



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

November 14, 2023

Highway Investigation Report HIR-23-09

Multivehicle Crash at Signalized Intersection

North Las Vegas, Nevada
January 29, 2022

Abstract: On Saturday, January 29, 2022, about 3:12 p.m. Pacific standard time, a 2018 Dodge Challenger passenger car was traveling northbound on North Commerce Street in North Las Vegas, Clark County, Nevada. The Dodge driver approached the traffic signal-controlled intersection with Cheyenne Avenue, reaching a maximum vehicle-recorded speed of 103 mph. The Dodge driver entered the intersection on a red traffic signal (which had been red for at least 29 seconds) and struck the right side of a Toyota Sienna minivan traveling eastbound on Cheyenne Avenue. Four additional vehicles traveling on Cheyenne Avenue became involved in subsequent impacts. As a result of the crash, the driver and passenger of the Dodge and all seven occupants of the Toyota minivan died. Safety issues identified in this investigation include preventing drug-impaired driving, the need for technology to prevent excessive speed, and the need for countermeasures targeted at repeat speeding offenders. The National Transportation Safety Board issues new safety recommendations to the National Highway Traffic Safety Administration; the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia; the Insurance Institute for Highway Safety, and passenger vehicle manufacturers. The National Transportation Safety Board also reiterates one recommendation to the National Highway Traffic Safety Administration.

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Acronyms and Abbreviations

AADT	annual average daily traffic
ACC	adaptive cruise control
ADAS	advanced driver assistance systems
<i>CFR</i>	<i>Code of Federal Regulations</i>
DMV	Department of Motor Vehicles
DUI	driving under the influence
EDR	event data recorder
EU	European Union
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
GPS	global positioning system
ISA	intelligent speed assistance
LEA	law enforcement agency
MIDRIS	Model Impaired Driving Records Information System
NCAP	New Car Assessment Program
NCIC	National Crime Information Center
NDOT	Nevada Department of Transportation
NHTSA	National Highway Traffic Safety Administration
NLETS	National Law Enforcement Telecommunications System
NLVFD	North Las Vegas Fire Department
NTSB	National Transportation Safety Board
PCP	phencyclidine

Executive Summary

What Happened

On Saturday, January 29, 2022, about 3:12 p.m. Pacific standard time, a multivehicle crash occurred in the intersection of North Commerce Street and Cheyenne Avenue, in North Las Vegas, Clark County, Nevada. The crash was initiated by a 2018 Dodge Challenger passenger car, occupied by a driver and a front-seated passenger, traveling northbound on North Commerce Street. On approach to the intersection, the Dodge driver passed a slower moving truck, failed to stop at a stop sign, and gained speed, until reaching the traffic signal-controlled intersection with Cheyenne Avenue at a speed of 103 mph. The traffic signal for northbound North Commerce Street displayed a red light for at least 29 seconds prior to the crash. The Dodge driver entered the intersection on the red traffic signal and struck the right side of a Toyota Sienna minivan, which held seven occupants and was traveling eastbound on Cheyenne Avenue. Four additional vehicles traveling on Cheyenne Avenue became involved in subsequent impacts. As a result of the crash, the driver and passenger of the Dodge and all seven occupants of the Toyota minivan died.

What We Found

We found that the Dodge driver's use of cocaine and phencyclidine impaired his decision-making such that he accelerated to excessive speed and failed to obey traffic controls, resulting in the multivehicle crash. In addition, the Dodge driver's history as a repeat speeding offender and specific actions on the day of the crash demonstrated a repeated disregard for safety and thus he was more likely to cause a fatal crash.

We also found that an intelligent speed assistance (ISA) system that electronically limits the speed of the vehicle may have mitigated the severity of the North Las Vegas crash. Improving public acceptance of ISA systems and wider voluntary deployment, such as by automakers, will facilitate the advancement of a new motor vehicle safety standard on ISA. We found that repeat speeding is a nationwide problem but evidence-based countermeasures targeting repeat speeding offenders are lacking. Further, inaccurate driver records reduce the likelihood that repeat speeding offenders can be accurately identified.

The National Transportation Safety Board (NTSB) determines that the probable cause of the North Las Vegas, Nevada, crash was the Dodge driver's excessive speed and failure to obey traffic control devices. Contributing to the driver's behavior was his impairment from the effects of cocaine and phencyclidine and his disregard for safety and traffic laws. Also contributing to the driver's repeated disregard for safety and traffic laws despite numerous citations was the state of Nevada's failure to deter

the driver's speeding recidivism due to systemic deficiencies, including routine plea agreements that alter or drop violations, inaccurate driver records, failure to accurately track citations, and delays in reporting convictions.

What We Recommended

As a result of this investigation, the NTSB issued eight new recommendations and reiterated one recommendation. We recommended that the National Highway Traffic Safety Administration (NHTSA) require ISA as standard equipment in all new vehicles, develop a communication plan to educate the public about the capabilities and benefits of ISA to mitigate speeding, update the Uniform Guidelines for State Highway Safety Programs to include tracking for repeat speeding offenders, develop countermeasures to reduce speeding recidivism, and develop guidelines to assist states in implementing pilot ISA interlock programs for high-risk drivers who speed.

We recommended that the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia implement programs to identify repeat speeding offenders and measurably reduce speeding recidivism. In addition, we recommended that passenger vehicle manufacturers install as standard equipment ISA systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit. We also recommended that the Insurance Institute for Highway Safety evaluate the safety outcomes of marketing by automobile manufacturers that emphasizes risky driving behaviors, such as speeding. Finally, we reiterated Safety Recommendation H-17-24 to NHTSA to incentivize adoption of ISA systems by including ISA in the New Car Assessment Program.

1 Factual Information

1.1 Crash Narrative

On Saturday, January 29, 2022, about 3:12 p.m. Pacific standard time, a multivehicle crash occurred in the intersection of North Commerce Street and Cheyenne Avenue, in North Las Vegas, Clark County, Nevada.¹ At the time of the crash, the weather was clear and the roadway was dry.

A 2018 Dodge Challenger passenger car, occupied by a driver and a front-seated passenger, was traveling northbound on North Commerce Street in an industrial area of the city (see figure 1). The speed limit on North Commerce Street is 35 mph.



Figure 1. Photograph depicting the northbound North Commerce Street approach to the intersection with Cheyenne Avenue.

According to surveillance video recordings from nearby cameras, as the Dodge was traveling northbound toward the intersection with Cheyenne Avenue, the

¹ Visit [nts.gov](https://www.nts.gov) to find additional information in the [public docket](#) for this NTSB accident investigation (case number HWY22FH004). Use the [CAROL Query](#) to search safety recommendations and investigations.

Dodge moved to the left and passed a commercial truck that was slowing.² After passing the truck, the Dodge moved back to the right. The Dodge then approached an intersection with Brooks Avenue—a four-way stop-controlled intersection—located about 1,360 feet south of the Cheyenne Avenue intersection. The Dodge did not stop at the posted stop sign at Brooks Avenue and continued to increase speed.³

North Commerce Street and Cheyenne Avenue is a traffic signal-controlled intersection. The traffic signal for northbound North Commerce Street, the direction traveled by the Dodge, displayed a steady red light for at least 29 seconds before the crash. As the Dodge was traveling toward this intersection at the recorded speed of 88 mph—according to the vehicle’s event data recorder (EDR)—5 seconds before the crash, a 2013 Toyota Sienna minivan was traveling eastbound on Cheyenne Avenue. The Toyota, occupied by a driver and six passengers, was traveling at a speed of about 44 mph and approaching the intersection on a steady green light; the speed limit on Cheyenne Avenue in this area is 50 mph. Figure 2 shows the locations of the Dodge driver’s actions, and figure 3 shows the relative positions of the Dodge and Toyota leading up to the crash, including the steady speed of the Toyota and the accelerating speed of the Dodge.

² At this location, North Commerce Street consisted of a single travel lane in each direction with a center two-way turn lane. The Dodge likely moved into the center turn lane to pass the truck; however, the quality of the surveillance video is insufficient to definitively identify his position in the lanes at that time.

³ North of Brooks Avenue, North Commerce Street consists of two travel lanes in each direction. See section 1.3 for additional detail on the roadway configuration.



Figure 2. Locations of Dodge driver actions leading up to the crash. Traffic signs and signals along North Commerce Street are also shown. (Source: Google Earth; annotations added by the National Transportation Safety Board [NTSB])

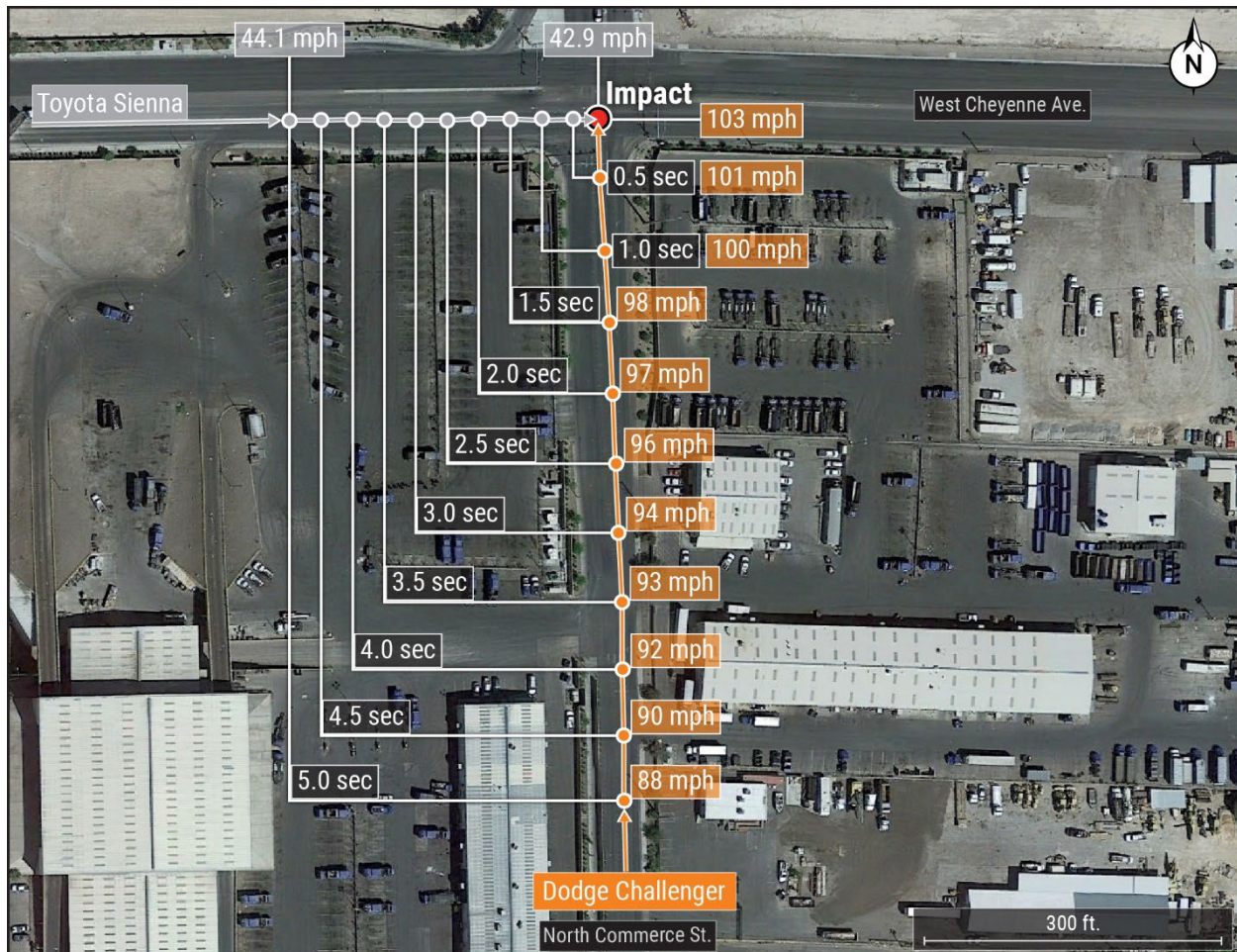


Figure 3. Relative positions and speeds of the Dodge and Toyota leading up to the crash events. (Source: Google Earth; annotations added by NTSB)

When the Dodge entered the intersection with Cheyenne Avenue on the red traffic signal, it reached a maximum recorded speed of 103 mph. The Dodge then struck the right side of the Toyota Sienna minivan. Four additional vehicles traveling on Cheyenne Avenue—a 2016 Ford Fusion passenger car, a 2005 Chevrolet Malibu passenger car, a 2016 Hyundai Tucson sport utility vehicle, and a 2021 Mercedes Benz GLE-350 sport utility vehicle—became involved in subsequent impacts. At the time of the first impact, both directions of travel on Cheyenne Avenue had a steady green traffic signal.

