

**DEPARTMENT OF TRANSPORTATION****Federal Railroad Administration****49 CFR Parts 222 and 229**

[Docket No. FRA-1999-6439, Notice No. 17]

RIN 2130-AB73

**Use of Locomotive Horns at Highway-Rail Grade Crossings**

**AGENCY:** Federal Railroad Administration (FRA), Department of Transportation (DOT).

**ACTION:** Final rule; response to petitions for reconsideration.

**SUMMARY:** This document responds to petitions for reconsideration of FRA's April 27, 2005 final rule that required that the locomotive horn be sounded while trains approach and enter public highway-rail grade crossings. This document amends and clarifies the final rule, in response to petitions for reconsideration and associated letters in support that have been submitted by interested parties, including the railroad industry, rail unions, and a manufacturer of traffic channelization devices.

**DATES:** The effective date is September 18, 2006.

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**SUPPLEMENTARY INFORMATION:****1. Background**

On January 13, 2000, FRA published a Notice of Proposed Rulemaking (NPRM) in the **Federal Register** (65 FR 2230) addressing the use of locomotive horns at public highway-rail grade crossings. This rulemaking was mandated by Public Law 103-440, which added section 20153 to title 49 of the United States Code. The statute requires the Secretary of Transportation (whose authority in this area has been delegated to the Federal Railroad Administrator under 49 CFR 1.49) to issue regulations that require the use of locomotive horns at public grade crossings, but gives the Secretary the authority to make reasonable exceptions.

In accordance with the Administrative Procedure Act (5 U.S.C. 553), FRA solicited written comments from the public. By the close of the comment period on May 26, 2000, approximately 3,000 comments had

been filed with this agency regarding the NPRM and the associated Draft Environmental Impact Statement. As is FRA's practice, FRA held the public docket open for late filed comments and considered them to the extent possible.

Due to the substantial and wide-ranging public interest in the NPRM, FRA conducted a series of public hearings throughout the United States in which local citizens, local and State officials, Congressmen, and Senators provided testimony. Twelve hearings were held (Washington, DC; Fort Lauderdale, Florida; Pendleton, Oregon; San Bernadino, California; Chicago, Illinois (four hearings were held in the greater Chicago area); Berea, Ohio; South Bend, Indiana; Salem, Massachusetts; and Madison, Wisconsin) at which more than 350 people testified.

On December 18, 2003, FRA published an Interim Final Rule in the **Federal Register** (68 FR 70586). Even though FRA could have proceeded directly to the final rule stage, FRA chose to issue an interim final rule in order to give the public an opportunity to comment on changes that had been made to the rule. FRA also held a public hearing in Washington, DC on February 4, 2004. By the close of the extended comment period, over 1,400 comments had been filed with the agency regarding the Interim Final Rule. As is FRA's practice, FRA held the public docket open for late-filed comments and considered them to the extent possible. In order to avoid imposing inconsistent regulatory standards for quiet zone creation and establishment, FRA extended the effective date of the Interim Final Rule on November 22, 2004 (69 FR 67858) and on March 18, 2005 (70 FR 13117) so that the Interim Final Rule would not take effect before the final rule was issued.

On April 27, 2005, FRA published a Final Rule in the **Federal Register** (70 FR 21844). After the final rule was published, FRA received petitions for reconsideration and associated letters in support from the Association of American Railroads, Mr. James Adams of Placentia, California, GE Transportation-Rail, United Transportation Union, Brotherhood of Locomotive Engineers and Trainmen, BNSF Railway Company and Qwick Kurb, Inc. In addition, the Association of American Railroads submitted a petition for Emergency Order, which was subsequently denied.

**2. Statutory Mandate**

On November 2, 1994, Congress passed Public Law 103-440 ("Act") which added section 20153 to title 49 of

the United States Code ("title 49"). Subsections (i) and (j) were added on October 9, 1996 when section 20153 was amended by Public Law 104-264. The Act requires the use of locomotive horns at public highway-rail grade crossings, but gives FRA the authority to make reasonable exceptions.

FRA's Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings (Final Rule) complied with the statutory mandate contained within section 20153 of title 49. As required by section 20153(b) of title 49, the final rule requires locomotive horn sounding by trains that approach and enter public highway-rail grade crossings. (See rule § 222.21.) However, as allowed by 49 U.S.C. 20153(c), the final rule contains exceptions for certain categories of rail operations and highway-rail grade crossings.

Section 222.33 of the rule provides that a railroad operating over a public highway-rail grade crossing may, at its discretion, choose not to sound the locomotive horn if the locomotive speed is 15 miles per hour or less and the train crew or appropriately equipped flaggers provide warning to motorists. FRA has determined that these limited types of rail operations do not present a significant risk of loss of life or serious personal injury.

Locomotive horn sounding is also not required within highway-rail grade crossing corridors that are equipped with supplementary safety measures (SSMs) at each public highway-rail grade crossing. In addition, locomotive horn sounding is not required within highway-rail grade crossing corridors that have a Quiet Zone Risk Index at or below the Nationwide Significant Risk Threshold or the Risk Index With Horns. These highway-rail grade crossing corridors have been deemed, by the Administrator, to constitute categories of highway-rail grade crossings that do not present a significant risk with respect to loss of life or serious personal injury or that fully compensate for the absence of the warning provided by the locomotive horn. Therefore, communities with highway-rail grade crossing corridors that meet either of these standards may silence the locomotive horn within the crossing corridor, if all other applicable quiet zone requirements have been met. (See § 222.39.)

Section 20153(i) of title 49 requires FRA to "take into account the interest of communities that have in effect restrictions on the sounding of a locomotive horn at highway-rail grade crossings." FRA has complied with this requirement in several ways. Until December 24, 2005, the final rule

allowed communities to establish Pre-Rule Quiet Zones, if the Quiet Zone Risk Index was at, or below, two times the Nationwide Significant Risk Threshold and there were no relevant collisions within the quiet zone since April 27, 2000. (See § 222.41.) It should also be noted that the final rule allows communities to establish Pre-Rule Quiet Zones, if SSMs have been implemented at every public grade crossing within the quiet zone or if the Quiet Zone Risk Index is at, or below, the Nationwide Significant Risk Threshold.) Additionally, the rule allows Pre-Rule Quiet Zone communities to take additional time (up to eight years from the effective date of the final rule) within which to implement safety improvements that will bring them into compliance with the requirements of the rule. This "grace period" has been included in the rule in order to comply with 49 U.S.C. 20153(i)(2), which requires FRA to provide "a reasonable amount of time for [pre-existing whistle ban] communities to install SSMs".

Section 20153 of title 49 prohibits FRA from entertaining single-party petitions for waiver from the regulatory requirements issued under the authority of 49 U.S.C. 20153, unless FRA determines that this prohibition against single-party waiver petitions "\* \* \* is not likely to contribute significantly to public safety." Therefore, § 222.15 of the final rule, which governs the process for obtaining a waiver from the requirements of 49 CFR Part 222, requires joint filing of waiver petitions by the railroad and public authority, unless the Associate Administrator makes the determination that joint submission of an individual waiver petition would not be likely to significantly contribute to public safety.

Section 222.55 of the final rule addresses the manner in which new SSMs and ASMs are demonstrated and approved for use. Paragraph (c) of this section, which reflects the requirements contained within 49 U.S.C. 20153(e), specifically provides that the Associate Administrator may order railroad carriers operating over a crossing or crossings to temporarily cease sounding the locomotive horn at the crossing(s) to demonstrate proposed new SSMs and ASMs that have been subject to prior testing and evaluation.

Section 20153(f) of title 49 explicitly gives discretion to the Secretary as to whether private highway-rail grade crossings, pedestrian crossings, and crossings utilized primarily by nonmotorized and other special vehicles should be subject this regulation. FRA has decided to refrain from exercising jurisdiction over crossings utilized

primarily by nonmotorized and other special vehicles in this final rule. FRA has, however, exercised its jurisdiction, in a limited manner, over private and pedestrian grade crossings. Under the final rule amendments issued today, the sounding of locomotive audible warning devices at private and pedestrian crossings will be governed by this rule, if State law requires the sounding of locomotive audible warning devices at these crossings. (§§ 222.25 and 222.27) However, routine locomotive horn sounding is prohibited at private and pedestrian grade crossings located within quiet zones, even if other locomotive audible warning devices must be sounded at these crossings per State and local law.

Section 222.7 of the rule contains a concise statement of the rule's impact with respect to 49 U.S.C. 20106 (national uniformity of regulation). This statement of the rule's effect on State and local law, which was required by 49 U.S.C. 20153(h), provides that the rule, when effective, will preempt State and local laws that govern locomotive horn use at public highway-rail grade crossings. Under the final rule amendments issued today, State and local laws that require the sounding of locomotive audible warning devices at public, private and pedestrian grade crossings will be preempted to the limited extent described in §§ 222.21(e), 222.25 and 222.27 of the rule. However, as stated in § 222.7(b), this rule does not preempt State and local laws governing the sounding of locomotive audible warning devices at Chicago Region highway-rail grade crossings where railroads were excused from sounding the locomotive horn by the Illinois Commerce Commission, and where railroads did not sound the horn, as of December 18, 2003.

Lastly, the final rule also complied with the statutory one-year delay requirement. Section 20153(j) of title 49 prohibits any regulations issued under its authority from becoming effective before the 365th day following the date of publication of the final rule. On December 18, 2003, FRA published an Interim Final Rule on the Use of Locomotive Horns at Highway-rail Grade Crossings, which had the same force and effect as a final rule. After reviewing approximately 1,400 comments on the interim final rule, FRA issued a final rule that granted additional relief to States and local communities and became effective on June 24, 2005. The final rule has therefore complied with 49 U.S.C. 20153(j) because more than the required 365 days elapsed between issuance of the interim final rule on December 18,

2003 and the effective date of the rule on June 24, 2005.

### 3. Emergency Order 15

Emergency Order 15, issued in 1991, requires the Florida East Coast Railway Company to sound locomotive horns at all public grade crossings. The Emergency Order preempted State and local laws that permitted nighttime bans on the use of locomotive horns. Amendments to the Emergency Order did, however, permit the establishment of quiet zones if supplementary safety measures were implemented at every crossing within a proposed quiet zone. The supplementary safety measures specified in the Emergency Order are similar, but are not identical, to the supplementary safety measures contained in FRA's Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings (70 FR 21844).

FRA has not yet rescinded Emergency Order 15. Therefore, FRA's Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings does not apply to public highway-rail grade crossings within the State of Florida that are currently subject to Emergency Order 15. On April 15, 2005, a public conference was held in Florida, at which FRA solicited comments on the appropriate excess risk estimate that should be applied to public highway-rail grade crossings that are currently subject to Emergency Order 15. While FRA intends to specifically address this issue in the near future, comments that have been received on this issue are still under consideration at this time.

### 4. Rule Changes

This brief overview of the major amendments that have been made to the Final Rule is provided for the reader's convenience. Because this section merely provides an overview, it should not be relied upon for a comprehensive discussion of all final rule amendments. Indeed, this full document should be read together with the previous documents issued in the proceeding. Inasmuch as the Final Rule, Interim Final Rule and Notice of Proposed Rulemaking contained extensive discussion of both the background of the issues involved in this rulemaking and the rationale behind decisions relating to those issues, FRA emphasizes that these amendments should be read in conjunction with the Final Rule, Interim Final Rule and Notice of Proposed Rulemaking. Unless the positions and rationale expressed in those documents have explicitly changed in the subsequent rulemaking documents, the reader should understand that those

positions and rationale remain those of FRA.

#### *Summary of Changes to the Final Rule*

- These amendments extend the compliance date of the time-based locomotive horn sounding requirements until December 15, 2006. (See § 222.21(b) for more information.)
- A “good faith” exception has been incorporated into the time-based locomotive horn sounding requirements for locomotive engineers who are unable to precisely estimate their time of arrival at upcoming grade crossings. (See § 222.21(b)(2) for more information.)
- An exception has been added to the 15-second minimum locomotive horn sounding requirement for locomotives and trains that re-initiate movement after having stopped in close proximity to a public highway-rail grade crossing. (See § 222.21(d) for more information.)
- These amendments expand the scope of the time-based locomotive horn sounding requirements to cover the sounding of any locomotive audible warning device (*i.e.*, locomotive bells) at public highway-rail grade crossings. (See § 222.21(e) for more information.)
- If State law requires the sounding of locomotive audible warning devices at private and/or pedestrian crossings, these amendments will require railroads to sound the locomotive audible warning device in a time-based manner. (See §§ 222.25 and 222.27 for more information.)
- An exception has been added to the locomotive horn sounding requirements for locomotives equipped with defective horns that are being moved for repair. (See § 222.21(b)(2) for more information.)
- The notification requirements for Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones have been streamlined by expanding the scope of the Notice of Intent requirement and removing the Notice of Detailed Plan requirement. (See § 222.43 for more information.)
- These amendments extend the compliance date for the sound level testing of new locomotives until September 18, 2006. (See § 229.129(b) for more information.)
- These amendments provide clarification that locomotives used in rapid transit operations on the general railroad system are exempt from the locomotive horn sound level and testing requirements contained in 49 CFR 229.129. (See § 229.129 for more information.)

#### **Section-by-Section Analysis**

*Section 222.1 What is the purpose of this regulation?*

This section has not been revised.

*Section 222.3 What areas does this regulation cover?*

This section has not been revised.

*Section 222.5 What railroads does this regulation apply to?*

This section has not been revised.

*Section 222.7 What is this regulation’s effect on State and local laws and ordinances?*

In its petition for reconsideration, the Association of American Railroads (AAR) noted that the Final Rule does not specifically address the preemptive effect of the Final Rule on State and local laws that effectively prohibit and/or restrict the sounding of locomotive horns for testing purposes. Asserting that the Final Rule should preempt such State and local laws, the AAR requested confirmation of FRA’s position on this issue.

FRA does not intend to preempt State and local noise ordinances that may have the effect of restricting the time period during which the locomotive horn may be sounded at locations other than grade crossings. FRA was directed to issue regulations that govern the sounding of locomotive horns at public highway-rail grade crossings, provided the interests of communities with pre-existing restrictions on locomotive horn sounding were taken into consideration. Given the nature of this statutory directive, FRA is reluctant to disturb longstanding State and local noise ordinances that may restrict locomotive horn sounding at locations other than grade crossing locations without additional information on the adverse impact of these ordinances on the ability of locomotive manufacturers and railroads to conduct locomotive horn testing in accordance with § 229.129 of this part.

Paragraph (b) of this section has been revised to reflect FRA’s intent to refrain from preempting any State law, rule, regulation, or order governing the sounding of locomotive audible warning devices, including the locomotive horn, at any highway-rail grade crossing described in § 222.3(c) of this part. Without this revision, FRA might have inadvertently preempted State law by requiring the sounding of the locomotive bell, at the highway-rail grade crossings described in § 222.3(c) of this part, in accordance with this part.

Paragraphs (c), (d), and (e) of this section have not been revised.

#### *Section 222.9 Definitions*

FRA is making a minor revision to the definition of “channelization device” in the Final Rule. FRA revised this definition in the Final Rule to prohibit the use of surface-mounted tubular markers and vertical panels within quiet zones as SSMS, where the surface-mounted tubular markers or vertical panels are not used in conjunction with a raised longitudinal channelizer. FRA did not, however, intend to prohibit the use of surface-mounted tubular markers or vertical panels, in conjunction with a raised longitudinal channelizer. FRA recognizes that the use of surface-mounted tubular markers and vertical panels, in conjunction with a raised longitudinal channelizer, can effectively reduce quiet zone risk.

FRA is also correcting an inadvertent error in the preamble discussion of the definition of “channelization device” in the Final Rule. In that discussion, FRA stated that “it would be highly advisable to use raised longitudinal channelizers that are at least four inches high.” (See 70 FR 21854.) However, in its petition for reconsideration, Qwick Kurb, Inc. (“Qwick Kurb”) noted that FRA partially relied upon the results of state-sponsored tests on the efficacy of Qwick Kurb installations, which consist of three and one-half inch high longitudinal channelizers with vertical elliptical markers attached, when determining that Qwick Kurb installations had an effectiveness rating of at least .75. Qwick Kurb also noted that Qwick Kurb installations were successfully tested by the Federal Highway Administration (FHWA) under FHWA’s NCHRP 350 criteria as a crashworthy traffic control device.

FRA notes that the regulatory text itself does not require use of raised longitudinal channelizers that are at least four inches high. Indeed, FRA never intended to discourage the use of raised longitudinal channelizers that are at least three and one-half inches high. Even though Qwick Kurb subsequently withdrew its objection to the preamble discussion of the definition of “channelization device” in the Final Rule, FRA recognizes that there may be some communities that have already purchased and installed raised longitudinal channelizers that are three and one-half inches in height. Therefore, FRA is clarifying that raised longitudinal channelizers of at least three and one-half inches in height, when affixed with vertical panels or tubular delineators, constitute acceptable channelization devices for

purposes of this part. Lastly, FRA is removing all references to specific MUTCD sections from the definition of "channelization device", in recognition of the somewhat transitory nature of MUTCD section citations.

A definition of "locomotive audible warning device" has been added to the Final Rule, in recognition of the expanded scope of the Final Rule with respect to the sounding of locomotive audible warning devices, as opposed to just locomotive horns, at public, private and pedestrian grade crossings.

The definition of "locomotive horn" has been revised by adding a specific reference to locomotive horns used in rapid transit operations.

The definition of "MUTCD" has been revised to correct an inadvertent typographical error.

The definition of "New Partial Quiet Zone" has been revised to correct an inadvertent typographical error.

The definition of "pedestrian grade crossing" has been revised in order to clarify that the requirements for pedestrian crossings contained within this part only apply to pedestrian grade crossings. Nonetheless, despite the limited scope of these requirements, the terms "pedestrian crossing" and "pedestrian grade crossing" have been used interchangeably for purposes of this part.

The definition of "private highway-rail grade crossing" has been revised to correct an inadvertent typographical error.

Even though the definition of "Pre-Rule Quiet Zone" has not been revised, FRA is providing further clarification on the definition of this term. While reviewing Notices of Quiet Zone Continuation that have been submitted by public authorities seeking to continue locomotive horn restrictions in Pre-Rule Quiet Zones, it has come to FRA's attention that disagreements have arisen between public authorities and railroads on whether local ordinances that seem to prohibit locomotive horn sounding at certain highway-rail grade crossings have, in fact, been "enforced or observed". In these situations, the public authority and railroad must determine whether locomotive horns were routinely sounded at the grade crossings in question on October 9, 1996 and December 18, 2003, despite locomotive horn sounding restrictions that were ostensibly imposed by State or local law. Railroad timetables that reflect locomotive horn sounding practices on October 9, 1996 and December 18, 2003 will provide dispositive proof on this issue.

Even though the definition of "quiet zone" has not been revised, FRA is

providing further clarification on the definition of this term. A quiet zone may only contain consecutive public highway-rail grade crossings located on a segment of a rail line. Therefore, a public authority may find it necessary to establish more than one quiet zone within the boundaries of a local community. For example, if there are two railroad tracks running through a local community that are not adjacent to each other and which do not share grade crossing warning system devices, a community that wishes to silence the locomotive horn at grade crossings along both tracks must create separate quiet zones for each railroad track or right-of-way. Also, if there is both a main line track and an industrial spur track within town limits, a community that wishes to silence the locomotive horn at grade crossings located on both tracks must create separate quiet zones for the main line track and the industrial spur track, unless the main line track and the industrial spur track share grade crossing warning system devices.

*Section 222.11 What are the penalties for failure to comply with this regulation?*

This section has not been revised.

*Section 222.13 Who is responsible for compliance?*

This section has not been revised.

*Section 222.15 How does one obtain a waiver of a provision of this regulation?*

This section has not been revised.

*Section 222.17 How can a State agency become a recognized State agency?*

This section has not been revised.

*Section 222.21 When must a locomotive horn be used?*

This section has been revised in order to address the movement of locomotives with inoperative horns, extend the compliance date of paragraph (b) of this section by 120 days, provide a good-faith exception for locomotive engineers who sound the locomotive horn for more than 20 seconds when approaching public crossings, address the sounding of locomotive audible warning devices at public highway-rail grade crossings when required by State and local law and provide a limited exception to the minimum audible warning requirement for trains and locomotives that have stopped in close proximity to a public highway-rail grade crossing.

Paragraph (a) of this section requires locomotive engineers to initiate

locomotive horn sounding, in accordance with paragraph (b) of this section, and to continue sounding the locomotive horn until the lead locomotive blocks access to the crossing from all roadway approaches. FRA received a petition for reconsideration on this issue from James Adams, a resident of Placentia, California, who suggested that FRA require the locomotive engineer to sound only those locomotive horns which point in the direction of locomotive travel, in order to reduce unnecessary horn noise impacts from the sounding of locomotive horns that are pointed against the direction of travel. Most locomotive horns, particularly in freight service, are designed to provide warning in both directions of travel; and the engineer has no ability to select warning only in the forward direction. FRA will, however, continue research into more selective and effective means of providing audible warnings and may make further proposals in subsequent proceedings.

Minor typographical revisions have been made in paragraph (a) of this section. Paragraph (b) of this section has been revised to provide an exception to the locomotive horn sounding requirements for locomotive engineers who discover that the locomotive horn on the lead locomotive has failed enroute. Should this situation occur, the locomotive must be moved for repair in accordance with § 229.9 of this chapter. In addition, any movement of the locomotive with the inoperative horn over highway-rail grade crossings must be made in accordance with all applicable railroad operating rules.

Paragraph (b) of this section has also been revised in response to petitions for reconsideration that were submitted by the AAR and the BNSF Railway Company (BNSF), as well as letters that were submitted by the Brotherhood of Locomotive Engineers and Trainmen (BLET) and the United Transportation Union (UTU), which were submitted in support of certain provisions contained within the AAR's petition for reconsideration.

In the AAR's petition for reconsideration, the AAR asserted that the current compliance date for the locomotive horn sounding requirements set forth in this paragraph would require a rapid transition from State law. The AAR asserted that such a transition would not be in the public interest, as locomotive engineers would be required to comply with time-based audible warning requirements without the benefit of training and/or properly placed whistle posts. Therefore, the AAR requested that FRA postpone the

compliance date of these requirements for one year.

FRA notes that railroads have been aware of the time-based audible warning requirements of this section for some time, as FRA's Interim Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings, which was published on December 18, 2003, contained a 15–20 second audible warning requirement. While FRA is aware of the fact that the AAR objected to the 15–20 second audible warning requirement in its comments on the Interim Final Rule, the 15–20 second audible warning requirement contained within the Final Rule should not have been a complete surprise to the railroad industry. Nonetheless, in the interest of railroad safety, FRA has added paragraph (b)(1) to this section, which delays the compliance date of the time-based audible warning requirement by 120 days from the date of publication of this Notice in order to give railroads additional time within which to adjust whistle posts and/or issue appropriate instructions to train crews. In the interim, railroads must either comply with the locomotive horn sounding requirements that were in effect immediately prior to June 24, 2005 (i.e., State law or, in the absence of State law, railroad operating rules) or this section.

The AAR, BNSF, BLET, and UTU also indicated significant concerns that situations may arise in which engineers are unable to precisely estimate the point at which sounding of the horn should be initiated in order to meet the 15–20 second criterion of the final rule. The AAR, BLET and UTU suggest that a good faith exception be employed where circumstances make it difficult to estimate the time of arrival, citing concerns about liability. This could include cases where whistle boards are placed irregularly (confounding an engineer's attempt to begin a "countdown" at a fixed point), where weather conditions make identification of landmarks difficult, where the train is accelerating or braking on approach to the crossing, and under other circumstances.

In sum, AAR's petition appeared to focus on short and long audible warnings, while the BLET and the UTU expressed concern with respect to exceeding the 20-second audible warning requirement. On the other hand, BNSF expressed concern with the time-based nature of the locomotive horn sounding requirement and requested that the locomotive horn continue to be sounded from a fixed point of reference, such as a whistle post.

FRA appreciates these concerns. FRA is also cognizant that previously existing State law requirements, and requirements of railroad operating rules have required distance-based use of the horn for many years, with attendant liability for non-compliance where collisions occur. However, FRA believes that adjustment to a time-based approach can, and should be readily accomplished, since locomotive engineers are required to be familiar with their territory and are accustomed to meeting these kinds of challenges. The time-based approach will allow the railroads to provide effective warning without incurring the animus of local communities associated with sounding the horn for a full quarter-mile when trains are operated a low speed. The time-based approach incorporates the strategy used by the locomotive engineer who "took mercy" on the community by exercising discretion, when operating a slow-moving train, to delay the onset of horn sounding at grade crossings.

FRA believes that it is important that sufficient warning be provided to the motorist who needs time to recognize the audible signal, understand its message, initiate a reaction, and take appropriate action when approaching the crossing. Other standards for other active warning at highway-rail crossings call for at least 20 seconds of advance warning (*see* 49 CFR 234.225), and it is typical for basic signal arrangements to provide 30 seconds' warning or more. At crossings equipped with active warning devices, the locomotive horn generally provides a last-minute, additional warning to the motorist of the impending arrival of a train. Thus, it appears quite necessary and appropriate to retain the minimum 15-second warning requirement, given the need for uniformity and the wide range of conditions on the roadway approach to highway-rail crossings (including road speeds as high as 55 miles per hour).

Nevertheless, FRA agrees that employees should err on the side of safety when there is any uncertainty. In a case where situational awareness is partially compromised, an employee should not hesitate to begin a horn sounding sequence because of fear that excessive warning might be provided. Accordingly, former paragraph (b)(1), which has been renumbered as paragraph (b)(2) of this section, has been amended to state explicitly that exceeding the maximum warning time up to a limit of 25 seconds will not constitute a violation of this section if the action is taken in good faith. This is intended to affirm the action of an employee who errs on the side of safety

in a particular instance, and not to condone the actions of an engineer who willfully disregards the 20-second limitation for normal operations. FRA will also utilize enforcement discretion for cases in excess of 25 seconds where unusual circumstances provide a justification.

Former paragraph (b)(2), which has been renumbered as paragraph (b)(3) of this section, has also been revised in order to correct a typographical error. Trains, locomotive consists (two or more locomotives traveling together without any train cars attached), and individual locomotives traveling at speeds in excess of 60 mph are prohibited from providing an advance warning more than one-quarter mile in advance of public grade crossings, even if this means that high-speed trains, locomotive consists, and individual locomotives cannot provide an advance warning of at least 15 seconds in duration.

Paragraph (c) of this section has not been revised.

Paragraph (d) has been added to this section to address locomotive horn sounding when a train, locomotive consist, or individual locomotive has stopped in close proximity to a public highway-rail grade crossing. Trains and locomotives may stop in close proximity to public grade crossings during switching and/or commuter rail operations, especially when passenger stations are located in close proximity to public highway-rail grade crossings. In light of the low train speed associated with initiating train or locomotive movement from a complete stop, as well as FRA's intent to minimize local noise impacts where feasible, paragraph (d) will allow the locomotive engineer to sound the locomotive horn for less than 15 seconds before entering a public highway-rail grade crossing, when initiating movement from a complete stop in the close proximity of a public highway-rail grade crossing. Even though passenger stations located adjacent to public highway-rail grade crossings were the impetus for this revision, FRA notes that this limited exception may apply in other situations where trains have stopped in close proximity to public highway-rail grade crossings.

FRA is refraining from providing an exact distance that would constitute "close proximity" as the length of time that it will take for a train to reach the crossing will vary greatly depending on the type and weight of the train. If a train is stopped at a location such that it will take less than fifteen seconds for it to occupy the crossing, it is deemed to be in close proximity.

Paragraph (e) has also been added to this section, in response to a petition for reconsideration submitted by the AAR, in which the AAR requested that 49 CFR Part 222 be revised to preempt State laws that govern the sounding of all locomotive audible warning devices at public highway-rail grade crossings. Without such preemption, the AAR asserted that railroads would be required to initiate locomotive bell sounding at a location specified by State law, which may be inconsistent with the time-based locomotive horn sounding requirement set forth in this section.

FRA is not exercising complete preemption of State laws on the sounding of locomotive audible warning devices at public highway-rail grade crossings. Complete preemption of State laws on this issue could inadvertently remove the valuable warning currently provided by locomotive audible warning devices other than the locomotive horn because the Final Rule does not require the sounding of locomotive audible warning devices, other than the locomotive horn, at public highway-rail grade crossings.

FRA has, however, added this section to ensure that a consistent locomotive audible warning will be provided at public highway-rail grade crossings. Therefore, if State law requires the sounding of a locomotive audible warning device other than the locomotive horn at public highway-rail grade crossings, that locomotive audible warning device must be sounded in accordance with paragraphs (b) and (d) of this section. By exercising preemption in this limited manner, FRA hopes to alleviate any potential confusion on the part of the locomotive engineer who might otherwise have been forced to comply with distance-based locomotive bell sounding requirements, as well as time-based locomotive horn sounding requirements, at the same public highway-rail grade crossing.

*Section 222.23 How does this regulation affect sounding of a horn during an emergency or other situations?*

Paragraph (a) of this section has not been revised.

Paragraph (b) of this section has been revised to correct an inadvertent omission from the list of situations in which locomotive horn use at quiet zone crossings would be permissible. In the Final Rule, FRA stated that locomotive horn use would be permitted at a quiet zone crossing equipped with a wayside horn, in the event of a wayside horn malfunction. Similarly, the Final Rule states that

locomotive horn use would be permitted at a quiet zone crossing when active grade crossing warning devices installed at the grade crossing are malfunctioning or out of service. As indicated by this list of potential scenarios, FRA has always intended to permit railroads to sound the locomotive horn at a quiet zone crossing whenever engineering improvements installed at the grade crossing become non-compliant. Therefore, FRA has added paragraph (b)(4) to this section to clarify that railroads are not required to comply with the general prohibition against routine locomotive horn sounding at a quiet zone crossing, when an SSM, modified SSM or engineering SSM installed at the quiet zone crossing fails to comply with the requirements set forth in appendix A of this part or the conditions contained within the Associate Administrator's decision to approve the quiet zone in accordance with section 222.39(b) of this part. The railroad should, however, attempt to contact the person responsible for monitoring quiet zone compliance with this part (as designated in the Notice of Quiet Zone Establishment), in order to inform the public authority of the non-compliant condition of the quiet zone crossing.

Paragraph (c) of this section has not been revised.

*Section 222.25 How does this rule affect private highway-rail grade crossings?*

This section has been revised in response to the AAR petition for reconsideration. In its petition for reconsideration, the AAR expressed support for FRA's decision to refrain from requiring locomotive horn sounding at every private highway-rail grade crossing. However, noting that some States require the sounding of a locomotive horn or the ringing of the locomotive bell at private highway-rail grade crossings, the AAR requested that FRA amend 49 CFR Part 222 by adding an explicit statement of FRA's intent to preempt State law, to the extent that State law requires the sounding of a locomotive audible warning device for a period of time or in a pattern different from the locomotive horn sounding requirements set forth in § 222.21 of this part. After considering this request, as well as the potential for confusion that may result from requiring the locomotive engineer to provide a different audible warning at public highway-rail grade crossings than at private highway-rail grade crossings, FRA revised this section. Thus, if State law requires the sounding of locomotive audible warning devices at private

highway-rail grade crossings, the locomotive audible warning device must be sounded in accordance with the locomotive horn sounding requirements set forth in § 222.21 of this part as of December 15, 2006. However, in recognition of the fact that some locomotive audible warning devices (such as the locomotive bell) cannot be sounded in accordance with the locomotive horn sounding pattern required by § 222.21(a) of this part (*i.e.*, two long blasts, one short blast, and one long blast), locomotive audible warning devices other than the locomotive horn need only be sounded in accordance with the time-based locomotive horn sounding requirements set forth in §§ 222.21(b) and (d) of this part.

Paragraph (a) of this section has also been revised, in response to the AAR's petition for reconsideration. In its petition for reconsideration, the AAR asserted that the permissive language in this provision could mislead public authorities into thinking that they are not required to address private highway-rail grade crossings when establishing their quiet zones. After considering this assertion, FRA noted that public authorities located in States that do not require locomotive horn sounding at private highway-rail grade crossings might erroneously assume that it will not be necessary to include and/or improve private highway-rail grade crossings located within the boundaries of their quiet zone. Therefore, FRA revised this paragraph in order to clarify that all private highway-rail grade crossings located within the boundaries of a quiet zone must be treated in accordance with this part.

Paragraph (b)(1) of this section has been revised to clarify that all private highway-rail grade crossings that are located in New Quiet Zones or New Partial Quiet Zones must be evaluated by a diagnostic team and then equipped or treated in accordance with the diagnostic team recommendations, if the private highway-rail grade crossings allow access to the public or provide access to active industrial or commercial sites. Paragraph (b)(2) of this section has not been revised.

Paragraph (c) of this section has also been revised to clarify that crossbucks and "STOP" signs must be installed at each approach to private highway-rail grade crossings that are located within quiet zones.

*Section 222.27 How does this rule affect pedestrian grade crossings?*

This section has been revised in response to the AAR petition for reconsideration. In its petition for reconsideration, the AAR expressed

support for FRA's decision to refrain from requiring locomotive horn sounding at pedestrian grade crossings. However, after asserting that some States may require the sounding of a locomotive audible warning device at pedestrian grade crossings, the AAR requested that FRA amend 49 CFR Part 222 by adding an explicit statement of FRA's intent to preempt State law, to the extent that State law requires the sounding of a locomotive audible warning device for a period of time or in a pattern different from the locomotive horn sounding requirements set forth in § 222.21 of this part. After considering this request, as well as the potential for confusion that may result from requiring the locomotive engineer to provide a different audible warning at public highway-rail grade crossings than at pedestrian grade crossings, FRA revised this section. Therefore, if State law requires the sounding of a locomotive audible warning device at pedestrian grade crossings, the locomotive audible warning device must be sounded in accordance with the locomotive horn sounding requirements set forth in § 222.21 of this part as of December 15, 2006. However, in recognition of the fact that some locomotive audible warning devices (such as the locomotive bell) cannot be sounded in accordance with the locomotive horn sounding pattern required by § 222.21(a) of this part (*i.e.*, two long blasts, one short blast, and one long blast), locomotive audible warning devices other than the locomotive horn need only be sounded in accordance with the time-based locomotive horn sounding requirements set forth in §§ 222.21(b) and (d) of this part.

Paragraph (a) of this section has also been revised, in response to the AAR's petition for reconsideration. In its petition for reconsideration, the AAR expressed concern that the permissive language contained in paragraph (a) of this section could mislead public authorities into thinking that they are not required to address pedestrian crossings when establishing their quiet zones. After considering this assertion, FRA noted that public authorities located in States that do not require locomotive horn sounding at pedestrian grade crossings might erroneously assume that it will not be necessary to include and/or improve pedestrian grade crossings located within the boundaries of their quiet zone. Therefore, FRA revised this paragraph in order to clarify that all pedestrian grade crossings located within the boundaries of a quiet zone must be treated in accordance with this part.

Paragraph (b) of this section has been revised to clarify that all pedestrian grade crossings that are located in New Quiet Zones or New Partial Quiet Zones must be evaluated by a diagnostic team and then equipped or treated in accordance with the diagnostic team recommendations, if the pedestrian grade crossings allow access to the public or provide access to active industrial or commercial sites.

A minor typographical edit has been made to paragraph (c) of this section.

Paragraph (d) of this section has also been revised in response to the AAR petition for reconsideration. In its petition for reconsideration, the AAR asserted that paragraph (d) of this section requires the installation of signs at pedestrian crossings that could potentially be misleading. In light of the fact that partial quiet zones may be established in States that do not require locomotive horn sounding at pedestrian grade crossings, the AAR expressed concern that pedestrians encountering time-specific warning signs when the partial quiet zone is not in effect might assume that the locomotive horn will be sounded by approaching trains. After considering this issue, FRA agreed that the Final Rule's warning sign requirement could be misleading to pedestrians. Therefore, in order to minimize confusion, paragraphs (d)(2) and (d)(4) of this section have been revised to give public authorities the flexibility to install warning signs which advise pedestrians that train horns will not be sounded, but do not list the hours within which the partial quiet zone will be in effect. Thus, if State law does not require locomotive horn sounding at pedestrian grade crossings, signs that indicate that horns are not sounded would be appropriate. However, if State law requires locomotive horn sounding during non-quiet zone hours, then signs indicating that horns are not sounded between stated hours of the partial quiet zone would be appropriate. Paragraph (d) of this section has also been revised to clarify that advance warning signs must be installed on each approach to pedestrian grade crossings located within quiet zones.

*Section 222.33 Can locomotive horns be silenced at an individual public highway-rail grade crossing which is not within a quiet zone?*

This section has not been revised.

*Section 222.35 What are the minimum requirements for quiet zones?*

Minor typographical revisions have been made throughout this section.

Paragraph (a)(1)(iii) has been added to this section to address the configuration

of multiple New Quiet Zones and New Partial Quiet Zones along the same rail line within a single political jurisdiction. Even though FRA has refrained from establishing a minimum distance between neighboring quiet zones, there must be at least one public highway-rail grade crossing between New Quiet Zones and New Partial Quiet Zones located on the same rail line within a single political jurisdiction unless a New Quiet Zone or New Partial Quiet Zone is being added onto an existing quiet zone. While it is perfectly acceptable for a community to create two quiet zones (each at least one-half mile long) with a segment between them at which horns will sound, multiple New Quiet Zones and New Partial Quiet Zones cannot be established on the same rail line within the boundaries of a single political jurisdiction unless they are separated by at least one public highway-rail grade crossing.

By establishing a single New Quiet Zone or New Partial Quiet Zone to incorporate all public highway-rail grade crossings at which routine locomotive horn sounding will be restricted or prohibited, the administrative burden associated with quiet zone establishment will be lessened. In addition, FRA perceives no safety-related rationale for dividing a multiple-crossing New Quiet Zone or New Partial Quiet Zone along a single rail line into fragmented quiet zones. Therefore, unless a New Quiet Zone or New Partial Quiet Zone is being added onto an existing quiet zone, New Quiet Zones and New Partial Quiet Zones created along the same rail line within a single political jurisdiction must be separated by at least one public highway-rail grade crossing.

