



## **Best Practices in School Zone Traffic Calming**

### **Creating a Safe, Effective School Zone Traffic Plan**

Each year, an estimated 100 children are killed in the U.S. as they make their way to and from school, and some [25,000 students](#) are injured from incidents in school zones. The primary factor in these events is speeding. Unfortunately, [two-thirds of drivers](#) exceed the legal speed limit when passing through these zones.

As higher vehicle speeds directly correlate with increased rates of pedestrian fatalities (NHTSA), it is imperative that drivers adhere to posted speed limits to avoid the tragic loss of life in school zones.

While speeding is the primary cause of school zone injuries, other driver behaviors pose a threat to children here, too:

Vehicle Speed	Chance of Fatality
40 MPH	80%
30 MPH	40%
25 MPH	20%
20 MPH	5%

- **[“Autopilot” driving](#)** -- “Familiarity breeds inattention,” according to a Churchill Insurance Study which found that 46% of drivers say they are most likely to have no recollection of how they got to their destination during “autopilot journeys,” those regular trips on familiar routes. Importantly, 7% of motorists say they are most likely to switch to autopilot while “doing the school run.”
- **Distracted driving** -- [One in six drivers](#) (17%) are distracted. Operating with a slower reaction time further increases the probability of tragedy in school zones.

Combine these driver behaviors with children’s actions commonly associated with school zone injuries—darting into traffic, crossing in front of or behind buses or other vehicles, playing in roadways, crossing an intersection or multi-lane roadway—and it’s easy to see that a successful school zone traffic calming plan must address multiple threats and consider the needs of pedestrians, bicyclists, and even drivers.

### **The “Three Es of School Zone Traffic Calming”**

Creating a speed-free school zone may seem like an unachievable and expensive goal, but it is possible. Though some traffic-calming solutions can be quite costly, the most basic and most important component—a reduced speed zone—is not expensive.

Reduced speed paired with a thoughtful, comprehensive approach that incorporates the “Three Es of School Zone Traffic Calming”—engineering, enforcement and education—can result in safer school zones and saved lives.

## ENGINEERING

A school zone's "built environment"—its location within a community as well as its proximity to the street—is the foundational engineering component of any school zone traffic calming plan. In addition to the location, other engineering considerations for school zone traffic safety include signage, street markings, sidewalks and vertical traffic calming devices.

### Signage and Street Markings

Well-placed signs and pavement markings provide critical information to drivers and students within a school zone. The Federal Highway Administration (FHWA) has developed minimum uniform standards for traffic control devices which include signs, signals and pavement markings to promote safety on the nation's highways and streets. These guidelines are compiled in the *2009 Manual on Uniform Traffic Control Devices* [MUTCD](#). Some jurisdictions have established requirements beyond those of the MUTCD, so school zone signage and markings must comply with both the federal standards as well as the local ones.



**School Zone Signs** alert and educate drivers within the school zone. Some of the most critical signs are:

- Speed limit signs announce school zone speed limits, which typically range from 15 to 25 mph.
- School zone advance warning and end school zone signs alert drivers that they are entering or leaving the reduced speed limit area.
- School crossing signs notify drivers of crosswalks.
- Flashers may be installed at speed limit signs or crosswalks to call attention to critical traffic points.
- Radar speed signs (driver feedback signs) alert drivers to their actual speed, remind them of the speed limit and are [scientifically proven to reduce speeding](#).
- Hyper-Alerts™ are compact clusters of flashing LED lights built into the "YOUR SPEED" faceplate of radar speed signs.

**Pavement markings** are messages that are stenciled or otherwise applied directly to the street. They serve as an important supplement to signage. Crosswalk markings are perhaps the most important pavement marking in a school zone as they direct pedestrians to cross the street at the most appropriate locations. The word "SCHOOL" may also be applied to the pavement in strategic areas as outlined by the MUTCD.

**Pedestrian traffic signals** are installed at intersections or crosswalks to allow pedestrians an opportunity to cross the street safely.

