



# Global Harmonization of Automated/Autonomous Connected Vehicles - United States Perspective

Tokyo, Japan  
December 20

# NHTSA's Mission

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*Save lives, prevent injuries, and reduce economic costs due to road traffic crashes, through education, research, safety standards, and enforcement*

# NHTSA's Approach

## Vehicle Safety

### Federal Motor Vehicle Safety Standards

NHT Highway Traffic Safety Admin., DOT Pt. 571

apart around the circumference of the tire at the area of greatest wear.

(2) Tires should be equipped with tires on the same axle that are matched in construction and tire size designation, and dual tires shall be matched for overall diameter within one-half inch.

(3) Inspection procedure. Examine visually. A mismatch in size and construction between tires on the same axle, or a major deviation from the size recommended by the vehicle or tire manufacturer, is a cause for rejection. On a dual-tire arrangement the diameter of one of the disks must be within one-half inch of the other as measured by a check block inserted between the tire and a caliper.

(4) General condition. Tires shall be free from chalking, bumps, knots, or holes extending over ply or tread separation from the casing.

(5) Inspection procedure. Examine visually for the conditions indicated.

(6) Damage. Tire cords or belting materials shall not be exposed, either to the naked eye or when cuts on the tire are probed. Reinforcement repairs to the cord body are allowable on tires other than front-mounted tires.

(7) Inspection procedure. Examine visually for the conditions indicated, using a blunt instrument, if necessary, to probe cuts and abrasions.

(8) Speed reserve tire. This mark "No. For Highway Use" or "Farm Use Only" or other such restrictions shall not be used on any motor vehicle operating on public highways.

(9) Inspection procedure. Examine visually for tires labeled with specific restrictions.

**§270.62 Wheel assemblies.**

(a) Wheel integrity. A tire rim, wheel or spool shall have no visible cracks, elongated bolt holes, or indications of in-service repair by welding.

(1) Inspection procedure. Examine visually for the conditions indicated.

(b) Cast wheels. Cast wheels shall not be cracked or show evidence of excessive wear in the clamp area.

(2) Inspection procedure. Examine visually for the conditions indicated.

(c) Mounting. All wheel nuts shall be in place and tight.

(3) Inspection procedure. Check wheel relation for the conditions indicated.

**PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

**Subpart A—General**

**§270.100** Standard No. 100: Controls and instrumentation.

**§270.101** Standard No. 101: Transmission shift position, reverse, starter interlock, and transmission locking effect.

**§270.102** Standard No. 102: Windshield deflection and deflection effect.

**§270.103** Standard No. 103: Windshield wiper and washer system.

**§270.104** Standard No. 104: Headlamps and electric lamp systems.

**§270.105** Standard No. 105: Brake lamps, reflective devices, and associated equipment.

**§270.106** Standard No. 106: Lamps, reflective devices, and associated equipment.

**§270.107** Standard No. 107: Low pneumatic and service specialty tires.

**§270.108** Tire selection and use and gear bearing capacity limitations for motor vehicles with a GVWR of 4,500 kilograms (9,900 pounds) or less.

**§270.109** Standard No. 109: Rearview mirrors.

**§270.110** Standard No. 110: Roof rack system.

**§270.111** Standard No. 111: Theft protection.

**§270.112** Standard No. 112: Motor vehicle body.

**§270.113** Standard No. 113: Retained pedestrian zone.

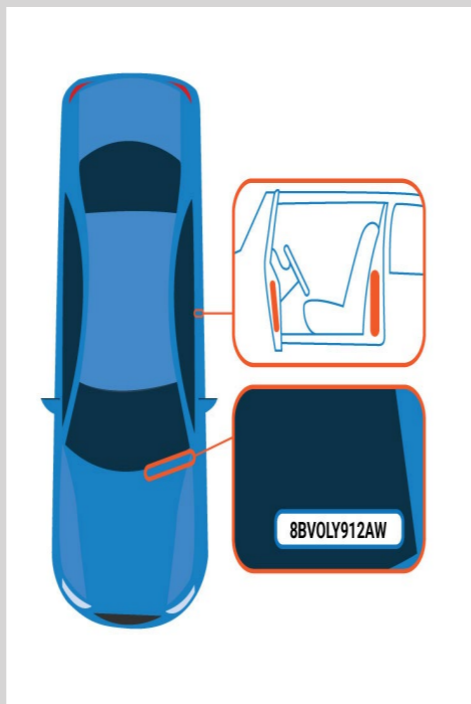
**§270.114** Standard No. 114: Power-operated windows, partitions, and roof panel use.

