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49 CFR Part 238

Passenger Train Exterior Side Door Safety; Proposed Rule

**DEPARTMENT OF TRANSPORTATION****Federal Railroad Administration****49 CFR Part 238**

[Docket No. FRA–2011–0063, Notice No. 1]

RIN 2130–AC34

**Passenger Train Exterior Side Door Safety**

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** FRA is proposing to improve the integrity of passenger train exterior side door safety systems and promote passenger train safety overall through new safety standards relating to the safe operation and use of passenger train exterior side doors. This proposed rule is intended to limit the number and severity of injuries involving passenger train exterior side doors and enhance the level of safety for passengers and train crewmembers.

**DATES:** Written comments must be received by May 27, 2014. Comments received after that date will be considered to the extent possible without incurring additional expense or delay.

FRA anticipates being able to resolve this rulemaking without a public, oral hearing. However, if FRA receives a specific request for a public, oral hearing prior to April 25, 2014, one will be scheduled and FRA will publish a supplemental notice in the **Federal Register** to inform interested parties of the date, time, and location of any such hearing.

**ADDRESSES:** *Comments:* Comments related to Docket No. FRA–2011–0063, Notice No. 1, may be submitted by any of the following methods:

- *Web site:* The Federal eRulemaking Portal, [www.regulations.gov](http://www.regulations.gov). Follow the Web site's online instructions for submitting comments.

- *Fax:* 202–493–2251.

- *Mail:* Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE., Room W12–140, Washington, DC 20590.

- *Hand Delivery:* Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE., Room W12–140 on the Ground level of the West Building, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

*Instructions:* All submissions must include the agency name, docket name, and docket number or Regulatory

Identification Number (RIN) for this rulemaking (2130–AC34). Note that all comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided. Please see the Privacy Act heading in the **SUPPLEMENTARY INFORMATION** section of this document for Privacy Act information related to any submitted comments or materials.

*Docket:* For access to the docket to read background documents or comments received, go to <http://www.regulations.gov> at any time or visit the Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE., Room W12–140 on the Ground level of the West Building, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**FOR FURTHER INFORMATION CONTACT:**

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**I. Executive Summary**

FRA is proposing to improve the integrity of passenger train exterior side door safety systems and promote passenger train safety overall through new safety standards relating to the safe operation and use of passenger train exterior side doors. This proposed rule is based on recommended language developed by the Railroad Safety Advisory Committee's (RSAC) General Passenger Safety Task Force (Task Force) and includes new requirements for both powered and manual exterior side doors and door safety systems on passenger trains. Proposed operating rules for train crews relating to exterior side doors and their safety systems on passenger trains as well as new definitions are also included in this NPRM. In addition, the rule proposes to incorporate by reference American Public Transportation Association (APTA) Standard PR–M–S–18–10, "Standard for Powered Exterior Side Door System Design for New Passenger Cars" (2011), which contains a set of minimum standards for powered exterior side door systems and door system functioning on new rail passenger cars and locomotives used in passenger service.

Other proposed requirements include, but are not limited to: Equipping new passenger cars with powered side doors with an obstruction detection system and a door by-pass feature; connecting new passenger cars with either manual or powered exterior side doors to a door summary circuit to prohibit the train from developing tractive power if any of the exterior side doors are open; safety briefing for train crews to identify crewmember responsibilities as they relate to the safe operation of the exterior side doors; operating passenger trains with their exterior side doors and

trap doors closed when in motion between stations, except in limited circumstances or if prior approval has been received from FRA; and railroads developing operating rules on how to safely override a door summary circuit or a no-motion system, or both, as well as how to safely operate the exterior side doors of a passenger train with incompatible exterior side door safety systems.

Through this rulemaking, FRA intends to limit the number and severity of injuries associated with the use and operation of passenger train exterior side doors and increase the overall level of safety for passengers and train crewmembers. FRA analyzed the economic impacts of this proposed rule against a “no action” baseline that reflects what would happen in the absence of this proposed rule. The proposed operating rules and adopted APTA standard for new equipment are expected to prevent about 19 injuries and 0.20 fatalities per year in the future on average, based on similar incidents in the past. The estimated benefits from these prevented casualties over a 20-year period total \$81.9 million undiscounted; these estimated benefits have a present value calculated using a 7 percent discount rate of \$42.4 million, and a present value calculated using a 3 percent discount rate of \$60.3 million. Given that some procedural and equipment errors may still occur in the future, the analysis assumes a 50 percent effectiveness rate in preventing these types of injuries and fatalities. In addition, there may be other benefits from the proposed rule, such as fewer passenger claims for personal property damage, maintaining passenger goodwill and trust (by reducing these low-frequency but typically highly-publicized incidents), and by lowering future maintenance costs (through encouraging the replacement of older equipment with new passenger cars equipped with more reliable door safety systems).

FRA also quantified the incremental burden of the proposed rule upon commuter and intercity passenger railroads. The primary contributor to the estimated costs is the train crew’s task of verifying that the door by-pass devices on the train are sealed in the normal non-by-pass mode, a requirement in the proposed operating rules. The door by-pass devices are used to override door safety systems in certain circumstances, for example, allowing a train to develop tractive power and complete its route. The second greatest cost factor is the estimated cost to implement some of the proposed door safety features on new

passenger cars and locomotives used in passenger service with either powered or manual doors. The estimated costs over the 20-year period of analysis total \$15.0 million undiscounted, with a present value calculated using a 7 percent discount rate of about \$8.0 million, and a present value calculated using a 3 percent discount rate of about \$11.2 million. The proposed rule incurs relatively small costs because most of the initial burdens are expected from changes to railroad operating rules. The design standards for door safety systems apply to new passenger cars and locomotives used in passenger service where they can be installed cost-effectively.

These costs and benefits result in net positive benefits over 20 years of about \$67.0 million undiscounted, with a present value calculated using a 7 percent discount rate of \$34.4 million, and present value calculated using a 3 percent discount rate of \$49.1 million.

## II. Statutory and Regulatory Background

### A. Passenger Equipment Safety Standards Background

In September 1994, the Secretary of Transportation (Secretary) convened a meeting of representatives from all sectors of the rail industry with the goal of enhancing rail safety. As one of the initiatives arising from this Rail Safety Summit, the Secretary announced that DOT would begin developing safety standards for rail passenger equipment over a five-year period. In November 1994, Congress adopted the Secretary’s schedule for implementing rail passenger equipment safety regulations and included it in the Federal Railroad Safety Authorization Act of 1994 (the Act), Public Law 103–440, 108 Stat. 4619, 4623–4624 (November 2, 1994). Congress also authorized the Secretary to consult with various organizations involved in passenger train operations for purposes of prescribing and amending these regulations, as well as issuing orders pursuant to them. Section 215 of the Act (codified at 49 U.S.C. 20133). The Secretary has delegated such responsibilities to the Administrator of FRA (*see* 49 CFR 1.89).

FRA formed the Passenger Equipment Safety Standards Working Group to provide FRA with advice in developing the regulations mandated by Congress, and on May 12, 1999, published a final rule containing a set of comprehensive safety standards for railroad passenger equipment. *See* 64 FR 25540. After publication of the final rule, interested parties filed petitions seeking FRA’s reconsideration of certain requirements

contained in the rule, and on June 25, 2002, FRA completed its response to the petitions for reconsideration. *See* 67 FR 42892. The product of this rulemaking was codified primarily at 49 CFR part 238 and secondarily at 49 CFR parts 216, 223, 229, 231, and 232.

