The Insurance Institute for Highway Safety is an independent, nonprofit scientific and educational organization. The mission of IIHS is to reduce the losses – deaths, injuries and property damage – from motor vehicle crashes.

The Highway Loss Data Institute shares and supports this mission through scientific studies of insurance data representing the human and economic losses resulting from the ownership and operation of motor vehicles and by publishing insurance loss results by vehicle make and model.
VISION
We are committed to conducting practical research that compels automakers, manufacturers, policymakers and citizens to act to eradicate or significantly reduce crashes involving motor vehicles, bicyclists and pedestrians on U.S. and Canadian roads. We share this vision with our member companies, who partner with us as we strive to save lives and reduce injuries.
PRESIDENT’S MESSAGE

Adrian Lund, president of IIHS and HLDI

Sometimes the most basic safety measures are overlooked amid the din of searching for the next best thing. Headlights are a good example. A crucial tenet of driving at night is the ability to see the road ahead, but IIHS-HLDI research shows that many headlights aren’t up to the task. In 2016, we started rating headlights to encourage automakers to pay closer attention to vehicle lighting systems.

We hosted two important round tables on persistent problems in highway safety — red light running and large truck underride crashes. Our July red light camera forum focused on best practices for implementing and operating red light camera enforcement programs. We know that red light camera programs save lives — nearly 1,300 through 2014 in 79 large U.S. cities. We also know that the cost of shutting down camera programs is more lives lost to red light running crashes.

A lot of progress has been made when it comes to preventing passenger vehicles from underriding the rear of large trucks. We recently introduced the IIHS TOUGHGUARD award to recognize manufacturers of semitrailers that have passed our tough rear underride guard strength tests. In August 2017, we plan to host a second round table on truck safety as a follow-up to our successful May 2016 meeting.

We were pleased to host the annual meeting of Global NCAP and a concurrent Fleet Safety Day in October 2016. The buying power of fleets can be an effective way to encourage the uptake of new technologies in vehicles. We will continue this important conversation with a fleet day for the Network of Employers for Traffic Safety in October 2017.

The introduction and adoption of advanced driver assistance systems (ADAS) is an important focus. In 2016, we examined the crash experience of Google’s prototype self-driving cars as we continued to evaluate the advanced technologies now available to consumers and track the spread of crash avoidance technologies through the passenger vehicle fleet. In July 2017, we will host the National Association of Mutual Insurance Companies meeting on ADAS and its effect on the insurance industry. We plan a special meeting for our member companies on ADAS in October.

Lastly, our executive staff spent much of 2016 creating a strategic plan to guide IIHS-HLDI through the next three years. The plan outlines our goals and strategies, addressing potential disruptors as the transportation landscape changes. As I look toward my retirement in early 2018 after 36 years with the Institutes, I am confident that we have the leadership, the resources and the resolve to meet the challenges that lie ahead. The future of IIHS-HLDI is bright.
HEADLIGHTS

New ratings program shines light on overlooked safety gear

In 2016, IIHS introduced headlight ratings assessing visibility and glare. Because about half of traffic deaths occur in either dark or dawn or dusk conditions, improved vehicle lighting has the potential to substantially reduce crashes.

The ratings are a product of our research showing that federal standards for headlights, based on laboratory tests, allow huge variation in the amount of illumination headlights provide in on-road driving. What’s more, our tests show that a vehicle’s price tag doesn’t correspond to the adequacy of its headlights.

We incorporated the new headlight ratings into our criteria to earn a 2017 TOP SAFETY PICK+ award. Winners must have a good or acceptable rating for headlights, along with good ratings in the small overlap front, moderate overlap front, side, roof strength and head restraint tests. Winners also must earn an advanced or superior rating for front crash prevention with standard or optional autobrake. When we announced the initial winners of the 2017 award in December 2016, only seven models were available with good-rated headlights. By March 2017, that number had climbed to 11.
ADVANCED DRIVER ASSISTANCE SYSTEMS

Crash avoidance features underpin technology for self-driving cars

“When can we buy a self-driving car?” is an often-asked question. Our experts surveyed the landscape in 2016 and in a special issue of Status Report concluded that vehicles still will need human drivers for many years to come. At the same time, advanced driver assistance systems in the form of crash avoidance technologies are growing more mainstream. These are the underlying technologies that will one day enable fully autonomous driving.

