Vehicle #1 and one bus passenger suffered serious injuries, while the operator of Vehicle #2 and eight of the bus passengers sustained either no injuries or minor injuries.

In the area of the collision, State Highway 37 was a relatively straight, flat, two-lane, two-way roadway constructed of asphalt with paved shoulders. In the portion of the roadway containing the collision, the roadway progressed in a general northeast/southwest direction. For report clarity, all descriptions of vehicle headings and motion will follow the east/west directional convention. The roadway was marked with a dashed yellow center line indicating passing was permitted for both lanes of travel. The north and south shoulders of the roadway were flanked by a relatively steeply sloped, snow covered, downward embankment and banked snow was observed along the outward most edges of the asphalt surface of both shoulders of the roadway. The traveled portion of the asphalt surface was noted to be wet, with no significant accumulation of snow or water within either lane of travel. First responding Troopers confirmed the roadway condition was consistent with the conditions observed when they arrived on scene. A Milled In Auditory Roadway Delineator (MIARD) was present along the center line portion of the roadway and the roadway had an unposted speed limit of 55 miles per hour.



Evidence at the scene consisted of the two involved vehicles, gouging and scratching of the asphalt surface of the roadway, vehicle debris, fluid patterns, furrowing and disturbance of the banked snow, biological matter, and the deceased victims. The Area of Impact (AOI) was located within the westbound lane and was identified by a series

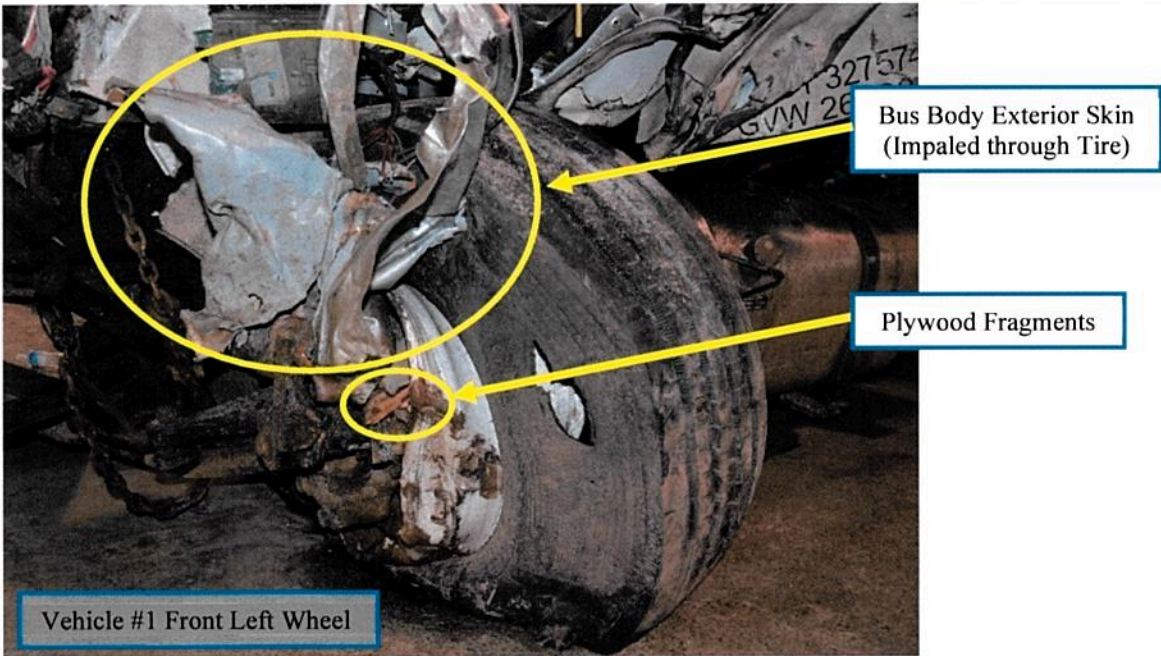
of scratches in the asphalt surface, light and heavy gouges in the asphalt surface as well as small fragments of red plastic lens material, which was determined to have originated from the outboard left red signal originally located at the top left corner of Vehicle #2. Vehicular debris, fluid patterns and a continuous linear scratch of the asphalt surface led from the AOI to the final rest location of Vehicle #1. A series of scratches and gouges of the asphalt surface, vehicular debris, furrowing of the snow on the north shoulder of the roadway and biological matter led from the AOI to the final rest location of Vehicle #2. No pre-impact tire marks for either involved vehicle were observed at the time of investigation.