One of the purposes of the Passenger Equipment Safety Standards is protecting the safety of passenger train occupants in an emergency situation, including providing for emergency egress and rescue access through exterior side doors. *See* §§ 238.235 and 238.439. FRA has engaged in rulemaking to amend the Passenger Equipment Safety Standards, and notably, on February 1, 2008, FRA published a final rule on Passenger Train Emergency Systems addressing: emergency communication, emergency egress, and rescue access. *See* 73 FR 6370. FRA has also established additional requirements for passenger train emergency systems, including doors used for emergency egress and rescue access. *See* Passenger Train Emergency Systems II final rule, published on November 29, 2013, 78 FR 71785. These subsequent proceedings have not focused on the safety of doors systems in non-emergency situations, however.

### B. The Need for New Design Standards and Operating Practices Relating to Exterior Side Doors on Passenger Train Equipment

FRA’s principal reason for initiating this rulemaking is to reduce the number and severity of injuries caused by exterior side doors striking or trapping passengers as they board or alight from passenger trains in non-emergency situations. FRA has observed that incidents involving exterior side doors in routine use on passenger trains have previously resulted in casualties and serious injuries. For example, on November 21, 2006, a New Jersey Transit Rail Operations (NJT) train was departing a station in Bradley Beach, New Jersey when the closing exterior side doors of the train caught and held a passenger attempting to exit the train. The passenger was then dragged by the train along the station platform as the train was leaving the station. The passenger died as a result of his injuries.

Through its investigation of the incident, FRA found that the assistant conductor of the train was not in the proper position to monitor all of the train’s exterior side doors as they were closing, because the passenger exited through a door behind where the assistant conductor was looking. The assistant conductor also did not observe the door-indicator lights on the door

control panel, which indicated that the exterior side doors on the passenger car were not all closed as intended. In addition, FRA learned that the train was being operated with its door by-pass switch activated, negating the passenger car's door safety system, which was designed to reopen the exterior side doors after detecting an obstruction.

As a result of this incident, NJT reviewed its operating rules and limited the use of the door by-pass feature in its passenger train operations. Contemporaneously, FRA issued Safety Advisory 2006–05, “Notice of Safety Advisory: Passenger Train Safety—Passenger Boarding or Alighting from Trains” (71 FR 69606 (December 1, 2006)). The safety advisory recommended that passenger railroads reassess their rules and procedures to make certain that trains do not depart a station until all passengers have successfully boarded or alighted from the train. The safety advisory also noted the important role of passenger train crews in the safe operation of a train after a door by-pass switch has been activated. Passenger railroads were encouraged by FRA to voluntarily implement the recommendations of the safety advisory.

Subsequently, there have been other instances where passengers have become trapped in exterior side doors of trains. On February 2, 2007, a local police officer witnessed a passenger stuck between the exterior side doors of a moving Long Island Rail Road (LIRR) train at a station in New York City, New York. As a result, the passenger's right leg was dragged on the tactile strip of the station platform, causing abrasions to the passenger's leg. The police officer stopped the train and pulled the passenger free from the exterior side doors.

Some of these instances were “close calls” in which passengers have narrowly avoided injury. On March 4, 2011 in La Grange, Illinois, a passenger's arm and cane got caught in the closing exterior side doors of a Northeast Illinois Regional Commuter Railroad Corporation (Metra) train while attempting to board the train. A fellow passenger inside the train was able to flip the door's emergency switch just as the train began to move. As a result, the trapped passenger was released and able to avoid being dragged down the station platform. A similar incident occurred on a Metra train on December 19, 2009, when a four-year-old boy's boot became caught in the exterior side doors when alighting from the train. The child's mother needed to pull the child's leg free from the train doors as the train was leaving the station.

As a result of these types of incidents, Metra changed its operating rules to require a “second look” up and down each train before departing a station. This operating rule requires the conductor to close all exterior side doors on the train, except the door in which he or she is standing, to take a second look up and down the station platform to make sure that all the train's exterior side doors are closed and clear of passengers. After the second look, the conductor may then close his or her open door and signal to the train's engineer to depart the station.

Based on these types of incidents, and other findings and concerns, including initial findings from safety assessments of exterior side door systems on passenger railroads in the northeast region of the United States, in early 2007 FRA tasked RSAC to review Safety Advisory 2006–5 and develop recommendations for new safety standards to improve passenger and crewmember safety relating to the operation and use of exterior side doors. The Task Force, a subgroup of the Passenger Safety Working Group (Working Group), was assigned to develop these recommendations.

The Task Force was already reviewing passenger station gap issues in April 2007 when it was assigned this task. The Task Force then assembled the Passenger Door Safety Subgroup (Door Safety Subgroup) to develop recommended regulatory language to improve the safety of exterior side door systems on passenger trains. FRA shared with RSAC its initial findings that many passenger railroads in the Northeast were not being operated with fully-functional passenger train exterior side door safety systems, and afterward went on to conduct in-person assessments of the exterior side door safety systems on a total of twenty-four passenger railroads throughout the Nation. From these various inspections, FRA reviewed many different models of passenger equipment and was able to gain important information about the risks to passengers and train crews associated with the operation and use of passenger train exterior side doors. This information was shared with the Door Safety Subgroup, which met a total of nine times from 2008 to 2011.

Through its meetings, the Door Safety Subgroup developed proposed regulatory language to improve the safe use and operation of exterior side doors on passenger trains. The proposed language was approved by the Task Force on February 25, 2011. It was then subsequently adopted by the Working Group and full RSAC on March 31, 2011, and May 20, 2011, respectively.

While the Door Safety Subgroup was developing proposed regulatory language, APTA developed and approved Standard SS–M–18–10, “Standard for Powered Exterior Side Door System Design for New Passenger Cars.” Subsequent to RSAC's approval of the consensus recommendations that are the basis of this NPRM, APTA changed its numbering nomenclature for its safety standards, which resulted in the numbering of this standard changing from SS–M–18–10 to PR–M–S–18–10. This standard is otherwise identified as PR–M–S–18–10 in this proposed rule; however, the numbering change has not affected the substantive content of the standard. This APTA standard contains minimum standards for powered exterior side door systems and door system function on new rail passenger cars, as the standard was designed by APTA to be used in specifications for the procurement of new passenger cars. The standard addresses door system design requirements at the door level, car level, and train level. Non-powered doors and other types of doors on passenger cars that are not exterior side doors are not covered by APTA's standard. This NPRM proposes to incorporate by reference this APTA standard for powered exterior side door safety systems on new passenger cars and connected door safety systems on new locomotives used in passenger service. A copy of this APTA standard is included in the docket of this rulemaking for public review.