As part of our November special issue on autonomous vehicles, we analyzed crashes involving Google’s self-driving prototype cars operating in autonomous mode. We found a crash rate of 2.19 crashes judged to be police-reportable per million miles traveled, compared with 5.99 crashes per million miles traveled for police-reported crashes of conventional vehicles in Mountain View, Calif., where Google cars operate. The findings suggest that autonomous vehicles will have a safety benefit.

No vehicles available to consumers have achieved anything higher than Level 2 autonomy, meaning that an automated system can assist the human driver with multiple parts of the driving task, such as steering, speed, following distance and lane changes. Although the vehicle takes these actions automatically, the driver must continue to monitor the environment and be actively engaged with the driving task. Level 2 driver assistance features that can control the vehicle’s longitudinal and lateral position were available on at least 17 vehicle makes for 2016. Much of this technology is intended for well-maintained, limited-access high-speed roads in good weather — the safest driving conditions.

To get beyond Level 2, crash avoidance systems must be near-perfect, and they aren’t yet. Current driver assistance and crash prevention systems
need to be improved to address a bigger variety of crashes and crash conditions.

In 2016, we marked our fourth year of rating the performance of auto-brake systems, and most models we evaluate earn a superior rating. System availability is growing. More than 20 winners of the 2017 TOP SAFETY PICK+ award come equipped with standard autobrake.

Some systems can detect and brake for pedestrians if drivers don’t react in time to avoid them. We are conducting research tests ahead of the expected addition of a pedestrian autobrake rating. In 2016, we evaluated 10 vehicles with pedestrian autobrake capabilities in various scenarios on our outdoor covered test track, logging 450 individual test runs. We also tested rear autobrake systems designed to prevent common backing crashes into another vehicle. We evaluated five different vehicles in eight traffic scenarios for roughly 400 individual test runs. We expect to share results of this research in 2017.
SMALL OVERLAP FRONT CRASHES

Struggles on the way to good ratings and gaps in protection for front passengers

Pickup trucks and muscle cars have a reputation for being tough, but that’s not always the case when it comes to crash tests. In 2016, we evaluated 11 large pickups and a trio of iconic sports coupes for occupant protection in a small overlap front crash. The results were mixed. New tests also uncovered gaps in protection for people riding in the front passenger seats of small SUVs.

The Institute’s small overlap front test, introduced in 2012, replicates what happens when the front corner of a vehicle collides with another vehicle or an object like a tree or utility pole. The test is based on our research showing the need for improved occupant protection in small overlap crashes. In a 2009 IIHS study of vehicles with good ratings for frontal crash protection, small overlap crashes accounted for nearly a quarter of the frontal crashes involving serious or fatal injury to front-seat occupants.

Six of 11 large pickup trucks we evaluated in 2016 earn an acceptable or higher rating for occupant
Crashworthiness ratings

109 total crash tests
- 38 small overlap
- 11 moderate overlap front (plus 5 for research)
- 15 side impact (plus 9 for research)
- 31 roof crush

When prepping for small overlap tests, IIHS engineers noticed that the two front corners of a vehicle don’t always have the same structures. That led to research tests to see if there were performance differences, too. We conducted 40 mph passenger-side small overlap tests on seven small SUVs with good driver-side small overlap ratings. Only the Hyundai Tucson performed at a level corresponding to a good rating, and the other SUVs ran the gamut from poor to acceptable. We shared the results of these tests in 2016. To encourage automakers to strengthen right-side performance, we will begin a passenger-side ratings program in 2017 and will make good performance a requirement to earn a 2018 TOP SAFETY PICK+ award.
Drivers – and states – push the limits

Faster speeds increase both the risk of crashing and the severity of injuries that occur. Two decades of speed limit increases have nearly canceled out the safety gains from frontal airbags.

Increases in speed limits over two decades have cost 33,000 lives in the U.S. In 2013 alone, the increases resulted in 1,900 additional deaths, essentially canceling out the number of lives saved by frontal airbags that year, our research shows.

