



arents looking for a safe, affordable vehicle for their teen driver have many more options than just a year ago. IIHS has updated its recommendations for used vehicles for teens, and the list has grown by more than 50 percent, even though the price and safety criteria haven't changed.

"Time is on the consumer's side," says Anne McCartt, the Institute's senior vice president for research. "It's easier than ever to find a used vehicle with must-have safety features and decent crash test performance without spending a fortune."

IIHS compiled its first list of recommended used vehicles after finding that the vast majority of parents who bought a vehicle for their teen driver bought it used (see Status Report, July 16, 2014, at iihs.org). The survey also found that the budgets for teens' vehicles were limited. The mean purchase price for a teen's vehicle was \$9,800, while the median was just \$5,300.

"The prices for most of the vehicles we recommend for young, novice drivers are still higher than what a lot of people are used to spending," McCartt says. "We would encourage parents to consider paying a little more for safety if they can."

#### Best choices, good choices

Like last year's recommendations, the new list has two tiers: "best choices," priced under \$20,000 with good ratings in the Institute's four oldest crashworthiness tests, and "good choices," priced under \$10,000 with less-than-perfect ratings in some tests. Although there are now some best choices under \$10,000, having two tiers gives consumers a wider variety of lower-priced options.

Still, there are a few things that parents shouldn't compromise on:

▶ High horsepower should be avoided. The temptation to test the limits of a powerful engine is too hard for many teens to

- resist. Vehicles that only come with big engines have been left off the lists, but many recommended models have high-horsepower versions that should be avoided. The base engines of all the listed vehicles have adequate power for teens.
- ▶ Bigger, heavier vehicles are safer. Consumers won't find minicars or small cars among the best choices or the good choices. (Small SUVs, which weigh about the same as midsize cars, are OK.)
- ▶ Electronic stability control is a must. This technology, mandatory since the 2012 model year, helps a driver maintain control on curves and slippery roads. It's a proven lifesaver, cutting single-vehicle fatal crash risk nearly in half. All listed vehicles have the feature standard.

When it comes to crash test ratings, vehicles on the "best choices" list have good ratings in the Institute's longstanding moderate overlap front, side, roof strength and head restraint tests. Vehicles on the "good choices" list have good ratings in the IIHS moderate overlap front test, good or acceptable ratings in the side test and a better-than-poor rating for head restraints.

If rated by the National Highway Traffic Safety Administration, vehicles on either list must earn 4 or 5 stars overall or 4 or 5 stars in the front and side tests under the old rating scheme.

The recommendations don't take into account the small overlap front crash, which IIHS added to its testing lineup in 2012. The test replicates what happens when the front corner of a vehicle hits another vehicle or an object such as a tree or utility pole. Until recently, few vehicles were designed for good protection in this type of crash.

Five recommended older models have good small overlap ratings: the Volvo XC90, beginning with 2005 models; the Volvo S80, beginning with 2007; the Acura TL, beginning with 2009; » page 5

# **Best choices**

Large cars	Price
Volvo S80 2007 and newer	\$5,800
Ford Taurus 2010 and newer	\$10,900
Buick LaCrosse 2010 and newer	\$11,300
Buick Regal 2011 and newer	\$11,500
Lincoln MKS 2009 and newer	\$12,300
Toyota Avalon 2011 and newer	\$15,700
Hyundai Azera 2012 and newer	\$16,800
Mercedes-Benz E-Class sedan and coupe 2010 and newer	\$19,000
Infiniti M37/M56/Q70 2011 and newer	\$19,900
Midsize cars Volkswagen Jetta sedan	\$5,600
and wagon 2009 and newer	
Volvo C30 2008 and newer	\$7,000
Volkswagen Passat sedan 2009 and newer	
Ford Fusion 2010 and newer; built after April 2010; 2010 Fusions built before May meet "good choice" criteria	\$7,400
Mercury Milan 2010-11; built after April 2010; 2010 Milans built before May meet "good choice" criteria	\$7,400
Chrysler 200 sedan 2011 and newer	\$8,000
Chevrolet Malibu 2010 and newer; built after November 2009	\$8,200
Volkswagen CC 2009 and newer	\$8,300
Audi A3 2008 and newer	\$8,400
Dodge Avenger 2011 and newer	\$8,900
Subaru Legacy 2010 and newer	\$9,300
Hyundai Sonata 2011 and newer	\$9,900
<b>Lincoln MKZ</b> 2010 and newer; built after April 2010	\$10,000
Kia Optima 2011 and newer	\$10,200
Audi A4 sedan 2009 and newer	\$10,800
Honda Accord sedan and coupe sedan 2012 and newer; coupe 2013 and newer	\$10,900
Subaru Outback 2010 and newer	\$11,300
Toyota Camry 2012 and newer	\$11,300
Nissan Altima 2013 and newer	\$12,200
Mercedes-Benz C-Class sedan 2009-14	\$12,300
Buick Verano 2012 and newer	\$12,400

