

STATUS REPORT

INSURANCE INSTITUTE
FOR HIGHWAY SAFETY

Vol. 37, No. 8, September 14, 2002



GRADUATED LICENSING

When it makes
the most difference,
from learning to
driving unrestricted

The first long-term study of graduated licensing gives a detailed look at how this approach works to reduce the risks while teenagers learn how to drive and get their initial experience behind the wheel. The study, conducted in Nova Scotia, is the first to investigate what each licensing stage in a graduated system contributes to safety. A

key finding is that crash reductions among young beginning drivers occur in both the learner and intermediate stages.

The first six months of the learner stage are when researchers found the biggest crash reductions. Another research finding is that the benefits of graduated licensing for teenagers don't come at the cost of higher crash rates later on.

Graduated licensing was adopted in Nova Scotia in 1994, before many U.S. states began considering such an approach. "Because the Nova Scotia program has been in place a few years, it's one of the first opportunities we've had to look at effects over a longer period," Dan Mayhew of Canada's Traffic Injury Research Foundation explains. Mayhew is the lead author of the new study.

The licensing program, which applies to new drivers of all ages (not just teenagers), consists of a six-month learner stage followed

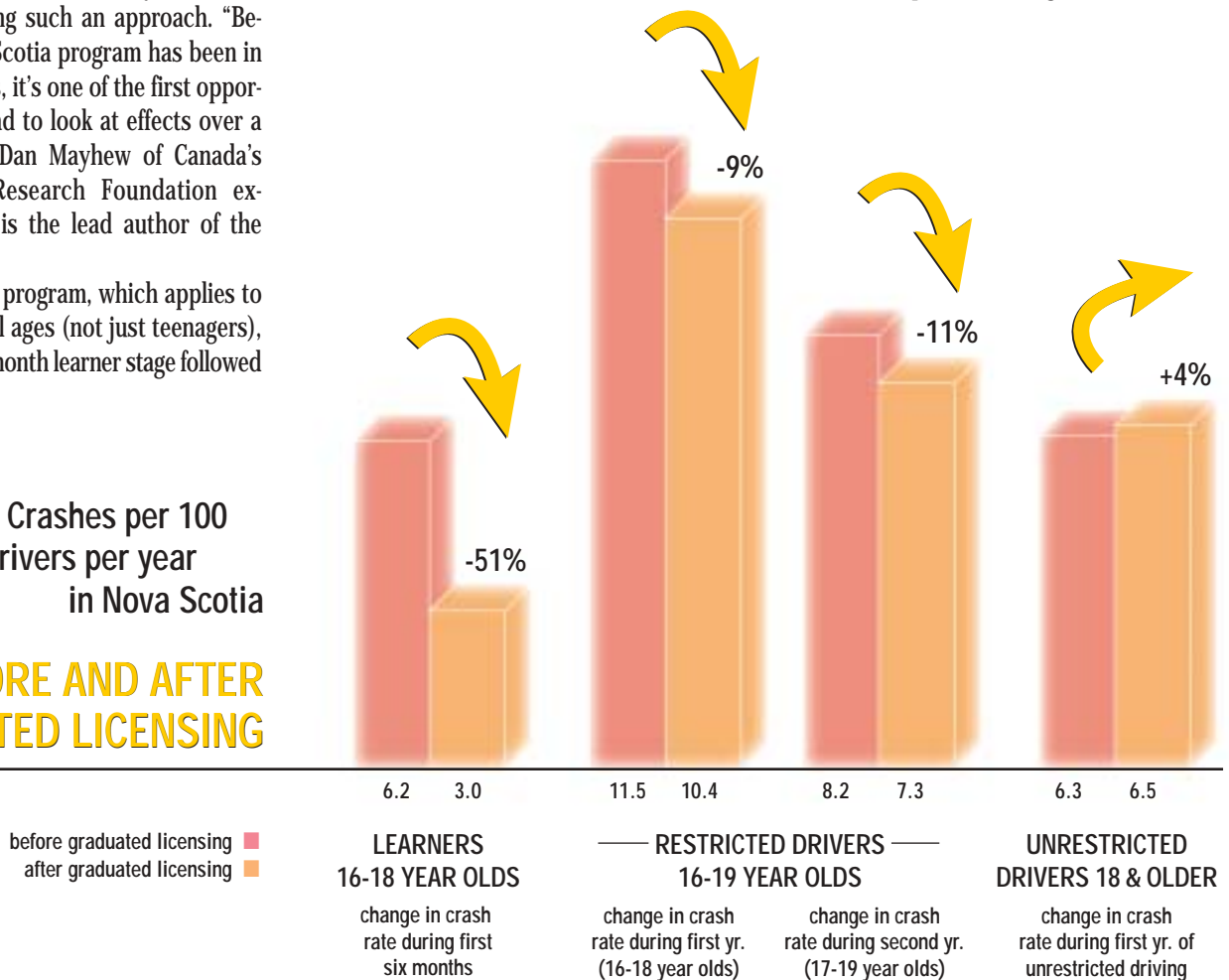
This system has attracted support among both parents and teenagers in Nova Scotia (see *Status Report*, Dec. 27, 1997; on the web at www.highwaysafety.org).