- Pedestrian activated traffic lights inform pedestrians with a “WALK” or “DON'T WALK” message when it is safe to cross and may include countdown signals.
- Rapid flashing rectangular beacons, installed in unsignalized crosswalks, alert motorists to pedestrians who have manually activated the beacon.

Creating reduced speed zones with MUTCD compliant signage, painted markings and driver feedback signs provides a basic school zone traffic calming solution that is both effective and cost efficient.

### **Sidewalks**

Paved sidewalks offer pedestrians a protected path to the school, separated from vehicle traffic. Sidewalks should be level and, ideally, hard surfaced. They provide the most protection when they provide a buffer zone separating pedestrians from the street.

To create a barrier free environment for everyone, new public sidewalks and street crossings must comply with standards established as part of the [Americans with Disabilities Act](#) (ADA). The FHWA developed a [design guide](#) to assist public works and transportation agencies with this compliance. Some elements of well-designed, accessible sidewalks include curb ramps and warning strips with truncated domes.

### **Vertical Traffic Calming Measures**

Vertical deflection traffic calming devices are construction-based road alterations designed to improve safety by slowing motor vehicle traffic. These include speed bumps, speed humps, speed cushions and speed tables. While effective at slowing traffic, a number of disadvantages are associated with the devices. These raised areas of pavement increase traffic noise, damage vehicles and delay emergency vehicle response time. Careful consideration should be made before implementing a plan with vertical traffic calming measures.

## **ENFORCEMENT**

Engineering solutions alone cannot deliver the desired safe school zones for pedestrians, bicyclists and drivers. Installed or engineered options must be augmented with reasonable application and enforcement of laws by those with the legal authority to do so. Ideally, enforcement in school zones is achieved with a combination of crossing guards and local law enforcement officers.

### **Crossing Guards**

Crossing guards serve an integral role in school zone safety. They help pedestrians and bicycles cross roadways and remind motorists of their presence. And, just as importantly, they serve as excellent role models for the behaviors required to safely cross the street. From a simple pause to look left, right, and left again, to reminding drivers of their role in safety, crossing guards model best practices for students and adults alike.

There are some federal guidelines on how to determine the need for a guard at a particular location provided through MUTCD recommendations. Because MUTCD recommendations are generally

limited to signage, it is notable that guidelines formally recognize crossing guards as an integral component to school zone safety and endorses a list of best practices on [crossing supervision](#)—from qualifications of crossing guards to operations and hand-held “Stop” paddles to use of LED flashers to improve visibility.

Regardless of the type of program, [the factors](#) that must be considered when placing crossing guards in a school zone include the age of the students who will be crossing; the width of the roadway and the number of lanes which will be crossed; the presence of traffic signals, signs and pavement markings; and the speed and volume of traffic on the roadway.

Portable or stationary driver feedback signs, used in conjunction with crossing guards, provide a visual enforcement measure to slow traffic at the most critical path where children are crossing the street. School zones, which are rated as a top “autopilot journey” destination, may have increased numbers of autopilot drivers who often break the speed limit, brake too late or don’t stop at pedestrian crossings. Strategically placed driver feedback signs can serve as triggers—stimulating drivers to transition from autopilot to attentive (See: [The Science Behind Radar Speed Signs as Neurobehavioral Activators](#)). Portable signs can be placed at the side of the road, or in the center line if there is enough room, to assist in slowing traffic prior to the crossing guard entering the crosswalk.

Implementation of crossing guard programs reflect federal, state and local funding issues. Adult crossing guard programs may be actual law enforcement officers, parents or other community volunteers. The National Center for Safe Routes to School offers comprehensive information and best practices for crossing guard programs: “[Adult School Crossing Guard Guidelines](#).”

### **Law Enforcement**

The very purpose of local police departments is to ensure the safety of their citizens. Police officers have the unique ability to encourage drivers to change dangerous behaviors by enforcing the law. Police departments have a number of enforcement tools at their disposal.

