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**Special Crash Investigations:
Remote Move-Over-Law Crash
Investigation;
Vehicle: 2017 Dodge Charger
Pursuit;
Location: Colorado;
Crash Date: May 2021**

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16. Abstract The crash occurred in the morning in May 2021 in snowy, icy conditions Colorado. A prior crash had occurred involving a Toyota Sienna of an unknown model year that was stopped in the left lane facing west. The struck vehicle was a fully marked 2017 Dodge Charger Pursuit State Patrol vehicle with its emergency lights activated that was stopped facing west in the left and middle lanes behind the Toyota. The Dodge driver was a 35-year-old male police officer who had arrived on-scene in response to the prior crash. He had just unbuckled his seat belt when his vehicle was struck by a 2020 Ram 2500 pickup truck driven westbound by an unbelted 34-year-old male. According to police the Ram driver had just avoided contact with an unidentified white SUV stopped in the middle lane, but then lost control due to the icy conditions. The Ram traveled into the left lane where its left plane struck the Dodge's back plane. At impact, the police officer's head contacted his head restraint causing a cervical spine strain. He was transported by ambulance to a hospital where he was treated for a minor injury and released. The Ram driver was cited for careless driving causing bodily injury. He had a police-reported complaint of injury (sore neck) and was not transported. His driver statement declared he was not hurt, and the responding ambulance company had no EMS medical record for him. Both vehicles were towed due to disabling damage.			
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Table of Contents

Background	1
Summary.....	3
Crash Site.....	3
Pre-Crash	3
Crash	4
Post-Crash.....	4
Move-Over Law Discussion	5
2017 Dodge Charger Pursuit.....	7
Vehicle Description	7
Emergency Lighting	7
Exterior Damage	8
Interior Damage	8
Manual Restraint Systems	8
Supplemental Restraint Systems.....	8
2017 Dodge Charger Pursuit Occupant.....	9
Driver Demographics.....	9
Driver Injuries.....	9
Driver Kinematics.....	9
2020 Ram 2500	10
Vehicle Description	10
Exterior Damage	10
2020 Ram 2500 Occupant.....	11
Driver Demographics.....	11
Driver Injuries.....	11
Driver Kinematics.....	11
Crash Diagram	13
Crash Site Satellite View	14

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Special Crash Investigations
Remote Move-Over-Law Crash Investigation
Case No. DS22008
Vehicle: 2017 Dodge Charger Pursuit
Location: Colorado
Crash Date: May 2021

Background

This report documents the remote investigation of a crash selected by the Special Crash Investigations (SCI) group of the National Highway Traffic Safety Administration (NHTSA) to be included in its “Move-Over Law” investigations. The investigation used data obtained from local authorities including the police crash report (PCR), police and insurance photos, dispatch call logs, police dashcam audio and video, and medical records. The source materials were used to document the facts of the case and reconstruct the causal factors of the crash relative to Colorado’s Move-Over Law. It requires drivers to safely move one lane away from emergency, tow, or maintenance vehicles when their emergency lights are on or, if unable to do so, slow to 40 km/h (25 mph) if the speed limit is less than 72 km/h (45 mph); or slow to at least 32 km/h (20 mph) less than the posted speed limit if the speed limit is 72 km/h (45 mph) or more.¹ This investigation was initiated by NHTSA in response to a notification sent by the SCI-3 team in April 2022 that included the State crash report and an online news article. SCI-3 obtained police and insurance photos of the two involved vehicles and the case was assigned as a remote investigation in April 2022.

The crash occurred in the morning in May 2021 in the westbound lanes of a divided east/west Interstate highway in Colorado (Figure 1). The vehicles involved were a 2020 Ram 2500 and a fully marked 2017 Dodge Charger Pursuit State Patrol vehicle (Figure 2). The crash occurred at the site of a prior crash involving a Toyota Sienna of an unknown model year. Conditions were daylight, cloudy, and snowing with ice and snow accumulation covering the roadway and lane lines. The westbound roadway had three southbound lanes and a concrete Jersey barrier divided the eastbound and westbound roadways. The posted speed limit was 80 km/h (50 mph).