Paragraph (a)(2)(ii) of this section has been revised to correct an inadvertent restriction on the number of Pre-Rule Quiet Zones that can be combined. Under the revised language in paragraph (a)(2)(ii) of this section, public authorities can combine more than two adjacent Pre-Rule Quiet Zones or Pre-Rule Partial Quiet Zones.

Paragraph (a)(3) of this section, which states that grade crossings on a segment of rail line that travels through more than one political jurisdiction may be included within a single quiet zone, has been revised. This paragraph has been revised in order to clarify that pedestrian crossings, located on the same segment of rail line as public highway-rail grade crossings, may also be included in multi-jurisdictional quiet zones.

Paragraph (b) of this section has not been revised.



Paragraph (c) of this section has been revised in response to the AAR's petition for reconsideration. In its petition for reconsideration, the AAR asserted that paragraph (c) of this section requires the installation of signs at private highway-rail grade crossings that could potentially be misleading. In light of the fact that partial quiet zones may be established in States that do not require locomotive horn sounding at private highway-rail grade crossings, the AAR expressed concern that motorists encountering time-specific warning signs when the partial quiet zone is not in effect might assume that the locomotive horn will be sounded by approaching trains. After considering this issue, FRA agreed that the Final Rule's warning sign requirement could be misleading to motorists. Therefore, in order to minimize confusion, paragraphs (c)(2) and (c)(4) of this section have been revised to give public authorities the flexibility to install warning signs which advise motorists that train horns will not be sounded, but do not list the hours within which the partial quiet zone will be in effect. Thus, if State law does not require locomotive horn sounding at private highway-rail grade crossings, signs that indicate that horns are not sounded would be appropriate. However, if State law requires locomotive horn sounding during non-quiet zone hours, then signs indicating that horns are not sounded between stated hours of the partial quiet zone would be appropriate. These warning signs must be installed on each approach to public and private highway-rail grade crossings.

Paragraph (c)(5) has been added to this section to clarify that FRA does not intend to require public authorities to install advance warning signs at highway-rail grade crossings that are equipped with wayside horns that conform to the requirements set forth in § 222.59 and Appendix E of this part, but are located within a quiet zone.

Paragraph (d) of this section has not been revised. Minor typographical edits have, however, been made in paragraphs (e), (f), and (g) of this section.

#### *Section 222.37 Who may establish a quiet zone?*

Paragraph (a) of this section addresses the situation that may occur if a proposed quiet zone includes public highway-rail grade crossings that are under the authority and control of more than one public authority. This scenario could occur if the proposed quiet zone contains county roads and State highways that intersect the railroad tracks at adjacent crossings. This

scenario could also occur if the railroad tracks or the roadway run along the border between two neighboring communities.

When faced with this scenario, paragraph (a) of this section states that both public authorities must agree to establishment of the quiet zone and must jointly, or by delegation, take such actions as are required to comply with this part. Therefore, if two neighboring communities are interested in quiet zone creation, the communities might want to consider working together to create a multi-jurisdictional quiet zone. If the neighboring communities are not, however, interested in creating a single, multi-jurisdictional quiet zone, any shared highway-rail grade crossing (*i.e.*, a highway-rail grade crossing that contains a roadway that runs along the border of the neighboring communities) can only be attributed to one quiet zone. Otherwise, the risk reduction credit associated with any safety improvements at the shared highway-rail grade crossing would be "double-counted", if claimed by adjacent quiet zones.

A minor typographical revision has been made to paragraph (a) of this section. However, paragraphs (b) and (c) of this section have not been revised.

#### *Section 222.38 Can a quiet zone be created in the Chicago Region?*

This section has not been revised.

#### *Section 222.39 How is a quiet zone established?*

Paragraph (a) of this section has not been revised.

Minor typographical revisions have been made to paragraph (b) of this section. In addition, paragraph (b) of this section has been revised in response to the AAR's petition for reconsideration. In its petition, the AAR asserted that it may be unclear, in certain circumstances, as to what constitutes a pedestrian crossing. Therefore, the AAR recommended that the Final Rule be revised to require public authorities to indicate, in their quiet zone applications and notification packages, where pedestrian crossings are located. The AAR reasoned that this revision would eliminate any confusion as to where crossing signs must be located, in accordance with § 222.27.

Even though public authorities are required to identify pedestrian crossings in their quiet zone notification packages, in accordance with the requirements set forth in § 222.43, FRA notes that it had inadvertently failed to require public authorities to identify or provide information on pedestrian grade crossings in their quiet zone

applications. Therefore, paragraph (b) of this section has been revised to require public authorities to submit Grade Crossing Inventory Forms for each pedestrian grade crossing located within a proposed quiet zone, as well as information concerning present safety measures and proposed improvements at these crossings. FRA also inadvertently failed to require public authorities to provide information on current and proposed safety improvements at private highway-rail grade crossings. Therefore, paragraph (b) of this section has been revised to require public authorities to submit information on present safety measures and proposed improvements at private highway-rail grade crossings located within the proposed quiet zone. With respect to public highway-rail grade crossings, paragraph (b) of this section has been revised to require public authorities to provide detailed information about all safety improvements, as opposed to just SSMs and ASMs, that have been proposed for implementation. In making these revisions, FRA hopes to obtain better information as to the overall level of safety within the proposed quiet zone.

Paragraph (b)(iv) of this section has been revised by inserting an explicit reference to the Notice of Intent requirement contained within § 222.43 of this part. (An inadvertent omission of the State agency responsible for highway and road safety has also been corrected.) The public authority is required to provide a Notice of Intent, in accordance with § 222.43 of this part, at least 60 days prior to the submission of its quiet zone application. All objections received from any railroad operating within the proposed quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety in response to the Notice of Intent must then be addressed by the public authority in the quiet zone application, in accordance with paragraph (b)(iv) of this section.

Paragraph (b)(2) of this section addresses the inclusion of newly established public and private highway-rail grade crossings in quiet zones. Any proposed quiet zone that contains a newly established public highway-rail grade crossing must be established through public authority application, unless one or more SSMs will be implemented at every public highway-rail grade crossing within the proposed quiet zone in accordance with paragraph (a)(1) of this section. Quiet zones with newly established public highway-rail grade crossings cannot be established through comparison to



either the Nationwide Significant Risk Threshold or the Risk Index With Horns because the Quiet Zone Risk Index cannot be computed without historical vehicle and rail traffic counts for each public highway-rail grade crossing within the quiet zone.

A minor typographical revision has been made in paragraph (b)(3) of this section. However, paragraph (b)(4) of this section has not been revised. Paragraph (c) of this section has also not been revised.

*Section 222.41 How Does This Rule Affect Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones?*

Minor typographical revisions have been made in paragraphs (a) and (b) of this section.

Paragraph (c) of this section has been revised in order to clarify the process that must be followed in order to continue existing locomotive horn sounding restrictions within a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone that will not be established by automatic approval. Paragraph (c)(1) has been added to this section to clarify that the public authority must provide a Notice of Quiet Zone Continuation, in accordance with § 222.43 of this part, in order to retain existing locomotive horn sounding restrictions until June 24, 2008. Paragraph (c)(2) of this section explains the process that must be followed, in order to continue existing locomotive horn sounding restrictions until June 24, 2010. Paragraph (c)(3) of this section explains the process that can be followed, in order to continue existing locomotive horn sounding restrictions until June 24, 2013, by providing a comprehensive State-wide implementation plan and funding commitment for the establishment of Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones.

Paragraph (c)(2) of this section has been revised to clarify the process for continuing existing locomotive horn sounding restrictions beyond June 24, 2008 without interruption. As stated in paragraph (c)(2)(i)(A) of this section, the public authority must mail a Notice of Intent, in accordance with § 222.43 of this part, by February 24, 2008. The mailing of the Notice of Intent, which will provide a brief explanation of the public authority's plans for implementing improvements within the quiet zone, will trigger a 60-day comment period, within which affected railroads, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety can provide comments on the proposed improvements. This Notice of Intent replaces the Notice of

Detailed Plan, which was previously required by the Final Rule.

After the Notice of Intent has been mailed and the subsequent 60-day comment period has run, paragraph (c)(2)(i)(B) requires the public authority to file a detailed plan with the FRA Associate Administrator by June 24, 2008. The detailed plan must include a detailed explanation of each safety improvement that will be implemented at public, private, and pedestrian crossings within the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone, in order to comply with §§ 222.25, 222.27, 222.35 and 222.39 of this part. (The public authority may also choose to explain additional safety improvements that will be implemented within the quiet zone, but are not being relied upon to achieve compliance with this part.) The detailed plan must also include a timetable for the implementation of these safety improvements.

If the public authority plans to implement ASMs within the quiet zone, paragraph (c)(2)(ii) of this section (formerly paragraph (c)(4) of the Final Rule) advises the public authority to apply for FRA approval of the quiet zone by December 24, 2007, in order to ensure that FRA will have ample time within which to review the quiet zone application.

Providing a Notice of Intent and filing a detailed plan in accordance with paragraph (c)(2) of this section will, however, only postpone routine locomotive horn sounding at public highway-rail grade crossings until June 24, 2010, unless the public authority establishes a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone in accordance with paragraph (c)(4) of this section. Paragraph (c)(2)(ii) in the Final Rule, which specifically addressed the establishment of Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones during the three-year period following June 24, 2005, has been removed. However, Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones that have Quiet Zone Risk Indices that fall to a level at or below the Nationwide Significant Risk Threshold during this three-year period are now governed by paragraph (c)(4) of this section, which sets forth the procedure for establishing Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones that will not be established by automatic approval.

Paragraph (c)(3) of this section explains the process that must be followed by an appropriate State agency, in order to continue existing locomotive horn sounding restrictions within Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones for an additional three years (until June 24,

2013) through the filing of a comprehensive State-wide implementation plan and funding commitment. As stated in this paragraph, existing locomotive horn sounding restrictions may remain in place until June 24, 2013, if: a) a comprehensive State-wide implementation plan and funding commitment is filed by the appropriate State agency with the Associate Administrator by June 24, 2008; and b) safety improvements are initiated within at least one Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone in the State by June 24, 2009. The comprehensive State-wide implementation plan must include an explanation of the process that will be used to assist Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones to come into compliance with §§ 222.25, 222.27, 222.35 and 222.39 of this part, as well as a timetable for the implementation of necessary safety improvements. As of June 24, 2013, locomotive horn sounding will resume unless each public authority establishes a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zones, in accordance with paragraph (c)(4) of this section.

Paragraph (c)(4) of this section explains the process that must be followed in order to establish a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone. As stated in paragraph (c)(4) of this section, a public authority can establish a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone if: (a) The Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone complies with the Pre-Rule Quiet Zone requirements set forth in §§ 222.25, 222.27, and 222.35 of this part; (b) the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone complies with the quiet zone standards set forth in § 222.39 of this part; and (c) the public authority complies with all applicable notification and filing requirements contained within this paragraph (c) and § 222.43 of this part.

The notification and filing requirements contained within this paragraph (c) and § 222.43 of this part may include: a) mailing the Notice of Intent, in accordance with § 222.43 of this part, if new SSMs or ASMs will be implemented within the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone; b) filing a detailed plan with the Associate Administrator by June 24, 2008, in accordance with paragraph (c)(2) of this section, if the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone will be established after that date; and c) providing a Notice of Quiet Zone Establishment, in accordance with § 222.43 of this part.

Paragraph (d) of this section has been revised in order to clarify the process that must be followed in order to convert a Pre-Rule Partial Quiet Zone into a 24-hour New Quiet Zone. While the final rule simply stated that the public authority must provide “notification of the establishment of a New 24-hour Quiet Zone”, paragraph (d) of this section has been revised to clarify that the public authority is actually required to comply with all applicable notification and filing requirements contained within paragraph (c) of this section and § 222.43 of this part. These notification and filing requirements may include: (a) Mailing the Notice of Intent, in accordance with § 222.43 of this part; b) filing a detailed plan with the Associate Administrator by June 24, 2008, in accordance with paragraph (c)(2) of this section, if the Pre-Rule Partial Quiet Zone will be converted after that date; and c) providing a Notice of Quiet Zone Establishment, in accordance with § 222.43 of this part.

*Section 222.42 How does this rule affect Intermediate Quiet Zones and Intermediate Partial Quiet Zones?*

This section has been revised in order to clarify the process that must be followed in order to continue existing locomotive horn sounding restrictions in Intermediate Quiet Zones and Intermediate Partial Quiet Zones until June 24, 2006. This section has also been revised in order to clarify the process that must be followed in order to convert an Intermediate Quiet Zone or Intermediate Partial Quiet Zone into a New Quiet Zone or New Partial Quiet Zone on or before June 24, 2006, in order to prevent the resumption of locomotive horn sounding on that date.

As stated in paragraph (a)(1) of this section, a public authority may continue existing locomotive horn restrictions until June 24, 2006 by providing a Notice of Quiet Zone Continuation in accordance with § 222.43 of this part. An Intermediate Quiet Zone or Intermediate Partial Quiet Zone must, however, be converted into a New Quiet Zone or a New Partial Quiet Zone by June 24, 2006, in order to prevent the resumption of locomotive horn sounding on that date.

Paragraph (a)(2) of this section explains the process for converting an Intermediate Quiet Zone into a New Quiet Zone, or an Intermediate Partial Quiet Zone into a New Partial Quiet Zone, by June 24, 2006. Paragraph (b) of this section explains the process for converting an Intermediate Partial Quiet Zone into a 24-hour New Quiet Zone by June 24, 2006.

While most of the requirements for converting an Intermediate Quiet Zone or Intermediate Partial Quiet Zone remain unchanged, paragraph (a)(2) of this section explains that the public authority is required to: (a) Provide a Notice of Intent, in accordance with § 222.43 of this part; (b) bring the Intermediate Quiet Zone or Intermediate Partial Quiet Zone into compliance with the standards set forth in § 222.39 of this part; (c) bring the Intermediate Quiet Zone or Intermediate Partial Quiet Zone into compliance with the New Quiet Zone requirements set forth in §§ 222.25, 222.27, and 222.35 of this part; and d) provide a Notice of Quiet Zone Establishment, in accordance with § 222.43 of this part, by June 3, 2006. It should be noted that the Notice of Intent should be mailed prior to April 3, 2006, in order to allow at least 60 days for the submission of comments and/or “no-comment” statements from each railroad operating over public highway-rail grade crossings within the quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety before the mailing of the Notice of Quiet Zone Establishment. (Please refer to § 222.43(b) for more information.) Even though these notification requirements were contained within § 222.43 of this part and were included in the Paperwork Reduction Act analysis that FRA performed on the Final Rule, FRA inadvertently omitted explicit reference to these requirements in this section of the Final Rule.

Paragraph (b) of this section has been revised in order to clarify the process that must be followed in order to convert an Intermediate Partial Quiet Zone into a 24-hour New Quiet Zone. (Please note that the requirements for converting an Intermediate Partial Quiet Zone into either a 24-hour New Quiet Zone or a New Partial Quiet Zone are identical.) While the Final Rule simply stated that the public authority is required to provide “notification of New Quiet Zone establishment”, paragraph (b) of this section has been revised to clarify that the public authority is actually required to provide two different types of quiet zone notification—the Notice of Intent and the Notice of Quiet Zone Establishment. In order to facilitate conversion of the Intermediate Partial Quiet Zone before the end of the one-year grace period for existing locomotive horn sounding restrictions, paragraph (b) of this section has also been revised to include a deadline for the submission of the Notice of Quiet Zone Establishment,

which mirrors the submission deadline contained within paragraph (a)(2) of this section.

*Section 222.43 What notices and other information are required to create or continue a quiet zone?*

Minor typographical revisions have been made throughout this section.

This section has also been revised by expanding the scope of the Notice of Intent requirement to include Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones that will need to implement SSMs or ASMs in order to qualify for quiet zone establishment under § 222.41 (c) or (d) of this part. The requirement to provide Notice of Detailed Plan, which was virtually identical to the Notice of Intent, has therefore been removed. Thus, Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones that were previously required to provide a Notice of Detailed Plan are now required to provide a Notice of Intent on or before February 24, 2008.

As stated in paragraph (a)(1) of this section, a Notice of Intent must be provided by public authorities who wish to create a New Quiet Zone or New Partial Quiet Zone by public authority designation or application, in accordance with § 222.39(a) or (b) of this part. This includes public authorities who wish to convert Intermediate Quiet Zones and Intermediate Partial Quiet Zones into a New Quiet Zone or New Partial Quiet Zone. In addition, public authorities seeking to implement new SSMs or ASMs within Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones are required to provide a Notice of Intent.

The Notice of Intent should be mailed early in the quiet zone development process, as the submission of the Notice of Intent triggers a 60-day comment period and provides State agencies and railroads with an opportunity to provide input on the quiet zone to the public authority. Therefore, paragraph (b)(1) was added to this section to reiterate that a sixty-day period must elapse between the mailing of the Notice of Intent and the mailing of the Notice of Quiet Zone Establishment, unless the public authority has obtained written comments and/or “no-comment” statements from each railroad operating over public highway-rail grade crossings within the quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety, in accordance with paragraph (b)(3)(ii) of this section. This provision is very similar to language contained within paragraph (d)(1)(ii) of this section, which

addresses the timing of Notices of Quiet Zone Establishment.

With respect to Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones that will not be established by June 24, 2008, paragraph (b)(1)(ii) of this section reminds public authorities that the Notice of Intent, which provides a brief explanation of proposed quiet zone improvements, must be provided by February 24, 2008, in order to continue existing locomotive horn sounding restrictions beyond June 24, 2008 without interruption.

As for the Notice of Quiet Zone Continuation, it should be noted that submission of the Notice of Quiet Zone Continuation was only necessary if the public authority wanted to continue pre-existing locomotive horn sounding restrictions after June 24, 2005. If a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone was established under the authority of this part before the Final Rule took effect on June 24, 2005, the public authority was not required to provide prior Notice of Quiet Zone Continuation.

All Notices of Intent, Notices of Quiet Zone Continuation, and Notices of Quiet Zone Establishment that complied with § 222.43 of the Final Rule and were mailed on or before August 17, 2006, shall be deemed compliant with any revised notification requirements now contained in this section.

*Section 222.45 When Is a Railroad Required to Cease Routine Sounding of Locomotive Horns at Crossings?*

This section has been revised to clarify the required railroad response to a valid Notice of Quiet Zone Continuation or Establishment. Even though railroads have been required to refrain from, or cease, routine sounding of the locomotive horn at all public, private, and pedestrian crossings identified in a valid Notice of Quiet Zone Continuation or Establishment on the date specified in the Notice, reference to the Notice of Quiet Zone Continuation was inadvertently omitted from this section in the Final Rule. Pedestrian grade crossings were also inadvertently omitted from the description of grade crossings at which railroads are required to cease routine use of the locomotive horn.

*Section 222.47 What periodic updates are required?*

Minor typographical revisions have been made in this section.

*Section 222.49 Who may file Grade Crossing Inventory Forms?*

This section has not been revised.

*Section 222.51 Under what conditions will quiet zone status be terminated?*

This section has not been revised.

*Section 222.53 What are the requirements for supplementary and alternative safety measures?*

This section has not been revised.

*Section 222.55 How are new supplementary or alternative safety measures approved?*

This section has not been revised.

*Section 222.57 Can parties seek review of the Associate Administrator's actions?*

This section has not been revised.

*Section 222.59 When May a Wayside Horn Be Used?*

It has come to FRA's attention that there may be some confusion in the railroad industry as to whether the notification requirements contained within this section apply to existing wayside horn installations. As a result, we wish to clarify that railroads and/or public authorities who are responsible for wayside horns that became operational before June 24, 2005 and that meet the requirements set forth in this part are not required to submit notification of operational status, in accordance with paragraphs (b) and (c) of this section. Thus, all railroads operating over highway-rail grade crossings equipped with wayside horns that became operational before June 24, 2005 were required to cease routine sounding of the locomotive horn at those crossings on that date, even if notification of operational status was not provided in accordance with this section.

*Appendix A to Part 222—Approved Supplementary Safety Measures*

Sections (A)(1), (A)(3), (A)(4), and (A)(5) of this Appendix have not been revised. However, FRA has added a brief discussion of the effectiveness rate assigned to four-quadrant gate systems equipped with vehicle presence detection to Section (A)(2) of this Appendix.

As stated in the Note to section (A)(2) of the Appendix, the lower effectiveness rate assigned to four-quadrant gate systems equipped with presence detection does not mean that four-quadrant systems with presence detection are inherently less safe. The lower effectiveness rate merely reflects the fact that motorists who are intent on circumventing the grade crossing warning system can take advantage of presence detection by driving under the delayed exit gates to enter the grade

crossing. However, the public authority must weigh this risk against site-specific risks, such as nearby highway intersections that may cause traffic to back up on the grade crossing, when determining which type of four-quadrant gate system should be installed at a specific highway-rail grade crossing. FRA therefore recommends the use of site-specific studies to determine the best application for each installation.

Sections (B) and (C) of this Appendix have not been revised.

*Appendix B to Part 222—Alternative Safety Measures*

Minor revisions have been made to section I.A. of this appendix, which contains a brief discussion of the requirements and effectiveness rates for modified SSMs. Specifically, section I.A.2 of this appendix has been revised in order to clarify that the public authority is required to provide estimates of the effectiveness of its modified SSMs, which can be based upon adjustments to the effectiveness levels provided in appendix A or actual field data derived from the crossing sites. These effectiveness rate estimates must be included in the quiet zone application, as set forth in § 222.39(b) of this part.

Sections (I)(B) and (I)(C) of this Appendix have not been revised. Sections II and III of this Appendix have also not been revised.

*Appendix C to Part 222—Guide to Establishing Quiet Zones*

This appendix has been revised to incorporate changes that have made been to the rule text.

*Appendix D to Part 222—Determining Risk Levels*

This appendix has not been revised.

*Appendix E to Part 222—Requirements for Wayside Horns*

This appendix has not been revised.

*Appendix F to Part 222—Diagnostic Team Considerations*

This appendix has not been revised.

*Appendix G to Part 222—Schedule of Civil Penalties*

This appendix has been revised to reflect the exception for fast-moving trains (trains operating at speeds in excess of 60 mph) from the 15-second minimum horn sounding requirement contained in § 222.21(b) of this part. As stated in § 222.21(b)(3) of this part, FRA will not issue civil penalties against railroads whose fast-moving trains fail to sound the locomotive horn at least 15

seconds prior to their arrival at public highway-rail grade crossings, if locomotive horn sounding was initiated one-quarter mile from the public highway-rail grade crossing.

This appendix has also been revised to reflect revisions that have been made to the audible warning requirement set forth in § 222.21(b) of this part. When dealing with situations in which the locomotive engineer provided an audible warning in excess of 20 seconds before public grade crossings, FRA will try to determine whether the locomotive engineer made a good faith attempt to comply with the 15–20 second audible warning requirement. However, if an audible warning in excess of 25 seconds was provided before a public highway-rail grade crossing and FRA determines that the locomotive engineer failed to make a good faith attempt to comply with the 15–20 second audible warning requirement set forth in § 222.21(b) of this part, FRA may issue an appropriate civil penalty.

Section 222.21(b)(3) of this part prohibits the initiation of locomotive horn sounding from a location more than one-quarter mile before a public highway-rail grade crossing. However, under the civil penalty schedule contained within Appendix G to the Final Rule, a \$5,000 civil penalty could only have been assessed if locomotive horn sounding was routinely initiated from a location more than one-quarter mile before a public highway-rail grade crossing. FRA did not intend to restrict its enforcement activity to habitual violations of the locomotive horn sounding requirements contained within this part. Therefore, FRA is amending this appendix in order to clarify that civil penalties may be assessed against railroads for individual instances in which locomotive horn sounding was initiated from a location more than one-quarter mile before a public highway-rail grade crossing. However, the recommended standard civil penalty has been reduced from \$5,000 to \$1,000 and the recommended willful civil penalty has also been reduced from \$7,500 to \$2,000.

This appendix has also been revised to clarify that routine sounding of the locomotive horn at any grade crossing (i.e., public, private or pedestrian grade crossing) located within a quiet zone is prohibited.

#### Section 229.5 Definitions

The three definitions that are being added this section were included in the Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings. These definitions were, however, inadvertently removed upon issuance of

the Final Rule on Locomotive Event Recorders (70 FR 37920).

Also, the definition of the term “defective” has been revised to reflect FRA’s intent to limit application of this specific definition to § 229.129 of this part.

#### Section 229.129 Locomotive Horn

The title of this section has been changed to reflect the fact that the requirements contained within this section only pertain to one type of locomotive audible warning device—the locomotive horn. Therefore, all references to “audible warning devices” within this section have been replaced with the term “locomotive horn”.

This section has also been revised in response to petitions for reconsideration that were submitted by GE Transportation Rail and the AAR. In its petition for reconsideration, GE Transportation Rail requested a 120-day extension of the compliance deadline set forth in paragraph (b)(1) of this section for the sound level testing of new locomotives. GE Transportation Rail asserted that, given the relatively short period of time since the issuance of FRA’s Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings, it would be unable to complete sound level testing on its first batch of new locomotives prior to June 24, 2005 (the compliance deadline for sound level testing of new locomotives). As a result, GE Transportation Rail asserted that it would be forced to test every new locomotive, which would negatively impact its ability to meet delivery commitments made to its customers.

After considering the assertions made by GE Transportation Rail with respect to the practical limitations associated with testing new locomotive sound levels, in accordance with the test parameters set forth in § 229.129, FRA revised paragraph (b) to extend the compliance date of the new locomotive sound level testing requirements to September 18, 2006. In light of the delay incidental to the publication of these amendments, this revision will actually extend the compliance date of the testing requirements contained in this section by more than 120 days. Therefore, any locomotives built on or after September 18, 2006 must comply with the minimum and maximum locomotive horn sound level requirements set forth in paragraph (a) of this section. However, locomotives built before September 18, 2006 must be tested and brought into compliance with the minimum and maximum locomotive horn sound level requirements set forth

in paragraph (a) of this section by June 24, 2010.

Paragraph (b)(3) of this section has been revised to clarify FRA’s original intent to require the sound level testing of remanufactured locomotives, in accordance with this section. Even though the Final Rule required sound level testing of “each locomotive when rebuilt, as determined pursuant to 49 CFR 232.5”, FRA has received comments noting that this provision is somewhat ambiguous and difficult to interpret. Since FRA had actually intended to apply the sound level testing requirements contained within this section to those locomotives that have been rebuilt or refurbished from a previously used or refurbished underframe (“deck”) and contain fewer than 25 percent of previously used components (weighted by the dollar value of the components), paragraph (b)(3) of this section has been revised to refer only to those locomotives that meet the definition of “remanufactured locomotive”, as set forth in § 229.5 of this part. (Please refer to FRA’s Final Rule on Locomotive Crashworthiness, which was published in the **Federal Register** on June 28, 2006 (71 FR 36888), for further discussion of the term “remanufactured locomotive”.)

The AAR also submitted a petition for reconsideration that addressed a number of provisions contained within § 229.129 of this part. First, the AAR asserted that § 229.129 of this part was ambiguous as to what additional testing, if any, must be conducted when locomotive horns are replaced. If additional testing would be necessary, the AAR proposed that railroads be allowed to use the sampling scheme set forth in paragraph (b)(1) of this section to qualify replacement horns, with no additional testing necessary. However, if a replacement horn was not model qualified through acceptance sampling, the AAR proposed that railroads be required to test the replacement horn at the time of the next periodic inspection or by June 24, 2010, whichever is later.

FRA has not, however, revised this section to allow acceptance sampling of replacement horns. Given the level of variation that exists in the different types of locomotive/locomotive horn configurations, FRA is concerned that acceptance sampling would not ensure that the replacement horn, when installed on the locomotive, would generate an audible warning commensurate with the sound level parameters established by paragraph (a) of this section. FRA believes that locomotive horns should not be tested in isolation—the sound level must be tested after the horn has been installed

on the locomotive. FRA notes that there are a variety of factors that can influence locomotive horn sound levels, such as the placement, mounting, air pressure and actual condition of the locomotive horn. However, should railroads develop data from field testing to demonstrate that some form of acceptance sampling would be appropriate, FRA would be willing to reconsider its position on this issue.

Paragraph (b)(4) has been added to this section to require sound level testing of locomotives equipped with replacement horns, in accordance with paragraph (c) of this section. As stated in paragraph (b)(4) of this section, locomotives equipped with replacement horns must be tested unless: (a) The locomotive has already been individually tested or tested through acceptance sampling, in accordance with paragraphs (b)(1), (b)(2), or (b)(3) of this section; (b) the replacement horn is the same locomotive horn model as the locomotive horn that was replaced; and (c) the replacement horn was mounted in the same manner and location as the locomotive horn that was replaced. This sound level testing must be performed before the next two annual tests required by § 229.27 of this part are completed.

In its petition for reconsideration, the AAR also requested that railroads be allowed to use acceptance sampling to qualify the sound level output of existing locomotives. In support of this request, the AAR asserted that there is a great deal of standardization with respect to locomotive horn and locomotive models. However, FRA has not revised this section to allow acceptance sampling of the sound level output of existing locomotives, as the considerations that militate against acceptance sampling of replacement locomotive horns apply equally, if not more so, to the acceptance sampling of existing locomotives. FRA notes that there are many factors that can influence the sound level output of existing locomotives, including the actual condition of the locomotive horn, as well as the placement, mounting and air pressure of the locomotive horn. FRA may, however, reconsider this issue, should railroads develop data from field testing that demonstrates that some form of acceptance sampling would be appropriate.

Paragraph (c)(1) of this section has not been revised.

By e-mail dated September 20, 2005, the AAR submitted a request for modification of the locomotive horn testing requirements in paragraph (c)(2) of this section. In its e-mail, the AAR requested permission to use electronic

calibrators, in addition to approved acoustic calibrators, to conduct compliance testing in accordance with this section. If such a change were made, the AAR asserted that railroads could use an acoustic calibrator during the initial setup of an "environmental noise monitoring system" and then store the results in an electronic calibrator which could, conceivably, have an accuracy of  $\pm 0.1$  dB.

FRA has not, however, revised paragraph (c)(2) of this section. Acoustical calibration has been incorporated into the recommended practice for monitoring aircraft noise in the vicinity of airports, unlike electronic calibration, which is mainly used to identify sound level measurement system failure. See SAE Aerospace Recommended Practice (ARP) 4721—Monitoring Aircraft Noise and Operations in the Vicinity of Airports and ISO/DIS 20906—Unattended Monitoring of Aircraft Sound in the Vicinity of Airports. Thus, while FRA will permit the use of environmental noise monitoring systems to conduct compliance testing under this section, FRA cannot permit electronic calibration of sound level measurement systems.

Apart from the correction of a typographical error in paragraph (c)(5), paragraphs (c)(3) through (c)(8) of this section have not been revised.

In its e-mail dated September 20, 2005, the AAR also requested that FRA relax the requirement in paragraph (c)(9) of this section that calibration be done before and after each compliance test. However, FRA would like to clarify that calibration is not required before and after each compliance test. Acoustical calibration must be performed, at a minimum, before and after each session of compliance tests within an 8-hour period, unless a physical change in the environment (such as a drop or rise in temperature, atmospheric pressure or wind) or damage to the instrument may cause changes in microphone response. Therefore, paragraph (c)(9) of this section has not been revised.

In its petition for reconsideration, the AAR asserted that the requirement to record air flow measurements when testing locomotive sound levels would not only be extremely burdensome, but would fail to provide any useful information. Noting that § 229.129 does not contain any regulatory requirement pertinent to air flow, the AAR stated that no regulatory purpose would be served by recording air flow measurements. In addition, the AAR asserted that railroads would need to employ extra personnel and/or utilize specialized equipment during

locomotive sound level testing, for the sole purpose of reading the air flow meter.

After considering these assertions, FRA revised paragraph (c)(10) of this section by removing the requirement to retain written records of air flow measurements taken during locomotive sound level testing. FRA was persuaded that this requirement would impose an unnecessary burden on railroads and locomotive manufacturers.

Lastly, the AAR objected to the written signature requirement contained within paragraph (c)(10) of this section. Noting that the Interim Final Rule did not provide any rationale for requiring the signature of the person who performs the locomotive horn sound level test, the AAR expressed concern that railroads would be unable to use a fully automated test procedure under consideration which would record and send sound level test results to a database without any human intervention. Nonetheless, if signatures will be required, the AAR asserted that FRA will have to allow railroads to use electronic signatures, in accordance with the Government Paperwork Elimination Act.

While FRA recognizes the paperwork burdens associated with an additional recordkeeping requirement, FRA notes that the written signature of the person who performs the locomotive sound level test will provide accountability, should questions arise as to the quality of the test that was performed. However, FRA acknowledges that an electronic recordkeeping system could be designed to provide an equivalent level of accountability, while reducing associated paperwork burdens. Therefore, even though FRA has not revised paragraph (c)(10) of this section to remove the written signature requirements, FRA looks forward to the implementation of electronic recordkeeping in the near future, at which time FRA intends to review all of the recordkeeping requirements contained within 49 CFR Part 229.

Paragraph (d) of this section has not been revised. However, in light of the confusion generated by the preamble discussion of this section in the Final Rule, FRA would like to clarify the intent of this section.

Contrary to the discussion of this section in the preamble to the Final Rule, rapid transit operations that share track with general system railroads are not subject to this section. (This category of rapid transit operations includes "light rail" vehicles that are operated on general system track pursuant to an FRA-approved Temporal Separation Plan.) Thus, rapid transit

operations that share track with general system railroads need not file waiver petitions to obtain relief from the locomotive horn volume and testing requirements contained in this section.

It should, however, be noted that rapid transit operations that share track with general system railroads remain subject to the locomotive horn sounding requirements contained in 49 CFR Part 222, absent relief granted in the form of an FRA waiver. Thus, rapid transit operations that share track with general system railroads are required to sound the locomotive horn when approaching and entering public highway-rail grade crossings located outside quiet zones. However, these rapid transit operations need not comply with the minimum and maximum locomotive horn sound level requirements contained in this section, nor do they need to conduct locomotive horn testing in accordance with this section.

Rapid transit operations that operate within a common corridor with general system railroads and traverse shared public highway-rail grade crossings are also exempt from the requirements contained in this section. However, these rapid transit operations remain subject to the locomotive horn sounding requirements contained in 49 CFR Part 222, absent relief granted in the form of an FRA waiver.

Therefore, rapid transit operations that operate within a common corridor with general system railroads are required to sound the locomotive horn when approaching and entering public highway-rail grade crossings that are shared with general system railroads and located outside quiet zones.

However, these rapid transit operations need not comply with the minimum and maximum locomotive horn sound level requirements contained in this section, nor do they need to conduct locomotive horn testing in accordance with this section.

*Appendix B to Part 229—Schedule of Civil Penalties*

This appendix has been revised to reflect changes that have been made to section 229.129 of this part, which clarify that the sound level and testing requirements contained within section 229.129 of this part only pertain to one type of locomotive audible warning device—the locomotive horn. In addition to other minor clarifying revisions, this appendix has also been revised by assigning a civil penalty recommendation to the failure of a railroad or locomotive manufacturer to complete and/or retain a proper locomotive horn sound level test record in accordance with section 229.129(c)(10) of this part.

**5. Regulatory Impact**

*A. Executive Order 12866 and DOT Regulatory Policies and Procedures*

This revised Final Rule has been evaluated in accordance with existing policies and procedures and is considered to be significant under both Executive Order 12866 and DOT policies and procedures. FRA has prepared and placed in the docket a regulatory evaluation of the rule. Following is a summary of the findings.

FRA identified 1,598 existing whistle ban or no-horn crossings that would qualify for inclusion in Pre-Rule Quiet

Zones. FRA also identified 372 potential New Quiet Zone crossings and 71 potential Intermediate Quiet Zone crossings. Using information available about the crossing characteristics and the number of persons that would be or currently are severely affected by the sounding of train horns, FRA estimated the costs and benefits of the actions that communities would take in response to this revised Final Rule. FRA believes that many communities will take advantage of the many options available to establish quiet zones. FRA also estimated the costs associated with the revised horn sound level testing requirements.

After the release of the Final Rule, FRA received petitions for reconsideration on various issues of concern to the railroads, railroad suppliers, and other affected entities. After careful consideration, FRA is revising the Final Rule to address some of the issues raised in the petitions for reconsideration. FRA is also taking the opportunity to clean up the rule by correcting a few inadvertent errors and omissions which are necessary for the rule to function as intended. These revisions to the Final Rule will result in approximately \$184,873 in additional costs. These additional costs are reflected in the cost table below. For a complete discussion of the costs of the revisions, please see the *Economic and Regulatory Flexibility Analyses of the Revisions to the Final Rule*.

The table below presents estimated twenty-year monetary costs associated with complying with the requirements contained in the Final Rule revisions using a 7 percent discount rate.

**TOTAL TWENTY-YEAR COSTS (PV, 7%)<sup>1</sup>**

Extension of Compliance Date for Sound Level Testing of New Locomotives	\$34,203
Notice and Comment Requirements	\$150,670
<b>Total Twenty-Year Costs associated with implementation of the Final Rule revisions are estimated to total</b>	<b>*\$184,873</b>

<sup>1</sup> Present Value (PV) provides a way of converting future benefits and costs into equivalent dollars today so that benefit and cost streams that involve different time paths may be compared. The formula used to calculate these flows is:  $1/(1+i)^t$  where "i" is the discount rate, and "t" is the year. Per guidance from the Office of Management and Budget, a discount rate of .07 is used in this analysis.

\*(PV, 20 Years, 7%).