The observed evidence indicated that Vehicle #1 exited the area of impact and continued in an easterly direction, eventually coming to rest facing east, against the banked snow, off the south shoulder of the roadway with a portion of the rear of the vehicle still within the paved portion of the south shoulder. Vehicle #2 rotated approximately 160 degrees in a counterclockwise manner as it exited the AOI and continued in a westerly direction before coming to an uncontrolled final rest off the north shoulder of the roadway, facing an easterly direction.

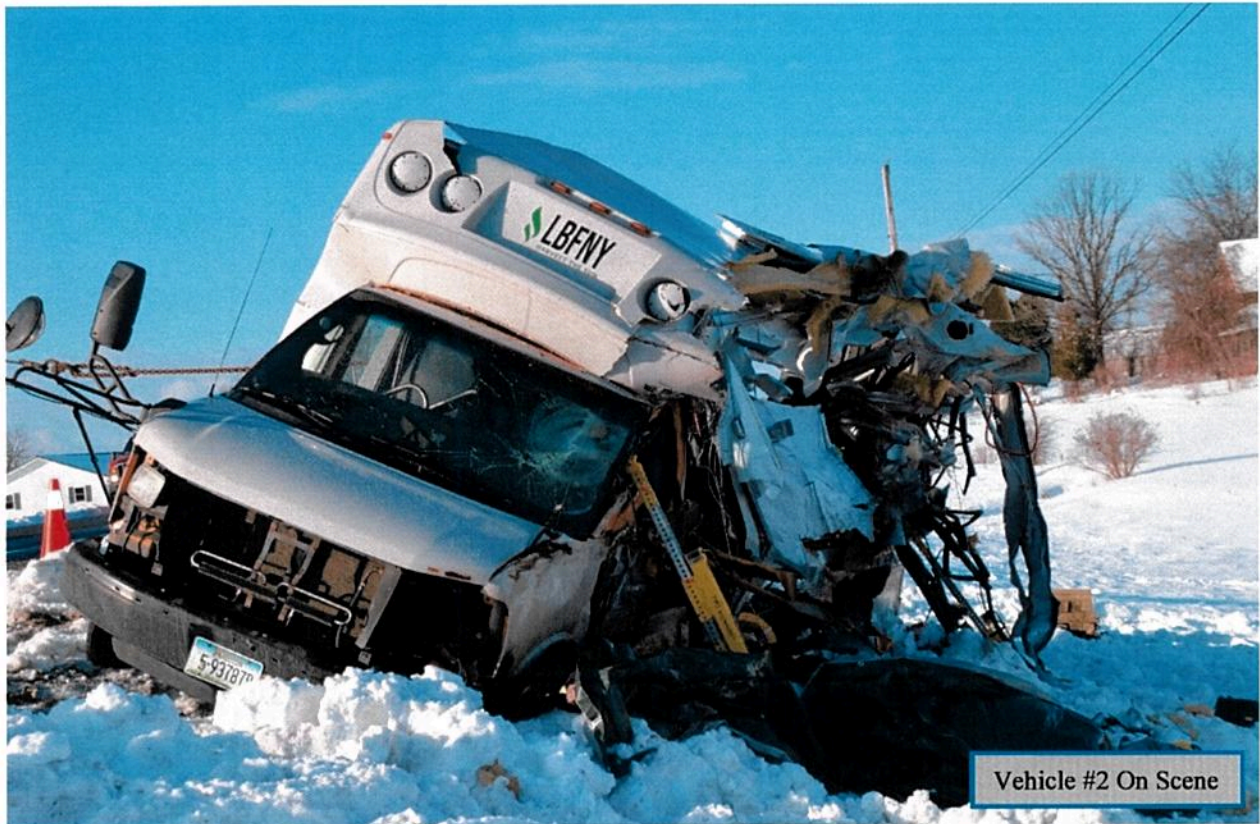


Vehicle #1 sustained significant contact and induced damage as a result of striking Vehicle #2. The contact damage observed on Vehicle #1 was focused about the front and driver's side of the vehicle. The front left wheel and its accompanying suspension and steering structures were displaced toward the rear of the vehicle and/or broken, with the wheel being positioned in such a manner that the inward facing sidewall of the tire was facing a 'forward' direction. A piece of debris from the bus body of Vehicle #2 was impaled through the tire, entering from the now forward-facing sidewall and penetrating out through the now rearward facing sidewall. Further, fragments of plywood were located on the now forward facing side of the left front wheel rim, entrapped within a crushed portion of the rim. These

plywood fragments were found to have originated from the subflooring installed on the bus body portion of Vehicle #2. Inspection of the front axle at the right side of the vehicle revealed a broken U-bolt where the axle and suspension leaf springs are joined, and the axle, front right wheel and accompanying structures were visibly shifted forward of their normal position. Further contact damage was observed at the front left corner of the cargo box and rearward along the left exterior portion of the cargo box. At the scene, a portion of the exterior sheet metal