¹ Colorado State Patrol. (n.d.). *Slow down, move over applies to tow and maintenance vehicles too*. [Web page]. <https://csp.colorado.gov/press-release/slow-down-move-over-applies-to-tow-and-maintenance-vehicles-too>



*Figure 1. Crash site looking west, 2017
Dodge Charger Pursuit in foreground, 2020
Ram 2500 in background (police photo)*



*Figure 2. 2017 Dodge Charger Pursuit
looking southwest (police photo)*

The Toyota Sienna was stopped in the left lane facing west. Another vehicle identified by a witness as a white SUV was stopped in the middle lane. The struck vehicle was the 2017 Dodge Charger police vehicle stopped facing west in the left and middle lanes behind the Toyota with its emergency lights activated. The Dodge driver was a 35-year-old male police officer who had arrived on-scene in response to the prior crash. The officer reported he had just unbuckled his seat belt when preparing to obtain driver statements when his vehicle was struck. The striking vehicle was the 2020 Ram 2500 driven westbound in an unknown lane by an unbelted 34-year-old male. According to statements given to police by the Ram driver, he saw the Dodge's emergency lights and the stopped vehicles ahead. Due to his speed and roadway conditions, when attempting to slow his vehicle, his vehicle lost traction. After avoiding contact with the stopped white SUV in the middle lane, the Ram traveled to the left in a clockwise yaw and its left plane struck the Dodge's back plane. The impact pushed the Dodge approximately 6 m (19.6 ft) forward where it came to rest facing west in the left lane. At impact, the police officer's head contacted his head restraint, causing a cervical spine strain. The Ram traveled westbound for a short distance and came to rest facing west in the westbound lanes. The police officer was transported by ambulance to a hospital where he was treated and released. The Ram driver was cited for careless driving causing bodily injury. He had a police-reported complaint of injury (sore neck) but was not transported. His driver statement declared he was not hurt, and the responding ambulance company had no EMS medical record for him. Both vehicles were towed due to disabling damage.

Summary

Crash Site

The crash site was the westbound lanes of a divided east/west Interstate highway in Colorado. According to the police report, the roadway had an unspecified negative downhill slope. Satellite images showed the roadway was primarily straight. Conditions at the time of the crash were morning daylight, cloudy, and snowing with accumulation on the roadway. On-scene police photos showed fog was present. The westbound roadway had three asphalt westbound lanes separated by dashed white painted stripes and bordered with solid painted fog lines and paved shoulders. The police report said that when emergency responders arrived, the lane lines were not visible due to snow accumulation (Figure 3). A concrete Jersey barrier divided the eastbound and westbound roadways. The roadway in this area did not have rumble strips. The posted speed limit was 80 km/h (50 mph). No supplemental traffic controls, such as traffic cones or signage, were in use at the crash site. A crash diagram and crash site satellite view (Figure 9) are included at the end of this report.



Figure 3. Crash site looking west from the Ram's pre-crash approach (police dashcam snapshot)

Pre-Crash

The Dodge was parked facing west blocking the middle and left lanes to provide support for the prior crash. Just before impact, the 35-year-old unbelted police officer was turned to the right and reaching for items in a bag on the passenger's seat. The Toyota Sienna was stopped facing west in the left lane ahead of the Dodge, and the white SUV was stopped facing west in the middle lane east of the Dodge. The Ram was traveling westbound in an unknown lane at a police-estimated speed of 72 km/h (45 mph), which police determined was too fast for conditions. The Ram driver told police that he saw emergency lights and stopped traffic ahead and, in response, tried to slow his vehicle speed by downshifting. He lost traction and used steering maneuvers to avoid contact with the stopped white SUV by passing it on the right. Following that maneuver, the Ram traveled to the left in a clockwise yaw and re-entered the middle lane.

Crash

The Ram's left plane struck the Dodge's back plane (Event 1) (Figure 4). A police diagram showed the area of impact was in the middle lane, approximately 6 m (19.6 ft) north of the concrete barrier. Impact forces pushed the Dodge approximately 6 m (19.6 ft) west where it came to rest facing west in the left lane just behind the Toyota Sienna. The Ram traveled westbound for approximately 30 m (98.4 ft) and came to rest facing west in the left lane. No secondary impacts to vehicles or nonmotorists occurred following the vehicle-to-vehicle impact.



