



# Status Report

Insurance Institute for Highway Safety | Highway Loss Data Institute

## Family matters

2 of 3 minivans earn acceptable or good rating in passenger-side test

2018 CHRYSLER  
PACIFICA  
INSURANCE INSTITUTE  
FOR HIGHWAY SAFETY  
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**ALSO IN  
THIS ISSUE**  
Vol. 53, No. 5  
August 16, 2018

- ▶ Risk of noncrash fires drops after recalls
- ▶ Red light camera program guidelines spotlight safety



## Chrysler Pacifica, Honda Odyssey outperform Toyota Sienna in passenger-side small overlap test; LATCH ratings are mixed

**T**he Toyota Sienna stumbled, the Chrysler Pacifica turned in an acceptable performance and the Honda Odyssey finished strong in the Institute's passenger-side small overlap front crash test.

The 2018–19 model minivans are the latest group to be put through the passenger-side small overlap test. A small overlap crash occurs when just the front corner of the vehicle strikes another vehicle or an object such as a tree or utility pole. IIHS began rating vehicles for occupant protection in a driver-side small overlap front crash in 2012 and added the passenger-side test last year to make sure occupants on both sides of the vehicle get equal protection.

Manufacturers are making fast improvements to secure a good or acceptable rating in the passenger-side test, one of the requirements to earn a 2018 *TOP SAFETY PICK+* award.

"In our latest passenger-side tests, we didn't find any performance issues with safety belts or airbags like we did when we evaluated small and midsize SUVs earlier this year and midsize cars last year," says David Zuby, the Institute's chief research officer. "Instead,

we saw some structural deficiencies on the right side that still need addressing."

The Pacifica earns an acceptable rating in the passenger-side small overlap front test, and the Odyssey earns a good rating. Results for the Odyssey first were released in September 2017. The Sienna earns a marginal rating in the passenger-side small overlap test.

### Safety cage shortcomings

Starting with 2015 models, Toyota modified the structure of the Sienna to improve driver-side protection but didn't make the same changes to the passenger side. As a result, the Sienna's structure rates poor in the passenger-side test.

"A safety cage must be strong enough to resist intrusion in a crash to protect the people inside, no matter where they sit in the vehicle," Zuby says.

In the Sienna's case, the structure allowed as much as 20 inches of intrusion in the lower occupant compartment and more than 16 inches of intrusion at the dashboard.

## Small overlap front crash ratings for 2018–19 minivans

		DRIVER SIDE		PASSENGER SIDE					
		Overall	Overall	Structure	Passenger restraints & kinematics	Passenger injury measures			
						Head & neck	Chest	Hip & thigh	Lower leg & foot
<b>TSP</b>	Honda Odyssey	G	G	A	G	G	G	G	G
<b>TSP</b>	Chrysler Pacifica	G	A	M	G	G	G	G	G
	Toyota Sienna	A	M	P	G	G	G	A	A

Good **G** Acceptable **A** Marginal **M** Poor **P**



A strong safety cage resists intrusion in a crash to protect occupants. The Sienna (far left) rates poor for structure in the passenger-side test due to as much as 20 inches of intrusion into the lower occupant compartment. In the Odyssey, the occupant compartment held up reasonably well to earn an acceptable rating for structure.

“The intruding structure crumpled around the test dummy’s legs. A real right front passenger would sustain possible injuries to the right hip and lower leg in a crash of this severity,” Zuby says.

Intrusion also was an issue for the Pacifica. Marginal ratings for structure held this minivan back from achieving the top rating in the passenger-side small overlap test. Measures from dummy sensors indicated low risk of injury, helping to offset the less-than-stellar structural rating.

Fiat Chrysler introduced the Pacifica in the 2017 model year to replace the Chrysler Town & Country and upgraded protection in small overlap front crashes on both the driver and passenger sides, beginning with 2017 models built after August 2016.

The Pacifica’s passenger-side rating is based on two crash tests, one by IIHS and the other by Fiat Chrysler as part of the IIHS frontal crash test verification program.

The Pacifica and Odyssey are 2018 *TOP SAFETY PICKS*. They were among the qualifiers when IIHS announced initial winners of the 2018 awards in December 2017. Both earn a superior rating for

front crash prevention and have acceptable-rated headlights. Better headlights would have secured *TOP SAFETY PICK+* awards for these minivans.