and fiberglass skin from the bus body of Vehicle #2 was observed to be present in the area of the front left corner of the cargo box of Vehicle #1, approximately adjacent to the top of the passenger cabin. The driver's door and A pillar of Vehicle #1 were partially sheared from the cabin structure and displaced rearward.



With the assistance of the National Traffic Safety Board (NTSB), the Engine Control Module (ECM), the OnGuard® forward sensing radar module, and the steering gear box from Vehicle #1 were secured and analyzed by their respective manufacturers. The ECM of Vehicle #1 was successfully imaged, by Cummins, at their facility. The radar module was successfully imaged, by ZF, at their facility. The imaged data obtained from the modules were analyzed. Although the data appears relevant, the ability to correlate the data to the collision discussed in this report was diminished due to an inability to associate the data with vehicle mileage/engine hour readings at the time of the collision as well as the absence of other correlating elements¹. The steering gear box was analyzed by ZF engineering staff, directly observed by NTSB staff. Brinell marks were observed throughout the gearbox assembly, and the center sector shaft tooth was found to be fractured. The Brinell marks and fractured sector shaft tooth were caused by forces that were transmitted through the gear box which were generated during the collision with Vehicle #2. Analysis of the location of the Brinell markings indicated the steering wheel of Vehicle #1 was turned slightly to the right at the time the marks were created. The slight right steering input is consistent with a driver of a vehicle becoming aware of an impending collision and taking evasive action by steering away from the approaching vehicle at the last moment. The sector shaft was broken away from the steering gear box by the collision forces as Vehicle #1 and Vehicle #2 interacted during the collision phase².