- Increased police presence -- Typically, driver behavior improves instantly if a police vehicle is nearby. And commuters tend to drive more carefully when they observe, with frequency, the presence of law enforcement in a particular area.
- Driver feedback signs -- Using radar technology, these signs inform drivers of their current speed in real time, reminding them that they are traveling through a reduced speed zone which requires them to be vigilant. These signs may be permanently placed within a school zone or portable signs may be moved between locations.
- Citations -- Police officers may issue warnings for less severe violations and tickets for the most unsafe behaviors. Fines for speeding through school zones are frequently higher than those for speeding elsewhere.

Police departments serve a vital role in creating a safer school zone. While local officers have the authority to enforce traffic laws, they also know about the traffic and speed patterns in the areas where schools are located. Their input is vital to developing an effective traffic calming plan.

## EDUCATION

The effectiveness of engineering and enforcement efforts are maximized with a deliberate strategy of education. Students, teachers, parents and other community members must be made aware of the challenges and [shared responsibilities](#) of school zone traffic safety and they must be encouraged to be an active participant.

The training of **students** can take place at school and at home. This effort should focus on pedestrian and bicycle safety, both on the street and sidewalks surrounding the school and on the school grounds, particularly the parking lot area. Safety instruction can take place within a large-scale school assembly or it can be broken up into grade level appropriate lessons. The teaching can be integrated into classroom subjects like reading, science, and math. Parents should be involved in the process and can reinforce the lessons at home.

Some of the most frequent violators of school zone traffic regulations are **parents** who are in a hurry to drop off or pick up their child. Parents should be thoroughly educated to the school's drop off and pick-up procedures at the beginning of each academic year and periodically thereafter. Parents, along with **teachers**, should be reminded of their role as school zone drivers, community members and role models to encourage compliance.

Signage and news stories are some of the most effective ways to reach other **community members** with information about school zone safety. Cultivating engaged and attentive students and adults through a well-developed education initiative is a critical factor in reducing the number of accidents and fatalities in school zones.

### School Zone Traffic Calming: Profiles in Success

Many schools across the nation have successfully implemented the "Three Es of Traffic Calming." Their profiles in success provide insights into what works and how communities adapt to make school zones safer.

#### Georgia: Athens--Clarke County

In 2012, Athens--Clarke County conducted a pilot program at five schools. The program, which incorporated the best practices described above was hugely and measurably successful. One of the documented solutions was the use of solar powered driver feedback signs from Radarsign. These were installed in conjunction with street signage to notify drivers that they were approaching a school zone. The comprehensive program realized a reduction of nearly 30% of speeding drivers in the school zones.

#### New York: Fairport Central School District

The Fairport Central School District has incorporated driver feedback signs as part of a comprehensive Safe Routes to School Action Plan.

- *Speed radar signs should also be considered to reinforce driver awareness of the reduced speed limit.* - *Safe Routes to School Action Plan*, Johanna Perrin Middle School, Fairport, NY
- Review the full plan and results [here](#).

## Iowa: City of Cedar Rapids

To increase student safety, the City of Cedar Rapids updated its school zone signage in 2012 and 2013 to meet current MUTCD standards. Among the improvements was the installation of driver feedback signs from Radarsign.

- *“From the first day we installed it near the school zones we noticed lots of brake lights, so we know drivers are slowing down.”* - Scott Hamlin, City of Cedar Rapids Engineering Technician

## Implementing Your School Zone Traffic Calming Plan

School zone safety should not be left to chance. **The first step** to implementing a traffic calming plan is to form a panel or committee which should include parents, teachers, administrators, community leaders, government officials and law enforcement.

**Step two** is assessment. Use this [evaluation tool](#) as a guide to analyze the specific needs of your school. This checklist may also be used to develop a Safe Routes to School grant application.

In **step three**, after reviewing the evaluation results, the committee should recommend actions and solutions to address safety concerns. This may require input from local, county, or state agencies.

