



Implementation of Advanced Warning in School Speed Zones

Task Work Order # GPC-IV 15

Executive Summary



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Metropolitan Planning Organization (MPO)**

Prepared by:



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EXECUTIVE SUMMARY

The objective of this study is to develop a process for implementing advanced warning in school speed zones. The implementation advanced warning sign prior to a school speed zone is intended to make the driver aware of a reduction in speed between a regular posted speed limit and a reduced-speed school zone. It is believed that the implementation of advanced warning in school speed zones will result in improved compliance with speed limit zone and improve the safety of children walking back and forth to school. A typical signing plan has been prepared for a typical school zone with advanced warning and suggested sign spacing distances, predicated upon travel speeds and MUTCD guidelines, were prepared.

Compliance rates of school zone speed limits are influenced by many things. Some of these include the level of congestion on the roadway, the proximity of upstream traffic control devices (stop signs or traffic signals), the visibility of existing signs advising drivers of the impending school speed zone, and on-site parent pick-up/drop-off queues that spill back onto the adjacent roadway. Understanding that each individual site requires an evaluation to determine if the implementation of advanced warning is an appropriate treatment to solve the identified problem, this study includes an outline of the steps and criteria that should be satisfied in order to consider implementing advanced warning in school speed zones.

Identify Speeding Problem and Posted Speed Limit - First, a vehicular speeding problem or safety concern due to high speeds along a corridor near a school speed zone must be identified. Once the concern has been identified and confirmed to be related to speed near a school speed zone, the normal posted speed limit on the corridor prior to the school speed zone is determined.

Collect Location Specific Volume and Speed Data - The next step in determining if advanced warning in the school zone would be an appropriate mitigation measure is to obtain speed, volume, and inventory data. Specific corridor speed data must be collected to conduct the analysis required to quantifiably determine if a speeding problem exists (defined as speeds exceeding the 85th percentile speed at that location). Peak hour traffic volumes and spot speed studies at the beginning and ending of the targeted school speed zones will be gathered. If the school speed zone is sufficiently long, then a spot speed study at the midpoint of the corridor may also be necessary. A school zone location with a demonstrated history of excessive speeding, or a history of pedestrian crashes that are speed-related that exceed statewide averages for similar roadway facilities, are candidates for advanced warning in the school speed zone.

Cataloging the roadway inventory including the number of lanes, posted speed limits, median type, on-street parking, bicycle lanes, and sidewalks would also be conducted. An existing sign inventory should be performed documenting the type and location of the warning and regulatory signs present, as well as the location of traffic control devices such as stop signs and traffic signals. The number of speeding citations that have been issued within the study area should also be gathered to determine if a safety and/or speeding problem exists.

As part of the valuation criteria for installing advanced warning signs, it is recommended that a school-age pedestrian count be conducted and the most heavily traveled walking routes be established. Further, the location of pedestrian crossings and the presence of crossing guards should be determined to assist children with safely crossing the street.

Evaluate the Geometric Layout of the School Speed Zone - Even if a speeding and crash problem are proven to exist within a school speed zone, the physical geometry of the roadway must be favorable towards advanced warning signs to implement it. This includes the proximity of traffic control devices, such as traffic signals and stop signs, to the entrance to the school speed zone. If they are located too close to a school speed zone, the natural interruption of traffic flow created by those devices will reduce travel speeds along the corridor. Thus, advanced warning signs would not be needed.

Analyze the Collected Data - Upon summarizing the collected speed data along the study area corridor, a spatial analysis of the speeds at specific locations should be performed. By plotting the recorded speeds against their corridor location, it can be easily confirmed if a speeding problem exists before or within a school speed zone. This spatial analysis can also determine if a specific direction of travel on the corridor is more prone to excessive travel speeds. Such information can assist the analyst in determining the magnitude of a speeding problem and where it is. It can also target the proposed mitigation treatments to where the problem exists.

Three Tiered Mitigation Approach - Once the magnitude of the speeding and/or crash problem and its approximate location has been confirmed, then mitigation treatments may be considered to rectify the problem. Traditionally, Education, Enforcement and Engineering are the mitigation tools used to solve problems within the transportation system. Only after Education and Enforcement have been explored should an Engineering solution, such as advanced warning in school speed zones be evaluated and implemented. This approach to identifying and applying the simplest and least costly solution is known as the Tiered Mitigation Approach.

Tier #1 – Education. Assuming that a speeding problem has been confirmed at a location near a school speeding zone, the first step to solving the problem would be to conduct an education program. This program would educate parents who drive their children to school along with other drivers who use the subject corridor as to the school zone speed limit of 15 miles per hour and where the school zone begins and ends. Drivers would be informed of the risks associated with speeding within a school speed zone and the potential danger school-age children encounter as they walk to school adjacent to speeding vehicles. After providing the educational information, an assessment of the effect education had upon travel speeds in the identified corridor segment would be performed. If speeding is still a problem, then the second tier of mitigation treatments would be engaged.

Tier #2 – Enforcement. If education as the first tier of mitigation fails to address the identified speeding problem, then the second tier solution, enforcement, is engaged. An active and visible police presence prior to and within the school speed zone would be mobilized to provide deterrence to speeding motorists. Traditionally, visible enforcement on its own has a short-term positive effect that tends to wane over time. Driver behavior is typically modified temporarily. As a means to improve enforcement as a long-term behavioral modification tool, it is recommended that education be jointly used with an enforcement program. It is believed such a joint program would have a better opportunity of successfully reducing travel speeds over the long term than enforcement alone.

Tier #3 – Engineering. If education and enforcement fail to curb the speeding problem, then the third tier of mitigation solutions is explored. This involves applying an initial engineering solution, such as installing overhead flashing beacons that visibly warn drivers of the upcoming school speed zone. Once installed, follow-up speed and crash analysis is required to determine if the selected engineering solution(s) eliminated the identified speeding problem. If these mitigation options fail to solve the

speeding problem, then the implementation of advanced warning in the school speed zone should be evaluated for implementation within the study area.

The criteria for implementing advanced warning in a school speed zone is meant to provide a simple-to-use checklist to determine if such a solution is viable. If the school speed zone along a subject corridor satisfies many of these criteria, then this is a strong indicator that advanced warning signs may be justified. Ultimately, the decision to install such devices should be made by the engineer of record and local permitting jurisdiction.