### C. RSAC Overview

In March 1996, FRA established RSAC as a forum for collaborative rulemaking and program development. RSAC includes representatives from all of the agency's major stakeholder groups, including railroads, labor organizations, suppliers and manufacturers, and other interested parties. A list of RSAC member groups includes the following:

- American Association of Private Railroad Car Owners (AAPRCO);
- American Association of State Highway and Transportation Officials (AASHTO);
- American Chemistry Council;
- American Petroleum Institute;
- American Short Line and Regional Railroad Association (ASLRRRA);
- American Train Dispatchers Association (ATDA);
- APTA;
- Association of American Railroads (AAR);
- Association of Railway Museums;
- Association of State Rail Safety Managers (ASRSM);

- Brotherhood of Locomotive Engineers and Trainmen (BLET);
- Brotherhood of Maintenance of Way Employes Division (BMWED);
- Brotherhood of Railroad Signalmen (BRS);
- Chlorine Institute;
- Federal Transit Administration (FTA);\*
- Fertilizer Institute;
- High Speed Ground Transportation Association;
- Institute of Makers of Explosives;
- International Association of Machinists and Aerospace Workers;
- International Brotherhood of Electrical Workers;
- Labor Council for Latin American Advancement;\*
- League of Railway Industry Women;\*
- National Association of Railroad Passengers (NARP);
- National Association of Railway Business Women;\*
- National Conference of Firemen & Oilers;
- National Railroad Construction and Maintenance Association (NRCMA);
- National Railroad Passenger Corporation (Amtrak);
- National Transportation Safety Board (NTSB);\*
- Railway Supply Institute (RSI);
- Safe Travel America (STA);
- Secretaria de Comunicaciones y Transporte;\*
- Sheet Metal Workers International Association (SMWIA);
- Tourist Railway Association, Inc.;
- Transport Canada;\*
- Transport Workers Union of America (TWU);
- Transportation Communications International Union/BRC (TCIU/BRC);
- Transportation Security Administration (TSA);\* and
- United Transportation Union (UTU).

\* Indicates associate, non-voting membership.

When appropriate, FRA assigns a task to RSAC, and after consideration and debate, RSAC may accept or reject the task. If the task is accepted, RSAC establishes a working group that possesses the appropriate expertise and representation of interests to develop recommendations to FRA for action on the task. These recommendations are developed by consensus. A working group may establish one or more task forces to develop facts and options on a particular aspect of a given task. The individual task force then provides that information to the working group for consideration. When a working group comes to unanimous consensus on recommendations for action, the

package is presented to the full RSAC for a vote. If the proposal is accepted by a simple majority of RSAC, the proposal is formally recommended to the Administrator of FRA. FRA then determines what action to take on the recommendation. Because FRA staff members play an active role at the working group level in discussing the issues and options and in drafting the language of the consensus proposal, FRA is often favorably inclined toward the RSAC recommendation. However, FRA is in no way bound to follow the recommendation, and the agency exercises its independent judgment on whether the recommended rule achieves the agency's regulatory goal(s), is soundly supported, and is in accordance with policy and legal requirements. Often, FRA varies in some respects from the RSAC recommendation in developing the actual regulatory proposal or final rule. Any such variations would be noted and explained in the rulemaking document issued by FRA. However, to the maximum extent practicable, FRA utilizes RSAC to provide consensus recommendations with respect to both proposed and final agency action. If RSAC is unable to reach consensus on a recommendation for action, the task is withdrawn and FRA determines the best course of action.

#### *D. Passenger Safety Working Group and General Passenger Safety Task Force*

In May 2003, RSAC established the Working Group to handle the task of reviewing passenger equipment safety needs and programs as well as developing recommendations for specific actions to advance the safety of rail passenger service. Members of the Working Group, in addition to FRA, include the following:

- AAR, including members from BNSF Railway Company (BNSF), CSX Transportation, Inc. (CSXT), and Union Pacific Railroad Company (UP);

- AAPRCO;
- AASHTO;
- Amtrak;
- APTA, including members from Bombardier, Inc., Herzog Transit Services, Inc., Interfleet Technology, Inc. (Interfleet, formerly LDK Engineering, Inc.), LIRR, Maryland Transit Administration (MTA), Metro-North Commuter Railroad Company (Metro-North), Metra, Southern California Regional Rail Authority (Metrolink), and Southeastern Pennsylvania Transportation Authority (SEPTA);

- ASLRRRA;
- BLET;
- BRS;

- FTA;
- NARP;
- NTSB;
- RSI;
- SMWIA;
- STA;
- TCIU/BRC;
- TSA;
- TWU; and
- UTU.

In September 2006, the Working Group established the Task Force principally to examine the following issues: (1) Exterior side door securement; (2) passenger safety in train stations; and (3) system safety plans. Members of the Task Force include representatives from various organizations that are part of the larger Working Group and, in addition to FRA, include the following:

- AAR, including members from BNSF, CSXT, Norfolk Southern Railway Co., and UP;

- AASHTO;
- Amtrak;

- APTA, including members from Alaska Railroad Corporation, Peninsula Corridor Joint Powers Board (Caltrain), LIRR, Massachusetts Bay Commuter Railroad (MBCR), Metro-North, MTA, NJT, New Mexico Rail Runner Express, Port Authority Trans-Hudson, SEPTA, Metrolink, and Utah Transit Authority;

- ASLRRRA;

- ATDA;
- BLET;
- FTA;
- NARP;
- NRCMA;
- NTSB;
- Transport Canada; and
- UTU.

After being assigned its task by the Working Group, the Task Force assembled the Door Safety Subgroup to develop recommended regulatory language to improve the safety of exterior side door systems on passenger trains. The Door Safety Subgroup consisted of Task Force members who were interested in addressing the risks associated with the operation and use of exterior side doors on passenger equipment. The Door Safety Subgroup met during scheduled Task Force meetings on the following dates and in the following locations to discuss passenger train exterior side door safety:

- April 23–24, 2008, in San Diego, CA;

- July 29–30, 2008, in Cambridge, MA;

- December 2, 2008, in Cambridge, MA;

- March 3, 2009, in Arlington, VA;

- April 21, 2009, in Washington, DC;

- May 27–28, 2009, in Cambridge, MA;

- July 7–8, 2009, in Philadelphia, PA;
  - October 6–8, 2009, in Orlando, FL;
- and
- February 24–25, 2011, in Washington, DC

To aid the Task Force in its delegated task, FRA's Office of Chief Counsel in conjunction with FRA's Office of Railroad Safety first drafted proposed regulatory text for discussion purposes at Door Safety Subgroup meetings. Door Safety Subgroup members would then make changes to this proposed draft text. Staff from the John A Volpe National Transportation System Center of the Research and Innovative Technology Administration also attended these meetings and contributed to the discussions. Minutes of each of these meetings are part of the docket in this proceeding and are available for public inspection.

Through these various discussions, the Door Safety Subgroup developed proposed regulatory language which was accepted by the Task Force as a recommendation to the Working Group on February 25, 2011. The Task Force's consensus language was then subsequently approved by the Working Group on March 31, 2011. The consensus language was then presented before the full RSAC on May 20, 2011, where it was approved by unanimous vote. Thus, the Working Group's recommendation was adopted by the full RSAC as the recommendation to FRA.