Crashes drop by half: The short- and long-term effects of Nova Scotia's licensing restrictions were evaluated by comparing the numbers of crashes per licensed driver

or 17 years old. The decline in crashes for this group during this period was 51 percent. Most of the new drivers were supervised under the graduated system, whereas under the prior licensing system more of them already were fully licensed and allowed to drive unsupervised.

The benefits continued during the intermediate stage of graduated licensing, when beginners were allowed to drive unsupervised except late at night. However, the

Crashes per 100 drivers per year in Nova Scotia
BEFORE AND AFTER GRADUATED LICENSING



by a 24-month intermediate licensing stage. Learners must be accompanied by an experienced driver at all times, and no other passengers are allowed. Learners advance to the intermediate stage after passing a road test, and they can advance sooner if they take driver training. Then, for the next two years, intermediate license holders may drive unsupervised except between midnight and 5 a.m.

for beginners during the first years of graduated licensing with crash rates for beginners who got their licenses under the prior system. The researchers looked separately at drivers 16 or 17 years old (younger drivers are at higher risk) and drivers who were 18 and older.

The biggest effects were during the first six months of driving for beginners who got their learner's permits when they were 16

crash reductions were smaller than during the first six months.

Among drivers initially licensed at 16 or 17, crash rates declined 9 percent in the first year and 11 percent in the second year of the intermediate stage. These reductions were statistically significant, and most of the benefits were due to the night driving restriction, which reduced crashes during the restricted hours by about half.

Crash rates were 4 percent higher during the year after drivers could graduate to full licensure status. However, “this small change wasn’t statistically significant,” says Institute chief scientist Allan Williams. “Some people have been concerned that crash rates might go up once teens get their full licenses because they didn’t get as much experience behind the wheel during the learner and intermediate stages. But this didn’t happen. There wasn’t any significant increase among the younger new drivers, those who were 16 or 17 years old when they began the process of getting a license.”

Different results for older drivers: The patterns were different for novices who got either their learner’s permits or licenses at age 18 and older. Crash rates for these drivers were reduced 31 percent during the learner stage, but during the first year of the intermediate stage there was no difference in crash rates for these older beginners compared with drivers who got their licenses under the prior system. During the second year of the intermediate stage and the first year following graduation from the system, crashes increased for drivers 18 and older.

More research is needed to understand the characteristics of older beginning drivers and why the benefits of graduated licensing appear much more limited for this group. However, almost all graduated systems in U.S. states apply to 16 and 17 year-olds only — not beginners 18 and older. The younger group accounts for most of the novice drivers, and they have the highest crash risk.

No benefit of driver education: Another factor the researchers considered was the effect of driver education. Nova Scotia allows beginners to advance from the learner stage to the intermediate licensing stage in three months instead of six if they complete a driver education course. Crash rates for licensed drivers who took such courses and received the time discount were significantly higher than rates for drivers who didn’t take driver education. A similar effect was found in an evaluation of Ontario’s graduated licensing program.

