

devices and a "sealed corridor" strategy are strongly recommended, whether or not the horn is used). But in most other scenarios, the train horn will serve its purpose if sounded. Some commenters invited FRA to consider the cost of SSMs as a test of impracticability, but that is really a policy or political objection, not one going to the practicability of sounding the train horn and thereby alerting the motorist. FRA believes that the suggested reading of "impractical" is not appropriate and would result in an enormous increase in safety risk by permitting train horns to be banned routinely without the need to take compensating measures.

The first exception, absence of "significant risk with respect to loss of life or serious personal injury," was relied upon in the NPRM only with respect to very limited circumstances (but comments were solicited regarding other options). As a result of testimony and written comments received from the public, including elected and appointed representatives of State and local governments, FRA has reviewed in some detail whether this criterion should be given greater effect in the final rule. The statute clearly does not require the exclusion of all risk, and FRA agrees that it is best to interpret and implement this exception, if possible, in a manner that is not in conflict with the general approach taken by the Congress and the Department of Transportation (DOT) with respect to other safety laws and regulations addressing public safety.

In general, DOT and other Executive Branch departments and agencies must consider costs and benefits before issuing regulations. This is true even where statutes have mandated that rules on particular topics be issued, because in most cases the Congress has left the means of implementation to the agencies. The present rulemaking involves a much more specific mandate than typically embodied in safety legislation. Nevertheless, FRA did consider costs and benefits in crafting the proposed rule (and found that, overall, investments in safety systems used as a substitute for the horn would be recovered). However, in the NPRM, FRA did not focus sharply on the costs and benefits for those communities where the underlying risk of a casualty-producing collision is comparatively low. Some commenters in areas with existing bans responded with the criticism to the effect that, while some other community might recover its costs, for the particular community the existing risk at crossings is very low and no expenditure is warranted.

In this interim final rule FRA has sought to afford greater recognition to situations where the risk of serious injury is low. In so doing, FRA has been conscious of the need to ensure public funds are expended on improvements that have significant value in holding down casualty risk. FRA has also been conscious of the fact that there may be, at least in the short term, an "opportunity cost" associated with the decision to spend scarce tax dollars on SSMs in order to maintain community quiet, rather than other uses. (In acknowledging this point, FRA notes that this is not a zero sum exercise because the avoidance of accident consequences is an economic benefit to the community.)

FRA recognizes that there is no way to achieve what would be perceived as perfect justice for communities in this proceeding, any more than it is possible to eliminate all risk to persons. However, FRA has concluded that the risk assessment method selected for this proceeding should—

- Permit exceptions to use of the train horn based on absence of significant risk, in most cases avoiding expenditures that would not be recovered through accident and casualty reduction;
- Require use of the train horn where risk is clearly significant, unless SSMs and ASMs are implemented to abate the excess risk associated with silencing the train horn; and
- Respond to changes in rail operations and communities as data becomes available to update the relevant computations.

The particular means chosen by FRA to identify significant risk is the creation of a risk index by which prospective quiet zones can be rated in relation to one another and in relation to selected criteria. The method (which is more fully explained below) is applicable to quiet zones created both where there are existing bans and elsewhere. In considering how to approach this problem, FRA elected to start with the current Accident Prediction Formula (APF), which uses data elements available from the national inventory of highway-rail crossings and the FRA Railroad Accident-Incident Reporting System. The APF was developed by the Volpe National Transportation Systems Center for FRA and the Federal Highway Administration, and it is maintained in current form to support initial identification of crossings that are candidates for safety improvements using Federal funds. Many States use this formula or similar formulas to rank crossings for this purpose.

The strength of the formula is in its ability to combine empirically-derived insights about risk, based on common characteristics of crossings and the accident history of the individual crossings under study. As such, it is reasonably successful in predicting where accidents will occur. As with any model of this type designed to study relatively rare events, the model is more successful in predicting results for a group of crossings with at least some similar characteristics (e.g., several crossings in a proposed quiet zone) than for a single crossing.

Risk is defined as the product of probability (frequency) and severity (consequences), so the APF prediction of the likely number of accidents by itself is not enough. However, the suite of APF tools includes calculations that permit estimations of the likelihood that a predicted accident will result in injury or death to one or more persons. FRA has taken advantage of these tools to estimate the likely frequency of relevant (casualty-producing) collisions. To determine the likely number of injuries and fatalities in predicted accidents, FRA has employed the averages from historical accidents. In order to combine the consequences of non-fatal and fatal injury, FRA has used relational values derived from cost-benefit practice (in which the avoidance of a fatality is assigned a societal value based on established government guidelines, and both less serious and more serious non-fatal casualties are then assigned a value proportional to the value of avoiding a fatality). The result is a risk index value for each crossing.

From the inception of this rulemaking (indeed, beginning with the issuance of Emergency Order 15 in 1991), FRA has sought to address the issue of quiet zones (contiguous rail corridors of reasonable length having one or more crossings) rather than individual crossings. FRA has noted that a crossing-by-crossing approach would not serve community interests, given the distance over which the horn must be sounded and given the proximity of crossings in most communities. Corridor planning permits risk reduction to be taken at the lowest possible cost, and it encourages consolidation of crossings through closure of redundant or very hazardous crossings. Further, locomotive engineers have increasingly demanding jobs and should not be distracted by the task of picking out individual crossings along their route where the horn must or must not be used. There were no comments in this proceeding that effectively questioned this rationale, and there was substantial support for it.