In issuing this NPRM, FRA is also proposing some regulatory text that was not expressly part of the RSAC's consensus recommendation. For instance, for the benefit of the regulated community, in proposed § 238.131(c) FRA identifies other sections in part 238 that include substantive door safety requirements. Further, the proposed rule makes clear that all exterior side doors on new intercity passenger train equipment—in addition to new commuter train equipment—would be subject to the requirements of proposed § 238.131. FRA strongly believes that new passenger cars with manual or powered exterior side doors should have door safety systems and be covered by the requirements of proposed § 238.131, along with connected door safety systems on new locomotives used in passenger service. The door safety system should alert the train crew if an exterior side door is opened while the train is moving between stations by virtue of the door status indicator above the opened door and the door summary status indicator in the engineer's cab. The train should also lose power through the traction inhibit feature, which all together should allow the

train crew to make a timely response to the incident. FRA invites comment on this proposal.

Moreover, FRA makes clear that, in addition to exterior side doors that are used for the boarding and alighting of passengers at train stations, other full-sized exterior side doors are included under the provisions of this proposed rule. For example, full-sized exterior side doors used for loading baggage or stocking dining car supplies on passenger cars would be covered under this proposed rule. FRA believes that these types of exterior side doors should be covered under this passenger door rulemaking because passengers may be able to access these full-sized doors and use these doors to exit a train while the train is in motion between stations. Therefore, such doors should be incorporated into the train's door safety system so that the train crew receives some notification if one of these doors is not closed or is opened while the train is in motion. However, FRA is not seeking to include small hatches of compartment-sized doors under the requirements of the proposed rule. FRA also seeks comment on this proposal.

In addition, it is not FRA's intent to regulate the use or operation of exterior side doors on private cars through this rulemaking. However, FRA does invite comment on whether private cars should be subject to any of the proposed requirements of this rulemaking. Specifically, FRA invites comment on the extent to which private cars in a passenger train may affect the safe operation of the train's door safety system, and, if so, what requirements would be appropriate to provide for the safe operation of the train's door safety system. Based on the comments received, in the final rule FRA may specify requirements affecting private cars to the extent that they are necessary for the safety of the passenger train as a whole.

FRA has made others changes from the RSAC recommendation. These changes are for the purposes of clarity and formatting in the **Federal Register** and are not intended to affect the RSAC's consensus. FRA believes that all the changes made from the RSAC recommendation are consistent with the intent of the Task Force, Working Group, and full RSAC. However, FRA invites comment on any proposed regulatory language.

In this regard, FRA has decided that it is unnecessary to include a section of the RSAC recommendation that would require powered exterior side passenger doors to be connected to a manual override device that is capable of opening the exterior side door when the

door is locked out. FRA is not including such a proposal in this NPRM because this requirement is a design requirement already covered by regulation, specifically § 238.112(a) and (b). Please note that this requirement was formerly contained in §§ 238.235(a) and (b) and 238.439(b) for Tier I and Tier II passenger equipment, respectively, and then consolidated in § 238.112(a) and (b) by the November 29, 2013 Passenger Train Emergency Systems II final rule (78 FR 71785). However, FRA invites comment on whether these regulations sufficiently address the Task Force recommendation.

FRA has also moved an RSAC consensus item proposed under existing § 238.305 (Interior calendar day mechanical inspection of passenger cars) to new proposed § 238.133(g)(2). The proposed language would require that all exterior side door safety system override devices are inactive and sealed, as part of the calendar day inspection of passenger cars and locomotives used in passenger service. FRA moved this consensus item from under § 238.305 to proposed § 238.133 principally because under § 238.305 the proposed requirement would apply only to Tier I passenger cars (i.e., passenger cars operating at speeds not exceeding 125 mph) and would not expressly address conventional (non-passenger-carrying) locomotives used in passenger service. Therefore, as proposed under § 238.133, the inspection requirement would apply to all tiers of passenger cars, including Tier II passenger cars (i.e., passenger cars operating at speeds exceeding 125 mph but not exceeding 150 mph), as well as apply to conventional locomotives used in passenger service. FRA invites comment on this proposal.

Furthermore, FRA is also inviting comment on the implementation schedule of certain provisions of this rulemaking in proceeding to a final rule. FRA is proposing that all mechanical requirements for new passenger cars with manual and powered exterior side doors, along with connected door safety systems on new locomotives used in passenger service, apply to equipment ordered on or after 120 days after the date of publication of the final rule in the **Federal Register**, or placed in service for the first time on or after 790 days after the date of publication of the final rule in the **Federal Register**. However, for certain operating rules and training requirements proposed under §§ 238.135 and 238.137, FRA is considering a three-year implementation period from the effective date of the final rule. FRA believes this would afford railroads adequate time to train all of their employees during annual

refresher training without having to incur additional training costs. FRA requests comment on these proposed implementation dates and invites suggestions from the regulated community as well as the greater public on the time schedule for implementing the final rule's requirements.

Finally, FRA has conformed the proposed rule to changes made to part 238 by the Passenger Train Emergency Systems II final rule, which was recently issued. *See* 78 FR 71785; Nov. 29, 2013.

### III. Technical Background

#### A. Overview

Passenger railroads have responded to growth in ridership by expanding rail service, investing in new rail equipment, and incorporating new technologies into their passenger equipment. This has resulted in the varied arrangements of powered exterior side doors in passenger trains today. Many types of these power door systems have safety features to alert train crewmembers of an obstruction in a door.

These power door systems are complex. They employ components and electrical circuits to open and close the exterior side doors and contain door status indicators, which provide a means to determine motion and the end of the train. Power door systems operate electrically from commands given by train crews through signals from door switches, sensors, relays, and other devices that interface with and monitor the exterior side doors individually and throughout the entire trainline circuit. These various appurtenances typically act to provide a warning when exterior side doors are closing, respond to obstructions in closing doors, and prevent the doors from opening when a train is in motion. When connected to the propulsion system, these devices will inhibit the development of tractive power if an exterior side door is prevented from closing. Lock-out and by-pass systems are also employed to allow trains to operate even when equipment related to the exterior side doors is malfunctioning.

However, not all passenger cars are equipped with powered exterior side door systems. In fact, for those passenger railroads with cars equipped with manually operated exterior side doors or trap doors, some have allowed the doors to remain open between train stations to increase operating efficiency. Trap doors are metal plates that, when raised, reveal a fixed or moving stairwell to facilitate low-level boarding; to provide for high-level platform

boarding, the train crew closes (or keeps closed) the trap to cover the stairwell. Trap doors are not, in themselves, exterior side doors, but are manually operated by the train crew to enable boarding and alighting through the exterior side doors.

#### B. Scope of FRA Safety Assessment of Passenger Railroads

FRA initially reviewed accident data involving passenger train exterior side doors immediately following the incident in Bradley Beach, New Jersey, discussed in Section II.B., above. From its review, FRA determined that while accidents were infrequent they could have severe consequences. FRA identified numerous factors, conditions, and components that could adversely impact the safe operation or the integrity of the door safety system of a passenger train. These include door position, door controls, door status indicators, no-motion and end-of-train electrical circuits, power failure, traction-inhibit throttle movement, mixed consist operation, malfunctioning equipment, door operating rules, and employee knowledge of the door safety system(s) on the train he or she is operating.

As discussed above, FRA decided to perform a safety assessment of twenty-four railroads operating passenger trains utilizing many different models of equipment in the United States. These assessments were performed to identify the risks endangering passenger and crew safety, specifically when passengers were riding upon, boarding, or alighting from trains. Analytical techniques were employed to identify any limitations of the safety features engineered into the trains' exterior side doors and of the railroads' rules governing their employees operation of them. Each of the passenger railroads was assessed individually, and exterior side door safety concerns were found with virtually all of the railroads surveyed. However, the door safety concerns varied among the railroads in nature and in degree.