**§270.115** Standard No. 115: New pneumatic tires for motor vehicles with a GVWR of more than 4,500 kilograms (9,900 pounds) and motorcycles.

**§270.116** Tire selection and use and bearing capacity limitations for motor vehicles with a GVWR of more than 4,500 kilograms (9,900 pounds).

**§270.117** Standard No. 117: Air brake systems.

### Vehicle Recalls



### Crash Ratings



### Advanced Technology



# Promoting a Science Based Approach

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- Inland Transport Committee
- WP.1 – Road Safety
- WP.29 – Vehicle Regulations
- Intelligent Transport Systems
- Global Ministerial on Road Safety – Stockholm Declaration
- International Technical Conference on the Enhanced Safety of Vehicles

# Interdepartmental and Interagency coordination

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- OST-x
- EPA
- DOE
- USTR
- Commerce
- OMB
- NSC
- Treasury

# US ADS Related Activity

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- NCAP, Research and Regulatory Activities
- International Activities
- Standing General Order
- Other ADS Activities
- Recent Publications
- Enforcement

# Vehicle Safety

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## New Car Assessment Program (NCAP)

- Request For Comment
- Roadmap Requirement

## Rulemakings

- At least 12 additional vehicle safety rulemaking mandates

## Supplemental Appropriations for Vehicle Safety Research

- Expanded research on emerging light- and heavy-vehicle ADAS technologies to support policy and NCAP roadmap decisions
- Advanced frontal and side impact female crash dummies

# Vehicle Safety (Cont.)

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## Crash Data

- Mandate to expand reporting of roadway crash data through new State Electronic Data Transfer mechanisms (\$750 million over 5 years)
- Enhancements to NHTSA's Crash Investigation Sampling System



# NHTSA ADS-Related Regulatory Activities

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## Fall Regulatory Agenda:

<https://www.reginfo.gov/public/do/eAgendaMain>

- Facilitating New ADS Vehicle Designs for Crash Avoidance Testing ANPRM
- Considerations for Telltales, Indicators & Warnings in Vehicles With ADS ANPRM
- Occupant Protection for ADS Final Rule
- Framework for ADS Safety ANPRM

# Framework for ADS Safety ANPRM – Publication History



78058 Federal Register / Vol. 85, No. 233 / Thursday, December 3, 2020 / Proposed Rules

or in any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the proposed rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

#### List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Ammonia, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

Authority: 42 U.S.C. 7401 et seq.  
Dated: November 17, 2020.

John Buserud,

Regional Administrator, Region IX.  
[FR Doc. 2020-26648 Filed 12-2-20; 8:45 am]

BILLING CODE 6560-50-P

#### DEPARTMENT OF TRANSPORTATION

##### National Highway Traffic Safety Administration

##### 49 CFR Part 571

[Docket No. NHTSA-2020-0106]

##### RIN 2127-AM15

##### Framework for Automated Driving System Safety

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Advance notice of proposed rulemaking (ANPRM).

SUMMARY: NHTSA is requesting comment on the development of a framework for Automated Driving System (ADS) safety. The framework would objectively define, assess, and manage the safety of ADS performance while ensuring the needed flexibility to enable further innovation. The Agency is seeking to draw upon existing Federal and non-Federal foundational efforts and tools in structuring the framework as ADS continue to develop. NHTSA seeks specific feedback on key components that can meet the need for motor vehicle safety while enabling innovative designs, in a manner consistent with agency authorities.

DATES: Written comments are due no later than February 1, 2021.

ADDRESSES: Comments must refer to the docket number above and be submitted by one of the following methods:

• **Federal eRulemaking Portal:** Go to <http://www.regulations.gov>. Follow the online instructions for submitting comments.

