

#### **47-1.05 Crossing Warning Devices [Rev. Apr. 2016]**

The Department must comply with 23 CFR §646.214 regarding railroad-highway grade crossing improvement for each Federal-aid project. The Department's philosophy is to appropriately allocate limited resources and maximize system-wide improvements. This approach targets investment decisions to the roadway system as a whole. To reduce crash risk, uniform warning device configurations at all railroad-highway grade crossings are the best practice.

Where a railroad-highway grade crossing is located within or near the terminus of the project limits, the crossing must be evaluated for inclusion of railroad warning devices in the project scope of work. The limits also apply to maintenance of traffic. Near the terminus or "near terminus" is defined below. The Department's *Policy for Railroad-Highway Grade Crossing Warning Devices* provides the evaluation procedures for determining the level of warning protection, either passive or active (train-activated) that is required. The district or Central Office railroad coordinator should be contacted to assist in the evaluation. The evaluation recommendation must be reviewed and approved by the Utilities and Railroads Division Senior Rail Projects Engineer.

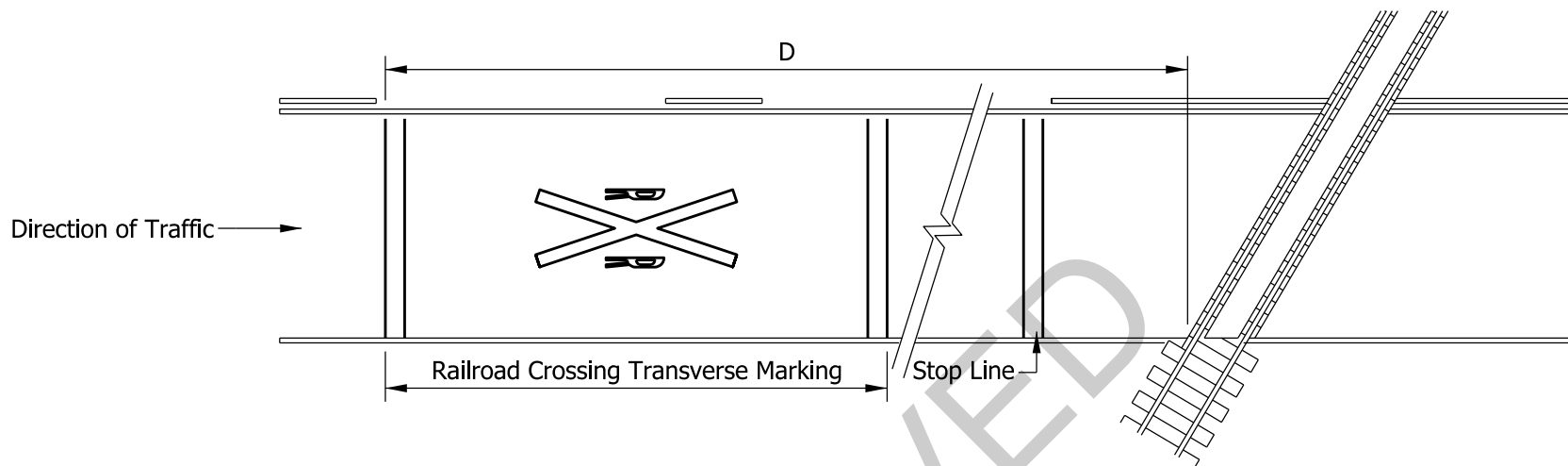
##### **Warning Devices**

A basic passive device upgrade is required for all projects that include a railroad-highway grade crossing within or near the terminus of a project. A passive device upgrade consists of replacing the existing cross bucks with high retro-reflectivity cross bucks, adding reflectorized striping to the post, and installation of a yield or stop sign, installing any required pavement markings, and installing or upgrading advance warning signage. Note that per the IMUTCD an engineering study is required prior to the installation of a stop sign.

If active protection is deemed necessary based on the policy, then the upgrade or installation of gates, flashing lights, overhead cantilever, warning bell, and constant warning time (CWT) circuitry is the minimum acceptable level of active warning. No incremental or intermediate improvements to active warning devices are allowed.

##### **Near Terminus**

The decision point used to determine if the location of the crossing is near the terminus of a project is based on the transverse pavement markings from the nearest rail. The markings are shown in the INDOT *Standard Drawing* 808-MKPM-06. The decision point, or near terminus, is the leading perpendicular line of the railroad crossing pavement marking. The distance from the nearest rail to the near terminus varies with design speed, and is shown as dimension D in [Figure 47-1A](#). Where the project limits are within the distance D, the crossing must be included in the project scope of work. The near terminus applies regardless of the actual presence of pavement markings on the roadway.



Controlling Dimension For Determining Crossing Inclusion	
Roadway Design Speed	D = Distance from nearest rail to controlling pavement marking*
< 35 mph	131 Feet
40 mph	156 Feet
45 mph	206 Feet
50 mph	281 Feet
55 mph	356 Feet
60 mph	431 Feet

\* Where the project limits are within the distance D from the nearest rail, the crossing must be included in the project scope.

Example: The design speed is 45 mph and the the project limits are 200 ft from the nearest rail. The crossing must be included in the project scope because 200 ft is less than D (206 ft).

## NEAR TERMINUS DEFINITION

Figure 47-1A