



Project Summary

Texas Department of Transportation

0-5470: Comprehensive Guide to Traffic Control Near Schools

Background

School speed zones are frequently requested for traffic control for school areas, based on the common belief that if the transportation agency would only install a reduced speed limit then drivers would no longer speed through the area. This research project was tasked with reviewing existing practices and developing guidelines regarding the establishment of school zones.

What the Researchers Did

Researchers documented existing knowledge on traffic control devices in school zones using:

- a review of previous research that examined effectiveness of devices,
- a survey of practitioners on signing and marking,
- a review of state and city school zone guidelines and warrants, and
- a telephone survey of law enforcement officers.

Researchers also collected field data at 24 school zones across Texas and analyzed the data for findings on speed-distance relationships, speed-time relationships, influence of various site characteristics on speeds, and special characteristics of school zones with buffer zones. The findings from these analyses were used in developing suggested guidelines for traffic control devices, including school speed zones, near schools in Texas.

What They Found

Findings were as follows:

- A review of existing practices in all states revealed guidance ranging from no material to detailed numerical criteria that warrant a school speed zone.
- When the school speed limit was active at the Texas study sites, about half of the sites had a compliance rate of less than 50 percent with some being lower than 10 percent.
- The measured 85th percentile speed was 26 mph for the 20 mph school speed limit (SSL), 30 mph for the 25 mph SSL, 37 mph for 30 mph SSL, and 43 mph for the 35 mph SSL.
- Speeds were higher for greater time increments from the start or end of school.

Research Performed by:

Texas Transportation Institute (TTI),
The Texas A&M University System

Research Supervisor:

Kay Fitzpatrick, TTI

Researchers:

Marcus Brewer, TTI
Kwaku Obeng-Boampong, TTI
Eun Sug Park, TTI
Nada Trout, TTI

Project Completed: 8-31-08

- Operating speeds increased as the distance from the beginning of the school zone increased; for every quarter-mile (1320 ft) of school zone length, speeds can be expected to increase almost 2.5 mph.
- The overall minimum speed in a school speed zone typically occurred between 15 and 30 percent of the school zone length or within 150 to 500 ft after the school speed limit sign (for zones that ranged in lengths between 600 to over 4100 ft).
- If assuming that braking is expected to occur to achieve the desired speed at the start of the school speed zone (rather than just releasing the gas pedal), the average deceleration determined at 19 sites was 5.3 ft/sec², which is about half of the assumed comfortable deceleration rate of 10.0 ft/sec² or the value currently assumed for stopping sight distance (11.2 ft/sec²).

What This Means

Researchers developed a set of proposed guidelines regarding traffic control for school areas, especially with respect to school speed zones. The guidelines are designed to serve as a supplement to the *Texas Manual on Uniform Traffic Control Devices* and the Texas Department of Transportation manual on *Procedures for Establishing Speed Zones*. Major topics in the guidelines include: definitions, school location, school speed zone characteristics, pavement markings, crosswalks, school entrance warning assembly, and conditions for removing a school speed zone.

Key recommendations in the guidelines include:

- Location of the beginning of a school speed zone should be sensitive to school speed limit.
- School speed zone lengths in urban areas can be as short as 400 ft. The recommended lengths for school speed zones and school buffer zones are 1000 ft and 500 ft, respectively.
- Active times of school speed zones should be 30 min before to 5 min after the beginning of school in the morning, and the reverse in the afternoon (5 min before to 30 min after school dismisses).
- A School Entrance Warning assembly may be considered at an unsignalized entrance to a school without a school speed zone.
- A school speed zone may be removed if: a traffic signal, all-way stop, or turn bay is installed; a sight distance concern is corrected; or if there are changes in bus or pedestrian arrival patterns.

For More Information:

0-5470-1 Speeds in School Zones

Research Engineer - Wade Odell, TxDOT, 512-465-7403

Project Director - Omar Madrid, TxDOT, 915-790-7331

Research Supervisor - Kay Fitzpatrick, TTI, 979-845-7321

www.txdot.gov

keyword: research



Research and Technology
Implementation Office
P.O. Box 5080
Austin, Texas 78763-5080
512-465-7403

This research was performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration. The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the FHWA or TxDOT. This report does not constitute a standard, specification, or regulation, nor is it intended for construction, bidding, or permit purposes. Trade names were used solely for information and not for product endorsement.