To earn a 2018 *TOP SAFETY PICK*, a vehicle must have good ratings in all IIHS crashworthiness tests except the passenger-side test. Other requirements are a front crash prevention system that earns an advanced or superior rating and headlights that earn an acceptable or good rating.

To qualify for *TOP SAFETY PICK+*, a vehicle also must earn an acceptable or good rating in the passenger-side small overlap front test and a good headlight rating.

### LATCH ratings

“Since minivans often serve as family haulers, parents in the market for a new one also should keep in mind where their kids will sit, especially if more than one needs a child restraint,” Zuby says.

Lower Anchors and Tethers for Children (LATCH) is a system of attachment hardware for child restraints that is intended to simplify



Toyota Sienna

The Sienna's airbags cushioned the dummy's head, but the dashboard pushed against its knees in the test. An IIHS engineer (right) measures a second-row seat in the Honda Odyssey as part of the LATCH rating program.

### How 2018-19 minivans rate for LATCH

Good+	Honda Odyssey
Acceptable	Dodge Grand Caravan, Kia Sedona, Toyota Sienna
Marginal	Chrysler Pacifica

For more information go to [iihs.org/ratings](https://www.iihs.org/ratings)



Honda Odyssey

### The Odyssey is a good example of the steady improvements IIHS has seen in LATCH ratings in just three years. Honda factored in LATCH when redesigning the minivan for 2018.

installation. 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.

Even with LATCH, installation errors are common. The Institute's LATCH ratings are based on key ease-of-use criteria that have been shown to minimize mistakes in installing lower attachment straps and top tethers. The top tether keeps the child seat from pitching forward in a crash, and all forward-facing restraints need them.

Among 2018 minivans evaluated, the Odyssey earns a good+ rating for LATCH ease of use. The Dodge Grand Caravan, Kia

Sedona and Sienna rate acceptable, and the Pacifica rates marginal.

The good+ rating is for vehicles that meet the criteria for a good rating and provide additional seating positions with easy-to-use LATCH hardware.

Minivans and other three-row vehicles must have a third additional good or acceptable LATCH seating position (without "borrowing" an anchor from another position) and tether anchors in all rear seating positions to earn a good+ rating. The additional tether anchors must meet at least 1 of 2 tether anchor criteria. If the vehicle has a second-row center seating position, it

must have good or acceptable LATCH there (with or without borrowing).

The good+ designation is intended to encourage manufacturers to give parents greater flexibility when seating children in a vehicle.

"The Odyssey is a good example of the steady improvements we have seen in LATCH ratings in just three years," Zuby says. "Honda factored in LATCH when redesigning the Odyssey for 2018, boosting the minivan's rating from acceptable to good+ by making the second-row tether anchors easy to find and the lower anchors easy to maneuver around. In addition, the Odyssey model we tested has two good LATCH seating positions in the second row and two acceptable positions in the third row."

The LATCH ratings are an indicator of how easy it is to achieve a correct, tight installation of a child restraint in a given vehicle when using the dedicated child restraint attachment hardware. While child restraints need to be properly installed, the LATCH rating doesn't have any direct bearing on safety. Although it is difficult to achieve a good installation in a poor-rated vehicle, it is generally not impossible. In addition, children are just as safe in restraints that have been properly installed with vehicle belts as in restraints that have been properly installed with LATCH. ■

# Risk of noncrash fires drops after recalls but persists, suggesting unmade repairs

**W**hen a vehicle not involved in a crash catches fire, oftentimes an electrical issue or fuel system defect is to blame. When things go awry, the results can be costly in terms of property damage and potential injuries, so it is crucial that vehicle owners heed recall notices and service bulletins and get repairs done as soon as possible.

For 2017 through Aug. 8, 2018, there have been 62 noncrash fire-related recalls affecting 6.8 million vehicles, HLDI estimates. Recalls span manufacturers and a range of issues, from incorrectly installed fuel-line hoses to faulty alternators.

Vehicles with known fire-related defects have a significantly higher risk of noncrash fire insurance losses, compared with vehicles without such defects, prior HLDI analyses indicate. After a recall is issued, the risk decreases but remains higher than for vehicles without any fire-safety recalls.

In an updated report, HLDI found that the frequency of noncrash fire claims for 2007–17 model passenger vehicles recalled for a fire-related defect was 14 percent higher than the frequency of claims for vehicles without a recall. Claim frequency is expressed in claims per 10,000 insured vehicle years for noncrash fire recalls. An insured vehicle year is one vehicle insured for one year or two vehicles insured for six months each.

