

# Passenger Train Emergency Systems Rulemaking Status Report

## Background

On August 24, 2006, the Federal Railroad Administration (FRA) published a Notice of Proposed Rulemaking (NPRM) in the Federal Register (71 FR 50276) addressing passenger train emergency systems. This rulemaking is intended to further the safety of passenger train occupants through both enhancements and additions to FRA's existing requirement for emergency systems on passenger trains. In accordance with the Administrative Procedure Act (5 U.S.C. 553), FRA solicited written comments from the public on the proposed rule. By the close of the public comment period on October 23, 2006, two written comments had been filed with the agency—one from the National Transportation Safety Board (NTSB) and the other from the California Department of Transportation (Caltrans). As is FRA's practice, FRA held the public docket open for late filed comments for consideration of any such comments to the extent possible. FRA stated that if it received a request for a public, oral hearing, one would be scheduled. However, no such request was received, nor was another written comment submitted.

## Comments received

NTSB submitted comments noting that it considers the requirements proposed in section 238.114 "Rescue Access Windows" of the NPRM consistent with the intent of Safety Recommendation R-03-21, which was issued to FRA on November 6, 2003, and provides in full as follows:

Revise the language of 49 Code of Federal Regulations 238.113(a)(1) to reflect that appropriate exterior instructional signage describing the emergency removal procedure be required at emergency windows on all levels of a multiple-level passenger railcar.

NTSB issued this recommendation following its investigation of a Southern California Regional Rail Authority (Metrolink) accident involving a commuter train that occurred near Placentia, CA, in 2002 as a result of concern with the extent of Federal requirements relating to rescuing passengers from the intermediate level of a multi-level passenger car. Section 238.114, which would be added to Part 238 via this rulemaking, would contain requirements for rescue access windows on every level of a passenger car. The general intent is to provide a means for rescue access by emergency responders through a window directly into every passenger compartment on every level of a passenger car, in the event that a stairway or interior door is compromised and any exterior door on that level is blocked.

NTSB also expressed support for proposed emergency communication system requirements for both Tier I and Tier II passenger equipment, as well as for proposed emergency roof access requirements.

Caltrans submitted comments related to requirements for the staggering of emergency window exits to the extent practical and for inspecting emergency roof access markings.

The Emergency Preparedness Task Force (Task Force) of the Passenger Safety Working Group (Working Group) reviewed the comments and made recommendations addressing these at its meetings on October 25 and 26, 2006, and on March 18 and 19, 2007. At these meetings, the Task Force also addressed questions that FRA raised and invited comment on in the NPRM.

The attached document contains recommendations of the Task Force for addressing the issues raised by commenters and the questions that FRA raised and invited comment on in the NPRM. On April 17, 2007, the Working Group concurred with the Task Force's recommendations.

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## Staggering Emergency Window Exits

Caltrans submitted comments related to emergency window exits. In its comments, Caltrans stated that its *California Cars*, which are bi-level, have emergency window exits that are not staggered, but rather “located symmetrically on each side of the vehicle” (i.e., on both sides directly across from each other), with eight windows in the upper level, twice as many emergency window exits than it believed would be required in that level under the FRA proposal. Caltrans stated that it believes that such configuration is not compliant with the requirement in 238.113(a) for staggering and proposed that 238.113(a)(1) be revised to read:

...At least one emergency window exit shall be located in each side of each end (half) of each car, in a staggered configuration where practical. In cars where the number of emergency window exits exceeds the minimum (on each side of each half of the car), the staggering of windows is not required.

Caltrans also noted in its comments that its *Surfliner* cars, which are bi-level, have 23 emergency window exits on the upper level and at least four on the lower level. In effect, every window frame in such cars contains an emergency window exit. Caltrans further noted that it would have to eliminate emergency window exits in order to create a staggered configuration.

With Caltrans representatives present, the Task Force discussed the issue raised by Caltrans. FRA stated that passenger cars are currently required to have four emergency window exits on each main level pursuant to 238.113(a)(1), and that FRA’s proposal was intended to clarify the location of these windows. FRA explained that a railroad is not required to stagger emergency window exits when it is not practical to do so, and stated that it would consider it not practical to stagger emergency window exits in either of the configurations presented by Caltrans in its written comments.

FRA provided examples of instances where it may not be practical to stagger emergency window exits. For instance, if a car has a symmetrical seating arrangement that includes face-to-face seating with tables or workstations in between, a railroad may decide to configure emergency window exits that pull inward symmetrically with respect to the longitudinal centerline of the car. Face-to-face seating arrangements usually provide sufficient clear space for locating emergency window exits such that they are free of obstruction or potential hindrance by high seat backs and thus may be more rapid and easy to operate in an emergency. Railroads may also decide not to stagger emergency window exits to avoid creating potentially hazardous situations such as would exist if an emergency window exit was located immediately above a third-rail shoe that could pose an electrocution hazard. In other instances, the presence of a rescue access window that does not also serve as an emergency window exit, the size of a window, or a combination of these can make staggering of emergency window exits not practical. In life-threatening situations requiring immediate evacuation, it would be in the interest of

passenger safety to have more emergency window exits than required even though these exits may not be in a staggered configuration.