FRA extended the compliance deadline for the sound level testing of new locomotives at the request of a major locomotive manufacturer, who was not prepared to meet the original compliance deadline without major disruption. This extension of the compliance deadline has, however, resulted in \$34,203 in additional costs. FRA believes that this small additional cost is justified by the benefit (not quantified) of avoiding either substantial non-compliance or

disruptions to the manufacturing process.

The remaining additional costs are associated with the notice and comment provisions of the Final Rule. These provisions have been revised, in order to streamline the quiet zone notification process and facilitate communication between interested parties prior to the expenditure of significant funds for projects such as crossing safety improvements. Even though we do not have the information necessary to

estimate the amount of "waste" which may be avoided through early disclosure of planned crossing safety improvements, FRA believes that this small increase in total cost will prevent additional cost outlays associated with potential problems arising from projects requiring a substantial investment for needed safety improvements.

The direct safety benefit of this revised Final Rule is the reduction in casualties that result from collisions between trains and highway users at

public at-grade highway-rail crossings. Implementation of this rule will ensure that (1) locomotive horns are sounded to warn highway users of approaching trains; or (2) rail corridors where train horns do not sound will have a level of risk that is no higher than the average risk level at gated crossings nationwide where locomotive horns are sounded regularly; or (3) the effectiveness of horns is compensated for in rail corridors where train horns do not sound.

Some of the unquantified benefits of this revised Final Rule include reductions in freight and passenger train delays, both of which can be very significant when grade crossing collisions occur, and collision investigation efforts. Although these benefits are not quantified in this analysis, their monetary value is significant.

Maximum horn sound level requirements will limit community disruption by not allowing horns to be sounded any louder than necessary to provide motorists with adequate warning of a train's approach. The benefit in noise reduction due to this change in maximum horn loudness is not readily quantifiable.

Another unquantified benefit of this rule is elimination of some locomotive horn noise disruption to some railroad employees and those who may reside near industrial areas served by railroads. Locomotive horns do not have to be sounded at individual highway-rail grade crossings at which the maximum authorized operating speed for that segment of track is 15 miles per hour or less and properly equipped flaggers (as defined in by 49 CFR 234.5, but who for purposes of this rule can also be crew members) provide warning to motorists. This rule will allow engineers, who were probably already exercising some level of discretion as to the duration and sound level of locomotive horn sounding, to stop sounding the horn under these circumstances at no additional cost. In addition, under the Final Rule revisions, locomotive horns need not be sounded for a minimum of 15 seconds by trains that re-initiate movement from locations, such as passenger stations, that are in close proximity to public highway-rail grade crossings, provided certain specified conditions are met.

The Final Rule revisions will also facilitate railroad compliance with required time-based locomotive horn sounding. By extending the compliance deadline for time-based locomotive horn sounding, FRA will ensure that locomotive engineers have sufficient time to adapt to time-based locomotive

horn sounding. In addition, by expanding the scope of these time-based audible warning requirements to cover audible warnings provided at public, private and pedestrian crossings, locomotive engineers will no longer be required to comply with potentially inconsistent State and Federal requirements governing locomotive-based audible warnings at grade crossings. Improved railroad compliance is not, however, readily quantifiable.

This analysis does not quantify the benefit of eliminating community disruption caused by the sounding of train horns, nor does it quantify costs from increased noise at crossings where horns will sound where they were previously silent. FRA is, however, confident that the benefits in terms of lives saved and injuries prevented will exceed the costs imposed on society by this rule.

#### *B. Regulatory Flexibility Act*

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) requires a review of final rules to assess their impact on small entities unless the Secretary certifies that a final rule will not have a significant economic impact on a substantial number of small entities. Data available to FRA indicates that this rule may have minimal economic impact on a substantial number of small entities (railroads) and possibly a significant economic impact on a few small entities (government jurisdictions and small businesses). However, there is no indication that this rule will have a significant economic impact on a substantial number of small entities. The Small Business Administration (SBA) did not submit comments to the docket for this rulemaking in response to the Initial Regulatory Flexibility Assessment that accompanied the NPRM or the Regulatory Flexibility Assessment that accompanied the Interim Final Rule. FRA certifies that this rule will not have a significant economic impact on a substantial number of small entities.

FRA has performed a Final Regulatory Flexibility Assessment (FRFA) on small entities that potentially can be affected by this revised Final Rule. The FRFA is summarized in this preamble as required by the Regulatory Flexibility Act. The full FRFA is included in the Regulatory Evaluation, which is available in the public docket of this proceeding.

This is essentially 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. Some communities believe that the sounding of train whistles at every crossing is excessive and an infringement on community quality of life, and therefore have enacted "whistle bans" that prevent the trains from sounding their whistles entirely, or during particular times (usually at night). Some communities would like to establish "quiet zones" where train horns would not be routinely sounded and have been awaiting issuance of this rule to do so. FRA is concerned that with the increased risk at grade crossings where train whistles are not sounded, or another means of warning utilized, collisions and casualties may increase significantly. The rule contains low risk based provisions for communities to establish quiet zones. Some crossing corridors may already be at risk levels that are permissible under this rule and would not need to reduce risk levels any further to establish quiet zones. Otherwise, communities establishing Pre-Rule Quiet Zones may implement sufficient safety measures along whistle-ban corridors to reduce risk to permissible levels. In addition to having permissible risk levels, all crossings in New Quiet Zones will have to be equipped with gates and flashing lights. If a community elects to simply follow the mandate, horn sounding will resume and there will be a noise impact on small businesses that exist along crossings where horns are not currently routinely sounded. If a community elects to implement sufficient safety measures to comply with the requirements for establishing a quiet zone, then the governmental jurisdiction will be impacted by the cost of such program or system. To the extent that potential quiet zone crossing corridors already have average risk levels permissible under this rule, and, in the case of New Quiet Zones, every crossing is equipped with gates and flashing lights, communities will only incur administrative costs associated with establishing and maintaining quiet zones.

The costs of implementing this revised Final Rule will predominately be on the governmental jurisdictions of communities some of which are "small governmental jurisdictions." As defined by the SBA this term means governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than fifty thousand. The most significant impacts from this rule will be on about 260 governmental jurisdictions whose communities currently have either formal or informal whistle bans in place. FRA estimates



that approximately 70 percent (i.e. 193 communities) of these governmental jurisdictions are considered to be small entities.

FRA has recently published a final policy which establishes "small entity" as being railroads which meet the line haulage revenue requirements of a Class III railroad. As defined by 49 CFR 1201.1-1, Class III railroads are those railroads who have annual operating revenues of \$20 million per year or less. Hazardous material shippers or contractors that meet this income level will also be considered as small entities. FRA is using this definition of small entity for this rulemaking. FRA believes that approximately 640 small railroads would be minimally impacted by train horn sound level testing requirements contained in this rule. In addition, some small businesses that operate along or nearby rail lines that currently have whistle bans in place that potentially may not after the implementation of this rule, could be moderately impacted. Alternative options for complying with this rule include allowing the train whistle to be blown. This alternative has no direct costs associated with it for the governmental jurisdiction. Other alternatives include "gates with median

barriers" which are estimated to cost between \$13,000 and \$15,000 for simple installations; upgrade two-quadrant gate systems to four-quadrant gate systems at an estimated cost of \$100,000-\$300,000 plus annual maintenance costs of \$2,500-\$3,000; and "Photo enforcement" which is estimated to cost \$28,000-\$65,500 per crossing, and have annual maintenance costs of \$6,600-\$24,000 per crossing. Finally, FRA has not limited compliance to the lists provided in appendix A or appendix B of the rule. The rule provides for supplementary safety measures that might be unique or different. For such an alternative, an analysis would have to accompany the option that would demonstrate that the number of motorists that violate the crossing is equivalent or less than that of blowing the whistle. FRA intends to rely on the creativity of communities to formulate solutions which will work for that community.

FRA does not know how many small businesses are located within a distance of the affected highway-rail crossings where the noise from the whistle blowing could be considered to be a nuisance and bad for business. Concerns have been advanced by owners and

operators of hotels, motels and some other establishments as a result of numerous town meetings and other outreach sessions in which FRA has participated during development of this rule. If supplementary safety measures are implemented to create a quiet zone then such small entities should not be impacted. FRA held 12 public hearings nationwide following issuance of the NPRM and requested comments to the docket from small businesses that feel they will be adversely impacted by the requirements contained in the NPRM. FRA received no comments in response.

### *C. Paperwork Reduction Act*

The information collection requirements in these amendments to the final rule, which respond to petitions for reconsideration, have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 et seq., and have been assigned OMB control no. 2130-0560. The sections that contain the new information collection requirements and the estimated time to fulfill each requirement are as follows:

**BILLING CODE 4910-06-P**

CFR Section	Respondent Universe	Total Annual Responses	Average Time per Response	Total Annual Burden Hours	Tot. Annual Burden Cost
222.11 - Penalties	340 Public Authorities	5 false reports/rcd	2 hours	10 hours	\$400
222.15 - Petitions for Waivers	340 Public Authorities	5 petitions	4 hours	20 hours	\$800
222.17 - Applications To Be Recognized as a State Agency	68 State Agencies	7 applications	8 hours	56 hours	\$3,416
222.39 - Establishment of Quiet Zones					
- Public Authority Application to FRA	340 Public Authorities	105 Applications	80 hours	8,400 hours	\$512,400
- Diagnostic Team Reviews	340 Public Authorities	53 reviews	32 hours	1,696 hours	\$0 (Cost incl. RIA)
- Updated Crossing Inventory Form	340 Public Authorities	302 forms	1 hour	302 hours	\$0 (Cost incl. RIA)
- 60-Day Comment Period: Copies of Quiet Zone Application	340 Public Authorities	630 copies	10 minutes	105 hours	\$6,405
- Comments on Applications	715 Railroads/State Agencies	50 comments	2.5 hours	125 hours	\$5,000
222.41 - Pre-Rule Quiet Zones Which Qualify For Automatic Approval - Notices/Notice Copies	262 communities/Pub. Auth.	247 notices + 1482 notifications	40 hours + 10 min.	10,127 hours	\$0 (Cost incl. RIA)
- Certifications	262 communities/Pub. Auth.	262 certifications	5 minutes	22 hours	\$0 (Cost incl. RIA)
- Updated Grade Crossing Inventory Forms	200 communities/Pub. Auth.	2,364 Forms	1 hour	2,364 hours	\$0 (Cost incl. RIA)
- Pre-Rule Quiet Zones/Partial Quiet Zones That Will Not Be Established By Automatic Approval	200 Communities	200 notices + 1200 notifications	40 hours + 10 min.	8,200 hours	\$0 (Cost incl. RIA)
- Certifications	200 Communities	200 certifications	5 minutes	17 hours	\$0 (Cost incl. RIA)
- Updated Crossing Inventory Forms	200 Communities	416 Forms	1 hour	416 hours	\$0 (RIA)
- Detailed Grade Crossing Safety Plans	200 Communities/Pub. Auth.	100 plans	40 hours	4,000 hours	\$244,000
- State-wide Implementation Plans	25 State Agencies	3 plans	120 hours	360 hours	\$21,960
- Notification of Intent to Create a New Quiet Zone or Partial Quiet Zone (New Requirement)	200 Public Authorities	100 notices + 600 notifications	20 hours + 10 min.	2,100 hours	\$128,100
- 60-Day Comment Period (New Requirement)	200 Railroads/State Agencies	70 comments	4 hours	280 hours	\$17,080

222.42 - Intermediate Quiet Zones and Intermediate Partial Quiet Zones - Notices/Notifications	10 Communities/Pub. Auth.	10 notices + 60 notifications	40 hours + 10 min.	410 hours	\$25,010
- Updated Grade Crossing Inventory Forms	10 Communities/Pub. Auth.	100 Forms	1 hour	100 hours	\$6,100
- Certifications	10 Communities/Pub. Auth.	10 certifications	5 minutes	1 hour	\$61
- Notice of Intent Regarding Establishment of New/Partial Quiet Zone (New Requirement)	10 Communities/Pub. Auth.	5 notices + 30 notifications	40 hours + 10 min.	205 hours	\$12,505
- 60-Day Comment Period (New Requirement)	20 Railroads/State Agencies	5 comments	4 hours	20 hours	\$1,220
- Notice of Intent: Conversion of Intermediate Partial Quiet Zone into 24-hour New Quiet Zone (New Requirement)	10 Public Authorities	5 notices+30 notif	40 hours + 10 min	205 hours	\$12,505
- 60-Day Comment Period (New Requirement)	20 Railroads/State Agencies	5 comments	4 hours	20 hours	\$1,220
222.43 - Notice and Other Information Required to Establish a Quiet Zone	216 Communities	216 notices + 648 notifications	40 hours + 10 min.	8,748 hours	\$533,628
- Updated Grade Crossing Inventory Forms	216 Communities	376 Forms	1 hour	376 hours	\$0 (Cost incl. RIA)
- 60-Day Comment Period on Notices of Intent	715 Railroads/State Agencies	108 comments	4 hours	432 hours	\$17,280
- Notice of Intent to Continue Pre-Rule Quiet Zone or Partial Quiet Zone	Incl. in 222.41(c) and 222.42(a)(1)	Incl in 222.41c and 222.42(a)(1)	Incl. in 222.41(c) and 222.42(a)(1)	Incl.in 222.41(c) and 222.42(a)(1)	Incl.222.41(c) /222.42(a)(1)
- Updated Grade Crossing Inventory Forms and Certifications Continuing Quiet Zones	Incl in 222.41(c) and 222.42(a)(2)	Inc. in 222.41(c) and 222.42(a)(1)	Incl. in 222.41(c) and 222.42(a)(1)	Incl in 222.41(c) and 222.42(a)(1)	Incl.222.41(c) /222.42(a)(1)
- Notice of Establishment of Quiet Zone	316 Communities/Pub. Auth.	72 notices + 432 notifications	40 hours + 10 min.	2,952 hours	\$180,072 \$0 (RIA)
- Updated Grade Crossing Inventory Forms	316 Communities	950 forms	1 hour	950 hours	\$57,950
- Certifications Establishing Quiet Zones	216 Communities/Pub. Auth.	216 certifications	5 minutes	18 hours	\$1,098
222.47 - Periodic Updates					
-Quiet Zones Which Do Not Have Supplementary Safety Measures at Each Public Crossing	200 Public Authorities	100 Affirmations + 600 Copies	30 minutes + 2 min	70 hours	\$0 (Cost incl. RIA)
- Updated Crossing Inventory Forms	200 Public Authorities	500 Forms	1 hour	500 hours	\$0 (Cost incl. RIA)
222.51 - Review of Quiet Zone Status - Public Authority Written Statements/Commitments	9 Public Authorities	2 statements	5 hours	10 hours	\$610
- Review at FRA's Initiative - Comments	3 Public Authorities	20 comments	30 minutes	10 hours	\$610
222.55 - Approval of New SSMs or ASMs - Letters	265 Interested Parties	1 letter	30 minutes	1 hour	\$61
- Comments	265 Interested Parties	5 comments	30 minutes	3 hours	\$183
- Demo of New SSM/ASM & Approval Application	265 Interested Parties	1 letter	30 minutes	1 hour	\$61

222.47 - Periodic Updates -Quiet Zones Which Do Not Have Supplementary Safety Measures at Each Public Crossing - Updated Crossing Inventory Forms	200 Public Authorities  200 Public Authorities	100 Affirmations + 600 Copies  500 Forms	30 minutes + 2 min  1 hour	70 hours  500 hours	\$0 (Cost incl. RIA)  \$0 (Cost incl. RIA)
222.57 - Review of Assoc. Administrator's Actions  - Petition For Reconsideration by Pub. Authority  -Additional Documents/Materials  - Request For Informal Hearing	265 Public Authorities/Int. Parties  200 Public Authorities  200 Public Authorities  200 Public Authorities	1 petition + 5 petition copies  1 petition + 6 petition copies  1 document  1 letter	1 hour + 2 min.  5 hours + 2 min.  2 hours  30 minutes	1 hour  5 hours  2 hours  1 hour	\$61  \$305  \$122  \$61
222.59 - Use of Wayside Horns - Notice/Copies: Grade Crossings Located Inside Quiet Zone -Grade Crossings Located Outside Quiet Zone	200 Public Authorities  200 Public Authorities	10 notices + 60 notice copies  10 notices + 60 notice copies	2.5 hours + 10 min.  2.5 hours + 10 min.	35 hours  35 hours	\$2,135  \$2,135
Appendix B: Non-Engineering ASMs - Records For Programmed Enforcement/Public Educ. - Records For Photo Enforcement	200 Public Authorities  200 Public Authorities	10 records  10 records	500 hours  9 hours	5,000 hours  90 hours	\$305,000  \$5,490
229.129 - Audible Warning Devices - Testing Reports or Records - Retests of Locomotive Horns - Records	687 Railroads  687 Railroads	7,743 records  650 records	1 hour  1 hour	7,743 hours  650 hours	\$309,720  \$26,000

**BILLING CODE 4910-06-C**

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information. For information or a copy of the paperwork package submitted to OMB, contact Robert Brogan at 202-493-6292.

OMB is required to make a decision concerning the collection of information requirements contained in these amendments to the final rule between 30 and 60 days after publication of this document in the **Federal Register**.

FRA cannot impose a penalty on persons for violating information collection requirements which do not display a current OMB control number, if required. FRA has obtained OMB control number 2130-0560 for the new information collection requirements resulting from the amendments to this rulemaking.

*D. Environmental Impact*

A Record of Decision has been prepared and is available in the public docket.

*E. Federalism Implications*

Executive Order 13132, entitled, "Federalism," issued on August 4, 1999, requires that each agency "in a separately identified portion of the preamble to the regulation as it is to be issued in the **Federal Register**, provides to the Director of the Office of Management and Budget a Federalism summary impact statement, which consists of a description of the extent of the agency's prior consultation with State and local officials, a summary of the nature of their concerns and the agency's position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met.  
\* \* \*

FRA has complied with E.O. 13132 in issuing this rule. FRA consulted extensively with State and local officials

prior to issuance of the NPRM, and we have taken very seriously the concerns and views expressed by State and local officials as expressed in written comments and testimony at the various public hearings throughout the country. FRA staff provided briefings to many State and local officials and organizations during the comment period to encourage full public participation in this rulemaking. As discussed earlier in this preamble, because of the great interest in this subject throughout various areas of the country, FRA was involved in an extensive outreach program to inform communities which presently have whistle bans of the effect of the Act and the regulatory process. Since the passage of the Act, FRA headquarters and regional staff have met with a large number of local officials. FRA also held a number of public meetings to discuss the issues and to receive information from the public. In addition to local citizens, both local and State officials attended and participated in the public

meetings. Additionally, FRA took the unusual step of establishing a public docket before formal initiation of rulemaking proceedings in order to enable citizens and local officials to comment on how FRA might implement the Act and to provide insight to FRA. FRA received comments from representatives of Portland, Maine; Maine Department of Transportation; Acton, Massachusetts; Wisconsin's Office of the Commissioner of Railroads; a Wisconsin State representative; a Massachusetts State senator; the Town of Ashland, Massachusetts; Bellevue, Iowa; and the mayor of Batavia, Illinois.

Since passage of the Act in 1994, FRA has consulted and briefed representatives of the American Association of State Highway and Transportation Officials (AASHTO), the National League of Cities, National Association of Regulatory Utility Commissioners, National Conference of State Legislatures, and others. Additionally we have provided extensive written information to all United States Senators and a large number of Representatives with the expectation that the information would be shared with interested local officials and constituents.

Prior to issuance of the NPRM, FRA had been in close contact with, and has received many comments from Chicago area municipal groups representing suburban areas in which, for the most part, locomotive horns are not routinely sounded. The Chicago area Council of Mayors, which represents over 200 cities and villages with over four million residents outside of Chicago, provided valuable information to FRA as did the West Central Municipal Conference and the West Suburban Mass Transit District, both of suburban Chicago.

Another association of suburban Chicago local governments, the DuPage [County] Mayors and Managers Conference, provided comments and information. Additionally, FRA officials met with many Members of Congress, who have invited FRA to their districts and have provided citizens and local officials with the opportunity to express their views on this rulemaking process. These exchanges, and others conducted directly through FRA's regional crossing managers, have been very valuable in identifying the need for flexibility in preparing the revised Final Rule.

Under 49 U.S.C. 20106, issuance of this regulation preempts any State law, rule, regulation, order, or standard covering the same subject matter, except a provision necessary to eliminate or reduce an essentially local safety hazard, that is not incompatible with

Federal law or regulation and does not unreasonably burden interstate commerce. For further discussion of the effect of this rule on State and local laws and ordinances, see § 222.7 and its accompanying discussion.

As noted, this rulemaking is required by 49 U.S.C. 20153. The statute both requires that the Department issue this rule and sets out clear guidance as to the structure of such rule. The statute clearly and unambiguously requires the Department to issue rules requiring locomotive horns to be sounded at every public grade crossing. The Department has no discretion as to this aspect of the rule. The statute also makes clear that the Federal government must have a leading role in establishing the framework for providing exceptions to the requirement that horns sound at every public crossing. While some States and communities expressed opposition to Federal involvement in this area which historically has been subject to State regulation, the majority of State and local community commenters recognized and accepted the statutorily required Federal involvement. Of concern to many of these commenters, however, was the issue as to whether States or local communities should have primary responsibility for creation of quiet zones. As further discussed in the section-by-section analysis regarding "Who may establish a quiet zone?", States generally felt that they should have a primary role in establishing quiet zones and in administering a quiet zone. Comments from local governments tended to support the contrary view that local political subdivisions should establish quiet zones. A review of 49 U.S.C. 20153 indicates a clear Congressional preference that decision-makers be local authorities. This revised Final Rule provides non-Federal parties extensive involvement in decision-making pertaining to the creation of quiet zones. Through issuance of the Final Rule, FRA increased the role of States in creation of quiet zones and provided more opportunities for non-Federal parties, including States to have input in decisions made regarding creation and termination of quiet zones. However, given the nature of the competing interests of State and local governments in this area, FRA could not fully meet the concerns of both groups. For the reasons detailed in the section-by-section analyses of the Interim Final Rule, the Final Rule, and these Final Rule amendments, FRA asserts that the concerns of local communities have been substantially met.

#### *F. Compliance With the Unfunded Mandates Reform Act of 1995*

Pursuant to the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4) each Federal agency "shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law)." Unfunded Mandates Reform Act section 201, 2 U.S.C. 1531 (1995). Section 202 of the Unfunded Mandates Reform Act further requires that "before promulgating any general notice of proposed rulemaking that is likely to result in promulgation of any rule that includes any Federal mandate that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100,000,000 or more (adjusted annually for inflation)[currently \$120,700,000] in any one year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency shall prepare a written statement \* \* \*" detailing the effect on State, local and tribal governments and the private sector. The rule issued today will not result in the expenditure, in the aggregate, of \$120,700,000 or more in any one year, and thus preparation of a statement is not required.

#### *G. Energy Impact*

Executive Order 13211 requires Federal agencies to prepare a Statement of Energy Effects for any "significant energy action." 66 FR 28355 (May 22, 2001). Under the Executive Order, a "significant energy action" is defined as any action by an agency (normally published in the **Federal Register**) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking; (1)(i) That is a significant regulatory action under Executive Order 12866 or any successor order, and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action. FRA has evaluated this revised Final Rule in accordance with Executive Order 13211 and has determined that this revised Final Rule is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Consequently, FRA has determined that this regulatory action is not a

“significant energy action” within the meaning of Executive Order 13211.

## 6. Privacy Act Statement

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment), if submitted on behalf of an association, business, labor union, etc.). You may review DOT’s complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (volume 65, Number 70; Pages 19477–78) or you may visit <http://dms.dot.gov>.

## List of Subjects

### 49 CFR Part 222

Administrative practice and procedure, Penalties, Railroad safety, Reporting and recordkeeping requirements.

### 49 CFR Part 229

Locomotives, Penalties, Railroad safety.

■ In consideration of the foregoing, FRA is amending chapter II, subtitle B of title 49, Code of Federal Regulations as follows:

■ 1. Part 222 is revised to read as follows:

## PART 222—USE OF LOCOMOTIVE HORNS AT PUBLIC HIGHWAY-RAIL GRADE CROSSINGS

### Subpart A—General

Sec.

- 222.1 What is the purpose of this regulation?  
 222.3 What areas does this regulation cover?  
 222.5 What railroads does this regulation apply to?  
 222.7 What is this regulation’s effect on State and local laws and ordinances?  
 222.9 Definitions.  
 222.11 What are the penalties for failure to comply with this regulation?  
 222.13 Who is responsible for compliance?  
 222.15 How does one obtain a waiver of a provision of this regulation?  
 222.17 How can a State agency become a recognized State agency?

### Subpart B—Use of Locomotive Horns

- 222.21 When must a locomotive horn be used?  
 222.23 How does this regulation affect sounding of a horn during an emergency or other situations?  
 222.25 How does this rule affect private highway-rail grade crossings?  
 222.27 How does this rule affect pedestrian grade crossings?

### Subpart C—Exceptions to the Use of the Locomotive Horn

- 222.31 [Reserved]

### Silenced Horns at Individual Crossings

- 222.33 Can locomotive horns be silenced at an individual public highway-rail grade crossing which is not within a quiet zone?

### Silenced Horns at Groups of Crossings—Quiet Zones

- 222.35 What are minimum requirements for quiet zones?  
 § 222.37 Who may establish a quiet zone?  
 § 222.38 Can a quiet zone be created in the Chicago Region?  
 § 222.39 How is a quiet zone established?  
 § 222.41 How does this rule affect Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones?  
 § 222.42 How does this rule affect Intermediate Quiet Zones and Intermediate Partial Quiet Zones?  
 § 222.43 What notices and other information are required to create or continue a quiet zone?  
 § 222.45 When is a railroad required to cease routine sounding of locomotive horns at crossings?  
 § 222.47 What periodic updates are required?  
 § 222.49 Who may file Grade Crossing Inventory Forms?  
 § 222.51 Under what conditions will quiet zone status be terminated?  
 § 222.53 What are the requirements for supplementary and alternative safety measures?  
 § 222.55 How are new supplementary or alternative safety measures approved?  
 § 222.57 Can parties seek review of the Associate Administrator’s actions?  
 § 222.59 When may a wayside horn be used?

Appendix A to Part 222—Approved Supplementary Safety Measures

Appendix B to Part 222—Alternative Safety Measures

Appendix C to Part 222—Guide to Establishing Quiet Zones

Appendix D to Part 222—Determining Risk Levels

Appendix E to Part 222—Requirements for Wayside Horns

Appendix F to Part 222—Diagnostic Team Considerations

Appendix G to Part 222—Schedule of Civil Penalties

**Authority:** 28 U.S.C. 2461, note; 49 U.S.C. 20103, 20107, 20153, 21301, 21304; 49 CFR 1.49.

### Subpart A—General

#### § 222.1 What is the purpose of this regulation?

The purpose of this part is to provide for safety at public highway-rail grade crossings by requiring locomotive horn use at public highway-rail grade crossings except in quiet zones established and maintained in accordance with this part.

#### § 222.3 What areas does this regulation cover?

(a) This part prescribes standards for sounding locomotive horns when

locomotives approach and pass through public highway-rail grade crossings. This part also provides standards for the creation and maintenance of quiet zones within which locomotive horns need not be sounded.

(b) The provisions of this part are separate and severable from one another. If any provision is stayed or determined to be invalid, it is the intent of FRA that the remaining provisions shall continue in effect.

(c) This part does not apply to any Chicago Region highway-rail grade crossing where the railroad was excused from sounding the locomotive horn by the Illinois Commerce Commission, and where the railroad did not sound the horn, as of December 18, 2003.

#### § 222.5 What railroads does this regulation apply to?

This part applies to all railroads except:

(a) A railroad that exclusively operates freight trains only on track which is not part of the general railroad system of transportation;

(b) Passenger railroads that operate only on track which is not part of the general railroad system of transportation and that operate at a maximum speed of 15 miles per hour over public highway-rail grade crossings; and

(c) Rapid transit operations within an urban area that are not connected to the general railroad system of transportation. See 49 CFR part 209, appendix A for the definitive statement of the meaning of the preceding sentence.

#### § 222.7 What is this regulation’s effect on State and local laws and ordinances?

(a) Except as provided in paragraph (b) of this section, issuance of this part preempts any State law, rule, regulation, or order governing the sounding of the locomotive horn at public highway-rail grade crossings, in accordance with 49 U.S.C. 20106.

(b) This part does not preempt any State law, rule, regulation, or order governing the sounding of locomotive audible warning devices at any highway-rail grade crossing described in § 222.3(c) of this part.

(c) Except as provided in §§ 222.25 and 222.27, this part does not preempt any State law, rule, regulation, or order governing the sounding of locomotive horns at private highway-rail grade crossings or pedestrian crossings.

(d) Inclusion of SSMs and ASMs in this part or approved subsequent to issuance of this part does not constitute federal preemption of State law regarding whether those measures may be used for traffic control. Individual

states may continue to determine whether specific SSMs or ASMs are appropriate traffic control measures for that State, consistent with Federal Highway Administration regulations and the MUTCD. However, except for the SSMs and ASMs implemented at highway-rail grade crossings described in § 222.3(c) of this part, inclusion of SSMs and ASMs in this part does constitute federal preemption of State law concerning the sounding of the locomotive horn in relation to the use of those measures.

(e) Issuance of this part does not constitute federal preemption of administrative procedures required under State law regarding the modification or installation of engineering improvements at highway-rail grade crossings.

#### § 222.9 Definitions.

As used in this part—

*Administrator* means the Administrator of the Federal Railroad Administration or the Administrator's delegate.

*Alternative safety measures (ASM)* means a safety system or procedure, other than an SSM, established in accordance with this part which is provided by the appropriate traffic control authority or law enforcement authority and which, after individual review and analysis by the Associate Administrator, is determined to be an effective substitute for the locomotive horn in the prevention of highway-rail casualties at specific highway-rail grade crossings. Appendix B to this part lists such measures.

*Associate Administrator* means the Associate Administrator for Safety of the Federal Railroad Administration or the Associate Administrator's delegate.

*Channelization device* means a traffic separation system made up of a raised longitudinal channelizer, with vertical panels or tubular delineators, that is placed between opposing highway lanes designed to alert or guide traffic around an obstacle or to direct traffic in a particular direction. "Tubular markers" and "vertical panels", as described in the MUTCD, are acceptable channelization devices for purposes of this part. Additional design specifications are determined by the standard traffic design specifications used by the governmental entity constructing the channelization device.

*Chicago Region* means the following six counties in the State of Illinois: Cook, DuPage, Lake, Kane, McHenry and Will.

*Crossing Corridor Risk Index* means a number reflecting a measure of risk to the motoring public at public grade

crossings along a rail corridor, calculated in accordance with the procedures in appendix D of this part, representing the average risk at each public crossing within the corridor. This risk level is determined by averaging among all public crossings within the corridor, the product of the number of predicted collisions per year and the predicted likelihood and severity of casualties resulting from those collisions at each public crossing within the corridor.

*Diagnostic team* as used in this part, means a group of knowledgeable representatives of parties of interest in a highway-rail grade crossing, organized by the public authority responsible for that crossing, who, using crossing safety management principles, evaluate conditions at a grade crossing to make determinations or recommendations for the public authority concerning safety needs at that crossing.

*Effectiveness rate* means a number between zero and one which represents the reduction of the likelihood of a collision at a public highway-rail grade crossing as a result of the installation of an SSM or ASM when compared to the same crossing equipped with conventional active warning systems of flashing lights and gates. Zero effectiveness means that the SSM or ASM provides no reduction in the probability of a collision, while an effectiveness rating of one means that the SSM or ASM is totally effective in eliminating collision risk. Measurements between zero and one reflect the percentage by which the SSM or ASM reduces the probability of a collision.

*FRA* means the Federal Railroad Administration.

*Grade Crossing Inventory Form* means the U.S. DOT National Highway-Rail Grade Crossing Inventory Form, FRA Form F6180.71. This form is available through the FRA's Office of Safety, or on FRA's Web site at <http://www.fra.dot.gov>.

*Intermediate Partial Quiet Zone* means a segment of a rail line within which is situated one or a number of consecutive public highway-rail grade crossings at which State statutes or local ordinances restricted the routine sounding of locomotive horns for a specified period of time during the evening or nighttime hours, or at which locomotive horns did not sound due to formal or informal agreements between the community and the railroad or railroads for a specified period of time during the evening and/or nighttime hours, and at which such statutes, ordinances or agreements were in place and enforced or observed as of

December 18, 2003, but not as of October 9, 1996.

*Intermediate Quiet Zone* means a segment of a rail line within which is situated one or a number of consecutive public highway-rail grade crossings at which State statutes or local ordinances restricted the routine sounding of locomotive horns, or at which locomotive horns did not sound due to formal or informal agreements between the community and the railroad or railroads, and at which such statutes, ordinances or agreements were in place and enforced or observed as of December 18, 2003, but not as of October 9, 1996.

*Locomotive* means a piece of on-track equipment other than hi-rail, specialized maintenance, or other similar equipment—

(1) With one or more propelling motors designed for moving other equipment;

(2) With one or more propelling motors designed to carry freight or passenger traffic or both; or

(3) Without propelling motors but with one or more control stands.

*Locomotive audible warning device* means a horn, whistle, siren, or bell affixed to a locomotive that is capable of producing an audible signal.

*Locomotive horn* means a locomotive air horn, steam whistle, or similar audible warning device (see 49 CFR 229.129) mounted on a locomotive or control cab car. The terms "locomotive horn", "train whistle", "locomotive whistle", and "train horn" are used interchangeably in the railroad industry. For purposes of this part, locomotive horns used in rapid transit operations must be suitable for street usage and/or designed in accordance with State law requirements.

*Median* means the portion of a divided highway separating the travel ways for traffic in opposite directions.

*MUTCD* means the Manual on Uniform Traffic Control Devices published by the Federal Highway Administration.

*Nationwide Significant Risk Threshold* means a number reflecting a measure of risk, calculated on a nationwide basis, which reflects the average level of risk to the motoring public at public highway-rail grade crossings equipped with flashing lights and gates and at which locomotive horns are sounded. For purposes of this rule, a risk level above the Nationwide Significant Risk Threshold represents a significant risk with respect to loss of life or serious personal injury. The Nationwide Significant Risk Threshold is calculated in accordance with the procedures in appendix D of this part.



Unless otherwise indicated, references in this part to the Nationwide Significant Risk Threshold reflect its level as last published by FRA in the **Federal Register**.

*New Partial Quiet Zone* means a segment of a rail line within which is situated one or a number of consecutive public highway-rail crossings at which locomotive horns are not routinely sounded between the hours of 10 p.m. and 7 a.m., but are routinely sounded during the remaining portion of the day, and which does not qualify as a Pre-Rule Partial Quiet Zone or an Intermediate Partial Quiet Zone.

*New Quiet Zone* means a segment of a rail line within which is situated one or a number of consecutive public highway-rail grade crossings at which routine sounding of locomotive horns is restricted pursuant to this part and which does not qualify as either a Pre-Rule Quiet Zone or Intermediate Quiet Zone.

*Non-traversable curb* means a highway curb designed to discourage a motor vehicle from leaving the roadway. Non-traversable curbs are used at locations where highway speeds do not exceed 40 miles per hour and are at least six inches high. Additional design specifications are determined by the standard traffic design specifications used by the governmental entity constructing the curb.

*Partial Quiet Zone* means a segment of a rail line within which is situated one or a number of consecutive public highway-rail grade crossings at which locomotive horns are not routinely sounded for a specified period of time during the evening and/or nighttime hours.

*Pedestrian grade crossing* means, for purposes of this part, a separate designed sidewalk or pathway where pedestrians, but not vehicles, cross railroad tracks. Sidewalk crossings contiguous with, or separate but adjacent to, public highway-rail grade crossings are presumed to be part of the public highway-rail grade crossing and are not considered pedestrian grade crossings.

*Power-out indicator* means a device which is capable of indicating to trains approaching a grade crossing equipped with an active warning system whether commercial electric power is activating the warning system at that crossing. This term includes remote health monitoring of grade crossing warning systems if such monitoring system is equipped to indicate power status.

*Pre-existing Modified Supplementary Safety Measure* (Pre-existing Modified SSM) means a safety system or procedure that is listed in appendix A

to this Part, but is not fully compliant with the standards set forth therein, which was installed before December 18, 2003 by the appropriate traffic control or law enforcement authority responsible for safety at the highway-rail grade crossing. The calculation of risk reduction credit for pre-existing modified SSMs is addressed in appendix B of this part.

*Pre-existing Supplementary Safety Measure* (Pre-existing SSM) means a safety system or procedure established in accordance with this part before December 18, 2003 which was provided by the appropriate traffic control or law enforcement authority responsible for safety at the highway-rail grade crossing. These safety measures must fully comply with the SSM requirements set forth in appendix A of this part. The calculation of risk reduction credit for qualifying pre-existing SSMs is addressed in appendix A.

*Pre-Rule Partial Quiet Zone* means a segment of a rail line within which is situated one or a number of consecutive public highway-rail crossings at which State statutes or local ordinances restricted the routine sounding of locomotive horns for a specified period of time during the evening and/or nighttime hours, or at which locomotive horns did not sound due to formal or informal agreements between the community and the railroad or railroads for a specified period of time during the evening and/or nighttime hours, and at which such statutes, ordinances or agreements were in place and enforced or observed as of October 9, 1996 and on December 18, 2003.

*Pre-Rule Quiet Zone* means a segment of a rail line within which is situated one or a number of consecutive public highway-rail crossings at which State statutes or local ordinances restricted the routine sounding of locomotive horns, or at which locomotive horns did not sound due to formal or informal agreements between the community and the railroad or railroads, and at which such statutes, ordinances or agreements were in place and enforced or observed as of October 9, 1996 and on December 18, 2003.

*Private highway-rail grade crossing* means, for purposes of this part, a highway-rail grade crossing which is not a public highway-rail grade crossing.