#### Recommended used vehicles for teens

Midsize cars (continued)	Price
Volvo S60 2011 and newer; price is for 2012, which had lower trim level available	\$13,400
Toyota Prius v 2012 and newer	\$14,200
Mazda 6 2014 and newer	\$15,100
Acura TSX sedan and wagon 2012 and newer	\$16,600
Acura TL 2012 and newer; built after April 2012	\$17,300
Small SUVs	
Honda Element 2007-11	\$6,700
Volkswagen Tiguan 2009 and newer	\$7,900
Subaru Forester 2009 and newer	\$9,000
Mitsubishi Outlander Sport 2011 and newer	\$9,300
Hyundai Tucson 2010 and newer	\$10,400
Kia Sportage 2011 and newer	\$11,300
Jeep Patriot 2014 and newer	\$13,700
Ford Escape 2013 and newer	\$14,000
Mitsubishi Outlander 2014 and newer	\$14,400
Mazda CX-5 2013 and newer	\$14,800
Honda CR-V 2012 and newer	\$15,400
Buick Encore 2013 and newer	\$15,500
Toyota RAV4 2013 and newer	\$17,600
Nissan Rogue (except Select) 2014 and newer	\$18,500
Midsize SUVs	
Volvo XC90 2005 and newer	\$4,600
Subaru Tribeca/B9 Tribeca 2006 and newer	\$6,000
Dodge Journey 2010 and newer	\$8,700
Chevrolet Equinox 2010 and newer	\$11,100
Ford Flex 2010 and newer; built after January 2010	\$11,700
GMC Terrain 2010 and newer	\$12,000
Toyota Highlander 2008 and newer	\$12,000
Infiniti EX 2008 and newer	\$12,100
Toyota Venza 2009 and newer	\$12,200
Kia Sorento 2011 and newer	\$12,300
Ford Edge 2011 and newer; built after February 2011	\$13,300
Volvo VC60 2010 and namer	¢12 500

Volvo XC60 2010 and newer

\$13,500

Midsize SUVs (continued)	Price
Ford Explorer 2011 and newer	\$16,200
Lincoln MKT 2010 and newer; built after March 2010	\$16,200
Dodge Durango 2011 and newer	\$16,300
Cadillac SRX 2010 and newer	\$16,900
Audi Q5 2009 and newer	\$17,300
Jeep Cherokee 2014 and newer	\$17,500
Honda Crosstour 2013 and newer	\$17,700
Honda Pilot 2012 and newer	\$18,200
Jeep Grand Cherokee 2011 and newer	\$18,500
Mercedes-Benz GLK-Class 2011 and newer	\$19,100
Large SUVs Chevrolet Traverse 2011 and newer	\$13,500
GMC Acadia 2011 and newer	
Buick Enclave 2011 and newer	\$15,400
Duick Litelave 2011 and newer	\$16,100
Minivans	
Dodge Grand Caravan 2012 and newer	\$11,600
Volkswagen Routan 2012 and newer	\$11,800
Toyota Sienna 2011 and newer	\$13,200
Honda Odyssey 2011 and newer	\$13,600
Chrysler Town & Country 2012 and newer	\$14,600
Pickups	
Toyota Tundra crew cab (Double Cab) 2007 and newer	\$12,200
Ford F-150 crew cab (SuperCrew)	\$16,800



### Offering skid avoidance course to teen drivers doesn't improve safety

The idea that more and better training could help reduce teen drivers' elevated crash rates continues to find adherents among safety advocates and policymakers. Unfortunately, studies have repeatedly found that driver ed-



ucation by itself does little to improve safety and, in some cases, makes young drivers more likely to take risks (see Status Report, May 19, 2001, and Jan. 11, 1997).