• **Mail:** Docket Management Facility, M-30, U.S. Department of Transportation, West Building, Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

• **Hand Delivery or Courier:** U.S. Department of Transportation, West Building, Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC, between 9 a.m. and 5 p.m. Eastern time, Monday through Friday, except Federal holidays. To be sure someone is there to help you, please call (202) 366-9322 before coming.

• **Fax:** 202-493-2251.

Regardless of how you submit your comments, you must include the docket number identified in the heading of this document.

Note that all comments received, including any personal information provided, will be posted without change to <http://www.regulations.gov>. Please see the "Privacy Act" heading below.

You may call the Docket Management Facility at 202-366-9322. For access to the docket to read background

documents or comments received, go to <http://www.regulations.gov> or the street address listed above. To be sure someone is there to help you, please call (202) 366-9322 before coming. We will continue to file relevant information in the Docket as it becomes available.

**Privacy Act:** In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to inform its decision-making process. DOT posts these comments, without edit, including any personal information the commenter provides, to <http://www.regulations.gov>, as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at <https://www.transportation.gov/privacy>.

Anyone can search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.).

#### FOR FURTHER INFORMATION CONTACT:

For legal issues, Sara R. Bennett, Attorney-Advisor, Vehicle Rulemaking and Harmonization, Office of Chief Counsel, 202-366-2992, email [Sara.Bennett@dot.gov](mailto:Sara.Bennett@dot.gov).

For research issues, Lori Summers, Director, Office of Vehicle Crash Avoidance and Electronic Controls Research, telephone: 202-366-4917, email [Lori.Summers@dot.gov](mailto:Lori.Summers@dot.gov).

For rulemaking issues, Tim J. Johnson, Acting Director, Office of

Crash Avoidance Standards, telephone 202-366-1810, email [Tim.Johnson@dot.gov](mailto:Tim.Johnson@dot.gov).

#### SUPPLEMENTARY INFORMATION:

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#### I. Executive Summary

Over the past several years, NHTSA has published numerous research reports, guidance documents, advance notices of proposed rulemakings, and on March 30, 2020 (85 FR 17624), a notice of proposed rulemaking relating to the development of vehicles equipped with Automated Driving Systems (ADS).<sup>1</sup> An ADS is the

<sup>1</sup> ADS, as defined by SAE International and as used in this document, refers to driving automation

- December 3, 2020 – ANPRM published
- January 29, 2021 – Comment period extension published
- April 1, 2021 – Comment period closed
- As of Sept – In Progress

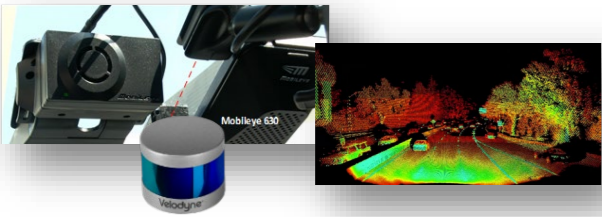
# NHTSA Automated Driving System Research

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## System Safety Performance

Test track, simulation, & on-road tools development; Testable cases; safety metrics and measures



## Subsystems Testing and Functional Safety

Sensor capabilities/limitations, fusion, redundancies; Perception, maneuvers & execution



## Crashworthiness

Alternative seating configurations, advanced test dummies; Unoccupied vehicle compatibility



## Human Factors

Human-Machine Interface; Driver Monitoring Systems; Communication of intent; accessibility; teleoperations

# NHTSA ADS International Activities

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- United Nations (UNECE)
  - WP.1 – Road Traffic Safety
  - WP.29 – Vehicle Regulations
    - Working Party on Automated/Autonomous & Connected Vehicles (WP.29/GRVA)
- EU-US-Japan Trilateral Automation in Road Transport Work Group