The initial impact redirected the Dodge and Toyota along a northeastward trajectory, resulting in the Toyota striking the Ford Fusion that was traveling east on Cheyenne Avenue. These three vehicles rotated while the Toyota also began a lateral rollover. As the Toyota continued along a northeastward trajectory, it sideswiped the left side of the Hyundai Tucson that was traveling westbound into the intersection. As the Toyota rolled, three occupants were ejected. One or more of the ejected

occupants impacted the left side of the westbound Mercedes GLE-350. The Dodge continued to yaw and struck the front of the westbound Chevrolet Malibu before departing the northeast side of the intersection. Figure 4 shows the final rest positions of each vehicle.

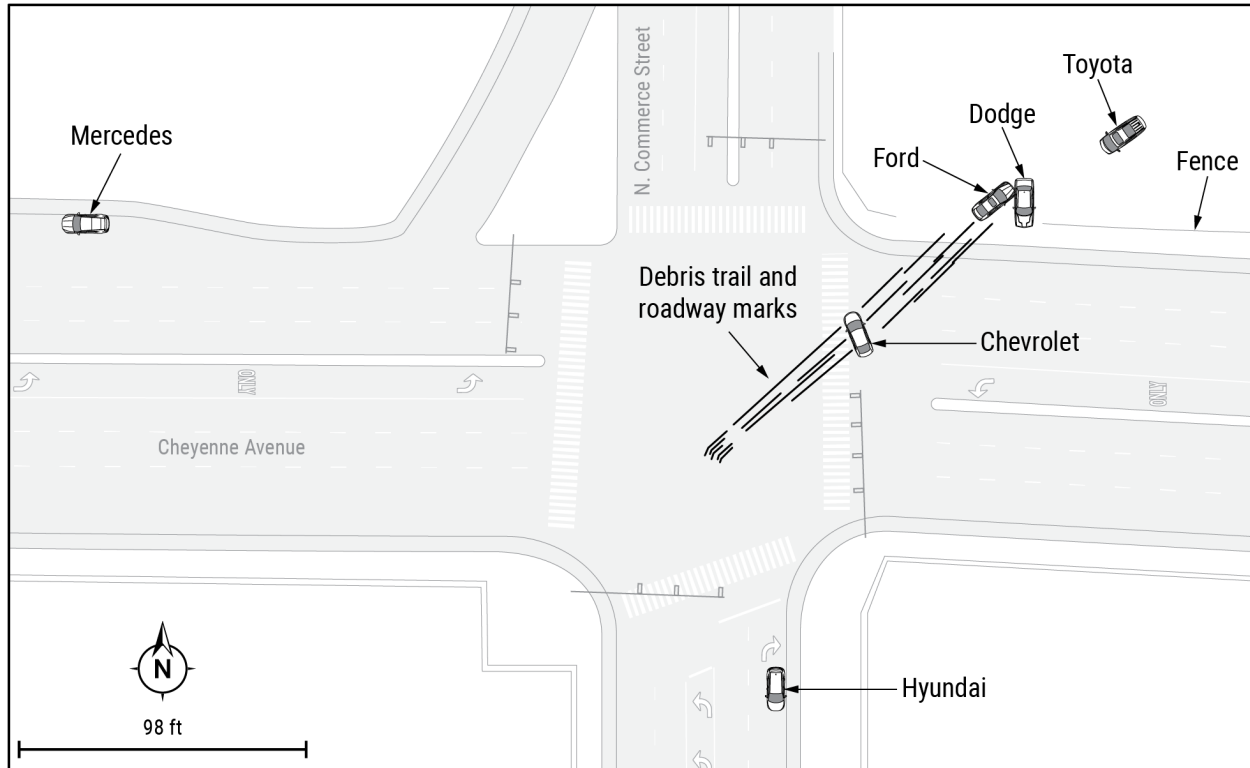


Figure 4. Diagram depicting the final rest positions of each vehicle after the crash.

1.2 Injuries and Emergency Response

1.2.1 Injuries

A total of 15 vehicle occupants were involved in the collision. The occupants ranged in age from 5 to 59. As a result of the crash, the driver and passenger of the Dodge and all seven occupants of the Toyota minivan died. The driver of the Ford Fusion was transported to the hospital with serious injuries. The driver of the Hyundai reported minor injuries but declined transportation to a medical facility. The driver and passenger in both the Chevrolet and Mercedes were uninjured. Table 1 summarizes the distribution of injury severity.

Table 1. Injury levels for the occupants of the crash-involved vehicles.^a

Injuries					
Vehicle	Fatal	Serious	Minor	None	Total
2018 Dodge Challenger	2	-	-	-	2
2013 Toyota Sienna	7	-	-	-	7
2016 Ford Fusion	-	1	-	-	1
2005 Chevrolet Malibu	-	-	-	2	2
2016 Hyundai Tucson	-	-	1	-	1
2021 Mercedes GLE-350	-	-	-	2	2
TOTAL	9	1	1	4	15

^a Although Title 49 *Code of Federal Regulations (CFR)* Part 830 pertains to the reporting of aircraft accidents and incidents to the NTSB, section 830.2 defines fatal injury as any injury that results in death within 30 days of the accident, and serious injury as any injury that (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date of injury; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burn affecting more than 5% of the body surface.

The driver of the Dodge was belted and sustained blunt-force trauma to the head, torso, and extremities. The passenger of the Dodge was unbelted and sustained blunt-force trauma to the torso and extremities. In the Toyota Sienna, the driver, right front passenger, and two second-row passengers were belted. The three third-row passengers (ages 5, 10, and 15) were unbelted and ejected during the crash.⁴

1.2.2 Emergency Response

The Clark County Combined Communication Center received multiple 911 calls from witnesses, the first of which was at 3:12 p.m. The North Las Vegas Fire Department (NLVFD) had jurisdiction for the crash. The first response unit was dispatched at 3:13 p.m. and arrived at the scene at 3:16 p.m. Upon arrival, the NLVFD established incident command and began triage. Triage initially identified eight fatal victims and two in need of transport. NLVFD dispatched multiple response units, including trucks, engines, and ambulances to the scene. The North Las Vegas Police Department also responded to the scene.

Two occupants—the driver of the Ford and one of the ejected passengers from the Toyota—were transported by ground ambulance to University Medical Center,

⁴ Nevada's child seat law requires children under 6 years of age to ride in an approved child restraint system (NRS 484B.157, effective January 1, 2022).

which is a Level 1 trauma center.⁵ The two ambulances left the scene at 3:23 p.m. and 3:28 p.m. and arrived at the trauma center at 3:34 p.m. and 3:38 p.m., respectively. One of the two transported occupants—the Ford driver—was admitted to the trauma center, and the transported Toyota passenger was pronounced dead in the emergency room at 4:21 p.m.

1.3 Highway Information

1.3.1 General Roadway Description

North Commerce Street is a 6.4-mile-long, north–south roadway that is classified as a minor collector.⁶ It is a straight, asphalt road with varying numbers of lanes. Cheyenne Avenue (State Route 574) is a 10.7-mile-long, east–west highway that is classified as a minor arterial. Cheyenne Avenue is a six-lane asphalt road with three westbound lanes, three eastbound lanes, and center turn lanes.

About 1,360 feet south of the Cheyenne Avenue intersection, North Commerce Street intersects Brooks Avenue. Between Brooks Avenue and Cheyenne Avenue, North Commerce Street primarily consists of two travel lanes in each direction and then transitions to a single through-lane, one left-turn-only lane, and one right-turn-only lane at the Cheyenne Avenue intersection. The lanes have a nominal width of 11 feet, with a few locations increasing to 11.9 feet. South of Brooks Avenue, pavement markings transition to a single lane of travel in each direction, with a center two-way left-turn lane. Where the two-way left-turn lane exhibits its full width of 12 feet, the travel lane widths range from 13 to just over 17 feet. Raised pavement markers are used for lane delineation. The marker colors included yellow for centerline features and white for same-direction lane delineation. Painted pavement markings, including crosswalks, were faded but visible.

In the northbound direction of North Commerce Street, two 35-mph speed limit signs were in place within 1 mile of the crash location. The first sign was located about 5,270 feet before the Cheyenne Avenue intersection, and the second was south of Brooks Avenue, about 2,948 feet before the crash intersection.

⁵ *Trauma centers* are classified into different levels based on the presence of patient care resources. A Level 1 trauma center offers the highest level of care, providing total treatment for every aspect of injury, from prevention through rehabilitation.

⁶ Roadways classified as *minor collectors* connect local roads and arterials, penetrate residential areas, and include lower speeds and few signalized intersections. *Minor arterials* provide service for trips of moderate length and intra-community continuity, but do not penetrate residential neighborhoods. See [Highway Functional Classifications \(fhwa.gov\)](https://www.fhwa.gov/functional-classifications).

1.3.2 Traffic Controls

North Commerce Street and Cheyenne Avenue intersect at a right angle with movement through the intersection controlled by automatic traffic signals. For northbound traffic along North Commerce Street, there are four signal heads: two each for through and left-turning traffic.

Northbound Commerce Street exhibited minor changes in vertical grade, initially ascending then descending, beginning about 575 feet before the Cheyenne Avenue intersection, with a total vertical elevation change of 15.8 feet. The vertical grade presented no effective obstruction to driver line of sight as the traffic signal could be seen beyond 3,500 feet.

At the intersection with Brooks Avenue, there is a four-way stop (see figure 5). A painted stop line and a painted crosswalk cross North Commerce Street on the south side of the intersection. A Stop Ahead advance warning sign is about 108 feet before the stop sign. About mid-block between Brooks Avenue and Cheyenne Avenue, there is a pedestrian crossing zone with a painted pavement crosswalk and a pedestrian crossing sign.



Figure 5. Photograph depicting the northbound North Commerce Street approach to the crash intersection, from a location south of the four-way stop at Brooks Avenue.

1.3.3 Crash History

The Nevada Department of Transportation (NDOT) supplied crash history data for the Cheyenne Avenue–Commerce Street intersection for January 2018 through December 2020 (the most recent available). In total, 29 crashes occurred at the intersection or within 50 feet of it, including 13 non-fatal injury crashes and 16 non-injury crashes. None had speed coded as a factor.⁷

In addition, the NTSB obtained crash history data for North Commerce Street from the NDOT web interface.⁸ From 2016 to 2020, 35 non-fatal injury crashes and 37 non-injury crashes occurred on North Commerce Street, between and inclusive of the intersections at West Carey Avenue and West Cheyenne Avenue (a distance of about 5,300 feet). Of the 72 total crashes, three were coded with speed as a factor (“exceeded authorized speed limit” or “driving too fast for conditions”).

The City of North Las Vegas Department of Public Works reported no traffic volume or speed study data for North Commerce Street. Publicly available data from NDOT’s Traffic Records Information Access application showed a 5-year mean Annual Average Daily Traffic (AADT) count of 6,860 vehicles on North Commerce Street and between 40,800 and 60,900 vehicles on Cheyenne Avenue at locations 1.5 miles west and 0.9 miles east of the crash intersection, respectively.

1.4 Vehicles

1.4.1 Dodge Challenger

The 2018 Dodge Challenger SXT had a 3.1L V6 gasoline engine with about 305 horsepower. It was a rear-wheel drive vehicle with automatic transmission.

1.4.1.1 Damage

The Dodge sustained significant impact damage to the front, which caused deformation to the vehicle body throughout the entire occupant compartment, as shown in figure 6. The driver’s door was removed during extrication of the driver. There was substantial occupant compartment intrusion in the front, particularly on the driver’s side. At the passenger side of the front bumper cover, an impression in the painted surface consistent with the design of a Toyota wheel center cap was observed. Evidence of additional contact was observed at the driver’s door and on the panel behind it, with these areas also showing white-colored material transfer,

⁷ Of the 29 total crashes, 11 were coded as “failed to yield right of way” or “disregarded traffic signs, signals, road markings.”

