The Federal Railroad Administration's Train Horn Rule

On June 24, 2005, eleven years after Congress directed the Federal Railroad Administration (FRA) to issue a regulation on the sounding of train horns at grade crossings, FRA's Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings[1] ("the Rule") took effect.[2] The Rule required that locomotive horns be sounded at all public highway-rail grade crossings,[3] except where there is no significant risk to persons, where supplementary safety measures fully compensate for the absence of the warning provided by the horn, or where sounding the horn as a warning is not practical. The Rule is intended to promote public safety at grade crossings, while giving communities an option to protect individuals and businesses located near grade crossings from the sounding of train horns. It implemented a congressional mandate in Title III, Section 302, of P.L. 103-440 (codified as 40 U.S.C. 20153). FRA has exempted the Chicago region from the Rule, pending a re-analysis of grade crossing accident data for that area.[4] The Chicago area includes 45% of the nationwide population FRA estimated to be potentially affected should pre-existing bans on sounding train horns at road crossings ("whistle bans") be eliminated as a result of this regulation.

The Rule preempted roughly 2,000 existing state and local whistle bans.[5] The Rule allows communities to establish "quiet zones" where the sounding of locomotive horns can be banned, provided that the risk of grade crossing collisions is below a certain level or that the community provides safety measures that compensate for the absence of the warning provided by the train horn. Communities with whistle bans in place prior to October 1996 may automatically qualify as quiet zones under certain circumstances. If pre-existing whistle ban crossings do not automatically qualify as quiet zones, communities may still maintain their whistle ban for up to five years while bringing those crossings into compliance with the

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[1] 49 CFR 222. The rule also amends 49 CFR 229.

[2] Congress directed that there should be a one-year gap between publication of the final rule and its taking effect. FRA published the Interim Final Rule on December 18, 2003 (68 Federal Register 70586), and published a revised Final Rule on April 22, 2005 (70 Federal Register 21844)(amendments and clarifications to the Final Rule were published on August 17, 2006; 71 Federal Register 47614). FRA considered that publication of the Interim Final Rule on December 18, 2003 started the clock on the one-year delay in the Final Rule taking effect, so that the Rule could take effect 60 days after its publication on April 22, 2005.

[3] Intersections where a public highway and a railway cross at the same level.

[4] 49 CFR 222.3(c). Chicago-area officials disputed FRA's statistical approach to establish the level of risk at grade crossings.

[5] 70 Federal Register 21882.

requirements of the Rule.[6] Thus, in some cases communities may establish quiet zones without making any safety improvements; in other cases, communities will be required to make safety improvements to grade crossings in order to establish a quiet zone

In writing the Rule, FRA attempted to balance safety (the reduction in risk of accidents and injuries from having trains sound horns at each grade crossing) with the quality of life of the millions of citizens living near train tracks who are disturbed by train horns. The House Transportation and Infrastructure Committee's Subcommittee on Railroads held a hearing on rail grade crossing safety at which the Rule was examined on July 21, 2005. At that hearing Subcommittee members questioned the effective date of the Rule and the effectiveness of sounding train horns as a grade crossing safety measure, among other issues.

Background

Cities grow up around transportation nodes, and for nearly a century the most important form of transportation in this nation was the railroad. Consequently, many if not most urban areas in the nation are traversed by railroad tracks, with trains rolling through day and night.

There are approximately 250,000 highway-rail at-grade crossings where motorists drive over railroad tracks (more generally referred to as 'grade crossings'). Around 153,000 of these involve public highways; the rest involve private roads.[7] Collisions at these intersections are responsible for a significant percentage of the injuries and deaths associated with the railroad industry (40% of all railroad-related deaths in 2006). The vast majority of injuries and deaths resulting from these collisions are experienced by motorists.

Reducing the number of injuries and deaths resulting from grade crossing accidents has been a federal concern for decades. Congress has provided over $4.1 billion since 1974 specifically for grants to states to reduce the risks of accidents at grade crossings hazards,[8] and reducing risks at grade crossings is also an eligible expense under several other federal highway funding programs. This funding has

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[6] The description of the Rule in this report is a summary for information purposes. Please refer to the language of the Rule itself for authoritative purposes.

[7] 68 Federal Register 70587.

[8] 68 Federal Register 70605. This funding came from the Federal Highway Administration "Section 130" program. Although highway-rail grade crossing safety improvements are an eligible expense under several federal highway programs, most of the federal money spent for that purpose has come from the Section 130 program that is dedicated to that purpose. "In fact, the primary reason that a separate grade crossing safety improvement program was begun in 1973 was that highway safety, and especially crossing safety, received limited priority for available highway dollars." Statement of Edward R. Hamberger, President and Chief Executive Officer, Association of American Railroads, submitted to the U.S. House of Representatives, Committee on Transportation and Infrastructure, Subcommittee on Railroads, Hearing on Grade Crossing Safety, July 21, 2005, p. 11-12.

resulted in the installation of around 30,000 active warning devices at grade crossings, and the closing of many other crossings, since 1974.[9]