There are various types of trains that are designed for particular purposes. The type and sequence of locomotives and cars that are assembled or coupled together to form a train is referred to as the train consist. A train consist can be changed frequently at the railroad's discretion. As part of its assessment, FRA reviewed the predominant types of passenger train service utilized in the United States to determine the risks posed to passengers and train crews by exterior side door safety systems.

One type of service involves passenger trains with conventional

locomotives in the lead pulling consists of passenger coaches and sometimes other types of cars such as baggage cars, dining cars, and sleeping cars. Such trains are common on long-distance, intercity rail routes operated by Amtrak.

Most passenger rail service in the Nation is provided by commuter railroads, which typically operate one or both of the two most common types of service: Push-pull service and multiple-unit (MU) locomotive service. Push-pull service is passenger train service typically operated in one direction of travel with a conventional locomotive in the rear of the train pushing the consist (the "push mode") and with a cab car in the lead position of the train. The train can then transition into the opposite direction of travel, where the service is operated with the conventional locomotive in the lead position of the train pulling the consist (the "pull mode") with the cab car in the rear of the train. A cab car is both a passenger car and a locomotive. The car has both seats for passengers and a control cab from which the engineer can operate the train. Control cables (or electric couplers) run the length of the train to facilitate commands between the control cab, passenger cars, and the locomotive. These control cables make up an electric circuit called the trainline circuit. Electrical cables also run the length of the train to provide power for heat, light, and other purposes. Passenger train service using self-propelled electric or diesel MU locomotives may operate individually, but typically operate semi-permanently coupled together as a pair or triplet with a control cab at each end of the train consist. During peak commuting hours, multiple pairs or triplets of MU locomotives are combined and operated together to form a single passenger train.

In Amtrak's Northeast Corridor, high-speed Acela Express passenger train service is provided using trainsets. Acela Express trainsets are train consists of specific types of passenger cars such as first class, business class, and café cars that are semi-permanently coupled between power cars located at each end of the consist. These trainsets virtually never change as the power cars and passenger cars are semi-permanently coupled and integrated together with computer controls. The power cars provide tractive power to both ends simultaneously and have a control cab from which the engineer can operate the train but do not carry passengers.

#### C. Uses of Passenger Car Exterior Side Doors

Passenger car exterior side doors are designed for various purposes on

passenger trains. Most exterior side doors are used for passenger boarding and alighting at train stations. However, exterior side doors also have other uses. For example, exterior side doors can be used for emergency responder access and passenger egress during emergency situations, whether or not the doors are normally used for passenger boarding or alighting. As previously stated, exterior side doors can also be used for non-passenger related functions such as loading baggage or stocking dining car supplies. Exterior side doors that serve these purposes often vary greatly in size and dimension. In some instances, these exterior side doors are full-sized doors, while on other equipment the doors are essentially just small hatches or are compartment-sized.

#### *D. Types of Passenger Car Exterior Side Doors*

Through its safety assessments of exterior side door safety systems on passenger trains, FRA reviewed several generations of equipment. FRA found a wide range of doors and corresponding door safety features with varying levels of sophistication. The level of sophistication was generally limited by the technology that was available at the time that the passenger car was manufactured and the railroad's ability to purchase, or retrofit, equipment with more sophisticated door safety features.

There are three types of exterior side doors in service today: hinged, sliding, and plug. Hinged doors on a passenger car operate like a door in a home entranceway. They swing inward into the car, to open, and back towards the exterior of the car, to close. Exterior sliding doors on a passenger car are moving panels of various sizes that retract into pockets within the side walls of the passenger car when opening. Sliding doors can be designed with one panel or leaf that slides open and closed. Sliding doors can also consist of two bi-parting panels or leaves, which open by retracting from each other into the side wall and close by joining together in the center of the doorway. Plug doors on a passenger car are comprised of a sliding panel which opens and slides along the side of the car to open the exterior side door. However, the sliding panel does not retract into a pocket like a sliding door; instead, when closed, the door conforms to the side of the passenger car to seal out environmental noise and minimize aerodynamic resistance.

#### *E. Exterior Side Door Configurations and Operation*

Passenger railroads use a variety of configurations for the exterior side

doors on the passenger cars in their fleets. FRA reviewed passenger cars with exterior side doors located at multiple locations along the sides of the cars: at each end, at their quarter points, and in the middle.

Passenger car exterior side doors may be operated manually, or with either electro-mechanical or electro-pneumatic power. Manually operated exterior side doors are simple hinged or sliding doors that are manually operated by passengers or crew members at each station stop. Powered electro-mechanical doors are doors that employ an electric motor to drive a mechanical operator for opening and closing. Powered electro-pneumatic doors, like electro-mechanical doors, employ a mechanical operator for opening and closing; however, powered electro-pneumatic doors use compressed air to drive the mechanical operator instead of an electric motor. The mechanical operators provide opening and closing force to each door panel or leaf through mechanical linkage and a gearbox or similar device. All powered door systems require mechanical door operators.

#### *F. Assessment Findings*

FRA identified a number of key factors, conditions, and components that could impact passenger and crew safety in relation to the use and operation of passenger train exterior side doors. These are addressed, individually, in detail below.

##### *1. Door Position*

FRA reviewed the risk posed by the position of exterior side doors while passenger trains were in motion. FRA determined that railroads operating passenger trains with manually operated exterior side doors cannot control whether an individual door is opened or closed unless a crew member is present at each door. When a crew member is not present, passengers themselves can open the exterior side doors of the cars and exit or enter the train. Therefore, the potential exists for passengers to jump off or on moving trains at stations. At the same time, FRA found that other passenger trains were purposefully run with their manually operated exterior side doors in an open position, even though in some cases train crewmembers were not stationed at the doors.

Passenger trains with powered exterior side doors are normally operated with the doors closed between stations. However, some passenger railroads operated trains with their doors open between stations. These passenger stations are in close proximity

to each other and alternate between high- and low-level platforms for passenger boarding and alighting. The operation of passenger trains with open exterior side doors presents significant safety concerns as passengers and crewmembers could potentially fall out of an open door while the trains are in motion. Due to the safety hazards arising from operating a passenger train with open exterior side doors, FRA has determined that, with limited exceptions for crew use only, passenger trains should have their exterior side doors closed when they are in motion between stations.

##### *2. Door Control Panels*

Powered exterior side doors on passenger cars are controlled and operated by door control panels, which are usually located on both sides of each car. These panels provide an interface between the train's door system and the train crew, and typically require activation with a door key. The door key is inserted into the control panel and is then used to turn the panel on or off. Once the panel is turned on, a conductor can issue commands to open or close exterior side doors by pressing buttons on the panel. Some passenger trains have door control panels that allow only local control of the exterior side doors. This means the conductor can operate the exterior side doors only in the same car as the door control panel. Other passenger trains allow their door control panels to operate all exterior side doors on the side of the train where the panel is activated. This allows the door control panel in any passenger car to open simultaneously all the exterior side doors on one side of the train. The conductor also has the ability to open or close only those doors forward of the activated panel, those doors rearward of the activated panel, or simply the single door directly adjacent to the activated panel.