⁸ See [Traffic Crash Data | Nevada Department of Transportation \(nv.gov\)](https://www.nv.gov/traffic-crash-data).

likely from the Toyota. Remnants of bumper energy absorption material from the Chevrolet was embedded in the Dodge's bumper bar. The rear bumper cover and lower fascia from the Dodge were entrapped underneath the Chevrolet. The frontal, side curtain, and side torso airbags deployed in the crash.



Figure 6. 3D laser scan showing damage to the Dodge Challenger. The view is from the driver's side, and the driver's door was removed during extrication of the driver.

1.4.1.2 Mechanical Condition

A search of the safety recall database maintained by the National Highway Traffic Safety Administration (NHTSA) revealed four recalls affecting the Dodge, all of which had been completed. All major mechanical systems on the car were examined by NTSB investigators, including the steering, tires and wheels, and braking systems. No precrash mechanical deficiencies were identified.

1.4.1.3 Recorded Data

The Dodge was equipped with an EDR that recorded the vehicle's dynamic time-series data during the 5 seconds just before and during the crash event. Precrash data, recorded at 10 Hz, indicated that at 5 seconds before impact the vehicle speed was 88 mph. At impact, the recorded speed was 103 mph. During the entire 5-second precrash period, the engine throttle was recorded at 100%. Similarly, the reported value of the accelerator pedal remained constant at 100% until about half a second before impact, when some reduction was recorded. At impact, the accelerator pedal position data recorded 78%. Throughout the 5-second period, no brake was applied, and steering input remained consistent.

During the initial collision with the Toyota, the Dodge experienced a maximum longitudinal velocity change of 64.6 mph, at 150 msec after impact. The maximum

lateral velocity change (28.0 mph, directed toward the passenger side) was also recorded during this event. This initial collision was the most severe in the crash sequence.

1.4.2 Toyota Sienna

1.4.2.1 Damage

The 2013 Toyota exhibited catastrophic damage to the passenger side of the vehicle, resulting in extensive loss of occupant survival space (see figure 7). Additional contact damage was also noted at the rear of the vehicle on the driver side. Other exterior body surfaces such as the roof, hood, and driver side exhibited scarring and paint displacement consistent with a rollover event. The frontal, knee bolster, side curtain, and side torso airbags deployed in the crash.



Figure 7. 3D laser scan showing damage to the Toyota Sienna (passenger side view).

1.4.2.2 Recorded Data

The Toyota was equipped with an EDR, and investigators were able to retrieve about 5 seconds of precrash data. Vehicle speed was reported as 44.1 mph at the start of the recording. The accelerator pedal position remained about 7 to 8% (of full pedal movement) with the vehicle speed dropping slightly to 42.9 mph in the last second before impact. No brake application was recorded.

1.4.3 Remaining Passenger Vehicles

The remaining four vehicles sustained minor to moderate damage (see figure 8 through figure 11). Three of the four vehicles (Ford, Hyundai, and Chevrolet) experienced airbag deployments during the crash.



Figure 8. Damage to the Ford Fusion.



Figure 9. Damage to the Hyundai Tucson. (Source: North Las Vegas Police Department)

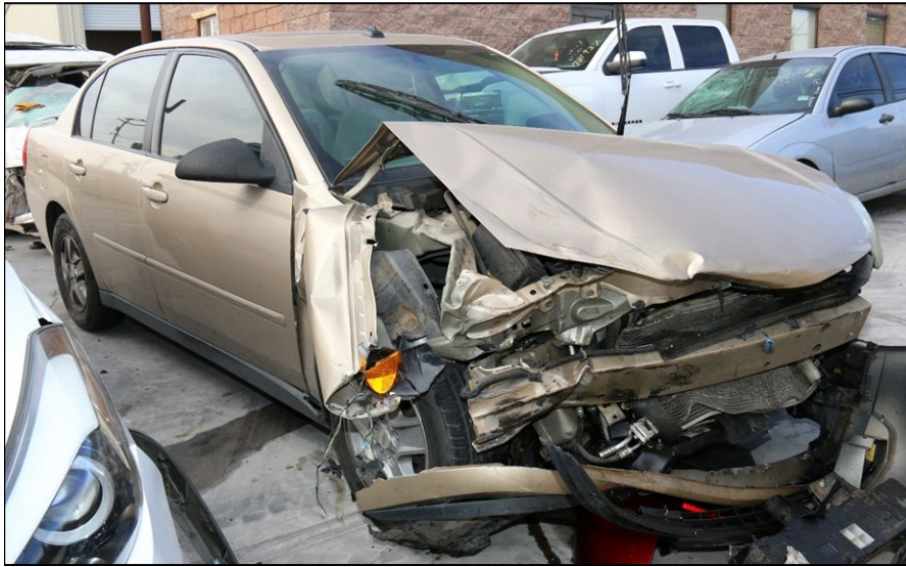


Figure 10. Damage to the Chevrolet Malibu.



Figure 11. Damage to the Mercedes GLE 350. (Source: North Las Vegas Police Department)

1.5 Dodge Driver

1.5.1 Driving History

The 59-year-old driver held a valid class "C" Nevada driver's license expiring July 18, 2028. The driver's record shows a history of speeding violations, driving under suspension, and driving under the influence (DUI) (see table 2). In the 1980s, he was arrested twice for DUI in Indiana. Between 1992 and 2017, he was convicted in Nevada five times for driving while his license was suspended, had three speeding convictions, and one conviction each for failing to signal, failing to obey traffic devices, and driving without liability insurance. His license was suspended from December 25, 2017, until January 8, 2020, for failure to pay the required fines and costs. However, at the time of the crash, his official 10-year driving record had only

one moving violation documented—a speeding ticket issued April 26, 2017—and he had no active demerit points.⁹

Table 2. Dodge driver history.

Date	Original Citation Description	Source
02/23/1984	Driving while intoxicated	Criminal history (National Crime Information Center [NCIC])
09/29/1986	Driving while intoxicated	Criminal history (NCIC)
08/13/1992	Speeding	National Law Enforcement Telecommunications System (NLETS)
08/13/1992	Driving while license suspended	NLETS
04/16/1993	Driving while license suspended	NLETS
07/03/2000	Driving without liability insurance	NLETS
02/17/2001	Driving while license suspended	NLETS
02/17/2001	Failure to obey traffic signal	NLETS
11/20/2001	Driving while license suspended	NLETS
02/14/2005	Failure to use signal	NLETS
03/31/2005	Driving while license suspended	NLETS
10/05/2008	Unsafe operation	NLETS
02/22/2011	Speeding	NLETS
04/26/2017	Speeding	Ten-year record (Nevada DMV)
05/17/2017	Speeding	Henderson Justice Court Records
12/25/2017–01/08/2020	License suspended (for failure to pay required fines and costs)	Ten-year record (Nevada DMV)
08/29/2020	Speeding	North Las Vegas Municipal Court Records
11/18/2020	Speeding	North Las Vegas Municipal Court Records
02/03/2021	Speeding	North Las Vegas Municipal Court Records
08/25/2021	Speeding	Las Vegas Municipal Court Records
12/09/2021	Speeding	Clark County Justice Court Records
01/29/2022	*Crash*	

⁹ The Nevada Department of Motor Vehicles (DMV) operates a *demerit point* system as part of its driver improvement program. Each traffic violation is assigned a certain number of demerit points based on the severity of the violation. See [Demerit Point System \(nv.gov\)](https://www.nv.gov/dmv/demerit-point-system).

The NTSB located evidence from local court records systems, showing that the driver had received additional traffic citations that were not documented on his official record. Four of these speeding violations (on May 17, 2017, August 29, 2020, August 25, 2021, and December 9, 2021) were reduced to non-moving violations (illegal parking) by the court. In the other two (on November 18, 2020, and February 3, 2021), he was found guilty of speeding violations of 11–20 mph over the speed limit. Neither of these tickets were reflected on his Official Nevada Driving Record nor had any demerit points been assigned.

1.5.2 Toxicology Results

Toxicology testing conducted by NMS Labs, at the request of the Clark County Coroner’s Office, identified cocaine at 390 ng/mL and phencyclidine (PCP) at 27 ng/mL in peripheral blood; each of these drugs was also detected in urine.¹⁰ Benzoylecgonine, a metabolite of cocaine, was found in peripheral blood and urine, and levamisole, a common cocaine adulterant, was presumptively found by the urine screening test.¹¹ Gabapentin, a prescription nerve-pain-relief and anti-seizure medication, was found in urine.¹² Ethanol was found at a low level in urine but was not found in peripheral blood.¹³ Nicotine, the addictive chemical in tobacco, was presumptively found by the peripheral blood and urine screening tests, as was the nicotine metabolite cotinine.¹⁴

The NTSB arranged for separate specimens to be sent to the Federal Aviation Administration (FAA) Forensic Sciences Laboratory. FAA toxicology testing detected cocaine at 394 ng/mL and PCP at 19 ng/mL in peripheral blood; each of these drugs was also detected in liver tissue. Benzoylecgonine and another cocaine metabolite, ecgonine methyl ester, were found in peripheral blood and liver tissue. Levamisole and gabapentin were found in cavity blood and liver tissue. The over-the-counter cough suppressant medication dextromethorphan, prescription cholesterol medication atorvastatin, and over-the-counter stomach acid suppressant medication

¹⁰ *Cocaine* is a stimulant drug with a high potential for abuse. *PCP* is a hallucinogenic drug with a high potential for abuse. For more information about these drugs, see section 2.2 Dodge Driver Impairment.

¹¹ *Levamisole* may heighten cocaine’s effects. “Presumptively found” means that no second test was conducted to confirm the positive result on the screening test.

¹² *Gabapentin* side effects may include drowsiness and dizziness.

¹³ *Ethanol* is the intoxicating alcohol in beer, wine, and liquor. Ethanol detected in postmortem specimens does not necessarily come from consumption of alcohol. Ethanol can be produced by microbes in a person’s body after death.

¹⁴ *Nicotine* and its metabolite *cotinine* are not generally considered impairing.

famotidine were also found in cavity blood and liver tissue.¹⁵ Additionally, the prescription enlarged-prostate-relief medication tamsulosin was found in liver tissues. Ethanol was not detected in tested cavity blood.

¹⁵ *Dextromethorphan* is not typically impairing at usual doses. *Atorvastatin*, *famotidine*, and *tamsulosin* are not generally considered impairing.

2 Analysis

2.1 Introduction

On Saturday, January 29, 2022, about 3:12 p.m. Pacific standard time, a 2018 Dodge Challenger passenger car was traveling northbound on North Commerce Street in North Las Vegas, Nevada. The driver approached the traffic signal-controlled intersection with Cheyenne Avenue, reaching a maximum recorded speed of 103 mph, entered the intersection on a red traffic signal, and struck the right side of a minivan that was traveling eastbound on Cheyenne Avenue. Four additional passenger vehicles became involved in subsequent impacts. Nine vehicle occupants died, one sustained serious injury, one reported minor injury, and four were uninjured.

The analysis first examines factors that can be excluded as causal or contributory to the crash, and then discusses the Dodge driver's impairment (section 2.2) and actions (section 2.3). Next, the analysis discusses the following safety issue areas:

- Preventing drug-impaired driving (section 2.4),
- Need for technology to prevent excessive speed (section 2.5), and
- Need for countermeasures targeted at repeat speeding offenders (section 2.6).

As a result of our investigation, the NTSB established that the following factors did not cause or contribute to the crash:

- **Mechanical condition of the Dodge:** There was no evidence of any pre-existing mechanical defects or open recalls for the Dodge Challenger.
- **Actions of other drivers:** The two eastbound vehicles—the Toyota and Ford—had entered the intersection on a steady green traffic signal and were proceeding at a constant speed. The westbound traffic movement also entered the intersection when their signal turned green. Because of the excessive speed of the Dodge, the other drivers had insufficient opportunity to mitigate the collision.
- **Weather and visibility:** The weather was clear and the roadway was dry. The crash occurred during daylight hours. The traffic signals were visible to northbound traffic on North Commerce Street from about 3,500 feet away, and there were no visual obstructions for the Dodge driver approaching the intersection.

The NTSB therefore concludes that none of the following were factors in this crash: (1) mechanical condition of the Dodge; (2) actions of other drivers; and (3) weather and visibility.