Both the number and rate of collisions and deaths at grade crossings have declined significantly over time. Between 1994 and 2003 the number of annual grade crossing accidents fell from 4,892 to 2,909 (-41%), and the annual number of deaths fell from 626 to 325 (-48%).[10] These decreases have occurred in spite of growing rates of both train and auto traffic. According to the Inspector General of the Department of Transportation, the primary sources for the reduction in grade crossing accidents in the past decade have been the permanent closing of about 41,000 grade crossings and the installation of active warning signals (flashing lights and automatic gates) at about 4,000 grade crossings.[11]

Consolidation of the railroad industry since the 1980s has led to a reduction in the size of the national rail network, and heavier use of the remaining network, "resulting in more train movements through those communities where main lines continue to be operated."[12] This trend, combined with growing sensitivity on the part of communities toward noise levels in the environment, resulted in a number of communities banning the sounding of train horns at intersections.[13] The sounding of train horns at grade crossings is an important safety measure. The horn provides motorists approaching an intersection with information about "the proximity, speed, and direction" of an oncoming train.[14] Studies by the FRA and others have found that the sounding of train horns at intersections reduces the risk of grade crossing accidents, and that banning the sounding of horns at grade crossings increases the risk of accidents.[15]

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[9] Joseph H. Boardman, Administrator, Federal Railroad Administration, United States Department of Transportation, Testimony before the Subcommittee on Railroads, Committee on Transportation and Infrastructure, United States House of Representatives, July 21, 2005, p. 17.

[10] Office of the Inspector General, United States Department of Transportation, *Audit of the Highway-Rail Grade Crossing Safety Program*, MH-2004-065, June 16, 2004, p. 2. The audit notes that FRA's statistics still do not include all rail transit grade crossing collisions and deaths, as called for in an earlier audit. In 2004, FRA's statistics showed an increase in deaths due to grade-crossing accidents, to 372; in 2005 there were 358 deaths, and in 2006, 365 deaths. Figures from a query of Section 2.08 (Highway-Rail Crossing Accident Trends), FRA Office of Safety Analysis [http://safetydata.fra.dot.gov/officeofsafety/].

[11] Kenneth M. Mead, Inspector General, Department of Transportation, Testimony before the Subcommittee on Railroads, Committee on Transportation and Infrastructure, United States House of Representatives, July 21, 2005, CC-2005-060, p. 1.

[12] 68 Federal Register 70594.

[13] Ibid.

[14] 68 Federal Register 70589.

[15] 68 Federal Register 70588. As discussed below, the National Transportation Safety Board has concerns about the audibility of train horns inside closed vehicles with other active sources of noise, but the Board supports the use of horns as a safety warning (68 Federal Register 70593).

In 1984 the State of Florida authorized local communities to ban the sounding of horns by intrastate railroads[16] at night at intersections equipped with flashing lights and bells, crossing gates, and signs warning motorists that trains' horns would not be sounded at night. By 1989, Florida communities had banned the night-time use of train horns at 511 of 600 eligible intersections.[17] A 1990 FRA study found that there were almost three times as many collisions after the bans were established, while the daytime collision rates were virtually unchanged.[18] FRA concluded that banning the sounding of train horns at grade crossings created a safety risk. The agency issued an emergency order in 1991 ending train horn bans in Florida; in the two years after that order, night-time collision rates dropped to near pre-ban levels.[19]

The Florida study led FRA to do a similar nationwide study. That study, published in 1995, identified 2,122 public grade crossings where train horn bans had been in place some time between 1988 and 1994 (not counting the 511 crossings in the Florida study) and concluded that crossings with train horn bans "averaged 84% more collisions than similar crossings with no bans."[20]

In response to the evidence of increased risk of injuries and death from bans on the use of train horns at intersections, Congress mandated that FRA regulate the use of train horns at intersections, requiring their use except in certain situations at FRA's discretion.[21] FRA's Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings implemented that congressional mandate.

FRA's Train Horn Rule

FRA describes the Rule as "a safety rule that implements as well as minimizes the potential negative impacts of a Congressional mandate to blow train whistles and horns at all public crossings."[22] It requires that locomotive horns be sounded at public highway-rail grade crossings, while providing exceptions to this requirement. The regulation preempts any state and local "train whistle" bans.

The Rule also provides options for communities to establish quiet zones (whistle ban areas) where the sounding of train horns can be banned at grade crossings. The options are intended to balance the risk of removing one safety measure (the sounding of the train horn) by adding other safety measures. However, under some circumstances communities can ban the sounding of train horns at grade crossings without additional safety improvements, where adequate safety features are

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[16] The ban affected Florida East Coast Railway, an intrastate rail carrier, but not CSX, a national rail carrier.

[17] 68 Federal Register 70588.

[18] Ibid.

[19] 68 Federal Register 70588.

[20] 68 Federal Register 70589. The study was updated in 2000, with similar conclusions.

[21] P.L. 103-440, Section 302.

[22] 68 Federal Register 70658.

already in place or where the risk of accidents is below one of the thresholds established in the regulation.