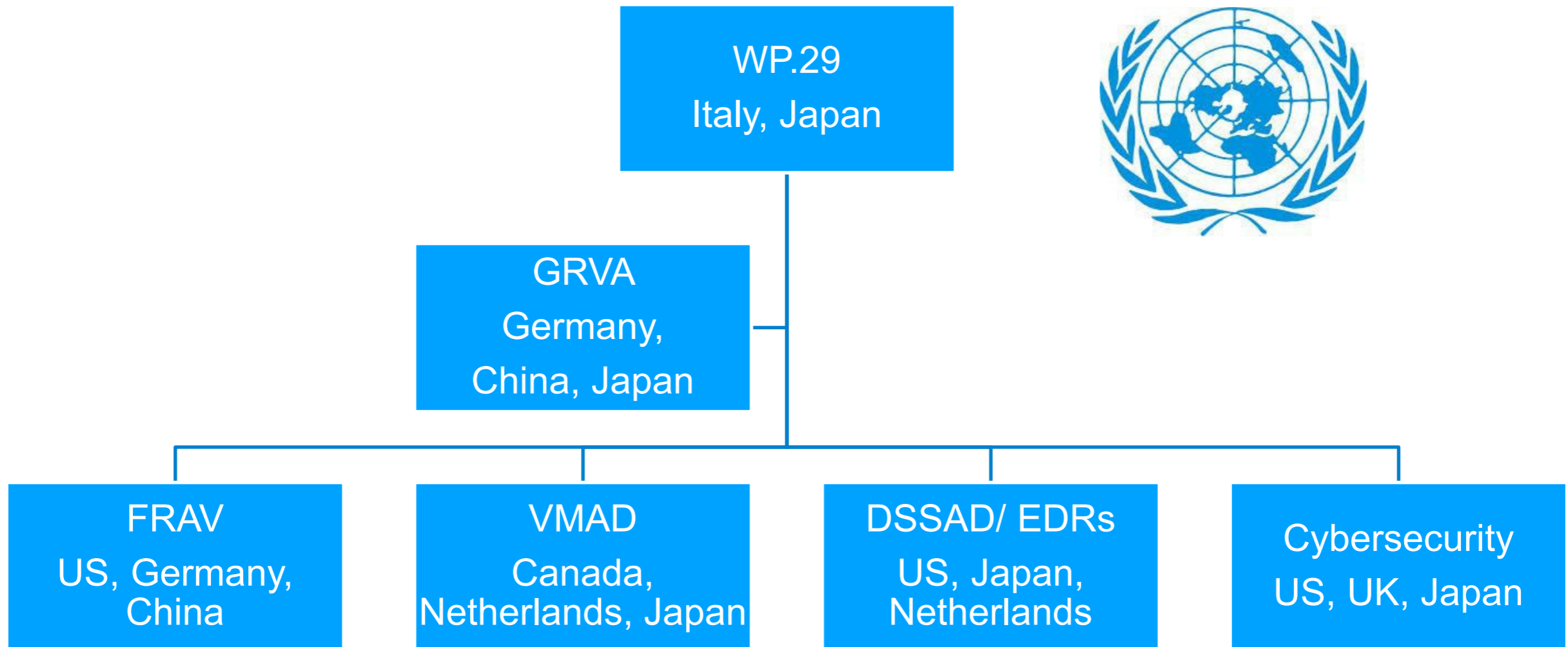


**EU★US★JAPAN**  
ITS COOPERATION



# UN Activities on Automated Driving Systems

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# Standing General Order – June 2021/Amended August 2021

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Requires manufacturers and operators of ADS and SAE Level 2 ADAS equipped vehicles to report crashes to the agency

- For ADS and ADAS Level 2 – 1 calendar day, updated report 10th calendar day – for hospital treated injury, a fatality, a vehicle tow-away, an air bag deployment, or a vulnerable road user (such as a pedestrian or bicyclist)
- For ADS ONLY – 15<sup>th</sup> day of following month - reports of any other crashes involving vehicles equipped with ADS and that involve any injury or property damage

Obtain timely notice of incidents that may provide information regarding potential safety defects

Company compliance violations subject to civil penalties and/or possible referral to the DOJ