Figure 4. Area of impact (Event 1) looking west (police dashcam snapshot)

Post-Crash

Following the impact the police officer in the Dodge notified his communication center and advised them of the crash. He stayed in his vehicle for a short time then exited without assistance through the left-side door. The Ram driver exited his vehicle without assistance and walked toward the police officer's vehicle. The police officer began obtaining driver statements for the prior crash and the subsequent crash. As time passed he felt a headache and stiffness to his neck. A second police officer arrived and requested medical assistance for the struck police officer. Paramedics arrived and transported the police officer to a hospital located 21.2 km (13.1 mi) from the crash site where he was treated in the emergency room and released. An interdepartmental memorandum sent from the police officer to his commanding officer said the police officer had sustained a cervical strain and, following his discharge from the hospital, he remained off-duty for the rest of that day. The Ram driver had a police-reported complaint of injury described as a sore neck. He stated to police that he was not injured, and he was not treated on-scene or transported. The SCI team requested the EMS medical record for the Ram driver from the on-scene EMS and no report was found. Both vehicles were towed due to disabling damage. The Dodge was permanently removed from service, and the repair status for the Ram is unknown.

Move-Over Law Discussion

Colorado lawmakers passed bill HB20-1145, Move Over Or Slow Down For Official Vehicle, concerning the safety consequences of a driver passing an official vehicle that displays a warning light, in April 2020.² At the time of this crash, the police vehicle had rear-facing, flashing blue and red lights activated. In summary, a driver in a vehicle shall exhibit due care and caution when approaching or passing:

- (I) A stationary authorized emergency vehicle that is giving a visual signal by flashing, rotating, or oscillating red, blue, or white lights; or
- (II) A stationary towing carrier vehicle that is giving a visual signal by flashing, rotating, or oscillating yellow lights; or
- (III) A stationary public utility service vehicle that is giving a visual signal by flashing, rotating, or oscillating amber lights.

On a highway with at least two adjacent lanes proceeding in the same direction on the same side of the highway where a stationary authorized emergency vehicle is located, the driver of an approaching or passing vehicle shall proceed with due care and caution and yield the right-of-way by moving into a lane at least one moving lane apart from the stationary authorized emergency vehicle unless directed otherwise by a peace officer or other authorized emergency personnel.

If movement to an adjacent moving lane is not possible due to weather, road conditions, or the immediate presence of vehicular or pedestrian traffic, the driver of the approaching vehicle shall proceed in the manner described below.

- 25 miles per hour if the speed limit is less than 45 miles per hour; or
- At least 20 miles per hour less than the posted speed limit if the speed limit is 45 miles per hour or more.

On a highway that does not have at least two adjacent lanes proceeding in the same direction on the same side of the highway where a stationary authorized emergency vehicle is located, or if movement by the driver of the approaching vehicle into an adjacent moving lane is not possible, the driver of an approaching vehicle shall reduce and maintain a safe speed with regard to the location of the stationary authorized emergency vehicle, and proceed with due care and caution, or as directed by a peace officer or other authorized emergency personnel.

The act also requires the Colorado State Patrol and department of transportation to create a campaign raising public awareness of the requirement to move over or slow down and of the dangers to stationary emergency and service vehicles.

In this crash, police estimated the Ram's speed to be 72 km/h (45 mph), or 8 km/h (5 mph) under the speed limit. Given the parameters of the State's Move-Over Law and conditions at the time of the crash, the Ram driver was traveling 24 km/h (15 mph) over the Move-Over-Law limit and did not follow the law. According to an online source,³ "a driver who fails to move over or slow down for a stopped emergency vehicle is guilty of careless driving. If the driver causes a bodily injury to another person by failing to move over or slow down, it is a class 1 misdemeanor in

² https://leg.colorado.gov/sites/default/files/2020a_1145_signed.pdf

³ <https://law.justia.com/codes/colorado/2020/title-42/article-4/section-42-4-705/>