For motorcycles, the frequency of noncrash fire claims was 18 percent higher than for comparable models without noncrash fire recalls.

Insurance losses for noncrash fire damage are covered under comprehensive insurance, which pays for vehicle theft, physical damage due to animal strikes and noncrash-related reasons.

The frequency of noncrash fire claims for passenger vehicles subsequently recalled was 19 percent higher, compared with non-recalled models. Post-recall, the difference in noncrash fire claim frequency narrowed to 11 percent.

For motorcycles, the frequency of claims was 32 percent higher before being recalled,

compared with motorcycles not subject to a fire recall. After being recalled, the frequency of claims fell to 15 percent.

“Our work shows that recalls reduce the risk of a noncrash fire, but they don’t eliminate the risk. Much risk remains because not all recalled vehicles are repaired,” says Matt Moore, HLDI senior vice president.

The National Highway Traffic Safety Administration (NHTSA) estimates that a quarter of recalled vehicles don’t get fixed.

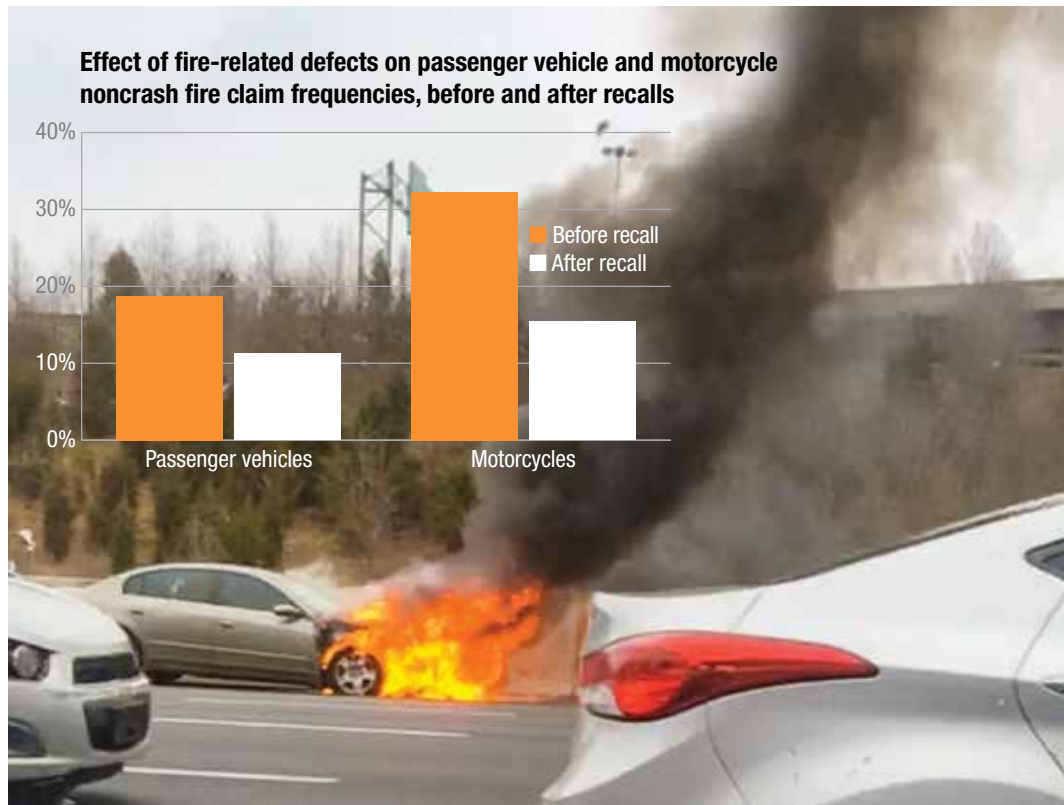
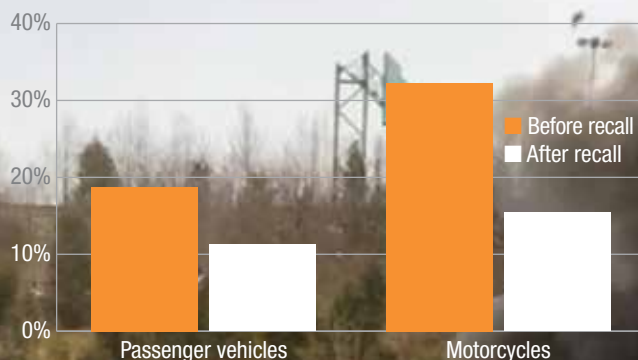
HLDI has been working with the agency to help identify vehicles that may have fire-related defects and need to be recalled. NHTSA, for example, in 2017 requested noncrash fire claims data from HLDI on

fires for the microcar than other comparable vehicles.