The crash was reported to 911 at 3:12 p.m. by multiple witnesses, and dispatch was initiated within a minute of the first call. The first responders arrived on scene within 4 minutes of the initial 911 call. All potentially surviving occupants left the scene via transport within 16 minutes of the crash and arrived at the Level 1 trauma center within 26 minutes of the crash. The NTSB concludes that the emergency response was timely and adequate.

Regarding occupant protection in the Toyota, three of the passengers (ages 5, 10, and 15) were unbelted and ejected. The NTSB recently reissued a safety alert advocating for all children to be restrained using age-appropriate child restraints.¹⁶ However, in this crash, although seat belts (or an age-appropriate restraint for the 5-year-old) would have prevented the three ejections, the severity of the crash and the catastrophic intrusion into the occupant compartment would likely have resulted in death even if the children had used their seat belts. The other four occupants in the Toyota sustained fatal injuries despite wearing their belts.

2.2 Dodge Driver Impairment

The Dodge driver's toxicology was positive for cocaine and PCP.¹⁷ Cocaine is a Schedule II controlled substance under federal law.¹⁸ Cocaine almost immediately produces effects including euphoria, excitation, general arousal, dizziness, increased focus, and alertness. At higher doses, effects may include psychosis, confusion, delusions, hallucination, fear, antisocial behavior, and aggressiveness. Late-stage effects that occur as the active drug is eliminated include depression, agitation, nervousness, drug craving, general central nervous system depression, fatigue, and insomnia (NHTSA 2014).

After a single dose of cocaine, its peak level in blood typically averages 200-400 ng/mL (NHTSA 2014, Baselt 2017). The Dodge driver had cocaine detected at 394 ng/mL in peripheral blood by the FAA Forensic Sciences Laboratory.

¹⁶ [NTSB Safety Alert 85 / Child Passenger Safety.](#)

¹⁷ The Dodge driver's toxicology was also positive for gabapentin, side effects of which may include drowsiness and dizziness, and levamisole, which may heighten cocaine's effects. The investigation was unable to determine whether gabapentin or levamisole effects worsened the Dodge driver's impairment.

¹⁸ Schedule II drugs, substances, or chemicals are defined as drugs with a high potential for abuse, with use potentially leading to severe psychological or physical dependence. See: [Drug Scheduling \(dea.gov\).](#)

In a meta-analysis, cocaine use was found to significantly increase fatal crash risk (Elvik 2013). Observed signs of cocaine impairment in driving performance have included subjects speeding, losing control of their vehicle, causing collisions, and turning in front of other vehicles; high-risk behavior; inattentive driving; and poor impulse control (NHTSA 2014).

PCP is a Schedule II controlled substance under federal law. Effects are dose dependent and include euphoria, calmness, feelings of strength and invulnerability, lethargy, disorientation, loss of coordination, distinct changes in body awareness, distorted sensory perceptions, impaired concentration, disordered thinking, illusions and hallucinations, agitation, combativeness or violence, memory loss, bizarre behavior, sedation, and stupor. Blood concentrations of PCP associated with arrests for erratic driving ranged from 10 to 188 ng/mL (Elvik 2013). The Dodge driver had PCP detected at 19 ng/mL in peripheral blood by the FAA Forensic Sciences Laboratory.

Based on the Dodge driver's toxicology results, and because his driving behavior at the time of the crash was consistent with some of the known signs of impairment from cocaine and PCP, such as aggression, poor impulse control, and risk-taking behavior, the NTSB concludes that the Dodge driver's use of cocaine and PCP impaired his decision-making such that he accelerated to excessive speed and failed to obey traffic controls, resulting in the multivehicle crash.

2.3 Dodge Driver Actions

The driver accelerated to an excessive speed of nearly three times the legal speed limit, made a deliberate maneuver to pass a slower-moving truck, and ran a posted stop sign, all before reaching the crash intersection. Surveillance video showed no evidence of swerving, weaving, drifting, or other erratic behavior that might indicate loss of vehicle control. The evidence suggests that the Dodge driver deliberately disobeyed traffic signs and signals as he accelerated the vehicle to over 100 mph.

Although the specific reasons for the driver's actions on the day of the crash are unknown, he had a history of high-risk driving behavior and he was under the influence of cocaine and PCP at the time of the crash. In the past 5 years, the Dodge driver had at least seven speeding violations (four of which were reduced to non-moving violations by the relevant court). Before that, he had additional offenses—including driving without a license, DUI, and speeding. Thus, the Dodge driver's driving history suggests that traditional penalties were not successful in preventing him from speeding. The NTSB concludes that both the Dodge driver's history and his specific actions on the day of the crash showed repeated disregard for safety and traffic laws.

Because the accelerator pedal of the Dodge was depressed at or near 100% for most of the 5-second precrash period, investigators considered whether the vehicle's excessive speed could be due to pedal misapplication (that is, pressing the accelerator instead of the brake). Pedal application errors are most commonly committed by younger (<20 years) or older (>70 years) drivers, mostly occur at low speeds and in parking lots, and are not typically associated with drug impairment (Lococo 2012). In addition, the basic premise of pedal application error is that the driver intends to make a "correct" response by braking but fails to execute the response effectively. However, the circumstances of the North Las Vegas precrash and crash event—specifically that the driver was impaired, driving at high speed for a substantial time (not low speed in a parking lot), failed to comply with an earlier traffic control device, was not of an age where pedal misapplication is most common, and had a history of high-risk driving behavior—are inconsistent with pedal misapplication.

2.4 Drug-Impaired Driving

The scope of the drug-impaired driving problem is not well understood. Although NHTSA's Fatality Analysis Reporting System collects data on alcohol and other drugs, because of inconsistencies in the collection, testing, coding, and reporting of these data across and in jurisdictions, NHTSA has issued broad cautions against the use of its data about drug use other than alcohol, resulting in a knowledge gap about drug prevalence among drivers. To address this gap, one study examined a sample of road users who were either fatally injured or whom trauma teams evaluated for injuries, and found that more than half of those road users tested positive for drugs other than alcohol (Thomas and others 2022). In 2022, the NTSB published a safety research report examining the crash risk associated with different drugs and the prevalence of potentially impairing drugs in specimens submitted to four laboratories from fatally injured drivers and drivers arrested for or suspected of impaired driving (NTSB 2022a). The report discusses the need to improve drug-impaired driving laws and enforcement and to enhance systems for documenting and tracking the incidence of drug use and driving. The 2022 report also includes a comprehensive list of NTSB-investigated highway crashes since 2012 in which drug impairment was a cause or contributing factor.

As a result of the safety research report, the NTSB issued Safety Recommendation H-22-39 to the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico:

Complete an assessment using the National Highway Traffic Safety Administration's (NHTSA) Drug-Impaired Driving Criminal Justice Evaluation Tool, and, if gaps are identified, apply to NHTSA for support in establishing programs to reduce drug-impaired driving. (H-22-39)

The Drug-Impaired Driving Criminal Justice Evaluation Tool was developed by NHTSA and comprises a series of worksheets addressing many facets of drug-impaired driving prevention, including law enforcement, prosecution, judiciary, community supervision, toxicology, treatment, emergency medical services, data, legislation, and program and communications. It is designed to be used by state, local, territorial, or tribal government agencies to “assist with identifying program strengths and opportunities for improvements.”¹⁹

The 2023 Nevada Office of Traffic Safety’s Highway Safety Plan notes that 687 fatalities, resulting from 618 impaired-driving crashes, occurred on Nevada roadways between 2016 and 2020.²⁰ In addition, the Highway Safety Plan includes strategies to reduce impaired-driving crashes, such as improving assessment tools used by courts to screen impaired drivers for underlying behaviors and connect them with appropriate treatment; expanding judicial, prosecutor, and law enforcement training; and using communication, outreach, and education to enhance traffic safety messaging for multiple target groups. For example, Nevada recently expanded its Advanced Roadside Impaired Driving Enforcement training to include all officers attending a basic police academy. Additionally, the Las Vegas Metropolitan Police Department applied for and received a grant pertaining to the Drug-Impaired Driving Criminal Justice Evaluation Tool, for the department’s Forensic Laboratory’s Toxicology program.

Nevada’s letter responding to Safety Recommendation H-22-39 noted that NHTSA recently conducted a comprehensive, on-site, multidisciplinary Impaired Driving Program Assessment. Similar to NHTSA’s Drug-Impaired Driving Criminal Justice Evaluation Tool, as recommended in Safety Recommendation H-22-39, the Impaired Driving Program Assessment reviewed all components of Nevada’s impaired-driving prevention program, noted the program’s strengths and accomplishments, and noted where improvements could be made. For example, an area of strength is Nevada’s adoption of a Zero Fatalities goal and its comprehensive statewide safety plan that identifies the most significant causes of fatalities and serious injuries on Nevada roadways. An area that needs improvement is that Nevada’s funding for impaired-driving traffic safety issues comes solely from NHTSA; penalties and fees collected from convicted impaired-driving offenders are not used to support impaired-driving prevention programs. The Impaired Driving Program Assessment provided several key recommendations that can enhance Nevada’s impaired-driving program, spanning enhancements to the criminal justice system, screening and tracking of alcohol and other drug offenders, and improved program

¹⁹ In addition, the NTSB recommended that the states require government-funded laboratories to adopt and routinely apply consistent standards for forensic toxicology testing (Safety Recommendation H-22-40, which is classified Open—Acceptable Response for Nevada).

²⁰ See [NV FY23 HSP](#).

evaluation and data collection. In response to the assessment, Nevada has developed an Impaired Driving Program Plan and is moving forward with actions recommended by the assessment, such as planning judicial education on DUI adjudication and improving plea transparency and system tracking. As a result of Nevada's action, the NTSB recently classified Safety Recommendation H-22-39 Closed—Acceptable Alternate Action for the state of Nevada. The NTSB concludes that Nevada's efforts to address Safety Recommendation H-22-39 through the development and implementation of its Impaired Driving Program Plan are conducive to increased safety.

2.5 Excessive Speed

Speeding—exceeding a speed limit or driving too fast for conditions—is one of the most common factors associated with motor vehicle crashes in the United States (NCSA 2023), and the NTSB has long advocated for comprehensive strategies to address this issue. The Dodge driver in the North Las Vegas crash was traveling at nearly three times the legal speed limit of 35 mph. The NTSB has investigated many other speeding-related crashes, similar to this crash, in which the driver was traveling far above the legal speed limit (NTSB 2019, 2022b, 2023a, and 2023b). NHTSA reports that in 2021, 29% of the total traffic fatalities involved speeding behavior (12,330 fatalities from crashes where at least one driver was speeding) (NCSA 2023). This represents a substantial increase from 2019 (9,592 fatalities from speeding-related crashes in 2019). In addition, Nevada's 2022 Speed Management Action Plan indicated that the number of citations issued for speeds over 100 mph has significantly increased, from 3,517 in 2019 to 5,137 in 2021.²¹ Excessive speed can cause catastrophic crashes with high likelihood of fatalities. Because crashes involving excessive speed continue to occur, increasing the number of fatalities, concrete action is needed to reverse this trend.

2.5.1 Traditional Countermeasures to Reduce Speeding-Related Crashes

Traditional countermeasures for speeding have been grouped into three categories: engineering, enforcement, and education (Donnell and others 2009). Engineering refers to roadway infrastructure changes. Enforcement refers to strategies to ensure that drivers obey existing laws. Education, also known as communication or outreach, refers to efforts to inform drivers and other stakeholders about traffic safety laws and the consequences of risky behavior. These aspects are all

²¹ See [Speed Management Action Plan | Nevada DOT](#).

considered as part of the US Department of Transportation's approach to "Safer Speed" as part of its National Roadway Safety Strategy.²²

Nevada's 2022 Speed Management Action Plan identifies engineering, enforcement, and educational countermeasures and strategies and outlines actions that the NDOT and partner agencies can take to implement strategies to reduce speeding and speed-related fatal and serious injury crashes.²³ Nevada's plan includes an assessment process to ensure that all new roadway design projects prioritize speed-managing designs (such as roundabouts, fewer lanes, narrower lanes, and strategic placement of median islands). A systematic speed and safety treatment prioritization process will also be developed and implemented to prioritize existing roads with speeding-related issues for design or engineering improvements. In addition, Nevada uses high-visibility enforcement efforts for aggressive driving and speed, along with multiple-channel messaging and outreach to communicate and educate the public and encourage appropriate speeds.²⁴

In the North Las Vegas crash, the Dodge driver was traveling on North Commerce Street, which had no indication of a speeding-related crash problem (only 3 crashes in 5 years coded with speed as a possible factor). Although no speed study has been performed, the street has industrial zoning and high prevalence of commercial trucks (given the presence of refuse facilities along the roadway), which tends to limit other drivers' ability to speed. Traffic controls are also present, including the four-way stop at Brooks Avenue and mid-block marked pedestrian crosswalk, which also reduces the opportunity for excessive speeding.