Proponents of raising speed limits often argue that doing so will bring the law in line with reality, since most drivers exceed posted limits. Once the new limits take effect, however, drivers go even faster. We looked specifically at Utah’s experience in a separate study and found more evidence that raising speed limits leads to higher travel speeds and more people exceeding the new limit.

Vehicle horsepower appears to be a factor, too. We examined the relationship between horsepower and travel speeds and found that high-horsepower vehicles are more likely to exceed the speed limit, particularly by 10 mph or more, and have higher mean speeds than vehicles with less powerful engines.

It’s not just sports cars that are packing more power. Even mainstream sedans have high-performance capabilities. From model year 1985 to model year 2015, mean vehicle power, defined as horsepower per 100 pounds of vehicle weight, increased by 60 percent for cars, 65 percent for pickup trucks and 66 percent for SUVs, an analysis by HLDI shows.
While U.S. and Canadian consumers should easily be able to find a safe vehicle that fits their budget, that isn’t the case for many consumers in Latin America, where new passenger vehicles often aren’t as crashworthy. A car-to-car crash test at the Vehicle Research Center illustrated the disparity. The Oct. 27, 2016, test was the centerpiece of a Fleet Safety Day that IIHS-HLDI hosted as part of Global NCAP’s annual meeting. More than 100 people attended.
the event, which also featured panel discussions and crash avoidance demonstrations to encourage fleet buyers to choose the technology.

In the moderate overlap test, a 2016 Nissan Versa collided with a 2015 Nissan Tsuru. Both minicars are made in Mexico, but only the Tsuru is sold there. The Versa earns good ratings in IIHS evaluations, while the Tsuru is a zero-star car under Latin NCAP’s rating scheme. The Tsuru’s structure collapsed, seriously compromising survival space for the driver, and there were no airbags for protection. Life-threatening injuries in a crash of this severity would be highly likely. The Versa, however, performed well.

On the eve of the test, Nissan announced that it would take the Tsuru out of production in Mexico, beginning May 2017. Through its #NoZeroStarCars campaign, Global NCAP aims to eliminate unsafe vehicles from the global fleet.
Red light running is frequent and deadly. Red light cameras are an effective way to discourage red light running, but many jurisdictions find them controversial, and localities with red light cameras are under public pressure to turn them off.

Red light camera programs in 79 large U.S. cities saved nearly 1,300 lives through 2014, research released by IIHS shows. When such programs are shut down, the rate of fatal red light running crashes shoots up 30 percent. In July, we hosted a forum on red light camera programs with a focus on best practices. Representatives of law enforcement and municipal and state governments, as well as highway safety advocates and researchers, participated. Many speakers emphasized the importance of organizing camera programs so that the public understands their value as a safety tool, not as a revenue generator.

As part of the event, we recreated a real-life crash to illustrate the hazards of red light running, especially to the victims of red light runners. In the 2012 crash in Yuma, Ariz., the driver of a 2010 Ford F-150 ran a red light at 48 mph and struck a 2007 Chrysler Sebring as its driver was turning left. As is often the case in these crashes, the person in the struck car was seriously injured, but the red light runner wasn’t. The Sebring’s driver sustained a concussion and pelvis and rib fractures.
LARGE TRUCKS
Battling deadly underride crashes with stronger guards

An underride guard is the metal structure that hangs from the back of a semitrailer. The idea is to stop a smaller vehicle from sliding beneath a high-riding trailer in a rear-impact crash to preserve survival space for the people inside the lower-riding vehicle. All underride guards must meet federal safety standards, but IIHS research and crash tests have shown that many underride guards can buckle or break off in a crash.

In a continued quest to reduce the problem of underride crashes, the Institute in May convened a round table in collaboration with the Truck Safety Coalition and AnnaLeah and Mary for Truck Safety. Nearly 90 researchers, safety advocates, policymakers and industry representatives gathered at the Vehicle Research Center to explore countermeasures. As part of the event, we evaluated a new rear underride guard design on a semitrailer from Stoughton Trailers LLC. The rear guard successfully prevented underride in our toughest test. Stoughton is among several North American semitrailer manufacturers that have improved underride guard designs to pass IIHS tests.