“So there’s no evidence that formal driver education justifies a time discount, and the

practice of allowing discounts might actually diminish the safety effects of graduated licensing,” Mayhew points out. This finding is consistent with other scientific evaluations of driver education, which indicate these courses don’t reduce crash risk among beginners (see *Status Report*, Jan. 11, 1997; on the web at www.highwaysafety.org).

Ways to strengthen the program: Nova Scotia’s program is successful, but its success would likely be greater if the province adopted a stronger version of graduated licensing — in particular, a night driving restriction that began earlier. Most nighttime crashes involving teenage drivers occur between 9 p.m. and midnight, but the restriction on beginning drivers in Nova Scotia doesn’t start until midnight. Separate research points to another important restric-

The first six months of the learner stage are when researchers found the biggest crash reductions. The benefits of graduated licensing didn’t come at the cost of higher crash rates later on.

tion — a limit on the number of teenage passengers riding in vehicles driven by teenagers (see *Status Report*, Feb. 17, 2001; on the web at www.highwaysafety.org).

Most U.S. states and Canadian provinces have adopted some form of graduated licensing, but “only a handful have programs we rate as strong,” Williams says. “If jurisdictions would upgrade their laws, as some have done, it’s likely that graduated licensing would become even more effective.”

For a copy of “Specific and long-term effects of Nova Scotia’s graduated licensing program” by D. Mayhew et al., write: Publications, Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA 22201.



Addition of lap belts to school buses won't improve safety in frontal crashes

A government report concludes that putting lap belts on school buses would have “little, if any, benefit” in reducing serious to fatal injuries in severe frontal crashes and could cause more neck injuries. Lap/shoulder belts on school buses could be beneficial. But if they're misused — with the shoulder part of the belt put behind the back or under the arm — lap/shoulder belts would offer no more benefit than lap belts.

The report from the National Highway Traffic Safety Administration (NHTSA) comes in response to a request from Congress, which asked the agency to study the benefits of equipping school buses with safety belts (see *Status Report*, Oct. 2, 1999; on the web at www.highwaysafety.org).

When it comes to improving occupant protection on school buses, it's important to understand that the people riding on these vehicles already are at low risk of crash injury. School buses get into relatively few crashes. For the most part they're driven at slower speeds than other vehicles, and the other vehicles are required to stop for them when they're loading or unloading passengers. When school buses do crash, their larger size and weight mean the people inside are less likely to be injured than they'd be in a smaller vehicle.

There's a longstanding debate about whether belts would further improve the safety of occupants on school buses. The federal government never has mandated belts in full-size school buses, but some states already require belts and other states are considering it. California requires new school buses to have lap/shoulder belts. New Jersey and New York require lap belts. Lap or lap/shoulder belts are required on all new school buses in Florida and will be required in Louisiana starting in 2004.

To assess the potential benefits of requiring belts, NHTSA conducted a series of sled tests comparing lap belts and lap/shoulder belts with compartmentalization, which refers to the protective envelope formed by strong, closely spaced seats with padded, energy-absorbing seatbacks. Compartmentalization currently is required on all school buses. The sled tests simulated a 30 mph frontal crash into a rigid barrier using dummies representing a 6-year-old child, a 12-year-old child (5th percentile female dummy), and a large high school student (50th percentile adult male dummy).

Compartmentalization proved to be effective in minimizing the risk of head, chest, and leg injuries in the simulated frontal impacts. Neck injury measures, however, were above

tolerance limits in half of the tests. All dummies except the adult male were kept within the compartment by the height of the seatbacks.

Lap belts kept the dummies in their seats but produced even higher neck injury measures than compartmentalization alone. Lap/shoulder belts performed best overall, NHTSA reports. The belt systems prevented or limited impact with the seatback and produced lower head and neck injury measures compared with compartmentalization. But lap/shoulder belts weren't as effective when positioned either with the shoulder portion of the belt behind the back or under the arm. Neck injury measures were high, suggesting that “when worn improperly, the lap/shoulder belt restraint system can be potentially as dangerous to the passenger as the lap belt restraint system.”