FRA further noted that it is not its intent to discourage railroads from having a greater number of emergency window exits in passenger cars than the minimum required. Following the discussion, the Task Force recommended not changing the proposed rule text, noting that a discussion in the preamble of the final rule would address Caltrans' concern adequately.

#### Inspection of Roof Access Markings

In the NPRM, FRA proposed that emergency roof access markings be inspected not less frequently than every 184 days. Caltrans commented that the proposed frequency for inspection of roof emergency access markings should be decreased from "not less frequently than every 184 days" to "not less frequently than every 368 days," expressing concern over increased inspection costs and potential for employee injury.

With Caltrans representatives present, the Task Force discussed this comment. Caltrans stated that it does not have a location from which its employees can safely inspect the markings without using a platform ladder and that the inspection would have to be performed as part of its periodic maintenance inspection, which is on a 120-day cycle. The additional inspection requirement would increase the amount of time the equipment is not in revenue service, Caltrans stated.

Railroads and passenger car manufacturers noted that in their experience retroreflective roof-top markings installed on passenger cars many years ago are still in good condition. Sign vendors noted that such markings should last about five years.

The Task Force considered the favorable maintenance experience cited by railroads and car manufacturers, as well as the information provided by vendors, and recommended that FRA require emergency roof access markings and instructions to be inspected not less frequently than 368 days.

#### Movement of Emergency Exit Marking Requirements in Section 239.107 into Part 238

In the NPRM, FRA noted that it was considering moving emergency exit marking requirements for doors contained in paragraph 239.107(a) into Part 238 and invited comment on whether FRA should do this in the final rule. Such requirements may be more logically situated in the sections of Part 238 that contain requirements for doors. The Task Force advised that it is not necessary to move these marking requirements into Part 238 at this time. Further, the Task Force noted that it would prudent to wait to incorporate by reference the American Public Transportation Association (APTA) standard containing more specific requirements for emergency exit markings in a future/follow-on rulemaking, instead of making non-substantive changes concerning where these requirements are stated in the Code of Federal Regulations (CFR).

## Emergency Window Exits Having Unobstructed Dimensions Less Than 24 Inches by 26 Inches

Pursuant to Section 238.113(b), a window exit in a passenger car ordered on or after September 8, 2000, or placed in service for the first time on or after September 9, 2002, must have an unobstructed opening with minimum dimensions of 26 inches horizontally by 24 inches vertically. Prior to the promulgation of this requirement in FRA's 1999 final rule on Passenger Equipment Safety Standards, FRA had not specified the dimensions of emergency window exits. In the August 2006 NPRM, FRA stated that a window exit in a passenger car ordered on or after September 8, 2000, or placed in service for the first time on or after September 9, 2002, that does not create an unobstructed opening meeting these minimum dimension requirements may not be considered an "emergency window exit" for purposes of this section and may not be marked as an "emergency window exit." Yet, FRA noted that it did not believe it necessary to modify or remove such a window exit, provided the passenger car containing the window exit is otherwise in compliance with all applicable emergency window exit requirements.

For example, FRA is aware of window exits that do not create openings of the required dimensions because of the presence of seat backs that do not manually recline and may therefore obstruct passage through the window of a stretcher or an emergency responder with a self-contained breathing apparatus but not a passenger or crewmember. It is not FRA's intent to discourage a railroad from retaining these additional window exits in its passenger cars, for circumstances such as those present in the derailment of an Amtrak train near Mobile, AL, in 1993. There, six passenger cars fell into a bayou and submerged, drowning 42 passengers and two crewmembers in those cars and killing all three crewmembers in the locomotive. In what has been the Nation's deadliest passenger train accident in over 50 years, train occupants needed to evacuate the cars as quickly as possible, potentially making the number of window exits more critical than their precise dimensions. (FRA is not suggesting that the cars lacked a sufficient number of exits or that their dimensions were too small. FRA is citing this incident to show that circumstances exist where there may be extreme urgency to exit a passenger car.)

FRA invited comment on the issue of window exits in passenger cars ordered on or after September 8, 2000, or placed in service for the first time on or after September 9, 2002, that have unobstructed openings not meeting the minimum dimension requirements. FRA specifically invited comment on whether these window exits should or should not be removed and, to the extent that they should not be removed, whether any instructional marking on these windows should be permitted. Since these windows could be used for emergency egress if they are not removed, FRA also invited comment as to whether they should have to be tested periodically to ensure that they operate properly. Railroads are currently required to test emergency window exits no less frequently than every 180 days using commonly accepted sampling techniques to determine how many windows to test.