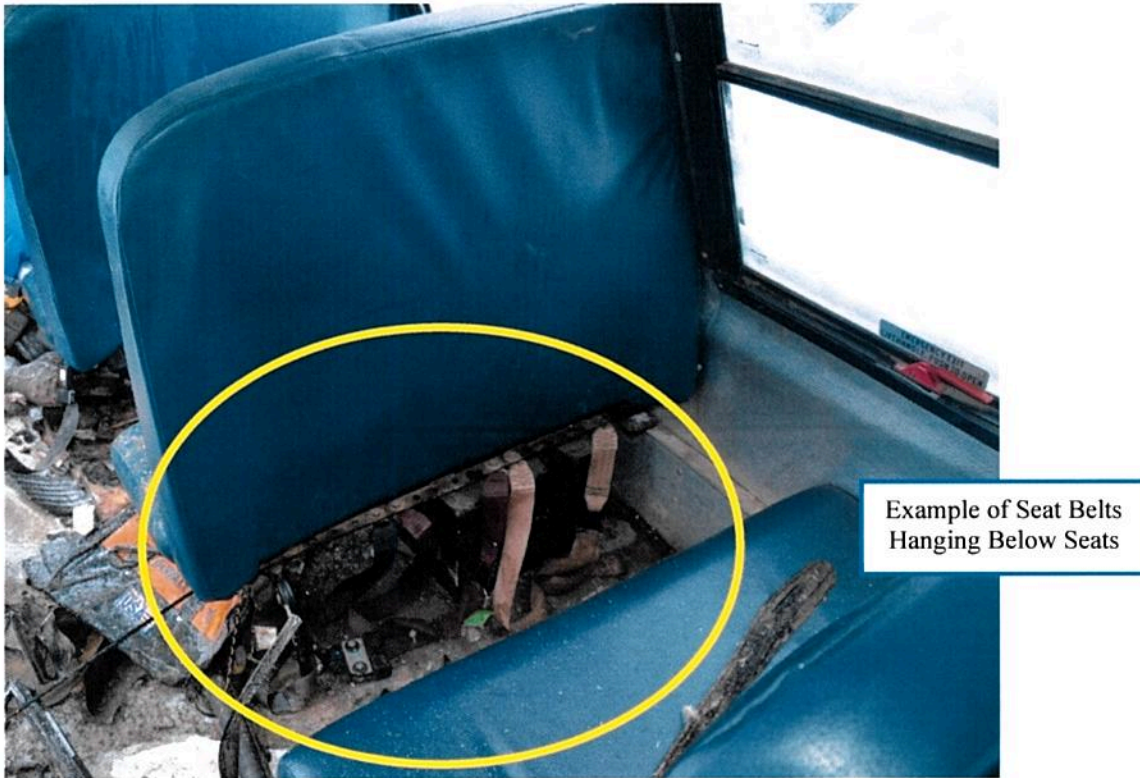


Vehicle #2 sustained ruinous damage, both contact and induced, as a result of being struck by Vehicle #1. The contact damage was focused on the left side of the bus’s passenger cabin structure. As the two vehicles collided and interacted with each other, a significant portion of the bus body’s left side structure was sheared and displaced rearward, resulting in the integrity of the occupant cabin of the bus being compromised. With the occupant cabin compromised, three of the bus passengers were ejected from the vehicle, all of whom suffered fatal injuries. Three

¹ ECM Imaging reports dated March 7, 2023, OnGuard® diagnostics report dated March 17, 2023

² Report of Freightliner Gear Accident Investigation dated March 8, 2023

more of the bus passengers remained within the vehicle structure and suffered fatal injuries, two of which remained in their seats and the third being located in the center isle of the bus compartment. Examination of the bus seatbelts found that all seating positions had available and fully functioning seatbelts, with the exception of two ‘aftermarket’ seats that had been installed by the owner of Vehicle #2 in the right rear section of the bus and were not part of the original manufactures build. However, none of the passenger seat belts within Vehicle #2 were utilized and were observed hanging below the seats. The driver’s seatbelt was examined and exhibited evidence that the belt was in use at the time of the collision. This is supported by information discussed later in this report.



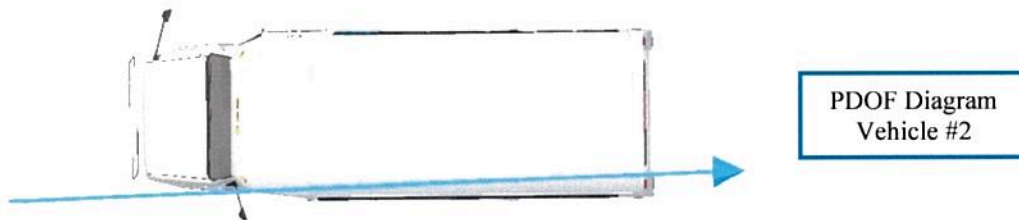
Inspection of the undercarriage of Vehicle #2 revealed extensive damage related both to the impact with Vehicle #1 as well as damage related to contact with the road surface, with the damage being concentrated near the left front corner of the vehicle. Due to the extent of damage observed, a determination could not be made as to specifically which vehicle component created the large gouge located in proximity to the AOI. However, it can be said with some certainty that it was part of the left front wheel’s accompanying components or structural members.

Vehicle #2 was equipped with an Airbag Control Module (ACM) type Event Data Recorder (EDR). The EDR was imaged utilizing the Bosch Crash Data Retrieval Tool. The imaged data revealed the EDR recorded one “Deployment” event which was found to be related to the collision discussed in this report. The report contained two and a half seconds of pre-crash data that provided the status of various vehicle systems, vehicle dynamics and operator inputs (see following table).