Communities with existing whistle bans can continue the bans, though the communities may have to make safety improvements to do so. A transition period is provided to give them time to make improvements that may be needed to qualify for quiet zone status.[23] During the transition period the community can maintain the existing ban on sounding horns at those crossings.

FRA faced numerous challenges in writing this Rule. Eleven years elapsed between the time Congress mandated the creation of the train horn rule and the publication of the Rule in its final form. FRA received 4,800 comments during the rule-making process. This Rule has been a contentious one in part because it preempts roughly 2,000 existing state and local bans on the sounding of locomotive horns at public highway-rail grade crossings,[24] and in some cases may require communities to spend tens or hundreds of thousands of dollars, or more,[25] on safety measures in order to maintain their whistle bans or to create new ones.

Requirements for Establishing Quiet Zones

Congress mandated the sounding of train horns at highway-rail grade crossings because communities had begun to establish whistle bans, while several studies had shown that the horn is an effective safety measure in preventing accidents and deaths. In implementing the law requiring the sounding of train horns at crossings, while providing exceptions to that requirement, FRA sought "to ensure that quiet zones, while providing for quiet at grade crossings, also continue to provide the level of safety for motorists and rail employees and passengers that existed before the quiet zones were first established, or in the alternative, the level of safety provided by the average gated public crossing where locomotive horns are routinely sounded."[26] Thus, the Rule is intended to provide a method to establish a national average level of risk at grade crossings and the level of risk at a crossing or a corridor, and to compensate for risk above the national average that may be created by silencing train horns at grade crossings by providing supplementary or additional safety measures.

As specified in the Rule the minimum requirement for a quiet zone is that every public highway-rail grade crossing in the proposed quiet zone corridor must have flashing lights and gates that control traffic over the crossing. From that basis, there are three alternatives available to communities wanting to establish a quiet zone:

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[23] The length of the transition period depends on when the whistle ban was established; five years for bans established before October 19, 1996, and one year for bans established after that date but before December 18, 2003.

[24] FRA, *Interim Final Rule for the Use of Locomotive Horns at Highway-Rail Grade Crossings: Final Environmental Impact Statement*, December 5, 2003, p. 1-6.

[25] Based on FRA's estimates of the costs of the various additional safety measures; 70 Federal Register 21885.

[26] 70 Federal Register 21871.

1. The community can institute one or more of the Supplementary Safety Measures (SSMs)[27] specified in the Rule at each public crossing in the quiet zone; or
2. If the accident risk (Risk Index) for the quiet zone is less than, or equal to, the nationwide average risk of accidents at grade crossings equipped with flashing lights and automatic gates where train horns are sounded (Nationwide Significant Risk Threshold), the community can establish a quiet zone without implementing additional safety measures. If the Risk Index of the proposed quiet zone is above the Nationwide Significant Risk Threshold, the community may implement additional safety measures[28] at crossings sufficient to reduce the Risk Index for the zone to the threshold level or below; or
3. The community can implement safety measures that reduce the Risk Index for the quiet zone to less than, or equal to, the level of the Risk Index With Horns (i.e., the risk that would exist if train horns were sounded at every public highway-rail grade crossing in the proposed quiet zone).

FRA notes that the first and third measures, which may require communities to implement additional safety measures, may be more expensive initially, but provide more certainty. Quiet zones which are qualified by the second measure (comparison to the Nationwide Significant Risk Threshold) must be reviewed each year. The Nationwide Significant Risk Threshold will be recalculated each year. A quiet zone that qualified by having a risk less than the nationwide threshold may fall out of compliance if the threshold declines, forcing the community to implement additional safety measures.[29]

Communities may qualify a proposed quiet zone in two ways. The quiet zone may automatically qualify if it meets the first or third condition listed above. If the community qualifies a quiet zone under the second condition, that qualification requires the review and approval of the FRA.

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[27] Supplementary Safety Measures, as defined in the Rule, are engineering measures that physically reduce the risk of motorists being involved in a collision with a train at a grade crossing. Some of these measures eliminate the risk: closing the crossing to highway traffic for the period of the whistle ban (if the ban is 24 hours a day, this requires permanent closure of the crossing); or completely separating the highway from the railway (grade separation). Other measures seek to make it more difficult for motorists to drive around a lowered gate blocking the approach lane(s) to the crossing: either conversion of the highway crossing to a one-way street with gates that block the approach lanes to the crossing; installation of a four-quadrant gate system (one in which a gate blocks both approach and departure lanes from the crossing; or installation of a median that prevents a motorist from swerving out of the approach lane that is blocked by a lowered gate. The estimated costs for these SSMs range from hundreds of thousands to millions of dollars.

[28] "Additional safety measures" may be SSMs or Alternative Safety Measures (ASMs). Alternative safety measures include a systematic and measurable program of monitoring a crossing and enforcing traffic laws there; a public education and awareness campaign about the risks of grade crossings and relevant traffic laws; photo enforcement; modified SSMs (SSMs that don't fully comply with the SSM requirements).