*Public authority* means the public entity responsible for traffic control or law enforcement at the public highway-rail grade or pedestrian crossing.

*Public highway-rail grade crossing* means, for purposes of this part, a location where a public highway, road, or street, including associated sidewalks

or pathways, crosses one or more railroad tracks at grade. If a public authority maintains the roadway on both sides of the crossing, the crossing is considered a public crossing for purposes of this part.

*Quiet zone* means a segment of a rail line, within which is situated one or a number of consecutive public highway-rail crossings at which locomotive horns are not routinely sounded.

*Quiet Zone Risk Index* means a measure of risk to the motoring public which reflects the Crossing Corridor Risk Index for a quiet zone, after adjustment to account for increased risk due to lack of locomotive horn use at the crossings within the quiet zone (if horns are presently sounded at the crossings) and reduced risk due to implementation, if any, of SSMs and ASMs with the quiet zone. The calculation of the Quiet Zone Risk Index, which is explained in appendix D of this part, does not differ for partial quiet zones.

*Railroad* means any form of non-highway ground transportation that runs on rails or electromagnetic guideways and any entity providing such transportation, including:

(1) Commuter or other short-haul railroad passenger service in a metropolitan or suburban area and commuter railroad service that was operated by the Consolidated Rail Corporation on January 1, 1979; and

(2) High speed ground transportation systems that connect metropolitan areas, without regard to whether those systems use new technologies not associated with traditional railroads; but does not include rapid transit operations in an urban area that are not connected to the general railroad system of transportation.

*Recognized State agency* means, for purposes of this part, a State agency, responsible for highway-rail grade crossing safety or highway and road safety, that has applied for and been approved by FRA as a participant in the quiet zone development process.

*Relevant collision* means a collision at a highway-rail grade crossing between a train and a motor vehicle, excluding the following: a collision resulting from an activation failure of an active grade crossing warning system; a collision in which there is no driver in the motor vehicle; or a collision in which the highway vehicle struck the side of the train beyond the fourth locomotive unit or rail car. With respect to Pre-Rule Partial Quiet Zones, a relevant collision shall not include collisions that occur during the time period within which the locomotive horn is routinely sounded.

*Risk Index With Horns* means a measure of risk to the motoring public when locomotive horns are routinely sounded at every public highway-rail grade crossing within a quiet zone. In Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones, the Risk Index With Horns is determined by adjusting the Crossing Corridor Risk Index to account for the decreased risk that would result if locomotive horns were routinely sounded at each public highway-rail grade crossing.

*Supplementary safety measure (SSM)* means a safety system or procedure established in accordance with this part which is provided by the appropriate traffic control authority or law enforcement authority responsible for safety at the highway-rail grade crossing, that is determined by the Associate Administrator to be an effective substitute for the locomotive horn in the prevention of highway-rail casualties. Appendix A of this part lists such SSMs.

*Waiver* means a temporary or permanent modification of some or all of the requirements of this part as they apply to a specific party under a specific set of facts. Waiver does not refer to the process of establishing quiet zones or approval of quiet zones in accordance with the provisions of this part.

*Wayside horn* means a stationary horn located at a highway rail grade crossing, designed to provide, upon the approach of a locomotive or train, audible warning to oncoming motorists of the approach of a train.

**§ 222.11 What are the penalties for failure to comply with this regulation?**

Any person who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of least \$550 and not more than \$11,000 per violation, except that: Penalties may be assessed against individuals only for willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed \$27,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. Any person who knowingly and willfully falsifies a record or report required by this part may be subject to criminal penalties under 49 U.S.C. 21311. Appendix G of this part contains a schedule of civil penalty amounts used in connection with this part.

**§ 222.13 Who is responsible for compliance?**

Any person, including but not limited to a railroad, contractor for a railroad, or a local or State governmental entity that performs any function covered by this part, must perform that function in accordance with this part.

**§ 222.15 How does one obtain a waiver of a provision of this regulation?**

(a) Except as provided in paragraph (b) of this section, two parties must jointly file a petition (request) for a waiver. They are the railroad owning or controlling operations over the railroad tracks crossing the public highway-rail grade crossing and the public authority which has jurisdiction over the roadway crossing the railroad tracks.

(b) If the railroad and the public authority cannot reach agreement to file a joint petition, either party may file a request for a waiver; however, the filing party must specify in its petition the steps it has taken in an attempt to reach agreement with the other party, and explain why applying the requirement that a joint submission be made in that instance would not be likely to contribute significantly to public safety. If the Associate Administrator determines that applying the requirement for a jointly filed submission to that particular petition would not be likely to significantly contribute to public safety, the Associate Administrator shall waive the requirement for joint submission and accept the petition for consideration. The filing party must also provide the other party with a copy of the petition filed with FRA.

(c) Each petition for waiver must be filed in accordance with 49 CFR part 211.

(d) If the Administrator finds that a waiver of compliance with a provision of this part is in the public interest and consistent with the safety of highway and railroad users, the Administrator may grant the waiver subject to any conditions the Administrator deems necessary.

**§ 222.17 How can a State agency become a recognized State agency?**

(a) Any State agency responsible for highway-rail grade crossing safety and/or highway and road safety may become a recognized State agency by submitting an application to the Associate Administrator that contains:

(1) A detailed description of the proposed scope of involvement in the quiet zone development process;

(2) The name, address, and telephone number of the person(s) who may be contacted to discuss the State agency application; and

(3) A statement from State agency counsel which affirms that the State agency is authorized to undertake the responsibilities proposed in its application.

(b) The Associate Administrator will approve the application if, in the Associate Administrator's judgment, the proposed scope of State agency involvement will facilitate safe and effective quiet zone development. The Associate Administrator may include in any decision of approval such conditions as he/she deems necessary and appropriate.

**Subpart B—Use of Locomotive Horns**

**§ 222.21 When must a locomotive horn be used?**

(a) Except as provided in this part, the locomotive horn on the lead locomotive of a train, lite locomotive consist, individual locomotive or lead cab car shall be sounded when such locomotive or lead cab car is approaching a public highway-rail grade crossing. Sounding of the locomotive horn with two long blasts, one short blast and one long blast shall be initiated at a location so as to be in accordance with paragraph (b) of this section and shall be repeated or prolonged until the locomotive occupies the crossing. This pattern may be varied as necessary where crossings are spaced closely together.

(b)(1) Railroads to which this part applies shall comply with all the requirements contained in this paragraph (b) beginning on December 15, 2006. On and after June 24, 2005, but prior to December 15, 2006, a railroad shall, at its option, comply with this section or shall sound the locomotive horn in the manner required by State law, or in the absence of State law, in the manner required by railroad operating rules in effect immediately prior to June 24, 2005.

(2) Except as provided in paragraphs (b)(3) and (d) of this section, or when the locomotive horn is defective and the locomotive is being moved for repair consistent with section 229.9 of this chapter, the locomotive horn shall begin to be sounded at least 15 seconds, but no more than 20 seconds, before the locomotive enters the crossing. It shall not constitute a violation of this section if, acting in good faith, a locomotive engineer begins sounding the locomotive horn not more than 25 seconds before the locomotive enters the crossing, if the locomotive engineer is unable to precisely estimate the time of arrival of the train at the crossing for whatever reason.

(3) Trains, locomotive consists and individual locomotives traveling at

speeds in excess of 60 mph shall not begin sounding the horn more than one-quarter mile (1,320 feet) in advance of the nearest public highway-rail grade crossing, even if the advance warning provided by the locomotive horn will be less than 15 seconds in duration.

(c) As stated in § 222.3(c) of this part, this section does not apply to any Chicago Region highway-rail grade crossing at which railroads were excused from sounding the locomotive horn by the Illinois Commerce Commission, and where railroads did not sound the horn, as of December 18, 2003.

(d) Trains, locomotive consists and individual locomotives that have stopped in close proximity to a public highway-rail grade crossing may approach the crossing and sound the locomotive horn for less than 15 seconds before the locomotive enters the highway-rail grade crossing, if the locomotive engineer is able to determine that the public highway-rail grade crossing is not obstructed and either:

(1) The public highway-rail grade crossing is equipped with automatic flashing lights and gates and the gates are fully lowered; or

(2) There are no conflicting highway movements approaching the public highway-rail grade crossing.

(e) Where State law requires the sounding of a locomotive audible warning device other than the locomotive horn at public highway-rail grade crossings, that locomotive audible warning device shall be sounded in accordance with paragraphs (b) and (d) of this section.

**§ 222.23 How does this regulation affect sounding of a horn during an emergency or other situations?**

(a)(1) Notwithstanding any other provision of this part, a locomotive engineer may sound the locomotive horn to provide a warning to animals, vehicle operators, pedestrians, trespassers or crews on other trains in an emergency situation if, in the locomotive engineer's sole judgment, such action is appropriate in order to prevent imminent injury, death, or property damage.

(2) Notwithstanding any other provision of this part, including provisions addressing the establishment of a quiet zone, limits on the length of time in which a horn may be sounded, or installation of wayside horns within quiet zones, this part does not preclude the sounding of locomotive horns in emergency situations, nor does it impose a legal duty to sound the locomotive horn in such situations.

(b) Nothing in this part restricts the use of the locomotive horn in the following situations:

(1) When a wayside horn is malfunctioning;

(2) When active grade crossing warning devices have malfunctioned and use of the horn is required by one of the following sections of this chapter: §§ 234.105, 234.106, or 234.107;

(3) When grade crossing warning systems are temporarily out of service during inspection, maintenance, or testing of the system; or

(4) When SSMs, modified SSMs or engineering SSMs no longer comply with the requirements set forth in appendix A of this part or the conditions contained within the Associate Administrator's decision to approve the quiet zone in accordance with section 222.39(b) of this part.

(c) Nothing in this part restricts the use of the locomotive horn for purposes other than highway-rail crossing safety (e.g., to announce the approach of a train to roadway workers in accordance with a program adopted under part 214 of this chapter, or where required for other purposes under railroad operating rules).

**§ 222.25 How does this rule affect private highway-rail grade crossings?**

This rule does not require the routine sounding of locomotive horns at private highway-rail grade crossings. However, where State law requires the sounding of a locomotive horn at private highway-rail grade crossings, the locomotive horn shall be sounded in accordance with § 222.21 of this part. Where State law requires the sounding of a locomotive audible warning device other than the locomotive horn at private highway-rail grade crossings, that locomotive audible warning device shall be sounded in accordance with §§ 222.21(b) and (d) of this part.

(a) Private highway-rail grade crossings located within the boundaries of a quiet zone must be included in the quiet zone.

(b)(1) Private highway-rail grade crossings that are located in New Quiet Zones or New Partial Quiet Zones and allow access to the public, or which provide access to active industrial or commercial sites, must be evaluated by a diagnostic team and equipped or treated in accordance with the recommendations of such diagnostic team.

(2) The public authority shall provide the State agency responsible for grade crossing safety and all affected railroads an opportunity to participate in the diagnostic team review of private highway-rail grade crossings.

(c)(1) At a minimum, each approach to every private highway-rail grade crossing within a New Quiet Zone or New Partial Quiet Zone shall be marked by a crossbuck and a "STOP" sign, which are compliant with MUTCD standards unless otherwise prescribed by State law, and shall be equipped with advance warning signs in compliance with § 222.35(c) of this part.

(2) At a minimum, each approach to every private highway-rail grade crossing within a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone shall, by June 24, 2008, be marked by a crossbuck and a "STOP" sign, which are compliant with MUTCD standards unless otherwise prescribed by State law, and shall be equipped with advance warning signs in compliance with § 222.35(c) of this part.

**§ 222.27 How does this rule affect pedestrian grade crossings?**

This rule does not require the routine sounding of locomotive horns at pedestrian grade crossings. However, where State law requires the sounding of a locomotive horn at pedestrian grade crossings, the locomotive horn shall be sounded in accordance with § 222.21 of this part. Where State law requires the sounding of a locomotive audible warning device other than the locomotive horn at pedestrian grade crossings, that locomotive audible warning device shall be sounded in accordance with §§ 222.21(b) and (d) of this part.

(a) Pedestrian grade crossings located within the boundaries of a quiet zone must be included in the quiet zone.

(b) Pedestrian grade crossings that are located in New Quiet Zones or New Partial Quiet Zones must be evaluated by a diagnostic team and equipped or treated in accordance with the recommendations of such diagnostic team.

(c) The public authority shall provide the State agency responsible for grade crossing safety and all affected railroads an opportunity to participate in diagnostic team reviews of pedestrian grade crossings.

(d) *Advance warning signs.* (1) Each approach to every pedestrian grade crossing within a New Quiet Zone shall be equipped with a sign that advises the pedestrian that train horns are not sounded at the crossing. Such sign shall conform to the standards contained in the MUTCD.

(2) Each approach to every pedestrian grade crossing within a New Partial Quiet Zone shall be equipped with a sign that advises the pedestrian that train horns are not sounded at the crossing or that train horns are not

sounded at the crossing between the hours of 10 p.m. and 7 a.m., whichever is applicable. Such sign shall conform to the standards contained in the MUTCD.

(3) Each approach to every pedestrian grade crossing within a Pre-Rule Quiet Zone shall be equipped by June 24, 2008 with a sign that advises the pedestrian that train horns are not sounded at the crossing. Such sign shall conform to the standards contained in the MUTCD.

(4) Each approach to every pedestrian grade crossing within a Pre-Rule Partial Quiet Zone shall be equipped by June 24, 2008 with a sign that advises the pedestrian that train horns are not sounded at the crossing or that train horns are not sounded at the crossing for a specified period of time, whichever is applicable. Such sign shall conform to the standards contained in the MUTCD.

### Subpart C—Exceptions to the Use of the Locomotive Horn

#### § 222.31 [Reserved]

#### Silenced Horns at Individual Crossings

##### § 222.33 Can locomotive horns be silenced at an individual public highway-rail grade crossing which is not within a quiet zone?

(a) A railroad operating over an individual public highway-rail crossing may, at its discretion, cease the sounding of the locomotive horn if the locomotive speed is 15 miles per hour or less and train crew members, or appropriately equipped flaggers, as defined in 49 CFR 234.5, flag the crossing to provide warning of approaching trains to motorists.

(b) This section does not apply where active grade crossing warning devices have malfunctioned and use of the horn is required by 49 CFR 234.105, 234.106, or 234.107.

#### Silenced Horns at Groups of Crossings—Quiet Zones

##### § 222.35 What are the minimum requirements for quiet zones?

The following requirements apply to quiet zones established in conformity with this part.

(a) *Minimum length.* (1)(i) Except as provided in paragraph (a)(1)(ii) of this section, the minimum length of a New Quiet Zone or New Partial Quiet Zone established under this part shall be one-half mile along the length of railroad right-of-way.

(ii) The one-half mile minimum length requirement shall be waived for any New Quiet Zone or New Partial Quiet Zone that is added onto an existing quiet zone, provided there is no public highway-rail grade crossing at which locomotive horns are routinely sounded within one-half mile of the

New Quiet Zone or New Partial Quiet Zone.

(iii) New Quiet Zones and New Partial Quiet Zones established along the same rail line within a single political jurisdiction shall be separated by at least one public highway-rail grade crossing, unless a New Quiet Zone or New Partial Quiet Zone is being added onto an existing quiet zone.

(2)(i) The length of a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone may continue unchanged from that which existed as of October 9, 1996.

(ii) With the exception of combining adjacent Pre-Rule Quiet Zones or Pre-Rule Partial Quiet Zones, the addition of any public highway-rail grade crossing to a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone shall end the grandfathered status of that quiet zone and transform it into a New Quiet Zone or New Partial Quiet Zone that must comply with all requirements applicable to New Quiet Zones and New Partial Quiet Zones.

(iii) The deletion of any public highway-rail grade crossing from a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone, with the exception of a grade separation or crossing closure, must result in a quiet zone of at least one-half mile in length in order to retain Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone status.

(3) A quiet zone may include grade crossings on a segment of rail line crossing more than one political jurisdiction.

(b) *Active grade crossing warning devices.* (1) Each public highway-rail grade crossing in a New Quiet Zone established under this part must be equipped, no later than the quiet zone implementation date, with active grade crossing warning devices comprising both flashing lights and gates which control traffic over the crossing and that conform to the standards contained in the MUTCD. Such warning devices shall be equipped with constant warning time devices, if reasonably practical, and power-out indicators.

(2) With the exception of public highway-rail grade crossings that will be temporarily closed in accordance with appendix A of this part, each public highway-rail grade crossing in a New Partial Quiet Zone established under this part must be equipped, no later than the quiet zone implementation date, with active grade crossing warning devices comprising both flashing lights and gates which control traffic over the crossing and that conform to the standards contained in the MUTCD. Such warning devices shall be equipped with constant warning time devices, if

reasonably practical, and power-out indicators.

(3) Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones must retain, and may upgrade, the grade crossing safety warning system which existed as of December 18, 2003. Any upgrade involving the installation or renewal of an automatic warning device system shall include constant warning time devices, where reasonably practical, and power-out indicators. In no event may the grade crossing safety warning system, which existed as of December 18, 2003, be downgraded. Risk reduction resulting from upgrading to flashing lights or gates may be credited in calculating the Quiet Zone Risk Index.

(c) *Advance warning signs.* (1) Each highway approach to every public and private highway-rail grade crossing within a New Quiet Zone shall be equipped with an advance warning sign that advises the motorist that train horns are not sounded at the crossing. Such sign shall conform to the standards contained in the MUTCD.

(2) Each highway approach to every public and private highway-rail grade crossing within a New Partial Quiet Zone shall be equipped with an advance warning sign that advises the motorist that train horns are not sounded at the crossing or that train horns are not sounded at the crossing between the hours of 10 p.m. and 7 a.m., whichever is applicable. Such sign shall conform to the standards contained in the MUTCD.

(3) Each highway approach to every public and private highway-rail grade crossing within a Pre-Rule Quiet Zone shall be equipped by June 24, 2008 with an advance warning sign that advises the motorist that train horns are not sounded at the crossing. Such sign shall conform to the standards contained in the MUTCD.

(4) Each highway approach to every public and private highway-rail grade crossing within a Pre-Rule Partial Quiet Zone shall be equipped by June 24, 2008 with an advance warning sign that advises the motorist that train horns are not sounded at the crossing or that train horns are not sounded at the crossing for a specified period of time, whichever is applicable. Such sign shall conform to the standards contained in the MUTCD.

(5) This paragraph (c) does not apply to public and private highway-rail grade crossings equipped with wayside horns that conform to the requirements set forth in § 222.59 and Appendix E of this part.

(d) *Bells.* (1) Each public highway-rail grade crossing in a New Quiet Zone or New Partial Quiet Zone that is subjected to pedestrian traffic and equipped with

one or more automatic bells shall retain those bells in working condition.

(2) Each public highway-rail grade crossing in a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone that is subjected to pedestrian traffic and equipped with one or more automatic bells shall retain those bells in working condition.

(e) All private highway-rail grade crossings within the quiet zone must be treated in accordance with this section and § 222.25 of this part.

(f) All pedestrian grade crossings within a quiet zone must be treated in accordance with § 222.27 of this part.

(g) All public highway-rail grade crossings within the quiet zone must be in compliance with the requirements of the MUTCD.

#### § 222.37 Who may establish a quiet zone?

(a) A public authority may establish quiet zones that are consistent with the provisions of this part. If a proposed quiet zone includes public highway-rail grade crossings under the authority and control of more than one public authority (such as a county road and a State highway crossing the railroad tracks at different crossings), both public authorities must agree to establishment of the quiet zone, and must jointly, or by delegation provided to one of the authorities, take such actions as are required by this part.

(b) A public authority may establish quiet zones irrespective of State laws covering the subject matter of sounding or silencing locomotive horns at public highway-rail grade crossings. Nothing in this part, however, is meant to affect any other applicable role of State agencies or the Federal Highway Administration in decisions regarding funding or construction priorities for grade crossing safety projects, selection of traffic control devices, or engineering standards for roadways or traffic control devices.

(c) A State agency may provide administrative and technical services to public authorities by advising them, acting on their behalf, or acting as a central contact point in dealing with FRA; however, any public authority eligible to establish a quiet zone under this part may do so.

#### § 222.38 Can a quiet zone be created in the Chicago Region?

Public authorities that are eligible to establish quiet zones under this part may create New Quiet Zones or New Partial Quiet Zones in the Chicago Region, provided the New Quiet Zone or New Partial Quiet Zone does not include any highway-rail grade crossing described in § 222.3(c) of this part.

#### § 222.39 How is a quiet zone established?

(a) *Public authority designation.* This paragraph (a) describes how a quiet zone may be designated by a public authority without the need for formal application to, and approval by, FRA. If a public authority complies with either paragraph (a)(1), (a)(2), or (a)(3) of this section, and complies with the information and notification provisions of § 222.43 of this part, a public authority may designate a quiet zone without the necessity for FRA review and approval.

(1) A quiet zone may be established by implementing, at every public highway-rail grade crossing within the quiet zone, one or more SSMs identified in appendix A of this part.

(2) A quiet zone may be established if the Quiet Zone Risk Index is at, or below, the Nationwide Significant Risk Threshold, as follows:

(i) If the Quiet Zone Risk Index is already at, or below, the Nationwide Significant Risk Threshold without being reduced by implementation of SSMs; or

(ii) If SSMs are implemented which are sufficient to reduce the Quiet Zone Risk Index to a level at, or below, the Nationwide Significant Risk Threshold.

(3) A quiet zone may be established if SSMs are implemented which are sufficient to reduce the Quiet Zone Risk Index to a level at or below the Risk Index With Horns.

(b) *Public authority application to FRA.* (1) A public authority may apply to the Associate Administrator for approval of a quiet zone that does not meet the standards for public authority designation under paragraph (a) of this section, but in which it is proposed that one or more safety measures be implemented. Such proposed quiet zone may include only ASMs, or a combination of ASMs and SSMs at various crossings within the quiet zone. Note that an engineering improvement which does not fully comply with the requirements for an SSM under appendix A of this part, is considered to be an ASM. The public authority's application must:

(i) Contain an accurate, complete and current Grade Crossing Inventory Form for each public, private and pedestrian grade crossing within the proposed quiet zone;

(ii) Contain sufficient detail concerning the present safety measures at each public, private and pedestrian grade crossing proposed to be included in the quiet zone to enable the Associate Administrator to evaluate their effectiveness;

(iii) Contain detailed information about diagnostic team reviews of any

crossing within the proposed quiet zone, including a membership list and a list of recommendations made by the diagnostic team;

(iv) Contain a statement describing efforts taken by the public authority to address comments submitted by each railroad operating the public highway-rail grade crossings within the quiet zone, the State agency responsible for highway and road safety, and the State agency responsible for grade crossing safety in response to the Notice of Intent. This statement shall also list any objections to the proposed quiet zone that were raised by the railroad(s) and State agencies;

(v) Contain detailed information as to which safety improvements are proposed to be implemented at each public, private, or pedestrian grade crossing within the proposed quiet zone;

(vi) Contain a commitment to implement the proposed safety improvements within the proposed quiet zone; and

(vii) Demonstrate through data and analysis that the proposed implementation of these measures will reduce the Quiet Zone Risk Index to a level at, or below, either the Risk Index With Horns or the Nationwide Significant Risk Threshold.

(2) If the proposed quiet zone contains newly established public or private highway-rail grade crossings, the public authority's application for approval must also include five-year projected vehicle and rail traffic counts for each newly established grade crossing;

(3) *60-day comment period.* (i) The public authority application for FRA approval of the proposed quiet zone shall be provided, by certified mail, return receipt requested, to: all railroads operating over the public highway-rail grade crossings within the quiet zone; the highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone; the landowner having control over any private highway-rail grade crossings within the quiet zone; the State agency responsible for highway and road safety; the State agency responsible for grade crossing safety; and the Associate Administrator.

(ii) Except as provided in paragraph (b)(3)(iii) of this section, any party that receives a copy of the public authority application may submit comments on the public authority application to the Associate Administrator during the 60-day period after the date on which the public authority application was mailed.

(iii) If the public authority application for FRA approval contains written statements from each railroad operating over the public highway-rail grade crossings within the quiet zone, the highway or traffic control authority or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety stating that the railroad, vehicular traffic authority and State agencies have waived their rights to provide comments on the public authority application, the 60-day comment period under paragraph (b)(3)(ii) of this section shall be waived.

(4)(i) After reviewing any comments submitted under paragraph (b)(3)(ii) of this section, the Associate Administrator will approve the quiet zone if, in the Associate Administrator's judgment, the public authority is in compliance with paragraphs (b)(1) and (b)(2) of this section and has satisfactorily demonstrated that the SSMs and ASMs proposed by the public authority result in a Quiet Zone Risk Index that is either:

(A) At or below the Risk Index With Horns or

(B) At or below the Nationwide Significant Risk Threshold.

(ii) The Associate Administrator may include in any decision of approval such conditions as may be necessary to ensure that the proposed safety improvements are effective. If the Associate Administrator does not approve the quiet zone, the Associate Administrator will describe, in the decision, the basis upon which the decision was made. Decisions issued by the Associate Administrator on quiet zone applications shall be provided to all parties listed in paragraph (b)(3)(i) of this section and may be reviewed as provided in §§ 222.57(b) and (d) of this part.

(c) Appendix C of this part contains guidance on how to create a quiet zone.

**§ 222.41 How does this rule affect Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones?**

(a) *Pre-Rule Quiet Zones that will be established by automatic approval.* (1) A Pre-Rule Quiet Zone may be established by automatic approval and remain in effect, subject to § 222.51, if the Pre-Rule Quiet Zone is in compliance with §§ 222.35 (minimum requirements for quiet zones) and 222.43 of this part (notice and information requirements) and:

(i) The Pre-Rule Quiet Zone has at every public highway-rail grade crossing

within the quiet zone one or more SSMs identified in appendix A of this part; or

(ii) The Quiet Zone Risk Index is at, or below, the Nationwide Significant Risk Threshold, as last published by FRA in the **Federal Register**; or

(iii) The Quiet Zone Risk Index is above the Nationwide Significant Risk Threshold, as last published by FRA in the **Federal Register**, but less than twice the Nationwide Significant Risk Threshold and there have been no relevant collisions at any public highway-rail grade crossing within the quiet zone since April 27, 2000 or

(iv) The Quiet Zone Risk Index is at, or below, the Risk Index with Horns.

(2) The public authority shall provide Notice of Quiet Zone Establishment, in accordance with § 222.43 of this part, no later than December 24, 2005.

(b) *Pre-Rule Partial Quiet Zones that will be established by automatic approval.* (1) A Pre-Rule Partial Quiet Zone may be established by automatic approval and remain in effect, subject to § 222.51, if the Pre-Rule Partial Quiet Zone is in compliance with §§ 222.35 (minimum requirements for quiet zones) and 222.43 of this part (notice and information requirements) and:

(i) The Pre-Rule Partial Quiet Zone has at every public highway-rail grade crossing within the quiet zone one or more SSMs identified in appendix A of this part; or

(ii) The Quiet Zone Risk Index is at, or below, the Nationwide Significant Risk Threshold, as last published by FRA in the **Federal Register**; or

(iii) The Quiet Zone Risk Index is above the Nationwide Significant Risk Threshold, as last published by FRA in the **Federal Register**, but less than twice the Nationwide Significant Risk Threshold and there have been no relevant collisions at any public highway-rail grade crossing within the quiet zone since April 27, 2000. With respect to Pre-Rule Partial Quiet Zones, collisions that occurred during the time period within which the locomotive horn was routinely sounded shall not be considered "relevant collisions"; or

(iv) The Quiet Zone Risk Index is at, or below, the Risk Index with Horns.

(2) The public authority shall provide Notice of Quiet Zone Establishment, in accordance with § 222.43 of this part, no later than December 24, 2005.

(c) *Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones that will not be established by automatic approval.* (1) If a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone will not be established by automatic approval under paragraph (a) or (b) of this section, existing restrictions may, at the public authority's discretion, remain in

place until June 24, 2008, if a Notice of Quiet Zone Continuation is provided in accordance with § 222.43 of this part.

(2)(i) Existing restrictions on the routine sounding of the locomotive horn may remain in place until June 24, 2010, if:

(A) Notice of Intent is mailed, in accordance with § 222.43 of this part, by February 24, 2008; and

(B) A detailed plan for quiet zone improvements is filed with the Associate Administrator by June 24, 2008. The detailed plan shall include a detailed explanation of, and timetable for, the safety improvements that will be implemented at each public, private and pedestrian grade crossing located within the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone which are necessary to comply with §§ 222.25, 222.27, 222.35 and 222.39 of this part.

(ii) In the event that the safety improvements planned for the quiet zone require approval of FRA under § 222.39(b) of this part, the public authority should apply for such approval prior to December 24, 2007, to ensure that FRA has ample time in which to review such application prior to the end of the extension period.

(3) Locomotive horn restrictions may continue for an additional three years beyond June 24, 2010, if:

(i) Prior to June 24, 2008, the appropriate State agency provides to the Associate Administrator: A comprehensive State-wide implementation plan and funding commitment for implementing improvements at Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones which, when implemented, would enable them to qualify as quiet zones under this part; and

(ii) Prior to June 24, 2009, either safety improvements are initiated at a portion of the crossings within the quiet zone, or the appropriate State agency has participated in quiet zone improvements in one or more Pre-Rule Quiet Zones or Pre-Rule Partial Quiet Zones elsewhere within the State.

(4) A public authority may establish a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone upon compliance with:

(A) The Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone requirements contained within §§ 222.25, 222.27, and 222.35 of this part;

(B) The quiet zone standards set forth in § 222.39 of this part; and

(C) All applicable notification and filing requirements contained within this paragraph (c) and § 222.43 of this part.

(d) *Pre-Rule Partial Quiet Zones that will be converted to 24-hour New Quiet Zones.* A Pre-Rule Partial Quiet Zone

may be converted into a 24-hour New Quiet Zone, if:

(1) The quiet zone is brought into compliance with the New Quiet Zone requirements set forth in §§ 222.25, 222.27, and 222.35 of this part;

(2) The quiet zone is brought into compliance with the quiet zone standards set forth in § 222.39 of this part; and

(3) The public authority complies with all applicable notification and filing requirements contained within this paragraph (c) and § 222.43 of this part.

**§ 222.42 How does this rule affect Intermediate Quiet Zones and Intermediate Partial Quiet Zones?**

(a)(1) Existing restrictions may, at the public authority's discretion, remain in place within the Intermediate Quiet Zone or Intermediate Partial Quiet Zone until June 24, 2006, if the public authority provides Notice of Quiet Zone Continuation, in accordance with § 222.43 of this part.

(2) A public authority may continue locomotive horn sounding restrictions beyond June 24, 2006 by establishing a New Quiet Zone or New Partial Quiet Zone. A public authority may establish a New Quiet Zone or New Partial Quiet Zone if:

(i) Notice of Intent is mailed, in accordance with § 222.43 of this part;

(ii) The quiet zone complies with the standards set forth in § 222.39 of this part;

(iii) The quiet zone complies with the New Quiet Zone standards set forth in §§ 222.25, 222.27, and 222.35 of this part;

(iv) Notice of Quiet Zone Establishment is mailed, in accordance with § 222.43 of this part, by June 3, 2006.

(b) *Conversion of Intermediate Partial Quiet Zones into 24-hour New Quiet Zones.* An Intermediate Partial Quiet Zone may be converted into a 24-hour New Quiet Zone if:

(1) Notice of Intent is mailed, in accordance with § 222.43 of this part;

(2) The quiet zone complies with the standards set forth in § 222.39 of this part;

(3) The quiet zone is brought into compliance with the New Quiet Zone requirements set forth in §§ 222.25, 222.27, and 222.35 of this part; and

(4) Notice of Quiet Zone Establishment is mailed, in accordance with § 222.43 of this part, by June 3, 2006.

**§ 222.43 What notices and other information are required to create or continue a quiet zone?**

(a)(1) The public authority shall provide written notice, by certified mail, return receipt requested, of its intent to create a New Quiet Zone or New Partial Quiet Zone under § 222.39 of this part or to implement new SSMs or ASMs within a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone under § 222.41(c) or (d) of this part. Such notification shall be provided to: All railroads operating over the public highway-rail grade crossings within the quiet zone; the State agency responsible for highway and road safety; and the State agency responsible for grade crossing safety.

(2) The public authority shall provide written notification, by certified mail, return receipt requested, to continue a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone under § 222.41 of this part or to continue an Intermediate Quiet Zone or Intermediate Partial Quiet Zone under § 222.42 of this part. Such notification shall be provided to: All railroads operating over the public highway-rail grade crossings within the quiet zone; the highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone; the landowner having control over any private highway-rail grade crossings within the quiet zone; the State agency responsible for highway and road safety; the State agency responsible for grade crossing safety; and the Associate Administrator.

(3) The public authority shall provide written notice, by certified mail, return receipt requested, of the establishment of a quiet zone under § 222.39 or 222.41 of this part. Such notification shall be provided to: All railroads operating over the public highway-rail grade crossings within the quiet zone; the highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone; the landowner having control over any private highway-rail grade crossings within the quiet zone; the State agency responsible for highway and road safety; the State agency responsible for grade crossing safety; and the Associate Administrator.

(b) *Notice of Intent.* (1) *Timing.* (i) The Notice of Intent shall be mailed at least 60 days before the mailing of the Notice of Quiet Zone Establishment, unless the public authority obtains written comments and/or "no-comment" statements from each railroad operating over public highway-rail grade crossings within the quiet zone, the State agency

responsible for grade crossing safety, and the State agency responsible for highway and road safety, in accordance with paragraph (b)(3)(ii) of this section.

(ii) The Notice of Intent shall be mailed no later than February 24, 2008 for all Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones governed by §§ 222.41(c) and (d) of this part, in order to continue existing locomotive horn sounding restrictions beyond June 24, 2008 without interruption.

(2) *Required Contents.* The Notice of Intent shall include the following:

(i) A list of each public, private, and pedestrian grade crossing within the quiet zone, identified by both U.S. DOT National Highway-Rail Grade Crossing Inventory Number and street or highway name, if applicable.

(ii) A statement of the time period within which restrictions would be imposed on the routine sounding of the locomotive horn (i.e., 24 hours or from 10 p.m. until 7 a.m.).

(iii) A brief explanation of the public authority's tentative plans for implementing improvements within the proposed quiet zone.

(iv) The name and title of the person who will act as point of contact during the quiet zone development process and the manner in which that person can be contacted.

(v) A list of the names and addresses of each party that will receive notification in accordance with paragraph (a)(1) of this section.

(3) *60-day comment period.* (i) A party that receives a copy of the public authority's Notice of Intent may submit information or comments about the proposed quiet zone to the public authority during the 60-day period after the date on which the Notice of Intent was mailed.

(ii) The 60-day comment period established under paragraph (b)(3)(i) of this section may terminate when the public authority obtains from each railroad operating over public highway-rail grade crossings within the proposed quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety:

(A) Written comments; or

(B) Written statements that the railroad and State agency do not have any comments on the Notice of Intent ("no-comment statements").

(c) *Notice of Quiet Zone Continuation.*

(1) *Timing.* (i) In order to prevent the resumption of locomotive horn sounding on June 24, 2005, the Notice of Quiet Zone Continuation under § 222.41 or 222.42 of this part shall be served no later than June 3, 2005.



(ii) If the Notice of Quiet Zone Continuation under § 222.41 or 222.42 of this part is mailed after June 3, 2005, the Notice of Quiet Zone Continuation shall state on which date locomotive horn use at grade crossings within the quiet zone shall cease, but in no event shall that date be earlier than 21 days after the date of mailing.

(2) *Required Contents.* The Notice of Quiet Zone Continuation shall include the following:

(i) A list of each public, private, and pedestrian grade crossing within the quiet zone, identified by both U.S. DOT National Highway-Rail Grade Crossing Inventory Number and street or highway name.

(ii) A specific reference to the regulatory provision that provides the basis for quiet zone continuation, citing as appropriate, § 222.41 or 222.42 of this part.

(iii) A statement of the time period within which restrictions on the routine sounding of the locomotive horn will be imposed (i.e., 24 hours or nighttime hours only.)

(iv) An accurate and complete Grade Crossing Inventory Form for each public, private, and pedestrian grade crossing within the quiet zone that reflects conditions currently existing at the crossing.

(v) The name and title of the person responsible for monitoring compliance with the requirements of this part and the manner in which that person can be contacted.

(vi) A list of the names and addresses of each party that will receive notification in accordance with paragraph (a)(2) of this section.

(vii) A statement signed by the chief executive officer of each public authority participating in the continuation of the quiet zone, in which the chief executive officer certifies that the information submitted by the public authority is accurate and complete to the best of his/her knowledge and belief.

(d) *Notice of Quiet Zone Establishment.* (1) *Timing.* (i) The Notice of Quiet Zone Establishment shall provide the date upon which the quiet zone will be established, but in no event shall the date be earlier than 21 days after the date of mailing.

(ii) If the public authority was required to provide a Notice of Intent, in accordance with paragraph (a)(1) of this section, the Notice of Quiet Zone Establishment shall not be mailed less than 60 days after the date on which the Notice of Intent was mailed, unless the Notice of Quiet Zone Establishment contains a written statement affirming that written comments and/or "no-comment" statements have been

received from each railroad operating over public highway-rail grade crossings within the proposed quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety, in accordance with paragraph (b)(3)(ii) of this section.

(2) *Required contents.* The Notice of Quiet Zone Establishment shall include the following:

(i) A list of each public, private, and pedestrian grade crossing within the quiet zone, identified by both U.S. DOT National Highway-Rail Grade Crossing Inventory Number and street or highway name, if applicable.

(ii) A specific reference to the regulatory provision that provides the basis for quiet zone establishment, citing as appropriate, § 222.39(a)(1), 222.39(a)(2)(i), 222.39(a)(2)(ii), 222.39(a)(3), 222.39(b), 222.41(a)(1)(i), 222.41(a)(1)(ii), 222.41(a)(1)(iii), 222.41(a)(1)(iv), 222.41(b)(1)(i), 222.41(b)(1)(ii), 222.41(b)(1)(iii), or 222.41(b)(1)(iv) of this part.