The agency stops short of saying whether lap/shoulder belts should or shouldn't be installed on school buses. The agency simply warns that “potential negative consequences . . . have not been adequately researched at this time to allow a full determination of the overall cost/benefits.”

Based on the findings of this study, NHTSA might upgrade the federal safety standards applying to smaller buses (those weighing less than 10,000 pounds). Instead of the current requirement for lap belts on these smaller buses, the federal standards might be changed to require lap/shoulder belt systems. The agency also is considering a measure to raise the minimum height of the seatbacks on school buses to reduce the potential for larger passengers to ride over the seats.

As part of its ongoing research, NHTSA will evaluate two other potential restraint systems. One is a bus seat with an integrated lap/shoulder belt, and the other is a seat with an airbag/lap belt system. These systems weren't available for the first round of tests. Plus the agency will look at side impact protection.

NHTSA's report is on the web at www.nrd.nhtsa.dot.gov/departments/nrd-11/schoolbus/sbreportfinal.pdf.

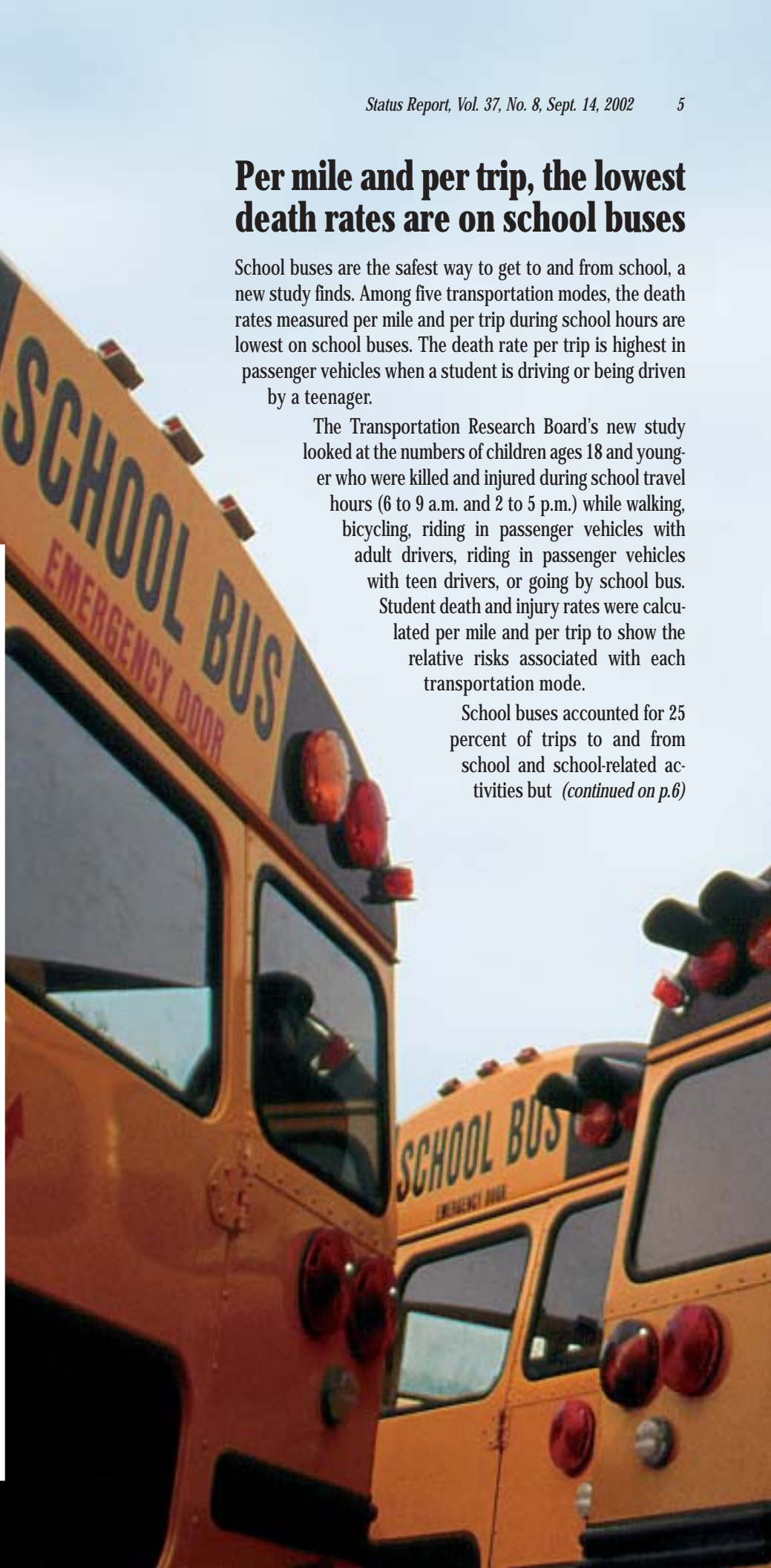


Per mile and per trip, the lowest death rates are on school buses

School buses are the safest way to get to and from school, a new study finds. Among five transportation modes, the death rates measured per mile and per trip during school hours are lowest on school buses. The death rate per trip is highest in passenger vehicles when a student is driving or being driven by a teenager.

The Transportation Research Board's new study looked at the numbers of children ages 18 and younger who were killed and injured during school travel hours (6 to 9 a.m. and 2 to 5 p.m.) while walking, bicycling, riding in passenger vehicles with adult drivers, riding in passenger vehicles with teen drivers, or going by school bus. Student death and injury rates were calculated per mile and per trip to show the relative risks associated with each transportation mode.

School buses accounted for 25 percent of trips to and from school and school-related activities but *(continued on p.6)*



(continued from p.5) only 2 percent of student deaths. Fourteen percent of student trips but more than half of the deaths involved teen drivers. On a per-trip basis, students are about 44 times more likely to be killed in a vehicle with a teen driver than while riding on a school bus.

Bicycling is the second most dangerous form of student transportation during school hours, per student trip. Measured per student mile traveled, biking is worse than riding in a passenger vehicle with a teenage driver. "This is an often overlooked problem we can do something about," says Institute chief scientist Allan Williams. "So many of the bicyclist in-