Pre-Crash Data

Parameter	-2.5 sec	-2.0 sec	-1.5 sec	-1.0 sec	-0.5 sec
Accelerator Pedal Position (percent)	29	30	31	27	0
Vehicle Speed (MPH)	54	53	53	53	53
Engine Speed (RPM)	1728	1728	1728	1728	1664
Percent Throttle	40	40	41	41	29
Brake Switch Circuit State	OFF	OFF	OFF	OFF	OFF

Data contained within the CDR report indicated that Vehicle #2 was traveling approximately 53-54 miles per hour for the two and a half seconds leading to the collisions with Vehicle #1, with the vehicle's operator applying a moderate amount of accelerator input to maintain the vehicle's speed. Of further note, within the last second leading to the crash, the accelerator pedal is released, going from 27 % to 0% input. No application of the service brake is detected within the pre-crash data. This data can be illustrative of the operator of Vehicle #2 perceiving the approach of Vehicle #1 and beginning to react to the impending collision. The report also contained data confirming the driver's seat belt status as "BUCKLED", corroborating evidence observed during the vehicle exam as stated earlier in this report. Utilizing recorded data for changes in velocity experienced by Vehicle #2 during the collision, a diagram depicting the Principal Direction of Force (PDOF) was generated and is depicted below.



The operators of the involved vehicles, surviving bus passengers, and a witness who was traveling behind Vehicle #2 when the collision occurred were interviewed by New York State Police and NTSB personnel. In summary, the operator of Vehicle #1, Mr. Harly N. Diaz-Baez, stated he was a delivery driver for Aero Logistics and had started his route in Whitesboro on January 28th at approximately 1:00am. At approximately 3:15 am, he completed deliveries in the Watertown, NY, area and was enroute to Massena, NY, at approximately 3:15am. Before arriving at his first delivery in Massena he recalled seeing "another vehicle coming right at me with its high beams on. The other vehicle was coming at me and when I realized it was in my lane, I tried moving to the right, but it was too late. Right when we were about to impact, I slammed on my brakes."³ In summary, the operator of Vehicle #2, Mr. Christopher G. Valero, stated he was employed by LBFNY as a laborer and bus driver. He was the driver of a bus that transported a number of workers from a hotel located in Massena, NY, to the solar farm job site (located in Ogdensburg NY). In his statement to responding officers, he went on to state the following, "At some point during the drive I observed a truck with both head lights on traveling east toward me in my lane of travel. I attempted to swerve right, to avoid the collision. I was unable to avoid a collision and the bus was struck at the driver's side by another vehicle's driver side."⁴ Nine of the surviving passengers on the bus were interviewed but were unable to provide specific details on how the collision occurred. A witness who was traveling to Ogdensburg behind Vehicle #2 stated, "I observed the rear taillights of a vehicle approximately 300 yards ahead of me. I did not see any headlights

³ Supporting Deposition secured from Harly N. Diaz-Baez, dated January 28, 2023

⁴ Supporting Deposition secured from Christopher G. Valero, dated January 28, 2023