[29] The first update to the Nationwide Significant Risk Threshold, which was not completed until almost two years after the Final Rule, resulted in an increase in the Threshold. Federal Railroad Administration, Department of Transportation, "Notice of Adjustment of the Nationwide Significant Risk Threshold," 72 *Federal Register* 14850 (March 29, 2007).

Converting Existing Whistle Bans into Quiet Zones

FRA provides special provisions for communities that had whistle bans in place as of the publication of the interim final Rule. FRA created two classes of pre-existing whistle bans: bans that were created before Congress directed FRA to take the needs of communities with pre-existing whistle bans into account (i.e., before October 9, 1996), and bans that were created after October 9, 1996 but before the publication of the interim final Rule (December 18, 2003).

Communities that had whistle bans in place as of October 9, 1996 may keep their whistle bans in place for five years.[30] After five years, the quiet zone must be in compliance with the requirements of the Rule (the period to bring a quiet zone into compliance may be extended to eight years if a state agency is involved in the creation of the quiet zone). During this transition period, the community can continue to ban the sounding of train horns at grade crossings.

Whistle bans in place as of October 9, 1996 may automatically qualify as quiet zones, and the community may continue to ban the sounding of train horns without providing additional safety improvements, if

- Each public crossing in the quiet zone already has one or more SSMs; or
- The Risk Index of the quiet zone is less than or equal to the Nationwide Significant Risk Threshold; or
- If the Quiet Zone Risk Index is higher than the National Significant Risk Threshold, but less than double that threshold, and there has not been a relevant collision at any of the public crossings in the proposed quiet zone in the preceding five years.

Whistle bans in place as of October 9, 1996 that do not meet any of those criteria will require additional safety measures. Communities may get their pre-existing whistle bans approved by FRA as quiet zones, and the communities may continue to ban the sounding of train horns, if

- The relevant authority commits to equip every public crossing in the quiet zone with one or more SSMs as of 2013; or
- The relevant authority submits a plan to implement some combination of SSMs, ASMs, and/or traffic control devices that reduces the Risk Index of the proposed quiet zone to (a) the level of risk that would exist if train horns were still being sounded or (b) the level of the Nationwide Significant Risk Threshold.

Whistle bans established after October 9, 1996, but by December 18, 2003 (the publication date of the Interim Final Rule), could be approved by FRA as quiet zones, and the community could continue to ban the sounding of train horns, under

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[30] October 9, 1996 was the date of passage of P.L. 104-264, which amended the mandate of P.L. 103-440 to direct FRA to take into account the interests of communities with whistle bans.

the same conditions as whistle bans established as of October 9, 1996, except that those communities were allowed to maintain their existing whistle ban for only one year (i.e., only until summer 2006). After that, the community must have provided any safety improvements required to comply with the requirements for a quiet zone.[31]

Impacts of the Rule

Estimated Monetary Costs and Benefits

FRA estimated that the costs to communities of implementing the Rule over 20 years (excluding the Chicago area) would be $41 million, compared to projected benefits (excluding the Chicago area) over 20 years estimated at $57 million.[32] FRA asserts that the costs may be overstated, since some communities might have made the same sorts of improvements in the absence of the Rule, and the benefits may be understated, since the estimated value does not include reduction in freight and passenger train delays due to collisions avoided.

The Chicago Area Transportation Study's Council of Mayors asserted that FRA underestimated the cost of implementing the Rule. They noted that FRA's initial estimate of the costs of preserving the existing whistle bans in the Chicago area was $2-4 million; after protests from Chicago-area officials about this estimate, FRA raised it to a range of $12-16 million. The Council of Mayors argued this estimate was still too low.[33] FRA responded that its initial cost estimate for the Chicago region was based on an nationwide average cost for improvements per crossing. To produce its revised estimate, FRA used costs provided by the Illinois Commerce Commission.[34] FRA produced a third estimate of costs for the Chicago area, based on comments from Chicago-area authorities. This third estimate produced a range of costs of $22-$26 million. FRA cautioned that the estimate was likely in excess of actual requirements.[35]

AAR commented that FRA's estimates of the costs of the safety improvements that might be required to preserve whistle bans had caused "a great deal of consternation" in the rule-making process, and asserted that it was "impossible for

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[31] Only 11 such Intermediate Quiet Zones were approved after the Rule was implemented, of which 4 were able to meet the requirements to continue after the one-year deadline (one other got a waiver). Conversation with Miriam Kloeppel, Federal Railroad Administration, December 1, 2006.

[32] 68 Federal Register 21882-83.

[33] Letter from John Kravcik, Vice Chair, Chicago Area Transportation Study Council of Mayors Executive Committee, to Kenneth M. Mead, Inspector General, United States Department of Transportation, October 5, 2004, p. 3. Available from the Docket Management System, Docket #6439.

[34] Letter from Betty Monro, Acting Administrator, Federal Railroad Administration, United States Department of Transportation, to the Honorable J. Dennis Hastert, Speaker of the United States House of Representatives, November 19, 2004. Available from the Docket Management System, Docket #6439.

[35] Ibid.