The Dodge driver was able to achieve excessive speeds on North Commerce Street by passing a slow-moving truck and running the stop sign. Low-cost infrastructure countermeasures, such as narrowing the lanes, may have a positive effect. Nevada has a plan in place to emphasize speed-reducing designs for new roadway projects and update existing roadways; however, because the appropriate stop sign was in place and speed-related crashes were not frequent for this location, this street might not be prioritized for infrastructure or engineering changes.

The NTSB actively advocates for a Safe System approach that aims to eliminate fatal and serious injuries for all road users. The approach does so through a holistic view of the road system that accepts the fact that drivers make poor decisions and errors; this approach identifies methods to reduce or eliminate the consequences of these errors. In this crash, the Dodge driver was impaired and had exhibited a pattern

²² See [National Roadway Safety Strategy](#).

²³ See [Speed Management Action Plan | Nevada DOT](#).

²⁴ Communication strategies include mass media and social media, and leverage an integrated mix of paid, earned, and owned content to increase the exposure to safety messaging.

of repeatedly engaging in risky and illegal driving behavior. Thus, traditional countermeasures of education/communication and enforcement were not successful at keeping this driver from speeding, and he was traveling on a roadway that may not be prioritized for infrastructure changes. Therefore, from the Safe System perspective, in-vehicle technologies—such as intelligent speed assistance (ISA, also referred to as intelligent speed *adaptation*)—show promise in preventing drivers from speeding.

2.5.2 Intelligent Speed Assistance

ISA is a system designed to help ensure that vehicle speed does not exceed a safe or legally enforced speed. ISA systems determine the speed limit in effect by comparing a vehicle's global positioning system (GPS) location against a database of posted speed limits and using onboard cameras to recognize speed limit signs (Goodwin and others 2015). ISA systems can be passive or active. Passive ISA (also known as advisory systems) issue visual, aural, or haptic alerts to the driver when the speed limit is exceeded; the driver is fully responsible for slowing the vehicle. Active systems include those that increase back pressure on the accelerator when the speed limit is exceeded, making it more difficult (but not impossible) to exceed the speed limit; systems that gradually decrease vehicle speed but can still be overridden; and those that electronically limit the speed of a vehicle, fully preventing drivers from exceeding the speed limit. The primary advantage of ISA compared to conventional speed limiters (also known as speed governors) is that the limiting speed is the posted speed limit in a particular location, rather than a single, fixed maximum speed.

2.5.2.1 Current Implementation and Effectiveness

Around the world, ISA is becoming more widespread. The European New Car Assessment Program (Euro NCAP) promotes the installation of speed assistance systems that help drivers to control their speed. Euro NCAP first introduced an evaluation for ISA in 2009 and updated its procedures in 2018. Currently, ISA functions are assessed by evaluating the following: how well the system informs the driver of the present speed limit, the effectiveness of warnings to the driver when the car's speed is above the set speed threshold, and the system's ability to prevent the car from exceeding the set speed. Other NCAP programs, including Australia and Latin NCAP, also include an evaluation of in-vehicle speed assistance technology.

Beginning in July 2024, ISA will become mandatory for all new models of vehicles sold in the European Union (EU).²⁵ The mandate requires manufacturers to provide at least one of four options for providing feedback to the driver. Two feedback options are passive and two are active. In all options, the driver can ignore

²⁵ See [EUR-Lex - 02019R2144-20220905 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/lexuri/cs/l/fr/?uri=CELEX:02019R2144-20220905-EN).

the feedback or override the system by pressing down harder on the accelerator. The EU safety rule did not include an option that fully prevented drivers from exceeding the speed limit.

In the United States, several manufacturers offer optional ISA capabilities for the US passenger vehicle market (see appendix C). Some offerings are marketed as driver assist features, while others are marketed toward teen drivers and their parents. Some of the available systems function only when other systems, such as adaptive cruise control, are engaged. In addition, the features may only be available for a subset of models or only when buyers purchase certain option packages, and many systems are set up so that the driver can turn the feature off. Other options currently available in the US fleet include fixed speed limiters, again often marketed toward teen drivers, and traffic sign identification, where the speed limit sign may be displayed to the driver but a specific warning when exceeding the limit is not provided.

Research on the effectiveness of ISA to reduce speeding shows that both passive and active systems can offer clear safety benefits (Lai and Carsten 2012; NTSB 2017; Regan and others 2006; Várhelyi and others 2004; van der Pas and others 2014; de Leonardis 2012). These studies show benefits such as reduced mean driving speed, speed variability, and the proportion of time that the speed limit was exceeded. For example, in one study, the distance driven above the speed limit reduced from 28% to 9% with a speed warning system and from 26% to 5% with an active ISA (van der Pas and others 2014). Based on these positive outcomes, speeding related crashes likely would also be reduced. However, the positive effects on driving performance persisted only while the system was engaged, and drivers often returned to their original driving habits after the systems were turned off. As manufacturers voluntarily equip more vehicles with ISA technology and drivers choose to keep it engaged more frequently, the positive benefits of ISA will grow. The NTSB concludes that broad deployment of ISA would reduce the frequency of speeding and speeding-related crashes.

Given the Dodge driver's impairment at the time of the crash, his record of previous high-risk driving behavior, and that his speed was almost three times the legal limit, we are uncertain whether a passive ISA system providing only speed warnings could have resulted in the driver reducing the car's speed. A system that relies on a driver to react appropriately to vehicle feedback may be ineffective if the driver's perception or decision-making is impaired by drug effects. Under such circumstances, an active ISA system that can intervene independently of the driver could more effectively slow the car and protect the vehicle occupants and other road users. Thus, the NTSB concludes that an active ISA system that electronically limits the speed of the vehicle may have mitigated the severity of the North Las Vegas crash.

In the NTSB study *Reducing Speeding-Related Crashes Involving Passenger Vehicles*, which included strategies for addressing speeding (NTSB 2017), the NTSB issued Safety Recommendation H-17-24 to NHTSA:

Incentivize passenger vehicle manufacturers and consumers to adopt intelligent speed adaptation (ISA) systems by, for example, including ISA in the New Car Assessment Program (NCAP).

Since that time, NHTSA has taken little action toward encouraging passenger vehicle manufacturers or consumers to adopt ISA, or to include ISA in the US NCAP, as recommended. NHTSA's 2022 request for comment (RFC) on the US NCAP contained a section on emerging vehicle technologies in which NHTSA describes its 10-year roadmap to conduct research and develop test procedures to help determine whether these technologies merit inclusion in NCAP.²⁶ ISA systems were only listed as one of the six technologies NHTSA was considering for its 10-year roadmap. In September 2022, as a result of the Avenal, California, investigation involving a sport utility vehicle centerline crossover collision with a pickup truck on State Route 33, the NTSB reiterated and classified Safety Recommendation H-17-24 Open—Unacceptable Response (NTSB 2022b). In 2023, NHTSA responded to the NTSB that the agency is initiating new research to build knowledge about ISA.²⁷ Yet these systems are already mandatory on light passenger vehicles in Europe sold beginning in July 2024.

The surest way to achieve broad deployment of ISA is to require that new vehicles be equipped with these systems. NHTSA has traditionally used rulemaking to set minimum safety standards while using the NCAP rating system to provide consumers with the opportunity to buy cars that are safer than the minimum standard requires. The NTSB believes that employing this type of a complementary approach for ISA is both appropriate and necessary to reach the ultimate goal of eliminating speeding-related crashes. Although NHTSA has not published performance standards for ISA, we urge the agency to evaluate requirements used elsewhere, for example in the European Union. Based on the research evidence supporting the benefits of ISA, the NTSB recommends that NHTSA require as standard equipment in all new vehicles ISA systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit.

Because the North Las Vegas crash is another example of a speeding-related crash that may have been mitigated by ISA technology, the NTSB also reiterates H-17-24 to NHTSA.

²⁶ See [Docket ID: NHTSA-2021-002](#).

²⁷ See response at <https://data.nts.gov/carol-main-public/sr-details/H-17-024>.

2.5.2.2 Addressing Barriers to Implementation

The NTSB recognizes that many steps are necessary to develop a new motor vehicle safety standard. In addition, achieving widespread implementation of any new technology requires both national leadership and interest from consumers and the public. Without both, the new technology may not gain wide acceptance. A historical example of a failed attempt to introduce new technology is the 1973 mandate of seat belt interlocks, a device that prevented cars from being driven unless each occupant is using a seat belt. The interlocks were so widely unpopular that the law was quickly repealed in 1974 (National Academies 2004). Similarly, public acceptance of speeding is generally believed to be a barrier to ISA implementation in the United States. For example, survey data collected from more than 35,000 road users across 32 countries found that the United States had higher self-declared speeding behavior and acceptability of speeding than the average across all countries, and lower acceptance of ISA installation on new cars (Pires and others 2020). Only 56% of US survey respondents indicated support for ISA (compared with 68% support in Europe)—one of the lowest among the 32 countries.

Anecdotally, public acceptance of ISA is highest in countries where widespread automated enforcement, also known as speed safety cameras, is prevalent, because ISA is viewed as a tool to help drivers avoid speeding tickets. In the United States, automated speed enforcement is not widely available, and in some states, laws even prohibit its use.²⁸ The NTSB has consistently advocated for the use of speed safety cameras.²⁹ In addition, they are included in the Federal Highway Administration (FHWA)'s Proven Safety Countermeasures, and the FHWA recently published an updated set of guidance for speed camera program planning and operation.³⁰

In its March 2022 RFC, NHTSA stated that “more must be known about the effectiveness and consumer acceptance of these systems.” However, as the NTSB stated in response to this RFC, “technologies that the European Union started to mandate this year, that Euro NCAP is starting to rate next year, and that the NTSB has been recommending be required for years, are only now starting to be considered by NHTSA. NHTSA is a decade behind the progress of these technologies, and the

²⁸ See [Speed \(iihs.org\)](https://www.iihs.org) for a summary of speed cameras and state legislation. Nevada restricts automated speed enforcement to situations where the equipment is handheld or installed in a law enforcement vehicle or facility.

²⁹ See, for example, Safety Recommendations H-17-31, H-17-32, and H-17-33.

³⁰ See [Speed Safety Camera Program Planning and Operations Guide \(dot.gov\)](https://www.fhwa.dot.gov/safety/cameras/). This report was developed in response to Safety Recommendation H-17-29 to the FHWA and Safety Recommendation H-17-22 to NHTSA.

NTSB urges NHTSA to incorporate these technologies much sooner than the planned 5–10 years from now.”³¹

Despite NHTSA’s lack of progress, vehicle manufacturers have demonstrated the technical capabilities to implement ISA, both through their EU vehicles and through optional offerings in the US market. Although a passive system may not have mitigated the North Las Vegas crash, a phased deployment approach that initially introduces passive ISA (with the goal of progressing to active ISA in the future) may be needed to increase public awareness of the technology, its use as a driver assistance system, and its safety benefits. A similar approach has been implemented with other crash avoidance technologies; for example, availability of forward collision and lane departure *warning* systems generally preceded their active counterparts, automatic emergency braking and lane departure prevention (and notably, manufacturers implemented these systems without NHTSA requiring them to do so). Surveys and field studies in Europe have found that support for ISA increased as drivers and the public gained experience with the technology (Ryan 2018). Similarly, widespread implementation of passive ISA initially will allow US drivers a chance to gain experience with the technology and NHTSA the opportunity to complete testing required for the advancement of a new motor vehicle safety standard.

The NTSB concludes that improving public acceptance of ISA systems and wider voluntary deployment, such as by automakers, will facilitate the advancement of a new motor vehicle safety standard on ISA. Therefore, the NTSB recommends that BMW Group, Ferrari USA, Ford Motor Company, General Motors Company, American Honda Motor Company, Hyundai USA, Kia Motors Corporation, Mazda USA, Mercedes-Benz USA, Mitsubishi Motors, Nissan USA, Porsche Cars North America, Stellantis, Subaru of America, Toyota Motor North America, Volkswagen Group, and Volvo Car Corporation install as standard equipment in all new vehicles ISA systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit.