A new type of supplemental driving course that aims to help teenagers learn how to avoid dangerous driving situations also falls short of expectations, IIHS has found. Researchers found no clear evidence that skid avoidance and vehicle control training offered to teens in Maryland reduced crashes or violations.

Such supplemental driving courses have proliferated recently. They are offered at driving schools and also sometimes sponsored by automakers and promoted by highway safety organizations.

The version IIHS studied is offered by a driving school in Montgomery County, near Washington, D.C. Students work one-on-one with an instructor in a car that has been modified to allow them to experience reduced traction even at low speeds on a dry surface. They are taught that they can avoid skidding in reducedtraction situations if they slow down and refrain from erratic steering and hard braking.

For the study, the \$225 course was offered free of charge to a random sample of all 16-17 year-olds who had completed the basic driver education course required for provisional licensure in Maryland at the same driving school between March 2011 and August 2012. Traffic citation and crash rates over the next two years were computed and compared with the students who weren't offered the skid avoidance training.

It's reasonable to suppose that such training would improve a young driver's ability to avoid risky situations, and at first glance, the Maryland course seemed to help. Those who completed it had fewer moving violations and a lower risk of police-reported crashes.

However, of the 1.481 students offered the free course, only 234, or 16 percent, completed it. When the researchers controlled for potential differences between those accepting and those declining the offer, they didn't find any clear evidence that the training was responsible for the better driving records of those taking the course.

Depending on which of three statistical methods was used, the estimated effect of the course varied widely. Results ranged from a 6 percent decrease in moving violations to a 150 percent increase, and from a 27 percent decrease in crashes to a 6 percent increase. None of the estimates was statistically significant.

"Few people were motivated to take this course, even when it was offered for free," says Charles Farmer, director of statistical services at IIHS and the study's lead author. "We don't know whether it would have shown clearer benefits if more people had accepted the offer. What is clear is that offering the course as an option, even for free, isn't an effective way to prevent large numbers of teen crashes."

For a copy of "Crash and citation records of young drivers with skid avoidance training" by C.M. Farmer and J.K. Wells, email publications@iihs.org.

# **Good choices**

Large cars	Price
Hyundai Azera 2006-11	\$4,100
Audi A6 sedan 2005 and newer	\$6,000
Acura RL 2005-12	\$6,700
Ford Taurus 2009	\$7,100
Cadillac DTS 2008-11	\$7,700
Mercury Sable 2009	\$7,700
Chevrolet Impala 2011 and newer	\$8,700
Mercedes-Benz E-Class sedan 2007-09	\$8,800
Toyota Avalon 2009-10	\$9,000
Lexus GS 2006 and newer	\$9,300
Cadillac CTS 2008 and newer	\$9,700
Midsize cars	
Saab 9-5 sedan and wagon 2005-11	\$2,700
Saab 9-3 sedan and wagon 2005-11	\$2,800
Hyundai Sonata 2006-10	\$3,300
Volkswagen Passat sedan and wagon 2006-08	\$3,400
Audi A4 sedan and wagon 2005-08; built after October 2004	\$4,200
Volvo S60 2007-09	\$4,400
Suzuki Kizashi 2010-13	\$4,500
Mercedes-Benz C-Class sedan 2005-08	\$4,600
Acura TL 2004-12	\$4,800
Saturn Aura 2009	\$5,500
Volvo S40 2007 and newer	\$5,600
Audi A3 2006-07	\$5,800
BMW 3-series sedan 2006 and newer	\$5,900
Mazda 6 2009-13	\$6,600
Mitsubishi Galant 2010-12	\$6,700
Chevrolet Malibu 2009-10	\$7,200

