

May 5, 2000
TRAFFIC ENGINEERING DIRECTIVE
228

SUBJECT: STOP SIGNS AT RAIL-HIGHWAY GRADE CROSSINGS

Background

In West Virginia, the authority to place STOP signs at railroad crossings on public roads is granted under the WEST VIRGINIA CODE, Section 17C-12-2, which reads:

The State road commission and local authorities with the approval of the state road commission are hereby authorized to designate particularly dangerous highway grade crossings of railroads and to erect stop signs thereat. When such stop signs are erected, the driver of any vehicle shall stop within fifty feet but not less than fifteen feet from the nearest rail of such railroad and shall proceed only upon exercising due care.

In addition, the national Manual on Uniform Traffic Control Devices (MUTCD), Which has been adopted as a standard by the Division of Highways, permits the installation of STOP signs at selected railroad grade crossings after their need has been determined by a detailed traffic engineering study (MUTCD), Section 2B-5). The legal mechanisms for the use of STOP signs at the railroad grade crossings in West Virginia are thus established.

Criteria

Guidance for the “detailed traffic engineering study” required by Section 2B-5 of the MUTCD was drawn from a research study which was performed by the Federal Highway Administration. Titled, “Safety Features of Stop Signs at Rail-Highway Grade Crossings”, this report established conditions which should be met before STOP signs are installed. Violation of any one of these conditions would indicate that STOP signs should not be installed. The conditions are:

1. The installation must be believable. The driver must be able to perceive a reason for the STOP sign which satisfies his requirements for validity. These requirements include low visibility to train detection, high train expectancy, and enforcement.
2. The vehicle-train exposure value should exceed 100. Translated into train per day and AADT values, this means that the train volume must be higher than average and AADT's lower than average. At less than three trains per day, the STOP sign should not be used without a compelling reason. Rough guidelines are that STOP signs are acceptable for an AADT under 2000, temporarily acceptable while waiting active traffic control devices up to 4000 AADT, and impractical above 4000. The

vehicle delay imposed by STOP signs and the potential for vehicle-vehicle conflicts should be acceptable at these levels.

3. The driver should be unable to adequately detect trains unless he nearly stops. It is also necessary that the driver be able to perceive that a stop is necessary.
4. The level of enforcement must at least be equal to that applied to intersection STOP signs. The courts must also agree that the offense of failure to stop is equal for grade crossings and intersection.
5. The STOP sign must be selectively used so that expectancy is reinforced. If a driver is exposed to improperly used grade crossings STOP signs, his respect for those which are properly used will be reduced. (The driver does not confuse intersection applications with grade crossing applications).
6. A high level of traffic engineering is required so that hazardous conflicts are not created at nearby intersections by the grade crossing STOP sign.
7. The STOP sign installation must be treated as a system, including proper deployment and maintenance of advance warning for both the grade crossing and STOP sign.

Based on experience and practices followed by the Division of Highways, the following conditions are added:

8. Active traffic control devices must not be present.
9. Average daily traffic must not exceed 750 vehicles, and the average train traffic should exceed four movements per day.
10. The crossing should not be on a US or State sign route.
11. It should be possible to install the same type of traffic control (i.e., STOP signs) on both sides of the crossing. A STOP AHEAD sign shall be installed in advance of each STOP sign, if space permits.
12. It must be possible to store a stopped vehicle between the tracks and any adjacent intersection. This generally requires a minimum of 35 feet between the edge of an intersecting road and the near rail of the crossing.