FRA found many instances in which door control panels were left energized after the door control panel key was removed. This can occur when the keyhole for the door control panel key is worn or not maintained and the conductor removes the key without actually turning off the door control panel. With the door control panel energized, passengers can press the door-open button on the panel and open one or more exterior side doors on the train even when the train is still in motion. This situation can occur on many different types of equipment.

##### *3. FMECA*

As part of its assessment, FRA evaluated how the door systems on



various passenger trains responded to a loss of door control power by de-energizing the door control circuit breaker. FRA found significantly different responses on various railroads when door control systems experienced a circuit failure causing a loss of power. Some exterior side doors closed, some did not close at all, and others simply stopped if they were in motion at the time of the failure. Additionally, in a number of instances, the train could still produce tractive power even though the door control circuit failure allowed the exterior side doors to remain open.

Employees who operate the exterior side doors of a passenger train should understand how a safety system for a door that they control will respond to a loss of power. Employees can then take steps to safeguard against any safety hazards raised by the loss of power. This proposed rule would require all door systems on new passenger cars and connected door systems on new locomotives used in passenger service to be subject to a formal safety analysis that includes a Failure Modes, Effects, and Criticality Analysis (FMECA) before being placed into service. By requiring new passenger cars and locomotives used in passenger service to be subjected to this analysis before being placed into service, railroads would help ensure that the failure of a single component of a door safety system would not create an unsafe condition for passengers and train crewmembers.

#### 4. Power Door Status

Power door status is monitored by door position switches and can be conveyed locally or through the trainline circuit using various arrangements of lights to relay the condition of the doors to the train crew. On most passenger trains, one or more lights will illuminate on the interior or exterior of a passenger car above the exterior side door that is open. The lights will then extinguish when the exterior side doors are closed.

If the train's door status is configured with a door summary circuit for trainline display, one or more lights will illuminate on the active door control panel when all the doors are closed on that side of the train. Therefore, if a power door is prevented from closing, the external and internal lights would remain illuminated and the trainline door status light on the door control panel would not illuminate. This door status trainline circuit is often, but not always, displayed to the engineer as a door closed light in the locomotive cab. When the light is illuminated it indicates to the engineer that the exterior side doors on both sides of the

train are closed and that the train is ready to safely leave the station.

FRA found that all trains with powered exterior side door systems had some type of door status indicators that could be used by train crews to determine if there was an obstruction in the exterior side doors. However, in many instances the door status indicators were not being used as intended by on-board personnel. In some cases, these indicators were not utilized by crewmembers because the indicators' lens color was not maintained properly and therefore not reliable. In other cases, FRA found that train crews looked in the general location of an indicator light on a door control panel, but at times mistakenly read the indication of a different indicator as the door status indicator because the lens color was not uniformly maintained. Door status indicators need to be maintained properly for ready and reliable reference by crewmembers that are tasked with safely operating the door systems. If properly maintained, these indicators should alert train crewmembers about a possible obstruction in an exterior side door.

#### 5. No-Motion Electrical Circuit

No-motion is an electric circuit that is used by the door safety system to determine if a passenger car or train is moving or not. This circuit is designed to prevent the exterior side doors of a train from opening while the train is in motion, except for a crew access door. A crew access door can be any exterior side door on a passenger train that a crewmember opens for his or her use with a door control power key. No-motion electrical circuitry will also cause the exterior side doors to close when the train accelerates above a predetermined speed. In the event that the no-motion circuit malfunctions, the conductor will not be able to open the exterior side doors using trainline commands since the circuit is designed to fail safely and the door system assumes that the train is in motion. However, in the event of such a malfunction, many passenger cars are equipped with a by-pass switch that can override the no-motion circuit and enable the exterior side doors to open.

During its assessment, FRA discovered that on some railroads train crews actually used the no-motion circuit to close the exterior side doors when departing stations. In these instances, train crewmembers were not closing the exterior side doors using a door control panel, but instead were using the throttle to accelerate the train and close the exterior side doors

through the no-motion circuit. The assessment also identified that on many railroads passenger and train crew safety was at risk because safety-sensitive switches that could impact the door system, such as the no-motion by-pass switch, were not properly positioned or protected. An improperly positioned no-motion by-pass switch presents the risk of an undesired opening of an exterior side door while the train is in motion, which could go undetected by the train's crew.

Exterior side doors should be closed only after the train crew determines it is safe for the train to depart the station. In order to protect passenger and train crew safety, the no-motion by-pass switch should be secured or sealed. This will mitigate the potential of an accidental activation of this safety-critical device.

#### 6. End-of-Train Electrical Circuit

The end-of-train electrical circuit is part of the door safety system. The circuit is used to identify the last passenger car in the train consist, or the physical end of the train, or both. Door control system manufacturers have utilized various ways to identify and convey the end of the train to the door safety system. The end of the train is identified on different passenger cars by using jumpers, manual or automatic switches, circuitry in electric couplers, marker lights, or other devices. Door safety circuits can become compromised when the end of the train is established somewhere other than the last car of the train. This can occur by the unintentional activation of an end-of-train switch. For example, in some passenger cars toggle switches, which are readily accessible to passengers, are used to establish the end of the train. If improperly positioned and activated by a passenger or train crewmember at a location that is not at the end of the train, all passenger cars that are rearward of the car with the activated end-of-train switch would not be recognized by the door safety system. Because the door safety features in those cars would not function, this would increase the risk of a passenger becoming entangled in a door and dragged when the train departs the station.

FRA's assessment identified eight railroads on which safety-sensitive switches, like the end-of-train switch, were not properly positioned or protected. End-of-train switches should be secured and protected to prevent access by unauthorized personnel as well as unintentional activation, which could compromise the safety of the door

control system and go undetected by the train crew.

#### 7. Door Safety Features

As touched on above, the sophistication of passenger car door safety features is just as varied as the arrangement of the exterior side doors themselves. Hinged-type manually operated exterior side doors do not utilize any specific door system safety features. Yet, FRA found that all but one model of passenger cars with manual or powered sliding-type doors employed a flexible, rubber-like strip of varying widths on the leading edge of the door. This flexible strip runs from the floor to the ceiling along the edge of the door to seal the car interior from environmental conditions. Although not necessarily intended for a door system safety purpose, this flexible strip or seal on the edge of the door is pliable and bends, which aids in pulling an obstruction free from the door. In addition, FRA found that some power door systems added a door push-back feature intended to aid in freeing an obstruction in a door. The push-back feature allows someone to push back on a closing door so that the individual can open or partially open the door and clear an obstruction. However, not all passenger cars that have a flexible strip on the edge of the door have a door push-back feature.

Power door systems on passenger cars can also be outfitted with obstruction detection systems. Obstruction detection systems use sensors to determine when an exterior side door is being prevented from closing as intended. The system will cause the exterior side door to react to an obstruction by automatically stopping the door from closing or by reversing the movement of the door, similar to the functioning of elevator doors. Most obstruction detection systems require the exterior side door to actually physically impact the obstruction in order to detect it. These types of obstruction detection systems use a pressure-sensitive edge on the leading edge of the exterior side door or door jamb, or both. If something is caught in the door, the sensitive edge will become compressed and cause the door to react to the obstruction by stopping the closing door or by reversing the movement of the door. Other obstruction detection systems employ a tilting switch that detects when the door has been bumped off balance by an obstruction and causes a reaction similar to doors employing a sensitive edge for obstruction detection.