(A) If the Notice contains a specific reference to § 222.39(a)(2)(i), 222.39(a)(2)(ii), 222.39(a)(3), 222.41(a)(1)(ii), 222.41(a)(1)(iii), 222.41(a)(1)(iv), 222.41(b)(1)(ii), 222.41(b)(1)(iii), or 222.41(b)(1)(iv) of this part, it shall include a copy of the FRA Web page that contains the quiet zone data upon which the public authority is relying (<http://www.fra.dot.gov/us/content/1337>).

(B) If the Notice contains a specific reference to § 222.39(b) of this part, it shall include a copy of FRA's notification of approval.

(iii) If a diagnostic team review was required under § 222.25 or 222.27 of this part, the Notice shall include a statement affirming that the State agency responsible for grade crossing safety and all affected railroads were provided an opportunity to participate in the diagnostic team review. The Notice shall also include a list of recommendations made by the diagnostic team.

(iv) A statement of the time period within which restrictions on the routine sounding of the locomotive horn will be imposed (i.e., 24 hours or from 10 p.m. until 7 a.m.).

(v) An accurate and complete Grade Crossing Inventory Form for each public, private, and pedestrian grade crossing within the quiet zone that reflects the conditions existing at the crossing before any new SSMs or ASMs were implemented.

(vi) An accurate, complete and current Grade Crossing Inventory Form for each public, private, and pedestrian grade crossing within the quiet zone

that reflects SSMs and ASMs in place upon establishment of the quiet zone. SSMs and ASMs that cannot be fully described on the Inventory Form shall be separately described.

(vii) If the public authority was required to provide a Notice of Intent, in accordance with paragraph (a)(1) of this section, the Notice of Quiet Zone Establishment shall contain a written statement affirming that the Notice of Intent was provided in accordance with paragraph (a)(1) of this section. This statement shall also state the date on which the Notice of Intent was mailed.

(viii) If the public authority was required to provide a Notice of Intent, in accordance with paragraph (a)(1) of this section, and the Notice of Intent was mailed less than 60 days before the mailing of the Notice of Quiet Zone Establishment, the Notice of Quiet Zone Establishment shall also contain a written statement affirming that written comments and/or "no-comment" statements have been received from each railroad operating over public highway-rail grade crossings within the proposed quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety, in accordance with paragraph (b)(3)(ii) of this section.

(ix) The name and title of the person responsible for monitoring compliance with the requirements of this part and the manner in which that person can be contacted.

(x) A list of the names and addresses of each party that shall be notified in accordance with paragraph (a)(3) of this section.

(xi) A statement signed by the chief executive officer of each public authority participating in the establishment of the quiet zone, in which the chief executive officer shall certify that the information submitted by the public authority is accurate and complete to the best of his/her knowledge and belief.

#### **§ 222.45 When is a railroad required to cease routine sounding of locomotive horns at crossings?**

On the date specified in a Notice of Quiet Zone Continuation or Notice of Quiet Zone Establishment that complies with the requirements set forth in § 222.43 of this part, a railroad shall refrain from, or cease, routine sounding of the locomotive horn at all public, private and pedestrian grade crossings identified in the Notice.

#### **§ 222.47 What periodic updates are required?**

(a) *Quiet zones with SSMs at each public crossing.* This paragraph

addresses quiet zones established pursuant to §§ 222.39(a)(1), 222.41(a)(1)(i), and 222.41(b)(1)(i) (quiet zones with an SSM implemented at every public crossing within the quiet zone) of this part. Between 4½ and 5 years after the date of the quiet zone establishment notice provided by the public authority under § 222.43 of this part, and between 4½ and 5 years after the last affirmation under this section, the public authority must:

(1) Affirm in writing to the Associate Administrator that the SSMs implemented within the quiet zone continue to conform to the requirements of appendix A of this part. Copies of such affirmation must be provided by certified mail, return receipt requested, to the parties identified in § 222.43(a)(3) of this part; and

(2) Provide to the Associate Administrator an up-to-date, accurate, and complete Grade Crossing Inventory Form for each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian crossing within the quiet zone.

(b) *Quiet zones which do not have a supplementary safety measure at each public crossing.* This paragraph addresses quiet zones established pursuant to §§ 222.39(a)(2) and (a)(3), § 222.39(b), §§ 222.41(a)(1)(ii), (a)(1)(iii), and (a)(1)(iv), and §§ 222.41(b)(1)(ii), (b)(1)(iii), and (b)(1)(iv) (quiet zones which do not have an SSM at every public crossing within the quiet zone) of this part. Between 2½ and 3 years after the date of the quiet zone establishment notice provided by the public authority under § 222.43 of this part, and between 2½ and 3 years after the last affirmation under this section, the public authority must:

(1) Affirm in writing to the Associate Administrator that all SSMs and ASMs implemented within the quiet zone continue to conform to the requirements of Appendices A and B of this part or the terms of the Quiet Zone approval. Copies of such notification must be provided to the parties identified in § 222.43(a)(3) of this part by certified mail, return receipt requested; and

(2) Provide to the Associate Administrator an up-to-date, accurate, and complete Grade Crossing Inventory Form for each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian grade crossing within the quiet zone.

#### **§ 222.49 Who may file Grade Crossing Inventory Forms?**

(a) Grade Crossing Inventory Forms required to be filed with the Associate Administrator in accordance with §§ 222.39, 222.43 and 222.47 of this part

may be filed by the public authority if, for any reason, such forms are not timely submitted by the State and railroad.

(b) Within 30 days after receipt of a written request of the public authority, the railroad owning the line of railroad that includes public or private highway rail grade crossings within the quiet zone or proposed quiet zone shall provide to the State and public authority sufficient current information regarding the grade crossing and the railroad's operations over the grade crossing to enable the State and public authority to complete the Grade Crossing Inventory Form.

#### **§ 222.51 Under what conditions will quiet zone status be terminated?**

(a) *New Quiet Zones—Annual risk review.* (1) FRA will annually calculate the Quiet Zone Risk Index for each quiet zone established pursuant to §§ 222.39(a)(2) and 222.39(b) of this part, and in comparison to the Nationwide Significant Risk Threshold. FRA will notify each public authority of the Quiet Zone Risk Index for the preceding calendar year. FRA will not conduct annual risk reviews for quiet zones established by having an SSM at every public crossing within the quiet zone or for quiet zones established by reducing the Quiet Zone Risk Index to the Risk Index With Horns.

(2) *Actions to be taken by public authority to retain quiet zone.* If the Quiet Zone Risk Index is above the Nationwide Significant Risk Threshold, the quiet zone will terminate six months from the date of receipt of notification from FRA that the Quiet Zone Risk Index exceeds the Nationwide Significant Risk Threshold, unless the public authority takes the following actions:

(i) Within six months after the date of receipt of notification from FRA that the Quiet Zone Risk Index exceeds the Nationwide Significant Risk Threshold, provide to the Associate Administrator a written commitment to lower the potential risk to the traveling public at the crossings within the quiet zone to a level at, or below, the Nationwide Significant Risk Threshold or the Risk Index With Horns. Included in the commitment statement shall be a discussion of the specific steps to be taken by the public authority to increase safety at the crossings within the quiet zone; and

(ii) Within three years after the date of receipt of notification from FRA that the Quiet Zone Risk Index exceeds the Nationwide Significant Risk Threshold, complete implementation of SSMs or ASMs sufficient to reduce the Quiet

Zone Risk Index to a level at, or below, the Nationwide Significant Risk Threshold, or the Risk Index With Horns, and receive approval from the Associate Administrator, under the procedures set forth in § 222.39(b) of this part, for continuation of the quiet zone. If the Quiet Zone Risk Index is reduced to the Risk Index With Horns, the quiet zone will be considered to have been established pursuant to § 222.39(a)(3) of this part and subsequent annual risk reviews will not be conducted for that quiet zone.

(iii) Failure to comply with paragraph (a)(2)(i) of this section shall result in the termination of the quiet zone six months after the date of receipt of notification from FRA that the Quiet Zone Risk Index exceeds the Nationwide Significant Risk Threshold. Failure to comply with paragraph (a)(2)(ii) of this section shall result in the termination of the quiet zone three years after the date of receipt of notification from FRA that the Quiet Zone Risk Index exceeds the Nationwide Significant Risk Threshold.

(b) *Pre-Rule Quiet Zones—Annual risk review.* (1) FRA will annually calculate the Quiet Zone Risk Index for each Pre-Rule Quiet Zone and Pre-Rule Partial Quiet Zone that qualified for automatic approval pursuant to §§ 222.41(a)(1)(ii), 222.41(a)(1)(iii), 222.41(b)(1)(ii), and 222.41(b)(1)(iii) of this part. FRA will notify each public authority of the Quiet Zone Risk Index for the preceding calendar year. FRA will also notify each public authority if a relevant collision occurred at a grade crossing within the quiet zone during the preceding calendar year.

(2) *Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones authorized under §§ 222.41(a)(1)(ii) and 222.41(b)(1)(ii).*

(i) If a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone originally qualified for automatic approval because the Quiet Zone Risk Index was at, or below, the Nationwide Significant Risk Threshold, the quiet zone may continue unchanged if the Quiet Zone Risk Index as last calculated by the FRA remains at, or below, the Nationwide Significant Risk Threshold.

(ii) If the Quiet Zone Risk Index as last calculated by FRA is above the Nationwide Significant Risk Threshold, but is lower than twice the Nationwide Significant Risk Threshold and no relevant collisions have occurred at crossings within the quiet zone within the five years preceding the annual risk review, then the quiet zone may continue as though it originally received automatic approval pursuant to § 222.41(a)(1)(iii) or 222.41(b)(1)(iii) of this part.

(iii) If the Quiet Zone Risk Index as last calculated by FRA is at, or above, twice the Nationwide Significant Risk Threshold, or if the Quiet Zone Risk Index is above the Nationwide Significant Risk Threshold, but is lower than twice the Nationwide Significant Risk Threshold and a relevant collision occurred at a crossing within the quiet zone within the preceding five calendar years, the quiet zone will terminate six months after the date of receipt of notification from FRA of the Nationwide Significant Risk Threshold level, unless the public authority takes the actions specified in paragraph (b)(4) of this section.

(3) *Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones authorized under §§ 222.41(a)(1)(iii) and 222.41(b)(1)(iii).*

(i) If a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone originally qualified for automatic approval because the Quiet Zone Risk Index was above the Nationwide Significant Risk Threshold, but below twice the Nationwide Significant Risk Threshold, and no relevant collisions had occurred within the five-year qualifying period, the quiet zone may continue unchanged if the Quiet Zone Risk Index as last calculated by FRA remains below twice the Nationwide Significant Risk Threshold and no relevant collisions occurred at a public grade crossing within the quiet zone during the preceding calendar year.

(ii) If the Quiet Zone Risk Index as last calculated by FRA is at, or above, twice the Nationwide Significant Risk Threshold, or if a relevant collision occurred at a public grade crossing within the quiet zone during the preceding calendar year, the quiet zone will terminate six months after the date of receipt of notification from FRA that the Quiet Zone Risk Index is at, or exceeds twice the Nationwide Significant Risk Threshold or that a relevant collision occurred at a crossing within the quiet zone, unless the public authority takes the actions specified in paragraph (b)(4) of this section.

(4) *Actions to be taken by the public authority to retain a quiet zone.*

(i) Within six months after the date of FRA notification, the public authority shall provide to the Associate Administrator a written commitment to lower the potential risk to the traveling public at the crossings within the quiet zone by reducing the Quiet Zone Risk Index to a level at, or below, the Nationwide Significant Risk Threshold or the Risk Index With Horns. Included in the commitment statement shall be a discussion of the specific steps to be taken by the public authority to increase

safety at the public crossings within the quiet zone; and

(ii) Within three years of the date of FRA notification, the public authority shall complete implementation of SSMs or ASMs sufficient to reduce the Quiet Zone Risk Index to a level at, or below, the Nationwide Significant Risk Threshold, or the Risk Index With Horns, and receive approval from the Associate Administrator, under the procedures set forth in § 222.39(b) of this part, for continuation of the quiet zone. If the Quiet Zone Risk Index is reduced to a level that fully compensates for the absence of the train horn, the quiet zone will be considered to have been established pursuant to § 222.39(a)(3) of this part and subsequent annual risk reviews will not be conducted for that quiet zone.

(iii) Failure to comply with paragraph (b)(4)(i) of this section shall result in the termination of the quiet zone six months after the date of receipt of notification from FRA. Failure to comply with paragraph (b)(4)(ii) of this section shall result in the termination of the quiet zone three years after the date of receipt of notification from FRA.

(c) *Review at FRA's initiative.* (1) The Associate Administrator may, at any time, review the status of any quiet zone.

(2) If the Associate Administrator makes any of the following preliminary determinations, the Associate Administrator will provide written notice to the public authority, all railroads operating over public highway-rail grade crossings within the quiet zone, the highway or traffic control authority or law enforcement authority having control over vehicular traffic at the crossings within the quiet zone, the landowner having control over any private crossings within the quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety and will publish a notice of the determination in the **Federal Register**:

(i) Safety systems and measures implemented within the quiet zone do not fully compensate for the absence of the locomotive horn due to a substantial increase in risk;

(ii) Documentation relied upon to establish the quiet zone contains substantial errors that may have an adverse impact on public safety; or

(iii) Significant risk with respect to loss of life or serious personal injury exists within the quiet zone.

(3) After providing an opportunity for comment, the Associate Administrator may require that additional safety measures be taken or that the quiet zone

be terminated. The Associate Administrator will provide a copy of his/her decision to the public authority and all parties listed in paragraph (c)(2) of this section. The public authority may appeal the Associate Administrator's decision in accordance with § 222.57(c) of this part. Nothing in this section is intended to limit the Administrator's emergency authority under 49 U.S.C. 20104 and 49 CFR part 211.

(d) *Termination by the public authority.* (1) Any public authority that participated in the establishment of a quiet zone under the provisions of this part may, at any time, withdraw its quiet zone status.

(2) A public authority may withdraw its quiet zone status by providing written notice of termination, by certified mail, return receipt requested, to all railroads operating the public highway-rail grade crossings within the quiet zone, the highway or traffic control authority or law enforcement authority having control over vehicular traffic at the crossings within the quiet zone, the landowner having control over any private crossings within the quiet zone, the State agency responsible for grade crossing safety, the State agency responsible for highway and road safety, and the Associate Administrator.

(3)(i) If the quiet zone that is being withdrawn was part of a multi-jurisdictional quiet zone, the remaining quiet zones may remain in effect, provided the public authorities responsible for the remaining quiet zones provide statements to the Associate Administrator certifying that the Quiet Zone Risk Index for each remaining quiet zone is at, or below, the Nationwide Significant Risk Threshold or the Risk Index With Horns. These statements shall be provided, no later than six months after the date on which the notice of quiet zone termination was mailed, to all parties listed in paragraph (d)(2) of this section.

(ii) If any remaining quiet zone has a Quiet Zone Risk Index in excess of the Nationwide Significant Risk Threshold and the Risk Index With Horns, the public authority responsible for the quiet zone shall submit a written commitment, to all parties listed in paragraph (d)(2) of this section, to reduce the Quiet Zone Risk Index to a level at or below the Nationwide Significant Risk Threshold or the Risk Index With Horns within three years. Included in the commitment statement shall be a discussion of the specific steps to be taken by the public authority to reduce the Quiet Zone Risk Index. This commitment statement shall be provided to all parties listed in

paragraph (d)(2) of this section no later than six months after the date on which the notice of quiet zone termination was mailed.

(iii) Failure to comply with paragraphs (d)(3)(i) and (d)(3)(ii) of this section shall result in the termination of the remaining quiet zone(s) six months after the date on which the notice of quiet zone termination was mailed by the withdrawing public authority in accordance with paragraph (d)(2) of this section.

(iv) Failure to complete implementation of SSMs and/or ASMs to reduce the Quiet Zone Risk Index to a level at, or below, the Nationwide Significant Risk Index or the Risk Index With Horns, in accordance with the written commitment provided under paragraph (d)(3)(ii) of this section, shall result in the termination of quiet zone status three years after the date on which the written commitment was received by FRA.

(e) *Notification of termination.* (1) In the event that a quiet zone is terminated under the provisions of this section, it shall be the responsibility of the public authority to immediately provide written notification of the termination by certified mail, return receipt requested, to all railroads operating over public highway-rail grade crossings within the quiet zone, the highway or traffic control authority or law enforcement authority having control over vehicular traffic at the crossings within the quiet zone, the landowner having control over any private crossings within the quiet zone, the State agency responsible for grade crossing safety, the State agency responsible for highway and road safety, and the Associate Administrator.

(2) Notwithstanding paragraph (e)(1) of this section, if a quiet zone is terminated under the provisions of this section, FRA shall also provide written notification to all parties listed in paragraph (e)(1) of this section.

(f) *Requirement to sound the locomotive horn.* Upon receipt of notification of quiet zone termination pursuant to paragraph (e) of this section, railroads shall, within seven days, and in accordance with the provisions of this part, sound the locomotive horn when approaching and passing through every public highway-rail grade crossing within the former quiet zone.

**§ 222.53 What are the requirements for supplementary and alternative safety measures?**

(a) Approved SSMs are listed in appendix A of this part. Approved SSMs can qualify for quiet zone risk

reduction credit in the manner specified in appendix A of this part.

(b) Additional ASMs that may be included in a request for FRA approval of a quiet zone under § 222.39(b) of this part are listed in appendix B of this part. Modified SSMs can qualify for quiet zone risk reduction credit in the manner specified in appendix B of this part.

(c) The following do not, individually or in combination, constitute SSMs or ASMs: Standard traffic control device arrangements such as reflectorized crossbucks, STOP signs, flashing lights, or flashing lights with gates that do not completely block travel over the line of railroad, or traffic signals.

**§ 222.55 How are new supplementary or alternative safety measures approved?**

(a) The Associate Administrator may add new SSMs and standards to appendix A of this part and new ASMs and standards to appendix B of this part when the Associate Administrator determines that such measures or standards are an effective substitute for the locomotive horn in the prevention of collisions and casualties at public highway-rail grade crossings.

(b) Interested parties may apply for approval from the Associate Administrator to demonstrate proposed new SSMs or ASMs to determine whether they are effective substitutes for the locomotive horn in the prevention of collisions and casualties at public highway-rail grade crossings.

(c) The Associate Administrator may, after notice and opportunity for comment, order railroad carriers operating over a public highway-rail grade crossing or crossings to temporarily cease the sounding of locomotive horns at such crossings to demonstrate proposed new SSMs or ASMs, provided that such proposed new SSMs or ASMs have been subject to prior testing and evaluation. In issuing such order, the Associate Administrator may impose any conditions or limitations on such use of the proposed new SSMs or ASMs which the Associate Administrator deems necessary in order to provide the level of safety at least equivalent to that provided by the locomotive horn.

(d) Upon completion of a demonstration of proposed new SSMs or ASMs, interested parties may apply to the Associate Administrator for their approval. Applications for approval shall be in writing and shall include the following:

(1) The name and address of the applicant;

(2) A description and design of the proposed new SSM or ASM;

(3) A description and results of the demonstration project in which the proposed SSMs or ASMs were tested;

(4) Estimated costs of the proposed new SSM or ASM; and

(5) Any other information deemed necessary.

(e) If the Associate Administrator is satisfied that the proposed safety measure fully compensates for the absence of the warning provided by the locomotive horn, the Associate Administrator will approve its use as an SSM to be used in the same manner as the measures listed in appendix A of this part, or the Associate Administrator may approve its use as an ASM to be used in the same manner as the measures listed in appendix B of this part. The Associate Administrator may impose any conditions or limitations on use of the SSMs or ASMs which the Associate Administrator deems necessary in order to provide the level of safety at least equivalent to that provided by the locomotive horn.

(f) If the Associate Administrator approves a new SSM or ASM, the Associate Administrator will: Notify the applicant, if any; publish notice of such action in the **Federal Register**; and add the measure to the list of approved SSMs or ASMs.

(g) A public authority or other interested party may appeal to the Administrator from a decision by the Associate Administrator granting or denying an application for approval of a proposed SSM or ASM, or the conditions or limitations imposed on its use, in accordance with § 222.57 of this part.

**§ 222.57 Can parties seek review of the Associate Administrator's actions?**

(a) A public authority or other interested party may petition the Administrator for review of any decision by the Associate Administrator granting or denying an application for approval of a new SSM or ASM under § 222.55 of this part. The petition must be filed within 60 days of the decision to be reviewed, specify the grounds for the requested relief, and be served upon the following parties: All railroads ordered to temporarily cease sounding of the locomotive horn over public highway-rail grade crossings for the demonstration of the proposed new SSM or ASM, the highway or traffic control authority or law enforcement authority having control over vehicular traffic at the crossings affected by the new SSM/ASM demonstration, the State agency responsible for grade crossing safety, the State agency responsible for highway and road safety, and the Associate Administrator. Unless the

Administrator specifically provides otherwise, and gives notice to the petitioner or publishes a notice in the **Federal Register**, the filing of a petition under this paragraph does not stay the effectiveness of the action sought to be reviewed. The Administrator may reaffirm, modify, or revoke the decision of the Associate Administrator without further proceedings and shall notify the petitioner and other interested parties in writing or by publishing a notice in the **Federal Register**.

(b) A public authority may request reconsideration of a decision by the Associate Administrator to deny an application by that authority for approval of a quiet zone, or to require additional safety measures, by filing a petition for reconsideration with the Associate Administrator. The petition must specify the grounds for asserting that the Associate Administrator improperly exercised his/her judgment in finding that the proposed SSMs and ASMs would not result in a Quiet Zone Risk Index that would be at or below the Risk Index With Horns or the Nationwide Significant Risk Threshold. The petition shall be filed within 60 days of the date of the decision to be reconsidered and be served upon all parties listed in § 222.39(b)(3) of this part. Upon receipt of a timely and proper petition, the Associate Administrator will provide the petitioner an opportunity to submit additional materials and to request an informal hearing. Upon review of the additional materials and completion of any hearing requested, the Associate Administrator shall issue a decision on the petition that will be administratively final.

(c) A public authority may request reconsideration of a decision by the Associate Administrator to terminate quiet zone status by filing a petition for reconsideration with the Associate Administrator. The petition must be filed within 60 days of the date of the decision, specify the grounds for the requested relief, and be served upon all parties listed in § 222.51(c)(2) of this part. Unless the Associate Administrator publishes a notice in the **Federal Register** that specifically stays the effectiveness of his/her decision, the filing of a petition under this paragraph will not stay the termination of quiet zone status. Upon receipt of a timely and proper petition, the Associate Administrator will provide the petitioner an opportunity to submit additional materials and to request an informal hearing. Upon review of the additional materials and completion of any hearing requested, the Associate Administrator shall issue a decision on

the petition that will be administratively final. A copy of this decision shall be served upon all parties listed in § 222.51(c)(2) of this part.

(d) A railroad may request reconsideration of a decision by the Associate Administrator to approve an application for approval of a proposed quiet zone under § 222.39(b) of this part by filing a petition for reconsideration with the Associate Administrator. The petition must specify the grounds for asserting that the Associate Administrator improperly exercised his/her judgment in finding that the proposed SSMs and ASMs would result in a Quiet Zone Risk Index that would be at or below the Risk Index With Horns or the Nationwide Significant Risk Threshold. The petition shall be filed within 60 days of the date of the decision to be reconsidered, and be served upon all parties listed in § 222.39(b)(3) of this part. Upon receipt of a timely and proper petition, the Associate Administrator will provide the petitioner an opportunity to submit additional materials and to request an informal hearing. Upon review of the additional materials and completion of any hearing requested, the Associate Administrator shall issue a decision that will be administratively final.

#### **§ 222.59 When may a wayside horn be used?**

(a)(1) A wayside horn conforming to the requirements of appendix E of this part may be used in lieu of a locomotive horn at any highway-rail grade crossing equipped with an active warning system consisting of, at a minimum, flashing lights and gates.

(2) A wayside horn conforming to the requirements of appendix E of this part may be installed within a quiet zone. For purposes of calculating the length of a quiet zone, the presence of a wayside horn at a highway-grade crossing within a quiet zone shall be considered in the same manner as a grade crossing treated with an SSM. A grade crossing equipped with a wayside horn shall not be considered in calculating the Quiet Zone Risk Index or Crossing Corridor Risk Index.

(b) A public authority installing a wayside horn at a grade crossing within a quiet zone shall provide written notice that a wayside horn is being installed to all railroads operating over the public highway-rail grade crossings within the quiet zone, the highway or traffic control authority or law enforcement authority having control over vehicular traffic at the crossings within the quiet zone, the landowner having control over any private crossings within the quiet zone, the State agency responsible for

grade crossing safety, the State agency responsible for highway and road safety, and the Associate Administrator. This notice shall provide the date on which the wayside horn will be operational and identify the grade crossing at which the wayside horn shall be installed by both the U.S. DOT National Highway-Rail Grade Crossing Inventory Number and street or highway name. The railroad or public authority shall provide notification of the operational date at least 21 days in advance.

(c) A railroad or public authority installing a wayside horn at a grade crossing located outside a quiet zone shall provide written notice that a wayside horn is being installed to all railroads operating over the public highway-rail grade crossing, the highway or traffic control authority or law enforcement authority having control over vehicular traffic at the crossing, the State agency responsible for grade crossing safety, the State agency responsible for highway and road safety, and the Associate Administrator. This notice shall provide the date on which the wayside horn will be operational and identify the grade crossing at which the wayside horn shall be installed by both the U.S. DOT National Highway-Rail Grade Crossing Inventory Number and street or highway name. The railroad or public authority shall provide notification of the operational date at least 21 days in advance.

(d) A railroad operating over a grade crossing equipped with an operational wayside horn installed within a quiet zone pursuant to this section shall cease routine locomotive horn use at the grade crossing. A railroad operating over a grade crossing that is equipped with a wayside horn and located outside of a quiet zone shall cease routine locomotive horn use at the grade crossing on the operational date specified in the notice required by paragraph (c) of this section.

#### **Appendix A to Part 222—Approved Supplementary Safety Measures**

##### *A. Requirements and Effectiveness Rates for Supplementary Safety Measures*

This section provides a list of approved supplementary safety measures (SSMs) that may be installed at highway-rail grade crossings within quiet zones for risk reduction credit. Each SSM has been assigned an effectiveness rate, which may be subject to adjustment as research and demonstration projects are completed and data is gathered and refined. Sections B and C govern the process through which risk reduction credit for pre-existing SSMs can be determined.

1. *Temporary Closure of a Public Highway-Rail Grade Crossing:* Close the crossing to

highway traffic during designated quiet periods. (This SSM can only be implemented within Partial Quiet Zones.)

*Effectiveness:* 1.0.

Because an effective closure system prevents vehicle entrance onto the crossing, the probability of a collision with a train at the crossing is zero during the period the crossing is closed. Effectiveness would therefore equal 1. However, analysis should take into consideration that traffic would need to be redistributed among adjacent crossings or grade separations for the purpose of estimating risk following the silencing of train horns, unless the particular "closure" was accomplished by a grade separation.

*Required:*

a. The closure system must completely block highway traffic on all approach lanes to the crossing.

b. The closure system must completely block adjacent pedestrian crossings.

c. Public highway-rail grade crossings located within New Partial Quiet Zones shall be closed from 10 p.m. until 7 a.m. every day. Public highway-rail grade crossings located within Pre-Rule Partial Quiet Zones may only be closed during one period each 24 hours.

d. Barricades and signs used for closure of the roadway shall conform to the standards contained in the MUTCD.

e. Daily activation and deactivation of the system is the responsibility of the public authority responsible for maintenance of the street or highway crossing the railroad tracks. The public authority may provide for third party activation and deactivation; however, the public authority shall remain fully responsible for compliance with the requirements of this part.

f. The system must be tamper and vandal resistant to the same extent as other traffic control devices.

g. The closure system shall be equipped with a monitoring device that contains an indicator which is visible to the train crew prior to entering the crossing. The indicator shall illuminate whenever the closure device is deployed.

*Recommended:*

Signs for alternate highway traffic routes should be erected in accordance with MUTCD and State and local standards and should inform pedestrians and motorists that the streets are closed, the period for which they are closed, and that alternate routes must be used.

2. *Four-Quadrant Gate System:* Install gates at a crossing sufficient to fully block highway traffic from entering the crossing when the gates are lowered, including at least one gate for each direction of traffic on each approach.

*Effectiveness:*

Four-quadrant gates only, no presence detection: .82.

Four-quadrant gates only, with presence detection: .77.

Four-quadrant gates with traffic of at least 60 feet (with or without presence detection): .92.

**Note:** The higher effectiveness rate for four-quadrant gates without presence detection does not mean that they are inherently safer than four-quadrant gates with presence detection. Four-quadrant gates with presence detection have been assigned a lower

effectiveness rate because motorists may learn to delay the lowering of the exit gates by driving onto the opposing lane of traffic immediately after an opposing car has driven over the grade crossing. Since the presence detection will keep the exit gate raised, other motorists at the crossing who observe this scenario may also be tempted to take advantage of the raised exit gate by driving around the lowered entrance gates, thus increasing the potential for a crossing collision.

It should, however, be noted that there are site-specific circumstances (such as nearby highway intersections that could cause traffic to back up and stop on the grade crossing), under which the use of presence detection would be advisable. For this reason, the various effectiveness rates assigned to four-quadrant gate systems should not be the sole determining factor as to whether presence detection would be advisable. A site-specific study should be performed to determine the best application for each proposed installation. Please refer to paragraphs (f) and (g) for more information.

*Required:*

Four-quadrant gate systems shall conform to the standards for four-quadrant gates contained in the MUTCD and shall, in addition, comply with the following:

a. When a train is approaching, all highway approach and exit lanes on both sides of the highway-rail crossing must be spanned by gates, thus denying to the highway user the option of circumventing the conventional approach lane gates by switching into the opposing (oncoming) traffic lane in order to enter the crossing and cross the tracks.

b. Crossing warning systems must be activated by use of constant warning time devices unless existing conditions at the crossing would prevent the proper operation of the constant warning time devices.

c. Crossing warning systems must be equipped with power-out indicators.

**Note:** Requirements b and c apply only to New Quiet Zones or New Partial Quiet Zones. Constant warning time devices and power-out indicators are not required to be added to existing warning systems in Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones. However, if existing automatic warning device systems in Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones are renewed, or new automatic warning device systems are installed, power-out indicators and constant warning time devices are required, unless existing conditions at the crossing would prevent the proper operation of the constant warning devices.

d. The gap between the ends of the entrance and exit gates (on the same side of the railroad tracks) when both are in the fully lowered, or down, position must be less than two feet if no median is present. If the highway approach is equipped with a median or a channelization device between the approach and exit lanes, the lowered gates must reach to within one foot of the median or channelization device, measured horizontally across the road from the end of the lowered gate to the median or channelization device or to a point over the edge of the median or channelization device. The gate and the median top or

channelization device do not have to be at the same elevation.

e. "Break-away" channelization devices must be frequently monitored to replace broken elements.

*Recommendations for new installations only:*

f. Gate timing should be established by a qualified traffic engineer based on site specific determinations. Such determination should consider the need for and timing of a delay in the descent of the exit gates (following descent of the conventional entrance gates). Factors to be considered may include available storage space between the gates that is outside the fouling limits of the track(s) and the possibility that traffic flows may be interrupted as a result of nearby intersections.

g. A determination should be made as to whether it is necessary to provide vehicle presence detectors (VPDs) to open or keep open the exit gates until all vehicles are clear of the crossing. VPD should be installed on one or both sides of the crossing and/or in the surface between the rails closest to the field. Among the factors that should be considered are the presence of intersecting roadways near the crossing, the priority that the traffic crossing the railroad is given at such intersections, the types of traffic control devices at those intersections, and the presence and timing of traffic signal preemption.

h. Highway approaches on one or both sides of the highway-rail crossing may be provided with medians or channelization devices between the opposing lanes. Medians should be defined by a non-traversable curb or traversable curb, or by reflectorized channelization devices, or by both.

i. Remote monitoring (in addition to power-out indicators, which are required) of the status of these crossing systems is preferable. This is especially important in those areas in which qualified railroad signal department personnel are not readily available.

3. *Gates With Medians or Channelization Devices:* Install medians or channelization devices on both highway approaches to a public highway-rail grade crossing denying to the highway user the option of circumventing the approach lane gates by switching into the opposing (oncoming) traffic lane and driving around the lowered gates to cross the tracks.

*Effectiveness:*

Channelization devices—.75.

Non-traversable curbs with or without channelization devices—.80.

*Required:*

a. Opposing traffic lanes on both highway approaches to the crossing must be separated by either: (1) medians bounded by non-traversable curbs or (2) channelization devices.

b. Medians or channelization devices must extend at least 100 feet from the gate arm, or if there is an intersection within 100 feet of the gate, the median or channelization device must extend at least 60 feet from the gate arm.

c. Intersections of two or more streets, or a street and an alley, that are within 60 feet of the gate arm must be closed or relocated.

Driveways for private, residential properties (up to four units) within 60 feet of the gate arm are not considered to be intersections under this part and need not be closed. However, consideration should be given to taking steps to ensure that motorists exiting the driveways are not able to move against the flow of traffic to circumvent the purpose of the median and drive around lowered gates. This may be accomplished by the posting of "no left turn" signs or other means of notification. For the purpose of this part, driveways accessing commercial properties are considered to be intersections and are not allowed. It should be noted that if a public authority can not comply with the 60 feet or 100 feet requirement, it may apply to FRA for a quiet zone under § 222.39(b), "Public authority application to FRA." Such arrangement may qualify for a risk reduction credit in calculation of the Quiet Zone Risk Index. Similarly, if a public authority finds that it is feasible to only provide channelization on one approach to the crossing, it may also apply to FRA for approval under § 222.39(b). Such an arrangement may also qualify for a risk reduction credit in calculation of the Quiet Zone Risk Index.

d. Crossing warning systems must be activated by use of constant warning time devices unless existing conditions at the crossing would prevent the proper operation of the constant warning time devices.

e. Crossing warning systems must be equipped with power-out indicators. Note: Requirements d and e apply only to New Quiet Zones and New Partial Quiet Zones. Constant warning time devices and power-out indicators are not required to be added to existing warning systems in Pre-Rule Quiet Zones or Pre-Rule Partial Quiet Zones. However, if existing automatic warning device systems in Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones are renewed, or new automatic warning device systems are installed, power-out indicators and constant warning time devices are required, unless existing conditions at the crossing would prevent the proper operation of the constant warning devices.

f. The gap between the lowered gate and the curb or channelization device must be one foot or less, measured horizontally across the road from the end of the lowered gate to the curb or channelization device or to a point over the curb edge or channelization device. The gate and the curb top or channelization device do not have to be at the same elevation.

g. "Break-away" channelization devices must be frequently monitored to replace broken elements.

4. *One Way Street with Gate(s)*: Gate(s) must be installed such that all approaching highway lanes to the public highway-rail grade crossing are completely blocked.

*Effectiveness*: .82.

*Required*:

a. Gate arms on the approach side of the crossing should extend across the road to within one foot of the far edge of the pavement. If a gate is used on each side of the road, the gap between the ends of the gates when both are in the lowered, or down, position must be no more than two feet.

b. If only one gate is used, the edge of the road opposite the gate mechanism must be configured with a non-traversable curb extending at least 100 feet.

c. Crossing warning systems must be activated by use of constant warning time devices unless existing conditions at the crossing would prevent the proper operation of the constant warning time devices.

d. Crossing warning systems must be equipped with power-out indicators.

**Note:** Requirements c and d apply only to New Quiet Zones and New Partial Quiet Zones. Constant warning time devices and power-out indicators are not required to be added to existing warning systems in Pre-Rule Quiet Zones or Pre-Rule Partial Quiet Zones. If automatic warning systems are, however, installed or renewed in a Pre-Rule Quiet or Pre-Rule Partial Quiet Zone, power-out indicators and constant warning time devices shall be installed, unless existing conditions at the crossing would prevent the proper operation of the constant warning time devices.

5. *Permanent Closure of a Public Highway-Rail Grade Crossing*: Permanently close the crossing to highway traffic.

*Effectiveness*: 1.0.

*Required*:

a. The closure system must completely block highway traffic from entering the grade crossing.

b. Barricades and signs used for closure of the roadway shall conform to the standards contained in the MUTCD.

c. The closure system must be tamper and vandal resistant to the same extent as other traffic control devices.

d. Since traffic will be redistributed among adjacent crossings, the traffic counts for adjacent crossings shall be increased to reflect the diversion of traffic from the closed crossing.

*B. Credit for Pre-Existing SSMs in New Quiet Zones and New Partial Quiet Zones*

A community that has implemented a pre-existing SSM at a public grade crossing can receive risk reduction credit by inflating the Risk Index With Horns as follows:

1. Calculate the current risk index for the grade crossing that is equipped with a qualifying, pre-existing SSM. (See appendix D. FRA's web-based Quiet Zone Calculator may be used to complete this calculation.)

2. Adjust the risk index by accounting for the increased risk that was avoided by implementing the pre-existing SSM at the public grade crossing. This adjustment can be made by dividing the risk index by one minus the SSM effectiveness rate. (For example, the risk index for a crossing equipped with pre-existing channelization devices would be divided by .25.)

3. Add the current risk indices for the other public grade crossings located within the proposed quiet zone and divide by the number of crossings. The resulting risk index will be the new Risk Index With Horns for the proposed quiet zone.

*C. Credit for Pre-Existing SSMs in Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones*

A community that has implemented a pre-existing SSM at a public grade crossing can

receive risk reduction credit by inflating the Risk Index With Horns as follows:

1. Calculate the current risk index for the grade crossing that is equipped with a qualifying, pre-existing SSM. (See appendix D. FRA's web-based Quiet Zone Calculator may be used to complete this calculation.)