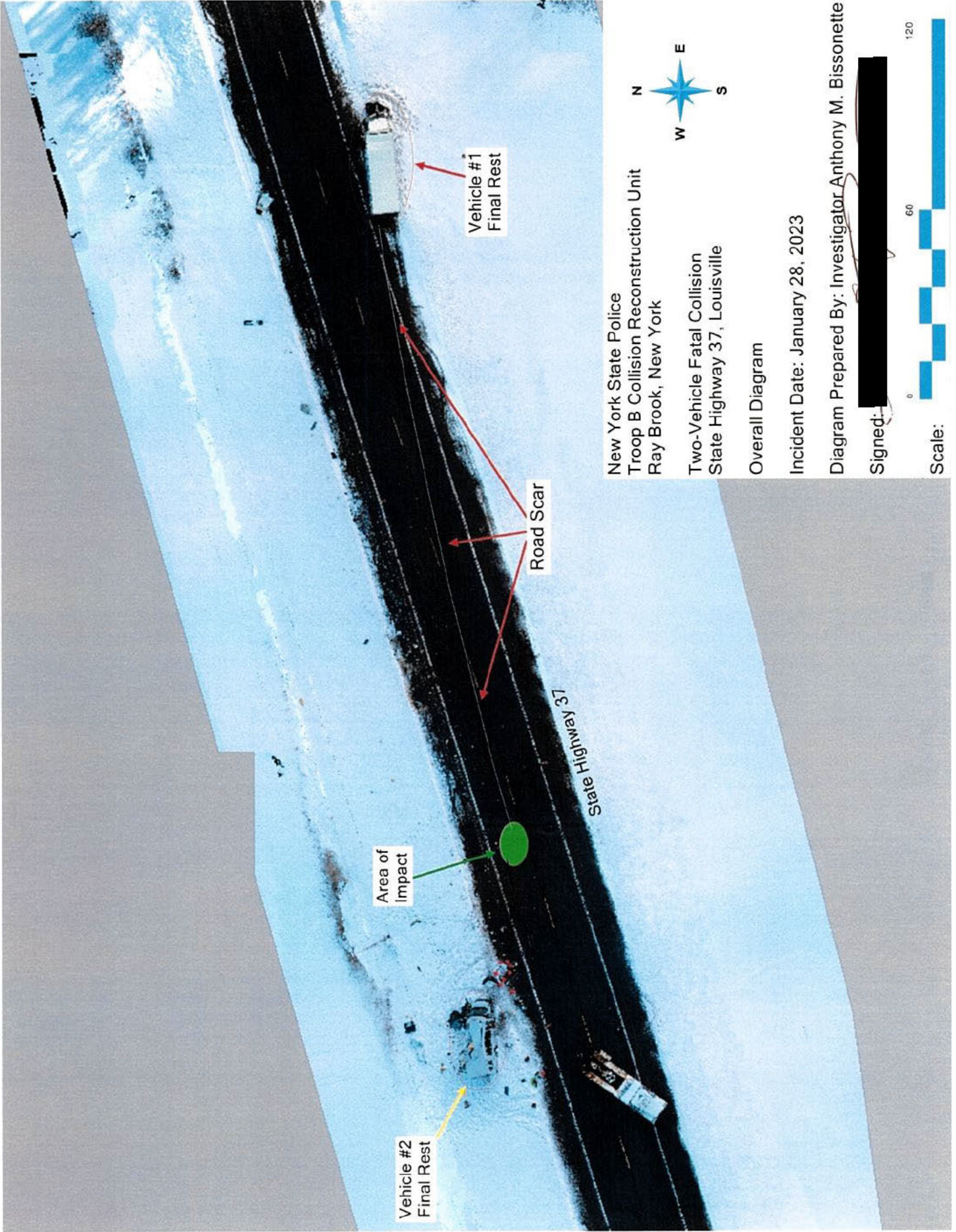
in the east bound lane, traveling towards me. I saw the vehicle apply the brakes. I then saw the brake lights move from right to left.” “I then immediately saw the vehicles headlights facing me.⁵”.

Roadway defects, environmental conditions and vehicular defects have all been considered and ruled out as contributing to the cause of the collision.

In summary, Vehicle #1, operated by Harly N. Diaz-Baez, was traveling east on State Highway 37. Vehicle #2, operated by Christopher G. Valero, was traveling west on State Highway 37. Vehicle #1 crossed into the westbound lane and struck Vehicle #2 in a sideswiping/offset fashion which resulted in fatal injuries to six of the bus passengers and varying degree of injuries to the remaining occupants of both vehicles.

The primary contributing factor for this collision, as it relates to the analysis of the physical evidence, was the failure of the operator of Vehicle #1, Harly N, Diaz-Baez, to remain within his appropriate lane of travel.