There are also systems that use more sophisticated technologies to detect

obstructions. These advanced systems monitor motor amperage, or air pressure in passenger cars with powered electro-pneumatic exterior side doors. These systems detect an increase in the electric current or air pressure, which indicates to the door safety system that there is an obstruction in the exterior side doors. Other advanced obstruction detection systems do not actually require the exterior side doors to impact an obstruction in order to detect it. Instead, photo optics or laser light beams are employed to prevent the door from closing if something interrupts a light beam that runs along the path of the closing exterior side door.

However, even when door obstruction detection systems were utilized, FRA found during its assessment that it was possible to become entangled in a powered exterior side door on numerous different models of equipment. In these cases, the door obstruction detection systems failed to detect either small obstructions (e.g., a human hand) or large obstructions (e.g., a wheelchair).

FRA believes that while door obstruction detection systems reduce the risks to passenger safety and newer systems utilize more reliable technology, they do have limitations. Therefore, train crews need a clear understanding of the limitations of the safety features on the exterior side doors of the trains they are operating. When train crews do not possess a thorough understanding of the limitations of the safety features of the exterior side doors of their trains, passengers and train crews alike could face an increased risk of serious injury or death. Crews must realize the limits of the safety features of each powered door safety system for each type of passenger vehicle they operate.

#### 8. Traction Inhibit

As mentioned above, door control safety systems can be connected to a train's propulsion system. On these systems the status of powered exterior side doors is communicated through the trainline, and the door summary circuit is interlocked with the train's propulsion system. Therefore, when a powered exterior side door is open, the train is unable to produce tractive power and move. Similarly, if an exterior side door on a train is not completely closed and there is an obstruction in the door, the train will be inhibited from developing tractive power and departing the station. Only after all the exterior side doors are closed as intended, will the train be able to produce tractive power and leave the station.

During its assessment, FRA found many different models of equipment in which the exterior side door safety systems were not connected to the propulsion system of the train. Consequently, these trains could produce tractive power whether or not the exterior side doors were opened or closed. If a passenger had become entangled in a door, it would have been mechanically possible for the passenger to be dragged by one of these trains, since no design feature would have inhibited such a train from developing tractive power and leaving the station.

FRA also found that on many different models of passenger cars and locomotives used in passenger service that utilized a door obstruction system and traction inhibit, it was possible for an individual to become entangled in an exterior side door and yet the train could still produce tractive power. This unexpected condition was possible because the door obstruction system did not detect the obstruction and instead conveyed a message that all the exterior side doors were closed. Therefore, passenger and train crew safety would be enhanced if door safety systems on all new passenger cars were connected to the propulsion system and incorporated reliable technology in their door obstruction detection systems.

#### 9. Malfunctioning Equipment and Door Lock-Out

Due to the complexity of powered exterior side doors and their controls, car manufacturers have designed door systems to respond to equipment malfunctions. In the event of an exterior side door malfunction, each door can be individually isolated from the trainline circuit without affecting the rest of the train. Train crews refer to this as "cutting out" or "locking-out" a door. This is especially important if the door system is connected to the train's propulsion system, as one malfunctioning exterior side door that cannot close is designed to inhibit the development of tractive power for the entire train. Therefore, many passenger cars are equipped with exterior side door lock-out switches that can disconnect power to the malfunctioning exterior side door while still allowing the trainline circuit to complete so that the train can draw tractive power and move.

During FRA's assessment, FRA observed train crewmembers who were unfamiliar with the method of isolating or locking-out a malfunctioning exterior side door. FRA found that, instead, train crews would often activate the door bypass system. Such a practice presents a significant risk to safety. Properly

locking-out one malfunctioning exterior side door does maintain the integrity of the train's door safety system while still providing door obstruction protection and traction inhibit for all of the other exterior side doors on the train.

However, overriding the door safety system through the door by-pass feature can undermine the safety features on all exterior side doors, including traction inhibit. Activating the door by-pass feature in this manner unnecessarily increases the possibility that a passenger or train crewmember could be caught in a door and dragged by a train.

#### 10. Malfunctioning Equipment and Door By-Pass

If a train crew cannot identify which of the exterior side doors is malfunctioning in its train, the train crew can utilize a door by-pass device that can override the door safety system in order to move the train. However, as noted above, activation of the door by-pass device on many types of equipment negates some or all of the exterior side door safety features.

FRA found during its assessment that many passenger cars had exterior side door safety circuits that could become compromised by the unintentional activation of a door by-pass device. On these models of passenger cars, if a by-pass switch was activated anywhere on a passenger train it would place the entire train in door by-pass mode. This would in essence by-pass the entire train's door safety system, which presents a significant risk to passenger and crew safety. Elsewhere, FRA found that the door by-pass switch would only affect the exterior side doors of the train if it was activated in the controlling locomotive. Overall, FRA found that accidental activation of the door by-pass switch often happened without the knowledge of the train crew, whether the switch was located in the controlling locomotive cab or a trailing locomotive cab. Consequently, door by-pass devices should be sealed in an off position to mitigate the potential of an accidental activation of the door by-pass device.

In the event of an en-route exterior side door malfunction, railroads must have a procedure for communicating to all train crewmembers that there is a defect in the train's exterior side doors, the door by-pass device has been activated, and the door safety system has been overridden.

#### 11. Effects of Throttle Use on Powered Exterior Side Doors

The locomotive throttle lever is used to control the locomotive's power. It can also be used to issue commands to the

powered exterior side doors. As mentioned above, some exterior side doors are manufactured so that the movement of the locomotive throttle from a position of rest to motion automatically issues a command to close all of the powered exterior side doors.

However, FRA's assessment found that passenger cars responded in an inconsistent manner to the application of a train's throttle. For some powered exterior side doors, the movement of the locomotive throttle caused them to close. For other door systems, the doors would stop closing and freeze if they were in motion when the throttle was applied, and yet other door systems were not at all affected by the position of the throttle. In addition, concerns associated with locomotive throttle movement were further exacerbated if the passenger train was in door by-pass mode when the throttle was applied. On these trains, the throttle movement, in combination with the door by-pass feature activation, negated some or all of the exterior side door obstruction safety features.

A train's exterior side doors should be commanded to close only after the train crew determines it is safe to depart. If throttle movement can affect the functioning of a train's exterior side doors, then employee training is necessary to help ensure that the train crew understands the risks involved.

#### 12. Mixed Consist Operation

Railroads routinely operate passenger trains comprised of mixed consists or different models of passenger cars that can have incompatible door systems. Mixed consists can contain passenger cars with different types of exterior side doors, such as manual doors and powered doors, or different types of powered exterior side doors that are not compatible with each other's door safety system. When exterior side door systems are incompatible, they do not properly communicate trainline commands and are not part of a single door summary circuit. These door systems are usually incompatible due to the design of the individual passenger cars or because the door systems may utilize different control systems, wiring, or operating voltages, often a result of the varying ages of the different models of passenger cars used in a mixed consist.