# NHTSA ADS Other Activities

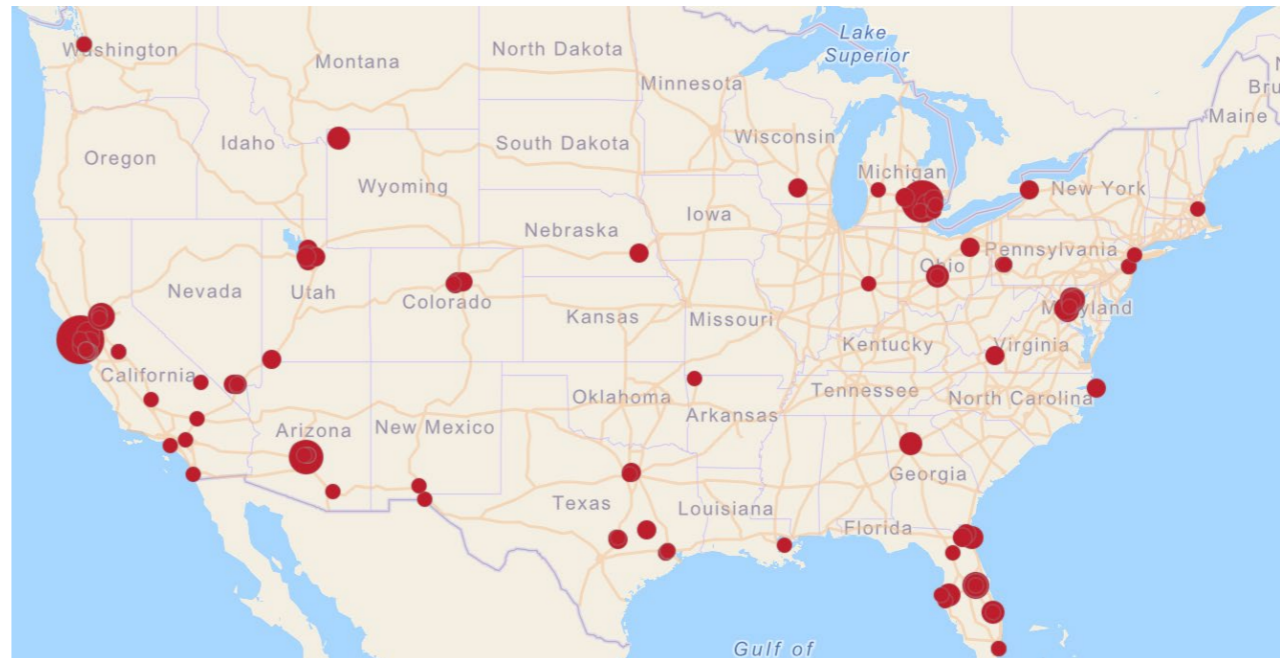
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- Special Crash Investigations

Completed cases -

<https://crashviewer.nhtsa.dot.gov/SCI/SearchIndex>

- Import Exemptions



# NHTSA ADS-Related Recent Publications



- A Framework for Automated Driving System Testable Cases and Scenarios See <https://rosap.ntl.bts.gov/view/dot/38824>
- “An Approach for the Selection and Description of Elements Used to Define Driving Scenarios” See <https://rosap.ntl.bts.gov/view/dot/55465>
- “Advanced Test Tools for ADAS and ADS” See <https://rosap.ntl.bts.gov/view/dot/55991>
- Safety of the Intended Functionality of Lane-Centering and Lane-Changing Maneuvers of a Generic Level 3 Highway Chauffeur System See <https://rosap.ntl.bts.gov/view/dot/53628>
- FMVSS Considerations for Vehicles With Automated Driving Systems
  - Volume 1 – See <https://rosap.ntl.bts.gov/view/dot/54287>
  - Volume 2 – See <https://rosap.ntl.bts.gov/view/dot/54442>
- Occupant Safety in Vehicles Equipped With Automated Driving Systems, Part 2: Crash Safety Considerations for Out-of-Position Occupant Posture in Vehicles With Automated Driving Systems - Field Data Investigation See <https://rosap.ntl.bts.gov/view/dot/55730>
- Occupant Safety in Vehicles Equipped With Automated Driving Systems, Part 3: Biofidelity Evaluation of GHBMCM50-OS Against Laboratory Sled Tests (WAS Part 2) See <https://rosap.ntl.bts.gov/view/dot/50709>



