Statement before the Pennsylvania House Transportation Committee

Research on Automated Speed Enforcement

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The Insurance Institute for Highway Safety is a nonprofit research and communications organization that identifies ways to reduce deaths, injuries, and property damage on our nation's highways. We are supported by auto insurers. Thank you for the opportunity to submit for the record research findings about the use of automated enforcement to reduce speeding and roadway crashes.

A high likelihood of apprehension is what convinces motorists to comply with traffic laws, but many enforcement agencies have insufficient personnel to mount effective enforcement programs using traditional police patrols. Automated traffic enforcement can supplement traditional methods, especially at times of day and on roads where traditional enforcement can be difficult if not hazardous.

The most important question about the use of automated enforcement is whether it reduces crashes — and it does. A wealth of research in U.S. communities and elsewhere indicates it reduces crashes and associated deaths, injuries, and property damage by reducing illegal and dangerous driver behavior. As of September 2016, 142 communities in 15 states and the District of Columbia use cameras to supplement conventional police enforcement of speed limits.

Risks of speeding

Speeding is a major factor in motor vehicle crashes, especially those resulting in serious injuries.[1] In the United States, speeding — as defined on police crash reports as driving too fast for conditions, exceeding posted speed limits, or racing — was a contributor in 28 percent of crash deaths in 2014, resulting in more than 9,200 fatalities.[2] Although speeding often is associated with interstates and other high-speed roads, 87 percent of speeding-related fatalities in 2014 occurred on roads other than interstate highways and freeways. In 2014, 25 percent occurred on streets with speed limits of 35 mph or less.

Speeding poses multiple risks to everyone on the road: Speeding is one of the most prevalent factors contributing to motor vehicle crashes.[3] It also contributes to both crash frequency and severity.[4] Speed increases frequency because at higher speeds, motorists have less time to react and stopping distances are longer. The probability of severe injury in crashes increases sharply with the impact speeds of the vehicles, reflecting the laws of physics.

The risk of death to pedestrians — the most vulnerable people on the road — climbs rapidly as speed increases. Researchers estimate that the risk of death for a pedestrian struck by a vehicle is about 5 percent for a vehicle traveling at 20 mph, about 40 percent for a vehicle traveling at 30 mph, and about 80 percent for a vehicle traveling at 40 mph.[5] Urban areas are prime candidates for speed enforcement because 76 percent of pedestrian deaths in 2014 occurred in urban areas.[6]

New ways needed to reduce speeding on high-risk roads: The perception of the risk of getting a speeding ticket strongly influences motorists' speed choices. Traditional police patrols are the most common method of apprehending motorists who travel at excessive speeds. However, many enforcement agencies do not have sufficient personnel to mount effective speed enforcement programs. Staffing levels have not kept pace with the growth in motor vehicle travel. Between 1995 and 2014, the estimated number of vehicle miles traveled in the United States increased by 25 percent,[7] but the number of law enforcement officers grew by only 7 percent.[8] Other police priorities such as apprehension of violent criminals and antiterrorism efforts can limit resources available for traffic enforcement. In addition, during periods of heavy congestion, it can be dangerous for police to make traditional traffic stops.

Cameras reduce speeding violations and crashes: The challenge is to find better methods of controlling speeds, and speed cameras can help. They photograph motor vehicles going above a specified speed threshold, typically significantly faster than the posted speed limit. To increase the deterrent value, prominently posted signs are used to alert motorists that cameras are being used.

Automated speed enforcement can substantially reduce speeding on a wide range of roads. Institute studies of the use of speed cameras on residential roads in Montgomery County, Maryland, on a major highway in Scottsdale, Arizona, and on city streets in the District of Columbia found that the proportion of drivers exceeding speed limits by more than 10 mph declined by 70, 88, and 82 percent, respectively, after cameras were introduced.[9,10,11] In the Montgomery County and Scottsdale studies, travel speeds also declined significantly on nearby roadways, indicating a spillover effect of the camera enforcement. For example, the proportion of drivers in Montgomery County traveling more than 10 mph above the speed limit declined by about 70 percent at locations with both warning signs and speed camera enforcement, 39 percent at locations with warning signs but no speed cameras, and 16 percent on residential streets with neither warning signs nor speed cameras.[9]

A 2010 systematic review published by the Cochrane Collaboration (an international organization that conducts systematic reviews of the scientific literature on public health issues) examined 35 studies from various countries.[12] The authors concluded that speed cameras — including fixed, mobile, overt, and covert devices — cut average speeds by 1-15 percent and reduced the percentage of vehicles traveling above the speed limits or designated speed thresholds by 14-65 percent compared with sites without cameras.

Studies have found that the implementation of automated speed enforcement results in fewer crashes. The Cochrane Collaboration review analyzed data from 28 studies of the effects of camera enforcement on crashes, finding reductions ranging from 8 to 49 percent for all crashes, 8 to 50 percent for injury crashes, and 11 to 44 percent for crashes involving fatalities and serious injuries.[12]

Recently the Institute revisited Montgomery County, Maryland, 8 years after its speed camera program began. In the long term, the Montgomery County speed camera program has led to a 62 percent reduction in the proportion of drivers exceeding the speed limit by more than 10 mph and a 39 percent reduction in the likelihood of a crash producing serious injuries.[13]

Public support for speed enforcement

Like other government policies and programs, camera enforcement requires acceptance and support among the public as well as government officials. Some opponents of automated enforcement raise the “big brother” issue to stir up disapproval, but acceptance of cameras always has been strong.

Telephone surveys conducted by the Institute in jurisdictions with speed camera programs show that the majority of drivers support them. A survey conducted 6 months after speed cameras were deployed on residential streets in Montgomery County, Maryland, found that 62 percent of drivers favored them.[9] Eight years later, the level of support still was 62 percent, even though most drivers interviewed had received a camera ticket or knew someone who had.[13] In Scottsdale, Arizona, where speeds limits on an urban freeway were enforced with cameras, 71 percent of drivers supported the camera program.[10] A 2012 survey of residents of the District of Columbia, which has an extensive automated enforcement program, found strong support for speed cameras.[14] Seventy-one percent of residents who had driven a car in the past month and 90 percent of residents who had not driven supported speed cameras.

Summary and conclusions

Speeding is one of the most prevalent factors contributing to motor vehicle crashes. Automated enforcement is not a panacea, but it is a proven way to reduce speeding violations and prevent crashes, especially serious crashes that result in injury and death.

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