FRA to estimate with any accuracy the costs at a particular crossing or set of crossings."[36]

Impact on Existing Whistle Ban Crossings

FRA estimated that 66% of the approximately 2,000 whistle ban crossings could qualify for conversion to quiet zones without any improvements, while the remaining 34% would require supplementary or alternative safety measures to maintain their existing ban.[37] The Chicago area, which is currently exempt from the Rule, represents roughly 385 of the approximately 2,000 existing whistle bans.[38] In testimony before the House Transportation and Infrastructure Committee's Subcommittee on Railroads on July 21, 2005, FRA noted that over 220 quiet zone applications had been received under the Rule, which had gone into effect less than a month before.[39]

Safety Impact

FRA estimated that the Rule, requiring the sounding of train horns at all public grade crossings (with some exceptions), would prevent 95 accidents, 8 deaths, and 45 injuries over a 20-year period.[40] To put those numbers in context, in 2004, the year before the Rule took effect, there were a total of 3,075 grade crossing accidents, resulting in 372 deaths and 1,090 injuries; of that total, 2,527 accidents involved motor vehicles at public crossings, resulting in 257 deaths and 918 injuries.[41] FRA asserted that the safety benefit could increase if more communities than estimated chose to adopt supplementary or alternative safety measures in order to create quiet zones. In the context of perhaps 6,000-7,000 deaths from grade crossing accidents over the next twenty years, a reduction of 8 deaths may appear small to some.

However, the thrust of this Rule is not primarily to establish a new safety standard; FRA noted that, prior to the publication of the Rule, train horns were already being sounded at over 98% of public grade crossings.[42] The majority of the text of the Rule deals with allowing exceptions to the requirement that train horns be

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[36] Comments of the Association of American Railroads before the Federal Railroad Administration on the Use of Locomotive Horns at Highway-Rail Grade Crossings, April 19, 2004, p. 43. Available from the Docket Management System, Docket #6439.

[37] FEIS, Table 4-6: Crossing Improvements to Maintain Pre-Rule Quiet Zones.

[38] 68 Federal Register 70613.

[39] Testimony of Joseph H. Boardman, Administrator, Federal Railroad Administration, United States Department of Transportation, before the Subcommittee on Railroads of the Committee on Transportation and Infrastructure, United States House of Representatives, July 21, 2005, p. 8. As of February 6, 2007, FRA had received 264 applications, nearly half of which came from just three states: Wisconsin (64), Missouri (28), and Minnesota (31).

[40] 70 Federal Register 21883.

[41] Data from a query under Section 5.11("Hwy/Rail Incidents Summary Table") at FRA's Office of Safety Analysis website [http://safetydata.fra.dot.gov/officeofsafety/].

[42] 68 Federal Register 70594.

sounded at all public grade crossings, particularly with the establishment of quiet zones, and limiting the risk created by those exceptions. FRA has noted that the purpose of requiring additional safety measures for quiet zones was to compensate for the increased accident risk caused by not sounding locomotive horns, and that the result might be neutral in its impact on the risk level of those crossings.[43]

On the other hand, the Association of American Railroads (AAR) asserted that the Rule could increase the risk of grade crossing accidents in some locations. If the risk of an accident in a proposed quiet zone is greater than the risk when horns are sounded at that crossing, but less than the Nationwide Significant Risk Threshold, the quiet zone can be approved even through its creation would increase the risk of accidents at that crossing. AAR also noted that risks at some crossings may be increased because communities are allowed to create quiet zone corridors encompassing multiple grade crossings as long as the overall risk level for all the crossings are below the Nationwide Significant Risk Threshold, even though the risk of grade crossing accidents at an individual crossing or crossings in the corridor may increase. Further, AAR argued that risk is increased because communities are given three years to implement safety improvements in a quiet zone should it become apparent that the risk level in the zone is too high.[44]

FRA responded that individuals and organizations in whistle ban areas have made choices based on the existence of that ban, and Congress directed the agency to consider the interests of communities with whistle bans. The agency noted that the Rule attempts to balance the competing concerns of safety (from sounding train horns at crossings) and a community's desire for quiet (from silencing train horns at crossings), and noted "the grace periods provided under the rule (five and eight years) maintain community quiet well ahead of community actions that would otherwise warrant that result."[45]

Noise Impact

FRA estimated that prior to the issuance of the regulation 9.4 million people were affected by train horn noise, and the agency estimated that the Rule would eliminate the existing noise impact on 3.4 million of these people by reducing the loudness of train horns, reducing the amount of time they are sounded, and by leading to the establishment of quiet zones.[46] On the other hand, assuming a worst-case situation in which no quiet zones were established after the Rule took effect (i.e., all existing whistle bans were eliminated), FRA estimated that 445,611 persons would experience increased noise levels due to train horns sounding at all public highway-

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[43] 68 Federal Register 70605.

[44] [Transcript of] Oral Comments of Michael J. Rush, Associate General Counsel, Association of American Railroads, Before the Federal Railroad Administration, Hearing on the Use of Locomotive Horns at Highway-Rail Grade Crossings, pp. 2-3.

[45] 68 Federal Register 70600.