⁵ Supporting Deposition secured from Jonathan R. Label, dated January 31, 2023



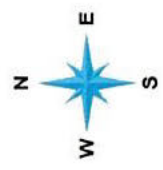
Vehicle #2
Final Rest

Area of
Impact

Road Scar

Vehicle #1
Final Rest

State Highway 37



New York State Police
Troop B Collision Reconstruction Unit
Ray Brook, New York
Two-Vehicle Fatal Collision
State Highway 37, Louisville

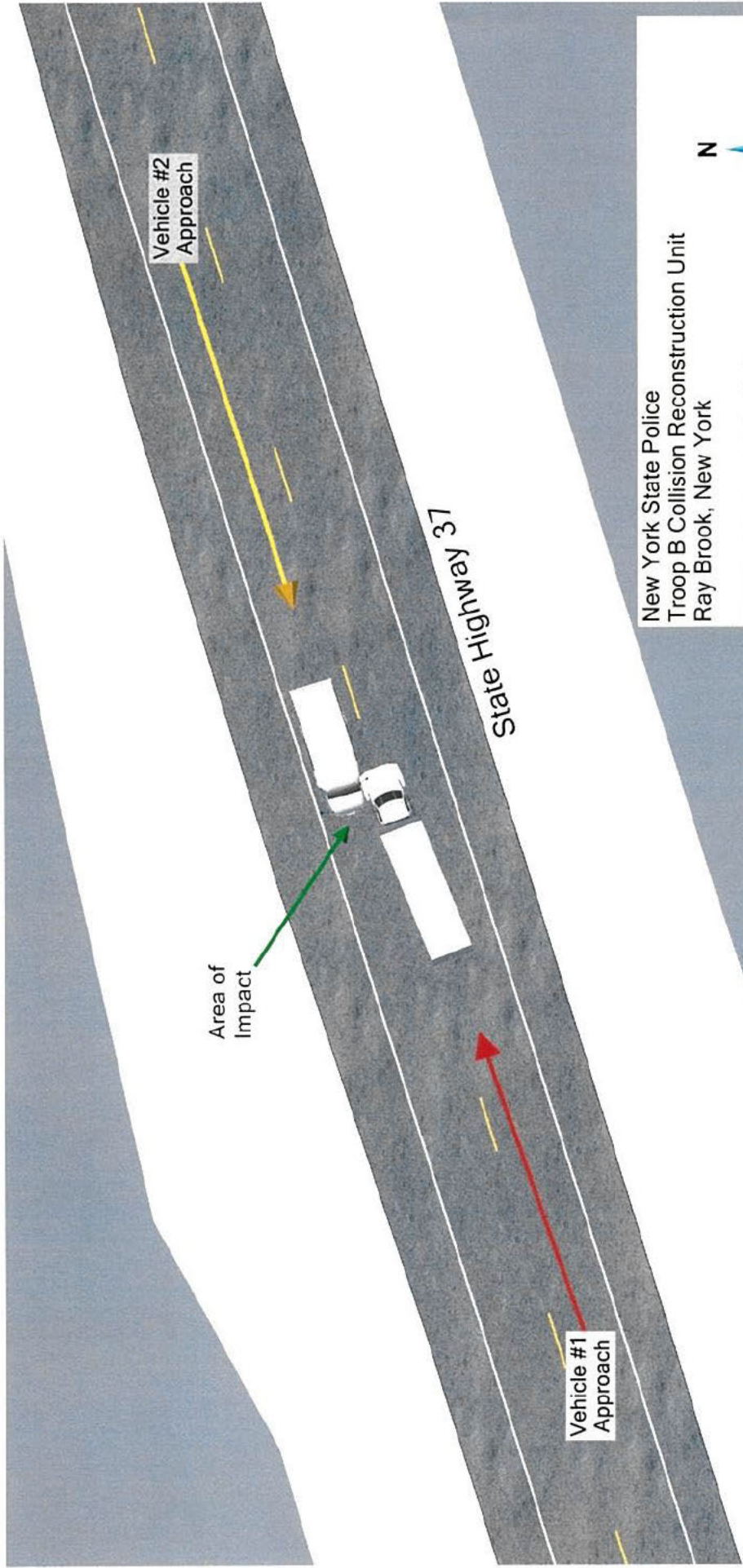
Overall Diagram

Incident Date: January 28, 2023

Diagram Prepared By: Investigator Anthony M. Bissonette

Signed: [Redacted Signature]





New York State Police
Troop B Collision Reconstruction Unit
Ray Brook, New York

Two-Vehicle Fatal Collision
State Highway 37, Louisville

Vehicles at Impact Diagram

Incident Date: January 28, 2023

Diagram Prepared By: Investigator Anthony M. Bissonette

Signed: _____