Colorado.” Such was the case in this crash. Police charged the Ram driver with the violation of careless driving causing bodily injury. According to the police report, the driver exceeded a safe speed. It was the officer’s opinion that no other apparent human factor contributed to this crash, indicating the driver was neither impaired nor distracted. It was unknown if the Ram driver was aware of the State’s Move-Over laws and the appropriate driver response to such conditions. The driver’s statement said that he saw the police vehicle’s emergency lighting and attempted to slow his vehicle. The crashed occurred following the Ram’s traction loss and a prior successful avoidance maneuver.

2017 Dodge Charger Pursuit

Vehicle Description

The 2017 Dodge Charger Pursuit was identified by police using the vehicle identification number (VIN) 2C3CDXKT3HHxxxxxx. The manufacture date was unknown. The Dodge was a 4-door sedan fully marked fleet vehicle used by the State Patrol. Exterior construction used a steel body and aluminum hood. Standard equipment included a 5.7-liter, 8-cylinder gasoline engine, all-wheel drive, and hydraulic brakes. The interior had a 31 cm (12.2 in) touchscreen display and police trim package that was black in color. The steering column had tilt/telescoping functionality. The front row had adjustable bucket seats with adjustable and active head restraints. It had height-adjustable seat belts. The vehicle manufacturer recommended size P225/60R18 tires with an unknown recommended tire pressure. The Dodge had Goodyear Performance tires of the recommended size.

The exterior colors were primarily metallic silver with black highlights. Black and white graphics extending across the upper aspect of the backlight read “YOU CAN SAVE A LIFE – MOVE OVER,” with arrows pointing to the left and right. Crash avoidance and safety features included standard daytime running headlights and an optional rearview video system.

Emergency Lighting

The Dodge Charger Pursuit was a fully marked State Patrol vehicle with several emergency lighting features. The police report said the Dodge was parked “with emergency lights activated protecting a crash scene ahead.” On-scene police photos and a dashcam video from a responding police officer’s vehicle captured the Dodge at final rest with its emergency lighting activated (Figure 5). The vehicle had an unknown brand and model roof-mounted LED light bar with red, white, and blue lights. At the time of the crash, the roof-mounted light bar had flashing rear-facing red lamps and forward-facing blue lights activated. The vehicle had a rear dash-mounted light bar with red and blue LED lights that was flashing red on the left side and blue on the right side. It had rear-facing white LED lights integrated into the taillight ribbon on the trunk that were activated. The vehicle’s 4-way amber-colored flashers were not activated. The Dodge had black and white reflective tape distributed across the back bumper.



Figure 5. Rear-facing emergency lighting, roof (red) and rear dash (blue) light bars, 2017 Dodge Charger looking west (police dashcam snapshot)

Exterior Damage

The Dodge had direct and induced damage to the back and right planes. The back plane sustained direct damage in the right sector, bumper corner area. The impact appeared to have been a narrow corner engagement with direct damage extending forward on the right plane from the back right bumper corner to the trailing edge of the right-rear wheel well. The right taillight was missing, and the right aspect of the back bumper fascia was fractured and missing. The right-rear quarter-panel was crumpled forward and the right-rear wheel appeared to have been displaced forward in a restricted position. The estimated collision deformation classification (CDC) for the Dodge in Event 1 was 06BREE6 (Figure 6).



Figure 6. Vehicle damage, 2017 Dodge Charger (police photo)

Interior Damage

The Dodge sustained unknown interior damage. The vehicle inspection was based on police photos and no interior photos were taken. Exterior images reveal no glazing damage was present and all doors appeared to have remained closed. The crush damage appeared to be located primarily aft of the occupant compartment suggesting no intrusion was present in the front row.

Manual Restraint Systems

The Dodge had lap and shoulder seat belts for all seat positions. According to the police report, the driver was unbelted and was reaching for items in his patrol bag on the front passenger seat.

Supplemental Restraint Systems

The Dodge's supplemental restraint systems included driver's and passenger's frontal air bags and outboard seat-mounted side impact air bags, driver's knee bolster air bags, and front and second row combination impact/roll-sensing inflatable curtain (IC) air bags. No air bags deployed during the crash.