The **final step** is to identify funding options. Schools and their partner organizations may seek funding to implement their School Zone Safety Plan through multiple avenues. Some potential sources are identified here. Many of these entities have identified goals of improving the health and safety of children.

**Federal Funding:** Many federal government agencies offer grant programs to improve the safety of children.

- The Transportation Alternatives Program (TAP) provides funding for qualified Safe Routes to School (SRTS) initiatives. SRTS programs seek to make walking and biking to school safer for children. [www.saferoutesinfo.org](http://www.saferoutesinfo.org)
- The Office of Justice Programs <https://ojp.gov/>
- Bureau of Justice Assistance [www.bja.gov](http://www.bja.gov)
- The Catalogue of Federal Domestic Assistance provides a government-wide catalog of federal programs, projects, services, and activities. It contains financial and nonfinancial assistance programs that benefit the American public. Each listing includes information on eligibility and how to apply. <https://beta.sam.gov/>

**State/Local Governments:** States and local municipalities often set aside tax revenue for the purpose of funding special capital outlay projects. (Often referred to as SPLOST, special local option sales tax.) Upgrades to school properties and the streets surrounding schools may be eligible for these resources.

**National Retail Chains:** Many large national retail chains offer grants to nonprofit organizations and tax- exempt public service agencies to improve the communities they serve. Some examples include, but are not limited to:

- Ronald McDonald House Charities supports projects that improve the physical and behavioral health of children. [www.rmhc.org/](http://www.rmhc.org/)
- COSTCO supports programs that focus on children, education, or health and human services. [www.costco.com](http://www.costco.com)
- The Home Depot Foundation partners with volunteers to improve the physical health of their communities. [homedepotfoundation.org](http://homedepotfoundation.org)

**Local Civic Associations:** Many of these organizations, which are comprised of local business leaders, actively work to improve the well-being of their communities.

- Lions Club, Rotary Club, etc.

**Law Enforcement:** Local police departments and the national organizations which support them often fund projects to improve community safety.

- National Sheriff's Association [www.sheriffs.org](http://www.sheriffs.org)
- Laws vary by state, but money seized through investigations into drug trafficking or other illegal activities are often dispersed to law enforcement agencies to use at their discretion. Schools may appeal to their local police for some of these funds.

**Transportation Focused Agencies and Organizations:** Both government agencies and trade groups are potential sources for transportation safety grants.

- Governors Highway Safety Association [www.ghsa.org](http://www.ghsa.org)

## Additional Resources:

**Institute of Transportation Engineers (ITE)** [Streetside Design Guidelines](#) offers sidewalk design guidance.

The **National Center for Safe Routes to School** works to encourage children to walk and bike to school and to improve their safety as they do so. The Center's [Safe Routes to School Online Guide](#) is designed to support the development of a Safe Routes to School program.

The **Pedestrian and Bicycle Information Center** offers guidelines for [sidewalks and walkways](#).

**Safe Kids Worldwide** is a global organization dedicated to preventing injuries in children. They offer [school bus](#) and [pedestrian](#) safety tips as well as other encouragement to protect kids.



**Traffic Calming Trends** is brought to you by the traffic calming experts at Radarsign. For information on how radar speed signs can support community and government traffic calming initiatives, visit [www.radarsign.com](http://www.radarsign.com) or call **678-965-4814**.

**About Radarsign:** In 2004, Atlanta based Radarsign™ established new industry standards for traffic calming solutions with the debut of the world's first armored radar speed signs, which are vandal, weather and bullet resistant. The industry's most durable radar speed signs are also the most ecological and energy efficient. Engineered and manufactured in the USA, Radarsign products are MUTCD compliant and utilize recycled aluminum, innovative LED reflector technology, minimal battery power and solar panels to deliver bright, easy-to-read feedback to drivers. Radarsign products are scientifically proven to reduce drivers' speeds and have been entrusted to provide safe and effective traffic calming solutions for: municipalities, treasured national parks, schools, neighborhoods, military bases, and private and public development projects across the U.S., Canada and overseas. [www.radarsign.com](http://www.radarsign.com)

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