[46] FRA, Train Horn Rule Final Environmental Impact Statement, p. 4-3.

rail grade crossings. Of that number, 46% of those people live in one state (Illinois), and 34% of the total live in a single county (Cook County, Illinois).[47]

FRA asserts that the Rule will reduce existing train horn noise levels over time through limiting the maximum sound level for train horns to 110 decibels and limiting the duration of sounding horns at grade crossings to no more than 15-20 seconds. Prior to the Rule, locomotive horns did not have a maximum noise level; many operated at 111 decibels. Also, prior to the Rule, the standard industry practice was for locomotive engineers to begin sounding the train horn one-quarter mile from the intersection. If a train was going less than 45 miles per hour, as trains often do in heavily-populated areas with numerous grade crossings, the train horn would have been sounded for longer than 20 seconds.

Issues

Several issues contributed to the protracted rule-making process for this regulation, some of which may continue to be of interest to Congress.

Effectiveness of Train Horns in Alerting Motorists

An issue raised in the July 21, 2005 House hearing was whether train horns were loud enough to be effective under contemporary circumstances. The National Transportation Safety Board (NTSB) testified concerning a study of the audibility of train horns NTSB had conducted in 1998. They tested the sound level inside 13 passenger and emergency vehicles of various types located 100 feet from a locomotive horn. The sound level of the horn outside the vehicles was 96 decibels. Inside the vehicles, with windows closed and engines idling, NTSB found that the sound of the train horn was less than 10 decibels above the ambient sound level, not loud enough to alert the drivers to the presence of the horn. When the fans in the vehicles were turned on, the horn was not audible at all in seven of the vehicles, and the sound of the horn was less than 10 decibels above the ambient sound level in all the remaining vehicles. Nevertheless, NTSB noted, sounding train horns is an important element of grade crossing safety, and should be done unless effective substitutes are in place.[48]

In the Rule, FRA set the permissible sound level of train horns, at a distance 100 feet ahead of the horn, at a range of 96-110 decibels. FRA asserted that analysis indicated a 95% likelihood that a train horn set to emit 108 decibels at a range of 100 feet would be heard by a motorist approaching a grade crossing.[49]

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[47] Ibid., p. 4-9 to 4-10.

[48] Mark V. Rosenker, Acting Chairman, National Transportation Safety Board, Testimony before the Subcommittee on Railroads, Committee on Transportation and Infrastructure, United States House of Representatives, July 21, 2005, p. 2-3.

[49] 70 Federal Register 21880.

Preemption of Local Decision-Making

Many local governments assert that the Rule is an unfair preemption of their authority.[50] Many claim that the basic responsibility for deciding under what circumstances to establish a whistle ban should reside with local government. FRA acknowledged that whistle bans established prior to the Rule reflected a policy choice made by the local community in weighing the risks of grade crossing accidents with the quality of life of residents. FRA observed that it was mandated by Congress to require the sounding of train horns at intersections to promote public safety, and that the regulations minimize the potential negative impacts of that mandate.

Costs of Preserving/Establishing Quiet Zones

FRA estimated the costs to pre-existing whistle ban crossings (excluding the Chicago area) of converting to quiet zones at around $20 million over 20 years (this is a subset of the $40 million total cost estimate discussed above).[51] FRA's cost estimate for whistle ban crossings in the Chicago area, as noted above, is in the range of $22-26 million.

Local governments have objected to the Rule as creating an unfunded mandate. The National League of Cities noted that there is no source of federal funding dedicated to helping communities comply with the requirements of the Rule, and that if a community is unable to fund safety upgrades that may be required to maintain an existing whistle ban, that ban will be terminated.[52] FRA noted that the Rule does not require communities to implement additional safety requirements at highway-rail grade crossings. Communities may be required to implement safety improvements if they choose to establish quiet zones, but the Rule does not require communities to establish quiet zones

The Association of American Railroads (AAR) asserts that reducing risk at public highway-rail grade crossings is considered a benefit primarily to the highway user, and thus is the responsibility of the highway user (though AAR also asserts that railroads invest considerable sums to maintain and inspect grade crossings).[53]

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[50] National League of Cities, Letter to the Federal Railroad Administration regarding the Interim Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings, April 19, 2004, p. 2. Available from the Docket Management System, Docket Number 6439.

[51] 70 Federal Register 21882: Total Twenty Year Costs chart. $20 million is the sum of the costs for "Pre-Rule Quiet Zones—Nationwide, Excluding Chicago" and "Intermediate Quiet Zones."

[52] Ibid., p. 2.

[53] Edward R. Hamberger, President and Chief Executive Officer, Association of American Railroads, Testimony before the Subcommittee on Railroads, Committee on Transportation and Infrastructure, United States House of Representatives, July 21, 2005, p. 13-14. Mr. Hamberger quoted from a Supreme Court decision, an Interstate Commerce Commission report, and the Code of Federal Regulations: 23 CFR 646.210(b)(1) "Projects for grade crossing improvements are deemed to be of no ascertainable net benefit to the railroads and

(continued...)