A coordinated media campaign can also help to improve public acceptance of ISA by increasing awareness of the capabilities and benefits of the technology to mitigate speeding. The NTSB previously recommended that NHTSA collaborate with other traffic safety stakeholders to develop and implement an ongoing program to increase public awareness of speeding as a national traffic safety issue.³² In June 2022, NHTSA launched the Speeding Wrecks Lives campaign, a public education campaign to change attitudes toward speeding and to remind drivers of the safety

³¹ NTSB Response: <https://www.regulations.gov/comment/NHTSA-2023-0002-0022>.

³² Safety Recommendation H-17-25, Status: Open—Acceptable Alternate Response.

risks of speeding.³³ Publicizing the benefits of vehicle-based technologies like ISA as a driver assistance tool that can remind drivers to maintain the speed limit, which would potentially reduce speeding-related crashes, would complement NHTSA's existing public awareness campaign. NHTSA has previously produced marketing materials and media campaigns explaining and promoting various vehicle safety technologies. Examples include static marketing ads and videos featuring celebrities and influencers discussing automatic emergency braking and driver assistance systems.³⁴

The NTSB recommends that NHTSA develop a communication plan to educate the public about the capabilities and benefits of ISA to mitigate speeding.

Highway infrastructure is another potential challenge to ISA implementation in the United States. Vehicles with advanced driver assistance systems (ADAS), including partial automation, as well as higher levels of automation, may require highway design changes in the future. Some of the infrastructure challenges for automated vehicles are described by Gopalakrishna and others (2021), and many of these also apply to vehicles with ISA. ISA systems rely on databases of posted speed limits and onboard cameras to recognize speed limit signs. Currently, there is a lack of standardization of information provided by map databases. In addition, variation in highway signs makes speed limit identification more difficult. For example, truck speed signs and sign placement relative to the roadway can vary. LED speed limit signs, including variable speed limits, are currently challenging for onboard cameras to accurately recognize. Maintenance issues, such as dirt or vegetation obscuring signs, can also occur.

In June 2018, the FHWA began a National Dialogue on Highway Automation to receive input from stakeholders to identify FHWA programs and policies that would need to incorporate automation considerations.³⁵ Recently, the FHWA published a concept of operations aimed at helping transportation agencies integrate automated driving systems into the overall transportation system (Gopalakrishna and others 2023). The NTSB supports these ongoing efforts.

³³ See <https://www.nhtsa.gov/press-releases/nhtsa-launches-new-campaign-remind-drivers-speeding-wrecks-lives> for additional information and resources on the campaign.

³⁴ For examples of NHTSA marketing materials, see (a) [Adam Savage Demos Pedestrian Automatic Emergency Braking - YouTube](#); (b) [Driver Assistance Technologies | NHTSA](#); and (c) [Advanced Technologies | Traffic Safety Marketing](#).

³⁵ See [National Dialogue on Highway Automation - FHWA Office of Operations \(dot.gov\)](#).

2.6 Repeat Speeding Offenders

Evidence suggests that repeat speeding is a significant societal problem. Having two or more speeding violations in the prior 3 years was significantly associated with repeat speeding citations and crash involvement in one study (Li and others 2011). Drivers with prior speeding convictions were more likely to be at fault in a crash (Cooper 1997), and drivers displaying high-risk offending patterns (such as engaging in various types of traffic offenses) were significantly associated with being at fault in a fatal crash (Davey and others 2022). NHTSA data demonstrated that, in 2021, about 22% of speeding drivers in fatal crashes had previous speeding convictions (in the past 5 years), compared to 17% of non-speeding drivers (NCSA 2023). Speeding drivers in fatal crashes were also more likely to have previous crashes, license suspensions, and DUI conviction, compared with non-speeding drivers. The NTSB concludes that because the Dodge driver was a repeat speeding offender, he was more likely to cause a speeding-related fatal crash.

2.6.1 Identification

Timely and accurate identification of high-risk drivers and repeat speeding offenders is a critical step in targeting the speeding problem. Little can be done if these drivers are not first identified in a timely and accurate way, noting that this process also must remain fair and equitable. In the state of Nevada, delays in reporting convictions from courts to the DMV can lead to inaccurate and incomplete driver records, which hinders identification of high-risk drivers. For instance, although most citations are currently sent electronically through the Nevada Citation and Accident Tracking System and should therefore be added to the driver's record immediately, some convictions are done on paper, and are then added to the record as staffing resources allow. Also, some courts do not enter a conviction until a fine is paid, which can result in a long delay when an offender is on a payment plan. According to the court records, the driver was on a payment plan and his recent convictions did not appear on his record. His recent speeding offenses were a missed opportunity to address a repeat offender and this crash illustrates the need to process these records quickly.

In addition, traffic courts have wide latitude when adjudicating traffic offenses. Citations may be pled down to a lesser offense or even a materially dissimilar charge (National Academies 2023). For example, the speed over the limit in the final conviction may be less than what was originally ticketed by the police, or a moving violation may be changed to a non-moving violation, such as illegal parking. This downgrading is done for a variety of reasons, including reducing the court's backlog. Often, these deals come with the agreement that the drivers will pay the higher fine associated with the original violation, but their record will show a conviction for a lesser offense. Violations dropped or altered during plea agreements are not

included in the final record. This will result in a driver's official record appearing much better than it should, which will benefit the driver when attempting to make another agreement with another court, as well as lower insurance costs and fewer demerit points.

In the case of the Dodge driver, there is evidence that at least four plea agreements had been made in the previous 5 years that affected his official driving record. These were made by different local courts and there was no indication that his previous citations in other jurisdictions were considered during any new plea arrangements. In fact, Nevada stated that its statewide records system has no way to track reduced sentences or plea agreements that alter the original violation. Therefore, when speeding charges were reduced to non-moving violations, they did not appear on the driver's record, which allowed different courts to continue to treat him as a new offender.

A recent study titled *Strategies to Improve State Traffic Citation and Adjudication Outcomes* examined each state's records systems and found that delays in reporting convictions and plea agreements that modify the original charge occur in many states, not just Nevada (National Academies 2023). Thus, the NTSB concludes that inaccurate driver records, due to delays in reporting convictions, and plea agreements that alter or drop violations—such as what occurred in this case in the state of Nevada—reduce the likelihood that repeat speeding offenders can be accurately identified.

To facilitate the identification and tracking of high-risk drivers who have repeated infractions/violations for driving behaviors such as speeding or DUI, the National Academies concluded that data should be shared throughout the entire legal process (across all dispositions, including plea agreements and reduced sentences) from the time of arrest through the final disposition of the case. Effective management, tracking, and linking of traffic records can be achieved through a statewide electronic system (National Academies 2023). The study identified challenges and barriers to effective citation data tracking along with proven strategies and solutions for state highway safety officials to address these challenges. In addition, the study categorized each state using three key concepts: (1) consistency of citation definitions across municipalities in the state; (2) complexity of jurisdictional divisions in the state's court system; and (3) extent of standardization of digital court records and driver's license files across the state. The study's assessment of Nevada found deficiencies in each of these three categories.

During a March 23, 2023, meeting, representatives from Nevada's Office of Traffic Safety and DMV told the NTSB that all law enforcement agencies in Nevada use a single electronic system for citations, but they have not yet explored the

capabilities of the system for tracking high-risk drivers.³⁶ In addition, Nevada, along with many other states, has included improving traffic records systems in their highway safety plans.

NHTSA provides substantial guidance to states regarding their highway safety plans and traffic records programs. NHTSA promulgates uniform guidelines for state highway safety programs, including a component for traffic records.³⁷ One element in the Traffic Records guidelines notes that case management systems, law enforcement records systems, and DMV driver history systems should share information to support, among other items, specialized tracking systems for DUI offenders. NHTSA also published the Traffic Records Program Assessment Advisory, which provides voluntary guidance and describes the ideal traffic records systems (NHTSA 2018). Finally, NHTSA manages the Model Impaired Driving Records Information System (MIDRIS), which is a set of procedures and data that make it possible to manage and track DUI information from arrest through sanction completion and reinstatement of driver's license or privilege (NHTSA 2018). A system that does not provide adequate or timely information about offenders to law enforcement officers, prosecutors, judges, and others undermines the integrity of the criminal justice system and the deterrent effect of sanctions, and the MIDRIS is designed to address this deficiency (Greer 2011). The North Las Vegas crash demonstrates that a system that provides adequate and timely information about drivers' prior offenses is critical not only regarding DUI offenders, but also other high-risk drivers. However, tracking of repeat speeding offenders is not discussed in any of NHTSA's guidance. When developing such a system, states would benefit from consistent definitions, such as what constitutes a repeat offender and the magnitude of speeding offenses that should be tracked, data standardization, and a uniform approach to tracking offenders. The NTSB therefore concludes that electronic citation data tracking systems can help identify and track high-risk drivers, including repeat speeding offenders; however, the lack of guidance may result in inconsistencies among the states. The NTSB therefore recommends that NHTSA update the Uniform Guidelines for State Highway Safety Programs to include identification and tracking of repeat speeding offenders. Although NHTSA guidance will be beneficial, states do not need to wait until this guidance is available before beginning to act. States have the flexibility to identify highway safety problems based on their own data. The NTSB therefore recommends that the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia

³⁶ The NTSB also notes that Nevada currently has a system in place to track notifications received from other states about infractions committed by Nevada drivers. When processing any transaction on a driver's license, Nevada's computer system automatically initiates a query of all 50 states using the Problem Driver Pointer System and/or the Commercial Driver's License Information System. The purpose is to determine if the driver's record indicates a revocation and/or suspension held in another state. See Nevada's response to Safety Recommendation H-20-38, which is currently classified Open—Acceptable Response.

³⁷ See [Uniform Guidelines for State Highway Safety Programs \(nhtsa.gov\)](https://www.nhtsa.gov/uniform-guidelines-for-state-highway-safety-programs).

implement programs to identify repeat speeding offenders and measurably reduce speeding recidivism.

2.6.2 Deterrence

As noted above, studies show that repeat speeders are more likely to cause crashes and fatal crashes. However, compared with repeat DUI offenders, less is known about how to deter repeat speeding offenders.³⁸ In a survey of self-reported behavior, drivers classified as speeders (based on the pattern of responses across six speeding behavior questions) reported more risky behaviors than other drivers and appeared to be the most resistant to conventional countermeasures and interventions aimed at speeding (Schroeder 2013). In addition, speed-glorifying advertising is concerning, because marketing that focuses on risky driving behaviors may adversely affect safety (Shin and others 2005).³⁹ The NHTSA *Countermeasures that Work* publication notes that “repeat speeding and aggressive driving offenders may be especially difficult to deter” (Venkatraman 2021). Some potential countermeasures are discussed—including enhanced penalties and improved traffic records systems—but none of these has sufficient evidence to date to be recommended as a proven countermeasure. States address speeding by increasing penalties for repeat offenses; however, this has not been shown to be effective. In fact, NHTSA notes that penalties alone are unlikely to lead to individual deterrence of speeding. Countermeasures such as limiting access to diversion programs or plea agreements may also help; although the effectiveness for reducing speeding is not known, this technique has been shown to be effective at reducing DUI recidivism.⁴⁰

The NTSB concludes that repeat speeding is a nationwide problem, but evidence-based countermeasures targeting repeat speeding offenders and high-risk drivers are lacking.

In the 2017 NTSB study *Reducing Speeding-Related Crashes Involving Passenger Vehicles*, the NTSB issued several safety recommendations to NHTSA concerning speeding enforcement and improvement in speeding-related data collection. For example, the NTSB recommended that NHTSA identify

³⁸ Strategies to deter repeat DUI offenders include alcohol problem assessment and treatment, alcohol ignition interlocks that prevent use of the vehicle if the driver is impaired, vehicle and license plate sanctions or impoundment, offender monitoring, and lower allowable blood alcohol content limits for repeat offenders. For more information, see NHTSA’s *Countermeasures That Work* publication.

³⁹ See for example “What are Automakers Trying to Sell? Fuel Economy and Safety Take a Back Seat,” in *Consumer Reports*, September 2018 ([auto-ad-content-fact-sheet-9.19.18.pdf](https://www.consumerreports.org/auto-ad-content-fact-sheet-9.19.18.pdf) ([consumerreports.org](https://www.consumerreports.org))).