2. Reduce the current risk index for the grade crossing to reflect the risk reduction that would have been achieved if the locomotive horn was routinely sounded at the crossing. The following list sets forth the estimated risk reduction for certain types of crossings:

a. Risk indices for passive crossings shall be reduced by 43%;

b. Risk indices for grade crossings equipped with automatic flashing lights shall be reduced by 27%; and

c. Risk indices for gated crossings shall be reduced by 40%.

3. Adjust the risk index by accounting for the increased risk that was avoided by implementing the pre-existing SSM at the public grade crossing. This adjustment can be made by dividing the risk index by one minus the SSM effectiveness rate. (For example, the risk index for a crossing equipped with pre-existing channelization devices would be divided by .25.)

4. Adjust the risk indices for the other crossings that are included in the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone by reducing the current risk index to reflect the risk reduction that would have been achieved if the locomotive horn was routinely sounded at each crossing. Please refer to step two for the list of approved risk reduction percentages by crossing type.

5. Add the new risk indices for each crossing located within the proposed quiet zone and divide by the number of crossings. The resulting risk index will be the new Risk Index With Horns for the quiet zone.

## Appendix B to Part 222—Alternative Safety Measures

### Introduction

A public authority seeking approval of a quiet zone under public authority application to FRA (§ 222.39(b)) may include ASMs listed in this appendix in its proposal. This appendix addresses three types of ASMs: Modified SSMs, Non-Engineering ASMs, and Engineering ASMs. Modified SSMs are SSMs that do not fully comply with the provisions listed in appendix A. As provided in section I.B. of this appendix, public authorities can obtain risk reduction credit for pre-existing modified SSMs under the final rule. Non-engineering ASMs consist of programmed enforcement, public education and awareness, and photo enforcement programs that may be used to reduce risk within a quiet zone. Engineering ASMs consist of engineering improvements that address underlying geometric conditions, including sight distance, that are the source of increased risk at crossings.

### I. Modified SSMs

#### A. Requirements and Effectiveness Rates for Modified SSMs

1. If there are unique circumstances pertaining to a specific crossing or number of



crossings which prevent SSMs from being fully compliant with all of the SSM requirements listed in appendix A, those SSM requirements may be adjusted or revised. In that case, the SSM, as modified by the public authority, will be treated as an ASM under this appendix B, and not as a SSM under appendix A. After reviewing the estimated safety effect of the modified SSM and the proposed quiet zone, FRA will approve the proposed quiet zone if FRA finds that the Quiet Zone Risk Index will be reduced to a level at or below either the Risk Index With Horns or the Nationwide Significant Risk Threshold.

2. The public authority must provide estimates of effectiveness. These estimates may be based upon adjustments from the effectiveness levels provided in appendix A or from actual field data derived from the crossing sites. The specific crossing and applied mitigation measure will be assessed to determine the effectiveness of the modified SSM. FRA will continue to develop and make available effectiveness estimates and data from experience under the final rule.

3. If one or more of the requirements associated with an SSM as listed in appendix A is revised or deleted, data or analysis supporting the revision or deletion must be provided to FRA for review. The following engineering types of ASMs may be included in a proposal for approval by FRA for creation of a quiet zone: (1) Temporary Closure of a Public Highway-Rail Grade Crossing, (2) Four-Quadrant Gate System, (3) Gates With Medians or Channelization Devices, and (4) One-Way Street With Gate(s).

#### *B. Credit for Pre-Existing Modified SSMs in New Quiet Zones and New Partial Quiet Zones*

A community that has implemented a pre-existing modified SSM at a public grade crossing can receive risk reduction credit by inflating the Risk Index With Horns as follows:

1. Calculate the current risk index for the grade crossing that is equipped with a pre-existing modified SSM. (See appendix D. FRA's web-based Quiet Zone Calculator may be used to complete this calculation.)

2. Obtain FRA approval of the estimated effectiveness rate for the pre-existing modified SSM. Estimated effectiveness rates may be based upon adjustments from the SSM effectiveness rates provided in appendix A or actual field data derived from crossing sites.

3. Adjust the risk index by accounting for the increased risk that was avoided by implementing the pre-existing modified SSM at the public grade crossing. This adjustment can be made by dividing the risk index by one minus the FRA-approved modified SSM effectiveness rate.

4. Add the current risk indices for the other public grade crossings located within the proposed quiet zone and divide by the number of crossings. The resulting risk index will be the new Risk Index With Horns for the proposed quiet zone.

#### *C. Credit for Pre-Existing Modified SSMs in Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones*

A community that has implemented a pre-existing modified SSM at a public grade crossing can receive risk reduction credit by inflating the Risk Index With Horns as follows:

1. Calculate the current risk index for the grade crossing that is equipped with a pre-existing modified SSM. (See appendix D. FRA's web-based Quiet Zone Calculator may be used to complete this calculation.)

2. Reduce the current risk index for the grade crossing to reflect the risk reduction that would have been achieved if the locomotive horn was routinely sounded at the crossing. The following list sets forth the estimated risk reduction for certain types of crossings:

a. Risk indices for passive crossings shall be reduced by 43%;

b. Risk indices for grade crossings equipped with automatic flashing lights shall be reduced by 27%; and

c. Risk indices for gated crossings shall be reduced by 40%.

3. Obtain FRA approval of the estimated effectiveness rate for the pre-existing modified SSM. Estimated effectiveness rates may be based upon adjustments from the SSM effectiveness rates provided in appendix A or actual field data derived from crossing sites.

4. Adjust the risk index by accounting for the increased risk that was avoided by implementing the pre-existing modified SSM at the public grade crossing. This adjustment can be made by dividing the risk index by one minus the FRA-approved modified SSM effectiveness rate.

5. Adjust the risk indices for the other crossings that are included in the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone by reducing the current risk index to reflect the risk reduction that would have been achieved if the locomotive horn was routinely sounded at each crossing. Please refer to step two for the list of approved risk reduction percentages by crossing type.

6. Add the new risk indices for each crossing located within the proposed quiet zone and divide by the number of crossings. The resulting risk index will be the new Risk Index With Horns for the quiet zone.

#### **II. Non-Engineering ASMs**

A. The following non-engineering ASMs may be used in the creation of a Quiet Zone: (The method for determining the effectiveness of the non-engineering ASMs, the implementation of the quiet zone, subsequent monitoring requirements, and dealing with an unacceptable effectiveness rate is provided in paragraph B.)

1. *Programmed Enforcement:* Community and law enforcement officials commit to a systematic and measurable crossing monitoring and traffic law enforcement program at the public highway-rail grade crossing, alone or in combination with the Public Education and Awareness ASM.

##### *Required:*

a. Subject to audit, a statistically valid baseline violation rate must be established through automated or systematic manual

monitoring or sampling at the subject crossing(s); and

b. A law enforcement effort must be defined, established and continued along with continual or regular monitoring that provides a statistically valid violation rate that indicates the effectiveness of the law enforcement effort.

c. The public authority shall retain records pertaining to monitoring and sampling efforts at the grade crossing for a period of not less than five years. These records shall be made available, upon request, to FRA as provided by 49 U.S.C. 20107.

2. *Public Education and Awareness:* Conduct, alone or in combination with programmed law enforcement, a program of public education and awareness directed at motor vehicle drivers, pedestrians and residents near the railroad to emphasize the risks associated with public highway-rail grade crossings and applicable requirements of state and local traffic laws at those crossings.

##### *Requirements:*

a. Subject to audit, a statistically valid baseline violation rate must be established through automated or systematic manual monitoring or sampling at the subject crossing(s); and

b. A sustainable public education and awareness program must be defined, established and continued along with continual or regular monitoring that provides a statistically valid violation rate that indicates the effectiveness of the public education and awareness effort. This program shall be provided and supported primarily through local resources.

c. The public authority shall retain records pertaining to monitoring and sampling efforts at the grade crossing for a period of not less than five years. These records shall be made available, upon request, to FRA as provided by 49 U.S.C. 20107.

3. *Photo Enforcement:* This ASM entails automated means of gathering valid photographic or video evidence of traffic law violations at a public highway-rail grade crossing together with follow-through by law enforcement and the judiciary.

##### *Requirements:*

a. State law authorizing use of photographic or video evidence both to bring charges and sustain the burden of proof that a violation of traffic laws concerning public highway-rail grade crossings has occurred, accompanied by commitment of administrative, law enforcement and judicial officers to enforce the law;

b. Sanction includes sufficient minimum fine (e.g., \$100 for a first offense, "points" toward license suspension or revocation) to deter violations;

c. Means to reliably detect violations (e.g., loop detectors, video imaging technology);

d. Photographic or video equipment deployed to capture images sufficient to document the violation (including the face of the driver, if required to charge or convict under state law).

**Note:** This does not require that each crossing be continually monitored. The objective of this option is deterrence, which may be accomplished by moving photo/video equipment among several crossing locations,

as long as the motorist perceives the strong possibility that a violation will lead to sanctions. Each location must appear identical to the motorist, whether or not surveillance equipment is actually placed there at the particular time. Surveillance equipment should be in place and operating at each crossing at least 25 percent of each calendar quarter.

e. Appropriate integration, testing and maintenance of the system to provide evidence supporting enforcement;

f. Public awareness efforts designed to reinforce photo enforcement and alert motorists to the absence of train horns;

g. Subject to audit, a statistically valid baseline violation rate must be established through automated or systematic manual monitoring or sampling at the subject crossing(s); and

h. A law enforcement effort must be defined, established and continued along with continual or regular monitoring.

i. The public authority shall retain records pertaining to monitoring and sampling efforts at the grade crossing for a period of not less than five years. These records shall be made available, upon request, to FRA as provided by 49 U.S.C. 20107.

B. The effectiveness of an ASM will be determined as follows:

1. Establish the quarterly (three months) baseline violation rates for each crossing in the proposed quiet zone.

a. A violation in this context refers to a motorist not complying with the automatic warning devices at the crossing (not stopping for the flashing lights and driving over the crossing after the gate arms have started to descend, or driving around the lowered gate arms). A violation does not have to result in a traffic citation for the violation to be considered.

b. Violation data may be obtained by any method that can be shown to provide a statistically valid sample. This may include the use of video cameras, other technologies (e.g., inductive loops), or manual observations that capture driver behavior when the automatic warning devices are operating.

c. If data is not collected continuously during the quarter, sufficient detail must be provided in the application in order to validate that the methodology used results in a statistically valid sample. FRA recommends that at least a minimum of 600 samples (one sample equals one gate activation) be collected during the baseline and subsequent quarterly sample periods.

d. The sampling methodology must take measures to avoid biases in their sampling technique. Potential sampling biases could include: Sampling on certain days of the week but not others; sampling during certain times of the day but not others; sampling immediately after implementation of an ASM while the public is still going through an adjustment period; or applying one sample method for the baseline rate and another for the new rate.

e. The baseline violation rate should be expressed as the number of violations per gate activations in order to normalize for unequal gate activations during subsequent data collection periods.

f. All subsequent quarterly violation rate calculations must use the same methodology as stated in this paragraph unless FRA authorizes another methodology.

2. The ASM should then be initiated for each crossing. Train horns are still being sounded during this time period.

3. In the calendar quarter following initiation of the ASM, determine a new quarterly violation rate using the same methodology as in paragraph (1) above.

4. Determine the violation rate reduction for each crossing by the following formula: Violation rate reduction = (new rate – baseline rate)/baseline rate

5. Determine the effectiveness rate of the ASM for each crossing by multiplying the violation rate reduction by .78.

6. Using the effectiveness rates for each grade crossing treated by an ASM, determine the Quiet Zone Risk Index. If and when the Quiet Zone Risk Index for the proposed quiet zone has been reduced to a level at, or below, the Risk Index With Horns or the Nationwide Significant Risk Threshold, the public authority may apply to FRA for approval of the proposed quiet zone. Upon receiving written approval of the quiet zone application from FRA, the public authority may then proceed with notifications and implementation of the quiet zone.

7. Violation rates must be monitored for the next two calendar quarters and every second quarter thereafter. If, after five years from the implementation of the quiet zone, the violation rate for any quarter has never exceeded the violation rate that was used to determine the effectiveness rate that was approved by FRA, violation rates may be monitored for one quarter per year.

8. In the event that the violation rate is ever greater than the violation rate used to determine the effectiveness rate that was approved by FRA, the public authority may continue the quiet zone for another quarter. If, in the second quarter the violation rate is still greater than the rate used to determine the effectiveness rate that was approved by FRA, a new effectiveness rate must be calculated and the Quiet Zone Risk Index recalculated using the new effectiveness rate. If the new Quiet Zone Risk Index indicates that the ASM no longer fully compensates for the lack of a train horn, or that the risk level is equal to, or exceeds the National Significant Risk Threshold, the procedures for dealing with unacceptable effectiveness after establishment of a quiet zone should be followed.

### III. Engineering ASMs

A. Engineering improvements, other than modified SSMs, may be used in the creation of a Quiet Zone. These engineering improvements, which will be treated as ASMs under this appendix, may include improvements that address underlying geometric conditions, including sight distance, that are the source of increased risk at the crossing.

B. The effectiveness of an Engineering ASM will be determined as follows:

1. Establish the quarterly (three months) baseline violation rate for the crossing at which the Engineering ASM will be applied.

a. A violation in this context refers to a motorist not complying with the automatic

warning devices at the crossing (not stopping for the flashing lights and driving over the crossing after the gate arms have started to descend, or driving around the lowered gate arms). A violation does not have to result in a traffic citation for the violation to be considered.

b. Violation data may be obtained by any method that can be shown to provide a statistically valid sample. This may include the use of video cameras, other technologies (e.g. inductive loops), or manual observations that capture driver behavior when the automatic warning devices are operating.

c. If data is not collected continuously during the quarter, sufficient detail must be provided in the application in order to validate that the methodology used results in a statistically valid sample. FRA recommends that at least a minimum of 600 samples (one sample equals one gate activation) be collected during the baseline and subsequent quarterly sample periods.

d. The sampling methodology must take measures to avoid biases in their sampling technique. Potential sampling biases could include: Sampling on certain days of the week but not others; sampling during certain times of the day but not others; sampling immediately after implementation of an ASM while the public is still going through an adjustment period; or applying one sample method for the baseline rate and another for the new rate.

e. The baseline violation rate should be expressed as the number of violations per gate activations in order to normalize for unequal gate activations during subsequent data collection periods.

f. All subsequent quarterly violation rate calculations must use the same methodology as stated in this paragraph unless FRA authorizes another methodology.

2. The Engineering ASM should be initiated at the crossing. Train horns are still being sounded during this time period.

3. In the calendar quarter following initiation of the Engineering ASM, determine a new quarterly violation rate using the same methodology as in paragraph (1) above.

4. Determine the violation rate reduction for the crossing by the following formula:

Violation rate reduction = (new rate – baseline rate)/baseline rate

5. Using the Engineering ASM effectiveness rate, determine the Quiet Zone Risk Index. If and when the Quiet Zone Risk Index for the proposed quiet zone has been reduced to a risk level at or below the Risk Index With Horns or the Nationwide Significant Risk Threshold, the public authority may apply to FRA for approval of the quiet zone. Upon receiving written approval of the quiet zone application from FRA, the public authority may then proceed with notifications and implementation of the quiet zone.

6. Violation rates must be monitored for the next two calendar quarters. Unless otherwise provided in FRA's notification of quiet zone approval, if the violation rate for these two calendar quarters does not exceed the violation rate that was used to determine the effectiveness rate that was approved by FRA, the public authority can cease violation rate monitoring.

7. In the event that the violation rate over either of the next two calendar quarters are greater than the violation rate used to determine the effectiveness rate that was approved by FRA, the public authority may continue the quiet zone for a third calendar quarter. However, if the third calendar quarter violation rate is also greater than the rate used to determine the effectiveness rate that was approved by FRA, a new effectiveness rate must be calculated and the Quiet Zone Risk Index re-calculated using the new effectiveness rate. If the new Quiet Zone Risk Index exceeds the Risk Index With Horns and the Nationwide Significant Risk Threshold, the procedures for dealing with unacceptable effectiveness after establishment of a quiet zone should be followed.

## Appendix C to Part 222—Guide to Establishing Quiet Zones

### Introduction

This Guide to Establishing Quiet Zones (Guide) is divided into five sections in order to address the variety of methods and conditions that affect the establishment of quiet zones under this rule.

Section I of the Guide provides an overview of the different ways in which a quiet zone may be established under this rule. This includes a brief discussion on the safety thresholds that must be attained in order for train horns to be silenced and the relative merits of each. It also includes the two general methods that may be used to reduce risk in the proposed quiet zone, and the different impacts that the methods have on the quiet zone implementation process. This section also discusses Partial (e.g. night time only quiet zones) and Intermediate Quiet Zones. An Intermediate Quiet Zone is one where horn restrictions were in place after October 9, 1996, but as of December 18, 2003.

Section II of the Guide provides information on establishing New Quiet Zones. A New Quiet Zone is one at which train horns are currently being sounded at crossings. The Public Authority Designation and Public Authority Application to FRA methods will be discussed in depth.

Section III of the Guide provides information on establishing Pre-Rule Quiet Zones. A Pre-Rule Quiet Zone is one where train horns were not routinely sounded as of October 9, 1996 and December 18, 2003. The differences between New and Pre-Rule Quiet Zones will be explained. Public Authority Designation and Public Authority Application to FRA methods also apply to Pre-Rule Quiet Zones.

Section IV of the Guide deals with the required notifications that must be provided by public authorities when establishing both New and continuing Pre-Rule or Intermediate Quiet Zones.

Section V of the Guide provides examples of quiet zone implementation.

### Section I—Overview

In order for a quiet zone to be qualified under this rule, it must be shown that the lack of the train horn does not present a significant risk with respect to loss of life or serious personal injury, or that the significant

risk has been compensated for by other means. The rule provides four basic ways in which a quiet zone may be established. Creation of both New Quiet Zones and Pre-Rule Quiet Zones are based on the same general guidelines; however, there are a number of differences that will be noted in the discussion on Pre-Rule Quiet Zones.

#### A. Qualifying Conditions

(1) One of the following four conditions or scenarios must be met in order to show that the lack of the train horn does not present a significant risk, or that the significant risk has been compensated for by other means:

- a. One or more SSMs as identified in appendix A are installed at each public crossing in the quiet zone; or
- b. The Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold without implementation of additional safety measures at any crossings in the quiet zone; or
- c. Additional safety measures are implemented at selected crossings resulting in the Quiet Zone Risk Index being reduced to a level equal to, or less than, the Nationwide Significant Risk Threshold; or
- d. Additional safety measures are taken at selected crossings resulting in the Quiet Zone Risk Index being reduced to at least the level of the Risk Index With Horns (that is, the risk that would exist if train horns were sounded at every public crossing in the quiet zone).

(2) It is important to consider the implications of each approach before deciding which one to use. If a quiet zone is qualified based on reference to the Nationwide Significant Risk Threshold (i.e. the Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold—see the second and third scenarios above), then an annual review will be done by FRA to determine if the Quiet Zone Risk Index remains equal to, or less than, the Nationwide Significant Risk Threshold. Since the Nationwide Significant Risk Threshold and the Quiet Zone Risk Index may change from year to year, there is no guarantee that the quiet zone will remain qualified. The circumstances that cause the disqualification may not be subject to the control of the public authority. For example, an overall national improvement in safety at gated crossings may cause the Nationwide Significant Risk Threshold to fall. This may cause the Quiet Zone Risk Index to become greater than the Nationwide Significant Risk Threshold. If the quiet zone is no longer qualified, then the public authority will have to take additional measures, and may incur additional costs that might not have been budgeted, to once again lower the Quiet Zone Risk Index to at least the Nationwide Significant Risk Threshold in order to retain the quiet zone. Therefore, while the initial cost to implement a quiet zone under the second or third scenario may be lower than the other options, these scenarios also carry a degree of uncertainty about the quiet zone's continued existence.

(3) The use of the first or fourth scenarios reduces the risk level to at least the level that would exist if train horns were sounding in the quiet zone. These methods may have higher initial costs because more safety

measures may be necessary in order to achieve the needed risk reduction. Despite the possibility of greater initial costs, there are several benefits to these methods. The installation of SSMs at every crossing will provide the greatest safety benefit of any of the methods that may be used to initiate a quiet zone. With both of these methods (first and fourth scenarios), the public authority will never need to be concerned about the Nationwide Significant Risk Threshold, annual reviews of the Quiet Zone Risk Index, or failing to be qualified because the Quiet Zone Risk Index is higher than the Nationwide Significant Risk Threshold. Public authorities are strongly encouraged to carefully consider both the pros and cons of all of the methods and to choose the method that will best meet the needs of its citizens by providing a safer and quieter community.

(4) For the purposes of this Guide, the term "Risk Index with Horns" is used to represent the level of risk that would exist if train horns were sounded at every public crossing in the proposed quiet zone. If a public authority decides that it would like to fully compensate for the lack of a train horn and not install SSMs at each public crossing in the quiet zone, it must reduce the Quiet Zone Risk Index to a level that is equal to, or less than, the Risk Index with Horns. The Risk Index with Horns is similar to the Nationwide Significant Risk Threshold in that both are targets that must be reached in order to establish a quiet zone under the rule. Quiet zones that are established by reducing the Quiet Zone Risk Index to at least the level of the Nationwide Significant Risk Threshold will be reviewed annually by FRA to determine if they still qualify under the rule to retain the quiet zone. Quiet zones that are established by reducing the Quiet Zone Risk Index to at least the level of the Risk Index with Horns will not be subject to annual reviews.

(5) The use of FRA's web-based Quiet Zone Calculator is recommended to aid in the decision making process (<http://www.fra.dot.gov/us/content/1337>). The Quiet Zone Calculator will allow the public authority to consider a variety of options in determining which SSMs make the most sense. It will also perform the necessary calculations used to determine the existing risk level and whether enough risk has been mitigated in order to create a quiet zone under this rule.

#### B. Risk Reduction Methods

FRA has established two general methods to reduce risk in order to have a quiet zone qualify under this rule. The method chosen impacts the manner in which the quiet zone is implemented.

1. *Public Authority Designation (SSMs)*—The Public Authority Designation method (§ 222.39(a)) involves the use of SSMs (see appendix A) at some or all crossings within the quiet zone. The use of only SSMs to reduce risk will allow a public authority to designate a quiet zone without approval from FRA. If the public authority installs SSMs at every crossing within the quiet zone, it need not demonstrate that they will reduce the risk sufficiently in order to qualify under the rule since FRA has already assessed the ability of

the SSMs to reduce risk. In other words, the Quiet Zone Calculator does not need to be used. However, if only SSMs are installed within the quiet zone, but not at every crossing, the public authority must calculate that sufficient risk reduction will be accomplished by the SSMs. Once the improvements are made, the public authority must make the required notifications (which includes a copy of the report generated by the Quiet Zone Calculator showing that the risk in the quiet zone has been sufficiently reduced), and the quiet zone may be implemented. FRA does not need to approve the plan as it has already assessed the ability of the SSMs to reduce risk.

**2. Public Authority Application to FRA (ASMs)**—The Public Authority Application to FRA method (§ 222.39(b)) involves the use of ASMs (see appendix B). ASMs include modified SSMs that do not fully comply with the provisions found in appendix A (e.g., shorter than required traffic channelization devices), non-engineering ASMs (e.g., programmed law enforcement), and engineering ASMs (i.e., engineering improvements other than modified SSMs). If the use of ASMs (or a combination of ASMs and SSMs) is elected to reduce risk, then the public authority must provide a Notice of Intent and then apply to FRA for approval of the quiet zone. The application must contain sufficient data and analysis to confirm that the proposed ASMs do indeed provide the necessary risk reduction. FRA will review the application and will issue a formal approval if it determines that risk is reduced to a level that is necessary in order to comply with the rule. Once FRA approval has been received and the safety measures fully implemented, the public authority would then provide a Notice of Quiet Zone Establishment and the quiet zone may be implemented. The use of non-engineering ASMs will require continued monitoring and analysis throughout the existence of the quiet zone to ensure that risk continues to be reduced.

**3. Calculating Risk Reduction**—The following should be noted when calculating risk reductions in association with the establishment of a quiet zone. This information pertains to both New Quiet Zones and Pre-Rule Quiet Zones and to the Public Authority Designation and Public Authority Application to FRA methods.

**Crossing closures:** If any public crossing within the quiet zone is proposed to be closed, include that crossing when calculating the Risk Index with Horns. The effectiveness of a closure is 1.0. However, be sure to increase the traffic counts at other crossings within the quiet zone and recalculate the risk indices for those crossings that will handle the traffic diverted from the closed crossing. It should be noted that crossing closures that are already in existence are not considered in the risk calculations.

**Example:** A proposed New Quiet Zone contains four crossings: A, B, C and D streets. A, B and D streets are equipped with flashing lights and gates. C Street is a passive crossbuck crossing with a traffic count of 400 vehicles per day. It is decided that C Street will be closed as part of the project. Compute the risk indices for all four streets. The

calculation for C Street will utilize flashing lights and gates as the warning device. Calculate the Crossing Corridor Risk Index by averaging the risk indices for all four of the crossings. This value will also be the Risk Index with Horns since train horns are currently being sounded. To calculate the Quiet Zone Risk Index, first re-calculate the risk indices for B and D streets by increasing the traffic count for each crossing by 200. (Assume for this example that the public authority decided that the traffic from C Street would be equally divided between B and D streets.) Increase the risk indices for A, B and D streets by 66.8% and divide the sum of the three remaining crossings by four. This is the initial Quiet Zone Risk Index and accounts for the risk reduction caused by closing C Street.

**Grade Separation:** Grade separated crossings that were in existence before the creation of a quiet zone are not included in any of the calculations. However, any public crossings within the quiet zone that are proposed to be treated by grade separation should be treated in the same manner as crossing closures. Highway traffic that may be diverted from other crossings within the quiet zone to the new grade separated crossing should be considered when computing the Quiet Zone Risk Index.

**Example:** A proposed New Quiet Zone contains four crossings: A, B, C and D streets. All streets are equipped with flashing lights and gates. C Street is a busy crossing with a traffic count of 25,000 vehicles per day. It is decided that C Street will be grade separated as part of the project and the existing at-grade crossing closed. Compute the risk indices for all four streets. Calculate the Crossing Corridor Risk Index, which will also be the Risk Index with Horns, by averaging the risk indices for all four of the crossings. To calculate the Quiet Zone Risk Index, first re-calculate the risk indices for B and D streets by decreasing the traffic count for each crossing by 1,200. (The public authority decided that 2,400 motorists will decide to use the grade separation at C Street in order to avoid possible delays caused by passing trains.) Increase the risk indices for A, B and D streets by 66.8% and divide the sum of the three remaining crossings by four. This is the initial Quiet Zone Risk Index and accounts for the risk reduction caused by the grade separation at C Street.

**Pre-Existing SSMs:** Risk reduction credit may be taken by a public authority for a SSM that was previously implemented and is currently in place in the quiet zone. If an existing improvement meets the criteria for a SSM as provided in appendix A, the improvement is deemed a Pre-Existing SSM. Risk reduction credit is obtained by inflating the Risk Index With Horns to show what the risk would have been at the crossing if the pre-existing SSM had not been implemented. Crossing closures and grade separations that occurred prior to the implementation of the quiet zone are not Pre-Existing SSMs and do not receive any risk reduction credit.

**Example 1**—A proposed New Quiet Zone has one crossing that is equipped with flashing lights and gates and has medians 100 feet in length on both sides of the crossing. The medians conform to the requirements in

appendix A and qualify as a Pre-Existing SSM. The risk index as calculated for the crossing is 10,000. To calculate the Risk Index With Horns for this crossing, you divide the risk index by difference between one and the effectiveness rate of the pre-existing SSM ( $10,000 \div (1-0.75) = 40,000$ ). This value (40,000) would then be averaged in with the risk indices of the other crossings to determine the proposed quiet zone's Risk Index With Horns. To calculate the Quiet Zone Risk Index, the original risk index is increased by 66.8% to account for the additional risk attributed to the absence of the train horn ( $10,000 \times 1.668 = 16,680$ ). This value (16,680) is then averaged into the risk indices of the other crossings that have also been increased by 66.8%. The resulting average is the Quiet Zone Risk Index.

**Example 2**—A Pre-Rule Quiet Zone consisting of four crossings has one crossing that is equipped with flashing lights and gates and has medians 100 feet in length on both sides of the crossing. The medians conform to the requirements in appendix A and qualify as a Pre-Existing SSM. The risk index as calculated for the crossing is 20,000. To calculate the Risk Index With Horns for this crossing, first reduce the risk index by 40 percent to reflect the risk reduction that would be achieved if train horns were routinely sounded ( $20,000 \times 0.6 = 12,000$ ). Next, divide the resulting risk index by difference between one and the effectiveness rate of the pre-existing SSM ( $12,000 \div (1 - 0.75) = 48,000$ ). This value (48,000) would then be averaged with the adjusted risk indices of the other crossings to determine the pre-rule quiet zone's Risk Index With Horns. To calculate the Quiet Zone Risk Index, the original risk index (20,000) is then averaged into the risk original indices of the other crossings. The resulting average is the Quiet Zone Risk Index.

**Pre-Existing Modified SSMs:** Risk reduction credit may be taken by a public authority for a modified SSM that was previously implemented and is currently in place in the quiet zone. Modified SSMs are Alternative Safety Measures which must be approved by FRA. If an existing improvement is approved by FRA as a modified SSM as provided in appendix B, the improvement is deemed a Pre-Existing Modified SSM. Risk reduction credit is obtained by inflating the Risk Index With Horns to show what the risk would have been at the crossing if the pre-existing SSM had not been implemented. The effectiveness rate of the modified SSM will be determined by FRA. The public authority may provide information to FRA to be used in determining the effectiveness rate of the modified SSM. Once an effectiveness rate has been determined, follow the procedure previously discussed for Pre-Existing SSMs to determine the risk values that will be used in the quiet zone calculations.

**Wayside Horns:** Crossings with wayside horn installations will be treated as a one for one substitute for the train horn and are not to be included when calculating the Crossing Corridor Risk Index, the Risk Index with Horns or the Quiet Zone Risk Index.

**Example**—A proposed New Quiet Zone contains four crossings: A, B, C and D streets. All streets are equipped with flashing lights

and gates. It is decided that C Street will have a wayside horn installed. Compute the risk indices for A, B and D streets. Since C Street is being treated with a wayside horn, it is not included in the calculation of risk. Calculate the Crossing Corridor Risk Index by averaging the risk indices for A, B and D streets. This value is also the Risk Index with Horns. Increase the risk indices for A, B and D streets by 66.8% and average the results. This is the initial Quiet Zone Risk Index for the proposed quiet zone.

### C. Partial Quiet Zones

A Partial Quiet Zone is a quiet zone in which locomotive horns are not routinely sounded at public crossings for a specified period of time each day. For example, a quiet zone during only the nighttime hours would be a partial quiet zone. Partial quiet zones may be either New or Pre-Rule and follow the same rules as 24 hour quiet zones. New Partial Quiet Zones must be in effect during the hours of 10 p.m. to 7 a.m. All New Partial Quiet Zones must comply with all of the requirements for New Quiet Zones. For example, all public grade crossings that are open during the time that horns are silenced must be equipped with flashing lights and gates that are equipped with constant warning time (where practical) and power out indicators. Risk is calculated in exactly the same manner as for New Quiet Zones. The Quiet Zone Risk Index is calculated for the entire 24-hour period, even though the train horn will only be silenced during the hours of 10 p.m. to 7 a.m.

A Pre-Rule Partial Quiet Zone is a partial quiet zone at which train horns were not sounding as of October 9, 1996 and on December 18, 2003. All of the regulations that pertain to Pre-Rule Quiet Zones also pertain to Pre-Rule Partial Quiet Zones. The Quiet Zone Risk Index is calculated for the entire 24-hour period for Pre-Rule Partial Quiet Zones, even though train horns are only silenced during the nighttime hours. Pre-Rule Partial Quiet Zones may qualify for automatic approval in the same manner as Pre-Rule Quiet Zones with one exception. If the Quiet Zone Risk Index is less than twice the National Significant Risk Threshold, and there have been no relevant collisions during the time period when train horns are silenced, then the Pre-Rule Partial Quiet Zone is automatically qualified. In other words, a relevant collision that occurred during the period of time that train horns were sounded will not disqualify a Pre-Rule Partial Quiet Zone that has a Quiet Zone Risk Index that is less than twice the National Significant Risk Index. Pre-Rule Partial Quiet Zones must provide the notification as required in § 222.43 in order to keep train horns silenced. A Pre-Rule Partial Quiet Zone may be converted to a 24 hour New Quiet Zone by complying with all of the New Quiet Zone regulations.

### D. Intermediate Quiet Zones

An Intermediate Quiet Zone is one where horn restrictions were in place after October 9, 1996, but as of December 18, 2003 (the publication date of the Interim Final Rule). Intermediate Quiet Zones and Intermediate Partial Quiet Zones will be able to keep train

horns silenced until June 24, 2006, provided notification is made per § 222.43. This will enable public authority to have additional time to make the improvement necessary to come into compliance with the rule. Intermediate Quiet Zones must conform to all the requirements for New Quiet Zones by June 24, 2006. Other than having the horn silenced for an additional year, Intermediate Quiet Zones are treated exactly like New Quiet Zones.

### Section II—New Quiet Zones

FRA has established several approaches that may be taken in order to establish a New Quiet Zone under this rule. Please see the preceding discussions on “Qualifying Conditions” and “Risk Reduction Methods” to assist in the decision-making process on which approach to take. This following discussion provides the steps necessary to establish New Quiet Zones and includes both the Public Authority Designation and Public Authority Application to FRA methods. It must be remembered that in a New Quiet Zone all public crossings must be equipped with flashing lights and gates. The requirements are the same regardless of whether a 24-hour or partial quiet zone is being created.

#### A. Requirements for Both Public Authority Designation and Public Authority Application

The following steps are necessary when establishing a New Quiet Zone. This information pertains to both the Public Authority Designation and Public Authority Application to FRA methods.

1. The public authority must provide a written Notice of Intent (§ 222.43(a)(1) and § 222.43(b)) to the railroads that operate over the proposed quiet zone, the State agency responsible for highway and road safety and the State agency responsible for grade crossing safety. The purpose of this Notice of Intent is to provide an opportunity for the railroads and the State agencies to provide comments and recommendations to the public authority as it is planning the quiet zone. They will have 60 days to provide these comments to the public authority. The quiet zone cannot be created unless the Notice of Intent has been provided. FRA encourages public authorities to provide the required Notice of Intent early in the quiet zone development process. The railroads and State agencies can provide an expertise that very well may not be present within the public authority. FRA believes that it will be very useful to include these organizations in the planning process. For example, including railroads and State agencies in the inspections of the crossing will help ensure accurate Inventory information for the crossings. The railroad can provide information on whether the flashing lights and gates are equipped with constant warning time and power out indicators. Pedestrian crossings and private crossings with public access, industrial or commercial use that are within the quiet zone must have a diagnostic team review and be treated according to the team’s recommendations. Railroads and the State agency responsible for grade crossing safety must be invited to

the diagnostic team review. Note: Please see Section IV for details on the requirements of a Notice of Intent.

2. Determine all public, private and pedestrian at-grade crossings that will be included within the quiet zone. Also, determine any existing grade-separated crossings that fall within the quiet zone. Each crossing must be identified by the U.S. DOT Crossing Inventory number and street or highway name. If a crossing does not have a U.S. DOT Crossing Inventory number, then contact FRA’s Office of Safety (202–493–6299) for assistance.

3. Ensure that the quiet zone will be at least one-half mile in length. (§ 222.35(a)(1)) If more than one New Quiet Zone or New Partial Quiet Zone will be created within a single political jurisdiction, ensure that each New Quiet Zone or New Partial Quiet Zone will be separated by at least one public highway-rail grade crossing. (§ 222.35(a)(1)(iii))

4. A complete and accurate Grade Crossing Inventory Form must be on file with FRA for all crossings (public, private and pedestrian) within the quiet zone. An inspection of each crossing in the proposed quiet zone should be performed and the Grade Crossing Inventory Forms updated, as necessary, to reflect the current conditions at each crossing.

5. Every public crossing within the quiet zone must be equipped with active warning devices comprising both flashing lights and gates. The warning devices must be equipped with power out indicators. Constant warning time circuitry is also required unless existing conditions would prevent the proper operation of the constant warning time circuitry. FRA recommends that these automatic warning devices also be equipped with at least one bell to provide an audible warning to pedestrians. If the warning devices are already equipped with a bell (or bells), the bells may not be removed or deactivated. The plans for the quiet zone may be made assuming that flashing lights and gates are at all public crossings; however the quiet zone may not be implemented until all public crossings are actually equipped with the flashing lights and gates. (§§ 222.35(b)(1) and 222.35(b)(2))

6. Private crossings must have cross-bucks and “STOP” signs on both approaches to the crossing. Private crossings with public access, industrial or commercial use must have a diagnostic team review and be treated according to the team’s recommendations. The public authority must invite the State agency responsible for grade crossing safety and all affected railroads to participate in the diagnostic review. (§§ 222.25(b) and (c))

7. Each highway approach to every public and private crossing must have an advance warning sign (in accordance with the MUTCD) that advises motorists that train horns are not sounded at the crossing, unless the public or private crossing is equipped with a wayside horn. (§ 222.35(c))

8. Each pedestrian crossing must be reviewed by a diagnostic team and equipped or treated in accordance with the recommendation of the diagnostic team. The public authority must invite the State agency responsible for grade crossing safety and all

affected railroads to participate in the diagnostic review. At a minimum, each approach to every pedestrian crossing must be equipped with a sign that conforms to the MUTCD and advises pedestrians that train horns are not sounded at the crossing. (§ 222.27)

#### *B. New Quiet Zones—Public Authority Designation*

Once again it should be remembered that all public crossings must be equipped with automatic warning devices consisting of flashing lights and gates in accordance with § 222.35(b). In addition, one of the following conditions must be met in order for a public authority to designate a new quiet zone without FRA approval:

- a. One or more SSMs as identified in appendix A are installed at *each* public crossing in the quiet zone (§ 222.39(a)(1)); or
- b. The Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold without SSMs installed at any crossings in the quiet zone (§ 222.39(a)(2)(i)); or
- c. SSMs are installed at selected crossings, resulting in the Quiet Zone Risk Index being reduced to a level equal to, or less than, the Nationwide Significant Risk Threshold (§ 222.39(a)(2)(ii)); or
- d. SSMs are installed at selected crossings, resulting in the Quiet Zone Risk Index being reduced to a level of risk that would exist if the horn were sounded at every crossing in the quiet zone (i.e., the Risk Index with Horns) (§ 222.39(a)(3)).