NHTSA’s investigation led to Mercedes-Benz in May issuing a recall for the 2008–09 ForTwo, affecting 42,781 vehicles. NHTSA says the rear insulation mat in the ForTwo’s engine compartment may deform, deteriorate, and loosen over time, allowing the mat to contact hot exhaust system components.

Consumers can check for recalls at [nhtsa.gov/recalls](http://nhtsa.gov/recalls) by entering the 17-digit vehicle identification number in the lookup tool. When buying a used vehicle, it also is a good idea to notify the manufacturer, so the company can make sure the new owner receives future recall notices.

**Effect of fire-related defects on passenger vehicle and motorcycle noncrash fire claim frequencies, before and after recalls**



the 2008–09 Smart ForTwo amid consumer reports of engine compartment fires while driving or shortly after turning off the ignition.

A subsequent HLDI analysis of 2008–09 Smart ForTwo models found a sharply higher frequency of claims for noncrash

To obtain a copy of HLDI Bulletin Vol. 34, No. 38, “Noncrash fire safety recall losses – for automobiles and motorcycles: 2007–17” and HLDI Bulletin Vol. 34, No. 27, “Noncrash fire insurance losses for the 2008–09 Smart ForTwo,” email [publications@ihs.org](mailto:publications@ihs.org). ■

# New automated enforcement guidelines urge localities to sharpen safety focus

To encourage cities and localities to use automated enforcement, four national safety organizations developed a red light camera checklist to provide practical instructions for planning, implementing and evaluating camera programs. AAA, Advocates for Highway and Auto Safety, IIHS and the National Safety Council released the checklist in July.

“We developed the guidelines to help communities avoid the problems that have undermined programs in the past,” says IIHS President David Harkey. “We know turning off cameras results in more crashes, injuries and deaths, so it’s important that camera programs succeed.”

More than 800 people died in crashes involving red light running in 2016, an increase of 17 percent since 2012, an IIHS analysis shows. The increase comes as fewer U.S. communities are using red light cameras to enforce the law and reduce crashes.

“Red light cameras can play a role in improving traffic safety for all road users and should be placed where they can benefit a community, like at intersections with high numbers of fatalities,” says Jill Ingrassia, AAA’s managing director of Government Relations and Traffic Safety Advocacy.

“When properly implemented, red light cameras can help save lives and can serve to supplement law enforcement efforts, rather than generate revenue for governments. This new set of guidelines is an excellent starting point in ensuring adequate safeguards are put in place to maintain the public’s trust.”

Red light running is one of the most common factors in urban crashes. More than half the people killed in red-light-running crashes are pedestrians, bicyclists and people in other vehicles red light runners hit.

“Red light cameras are proven lifesavers,” says Cathy Chase, president of Advocates for Highway and Auto Safety. “As states and cities consider ways to reduce motor vehicle crash deaths and injuries, the new red light camera checklist will be a vital tool to reinvigorate waning programs, restart discontinued programs and revolutionize new successful programs.”



“Intersections are some of the most dangerous places on our roadways,” says Deborah A.P. Hersman, president and CEO of the National Safety Council. “Automated enforcement technology saves lives, and this checklist helps put communities on a road to zero deaths.”

As of July, 421 communities had red light camera programs, down from 533 that had a program at any time during 2012. Although new camera programs continue to be added, the total number of camera programs declined because more programs were discontinued than were initiated.

As the number of programs has declined, deaths in red-light-running crashes rose from 696 in 2012 to 811 in 2016, the most recent year available. Fewer camera programs aren’t the sole reason for the increase. Many factors, especially the economic recovery, are likely playing a significant role.

The red light camera checklist includes recommendations for planning, oversight and sustained public engagement. Surveys consistently show that the public supports red light camera enforcement, but support can erode when programs are poorly run,

or perceived to be centered on generating revenue rather than on preventing crashes.

First steps include assessment of intersections where red light running is a problem. Communities need to ensure that road design and signal timing are evaluated. Adequate yellow light phases have been shown to reduce red light running and crashes.