⁴⁰ Diversion programs defer sentencing while an offender participates in some form of education or treatment program. Charges may be dropped if the program is completed satisfactorily.

speeding-related performance measures to be used by local law enforcement agencies (Safety Recommendation H-17-19), identify best practices for communicating with law enforcement officers and the public about the effectiveness of data-driven, high-visibility enforcement programs to reduce speeding (Safety Recommendation H-17-20), and work with the Governors Highway Safety Association, the International Association of Chiefs of Police, and the National Sheriffs' Association to develop and implement a program to increase the adoption of speeding-related Model Minimum Uniform Crash Criteria Guideline data elements and improve consistency in law enforcement reporting of speeding-related crashes (Safety Recommendation H-17-21). Progress is being made on these initiatives, which aim to improve overall traffic enforcement and data systems.⁴¹ However, these efforts do not specifically address the complexities associated with repeat speeding offenders or high-risk drivers who may not be deterred by traditional methods.

Thus, the NTSB recommends that NHTSA develop countermeasures to reduce speeding recidivism, determine their effectiveness, and then disseminate the results. The NTSB further recommends that the Insurance Institute for Highway Safety evaluate the safety outcomes of marketing by automobile manufacturers that emphasizes risky driving behaviors, including speeding. The evaluation should, at a minimum, compare vehicles based on engine size, power, and performance, and international approaches to such marketing. Publish a publicly available report.

Although ISA will benefit all drivers, there may be additional value for certain drivers, such as repeat speeding offenders. NHTSA conducted a pilot study that found aftermarket passive ISA systems providing a verbal driver alert to be successful in producing short-term reductions in speeding behavior among adult drivers with a history of speeding violations. However, once the warning system was removed, speeding behavior resumed (de Leonardis and others 2014). Nonetheless, the results suggest that ISA is a promising technology for chronic speeders. Another pilot study installed GPS trackers that compared the vehicle speed to the posted speed and found that providing real-time speed alerts (that is, passive ISA) and/or financial incentives (similar to insurance devices that offer incentive-based discounts on premiums for good driving) reduced speeding behavior in participants classified as habitual speeders (Reagan and others 2013). A Dutch study also found that ISA may be effective at reducing speeding among serious speed limit offenders, at least while the system was active (van der Pas and others 2014). The NTSB therefore concludes that ISA systems have the potential to reduce speeding among repeat speeding offenders.

⁴¹ Safety Recommendations H-17-19, H-17-20, and H-17-21 are currently classified Open—Acceptable Response.

Although more data may be needed to fully define the efficacy of ISA for repeat speeders, de Leonardis (2014) found that recruiting volunteers for a larger scale study may be challenging. An alternative approach could be to develop pilot programs at the state level that would require individuals convicted of speeding to use ISA devices. Alcohol ignition interlock programs could serve as a model for how to develop such a program for speeders. In 1986, California conducted the first pilot tests of alcohol interlocks, and other states soon followed. In addition, many states enacted laws authorizing the use of “certified” interlock devices, though no single standard or test procedure existed for certifying them. Then, in 1992, NHTSA published the first set of model specifications for alcohol ignition interlock devices, allowing consistency to be established among different devices and states.⁴² Alcohol ignition interlock programs are typically part of a more comprehensive program for addressing impaired driving (which may include penalties, education, and treatment). Speeding prevention may also benefit from this type of comprehensive approach, and developing an interlock program for repeat speeding offenders—where an ISA device would be installed in the driver’s vehicle, limiting the vehicle speed—would likely require efforts both by states and the federal government.

Recently, New York City implemented active ISA technology in 50 city fleet vehicles as part of a new pilot program. The program uses an aftermarket active ISA system that restricts a vehicle’s maximum speed, preventing it from exceeding local speed limits (within a set threshold). Although full results are not yet published, the city announced positive preliminary results of the program, including 99% compliance with local speed limits and 36% reduction in hard braking events.⁴³ Although this pilot focused on city-owned vehicles rather than repeat speeding offenders, it demonstrates the capacity of local jurisdictions to implement an ISA program similar to what could be developed to target repeat offenders. Therefore, the NTSB recommends that NHTSA conduct research and develop guidelines to assist states in implementing pilot ISA interlock programs, limiting the vehicle speed, for repeat speeding offenders.

⁴² See [Federal Register: Model Specifications for Breath Alcohol Ignition Interlock Devices \(BAIIDs\)](#).

⁴³ See [Mayor Adams Announces Results of Successful Pilot Program to Reduce Speeding and Hard Braking in Cit | City of New York \(nyc.gov\)](#).

3 Conclusions

3.1 Findings

1. None of the following were factors in this crash: (1) mechanical condition of the Dodge; (2) actions of other drivers; and (3) weather and visibility.
2. The emergency response was timely and adequate.
3. The Dodge driver's use of cocaine and phencyclidine impaired his decision-making such that he accelerated to excessive speed and failed to obey traffic controls, resulting in the multivehicle crash.
4. Both the Dodge driver's history and his specific actions on the day of the crash showed repeated disregard for safety and traffic laws.
5. Nevada's efforts to address Safety Recommendation H-22-39 through the development and implementation of its Impaired Driving Program Plan are conducive to increased safety.
6. Broad deployment of intelligent speed assistance would reduce the frequency of speeding and speeding-related crashes.
7. An active intelligent speed assistance system that electronically limits the speed of the vehicle may have mitigated the severity of the North Las Vegas crash.
8. Improving public acceptance of intelligent speed assistance systems and wider voluntary deployment, such as by automakers, will facilitate the advancement of a new motor vehicle safety standard on intelligent speed assistance.
9. Because the Dodge driver was a repeat speeding offender, he was more likely to cause a speeding-related fatal crash.
10. Inaccurate driver records, due to delays in reporting convictions, and plea agreements that alter or drop violations—such as what occurred in this case in the state of Nevada—reduce the likelihood that repeat speeding offenders can be accurately identified.
11. Electronic citation data tracking systems can help identify and track high-risk drivers, including repeat speeding offenders; however, the lack of guidance may result in inconsistencies among the states.

12. Repeat speeding is a nationwide problem, but evidence-based countermeasures targeting repeat speeding offenders and high-risk drivers are lacking.
13. Intelligent speed assistance systems have the potential to reduce speeding among repeat speeding offenders.

3.2 Probable Cause

The National Transportation Safety Board determines that the probable cause of the North Las Vegas, Nevada, crash was the Dodge driver's excessive speed and failure to obey traffic control devices. Contributing to the driver's behavior was his impairment from the effects of cocaine and phencyclidine and his disregard for safety and traffic laws. Also contributing to the driver's repeated disregard for safety and traffic laws despite numerous citations was the state of Nevada's failure to deter the driver's speeding recidivism due to systemic deficiencies, including routine plea agreements that alter or drop violations, inaccurate driver records, failure to accurately track citations, and delays in reporting convictions.

4 Recommendations

4.1 New Recommendations

As a result of this investigation, the National Transportation Safety Board makes the following new safety recommendations:

To the National Highway Traffic Safety Administration:

Require as standard equipment in all new vehicles intelligent speed assistance systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit. (H-23-14)

Develop a communication plan to educate the public about the capabilities and benefits of intelligent speed assistance to mitigate speeding. (H-23-15)

Update the Uniform Guidelines for State Highway Safety Programs to include identification and tracking of repeat speeding offenders. (H-23-16)

Develop countermeasures to reduce speeding recidivism, determine their effectiveness, and then disseminate the results. (H-23-17)

Conduct research and develop guidelines to assist states in implementing pilot intelligent speed assistance interlock programs, limiting the vehicle speed, for repeat speeding offenders. (H-23-18)

To the 50 States, the Commonwealth of Puerto Rico, and the District of Columbia:

Implement programs to identify repeat speeding offenders and measurably reduce speeding recidivism. (H-23-19)

To BMW Group, Ferrari USA, Ford Motor Company, General Motors Company, American Honda Motor Company, Hyundai USA, Kia Motors Corporation, Mazda USA, Mercedes-Benz USA, Mitsubishi Motors, Nissan USA, Porsche Cars North America, Stellantis, Subaru of America, Toyota Motor North America, Volkswagen Group, and Volvo Car Corporation:

Install as standard equipment in all new vehicles intelligent speed assistance systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit. (H-23-20)

To the Insurance Institute for Highway Safety:

Evaluate the safety outcomes of marketing by automobile manufacturers that emphasizes risky driving behaviors, including speeding. The evaluation should, at a minimum, compare vehicles based on engine size, power, and performance, and international approaches to such marketing. Publish a publicly available report. (H-23-21)

4.2 Previously Issued Recommendations Reiterated in This Report

The National Transportation Safety Board reiterates the following safety recommendation:

To the National Highway Traffic Safety Administration:

Incentivize passenger vehicle manufacturers and consumers to adopt intelligent speed adaptation (ISA) systems by, for example, including ISA in the New Car Assessment Program. (H-17-24)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD**JENNIFER HOMENDY**

Chair

MICHAEL GRAHAM

Member

BRUCE LANDSBERG

Member

THOMAS CHAPMAN

Member

Report Date: November 14, 2023

Board Member Statements

Member Michael Graham, Concurring:

Enforcement of speed limits is a longstanding speeding countermeasure. In the article *Strategies to Reduce Speeding and Aggressive Driving*, NHTSA wrote, “The enforcement of traffic laws and attentiveness to traffic safety should be a core value and practice among law enforcement agencies (LEAs) in order to achieve results that contribute to the quality of life in communities that are impacted by the movement of traffic.” With all due respect to NHTSA, that line is just part of the story. LEAs represent only one piece of our justice system, and the mere enforcement and ticketing of drivers who violate the speed limit will not, by itself, make our communities safer from repeat speeding offenders. Adequate and just prosecution of repeat offenders is necessary to ensure enforcement of speeding laws produces a safety benefit.

Here, the driver, who reached over 100 mph before running a redlight and killing a family of seven, demonstrated a pattern of recklessly ignoring speeding laws and incurring numerous speeding violations. As outlined below, various LEAs ticketed the driver for speeding five times in the 17 months preceding the crash. While the driver’s pattern of recklessly ignoring speeding laws was apparent to anyone with a full and complete history of his driving record, Nevada’s systemic deficiencies in failing to deter the driver’s speeding recidivism allowed the driver’s speeding behavior to continue free from adequate and just prosecution—despite enforcement.

Date	Original Citation	Outcome
4/26/2017	Speeding: 57 mph in a 45 mph	Guilty of Speeding
5/17/2017	Speeding: 86 mph in a 65 mph	Reduced to Illegal Parking
License Suspended 12/25/2017 - 1/8/2020		
8/29/2020	Speeding: 50 mph in a 40 mph	Reduced to Illegal Parking
11/18/2020	Speeding: 67 mph in a 45 mph	Guilty of Speeding
2/3/2021	Speeding: 80 mph in a 65 mph	Guilty of Speeding
8/9/2021	Speeding: 55 mph in a 35 mph	Reduced to Illegal Parking
12/9/2021	Speeding: 1-10 mph over speed limit	Reduced to Illegal Parking

Of the five times the driver was ticketed for speeding in the prior 17 months, three out of the five were reduced to illegal parking. This practice was not uncommon in the state of Nevada. An investigative piece from the Las Vegas Review-Journal found that city courts reduced more than 200,000 tickets to parking violations between 2017 and 2021.⁴⁴ That number represents more than two-thirds of all moving violations filed in Las Vegas, North Las Vegas, and Henderson. Significantly, unincorporated Clark County, which processed about 780,000 moving violations in the same period, declined to provide the number of reductions to the journalist. Combining unincorporated Clark County, the number of reduced tickets is likely markedly higher than 200,000. Specifically, in Las Vegas Municipal Court, more than 95,000 speeding tickets were filed but more than 80% were reduced to illegal parking. Further, as shown below, the Traffic Citation Matrix does not assign any demerit points for most moving violations, including some moving violations by repeat offenders.