2017 Dodge Charger Pursuit Occupant

Driver Demographics

Age/sex: 35 years/male
Height: Unknown
Weight: 75 kg (165 lb)
Eyewear: Unknown
Seat type: Bucket with adjustable and active head restraint
Seat track position: Unknown
Manual restraint usage: Lap and shoulder belt not used
Usage source: Police report
Air bags: Frontal, knee, seat-mounted side impact and IC air bags available; none deployed
Alcohol/drug data: None reported
Egress from vehicle: Exited under own power
Transport from scene: Transported by ambulance to hospital
Type of medical treatment: Treated and released

Driver Injuries

Injury No.	Injury	Injury Severity AIS 2015	Involved Physical Component (IPC)	IPC Confidence Level
1	Cervical spine strain	640278.1	This occupant's head restraint	Certain

Source: EMS medical record, police report

Driver Kinematics

The unbelted driver was seated in the forward-facing seat. Just before impact, he turned to the right to reach for items in a patrol bag on the front-right seat. At impact with the Ram, the driver's head was displaced rearward in response to the direction of force. His head contacted the head restraint, causing a cervical spine strain. The Dodge was displaced forward and the driver remained in his seated position. The vehicle traveled approximately 6 m (19.6 ft) and came to rest facing west in the left lane. After coming to final rest, the driver stayed in the vehicle for a few moments before exiting under his own power through the left-side door. He continued performing his duties until more police officers arrived and was then transported by ambulance to a hospital where he was treated and released. His EMS record said that he walked to the ambulance at the crash site, and from the ambulance to his examination room at the hospital. Following his discharge he remained off duty for the remainder of his shift that day.

2020 Ram 2500

Vehicle Description

The 2020 Ram 2500 was identified by police using the VIN 3C6UR5CJ8LGxxxxxx. The manufacture date was unknown. The Ram was a General Services Administration owned vehicle. It was a 4-door crew cab pickup truck with standard features including an 8-cylinder, 6.4-liter gasoline engine, 4-wheel drive, automatic transmission, antilock brake system, electronic stability control, traction control, and hydraulic brakes. Standard safety features included a backup camera, dynamic brake support, daytime running lights, and automatic crash notification. The vehicle manufacturer recommended size LT275/70R18 tires and the Ram had Firestone Transforce AT tires of the recommended size.

Exterior Damage

The Ram had minor severity crush to the left plane (Figures 7 and 8). Direct damage extended from the back bumper corner to the second-row door just forward of the C-pillar. Vertically, damage extended from the frame to the cargo bed's top edge. The left-rear wheel was fractured and the tire was cut and de-beaded. The estimated CDC for the Ram in Event 1 was 11LZEW2.



Figure 7. Left plane damage, 2020 Ram 2500 (police photo)



Figure 8. Left plane damage, 2020 Ram 2500 (police photo)

2020 Ram 2500 Occupant

Driver Demographics

Age/sex:	34 years/male
Height:	183 cm (72 in)
Weight:	98 kg (216 lb)
Eyewear:	Unknown
Seat type:	Bucket with adjustable head restraint
Seat track position:	Unknown
Manual restraint usage:	Lap and shoulder belt used
Usage source:	Police report
Air bags:	Frontal, seat-mounted side impact and IC air bags available; none deployed
Alcohol/drug data:	None reported
Egress from vehicle:	Exited under own power
Transport from scene:	Not transported
Type of medical treatment:	Unknown