The Task Force considered these issues and recommended allowing railroads to designate as "additional" emergency window exits in passenger cars ordered on or after September

8, 2000, or placed in service for the first time on or after September 9, 2002, windows that provide an unobstructed opening that is smaller than 24 inches vertically by 26 inches horizontally. The Task Force further recommended that such “additional” emergency window exits be marked for emergency exit, have instructions provided for their use, and be tested in the same manner as the emergency window exits designated for purposes of complying with the minimum number requirements of section 238.113. There is no obligation for a railroad to designate any such “additional” emergency window exits not meeting the minimum dimension requirements, in the same way as there is no obligation for a railroad to have more than the minimum number of emergency window exits that comply with the dimension requirements. Yet, where a railroad wishes to have more than the minimum number of emergency window exits that comply with the dimension requirements, FRA encourages the railroad to follow the dimension requirements, all things being equal. In those circumstances where any additional emergency window exit cannot meet the dimension requirements, namely in the case of an existing passenger car where the seating configuration causes a seat back to obstruct part of the opening, and the window exit is suitable for use in an emergency to exit the car, the railroad may designate it as an “additional” emergency window exit.

#### Use of High-Performance Photoluminescent (HPPL) Materials

FRA has been considering incorporating elements of an APTA standard for emergency signage into this final rule so that emergency exit signs and intercom markings in passenger cars would be required to be made of HPPL material. In the NPRM, FRA invited comment in this regard. Although no written comments were received, the Task Force discussed at length issues associated with the development of HPPL material component requirements. One of the most vexing issues the Task Force addressed was the extent to which such requirements would apply to photoluminescent signs and markings already installed in passenger cars. Task Force members were particularly concerned that lighting levels in enclosed vestibule areas in existing cars were not bright enough to charge photoluminescent signs already in place such that they could meet the level of luminance required by the existing APTA standard. Field studies and laboratory tests revealed two issues: (1) in many cases, the levels of light in vestibules and other small areas were significantly lower than required for photoluminescent signs to perform as intended; and (2) sufficiently accurate off-axis illuminance measurements cannot be taken without the use of light meters especially designed to take such measurements - certain commonly available light meters are not designed for such purpose.

The Task Force has separately proposed revisions to the APTA standard to (1) allow flexibility for use of different types of charging light sources, (2) require that new HPPL signs meet the same luminance requirements with lower charging light levels, (3) allow alternative testing criteria using meters that do not measure off-axis illuminance accurately, (4) grandfather signs that are likely to perform as intended for 60 minutes, and (5) in small areas, to allow lower levels of luminance or use of larger signs to compensate for even lower light levels. The Task Force advised that requirements in the APTA standard for HPPL are very detailed and complex and not readily transferable directly into the CFR. Therefore, the Task Force recommended addressing the issue by

incorporating such requirements by reference into the CFR via a separate rulemaking after the standard is authorized by APTA. This would allow those responsible for implementing the standard to have to consider the issues discussed above, as well as various other APTA standard sign and marking requirements, including those addressing size, color, and contrast.

### Retroreflective Markings

The APTA “Standard for Emergency Signage for Egress/Access of Passenger Rail Equipment” also contains detailed criteria for marking rescue access windows, including the use of retroreflective material. FRA invited comment on whether the criteria in the APTA standard or in draft revisions to this standard for marking rescue access windows are appropriate for use in the final rule. The Task Force recommended that FRA add the criteria to the final rule. The criteria that would be added includes the definition of “retroreflective material” as a material capable of reflecting light rays back to the light source and that conforms to the specifications for Type I sheeting as specified in *ASTM D 4956-05, Standard Specification for Retroreflective Sheeting for Traffic Control*.

### Intercom Misuse Problems

In the NRPM, FRA proposed requiring intercom systems with backup power for a minimum of 90 minutes in new passenger cars. FRA invited comment regarding whether passenger misuse of intercom systems has been identified as a problem and, if so, invited suggestions for measures that could curb such misuse without rendering the systems inaccessible to passengers during emergencies. The Task Force discussed the issue at its meeting in October 2006. Railroad representatives present at that meeting noted that they had experienced only isolated instances of intercom misuse and that this was not a concern. Neither the Task Force nor the Working Group recommended that proposed rule text be modified in this regard.

### Backup Power for Intercom Systems

In the NPRM, FRA also sought comment on whether intercom systems needed to be capable of providing continuous communication for 90 minutes or only intermittent communication, which would draw less battery power. The Task Force recommended requiring that the system be capable of allowing a total of at least 15 minutes of intermittent communication during the 90-minute period. This recommendation recognizes the likelihood that the system will not be needed for the full 90 minutes but at intermittent times instead. Yet, for purposes of testing the system and ensuring that the requirement is met in all circumstances, the effect of the recommendation is to require that the system be capable of allowing for the entire communication to occur during the last 15 minutes of the 90-minute period.

### Inspection Requirements

FRA noted that it is considering clarifying the interior calendar day inspection requirement that “[a]ll safety-related signage is in place and legible” to expressly reference signage, as well as markings and instructions required by Parts 238 and 239. FRA invited comment on whether such clarification should be provided in the final rule. The Task Force recommended not modifying the rule text at this time.