CLARK COUNTY DISTRICT ATTORNEY
Traffic Citation Matrix for Moving Violations

Violation Type	First Citation with Moving Offense(s) Within a Rolling Three-Year Period	Second Citation with Moving Offense(s) Within a Rolling Three-Year Period	Third Citation with Moving Offense(s) Within a Rolling Three-Year Period	Fourth Citation with Moving Offense(s) Within a Rolling Three-Year Period
1 Point	Illegal Parking \$35-\$100 fine	Illegal Parking \$35-\$200 fine and/or traffic school	Illegal Parking \$35-\$200 fine and/or traffic school	Illegal Parking \$35-\$300 fine and/or traffic school
2 Point	Illegal Parking \$35-\$200 fine and/or traffic school	Illegal Parking \$35-\$200 fine and/or traffic school	Illegal Parking \$35-\$300 fine and/or traffic school	Illegal Parking or 1 point \$35-\$300 fine and/or traffic school
3 Point	Illegal Parking \$35-\$200 fine and/or traffic school	Illegal Parking \$35-\$200 fine and/or traffic school	Illegal Parking or 1 point \$35-\$300 fine and/or traffic school	Illegal Parking up to 2 points \$35-\$400 fine and/or traffic school
4 Point	Illegal Parking \$35-\$200 fine and/or traffic school	Illegal Parking or 1 point \$35-\$300 fine and/or traffic school	Illegal Parking up to 2 points \$35-\$400 fine and/or traffic school	Illegal Parking up to 3 points \$35-\$500 fine and/or traffic school
5 Point	Illegal Parking or 1 point \$35-\$300 fine and/or traffic school	Illegal Parking up to 2 points \$35-\$400 fine and/or traffic school	Illegal Parking up to 3 points \$35-\$500 fine and/or traffic school	Illegal Parking up to 4 points \$35-\$600 fine and/or traffic school
6 Point	Illegal Parking up to 2 points \$35-\$400 fine and/or traffic school	Illegal Parking up to 3 points \$35-\$500 fine and/or traffic school	Illegal Parking up to 4 points \$35-\$600 fine and/or traffic school	Illegal Parking up to 5 points \$35-\$700 fine and/or traffic school

In addition to the authorized practice of pleading down moving violations to illegal parking, Nevada courts at the time of the crash were siloed, allowing repeat offenders to be treated as new offenders in nearby jurisdictions. For the driver's 12/9/2021 speeding violation, the court noted only one moving violation in the prior 3 years despite at least two moving violations where the driver was found guilty of speeding—11/18/2020 and 2/3/2021.

⁴⁴ Scott Davidson, Michael. "No Points. No Traffic School. No Record. Thousands of Ticketed Drivers Get Breaks in Laws Vegas Courts, Sometimes with Fatal Results." *Las Vegas Review-Journal*, July 17, 2022.

In summary, Nevada's failure to deter the driver's speeding recidivism due to systemic deficiencies allowed the crash-involved driver to continue recklessly violating speeding laws and remain free from adequate and just prosecution—despite enforcement. Nevada's system was designed to expeditiously dispose of speeding violations as mere parking violations, allowing repeat offenders to be treated by the courts as first-time offenders with each subsequent offense. For the rare occasion a speeding ticket was not reduced to illegal parking, siloed courts, often in adjacent jurisdictions, still treated repeat offenders as first-time offenders, having no record of any previous violation. Routinely reducing speeding tickets to illegal parking and siloed courts demonstrate that Nevada was systemically deficient when identifying repeat offenders. Here, the crash-involved driver incurred three speeding tickets in the preceding 17 months that were reduced to illegal parking. Further, in connection with the speeding ticket issued on 12/9/2021, the court noted only one moving violation in the previous 3 years despite the driver being found guilty of two. Therefore, the state of Nevada's failure to deter the driver's speeding recidivism due to systemic deficiencies contributed to the driver's repeated disregard for safety despite numerous citations.

The Board, historically, considers all potential causal factors prior to determining the probable cause of an accident or crash. Here, the Board fulfilled its historical due diligence by adequately considering many of the above material facts as causal factors in the adopted report. It would have been unreasonable to review Nevada's authorized practice of pleading down repeat speeding tickets to parking violations and siloed courts and conclude those facts to be immaterial to an investigation into a driver who killed a family of seven while speeding after incurring five speeding violations in the previous 17 months. The Board's adopted probable cause appropriately incorporates the state of Nevada's systemic deficiencies that allowed a driver with a history of speeding tickets to continue operating a motor vehicle unimpeded and with impunity—I concur.

Member Bruce Landsberg, Concurring:

If anything, this crash exemplifies a major challenge to systemically improving safety on the highways for all drivers. Most of the states have a lackluster or nonexistent system for managing bad actors. Even when the legal system knows about them, it does little to protect the public.

This isn't about the driver who's going 10 mph over the speed limit, but the consistently dangerous operators. States need to place much more emphasis on enforcing the laws already on the books, and using appropriate technology will help. Just Say No does not work.

As for anyone who feels the need for speed, take it to the track and show us how good you really are. The manufacturers of muscle cars could include a coupon for an intro course to race track driving. Let's stop killing innocents and pretending that insurance will "protect" you. Let's stop the insanity of ineffective laws and inadequate enforcement. You cannot defend the indefensible!

Appendixes

Appendix A: Investigation

The National Transportation Safety Board (NTSB) was notified of the North Las Vegas, crash on January 29, 2022, and dispatched a partial investigative team consisting of the investigator-in-charge, a technical reconstructionist, and survival factors investigators. The team included staff from the NTSB's Transportation Disaster Assistance Division and the Office of Safety Recommendations and Communications. Member Thomas Chapman was the board member on scene. The NTSB's Office of Research and Engineering participated in the investigation.

Party to the investigation was the North Las Vegas Police Department.

Appendix B: Consolidated Recommendation Information

Title 49 *United States Code* 1117(b) requires the following information on the recommendations in this report.

For each recommendation—

(1) a brief summary of the Board’s collection and analysis of the specific accident investigation information most relevant to the recommendation;

(2) a description of the Board’s use of external information, including studies, reports, and experts, other than the findings of a specific accident investigation, if any were used to inform or support the recommendation, including a brief summary of the specific safety benefits and other effects identified by each study, report, or expert; and

(3) a brief summary of any examples of actions taken by regulated entities before the publication of the safety recommendation, to the extent such actions are known to the Board, that were consistent with the recommendation.

To the National Highway Traffic Safety Administration:

H-23-14

Require as standard equipment in all new vehicles intelligent speed assistance systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.5.2.1, Current Implementation and Effectiveness. Information supporting (b)(1) and b(2) can be found on pages 25-28; (b)(3) is not applicable.

H-23-15

Develop a communication plan to educate the public about the capabilities and benefits of intelligent speed assistance to mitigate speeding.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.5.2.2, Addressing Barriers to Implementation. Information supporting (b)(1) and b(2) can be found on pages 28-31; (b)(3) is not applicable.

H-23-16

Update the Uniform Guidelines for State Highway Safety Programs to include identification and tracking of repeat speeding offenders.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.6.1, Identification. Information supporting (b)(1) and b(2) can be found on pages 31-34; (b)(3) is not applicable.

H-23-17

Develop countermeasures to reduce speeding recidivism, determine their effectiveness, and then disseminate the results.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.6.2, Deterrence. Information supporting (b)(1) and b(2) can be found on pages 34-36; (b)(3) is not applicable.

H-23-18

Conduct research and develop guidelines to assist states in implementing pilot intelligent speed assistance interlock programs, limiting the vehicle speed, for repeat speeding offenders.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.6.2, Deterrence. Information supporting (b)(1) and b(2) can be found on pages 34-36; (b)(3) is not applicable.

To the 50 States, the Commonwealth of Puerto Rico, and the District of Columbia:**H-23-19**

Implement programs to identify repeat speeding offenders and measurably reduce speeding recidivism.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.6.1, Identification. Information supporting (b)(1) and b(2) can be found on pages 31-34; (b)(3) is not applicable.

To BMW Group, Ferrari USA, Ford Motor Company, General Motors Company, American Honda Motor Company, Hyundai USA, Kia Motors Corporation, Mazda USA, Mercedes-Benz USA, Mitsubishi Motors, Nissan

USA, Porsche Cars North America, Stellantis, Subaru of America, Toyota Motor North America, Volkswagen Group, and Volvo Car Corporation:**H-23-20**

Install as standard equipment in all new vehicles intelligent speed assistance systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.5.2.2, Addressing Barriers to Implementation. Information supporting (b)(1) and b(2) can be found on pages 28–31; (b)(3) is not applicable.

To the Insurance Institute for Highway Safety:**H-23-21**

Evaluate the safety outcomes of marketing by automobile manufacturers that emphasizes risky driving behaviors, including speeding. The evaluation should, at a minimum, compare vehicles based on engine size, power, and performance, and international approaches to such marketing. Publish a publicly available report.

Information that addresses the requirements of 49 *USC* 1117(b), as applicable, can be found in section 2.6.2, Deterrence. Information supporting (b)(1) and b(2) can be found on pages 34–36; (b)(3) is not applicable.

Appendix C: Table of Passenger Vehicle Manufacturers and Their In-Vehicle Speed Mitigation Technologies

Manufacturer	Speed Mitigation Technology Offerings	Availability*
BMW Group (BMW, MINI, Rolls Royce)	<ul style="list-style-type: none"> Speed limit recognition, warning, and active speed adjustment while adaptive cruise control (ACC) engaged 	Only on certain models
Ferrari USA	<ul style="list-style-type: none"> None or no public information available 	
Ford Motor Company (Ford, Lincoln)	<ul style="list-style-type: none"> Speed limit recognition, warning, and active speed adjustment while ACC engaged Teen driver settings - user-defined top speed limiter and speed warnings 	Only on certain models
General Motors Co. (Buick, Cadillac, Chevrolet, GMC)	<ul style="list-style-type: none"> Teen driver settings - top speed limiter and user-defined speed warnings 	Optional
American Honda Motor Company (Acura, Honda)	<ul style="list-style-type: none"> Traffic sign recognition and display Warning when speed limit is exceeded 	Only on certain models
Hyundai USA	<ul style="list-style-type: none"> Speed limit recognition, warning, and active speed adjustment while ACC engaged 	Only on certain models
	<ul style="list-style-type: none"> User-defined speed alerts 	Available on most models; subscription required
Jaguar Land Rover North America LLC	<ul style="list-style-type: none"> Traffic sign recognition and display Adaptive speed limiter (user can engage/disengage function) 	Standard on almost all models
Kia Motors Corporation	<ul style="list-style-type: none"> Speed limit recognition, warning, and active speed adjustment while ACC engaged 	Only on certain models
Mazda USA	<ul style="list-style-type: none"> Speed limit recognition and warning 	Only on certain models
Mercedes-Benz USA	<ul style="list-style-type: none"> Speed limit recognition and active speed adjustment while ACC engaged 	Standard on some models; optional on others
Mitsubishi Motors	<ul style="list-style-type: none"> User-defined speed warnings 	Only on certain models; subscription required
	<ul style="list-style-type: none"> Speed limit recognition and active speed adjustment while L2 system (ACC plus Lane Keep Assist) engaged 	Only on certain models
Nissan USA (Nissan, Infiniti)	<ul style="list-style-type: none"> Speed limit recognition and active speed adjustment while L2 system (ACC plus Lane Keep Assist) engaged 	Only on certain models

Manufacturer	Speed Mitigation Technology Offerings	Availability*
Porsche Cars North America	<ul style="list-style-type: none"> Traffic sign recognition and display 	Optional
Stellantis (Chrysler, Dodge, Jeep and others)	<ul style="list-style-type: none"> Traffic sign recognition and display 	Only on certain models
Subaru of America	<ul style="list-style-type: none"> User-defined speed warnings 	Only on certain models; subscription required
Tesla, Inc.	<ul style="list-style-type: none"> Traffic sign recognition and display Warning when speed limit is exceeded (user can choose if and how driver is warned) 	Standard
Toyota Motor North America (Toyota, Lexus)	<ul style="list-style-type: none"> Traffic sign recognition and display 	Standard on almost all models
Volkswagen Group of America (VW, Audi)	<ul style="list-style-type: none"> User-defined speed warnings 	Available on all models; subscription required
	<ul style="list-style-type: none"> Traffic sign recognition and display 	Only on certain models
Volvo Car Corporation	<ul style="list-style-type: none"> Top speed limit of 112 mph Teen driver settings - user-defined top speed limiter and speed warnings Traffic sign recognition and display 	Standard

*Offerings were found on company websites; availability is as of model year 2023.

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