Driver Injuries

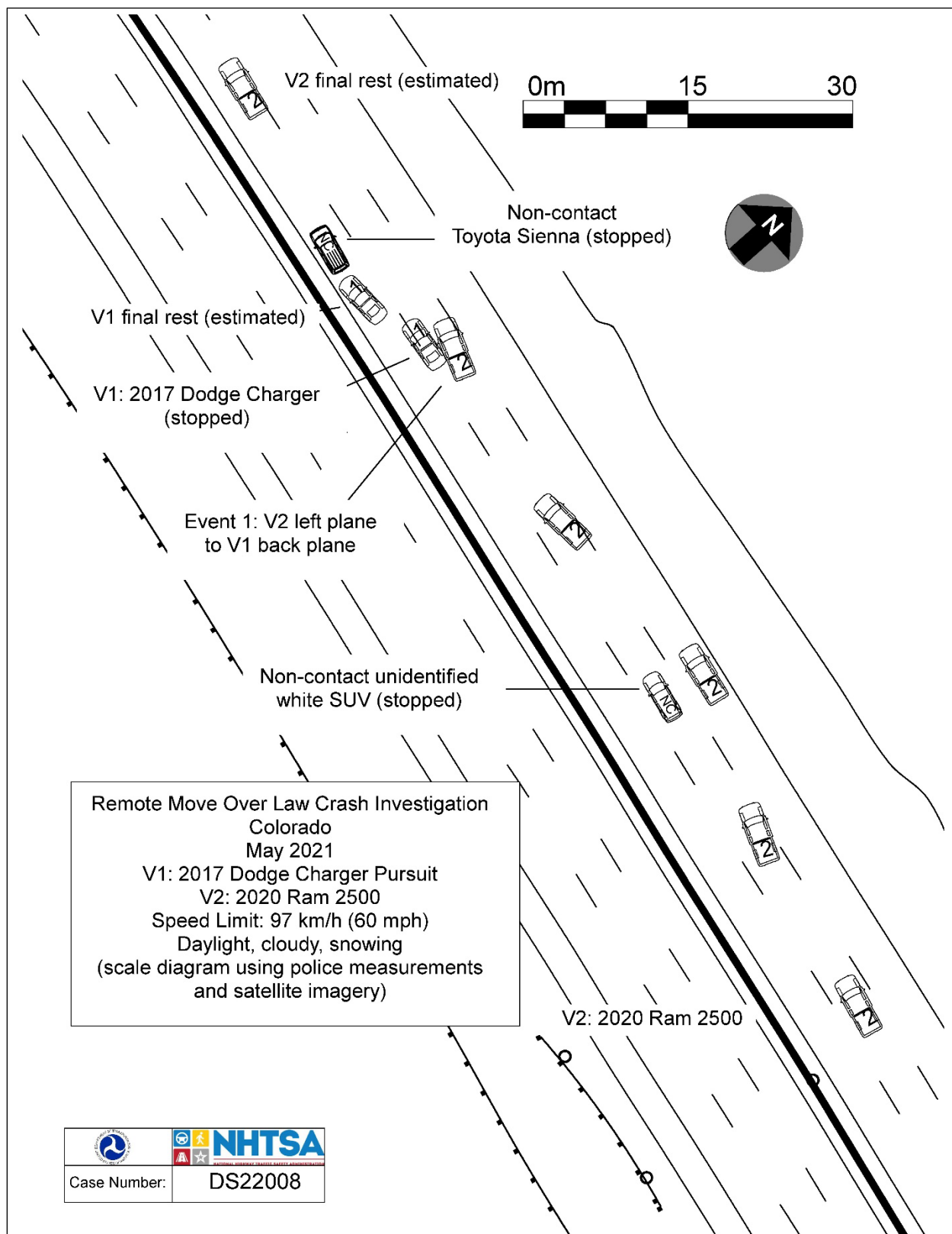
According to police the driver complained of pain described as a sore neck. He was not reported as injured or transported.

Driver Kinematics

The unbelted driver was traveling at a police-reported speed of 72 km/h (45 mph). At impact with the Dodge, he was likely displaced forward and left in response to the direction of force. Due to his unbelted status, possible contacts within the vehicle included the steering wheel, left instrument panel, left door panel, and left window. The Ram traveled westbound for approximately 30 m (98.4 ft) and came to rest facing west in the westbound lanes. The driver exited the vehicle under his own power and walked to the Dodge. He said to police that he had a sore neck and was not hurt. He was not transported and his treatment status is unknown.

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Crash Diagram



Crash Site Satellite View



Google Maps © 2021 Maxar Technologies, U.S. Geological Survey Map data

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