In March 2017, we recognized these manufacturers with the new TOUGHGUARD award for rear underride guards that are designed to prevent a range of deadly underride crashes. In addition to Stoughton, semitrailers from Great Dane LLC, Manac Inc., Vanguard National Trailer Corp. and Wabash National Corp. earn the accolade.

The IIHS TOUGHGUARD award recognizes rear underride guards that are designed to prevent a range of deadly underride crashes.
LATCH AND BOOSTER SEATS

Ratings take the guesswork out of child restraints

Parents find fewer things more frustrating than correctly installing child restraints in their vehicles and knowing when to move their bigger kids into booster seats. IIHS ratings help. A properly installed, age-appropriate child restraint can protect a child much better in a crash than a safety belt alone.

Our LATCH ratings provide parents with information on how easy or hard it is to install child restraints using LATCH hardware in vehicles. LATCH, which stands for Lower Anchors and Tethers for Children, is intended to make it easier for caregivers to install child restraints properly. Child restraints installed with LATCH are more likely to be put in correctly than restraints installed using the vehicle safety belt, IIHS research has shown. So far, we have evaluated a
total of 170 models, and most are
good or acceptable. Three models —
the Audi Q7, Lexus RX and Toyota
Prius — earn the top rating of good+,
the first to earn the distinction. The
majority of the 102 vehicles rated in
our first round of evaluations in 2015
were poor or marginal.

We rate booster seats based on how
well they fit children too old for child
restraints but too young for adult lap/
shoulder belts. The vast majority of
new booster seats earn the top rating
of BEST BET. Out of 53 new models
we evaluated in 2016, 48 earn the
top rating of BEST BET, meaning
they are likely to provide good belt
fit for a 4 to 8 year-old in almost any
car, minivan or SUV. When we first
began rating boosters in 2008, only a
quarter of the seats evaluated earned
the BEST BET designation. Despite
this progress, bad designs continue
to slip through, so we are continuing
our ratings. Several seats that don’t
do their job and are rated Not Rec-
ommended can still be found on store
shelves. They include two brand-new
Dorel Juvenile models which provide
unacceptable lap belt fit.

Booster ratings
- 53 new boosters rated
- 7 R&D evaluations for manufacturers

LATCH ratings
- 78 vehicles rated (excludes multi-
ple trim levels within a model)
- 92 LATCH ratings (includes ratings
for multiple trim levels and/or run-
ning changes for given make/model)
- 106 vehicles measured for ratings
HLDI
Data unlock trends in losses

HLDI’s database of loss information covers nearly 450 million automobiles, including vehicles no longer on the road. Member companies representing more than 90 percent of the market for private passenger vehicle insurance in the U.S. use HLDI analyses and data to better serve their customers and communities.

HLDI regularly analyzes losses under six insurance coverages — collision, property damage liability, personal injury protection, medical payment, bodily injury liability and comprehensive (including theft). Analysts assist member companies with customized queries, and they also conduct original research to help explain trends, such as rising highway deaths, and how changes in states laws, for example legalizing recreational marijuana use and allowing motorcyclists to ride without helmets, impact highway safety.

When the first fully autonomous vehicles hit the market, HLDI will track their claims experience just as it tracks the experience of vehicles equipped with crash avoidance technology, the precursor to self-driving cars. HLDI analysts point out that roads filled with robot cars won’t become reality anytime soon. Even if the U.S. government were to require all new vehicles sold to be autonomous tomorrow, it would take at least 25 years until nearly 95 percent of the vehicles on the road would have the capability.
Demand for HLDI information continues to increase. In 2016, HLDI completed:

- 5.9 million automobile and motorcycle VIN decodes, up from 5.2 million in 2015
- 150 special requests for HLDI data, up from 132 in 2015
- 59 reports vs. 54 in 2015

**iihs-hldi.org member site activity**

- 2.8 million unique visits, up from 2 million in 2015
- 12,175 downloads of vehicle information data files vs. 10,000 in 2015
- 2,592 new users registered vs. 1,184 in 2015
ADVERTISING AND EARNED MEDIA

Ad mentions climbed 5 percent over 2015 as automakers touted their IIHS-award-winning models. Earned media via television, print, online and radio interviews with IIHS-HLDI experts increased 21 percent over 2015.