Speed cameras still favored in D.C. despite negative publicity, survey reveals

Washington, D.C., has been using cameras to identify and ticket speeders since last summer, and results so far indicate the program is beneficial. Proportions of speeding vehicles have declined at locations around the city (see *Status Report*, May 4, 2002; on the web at www.highwaysafety.org).

Even as vehicle speeds have come down, the city's camera program has attracted some bad press (a local newspaper dubbed it "frightening") and complaints from a member of the city council who says he "got caught up" by a camera. It wouldn't be surprising if reviews like these eroded public support for the camera program. But support is holding up, according to a recent Institute survey. About half (51 percent) of the D.C. residents surveyed said they favor the cameras. Thirty-six percent said they're in opposition.

Public support is important because, as Institute senior traffic engineer Richard Retting points out, "a big stumbling block to the wider use of automated enforcement is concern that people won't accept it or that there could be a backlash. This survey shows that even in a city where cameras have been somewhat controversial, there's still a good level of public support."

Prior surveys of speed camera use have found slightly higher levels of support. One conducted earlier in the Washington, D.C., area regarding the potential use of cameras found about 60 percent approval. Surveys conducted in Arizona and California towns where speed cameras were being used found about the same level of approval. However, police enforcement hadn't started, or it was minimal, when these surveys were conducted.

To be sure, support for the District of Columbia's speed cameras doesn't equal the approval found elsewhere for red light camera programs. Three-quarters or more

STUDENT DEATH RATES DURING SCHOOL TRAVEL HOURS

deaths per 100 million:					
TRIPS	0.3	1.6	4.6	9.6	13.2
MILES	0.1	0.3	8.7	12.2	2.4
	school bus	passenger vehicle with adult driver	walk	bicycle	passenger vehicle with teen driver

Notes: School travel hours are 6-9 a.m. and 2-5 p.m. School bus deaths include bus passengers and child pedestrians hit by school buses. Deaths in passenger vehicles driven by teenagers include teen driver deaths plus deaths of child passengers riding with the teen drivers.



juries and deaths could be prevented if more states either adopted helmet laws covering all riders or strengthened the laws they already have on their books," Williams says.

