

Executive Summary and Research Readiness Level Assessment

Research on School Zone Safety

Research Objectives

- 1) Assessed the effects of speed differential on motorist speed compliance in active school zones
- 2) Investigated the effects of surrounding land use on motorists' speed in active school zones
- 3) Quantified the safety benefits and costs associated with the creation of school zones
- 4) Developed guidelines for school zone establishment in Nebraska

Research Benefits

School zones are important as they provide a safe walking environment for children. The research provided guidelines for NDOT and other public agencies in establishing school zones in a uniform manner to ensure the safety of children walking in proximity of schools.

Principal Investigator

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Background

The safety of children in the vicinity of schools is of paramount importance. School speed zones make areas around schools safer for children that may be walking or using bicycles. A common speed for motor vehicles in active school zones is 25 mph, although some school zones in Nebraska have lower or higher speeds limits in active school zones. Motorist speed compliance may vary in school zones with different speed differentials, i.e., motorists' speed reduction may be different when a speed limit changes from 45 mph to 25 mph in an active school zone versus a speed limit change from 35 mph to 25 mph. Additionally, there may be differences in motorist speed reduction depending on land use in the vicinity of schools and in urban versus rural settings. For example, motorist compliance with an active school zone speed limit may be higher when a school is visible from the roadway, crosswalks and signs are present, or when drop off/pickup lanes are adjacent to a school zone roadway. Similarly, motorist speed compliance may be different around schools in small rural communities (population less than 5,000) compared to schools in urban areas.

The research team proposed a broad research on the issue of school zone safety in Nebraska that investigated the safety effects of various elements in and around schools and provide guidelines on school zone establishment.

Conclusion

The collected motor vehicle related data included vehicle classification, vehicle speed and time of observation. In aggregate, 378,506 vehicles were observed at the study sites. Motor vehicle speed data analysis showed that drivers at 17 of the 18 schools slowed significantly in response to active school zones. However, their non-compliance with the lowered speed limit of the active school zone increased with greater speed limit differentials. An estimated linear regression model on drivers' speeds indicated that key contributing factors affecting drivers' speeds were speed limit differentials, status of school zones (passive/active), vehicle classification (small, medium, large), time of day (AM/PM), presence of on-street parking and presence of traffic signals. On average drivers traveled 6.23 mph faster in passive school zones compared to when the school zones were active. Analysis of 5-year crashes showed that crash rates were higher in active school zones compared to their passive status and that this increase was consistent across motor vehicle only crashes and motor vehicle and non-motorist involved crashes. Using the Federal Highway Administration crash costs, crash severity analysis revealed that on average a crash during active school zone period cost \$53,984 less than a crash during the passive school zone period. Research recommendations include the following:

- Transportation agencies should establish school zones with great caution as higher crash rates exist in active school zones.
- Transportation agencies can expect active school zones to mitigate crash severity and thereby provide safety benefits from reduced crash costs.
- Transportation agencies should exercise caution in setting speed limits for passive and active school zone periods. Due to drivers' relatively high levels of non-compliance, speed limit differences of 15 mph should be rarely used and greater than 15 mph differences avoided.

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Interested in finding out more?

Final report is available at:
[NDOT Research Website](#)

NDOT Recommendations Based Off of Research Project

The Traffic Engineering Division of the Nebraska Department of Transportation (NDOT) is currently reviewing school speed zones across the State along highways in communities less than 40,000 population. The City of Lincoln has updated their "School Zone Standards" based on this research and additional studies performed by the City.

The City of Lincoln is currently seeking federal funding to upgrade their school speed zones; it may be several years for the full implementation plan to occur given the number of school locations and the associated costs with their plan.

As the NDOT reviews statewide school zones, this research and other publications will be used to better standardize what school speed limits are set along highways, what traffic control and signing is recommended, and other decisions related to school speed zones. NDOT is currently looking at upgrading older traffic control equipment near school crossings, so this research will assist with their studies.

- *As provided by Alan Swanson, Lead TAC Member*

Research Readiness Level (RRL) Assessment

RRL 4

Level 4: Implementation

Research/Technology refined and adopted by the Department. Benefits of the implementation will be evaluated for a time frame of 5 years.

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**This brief summarizes Project SPR-1(19)
M092 “Research on School Zone Safety”
Nebraska Department of Transportation Research Program**