Federal Funding for Grade Crossing Safety Improvements

Federal funding is available to reduce the risk of grade crossing accidents. The primary source of this funding is Federal Highway Administration (FHWA) grant programs. Some programs are intended specifically to reduce hazards at railway-highway grade crossings; in other programs, reducing grade crossing hazards is one of the eligible uses of funding. See **Table 1** for a list of potential federal funding sources.

However, FRA asserts that federal funding is not likely to be available for improvements to establish quiet zones, because "it is unlikely that most improvements undertaken under this Rule would withstand the priority ranking requirement for safety projects under Federal-aid highway programs."[54] Federal grade crossing risk reduction funding "is subject to strict requirements for ranking the priority of projects on a State-wide basis."[55] This ranking requirement "recommends crossing safety improvements that yield the greatest accident reduction benefits based on consideration of predicted accidents and casualties at crossings, the cost and effectiveness of warning device options, and the budget limit."[56] The agency notes that establishing a quiet zone may produce little or no improvement in the level of safety at grade crossings, since any safety improvements provided are compensating for the increase in risk from banning the sounding of train horns. Consequently, the result of the improvements may be "approximately neutral with respect to safety."[57]

Table 1. Sources of Federal Funding for Grade Crossing Safety Improvements

Program	DOT Administration	Annual Authorization (millions)	Funding Distribution	Notes
Railway-Highway Crossings ("Section 130") Program	FHWA	$220	Formula grants to states	At 23 USC 130. At least 50% of funding to be used for protective devices at crossings.

[53] (...continued)
there shall be no required railroad share of the costs."

[54] 68 Federal Register 70605.

[55] 68 Federal Register 70605.

[56] United States Department of Transportation, *Rail-Highway Crossing Resource Allocation Procedure User's Guide*, 3rd edition, August 1987, p. 1.

[57] 68 Federal Register 70605.

Program	DOT Administration	Annual Authorization (millions)	Funding Distribution	Notes
Highway Safety Improvement Program (HSIP)	FHWA	$1,256 (FY07) $1,276 (FY08) $1,296 (FY09)	Formula grants to states	The $220 million for the Railway-Highway Crossings Program is a takedown from this program. Grade-crossing safety improvements are one of many eligible uses.
Surface Transportation Program (STP)	FHWA	$6,370 (FY07) $6,473 (FY08) $6,577 (FY09)	Formula grants to states	Grade crossing safety improvements are one of many eligible uses.
Railway-Highway Crossing Hazard Elimination in High-Speed Rail Corridors	FRA	$10 (FY07) $13 (FY08) $14 (FY09)	Discretionary grants to applicants	Only crossings on federally-designated high-speed rail corridors are eligible for funding.
National Highway System (NHS)	FHWA	$6,111 (FY07) $6,208 (FY08) $6,307 (FY09)	Formula grants to states	National Highway System road crossings are eligible. In addition, states can transfer up to 50% of their NHS funds to STP.
Interstate Maintenance Program (IM)	FHWA	$5,039 (FY07) $5,119 (FY08) $5,199 (FY09)	Formula grants to states	States can transfer up to 50% of their IM funds to STP.
Bridge Program	FHWA	$4,320 (FY07) $4,388 (FY08) $4,457 (FY09)	Formula grants to states	States can transfer up to 50% of their Bridge Program funds to STP.

Program	DOT Administration	Annual Authorization (millions)	Funding Distribution	Notes
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	FHWA	$1,721 (FY07) $1,749 (FY08) $1,777 (FY09)	Discretionary grants to applicants	States can transfer some of their CMAQ funds to STP. Only projects in air quality non-attainment or maintenance areas are eligible.

FRA noted that the automatic warning gates which are required for new quiet zones under this Rule "were in most cases installed with primarily Federal funds."[58] "Thus prior Federal funding has already assisted local governments to some extent" in establishing quiet zones.[59] FRA also noted that in FY2000, in addition to the $155 million in federal funding dedicated to Section 130 grade crossing safety, there was an additional $368 million in federal highway safety funding that could have been used for grade crossing improvements; of that amount, states used $21 million (6%).[60] "Clearly this is an area where States can be encouraged to change the mix of safety projects advanced using this funding to accommodate more grade crossing safety improvements."[61]

As noted in **Table 1**, states can also use their federal Surface Transportation Program (STP) funds for engineering improvements to improve the safety of grade crossings, and if the crossings are on roads in the National Highway System, the states can use their National Highway System program funds also. Since states can also transfer funds into their STP from several other federal-aid highway programs, as noted in the table, the STP could be a significant source of funding for these improvements. But states typically have many highway projects competing for STP funds. STP projects are prioritized by metropolitan planning organizations and state departments of transportation, and projects have to be in the state's statewide transportation improvement program or a metropolitan planning organization's transportation improvement program to be eligible for federal funding. These plans typically include far more projects than can be funded with current resources. Thus, to receive funding, a grade crossing improvement project would have to be high on the state's prioritized list of transportation projects in its transportation improvement plan, or on a metropolitan planning organization's transportation improvement plan (otherwise, the project could be in the transportation improvement plan, but so far down the list of projects that it might not receive funding for years, if ever).

