

schools, libraries and police stations. The General Manager of Pioneer Valley Railroad in Westfield, Massachusetts noted that while the SSMs will be installed at the cost of the community, they will be maintained by the railroads. A representative of BLAST (Beverly [Massachusetts] Lobbying Against Sounding of Train Horns) recommends that any Federal or State funding for new or improved crossings have a stipulation requiring an SSM at each crossing.

Some communities were dissatisfied with the proposed list of SSMs because the available options are claimed to be too limited, since, it is argued, only one or two of the SSMs may be applicable to a particular community. For example, State Representative Michael Festa from the City of Melrose in Massachusetts noted that many of crossings in his district are very busy commuting streets that are perpendicular, which makes some SSMs unfeasible. Likewise, Councilman Doyle Slater of LaGrand, Oregon noted that photo enforcement, one way streets, nighttime closures and medians are not practical at many crossings. Moreover, communities in Illinois, as expressed by the Commissioner of Chicago's Department of Transportation, have fewer options to choose from because many of the prescribed SSMs are not feasible or legal in Illinois. Megan Swanson, a Planning Coordinator for the West Central Municipal Conference, stated that only one way streets or closures were applicable. An extreme case is that of the village of Hinsdale, Illinois, where the President of the village, opined that no SSM is possible within village limits. Illinois had particular problems with the proposed SSMs because, as noted by the Village of Winfield, the Illinois Commerce Commission (ICC) did not approve the use of four-quadrant gates or photo enforcement at crossings, thereby further limiting the options available to communities. See discussion under "Chicago Region" above for general responses to concerns related to Illinois practice.

In the NPRM, and to an even greater extent in this Interim Final Rule, FRA has provided flexibility to public authorities in the selection of SSMs to be used at crossings within a community. There are, of course, wide variations in costs between, for example, four quadrant gates and medians. Because of those variations, and variations in the ability of communities to pay for various improvements, and physical limitations at certain crossings limiting options, FRA crafted the NPRM and this Interim Final Rule to provide the greatest level

of flexibility to the community. The public authority is best suited to determine which SSM is appropriate for a specific crossing. That body, will, in addition to considering cost, consider other factors as well: physical limitations at the crossing; aesthetics; maintenance costs; and acceptance of a specific safety measure by the State.

FRA believes that providing public authorities with the choice of implementing SSMs or alternative measures, the choice of which measures to implement within those categories, and in many circumstances, the choice of which crossing to improve in order to bring the quiet zone's risk level into the acceptable range, provides an almost unlimited range of choices and thus a vast range of potential costs. FRA notes that the estimates of the cost of SSMs in the Chicago Region made by various parties during the NPRM comment period were notably unrealistic and were based on the most expensive scenario of four-quadrant gates at every crossing and construction costs based on the invalid assumption that each crossing would be upgraded from no warning system to four-quadrant gates.

The AAR has emphatically stated its position that locomotive horns should only be banned at crossing that have sufficient safety devices to substitute for the audible warning. In the view of the AAR, "engineering" methods, such as four-quadrant gates and closures can be effective substitutes for the sounding of horns, while the use of "non-engineering" SSMs like photo enforcement, programmed enforcement, public awareness and education are not appropriate. The AAR submits that these non-engineering measures do not provide assurance that they sustain the same level of safety as a locomotive horn. In contrast to the AAR's stance, METRA's chairman suggested that non-engineering measures such as advanced train alert technology, grade separation projects, stricter enforcement penalties, and public awareness education projects are more effective and a less expensive way to improve crossing safety than engineering methods. FRA has considered AAR's view along with those comments supporting the use of such non-engineering safety measures. Such safety measures are only acceptable when they have resulted in documented reduction in traffic law violation rates at crossings. In such cases, their efficacy in reducing risk has been shown. Further monitoring of such reductions will help to ensure that they remain effective. However, FRA agrees that photo enforcement requires scrutiny on a location-specific basis and has therefore

moved photo enforcement to the category of Alternative Safety Measures.

Several communities such as Arvada, Colorado; Brighton, Colorado; Fort Collins, Colorado; Wichita, Kansas; Manchester by the Sea, Massachusetts; Northfield, Minnesota; Roseville, California; and Madison, Wisconsin suggested adding the following to the list of SSMs in order to add flexibility and reduce installation costs: (1) Wayside horns, (2) longer gates that cover the entire road, (3) placing lighting on trains similar to that of emergency vehicles, and (4) articulated gates. As noted elsewhere in this rule, wayside horns are acceptable substitutes for the locomotive horn under the provisions of § 222.59. Long gates that cover the entire road are acceptable in one-way street situations. See Appendix A. FRA is not at this time aware of non-articulated gates that extend over two opposing lanes of traffic, and it would not appear prudent to use such an arrangement in most cases given the potential to entrap vehicles between the gates. FRA has explored the use of articulated gates that would descend from a single apparatus to block the approach to the crossing in the normal direction of travel and continue down to block the exit lanes from the crossing (on one or both sides). As stated in the NPRM, "such articulated gates appear to be particularly attractive for two-lane roads where the highway-rail crossing is at a sufficient distance from other intersections or obstructions that could cause traffic to back up on the crossing. In principle, such gates should have the same effectiveness as other four-quadrant gate arrangements." While use of such gates has been studied, it is apparent that they have not yet reached a stage of reliability such that they would be an acceptable SSM. FRA will continue to monitor their development for future acceptance as an SSM.

The use of longer gate arms has also been considered during the rulemaking. Longer gate arms extend beyond the centerline of the roadway and block a portion of the opposing lane of traffic. This application differs from the long gate arms previously discussed which extend completely across the roadway in that the longer gate arms do not completely block the lane of a vehicle exiting from the crossing. The opening that is left between the end of the gate arm and the curb would allow room for a vehicle to exit the crossing without becoming trapped on the crossing. The longer gate arms would make it more difficult for a motorist to drive around the lowered gate arms. At this time there have been few test installations of this technology, and FRA does not feel that