ADVERTISING

655 ads approved to use TOP SAFETY PICK+ and/or TOP SAFETY PICK award claims or other ratings.

- 186 online ads
- 160 TV ads
- 133 print ads
- 115 direct marketing campaigns
- 41 social media ads
- 20 radio ads

VIDEO NEWS RELEASES

IIHS-HLDI VNRs continue to be among the most viewed in any category and easily surpass similar efforts by our competitors. In 2016, we issued 9 VNRs.

Audience viewership

- 602 million total viewers of 16,063 broadcasts vs. 384 million viewers of 8,865 broadcasts in 2015

Average audience per release

- 66 million viewers of 1,783 broadcasts vs. 64 million viewers of 1,478 broadcasts in 2015

Top 5 viewed VNRs (in millions)

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<td>67.5</td>
<td>62.0</td>
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<td>65.7</td>
<td>60.0</td>
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<td>65.2</td>
<td>60.0</td>
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<td>64.9</td>
<td>60.0</td>
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EARNED MEDIA
Staff gave 717 interviews to television, print, online and radio journalists, compared with 594 in 2015.

SOCIAL MEDIA
Nearly 200,000 people subscribe to the IIHS YouTube channel youtube.com/IIHS, and more than 11,000 users follow the IIHS Twitter account @IIHSautosafety. We plan to add an active Facebook and Instagram presence in 2017.

PUBLICATIONS AND PRESENTATIONS
IIHS-HLDI also shares its findings via news releases, consumer brochures, advisories, an annual report and presentations.

- 47 news releases
- 10 Status Report issues
- 4 brochures
- 1 insurer advisory
- 100+ presentations to U.S. and international conferences and member companies
VRC VISITORS

We welcome our member companies for tours and offer them use of the Thomas C. Morrill Conference Center. We also host outside researchers, policymakers, law enforcement officials and emergency responders.

- 3,493 total visitors
- 983 people in 57 member groups
- 1,144 people in 79 nonmember groups

+6% more visitors than in 2015

U.S. and international journalists seek out IIHS-HLDI experts for interviews on our research and insight into other trending topics in highway safety. In 2016, our staff gave 717 interviews with reporters from TV networks, print publications, websites and radio stations. Many of the interviews took place at the Vehicle Research Center. In 2016, we welcomed the addition of a media center equipped with a ReadyCam video broadcast system.
WEBSITE

Launched in 1995, iihs.org is a trusted resource for highway safety information.

7.8m sessions for the year, +11% from 2015
28.7m unique pageviews, +16% from 2015

TRAFFIC SOURCES

Nearly 85% of site traffic came from organic search and direct traffic, such as the user typing in our URL. The remainder came from other site referrals. Top referring sites included Facebook (desktop and mobile sites), babycenter.com, mobile01.com (a Chinese social networking site with an automotive bent) and autoblog.com.

TRAFFIC BY DEVICE

Smaller screens made up half of all site traffic

77% of pages viewed were vehicle safety ratings

GROWTH IN SESSIONS

Traffic almost doubled in 5 years, to 7.8 million sessions per year and over 21,000 sessions per day.

HIGH-TRAFFIC DAYS

Number of sessions in days following releases, days with 30,000+ sessions

Our new headlight rating program garnered the most traffic overall in 2016.
# HLDI REPORTS

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The influence of roadway situation, other contextual factors, and driver characteristics on the prevalence of driver secondary behaviors.

**EXECUTIVE LEADERSHIP TEAM**

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**David Zuby**
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**Joe Nolan**
Chief Administrative Officer and Senior Vice President, Vehicle Research

**Michael Fagin**
General Counsel, Secretary/Treasurer and Vice President, Government Relations

**Kim Hazelbaker**
Senior Advisor, HLDI, and Senior Vice President, Insurer Relations

**Matthew Moore**
Senior Vice President, HLDI

**Russ Rader**
Senior Vice President, Communications

**Raul Arbelaez**
Vice President, Vehicle Research Center

**Jessica Cicchino**
Vice President, Research

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