Each year about 700 bicyclists are killed and another 500,000 are injured seriously enough to require a trip to the emergency room. Most of the serious injuries are to the head. Helmets would prevent or reduce the severity of an estimated 70-90 percent of the head injuries.

However, few children wear helmets in the absence of a helmet law. This is clear from a new study conducted in Texas, where no bicycle helmet law is in effect. The study observed children riding bicycles, finding only 14 percent wearing helmets. The use rates were lowest among children younger than 5, the age group that also has the highest bicycle death rates per capita.

Only 17 states and the District of Columbia have statewide laws requiring bicycle helmet use, and most of these laws

apply only to riders 15 and younger. In some cases, the laws apply only to bicyclists younger than 12 or 13. About 70 percent of the bicyclists killed each year are 16 or older, "so the helmet use laws should cover adults as well as children," Williams says.

The Transportation Research Board study, "The relative risks of school travel," is on the web at <http://gulliver.trb.org/publications/sr/sr269.pdf>. The Texas study, "Helmet use: a survey of four common childhood leisure activities," by S. Forjuoh et al. appears in *Archives of Pediatrics and Adolescent Medicine* (July 2002).

of respondents to surveys in communities with and without red light cameras say they favor such programs (see *Status Report*, April 28, 2001; on the web at www.highwaysafety.org). Although support for speed cameras isn't as impressive, more people in the District of Columbia favor such cameras than oppose them.

Eighty-three percent of the D.C. residents who recently were polled said they knew speed cameras were being used. Support for the cameras generally increased with the age of the respondents and was higher among people who thought speeding was a problem in the city. Residents who hadn't received tickets and didn't know any-

one who had were more likely to say they favored the cameras.

While support for cameras generally was good, 36 percent of those who were polled said they didn't think speeding was a problem in the District of Columbia. Fifty-three percent of the respondents in this group said they opposed the use of cameras.

"Such responses are unfortunate because research indicates that speeding is, in fact, a problem," Retting says. "At some locations in the District, more than half of the drivers are exceeding the speed limit by at least 10 mph. City officials indicate that speed is a contributing factor in more than half of the District's traffic deaths."

D.C. police operate five camera-equipped vehicles that are moved around the city. The cameras use radar to measure vehicle speeds but, unlike traditional radar that can measure the speeds of relatively isolated vehicles, these cameras can focus on specific vehicles in traffic.

The District operates one of the few speed camera programs in the United States. In contrast, European countries and Australia rely heavily on cameras to enforce speed limits.

For a copy of "Public opinion regarding speed cameras in the District of Columbia" by R. Retting, write: Publications, Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA 22201.



DO YOU THINK DRIVERS EXCEEDING THE SPEED LIMIT ARE A PROBLEM IN D.C.?

By age of respondents

	Age 18-29	30-59	60+	TOTAL
YES	52%	65%	81%	64%
NO	48%	35%	19%	36%

DO YOU FAVOR OR OPPOSE USING SPEED CAMERAS TO ENFORCE LAWS AGAINST SPEEDING IN D.C.?

By age of respondents

	Age 18-29	30-59	60+	TOTAL
FAVOR	44%	52%	55%	51%
Strongly	23%	31%	41%	30%
Somewhat	21%	22%	14%	20%
OPPOSE	48%	33%	29%	36%
Strongly	29%	24%	24%	25%
Somewhat	19%	9%	5%	11%
NO OPINION	9%	14%	16%	13%

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ARLINGTON, VA

1005 North Glebe Road, Arlington, VA 22201
703/247-1500 Fax 247-1588
Internet: www.highwaysafety.org
Vol. 37, No. 8, September 14, 2002

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