« from page 2 the Suzuki Kizashi, beginning with 2010; and the Volvo S60, beginning with 2011. An additional seven vehicles have acceptable ratings going back to 2011 or earlier: the Infiniti G (2007), Mazda 6 (2009), Ford Flex (2009), Chrysler 200 (2011), Dodge Avenger (2011), Kia Optima (2011) and Mitsubishi Outlander Sport (2011). Parents seeking the safest

#### Recommended used vehicles for teens

Midaina agus (agatinuad)	Duino
Midsize cars (continued) Honda Accord sedan 2008-11	<b>Price</b> \$7,200
	\$7,200
Kia Optima 2010	
Subaru Legacy 2009	\$7,700
Pontiac G6 sedan 2010	\$7,800
Lincoln MKZ 2009-10; built before May 2010	\$8,000
Nissan Altima 2010-12	\$8,100
Lexus IS 250 2006 and newer	\$8,500
Toyota Camry 2010-11	\$8,900
Infiniti G sedan 2007 and newer	\$9,000
Lexus ES 350 2007 and newer	\$9,600
Small SUVs	
Suzuki Grand Vitara 2006-13	\$3,500
Mitsubishi Outlander 2007-13	\$4,600
Mazda Tribute 2009-11	\$5,700
Ford Escape 2009-12	\$6,100
Nissan Rogue 2008-13	\$6,900
Toyota RAV4 2007-12	\$7,600
Honda CR-V 2007-11	\$8,300
Mercury Mariner 2009-11	\$8,400
Midsize SUVs	
Suzuki XL7 2008-09	\$3,600
Mazda CX-7 2007-11	\$5,000
Saturn Vue 2008-09	\$5,000
Ford Taurus X 2008-09	\$5,700
Honda Pilot 2006-11	\$6,000
Hyundai Santa Fe 2007 and newer	\$6,400
Mazda CX-9 2007 and newer	\$6,600
Hyundai Veracruz 2007-12	\$7,000

choices from each list should consider one of these vehicles.

Ford Edge 2007-11; built before March 2011 \$7,600

#### Recommended pickups

Last year's recommendations didn't include any pickups because those that met the Institute's safety criteria exceeded the \$20,000 price limit. This year, several made the cut.

"We found in our survey last year that 14

Midsize SUVs (continued)	Price
Mercedes-Benz M-Class 2006 and newer	\$9,000
Mitsubishi Endeavor 2010-11	\$9,500
Ford Explorer 2009-10	\$9,600
Ford Flex 2009	\$9,900
Lincoln MKX 2007 and newer	\$9,900
Large SUVs	
Saturn Outlook 2008-09; puilt after March 2008	\$7,800
Mercedes-Benz R-Class 2007-12	\$8,500
Minivans	
Kia Sedona 2006 and newer	\$3,400
Honda Odyssey 2005-10	\$4,100
Hyundai Entourage 2007-08	\$4,400
Chrysler Town & Country 2008-11	\$5,600
Dodge Grand Caravan 2008-11	\$6,200
Volkswagen Routan 2009-11	\$6,300
Pickup	
Honda Ridgeline 2006-14	\$7,700

percent of teenagers are driving pickups, so we're happy to be able to recommend a few models," McCartt says.

The country's most popular pickup, the Ford F-150 crew cab, will set families back \$16,800 for a 2011 model. A 2007 Toyota Tundra crew cab, a best choice like the F-150, costs \$12,200, while the 2006 Honda Ridgeline, a good choice, can be had for \$7,700. ■



# **Speed cameras reduce injury crashes** in Maryland county, IIHS study shows

t's well-established that speed cameras can get drivers to slow down, but do the effects hold up over time? IIHS researchers recently returned to the site of an earlier study to find out.

The results, presented in September at the annual meeting of the Governors Highway Safety Association, were impressive. More than seven years after it began, the speed camera program in Montgomery County, Md., a large community near Washington, D.C., has led to long-term changes in driver behavior and substantial reductions in deaths and injuries.

Automated enforcement can be controversial. Some programs have been rolled back because of a political backlash, and some states have outlawed their use. The new study has helped put the spotlight on cameras' lifesaving potential.

"Automated speed cameras enforce the law, cost taxpayers nothing and make streets safer for everyone," The Washington Post said in an editorial citing the Institute's research. The newspaper expressed hope that the study would encourage more communities to use cameras.