# Compliance Oversight

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- Strong compliance oversight through post-market purchasing and testing by NHTSA
- Encourages robust safety margins for automotive products
- Diligent enforcement for products found non-compliant

# Compliance Testing

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- NHTSA Test Procedures: <https://one.nhtsa.gov/Vehicle-Safety/Test-Procedures/>
- NHTSA compliance testing reports: <https://icsw.nhtsa.gov/cars/problems/comply/>

REPORT NUMBER 110-STF-19-002  
SAFETY COMPLIANCE TESTING FOR  
FMVSS NO. 110  
TIRE SELECTION AND RIMS  
GENERAL MOTORS OF CANADA COMPANY  
2019 CHEVROLET EQUINOX  
MPV  
NHTSA NO. C20190100  
U.S. DOT SAN ANGELO TEST FACILITY  
131 COMANCHE TRAIL, BUILDING 3527  
GOODFELLOW AFB, TEXAS 76908



OCTOBER 24, 2018  
FINAL REPORT  
PREPARED FOR  
U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT  
NEF-200  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
1200 NEW JERSEY AVENUE, SE  
WASHINGTON, D. C. 20590

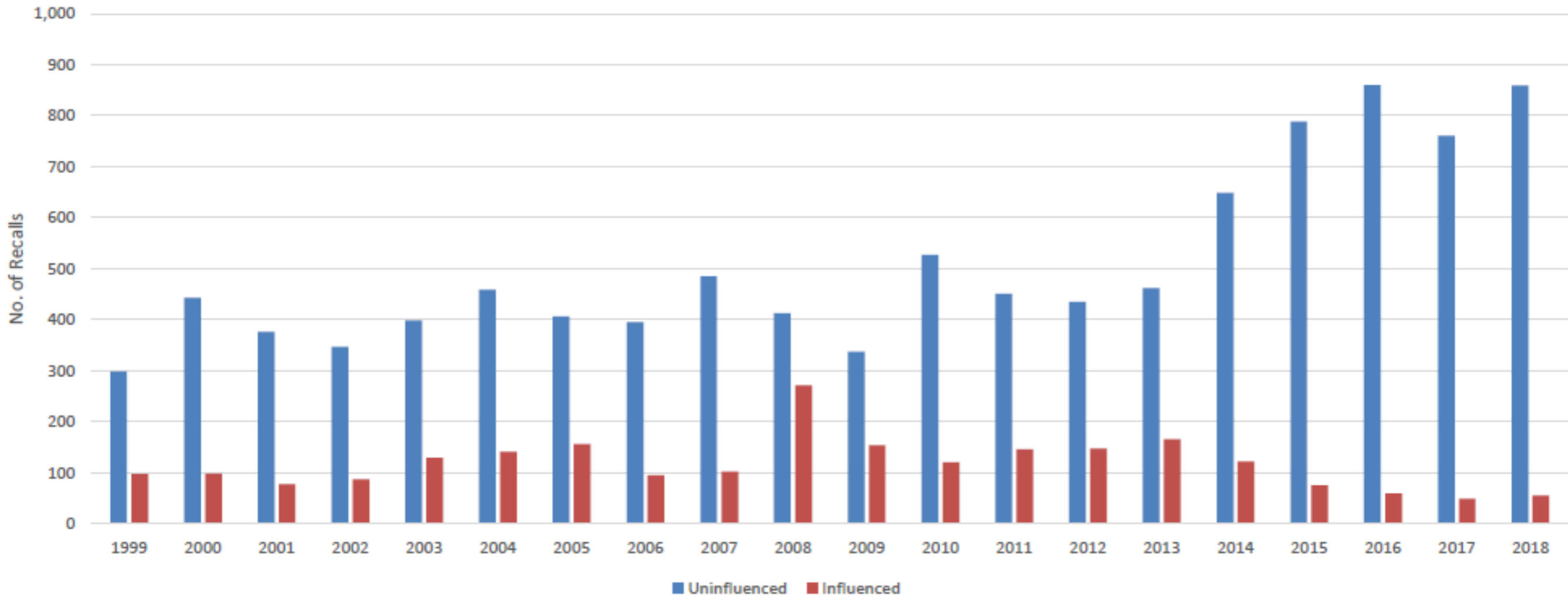
# Enforcement of Safety

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- Even absent a regulation, NHTSA can require recalls for unsafe products
- Active monitoring of on-road safety through multiple channels
- Effective identification and investigation of safety problems early in the process
- Consequences for putting unsafe vehicles on the road

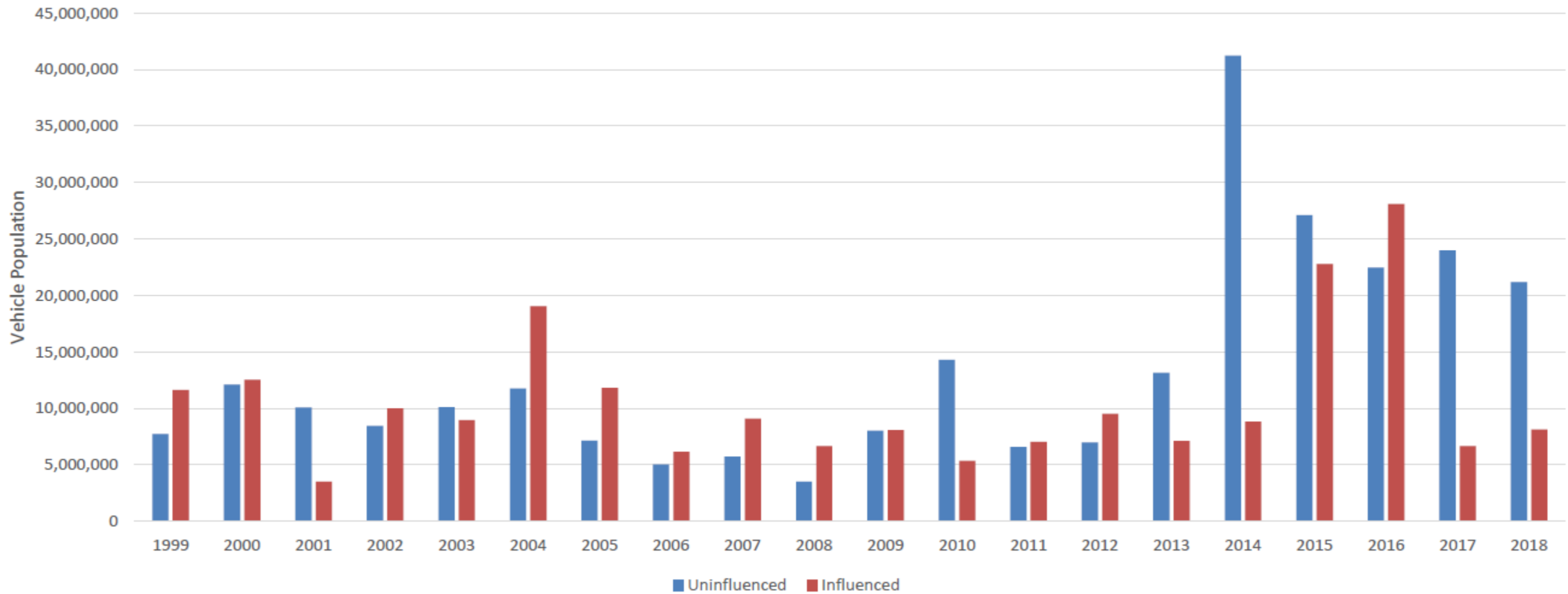
# Enforcement of Safety

Vehicle Recalls Per Year 1999 -2018



# Enforcement of Safety

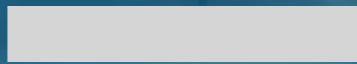
Quantity of Vehicles Recalled 1999 -2018





# NHTSA

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION



[www.nhtsa.gov](http://www.nhtsa.gov)