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[58] *68 Federal Register 70606.*

[59] Ibid.

[60] Ibid.

[61] Ibid.

Members of Congress can also direct funds to specific transportation projects,[62] but those projects must be in a transportation improvement plan before they receive federal funding.

Some parties argue that federal funding should not be provided for establishing quiet zones, because establishing a quiet zone is a quality of life improvement, not a safety improvement.[63] Some observers have criticized FRA's Rule on the grounds that it would reduce safety overall. They fear the Rule will lead states to divert funding for mitigating risk at grade crossings away from higher-risk crossings to fund improvements required to maintain existing whistle bans at lower-risk crossings.[64] They assert that this process would tend to divert resources from improving those crossings in rural areas where active safety technologies (such as warning lights and gates) have not yet been installed, to crossings in urban areas which already have warning lights and gates but which may have to implement additional safety measures to preserve whistle bans. As noted above, FRA asserts that the requirements of the federal grade crossing safety grant program should limit that diversion. However, it is possible that individual Members of Congress may respond to the demands of their constituents by seeking legislation to direct funds to the creation of quiet zones.

Liability

Several railroad industry participants commented that if a community insisted that railroads stop sounding locomotive horns at grade crossings, a long-established industry safety measure, then the community should be liable for any accidents that may result due to the prohibition of that safety practice. Many community representatives, noting that the Interim Final Rule provided a liability exemption for railroads,[65] expressed concern about that exemption leading to an increase in liability on the part of communities establishing quiet zones, and argued that FRA should also exempt communities from liability, or at least include a statement that the existing liability structure for grade crossing accidents would not be changed by the regulation.

FRA asserted that the Rule would establish a federal standard of care, displacing a variety of state and local standards of care that have been applied in grade crossing accident cases, and would benefit both communities and railroads by providing a

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[62] For example, in the surface transportation reauthorization legislation, SAFETEA-LU (P.L. 109-59), passed in 2005, there were dozens of earmarks for safety improvements to railway-highway grade crossings, totaling tens of millions of dollars, in the High Priority Projects section (Section 1702).

[63] 68 Federal Register 70605.

[64] Letter from John Kravcik, Vice-Chicago Area Transportation Study Council Of Mayors Executive Committee, op. cit.

[65] While allowing communities to ban the sounding of locomotive horns in established quiet zones, the Rule allows railroad engineers to sound locomotive horns even in quiet zones, in case of emergency. The Rule exempts railroad engineers from liability for failing to sound a locomotive horn in an emergency situation.

clear standard. FRA noted that the standard of care applied to the issue of sounding locomotive horns at grade crossings in duly established quiet zones, and that there could be factors other than the presence or absence of an audible warning signal that contribute to collisions at grade crossings. FRA asserted its reluctance to interfere with the existing liability structure. FRA noted that states have the power to exempt their local communities from lawsuits through the application of sovereign immunity, and that some states have chosen to do so.[66]

Another liability-related issue raised by many communities was concern that railroads would require communities to transfer liability entirely to the community as a prerequisite for improvements required to establish a quiet zone. Communities urged FRA to include language in the Rule that would expressly forbid this tactic. Conversely, as noted above some in the railroad industry urged FRA to require public authorities to indemnify railroads against any increased liability arising from the establishment of quiet zones. FRA declined to add language either way, asserting that "the provisions contained within, as well as the overall legality of, indemnification and hold harmless agreements between railroads and local communities are largely governed by State contract law and FRA has been given no general charge to adjust these interests."[67] To the communities' concern that railroads would require indemnification agreements as a prerequisite to establishing quiet zones, FRA asserted that state and local governments would in many cases be able to make the safety improvements needed to establish quiet zones with little or no cooperation from the railroads.[68]

The Role of Motorists in Grade Crossing Accidents

Analysis of public highway-rail grade crossing accident reports indicated that 94% of the accidents, and 87% of the resulting fatalities, during the period 1994-2003 were due to risky behavior or poor judgement on the part of motorists (i.e., "motorists failed to stop at grade crossings or drove around activated automatic gates").[69] Over half (51%) of the public grade crossing accidents occurred at crossings equipped with automatic or active warning devices (i.e., flashing lights and/or and gates).[70] In light of this, FRA received many comments arguing that residents of communities should not be subject to the noise of train horns in an effort to protect irresponsible people from the consequences of their actions. FRA asserted that "it is appropriate to protect even the unwise from the consequences of their misdeeds where those consequences are especially severe — and where society as a whole may bear the burden of those consequences."[71] The agency also noted that grade crossing accidents caused by irresponsible drivers often harm innocent victims:

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[66] 70 Federal Register 21846.

[67] 70 Federal Register 21847.

[68] Ibid.

[69] Office of the Inspector General, United States Department of Transportation, *Audit of the Highway-Rail Grade Crossing Safety Program*, MH-2004-065, June 16, 2004, p. 5.

[70] Ibid., p. 4.

[71] 68 Federal Register 70594.

passengers in those drivers' cars, railroad employees and passengers, other drivers, and people living nearby.