Public input is essential. The checklist recommends that policymakers organize a community advisory committee to make suggestions on program development.

Programs that focus on safety and transparency are successful. Including stakeholders in the planning phase, establishing a strong system for data collection and monitoring, and targeting only the violations with the greatest safety consequences are steps that build public confidence.

The recommendations are based on input from law enforcement and community leaders who attended a red light camera forum organized by IIHS in 2016 and subsequent research on best practices. Recommendations have also been drawn from best practice guidelines published by the National Cooperative Highway Research Program. ■

# Red light camera program checklist

**Photo enforcement is a proven, effective tool to make roads safer. Well-controlled before-and-after studies have found that red light cameras reduce violations and injury crashes, especially the violent front-into-side crashes most associated with red light running.**

Successful programs have a strong public information component, are transparent, and emphasize safety over revenue. In fact, communities should expect that revenue will decline over time as fewer drivers run red lights. Some, though not all, studies indicate that rear-end crashes increase initially, but rear-enders are typically low-severity crashes compared with the high-speed right-angle collisions targeted by red light camera programs.

This checklist assumes your community is already legally authorized to set up a program. It is intended to help you operate a program to reduce crashes, prevent injuries, save lives, and maintain strong public support.

## FIRST STEPS

- Identify problem intersections:
  - Assess violation and crash data.
  - Conduct field observations.
  - Collect resident input.
- Make changes necessary to ease compliance with the law:
  - Ensure the road geometry conforms with guidelines from the American Association of State Highway and Transportation Officials or state road design manuals.
  - Ensure that signal timing at a minimum conforms with the Manual on Uniform Traffic Control Devices and Institute of Transportation Engineers guidelines.
  - Remove sightline obstructions of signals and signage.
- If photo enforcement is appropriate for the problem intersections, establish an advisory committee comprised of stakeholders, e.g., law enforcement, transportation department, victim advocates, school officials, community residents, first responders, health officials, and the courts. Outline the committee's role to advise on the development and implementation of the program.
- Meet with the media and newspaper editorial boards to build support and educate the public.

## SECOND STEPS

- Select appropriate sites based on data from first steps.
- Publicize the extent of the safety problem and need for innovative solutions.
- Secure a vendor and establish payment based on the vendor's actual costs, not the number of citations.
- Establish a grace period before a vehicle is photographed of up to 1/2 second and no less than 1/8 of a second after the light turns red.
- Establish that law enforcement officers or other appropriately trained personnel employed by the locality will review evidence, identify violations, and issue citations.
- Create a website and social media plan with program details, such as how to pay and dispute tickets.
- Establish a method for answering questions accurately and in a timely manner.
- Develop an emergency action plan for handling problems, such as system malfunctions.

## IMPLEMENTATION

- Hold a kickoff event with advisory committee members. Introduce a sustained public education campaign focused on improving safety by changing driver attitudes and behavior.
- Connect the program to safety initiatives such as Vision Zero, Toward Zero Deaths, and Road to Zero.
- Install prominent warning signs at camera locations and major roadways entering the jurisdiction.
- Establish a probationary period during which only warnings are issued.
- Target violations with the greatest safety consequences. Discard right-turn-on-red violations when pedestrians, bicyclists, and oncoming vehicles are not present.
- Allow for due process. Minimize the number of days between the violation and citation issuance. Establish and publicize the available procedures for contesting an alleged violation.
- To the extent feasible, allocate fines in excess of program costs to traffic safety programs.

## LONG TERM

- Publicize changes, including new camera locations. Reinstate the probationary period before ticketing begins at new locations.
- Monitor program operation and publicize results.
- Require regular field reviews. Verify monthly camera calibration and synchronization with signals.
- Require regular program evaluation by collecting crash and infraction data. Avoid simple before-and-after comparisons by using proper control intersections. Include control intersections that are not subject to spillover effects.
- Regularly meet with the advisory committee and media to review program status and sustain public support.

For more information on red light cameras, go to [IHS.ORG/RED-LIGHT-RUNNING](http://IHS.ORG/RED-LIGHT-RUNNING)

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**IIHS** is an independent, nonprofit scientific and educational organization dedicated to reducing the losses — deaths, injuries and property damage — from motor vehicle crashes.

**HLDI** shares and supports this mission through scientific studies of insurance data representing the human and economic losses resulting from the ownership and operation of different types of vehicles and by publishing insurance loss results by vehicle make and model.

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