

authorities to provide estimates of effectiveness that are reasonable considering the extent of deviation from the nominal requirements of Appendix A.

FRA agrees with the Florida DOT that use of 200 foot medians will often be recommended when practicable. However, FRA believes that the prescribed minimums of 100 and 60 feet are consistent with the designated effectiveness rate. A public authority that can show a higher effectiveness rate for longer medians may bring in that estimate for consideration under Appendix B.

FRA also understands the conflict to which traffic control authorities may be subject with respect to the appearance of channelization arrangements, but FRA does not believe that in the end aesthetics should be countenanced as a bar to saving lives and preventing serious personal injury. FRA believes that in many cases local public authorities will utilize options such as using native stone or decorative plantings to enhance the appearance of median arrangements, as they have done in other settings. To the extent that roadway width does not allow for these treatments, and to the extent channelization devices such as flexible delineators are viewed as unacceptable in a particular community, the incremental cost of alternative arrangements should be evaluated as a cost of community beautification rather than as a cost of this rule.

#### One Way Street With Gates

The use of one way streets with gates received sparse comments, mostly directed to their applicability. Illinois ICC pointed out that the one way street is rarely, if ever acceptable to local governments, because it would cause major disruptions in traffic flow. The Missouri Division of Motor Carrier and Railroad Safety and the Chicago Department of Transportation noted that there is limited applicability to most roads without violating traffic engineering practices. This option is considered safe, however, as noted by the BRS, who strongly support the option.

FRA notes that, despite the protestations of several commenters, use of one-way streets in American cities and towns is quite substantial and that, without further use of unidirectional traffic flows, attention to engineering of existing locations would permit credit to be taken for this SSM at very low cost. FRA further notes that new one-way traffic patterns, if applied to residential and industrial areas (not including retail commercial areas where

economic effects may be unacceptable), could be useful in designing a quiet zone and might help to serve other public purposes, such as providing additional on-street parking where current roadway width is a constraint and addressing other local issues, such as addressing particularly hazardous intersections for left turns.

#### Photo Enforcement

The comments regarding photo enforcement were generally negative. Most commenters objected to this either because it is not permitted in their State or because it is viewed as ineffective. California, Kansas and New Jersey requested that the option be removed from the list because of its ineffectiveness. Additionally, there were complaints about the cost of photo enforcement.

A significant objection expressed by the Kansas DOT and the Massachusetts Executive Office of Transportation and Construction, is that photo enforcement simply does not provide a physical impediment to driving around gates and does nothing to replace the audible warning provided by a locomotive horn. While the deterrent effect is recognized, it is argued that it is minimal because, as Nevada states, "It does not provide a positive means of separating vehicles and pedestrians from trains, as do other SSMs." The AAR strongly opposes its use as an SSM, stating that "[t]he proposed non-engineering measures do not provide assurance that they can sustain the same level of safety as a locomotive horn." Using a speeding car metaphor, Mayor Alisi, trustee of Glencoe, pointed out that receiving a ticket is not a deterrent. Wichita, Kansas categorized photo enforcement as an "after the fact safety measure."

In contrast, the President of Traffipax, a supplier of photo enforcement equipment, submitted that photo enforcement is very effective, citing a 40 percent reduction in violation rates, even when dummy cameras are installed along with real cameras. Another benefit that he mentioned is that the photos provide a record of conditions and history of violations at a given crossing. Supporting this view is Dan Lauzon, first vice-chairman of the BLE Massachusetts Legislative Board, who noted that motorists are "angelic" when they know they are being watched by cameras.

Based on the comments and FRA's own review, photo enforcement has been redesignated as an ASM rather than an SSM. FRA has been persuaded that photo enforcement more appropriately belongs in the listing of ASMs. Its non-engineering nature and

need for regular monitoring drives its inclusion as an ASM rather than the engineering solutions listed as SSMs.

Another concern expressed with photo enforcement (irrespective as to whether it is an ASM or SSM) is that it not currently accepted in every State. The Missouri Division of Motor Carrier and Railroad Safety noted that it is not permitted under present State law. The City Attorney of Pendleton, Oregon believes that the State constitution may have to be amended to permit photo enforcement. Although not every State currently permits automated photo enforcement, the trend is towards greater acceptance of such methods for other traffic enforcement purposes. There is every reason to believe it can work in the grade crossing law violation context, especially when supported by public awareness efforts. It is true that some States will have to change their laws in order to take advantage of this alternative. FRA believes sufficient time has been built into the rule for that to happen. It is important to note that use of photo enforcement, like every SSM and ASM, is voluntary. Thus, if a State chooses not to provide for its use within the State, other means for compensating for the lack of a locomotive horn are available under this rule.

It is clear that the SSMs proposed in the NPRM do not receive universal acceptance among the commenters. However, FRA remains convinced that the proposed SSMs are sound safety strategies and provide a range of realistic options from which communities can choose to meet their own needs. The ability to vary SSMs, through the ASMs allowed by Appendix B, provides additional flexibility for communities.

#### *Effectiveness of Supplementary Safety Measures*

The effectiveness (see definition of effectiveness rate in § 222.9) figures discussed for each SSM are based on available empirical data and experience with similar approaches. The effectiveness figures used in Appendix A are subject to adjustment as research and demonstration projects are completed and data is gathered and refined. FRA is using these estimates as benchmark values to determine the effectiveness of an individual SSM and the combined effectiveness of all SSMs along a proposed quiet zone.

FRA's final study of train horn effectiveness indicated that collision probabilities increase an average of 66.8 percent when horns are silenced at crossings with flashing lights and gates. As such, the SSM should have an effectiveness of at least .40 (reducing the