Steps necessary to establish a New Quiet Zone using the Public Authority Application to FRA method:

1. If one or more SSMs as identified in appendix A are installed at each public crossing in the quiet zone, the requirements for a public authority designation quiet zone will have been met. It is not necessary for the same SSM to be used at each crossing. However, before any improvements are implemented, the public authority must provide a Notice of Intent, which will trigger a 60-day comment period. During the 60-day comment period, railroads operating within the proposed quiet zone and State agencies responsible for grade crossing, highway and road safety may submit comments on the proposed quiet zone improvements to the public authority. Once the necessary improvements have been installed, Notice of Quiet Zone Establishment shall be provided and the quiet zone implemented in accordance with the rule. If SSMs are not installed at each public crossing, proceed on to Step 2 and use the risk reduction method.

2. To begin, calculate the risk index for each public crossing within the quiet zone (See appendix D. FRA's web-based Quiet Zone Calculator may be used to do this calculation). If flashing lights and gates have to be installed at any public crossings, calculate the risk indices for such crossings as if lights and gates were installed. (**Note:** Flashing lights and gates must be installed prior to initiation of the quiet zone.) If the Inventory record does not reflect the actual conditions at the crossing, be sure to use the conditions that currently exist when calculating the risk index. Note: Private

crossings and pedestrian crossings are not included when computing the risk for the proposed quiet zone.

3. The Crossing Corridor Risk Index is then calculated by averaging the risk index for each public crossing within the proposed quiet zone. Since train horns are routinely being sounded for crossings in the proposed quiet zone, this value is also the Risk Index with Horns.

4. In order to calculate the initial Quiet Zone Risk Index, first adjust the risk index at each public crossing to account for the increased risk due to the absence of the train horn. The absence of the horn is reflected by an increased risk index of 66.8% at gated crossings. The initial Quiet Zone Risk Index is then calculated by averaging the increased risk index for each public crossing within the proposed quiet zone. At this point the Quiet Zone Risk Index will equal the Risk Index with Horns multiplied by 1.668.

5. Compare the Quiet Zone Risk Index to the Nationwide Significant Risk Threshold. If the Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold, then the public authority may decide to designate a quiet zone and provide the Notice of Intent, followed by the Notice of Quiet Zone Establishment. With this approach, FRA will annually recalculate the Nationwide Significant Risk Threshold and the Quiet Zone Risk Index. If the Quiet Zone Risk Index for the quiet zone rises above the Nationwide Significant Risk Threshold, FRA will notify the Public Authority so that appropriate measures can be taken. (See § 222.51(a)).

6. If the Quiet Zone Risk Index is greater than the Nationwide Significant Risk Threshold, then select an appropriate SSM for a crossing. Reduce the inflated risk index calculated in Step 4 for that crossing by the effectiveness rate of the chosen SSM. (See appendix A for the effectiveness rates for the various SSMs). Recalculate the Quiet Zone Risk Index by averaging the revised inflated risk index with the inflated risk indices for the other public crossings. If this new Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold, the quiet zone would qualify for public authority designation. If the Quiet Zone Risk Index is still higher than the Nationwide Significant Risk Threshold, treat another public crossing with an appropriate SSM and repeat the process until the Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold. Once this result is obtained, the quiet zone will qualify for establishment by public authority designation. Early in the quiet zone development process, a Notice of Intent should be provided by the public authority, which will trigger a 60-day comment period. During this 60-day comment period, railroads operating within the proposed quiet zone and State agencies responsible for grade crossing, highway and road safety may provide comments on the proposed quiet zone improvements described in the Notice of Intent. Once all the necessary safety improvements have been implemented, Notice of Quiet Zone Establishment must be provided. With this approach, FRA will annually recalculate the Nationwide

Significant Risk Threshold and the Quiet Zone Risk Index. If the Quiet Zone Risk Index for the quiet zone rises above the Nationwide Significant Risk Threshold, FRA will notify the public authority so that appropriate measures can be taken. (See § 222.51(a)).

7. If the public authority wishes to reduce the risk of the quiet zone to the level of risk that would exist if the horn were sounded at every crossing within the quiet zone, the public authority should calculate the initial Quiet Zone Risk Index as in Step 4. The objective is to now reduce the Quiet Zone Risk Index to the level of the Risk Index with Horns by adding SSMs at the crossings. The difference between the Quiet Zone Risk Index and the Risk Index with Horns is the amount of risk that will have to be reduced in order to fully compensate for lack of the train horn. The use of the Quiet Zone Calculator will aid in determining which SSMs may be used to reduce the risk sufficiently. Follow the procedure stated in Step 6, except that the Quiet Zone Risk Index must be equal to, or less than, the Risk Index with Horns instead of the Nationwide Significant Risk Threshold. Once this risk level is attained, the quiet zone will qualify for establishment by public authority designation. Early in the quiet zone development process, a Notice of Intent should be provided by the public authority, which will trigger a 60-day comment period. During this 60-day comment period, railroads operating within the proposed quiet zone and State agencies responsible for grade crossing, highway and road safety may provide comments on the proposed quiet zone improvements described in the Notice of Intent. Once all the necessary safety improvements have been implemented, Notice of Quiet Zone Establishment must be provided. One important distinction with this option is that the public authority will never need to be concerned with the Nationwide Significant Risk Threshold or the Quiet Zone Risk Index. The rule's intent is to make the quiet zone as safe as if the train horns were sounding. If this is accomplished, the public authority may designate the crossings as a quiet zone and need not be concerned with possible fluctuations in the Nationwide Significant Risk Threshold or annual risk reviews.

#### *C. New Quiet Zones—Public Authority Application to FRA*

A public authority must apply to FRA for approval of a quiet zone under three conditions. First, if any of the SSMs selected for the quiet zone do not fully conform to the design standards set forth in appendix A. These are referred to as modified SSMs in appendix B. Second, when programmed law enforcement, public education and awareness programs, or photo enforcement is used to reduce risk in the quiet zone, these are referred to as non-engineering ASMs in appendix B. It should be remembered that non-engineering ASMs will require periodic monitoring as long as the quiet zone is in existence. Third, when engineering ASMs are used to reduce risk. Please see appendix B for detailed explanations of ASMs and the periodic monitoring of non-engineering ASMs.

The public authority is strongly encouraged to submit the application to FRA for review and comment before the appendix B treatments are initiated. This will enable FRA to provide comments on the proposed ASMs to help guide the application process. If non-engineering ASMs or engineering ASMs are proposed, the public authority also may wish to confirm with FRA that the methodology it plans to use to determine the effectiveness rates of the proposed ASMs is appropriate. A quiet zone that utilizes a combination of SSMs from appendix A and ASMs from appendix B must make a Public Authority Application to FRA. A complete and thoroughly documented application will help to expedite the approval process.

The following discussion is meant to provide guidance on the steps necessary to establish a new quiet zone using the Public Authority Application to FRA method. Once again it should be remembered that all public crossings must be equipped with automatic warning devices consisting of flashing lights and gates in accordance with § 222.35(b).

1. Gather the information previously mentioned in the section on "Requirements for both Public Authority Designation and Public Authority Application."

2. Calculate the risk index for each public crossing as directed in Step 2—Public Authority Designation.

3. Calculate the Crossing Corridor Risk Index, which is also the Risk Index with Horns, as directed in Step 3—Public Authority Designation.

4. Calculate the initial Quiet Zone Risk Index as directed in Step 4—Public Authority Designation.

5. Begin to reduce the Quiet Zone Risk Index through the use of ASMs and SSMs. Follow the procedure provided in Step 6—Public Authority Designation until the Quiet Zone Risk Index has been reduced to equal to, or less than, either the Nationwide Significant Risk Threshold or the Risk Index with Horns. (Remember that the public authority may choose which level of risk reduction is the most appropriate for its community.) Effectiveness rates for ASMs should be provided as follows:

a. Modified SSMs—Estimates of effectiveness for modified SSMs may be based upon adjustments from the effectiveness rates provided in appendix A or from actual field data derived from the crossing sites. The application must provide an estimated effectiveness rate and the rationale for the estimate.

b. Non-engineering ASMs—Effectiveness rates are to be calculated in accordance with the provisions of appendix B, paragraph II B.

c. Engineering ASMs—Effectiveness rates are to be calculated in accordance with the provisions of appendix B, paragraph III B.

6. Once it has been determined through analysis that the Quiet Zone Risk Index will be reduced to a level equal to, or less than, either the Nationwide Significant Risk Threshold or the Risk Index with Horns, the public authority must provide a Notice of Intent. The mailing of the Notice of Intent will trigger a 60-day comment period, during which railroads operating within the proposed quiet zone and State agencies responsible for grade crossing, highway and

road safety may provide comments on the proposed quiet zone improvements. After reviewing any comments received, the public authority may make application to FRA for a quiet zone under § 222.39(b). FRA will review the application to determine the appropriateness of the proposed effectiveness rates, and whether or not the proposed application demonstrates that the quiet zone meets the requirements of the rule. When submitting the application to FRA for approval, the application must contain the following (§ 222.39(b)(1)):

a. Sufficient detail concerning the present safety measures at all crossings within the proposed quiet zone. This includes current and accurate crossing inventory forms for each public, private, and pedestrian grade crossing.

b. Detailed information on the safety improvements that are proposed to be implemented at public, private and pedestrian grade crossings within the proposed quiet zone.

c. Membership and recommendations of the diagnostic team (if any) that reviewed the proposed quiet zone.

d. Statement of efforts taken to address comments submitted by affected railroads, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety, including a list of any objections raised by the railroads or State agencies.

e. A commitment to implement the proposed safety measures.

f. Demonstrate through data and analysis that the proposed measures will reduce the Quiet Zone Risk Index to a level equal to, or less than, either the Nationwide Significant Risk Threshold or the Risk Index with Horns.

g. A copy of the application must be provided to: All railroads operating over the public highway-rail grade crossings within the quiet zone; the highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone; the landowner having control over any private crossings within the quiet zone; the State agency responsible for highway and road safety; the State agency responsible for grade crossing safety; and the Associate Administrator. (§ 222.39(b)(3))

7. Upon receiving written approval from FRA of the quiet zone application, the public authority may then provide the Notice of Quiet Zone Establishment and implement the quiet zone. If the quiet zone is qualified by reducing the Quiet Zone Risk Index to a level at, or below, the Nationwide Significant Risk Threshold, FRA will annually recalculate the Nationwide Significant Risk Threshold and the Quiet Zone Risk Index. If the Quiet Zone Risk Index for the quiet zone rises above the Nationwide Significant Risk Threshold, FRA will notify the public authority so that appropriate measures can be taken. (See § 222.51(a))

**Note:** The provisions stated above for crossing closures, grade separations, wayside horns, pre-existing SSMs and pre-existing modified SSMs apply for Public Authority Application to FRA as well.

### Section III—Pre-Rule Quiet Zones

Pre-Rule Quiet Zones are treated slightly differently from New Quiet Zones in the rule. This is a reflection of the statutory requirement to "take into account the interest of communities that have in effect restrictions on the sounding of a locomotive horn at highway-rail grade crossings. \* \* \*" (49 U.S.C. 20153(i)) It also recognizes the historical experience of train horns not being sounded at Pre-Rule Quiet Zones.

#### Overview

Pre-Rule Quiet Zones that are not established by automatic approval (see discussion that follows) must meet the same requirements as New Quiet Zones as provided in § 222.39. In other words, risk must be reduced through the use of SSMs or ASMs so that the Quiet Zone Risk Index for the quiet zone has been reduced to either the risk level which would exist if locomotive horns sounded at all crossings in the quiet zone (*i.e.* the Risk Index with Horns) or to a risk level equal to, or less than, the Nationwide Significant Risk Threshold. There are four differences in the requirements between Pre-Rule Quiet Zones and New Quiet Zones that must be noted.

(1) First, since train horns have not been routinely sounded in the Pre-Rule Quiet Zone, it is not necessary to increase the risk indices of the public crossings to reflect the additional risk caused by the lack of a train horn. Since the train horn has already been silenced, the added risk caused by the lack of a horn is reflected in the actual collision history at the crossings. Collision history is an important part in the calculation of the severity risk indices. In other words, the Quiet Zone Risk Index is calculated by averaging the existing risk index for each public crossing without the need to increase the risk index by 66.8%. For Pre-Rule Quiet Zones, the Crossing Corridor Risk Index and the initial Quiet Zone Risk Index have the same value.

(2) Second, since train horns have been silenced at the crossings, it will be necessary to mathematically determine what the risk level would have been at the crossings if train horns had been routinely sounded. These revised risk levels then will be used to calculate the Risk Index with Horns. This calculation is necessary to determine how much risk must be eliminated in order to compensate for the lack of the train horn. This will allow the public authority to have the choice to reduce the risk to at least the level of the Nationwide Significant Risk Threshold or to fully compensate for the lack of the train horn.

To calculate the Risk Index with Horns, the first step is to divide the existing severity risk index for each crossing by the appropriate value as shown in Table 1. This process eliminates the risk that was caused by the absence of train horns. The table takes into account that the train horn has been found to produce different levels of effectiveness in preventing collisions depending on the type of warning device at the crossing. (Note: FRA's web-based Quiet Zone Calculator will perform this computation automatically for Pre-Rule Quiet Zones.) The Risk Index with Horns is the average of the revised risk



indices. The difference between the calculated Risk Index with Horns and the Quiet Zone Risk Index is the amount of risk that would have to be reduced in order to fully compensate for the lack of train horns.

TABLE 1.—RISK INDEX DIVISOR VALUES

	Passive	Flashing lights	Lights & gates
U.S .....	1.749	1.309	1.668

(3) The third difference is that credit is given for the risk reduction that is brought about through the upgrading of the warning devices at public crossings (§ 222.35(b)(3)). For New Quiet Zones, all crossings must be equipped with automatic warning devices consisting of flashing lights and gates. Crossings without gates must have gates installed. The severity risk index for that crossing is then calculated to establish the risk index that is used in the Risk Index with Horns. The Risk Index with Horns is then increased by 66.8% to adjust for the lack of the train horn. The adjusted figure is the initial Quiet Zone Risk Index. There is no credit received for the risk reduction that is attributable to warning device upgrades in New Quiet Zones.

For Pre-Rule Quiet Zones, the Risk Index with Horns is calculated from the initial risk indices which use the warning devices that are currently installed. If a public authority elects to upgrade an existing warning device as part of its quiet zone plan, the accident prediction value for that crossing will be recalculated based on the upgraded warning device. (Once again, FRA's web-based Quiet Zone Calculator can do the actual computation.) The new accident prediction value is then used in the severity risk index formula to determine the risk index for the crossing. This adjusted risk index is then used to compute the new Quiet Zone Risk Index. This computation allows the risk reduction attributed to the warning device upgrades to be used in establishing a quiet zone.

(4) The fourth difference is that Pre-Rule Quiet Zones have different minimum requirements under § 222.35. A Pre-Rule Quiet Zone may be less than one-half mile in length if that was its length as of October 9, 1996 (§ 222.35(a)(2)). A Pre-Rule Quiet Zone does not have to have automatic warning devices consisting of flashing lights and gates at every public crossing (§ 222.35(b)(3)). The existing crossing safety warning systems in place as of December 18, 2003 may be retained but cannot be downgraded. It also is not necessary for the automatic warning devices to be equipped with constant warning time devices or power out indicators; however, when the warning devices are upgraded, constant warning time and power out indicators will be required if reasonably practical (§ 222.35(b)(3)). Advance warning signs that notify the motorist that train horns are not sounded do not have to be installed on each approach to public, private, and pedestrian grade crossings within the quiet zone until June 24, 2008. (§§ 222.27(d) and 222.35(c)) Similarly, STOP

signs and crossbucks do not have to be installed on each approach to private crossings within the quiet zone until June 24, 2008. (§ 222.25(c)).

*A. Requirements for Both Public Authority Designation and Public Authority Application—Pre-Rule Quiet Zones*

The following is necessary when establishing a Pre-Rule Quiet Zone. This information pertains to Automatic Approval, the Public Authority Designation and Public Authority Application to FRA methods.

1. Determine all public, private and pedestrian at-grade crossings that will be included within the quiet zone. Also determine any existing grade separated crossings that fall within the quiet zone. Each crossing must be identified by the U.S. DOT Crossing Inventory number and street name. If a crossing does not have a U.S. DOT crossing number, then contact FRA for assistance.

2. Document the length of the quiet zone. It is not necessary that the quiet zone be at least one-half mile in length. Pre-Rule Quiet Zones may be shorter than one-half mile. However, the addition of a new crossing that is not a part of an existing Pre-Rule Quiet Zone to a quiet zone nullifies its pre-rule status, and the resulting New Quiet Zone must be at least one-half mile. The deletion of a crossing from a Pre-Rule Quiet Zone (except through closure or grade separation) must result in a quiet zone that is at least one-half mile in length. It is the intent of the rule to allow adjacent Pre-Rule Quiet Zones to be combined into one large pre-rule quiet zone if the respective public authorities desire to do so. (§ 222.35(a)(2))

3. A complete and accurate Grade Crossing Inventory Form must be on file with FRA for all crossings (public, private and pedestrian) within the quiet zone. An inspection of each crossing in the proposed quiet zone should be performed and the Grade Crossing Inventory Forms updated, as necessary, to reflect the current conditions at each crossing.

4. Pre-Rule Quiet Zones must retain, and may upgrade, the existing grade crossing safety warning systems. Unlike New Quiet Zones, it is not necessary that every public crossing within a Pre-Rule Quiet Zone be equipped with active warning devices comprising both flashing lights and gates. Existing warning devices need not be equipped with power out indicators and constant warning time circuitry. If warning devices are upgraded to flashing lights, or flashing lights and gates, the upgraded equipment must include, as is required for New Quiet Zones, power out indicators and constant warning time devices (if reasonably practical). (§ 222.35(b)(3))

5. By June 24, 2008, private crossings must have cross-bucks and "STOP" signs on both approaches to the crossing. (§ 222.25(c))

6. By June 24, 2008, each approach to a public, private, and pedestrian crossing must be equipped with an advance warning sign that conforms to the MUTCD and advises pedestrians and motorists that train horns are not sounded at the crossing. (§§ 222.27(d), 222.35(c))

7. It will be necessary for the public authority to provide a Notice of Quiet Zone

Continuation in order to prevent the resumption of locomotive horn sounding when the rule becomes effective. A detailed discussion of the requirements of § 222.43(c) is provided in Section IV of this appendix. The Notice of Quiet Zone Continuation must be provided to the appropriate parties by all Pre-Rule Quiet Zones that have not established quiet zones by automatic approval. This should be done no later than June 3, 2005 to ensure that train horns will not start being sounded on June 24, 2005. A Pre-Rule Quiet Zone may provide a Notice of Quiet Zone Continuation before it has determined whether or not it qualifies for automatic approval. Once it has been determined that the Pre-Rule Quiet Zone will be established by automatic approval, the Public Authority must provide the Notice of Quiet Zone Establishment. This must be accomplished no later than December 24, 2005. If the Pre-Rule Quiet Zone will not be established by automatic approval, the Notice of Quiet Zone Continuation will enable the train horns to be silenced until June 24, 2008. (Please refer to § 222.41(c) for more information.)

*B. Pre-Rule Quiet Zones—Automatic Approval*

In order for a Pre-Rule Quiet Zone to be established under this rule (§ 222.41(a)), one of the following conditions must be met:

a. One or more SSMs as identified in appendix A are installed at each public crossing in the quiet zone;

b. The Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold;

c. The Quiet Zone Risk Index is above the Nationwide Significant Risk Threshold but less than twice the Nationwide Significant Risk Threshold and there have been no relevant collisions at any public grade crossing within the quiet zone for the preceding five years; or

d. The Quiet Zone Risk Index is equal to, or less than, the Risk Index With Horns.

Additionally, the Pre-Rule Quiet Zone must be in compliance with the minimum requirements for quiet zones (§ 222.35) and the notification requirements in § 222.43.

The following discussion is meant to provide guidance on the steps necessary to determine if a Pre-Rule Quiet Zone qualifies for automatic approval.

1. All of the items listed in *Requirements for Both Public Authority Designation and Public Authority Application—Pre-Rule Quiet Zones* previously mentioned are to be accomplished. Remember that a Pre-Rule Quiet Zone may be less than one-half mile in length if that was its length as of October 9, 1996. Also, a Pre-Rule Quiet Zone does not have to have automatic warning devices consisting of flashing lights and gates at every public crossing.

2. If one or more SSMs as identified in appendix A are installed at each public crossing in the quiet zone, the quiet zone qualifies and the public authority may provide the Notice of Quiet Zone Establishment. If the Pre-Rule Quiet Zone does not qualify by this step, proceed on to the next step.

3. Calculate the risk index for each public crossing within the quiet zone (See appendix

D.) Be sure that the risk index is calculated using the formula appropriate for the type of warning device that is actually installed at the crossing. Unlike New Quiet Zones, it is not necessary to calculate the risk index using flashing lights and gates as the warning device at every public crossing. (FRA's web-based Quiet Zone Calculator may be used to simplify the calculation process). If the Inventory record does not reflect the actual conditions at the crossing, be sure to use the conditions that currently exist when calculating the risk index.

4. The Quiet Zone Risk Index is then calculated by averaging the risk index for each public crossing within the proposed quiet zone. (Note: The initial Quiet Zone Risk Index and the Crossing Corridor Risk Index are the same for Pre-Rule Quiet Zones.)

5. Compare the Quiet Zone Risk Index to the Nationwide Significant Risk Threshold. If the Quiet Zone Risk Index is equal to, or less than, the Nationwide Significant Risk Threshold, then the quiet zone qualifies, and the public authority may provide the Notice of Quiet Zone Establishment. With this approach, FRA will annually recalculate the Nationwide Significant Risk Threshold and the Quiet Zone Risk. If the Quiet Zone Risk Index for the quiet zone is found to be above the Nationwide Significant Risk Threshold, FRA will notify the public authority so that appropriate measures can be taken (See § 222.51(b)). If the Pre-Rule Quiet Zone is not established by this step, proceed on to the next step.

6. If the Quiet Zone Risk Index is above the Nationwide Significant Risk Threshold but less than twice the Nationwide Significant Risk Threshold and there have been no relevant collisions at any public grade crossing within the quiet zone for the preceding five years, then the quiet zone qualifies for automatic approval. However, in order to qualify on this basis, the public authority must provide a Notice of Quiet Zone Establishment by December 24, 2005. (Note: A relevant collision means a collision at a highway-rail grade crossing between a train and a motor vehicle, excluding the following: a collision resulting from an activation failure of an active grade crossing warning system; a collision in which there is no driver in the motor vehicle; or a collision where the highway vehicle struck the side of the train beyond the fourth locomotive unit or rail car.) With this approach, FRA will annually recalculate the Nationwide Significant Risk Threshold and the Quiet Zone Risk. If the Quiet Zone Risk Index for the quiet zone is above two times the Nationwide Significant Risk Threshold, or a relevant collision has occurred during the preceding year, FRA will notify the public authority so that appropriate measures can be taken (See § 222.51(b)).

If the Pre-Rule Quiet Zone is not established by automatic approval, continuation of the quiet zone may require implementation of SSMs or ASMs to reduce the Quiet Zone Risk Index for the quiet zone to a risk level equal to, or below, either the risk level which would exist if locomotive horns sounded at all crossings in the quiet zone (*i.e.* the Risk Index with Horns) or the Nationwide Significant Risk Threshold. This

is the same methodology used to create New Quiet Zones with the exception of the four differences previously noted. A review of the previous discussion on the two methods used to establish quiet zones may prove helpful in determining which would be the most beneficial to use for a particular Pre-Rule Quiet Zone.

#### *C. Pre-Rule Quiet Zones—Public Authority Designation*

The following discussion is meant to provide guidance on the steps necessary to establish a Pre-Rule Quiet Zone using the Public Authority Designation method.

1. The public authority must provide a Notice of Intent (§§ 222.43(a)(1) and 222.43(b)) to the railroads that operate within the proposed quiet zone, the State agency responsible for highway and road safety and the State agency responsible for grade crossing safety. This notice must be mailed by February 24, 2008, in order to continue existing locomotive horn restrictions beyond June 24, 2008 without interruption. The purpose of this Notice of Intent is to provide an opportunity for the railroads and the State agencies to provide comments and recommendations to the public authority as it is planning the quiet zone. They will have 60 days to provide these comments to the public authority. The Notice of Intent must be provided, if new SSMs or ASMs will be implemented within the quiet zone. FRA encourages public authorities to provide the required Notice of Intent early in the quiet zone development process. The railroads and State agencies can provide an expertise that very well may not be present within the public authority. FRA believes that it will be very useful to include these organizations in the planning process. For example, including them in the inspections of the crossing will help ensure accurate Inventory information for the crossings. Note: Please see Section IV for details on the requirements of a Notice of Intent.

2. All of the items listed in "Requirements for Both Public Authority Designation and Public Authority Application—Pre-Rule Quiet Zones" previously mentioned are to be accomplished. Remember that a Pre-Rule Quiet Zone may be less than one-half mile in length if that was its length as of October 9, 1996. Also, a Pre-Rule Quiet Zone does not have to have automatic warning devices consisting of flashing lights and gates at every public crossing.

3. Calculate the risk index for each public crossing within the quiet zone as in Step 3—Pre-Rule Quiet Zones—Automatic Approval.

4. The Crossing Corridor Risk Index is then calculated by averaging the risk index for each public crossing within the proposed quiet zone. Since train horns are not being sounded for crossings, this value is actually the initial Quiet Zone Risk Index.

5. Calculate Risk Index with Horns by the following:

a. For each public crossing, divide the risk index that was calculated in Step 2 by the appropriate value in Table 1. This produces the risk index that would have existed had the train horn been sounded.

b. Average these reduced risk indices together. The resulting average is the Risk Index with Horns.

6. Begin to reduce the Quiet Zone Risk Index through the use of SSMs or by upgrading existing warning devices. Follow the procedure provided in Step 6—Public Authority Designation until the Quiet Zone Risk Index has been reduced to a level equal to, or less than, either the Nationwide Significant Risk Threshold or the Risk Index with Horns. A public authority may elect to upgrade an existing warning device as part of its Pre-Rule Quiet Zone plan. When upgrading a warning device, the accident prediction value for that crossing must be recalculated for the new warning device. Determine the new risk index for the upgraded crossing by using the new accident prediction value in the severity risk index formula. This new risk index is then used to compute the new Quiet Zone Risk Index. (Remember that FRA's web-based Quiet Zone Calculator will be able to do the actual computations.) Once the Quiet Zone Risk Index has been reduced to a level equal to, or less than, either the Nationwide Significant Risk Threshold or the Risk Index with Horns, the quiet zone may be established by the Public Authority Designation method, and the public authority may provide the Notice of Quiet Zone Establishment once all the necessary improvements have been installed. If the quiet zone is established by reducing the Quiet Zone Risk Index to a risk level equal to, or less than, the Nationwide Significant Risk Threshold, FRA will annually recalculate the Nationwide Significant Risk Threshold and the Quiet Zone Risk. If the Quiet Zone Risk Index for the quiet zone rises above the Nationwide Significant Risk Threshold, FRA will notify the public authority so that appropriate measures can be taken (See § 222.51(b)).

7. If the Pre-Rule Quiet Zone will not be established before June 24, 2008, the public authority must file a detailed plan for quiet zone improvements with the Associate Administrator by June 24, 2008. By providing a Notice of Intent (see Step 1 above) and a detailed plan for quiet zone improvements, existing locomotive horn restrictions may continue until June 24, 2010. (If a comprehensive State-wide implementation plan and funding commitment are also provided and safety improvements are initiated within at least one Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone, existing locomotive horn restrictions may continue until June 24, 2013.) (See § 222.41(c) for more information.)

**Note:** The provisions stated above for crossing closures, grade separations, wayside horns, pre-existing SSMs and pre-existing modified SSMs apply for Public Authority Application to FRA as well.

#### *D. Pre-Rule Quiet Zones—Public Authority Application to FRA*

The following discussion is meant to provide guidance on the steps necessary to establish a Pre-Rule Quiet Zone using the Public Authority Application to FRA method.

1. The public authority must provide a Notice of Intent (§§ 222.43(a)(1) and 222.43(b)) to the railroads that operate within the proposed quiet zone, the State agency

responsible for highway and road safety and the State agency responsible for grade crossing safety. This notice must be mailed by February 24, 2008, in order to continue existing locomotive horn restrictions beyond June 24, 2008 without interruption. The purpose of this Notice of Intent is to provide an opportunity for the railroads and the State agencies to provide comments and recommendations to the public authority as it is planning the quiet zone. They will have 60 days to provide these comments to the public authority. The Notice of Intent must be provided, if new SSMs or ASMs will be implemented within the quiet zone. FRA encourages public authorities to provide the required Notice of Intent early in the quiet zone development process. The railroads and State agencies can provide an expertise that very well may not be present within the public authority. FRA believes that it will be very useful to include these organizations in the planning process. For example, including them in the inspections of the crossing will help ensure accurate Inventory information for the crossings. Note: Please see Section IV for details on the requirements of a Notice of Detailed Plan.

2. All of the items listed in "Requirements for both Public Authority Designation and Public Authority Application—Pre-Rule Quiet Zones" previously mentioned are to be accomplished. Remember that a Pre-Rule Quiet Zone may be less than one-half mile in length if that was its length as of October 9, 1996. Also, a Pre-Rule Quiet Zone does not have to have automatic warning devices consisting of flashing lights and gates at every public crossing.

3. Calculate the risk index for each public crossing within the quiet zone (See appendix D. FRA's web-based Quiet Zone Calculator may be used to simplify the calculation process). If the Inventory record does not reflect the actual conditions at the crossing, be sure to use the conditions that currently exist when calculating the risk index.

4. The Crossing Corridor Risk Index is then calculated by averaging the risk index for each public crossing within the proposed quiet zone. Since train horns are not being sounded for crossings, this value is actually the initial Quiet Zone Risk Index.

5. Calculate Risk Index with Horns by the following:

a. For each public crossing, divide its risk index that was calculated in Step 2 by the appropriate value in Table 1. This produces the risk index that would have existed had the train horn been sounded.

b. Average these reduced risk indices together. The resulting average is the Risk Index with Horns.

6. Begin to reduce the Quiet Zone Risk Index through the use of ASMs and/or SSMs. Follow the procedure provided in Step 6—New Quiet Zones Public Authority Designation—until the Quiet Zone Risk Index has been reduced to a level equal to, or less than, either the Nationwide Significant Risk Threshold or the Risk Index with Horns. A public authority may elect to upgrade an existing warning device as part of its Pre-Rule Quiet Zone plan. When upgrading a warning device, the accident prediction value for that crossing must be re-calculated

for the new warning device. Determine the new risk index for the upgraded crossing by using the new accident prediction value in the severity risk index formula. (Remember that FRA's web-based quiet zone risk calculator will be able to do the actual computations.) This new risk index is then used to compute the new Quiet Zone Risk Index. Effectiveness rates for ASMs should be provided as follows:

a. Modified SSMs—Estimates of effectiveness for modified SSMs may be based upon adjustments from the benchmark levels provided in appendix A or from actual field data derived from the crossing sites. The application must provide an estimated effectiveness rate and the rationale for the estimate.

b. Non-engineering ASMs—Effectiveness rates are to be calculated in accordance with the provisions of appendix B, section II B.

c. Engineering ASMs—Effectiveness rates are to be calculated in accordance with the provisions of appendix B, section III B.

7. Once it has been determined through analysis that the Quiet Zone Risk Index will be reduced to a level equal to, or less than, either the Nationwide Significant Risk Threshold or the Risk Index with Horns, the public authority may make application to FRA for a quiet zone under § 222.39(b). FRA will review the application to determine the appropriateness of the proposed effectiveness rates, and whether or not the proposed application demonstrates that the quiet zone meets the requirements of the rule. When submitting the application to FRA for approval, it should be remembered that the application must contain the following (§ 222.39(b)(1)):

a. Sufficient detail concerning the present safety measures at all crossings within the proposed quiet zone to enable the Associate Administrator to evaluate their effectiveness. This includes current and accurate crossing Inventory forms for each public, private and pedestrian grade crossing.

b. Detailed information on the safety improvements, including upgraded warning devices that are proposed to be implemented at public, private, and pedestrian grade crossings within the proposed quiet zone.

c. Membership and recommendations of the diagnostic team (if any) that reviewed the proposed quiet zone.

d. Statement of efforts taken to address comments submitted by affected railroads, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety, including a list of any objections raised by the railroads or State agencies.

e. A commitment to implement the proposed safety measures.

f. Demonstrate through data and analysis that the proposed measures will reduce the Quiet Zone Risk Index to a level at, or below, either the Nationwide Significant Risk Threshold or the Risk Index with Horns.

g. A copy of the application must be provided to all railroads operating over the public highway-rail grade crossings within the quiet zone; the highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone; the

landowner having control over any private crossings within the quiet zone; the State agency responsible for highway and road safety; the State agency responsible for grade crossing safety; and the Associate Administrator. (§ 222.39(b)(3))

8. Upon receiving written approval from FRA of the quiet zone application, the public authority may then provide the Notice of Quiet Zone Establishment and implement the quiet zone. If the quiet zone is established by reducing the Quiet Zone Risk Index to a level equal to, or less than, the Nationwide Significant Risk Threshold, FRA will annually recalculate the Nationwide Significant Risk Threshold and the Quiet Zone Risk. If the Quiet Zone Risk Index for the quiet zone is above the Nationwide Significant Risk Threshold, FRA will notify the public authority so that appropriate measures can be taken (See § 222.51(b)).

**Note:** The provisions stated above for crossing closures, grade separations, wayside horns, pre-existing SSMs and pre-existing modified SSMs apply for Public Authority Application to FRA as well.

## Section IV—Required Notifications

### A. Introduction

The public authority is responsible for providing notification to parties that will be affected by the quiet zone. There are several different types of notifications and a public authority may have to make more than one notification during the entire process of complying with the regulation. The notification process is to ensure that interested parties are made aware in a timely manner of the establishment or continuation of quiet zones. It will also provide an opportunity for State agencies and affected railroads to provide input to the public authority during the development of quiet zones. Specific information is to be provided so that the crossings in the quiet zone can be identified. Providing the appropriate notification is important because once the rule becomes effective, railroads will be obligated to sound train horns when approaching all public crossings unless notified in accordance with the rule that a New Quiet Zone has been established or that a Pre-Rule or Intermediate Quiet Zone is being continued.

### B. Notice of Intent—§ 222.43(b)

The purpose of the Notice of Intent is to provide notice to the railroads and State agencies that the public authority is planning on creating a New Quiet Zone or implementing new SSMs or ASMs within a Pre-Rule Quiet Zone. The Notice of Intent provides an opportunity for the railroad and the State agencies to give input to the public authority during the quiet zone development process. The State agencies and railroads will be given sixty days to provide information and comments to the public agency.

The Notice of Intent must be provided under the following circumstances:

1. A New Quiet Zone or New Partial Quiet Zone is under consideration.

2. An Intermediate Quiet Zone or Intermediate Partial Quiet Zone that will be converted into a New Quiet Zone or New

Partial Quiet Zone. Please note that Notice of Intent must be mailed by April 3, 2006, in order to prevent the resumption of locomotive horn sounding on June 24, 2006.

3. The implementation of SSMs or ASMs within a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone is under consideration. Please note that Notice of Intent must be mailed by February 24, 2008, in order to continue existing restrictions on locomotive horn sounding beyond June 24, 2008 without interruption. Each public authority that is creating a New Quiet Zone must provide written notice, by certified mail, return receipt requested, to the following:

1. All railroads operating within the proposed quiet zone
2. State agency responsible for highway and road safety
3. State agency responsible for grade crossing safety

The Notice of Intent must contain the following information:

1. A list of each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian crossings within the proposed quiet zone. The crossings are to be identified by both the U.S. DOT Crossing Inventory Number and the street or highway name.
2. A statement of the time period within which the restrictions would be in effect on the routine sounding of train horns (*i.e.*, 24 hours or from 10 p.m. to 7 a.m.).
3. A brief explanation of the public authority's tentative plans for implementing improvements within the proposed quiet zone.
4. The name and title of the person who will act as the point of contact during the quiet zone development process and how that person can be contacted.
5. A list of the names and addresses of each party that will receive a copy of the Notice of Intent.

The parties that receive the Notice of Intent will be able to submit information or comments to the public authority for 60 days. The public authority will not be able to establish the quiet zone during the 60 day comment period unless each railroad and State agency that receives the Notice of Intent provides either written comments to the public authority or a written statement waiving its right to provide comments on the Notice of Intent. The public authority must provide an affirmation in the Notice of Quiet Zone Establishment that each of the required parties was provided the Notice of Intent and the date it was mailed. If the quiet zone is being established within 60 days of the mailing of the Notice of Intent, the public authority also must affirm each of the parties have provided written comments or waived its right to provide comments on the Notice of Intent.