As of August, only 138 jurisdictions were operating speed cameras. If all U.S. communities had programs like the one IIHS studied in Maryland's Montgomery County, more than 21,000 fatal or incapacitating injuries would have been prevented during 2013.

Speed cameras were introduced in Montgomery County in 2007. As of 2014, the county had 56 fixed cameras, 30 portable cameras and six mobile speed vans. The cameras are used on residential streets with speed limits of 35 mph or less and in school zones.

IIHS originally looked at the Montgomery County program during its first year. Six months into the program, the proportion of drivers

traveling at least 10 miles over the speed limit had fallen on streets with cameras (see Status Report, Jan. 31, 2008, at iihs.org).

The new study found that cameras have reduced by 59 percent the likelihood of a driver exceeding the speed limit by more than 10 mph, compared with similar roads in two nearby Virginia counties that don't have speed cameras.

The researchers also looked at crashes on camera-eligible roads in Montgomery County, relative to comparison roads in Virginia. They found that the cameras resulted in a 19 percent reduction in the likelihood that a crash would involve a fatality or an incapacitating injury, as reported by a police officer on the scene.

"Speed cameras get drivers to ease off the accelerator, and crashes are less likely to be deadly at lower speeds," IIHS President Adrian Lund says. "This study connects the dots to show that speed cameras save lives."

#### Speed-camera corridors

Although cameras alone are effective, Montgomery County recently found a way to deploy them so that they have a bigger impact.

In 2012, the county introduced speed-camera corridors. With corridors, enforcement is focused on long segments of roads instead of specific locations. The cameras are regularly moved to different locations on those roads so drivers don't become familiar with their exact locations.

The corridor approach led to further safety gains, reducing the likelihood of a crash involving a fatal or incapacitating injury an additional 30 percent beyond the use of cameras alone, the researchers found.





"Speed-camera corridors force drivers to watch their speed for the length of the road, instead of slamming on the brakes at a specific location and then speeding up again," says Anne McCartt, the Institute's senior vice president for research and a co-author of the study.

Overall, the county's camera program in its current form — including the use of corridors and a minor enforcement change that took effect in 2009 — reduces the likelihood of fatal or incapacitat- -10 ing injuries by 39 percent on residential roads with speed limits of 25-35 mph. The estimate of 21,000 fatal or incapacitating injuries -20 that cameras could prevent nationwide is based on that reduction.

The total benefit would likely be even greater because that number doesn't include any spillover effect. Drivers in Montgomery County seem to have slowed down even on roads that aren't eligible for automated enforcement. The researchers found that the likelihood of injuries fell 27 percent on 40 mph roads as a result of the camera program on roads with limits of 35 mph or less.

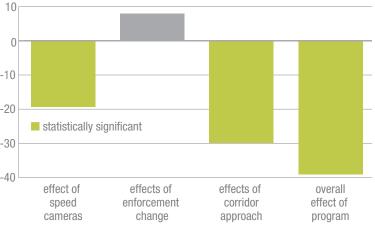
"The IIHS evaluation of our Safe Speed program validates the fact that a well-managed program that properly deploys its speed cameras can effectively change behavior and reduce the likelihood of collisions," says Capt. Tom Didone, director of the Montgomery County Police Department's traffic division. "Law enforcement programs across the nation will greatly benefit from this report."

#### Public awareness of cameras

Cameras succeed in changing behavior only if drivers know about them. In Montgomery County, 95 percent of drivers surveyed were

#### Effect of speed cameras in Montgomery County, Md.

Percent change in the likelihood of a crash on a camera-eligible road involving an incapacitating or fatal injury



aware of them. More than three-quarters said they had reduced their speed because of the program, and 59 percent had received a speed-camera ticket personally.

Sixty-two percent of drivers surveyed in Montgomery County said they favored speed cameras on residential streets. That means there are supporters even among those who have been ticketed.

For a copy of "Effects of automated speed enforcement in Montgomery County, Maryland, on vehicle speeds, public opinion, and crashes" by W. Hu and A.T. McCartt, email publications@iihs.org.



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