#### C. Notice of Quiet Zone Continuation— § 222.43(c)

The purpose of the Notice of Quiet Zone Continuation is to provide a means for the public authority to formally advise affected parties that an existing quiet zone is being continued after the effective date of the rule. All Pre-Rule, Pre-Rule Partial, Intermediate and Intermediate Partial Quiet Zones must provide this Notice of Quiet Zone

Continuation no later than June 3, 2005 to ensure that train horns are not sounded at public crossings when the rule becomes effective on June 24, 2005. This will enable railroads to properly comply with the requirements of the Final Rule.

Each public authority that is continuing an existing Pre-Rule, Pre-Rule Partial, Intermediate and Intermediate Partial Quiet Zone must provide written notice, by certified mail, return receipt requested, to the following:

1. All railroads operating over the public highway-rail grade crossings within the quiet zone;
2. The highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone;
3. The landowner having control over any private crossings within the quiet zone;
4. The State agency responsible for highway and road safety;
5. The State agency responsible for grade crossing safety; and
6. The Associate Administrator.

The Notice of Quiet Zone Continuation must contain the following information:

1. A list of each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian crossing within the quiet zone, identified by both U.S. DOT National Highway-Rail Grade Crossing Inventory Number and street or highway name.
2. A specific reference to the regulatory provision that provides the basis for quiet zone continuation, citing as appropriate, § 222.41 or 222.42.
3. A statement of the time period within which restrictions on the routine sounding of the locomotive horn will be imposed (*i.e.*, 24 hours or nighttime hours only.)
4. An accurate and complete Grade Crossing Inventory Form for each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian crossing within the quiet zone that reflects conditions currently existing at the crossing.
5. The name and title of the person responsible for monitoring compliance with the requirements of this part and the manner in which that person can be contacted.
6. A list of the names and addresses of each party that will receive the Notice of Quiet Zone Continuation.
7. A statement signed by the chief executive officer of each public authority participating in the continuation of the quiet zone, in which the chief executive officer certifies that the information submitted by the public authority is accurate and complete to the best of his/her knowledge and belief.

Public authorities should remember that this notice is required to ensure that train horns will remain silent. Even if a public authority has not been able to determine whether its Pre-Rule or Pre-Rule Partial Quiet Zone qualifies for automatic approval under the rule, it should issue a Notice of Quiet Zone Continuation to keep the train horns silent after the effective date of the rule.

#### E. Notice of Quiet Zone Establishment— § 222.43(d)

The purpose of the Notice of Quiet Zone Establishment is to provide a means for the

public authority to formally advise affected parties that a quiet zone is being established. Notice of Quiet Zone Establishment must be provided under the following circumstances:

1. A New Quiet Zone or New Partial Quiet Zone is being created.
2. A Pre-Rule Quiet Zone or a Pre-Rule Partial Quiet Zone that qualifies for automatic approval under the rule is being established.
3. An Intermediate Quiet Zone or Intermediate Partial Quiet Zone that is creating a New Quiet Zone under the rule. Please note that Notice of Quiet Zone Establishment must be provided by June 3, 2006, in order to prevent the resumption of locomotive horn sounding on June 24, 2006.
4. A Pre-Rule Quiet Zone or a Pre-Rule Partial Quiet Zone that was not established by automatic approval and has since implemented improvements to establish a quiet zone in accordance to the rule.

Each public authority that is establishing a quiet zone under the above circumstances must provide written notice, by certified mail, return receipt requested, to the following:

1. All railroads operating over the public highway-rail grade crossings within the quiet zone;
2. The highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone;
3. The landowner having control over any private crossings within the quiet zone;
4. The State agency responsible for highway and road safety;
5. The State agency responsible for grade crossing safety; and
6. The Associate Administrator.

The Notice of Quiet Establishment must contain the following information:

1. A list of each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian crossing within the quiet zone, identified by both U.S. DOT National Highway-Rail Grade Crossing Inventory Number and street or highway name.
2. A specific reference to the regulatory provision that provides the basis for quiet zone establishment, citing as appropriate, § 222.39(a)(1), 222.39(a)(2)(i), 222.39(a)(2)(ii), 222.39(a)(3), 222.39(b), 222.41(a)(1)(i), 222.41(a)(1)(ii), 222.41(a)(1)(iii), 222.41(a)(1)(iv), 222.41(b)(1)(i), 222.41(b)(1)(ii), 222.41(b)(1)(iii), or 222.41(b)(1)(iv).

(a) If the Notice of Quiet Establishment contains a specific reference to § 222.39(a)(2)(i), 222.39(a)(2)(ii), 222.39(a)(3), 222.41(a)(1)(ii), 222.41(a)(1)(iii), 222.41(a)(1)(iv), 222.41(b)(1)(ii), 222.41(b)(1)(iii), or 222.41(b)(1)(iv), it shall include a copy of the FRA web page that contains the quiet zone data upon which the public authority is relying.

(b) If the Notice of Quiet Establishment contains a specific reference to § 222.39(b), it shall include a copy of FRA's notification of approval.

3. If a diagnostic team review was required under § 222.25 (private crossings) or § 222.27 (pedestrian crossings), the Notice of Quiet Establishment shall include a statement affirming that the State agency responsible

for grade crossing safety and all affected railroads were provided an opportunity to participate in the diagnostic team review. The Notice of Quiet Establishment shall also include a list of recommendations made by the diagnostic team.

4. A statement of the time period within which restrictions on the routine sounding of the locomotive horn will be imposed (i.e., 24 hours or from 10 p.m. until 7 a.m.)

5. An accurate and complete Grade Crossing Inventory Form for each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian crossing within the quiet zone that reflects the conditions existing at the crossing before any new SSMs or ASMs were implemented.

6. An accurate, complete and current Grade Crossing Inventory Form for each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian crossing within the quiet zone that reflects SSMs and ASMs in place upon establishment of the quiet zone. SSMs and ASMs that cannot be fully described on the Inventory Form shall be separately described.

7. If the public authority was required to provide a Notice of Intent:

(a) The Notice of Quiet Zone Establishment shall contain a statement affirming that the Notice of Intent was provided in accordance with the rule. This statement shall also state the date on which the Notice of Intent was mailed.

(b) If the Notice of Quiet Zone Establishment will be mailed less than 60 days after the date on which the Notice of

Intent was mailed, the Notice of Quiet Zone Establishment shall also contain a written statement affirming that comments and/or written waiver statements have been received from each railroad operating over public grade crossings within the proposed quiet zone, the State agency responsible for grade crossing safety, and the State agency responsible for highway and road safety.

8. The name and title of the person responsible for monitoring compliance with the requirements of this part and the manner in which that person can be contacted.

9. A list of the names and addresses of each party that is receiving a copy of the Notice of Quiet Establishment.

10. A statement signed by the chief executive officer of each public authority participating in the establishment of the quiet zone, in which the chief executive officer shall certify that the information submitted by the public authority is accurate and complete to the best of his/her knowledge and belief.

**Section V—Examples of Quiet Zone Implementations**

*Example 1—New Quiet Zone*

(a) A public authority wishes to create a New Quiet Zone over four public crossings. All of the crossings are equipped with flashing lights and gates, and the length of the quiet zone is 0.75 mile. There are no private crossings within the proposed zone.

(b) The tables that follow show the street name in the first column, and the existing

risk index for each crossing with the horn sounding (“Crossing Risk Index w/ Horns”) in the second. The third column, “Crossing Risk Index w/o Horns”, is the risk index for each crossing after it has been inflated by 66.8% to account for the lack of train horns. The fourth column, “SSM Eff”, is the effectiveness of the SSM at the crossing. A zero indicates that no SSM has been applied. The last column, “Crossing Risk Index w/o Horns Plus SSM”, is the inflated risk index for the crossing after being reduced by the implementation of the SSM. At the bottom of the table are two values. The first is the Risk Index with Horns (“RIWH”) which represents the average initial amount of risk in the proposed quiet zone with the train horn sounding. The second is the Quiet Zone Risk Index (“QZRI”), which is the average risk in the proposed quiet zone taking into consideration the increased risk caused by the lack of train horns and the reductions in risk attributable to the installation of SSMs. For this example it is assumed that the Nationwide Significant Risk Threshold is 17,030. In order for the proposed quiet zone to qualify under the rule, the Quiet Zone Risk Index must be reduced to a level at, or below, the Nationwide Significant Risk Threshold (17,030) or the Risk Index with Horns.

(c) Table 2 shows the existing conditions in the proposed quiet zone. SSMs have not yet been installed. The Risk Index with Horns for the proposed quiet zone is 11,250. The Quiet Zone Risk Index without any SSMs is 18,765.

TABLE 2

Street	Crossing risk index w/horns	Crossing risk index w/o horns	SSM EFF	Crossing risk index w/o horns plus SSM
A .....	12000	20016	0	20016
B .....	10000	16680	0	16680
C .....	8000	13344	0	13344
D .....	15000	25020	0	25020
	RIWH .....	.....	.....	QZRI
	11250 .....	.....	.....	18765

(d) The public authority decides to install traffic channelization devices at D Street. Reducing the risk at the crossing that has the highest severity risk index will provide the greatest reduction in risk. The effectiveness

of traffic channelization devices is 0.75. Table 3 shows the changes in the proposed quiet zone corridor that would occur when traffic channelization devices are installed at D Street. The Quiet Zone Risk Index has been

reduced to 14,073.75. This reduction in risk would qualify the quiet zone as the risk has been reduced lower than the Nationwide Significant Risk Threshold which is 17,030.

TABLE 3

Street	Crossing risk index w/horns	Crossing risk index w/o horns	SSM EFF	Crossing risk index w/o horns plus SSM
A .....	12000	20016	0	20016
B .....	10000	16680	0	16680
C .....	8000	13344	0	13344
D .....	15000	25020	0.75	6255
	RIWH .....	.....	.....	QZRI
	11250 .....	.....	.....	14073.75

(e) The public authority realizes that reducing the Quiet Zone Risk Index to a level below the Nationwide Significant Risk Threshold will result in an annual recalculation of the Quiet Zone Risk Index and comparison to the Nationwide Significant Risk Threshold. As the Quiet Zone Risk Index is close to the Nationwide Significant

Risk Threshold (14,074 to 17,030), there is a reasonable chance that the Quiet Zone Risk Index may some day exceed the Nationwide Significant Risk Threshold. This would result in the quiet zone no longer being qualified and additional steps would have to be taken to keep the quiet zone. Therefore, the public authority decides to reduce the risk further

by the use of traffic channelization devices at A Street. Table 4 shows the results of this change. The Quiet Zone Risk Index is now 10,320.75 which is less than the Risk Index with Horns of 11,250. The quiet zone now qualifies by fully compensating for the loss of train horns and will not have to undergo annual reviews of the Quiet Zone Risk Index.

TABLE 4

Street	Crossing risk index w/horns	Crossing risk index w/o horns	SSM EFF	Crossing risk index w/o horns plus SSM
A .....	12000	20016	0.75	5004
B .....	10000	16680	0	16680
C .....	8000	13344	0	13344
D .....	15000	25020	0.75	6255
	RIWH	.....	.....	QZRI
	11250	.....	.....	10320.75

Example 2—Pre-Rule Quiet Zone

(a) A public authority wishes to qualify a Pre-Rule Quiet Zone which did not meet the requirements for Automatic Approval because the Quiet Zone Risk Index is greater than twice the Nationwide Significant Risk Threshold. There are four public crossings in the Pre-Rule Quiet Zone. Three of the crossings are equipped with flashing lights and gates, and the fourth (Z Street) is passively signed with a STOP sign. The length of the quiet zone is 0.6 mile, and there are no private crossings within the proposed zone.

(b) The tables that follow are very similar to the tables in Example 1. The street name is shown in the first column, and the existing risk index for each crossing (“Crossing Risk Index w/o Horns”) in the second. This is a change from the first example because the risk is calculated without train horns sounding because of the existing ban on whistles. The third column, “Crossing Risk

Index w/ Horns”, is the risk index for each crossing after it has been adjusted to reflect what the risk would have been had train horns been sounding. This is mathematically done by dividing the existing risk index for the three gated crossing by 1.668. The risk at the passive crossing at Z Street is divided by 1.749. (See the above discussion in “Pre-Rule Quiet Zones—Establishment Overview” for more information.) The fourth column, “SSM Eff”, is the effectiveness of the SSM at the crossing. A zero indicates that no SSM has been applied. The last column, “Crossing Risk Index w/o Horns Plus SSM”, is the risk index without horns for the crossing after being reduced for the implementation of the SSM. At the bottom of the table are two values. The first is the Risk Index with Horns (RIWH), which represents the average initial amount of risk in the proposed quiet zone with the train horn sounding. The second is the Quiet Zone Risk Index (“QZRI”), which is the average risk in the proposed quiet zone

taking into consideration the increased risk caused by the lack of train horns and reductions in risk attributable to the installation of SSMs. Once again it is assumed that the Nationwide Significant Risk Threshold is 17,030. The Quiet Zone Risk Index must be reduced to either the Nationwide Significant Risk Threshold (17,030) or to the Risk Index with Horns in order to qualify under the rule.

(c) Table 5 shows the existing conditions in the proposed quiet zone. SSMs have not yet been installed. The Risk Index with Horns for the proposed quiet zone is 18,705.83. The Quiet Zone Risk Index without any SSMs is 31,375. Since the Nationwide Significant Risk Threshold is less than the calculated Risk Index with Horns, the public authority’s goal will be to reduce the risk to at least value of the Risk Index with Horns. This will qualify the Pre-Rule Quiet Zone under the rule.

TABLE 5

Street	Crossing risk index w/o horns	Crossing risk index w/ horns	SSM EFF	Crossing risk index w/o horns plus SSM
W .....	35,000	20,983.21	0	35,000
X .....	42,000	25,179.86	0	42,000
Y .....	33,500	20,083.93	0	33,500
Z .....	15,000	8,576.33	0	15,000
	RIWH	.....	.....	QZRI
	18,705.83	.....	.....	31,375

(d) The Z Street crossing is scheduled to have flashing lights and gates installed as part of the state’s highway-rail grade crossing safety improvement plan (Section 130). While this upgrade is not directly a part of the plan to authorize a quiet zone, the public

authority may take credit for the risk reduction achieved by the improvement from a passive STOP sign crossing to a crossing equipped with flashing lights and gates. Unlike New Quiet Zones, upgrades to warning devices in Pre-Rule Quiet Zones do

contribute to the risk reduction necessary to qualify under the rule. Table 6 shows the quiet zone corridor after including the warning device upgrade at Z Street. The Quiet Zone Risk Index has been reduced to 29,500.

TABLE 6

Street	Crossing risk index w/o horns	Crossing risk index w/ horns	SSM EFF	Crossing risk index w/o horns plus SSM
W .....	35,000	20,983.21	0	35,000
X .....	42,000	25,179.86	0	42,000
Y .....	33,500	20,083.93	0	33,500
Z .....	7,500	8,576.33	0	7,500
	RIWH	.....	.....	QZRI
	18,705.83	.....	.....	29,500

(e) The public authority elects to install four-quadrant gates without vehicle presence detection at X Street. As shown in Table 7, this reduces the Quiet Zone Risk Index to 20,890. This risk reduction is not sufficient to quality as quiet zone under the rule.

TABLE 7

Street	Crossing risk index w/o horns	Crossing risk index w/ horns	SSM EFF	Crossing risk index w/o horns plus SSM
W .....	35,000	20,983.21	0	35,000
X .....	42,000	25,179.86	0.82	7,560
Y .....	33,500	20,083.93	0	33,500
Z .....	7,500	8,576.33	0	7,500
	RIWH	.....	.....	QZRI
	18,705.83	.....	.....	20,890

(f) The public authority next decides to use traffic channelization devices at W Street. Table 8 shows that the Quiet Zone Risk Index is now reduced to 14,327.5. This risk reduction fully compensates for the loss of the train horn as it is less than the Risk Index with Horns. The quiet zone is qualified under the rule.

TABLE 8

Street	Crossing risk index w/o horns	Crossing risk index w/ horns	SSM EFF	Crossing risk index w/o horns plus SSM
W .....	35000	20983.21	0.75	8750
X .....	42000	25179.86	0.82	7560
Y .....	33500	20083.93	0	33500
Z .....	7500	8576.33	0	7500
	RIWH	.....	.....	QZRI
	18705.83	.....	.....	14327.5

**Appendix D to Part 222—Determining Risk Levels**

**Introduction**

The Nationwide Significant Risk Threshold, the Crossing Corridor Risk Index, and the Quiet Zone Risk Index are all measures of collision risk at public highway-rail grade crossings that are weighted by the severity of the associated casualties. Each crossing can be assigned a risk index.

(a) The *Nationwide Significant Risk Threshold* represents the average severity weighted collision risk for all public highway-rail grade crossings equipped with lights and gates nationwide where train horns are routinely sounded. FRA developed this index to serve as a threshold of permissible risk for quiet zones established under this rule.

(b) The *Crossing Corridor Risk Index* represents the average severity weighted

collision risk for all public highway-rail grade crossings along a defined rail corridor.

(c) The *Quiet Zone Risk Index* represents the average severity weighted collision risk for all public highway-rail grade crossings that are part of a quiet zone.

**The Prediction Formulas**

(a) The Prediction Formulas were developed by DOT as a guide for allocating scarce traffic safety budgets at the State level. They allow users to rank candidate crossings for safety improvements by collision probability. There are three formulas, one for each warning device category:

1. automatic gates with flashing lights;
2. flashing lights with no gates; and
3. passive warning devices.

(b) The prediction formulas can be used to derive the following for each crossing:

1. the predicted collisions (PC)
2. the probability of a fatal collision given that a collision occurs (P(FC|C))

3. the probability of a casualty collision given that a collision occurs (P(CC|C))

(c) The following factors are the determinants of the number of predicted collisions per year:

1. average annual daily traffic
2. total number of trains per day
3. number of highway lanes
4. number of main tracks
5. maximum timetable train speed
6. whether the highway is paved or not
7. number of through trains per day during daylight hours

(d) The resulting basic prediction is improved in two ways. It is enriched by the particular crossing's collision history for the previous five years and it is calibrated by resetting normalizing constants. The normalizing constants are reset so that the sum of the predicted accidents in each warning device group (passive, flashing lights, gates) for the top twenty percent most hazardous crossings exactly equals the



number of accidents which occurred in a recent period for the top twenty percent of that group. This adjustment factor allows the formulas to stay current with collision trends. The calibration also corrects for errors such as data entry errors. The final output is the predicted number of collisions (PC).

(e) The severity formulas answer the question, "What is the chance that a fatality (or casualty) will happen, given that a collision has occurred?" The fatality formula calculates the probability of a fatal collision given that a collision occurs (*i.e.*, the probability of a collision in which a fatality occurs)  $P(FC|C)$ . Similarly, the casualty formula calculates the probability of a casualty collision given that a collision occurs  $P(CC|C)$ . As casualties consist of both fatalities and injuries, the probability of a non-fatal injury collision is found by subtracting the probability of a fatal collision from the probability of a casualty collision. To convert the probability of a fatal or casualty collision to the number of expected fatal or casualty collisions, that probability is multiplied by the number of predicted collisions (PC).

(f) For the prediction and severity index formulas, please see the following DOT publications: *Summary of the DOT Rail-Highway Crossings Resource Allocation Procedure—Revised*, June 1987, and the *Rail-Highway Crossing Resource Allocation Procedure: User's Guide, Third Edition*, August 1987. Both documents are in the docket for this rulemaking and also available through the National Technical Information Service located in Springfield, Virginia 22161.

#### Risk Index

(a) The risk index is basically the predicted cost to society of the casualties that are expected to result from the predicted collisions at a crossing. It incorporates three outputs of the DOT prediction formulas. The two components of a risk index are:

1. Predicted Cost of Fatalities =  $PC \times P(FC|C) \times (\text{Average Number of Fatalities Observed In Fatal Collisions}) \times \$3 \text{ million}$
2. Predicted Cost of Injuries =  $PC \times (P(CC|C) - P(FC|C)) \times (\text{Average Number of Injuries in Collisions Involving Injuries}) \times \$1,167,000$

PC,  $P(CC|C)$ , and  $P(FC|C)$  are direct outputs of the DOT prediction formulas.

(b) The average number of fatalities observed in fatal collisions and the average number of injuries in collisions involving injuries were calculated by FRA as follows.

(c) The highway-rail incident files from 1999 through 2003 were matched against a data file containing the list of whistle ban crossings in existence from January 1, 1999 through December 31, 2003 to identify two types of collisions involving trains and motor vehicles: (1) Those that occurred at crossings where a whistle ban was in place during the period, and (2) those that occurred at crossings equipped with automatic gates where a whistle ban was not in place. Certain records were excluded. These were incidents where the driver was not in the motor vehicle, or the motor vehicle struck the train beyond the 4th locomotive or rail car that

entered the crossing. FRA believes that sounding the train horn would not be very effective at preventing such incidents.<sup>2</sup>

(d) Collisions in the group containing the gated crossings nationwide where horns are routinely sounded were then identified as either fatal, injury only, or no casualty. Collisions were identified as fatal if one or more deaths occurred, regardless of whether or not injuries were also sustained. Collisions were identified as injury only when injuries, but no fatalities, resulted.

(e) The collisions (incidents) selected were summarized by year from 1999 through 2003. The total number of collisions for the period was 2,161. The fatality rate for each year was calculated by dividing the number of fatalities ("Deaths") by the number of fatal incidents ("Number"). The injury rates were calculated by dividing the number of injuries in injury only incidents ("Injured") by the number of injury only incidents ("Number"). There were 274 fatal incidents resulting in 324 fatalities and yielding a fatality rate 1.1825 for the period. There were 551 injury-only incidents resulting in 733 injuries and yielding an injury rate 1.3303 for the period.

(f) Per guidance from DOT, \$3 million is the value placed on preventing a fatality. The Abbreviated Injury Scale (AIS) developed by the Association for the Advancement of Automotive Medicine categorizes injuries into six levels of severity. Each AIS level is assigned a value of injury avoidance as a fraction of the value of avoiding a fatality. FRA rates collisions that occur at train speeds in excess of 25 mph as an AIS level 5 (\$2,287,500) and injuries that result from collisions involving trains traveling under 25 mph as an AIS level 2 (\$46,500). About half of grade crossing collisions occur at speeds greater than 25 mph. Therefore, FRA estimates that the value of preventing the average injury resulting from a grade crossing collision is \$1,167,000 (the average of an AIS-5 injury and an AIS-2 injury).

(g) Notice that the quantity  $\{PC * P(FC|C)\}$  represents the expected number of fatal collisions. Similarly,  $\{PC * [P(CC|C) - P(FC|C)]\}$  represents the expected number of injury collisions. These are then multiplied by their respective average number of fatalities and injuries (from the table above) to develop the number of expected casualties. The final parts of the expressions attach the dollar values for these casualties.

(h) The Risk Index for a Crossing is the integer sum of the Predicted Cost of Fatalities and the Predicted Cost of Injuries.

#### Nationwide Significant Risk Threshold

The Nationwide Significant Risk Threshold is simply an average of the risk indexes for all of the gated crossings nationwide where train horns are routinely sounded. FRA identified 35,803 gated non-whistle ban crossings for input to the Nationwide Significant Risk Threshold.

<sup>2</sup>The data used to make these exclusions is contained in blocks 18—Position of Car Unit in Train; 19—Circumstance: Rail Equipment Struck/Struck By Highway User; 28—Number of Locomotive Units; and 29—Number of Cars of the current FRA Form 6180-57 Highway-Rail Grade Crossing Accident/Incident Report.

The Nationwide Significant Risk Threshold rounds to 17,030. This value is recalculated annually.

#### Crossing Corridor Risk Index

The Crossing Corridor Risk Index is the average of the risk indexes of all the crossings in a defined rail corridor. Communities seeking to establish "Quiet Zones" should initially calculate this average for potential corridors.

#### Quiet Zone Risk Index

The Quiet Zone Risk Index is the average of the risk indexes of all the public crossings in a Quiet Zone. It takes into consideration the absence of the horn sound and any safety measures that may have been installed.

#### Appendix E to Part 222—Requirements for Wayside Horns

This appendix sets forth the following minimum requirements for wayside horn use at highway-rail grade crossings:

1. Highway-rail crossing must be equipped with constant warning time device, if reasonably practical, and power-out indicator;

2. Horn system must be equipped with an indicator or other system to notify the locomotive engineer as to whether the wayside horn is operating as intended in sufficient time to enable the locomotive engineer to sound the locomotive horn for at least 15 seconds prior to arrival at the crossing in the event the wayside horn is not operating as intended;

3. The railroad must adopt an operating rule, bulletin or special instruction requiring that the train horn be sounded if the wayside horn indicator is not visible approaching the crossing or if the wayside horn indicator, or an equivalent system, indicates that the system is not operating as intended;

4. Horn system must provide a minimum sound level of 92 dB(A) and a maximum of 110 dB(A) when measured 100 feet from the centerline of the nearest track;

5. Horn system must sound at a minimum of 15 seconds prior to the train's arrival at the crossing and while the lead locomotive is traveling across the crossing. It is permissible for the horn system to begin to sound simultaneously with activation of the flashing lights or descent of the crossing arm; arm

6. Horn shall be directed toward approaching traffic.

#### Appendix F to Part 222—Diagnostic Team Considerations

For purposes of this part, a diagnostic team is a group of knowledgeable representatives of parties of interest in a highway-rail grade crossing, organized by the public authority responsible for that crossing who, using crossing safety management principles, evaluate conditions at a grade crossing to make determinations or recommendations for the public authority concerning the safety needs at that crossing. Crossings proposed for inclusion in a quiet zone should be reviewed in the field by a diagnostic team composed of railroad personnel, public safety or law enforcement, engineering personnel from the State agency responsible for grade crossing safety, and other concerned parties.

This diagnostic team, using crossing safety management principles, should evaluate conditions at a grade crossing to make determinations and recommendations concerning safety needs at that crossing. The diagnostic team can evaluate a crossing from many perspectives and can make recommendations as to what safety measures authorized by this part might be utilized to compensate for the silencing of the train horns within the proposed quiet zone.

**All Crossings Within a Proposed Quiet Zone**

The diagnostic team should obtain and review the following information about each crossing within the proposed quiet zone:

1. Current highway traffic volumes and percent of trucks;
2. Posted speed limits on all highway approaches;
3. Maximum allowable train speeds, both passenger and freight;
4. Accident history for each crossing under consideration;
5. School bus or transit bus use at the crossing; and
6. Presence of U.S. DOT grade crossing inventory numbers clearly posted at each of the crossings in question.

The diagnostic team should obtain all inventory information for each crossing and should check, while in the field, to see that inventory information is up-to-date and accurate. Outdated inventory information should be updated as part of the quiet zone development process.

When in the field, the diagnostic team should take note of the physical characteristics of each crossing, including the following items:

1. Can any of the crossings within the proposed quiet zone be closed or consolidated with another adjacent crossing? Crossing elimination should always be the preferred alternative and it should be explored for crossings within the proposed quiet zone.
2. What is the number of lanes on each highway approach? Note the pavement condition on each approach, as well as the condition of the crossing itself.
3. Is the grade crossing surface smooth, well graded and free draining?
4. Does the alignment of the railroad tracks at the crossing create any problems for road users on the crossing? Are the tracks in superelevation (are they banked on a curve?) and does this create a conflict with the vertical alignment of the crossing roadway?

5. Note the distance to the nearest intersection or traffic signal on each approach (if within 500 feet or so of the crossing or if the signal or intersection is determined to have a potential impact on highway traffic at the crossing because of queuing or other special problems).
6. If a roadway that runs parallel to the railroad tracks is within 100 feet of the railroad tracks when it crosses an intersecting road that also crosses the tracks, the appropriate advance warning signs should be posted as shown in the MUTCD.
7. Is the posted highway speed (on each approach to the crossing) appropriate for the alignment of the roadway and the configuration of the crossing?
8. Does the vertical alignment of the crossing create the potential for a "hump crossing" where long, low-clearance vehicles might get stuck on the crossing?
9. What are the grade crossing warning devices in place at each crossing? Flashing lights and gates are required for each public crossing in a New Quiet Zone. Are all required warning devices, signals, pavement markings and advance signing in place, visible and in good condition for both day and night time visibility?

10. What kind of train detection is in place at each crossing? Are these systems old or outmoded; are they in need of replacement, upgrading, or refurbishment?

11. Are there sidings or other tracks adjacent to the crossing that are often used to store railroad cars, locomotives, or other equipment that could obscure the vision of road users as they approach the crossings in the quiet zone? Clear visibility may help to reduce automatic warning device violations.

12. Are motorists currently violating the warning devices at any of the crossings at an excessive rate?

13. Do collision statistics for the corridor indicate any potential problems at any of the crossings?

14. If school buses or transit buses use crossings within the proposed quiet zone corridor, can they be rerouted to use a single crossing within or outside of the quiet zone?

**Private Crossings Within a Proposed Quiet Zone**

In addition to the items discussed above, a diagnostic team should note the following issues when examining any private crossings within a proposed quiet zone:

1. How often is the private crossing used?

2. What kind of signing or pavement markings are in place at the private crossing?
3. What types of vehicles use the private crossing?
  - School buses
  - Large trucks
  - Hazmat carriers
  - Farm equipment
4. What is the volume, speed and type of train traffic over the crossing?
5. Do passenger trains use the crossing?
6. Do approaching trains sound the horn at the private crossing?
  - State or local law requires it?
  - Railroad safety rule requires it?
7. Are there any nearby crossings where train horns sound that might also provide some warning if train horns were not sounded at the private crossing?
8. What are the approach (corner) sight distances?
  - 9. What is the clearing sight distance for all approaches?
  - 10. What are the private roadway approach grades?
  - 11. What are the private roadway pavement surfaces?

**Pedestrian Crossings Within a Proposed Quiet Zone**

In addition to the items discussed in the section titled, "All crossings within a proposed quiet zone", a diagnostic team should note the following issues when examining any pedestrian crossings within a proposed quiet zone:

1. How often is the pedestrian crossing used?
  - 2. What kind of signing or pavement markings are in place at the pedestrian crossing?
  - 3. What is the volume, speed, and type of train traffic over the crossing?
  - 4. Do approaching trains sound the horn at the pedestrian crossing?
    - State or local law requires it?
    - Railroad safety rule requires it?
  - 5. Are there any crossings where train horns sound that might also provide some warning if train horns were not sounded at the pedestrian crossing?
  - 6. What are the approach sight distances?
  - 7. What is the clearing sight distance for all approaches?

**Appendix G to Part 222—Schedule of Civil Penalties<sup>1</sup>**

Section	Violation	Willful violation
<b>Subpart B—Use of Locomotive Horns</b>		
§ 222.21 Use of locomotive horn		
(a) Failure to sound horn at grade crossing .....	\$5,000	\$7,500
Failure to sound horn in proper pattern .....	1,000	3,000
(b) Failure to sound horn at least 15 seconds and less than 1/4-mile before crossing .....	5,000	7,500
Sounding the locomotive horn more than 25 seconds before crossing .....	1,000	2,000
Sounding the locomotive horn more than 1/4-mile in advance of crossing .....	1,000	2,000
§ 222.33 Failure to sound horn when conditions of § 222.33 are not met	5,000	7,500

<sup>1</sup> A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to \$27,000 for any violation where circumstances warrant. See 49 CFR Part 209, appendix A.

Section	Violation	Willful violation
§ 222.45 Routine sounding of the locomotive horn at quiet zone crossing	5,000	7,500
§ 222.49 (b) Failure to provide Grade Crossing Inventory Form information	2,500	5,000
§ 222.59 (d) Routine sounding of the locomotive horn at a grade crossing equipped with wayside horn	5,000	7,500

**PART 229—[AMENDED]**

■ 2. The authority citation for part 229 continues to read as follows:

**Authority:** 49 U.S.C. 20102–20103, 20107, 20133, 20137–20138, 20143, 20701–20703, 21301–20302, 21304; 49 CFR 149(c), (m).

■ 3. Section 229.5 is amended by adding the following definitions in alphabetical order:

**§ 229.5 Definitions.**

\* \* \* \* \*

*Acceptable quality level (AQL).* The AQL is expressed in terms of percent defective or defects per 100 units. Lots having a quality level equal to a specified AQL will be accepted approximately 95 percent of the time when using the sampling plans prescribed for that AQL.

\* \* \* \* \*

*Defective* means, for purposes of section 229.129 of this part, a locomotive equipped with an audible warning device that produces a maximum sound level in excess of 110 dB(A) and/or a minimum sound level below 96 dB(A), as measured 100 feet forward of the locomotive in the direction of travel.

\* \* \* \* \*

*Lot* means a collection of locomotives, equipped with the same horn model, configuration, and location, and the same air pressure and delivery system, which has been manufactured or processed under essentially the same conditions.

\* \* \* \* \*

■ 4. Section 229.129 is revised to read as follows:

**§ 229.129 Locomotive horn.**

(a) Each lead locomotive shall be equipped with a locomotive horn that produces a minimum sound level of 96 dB(A) and a maximum sound level of 110 dB(A) at 100 feet forward of the locomotive in its direction of travel. The locomotive horn shall be arranged so that it can be conveniently operated from the engineer’s usual position during operation of the locomotive.

(b)(1) Each locomotive built on or after September 18, 2006 shall be tested in accordance with this section to ensure that the horn installed on such locomotive is in compliance with paragraph (a) of this section.

Locomotives built on or after September 18, 2006 may, however, be tested in accordance with an acceptance sampling scheme such that there is a probability of .05 or less of rejecting a lot with a proportion of defectives equal to an AQL of 1% or less, as set forth in 7 CFR part 43.

(2) Each locomotive built before September 18, 2006 shall be tested in accordance with this section before June 24, 2010 to ensure that the horn installed on such locomotive is in compliance with paragraph (a) of this section.

(3) Each remanufactured locomotive, as determined pursuant to § 229.5 of this part, shall be tested in accordance with this section to ensure that the horn installed on such locomotive is in compliance with paragraph (a).

(4)(i) Except as provided in paragraph (b)(4)(ii) of this section, each locomotive equipped with a replacement locomotive horn shall be tested, in accordance with paragraph (c) of this section, before the next two annual tests required by § 229.27 of this part are completed.

(ii) Locomotives that have already been tested individually or through acceptance sampling, in accordance with paragraphs (b)(1), (b)(2), or (b)(3) of this section, shall not be required to undergo sound level testing when equipped with a replacement locomotive horn, provided the replacement locomotive horn is of the same model as the locomotive horn that was replaced and the mounting location and type of mounting are the same.

(c) Testing of the locomotive horn sound level shall be in accordance with the following requirements:

(1) A properly calibrated sound level meter shall be used that, at a minimum, complies with the requirements of International Electrotechnical Commission (IEC) Standard 61672–1 (2002–05) for a Class 2 instrument.

(2) An acoustic calibrator shall be used that, at a minimum, complies with the requirements of IEC standard 60942 (1997–11) for a Class 2 instrument.

(3) The manufacturer’s instructions pertaining to mounting and orienting the microphone; positioning of the observer; and periodic factory recalibration shall be followed.

(4) A microphone windscreen shall be used and tripods or similar microphone

mountings shall be used that minimize interference with the sound being measured.

(5) The test site shall be free of large reflective structures, such as barriers, hills, billboards, tractor trailers or other large vehicles, locomotives or rail cars on adjacent tracks, bridges or buildings, within 200 feet to the front and sides of the locomotive. The locomotive shall be positioned on straight, level track.

(6) Measurements shall be taken only when ambient air temperature is between 32 degrees and 104 degrees Fahrenheit inclusively; relative humidity is between 20 percent and 95 percent inclusively; wind velocity is not more than 12 miles per hour and there is no precipitation.

(7) With the exception of cab-mounted or low-mounted horns, the microphone shall be located 100 feet forward of the front knuckle of the locomotive, 15 feet above the top of the rail, at an angle no greater than 20 degrees from the center line of the track, and oriented with respect to the sound source according to the manufacturer’s recommendations. For cab-mounted and low-mounted horns, the microphone shall be located 100 feet forward of the front knuckle of the locomotive, four feet above the top of the rail, at an angle no greater than 20 degrees from the center line of the track, and oriented with respect to the sound source according to the manufacturer’s recommendations. The observer shall not stand between the microphone and the horn.

(8) Background noise shall be minimal: the sound level at the test site immediately before and after each horn sounding event shall be at least 10 dB(A) below the level measured during the horn sounding.

(9) *Measurement procedures.* The sound level meter shall be set for A-weighting with slow exponential response and shall be calibrated with the acoustic calibrator immediately before and after compliance tests. Any change in the before and after calibration levels shall be less than 0.5 dB. After the output from the locomotive horn system has reached a stable level, the A-weighted equivalent sound level (slow response) for a 10-second duration (LAeq, 10s) shall be obtained either directly using an integrating-averaging sound level meter,

or recorded once per second and calculated indirectly. The arithmetic-average of a series of at least six such 10-second duration readings shall be used to determine compliance. The standard deviation of the readings shall be less than 1.5 dB.

(10) Written reports of locomotive horn testing required by this part shall be made and shall reflect horn type; the

date, place, and manner of testing; and sound level measurements. These reports, which shall be signed by the person who performs the test, shall be retained by the railroad, at a location of its choice, until a subsequent locomotive horn test is completed and shall be made available, upon request, to FRA as provided by 49 U.S.C. 20107.

(d) This section does not apply to locomotives of rapid transit operations which are otherwise subject to this part.

■ 5. The entry for § 229.129 “Audible warning device” in appendix B to Part 229 is revised to read as follows:

**Appendix B to Part 229—Schedule of Civil Penalties**

Section	Violation	Willful violation
* * * * *	*	*
229.129 Locomotive horn:		
(a) Prescribed sound levels .....	2,500	5,000
Arrangement of horn .....	2,500	5,000
(b) Failure to perform sound level test .....	2,500	5,000
(c) Sound level test improperly performed .....	2,500	5,000
Record of sound level test improperly executed, or not retained .....	1,000	4,000
* * * * *	*	*

Issued in Washington, DC on August 7, 2006.

**Joseph H. Boardman,**  
*Administrator.*

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