The operation of trains comprised of different types of passenger cars with incompatible exterior side door systems requires additional measures to help ensure passenger safety. For example, in a mixed consist train with manual and powered exterior side doors, the portion

of the train with the manual doors requires extra effort by train crewmembers to ensure that the doors are closed. The operation of a mixed consist train comprised of passenger cars with different models or types of powered exterior side doors that are not compatible with each other's door safety system requires extra effort by train crewmembers as well. The different cars may not communicate door open and close commands throughout the length of the train. These door systems usually have different safety features; for example, a portion of the train could have exterior side doors equipped with a door obstruction detection system, while the remainder of the train's doors do not. The powered door system on a passenger car without a door obstruction system is limited or constrained in its ability to detect, announce, or release an obstruction in a door. FRA also found that in these mixed consist trains the door summary circuit did not account for all of the exterior side doors, due to incompatible equipment. The door status indicator would therefore be misleading as it would indicate the status for only part of the mixed consist train. As a result, FRA believes that there is an increased risk of becoming entangled in an exterior side door on a mixed consist train.

Train crews may need to take extra measures due to the mixed consist configuration of the trains they operate. These extra measures should allow for the operation of mixed consist trains so that they provide a level of safety at least equivalent to that of a train operating with compatible exterior side door safety systems.

#### 13. Operating Rules

Passenger railroads have established sets of operating rules to provide instruction and guidance to employees on how they should act in given situations. Railroad operating rules relating to the functioning of passenger train exterior side door systems can vary broadly from railroad to railroad. For example, FRA found that some railroads' operating rules did not require a train's exterior side doors to be closed while the train was in motion between stations. Other railroads' rules did not define the safety limitations of each type of door safety system in the passenger cars their train crews operated, and sometimes the train crews were unaware of these limitations. Moreover, some railroads had operating rules addressing use of exterior side doors and station stops, and some did require crewmembers to make platform observations for train arrivals at and

departures from stations. However, often these rules did not instruct crewmembers to ensure that trains did not depart from stations until all passengers had successfully boarded or alighted from the trains. Finally, in some instances FRA found that operating rules did not address the additional steps necessary to provide continued passenger safety following activation of a safety override device, such as a door by-pass or no-motion by-pass switch.

Railroad operating rules are fundamental tools to enhance overall railroad safety. Passenger train crews need a clear understanding of the risks to safety involved in the operation of exterior side doors. They must understand the limitations of the safety features of each exterior side door system for the equipment they operate. Such an understanding is especially critical when an exterior side door safety system fails and the crew must take action to provide for passenger safety until the system can be restored back to its designed level.

#### IV. Section-by-Section Analysis

##### Subpart A—General

##### Section 238.5 Definitions

FRA is proposing that this section be amended to add the following new definitions to this part: by-pass, door isolation lock, door summary circuit, end-of-train, exterior side door safety system, lock, no-motion system, and trainline door circuit. It is FRA's intention that these definitions clarify the meaning of significant terms as they are used in the text of this NPRM. These definitions will minimize the potential for misinterpretation of the proposed regulatory language. RSAC recommended that these definitions be added to this section, and FRA agrees with RSAC's recommendation. FRA invites comment on the content and usefulness of these proposed definitions.

“By-pass” would mean a device designed to override a function. This term is used to describe devices that override various safety features on a passenger train. For example, a door by-pass is a by-pass feature that when activated overrides the door summary circuit. The door summary circuit provides an indication to the controlling cab of the train that all exterior side doors are closed as intended, or locked out with a door isolation lock, or both. In some instances, train crews must use a by-pass device when a passenger train's exterior side doors or its appurtenances fail en route, in order for the train to reach its destination.

“Door isolation lock” would mean a cutout/lockout mechanism installed at each exterior side door panel to secure a door in the closed and latched position, provide a door-closed indication to the summary circuit, and remove power from the door motor or door motor controls. This term would be added for use in the definition of a door summary circuit and would help to clarify what potential information is being relayed to the controlling cab of a train by the door summary circuit.

“Door summary circuit” would mean a trainline door circuit that provides an indication to the controlling cab of the train that all exterior side doors are closed as intended, or locked out with a door isolation lock, or both. This term would be added to inform the reader of the proposed regulatory language as to what this circuit does in relation to the operation of a passenger train and what information it provides the controlling cab of the train as to the exterior side doors.

“End-of-train” would mean a feature typically used to determine the physical end of the train, or the last passenger car in the train, or both, for the door summary circuit. This term would be added to provide the reader of the proposed regulatory language information on what an end-of-train feature does in a passenger train.

“Exterior side door safety system” would mean a system or subsystem of safety features that enable the safe operation of the exterior side doors of a passenger car or train. The exterior side door safety system includes appurtenances and components that control, operate, or display the status of the exterior side doors, and is interlocked with the traction power control. This term would be added to provide the reader of the proposed regulatory language information on what types of systems or subsystems of safety features make up an exterior side door safety system.

“No-motion system” would mean a system on a train that detects the motion of the train. This system is normally integrated with the exterior side door safety system. The term would be added to describe what a no-motion system does.

“Trainline door circuit” would mean a circuit used to convey door signals over the length of a train. This term would be added for use in the definition of door summary circuit.

##### Subpart B—Safety Planning and General Requirements

While, FRA has taken particular care in organizing the various proposed requirements in this rule, FRA is

inviting comment from the public on how the various proposed requirements in this rule are organized. It is FRA's intention that these proposed requirements be organized in a way that is easy for the regulated community to understand.

In addition to requirements for passenger cars, please note that this rule proposes to apply certain requirements to locomotives used in passenger service. FRA invites comment on the approach the proposed rule takes to applying requirements to locomotives used in passenger service. FRA also welcomes any comment on any alternative approach for the proposed regulatory requirements in the final rule.

##### Section 238.131 Exterior Side Door Safety Systems—New Passenger Cars and Locomotives Used in Passenger Service

FRA is proposing to add this new section to part 238. Each proposed subsection is addressed below by paragraph.

*Paragraph (a)(1).* Proposed paragraph (a)(1) would require that all powered exterior side door safety systems on new rail passenger cars and connected door safety systems on new locomotives used in passenger service that are ordered on or after 120 days after the date of publication of the final rule in the **Federal Register**, or placed in service for the first time on or after 790 days after the date of publication of the final rule in the **Federal Register**, be built in accordance with APTA Standard PR-M-S-18-10, “Standard for Powered Exterior Side Door System Design for New Passenger Cars.” This APTA Standard was approved by APTA's Rail Standards Policy and Planning Committee on February 11, 2011. It was subsequently reviewed and recommended by the Task Force and the Working Group before finally being recommended by the full RSAC for use in this rulemaking. The Standard contains a set of minimum safety standards for powered exterior side door safety systems on new passenger rail cars and connected door safety systems on new locomotives that are used in passenger service. Passenger cars and passenger locomotives need to be able to communicate with each other to provide for the safe use and operation of exterior side doors in passenger cars. As a result, passenger locomotives must be connected or interlocked with the door safety systems.

The Standard addresses design requirements and safety features that occur at three different levels: the individual door level, individual car

level, and the train level, which requires the train's door summary circuit to be interlocked with the propulsion system of the train's locomotives(s). FRA is proposing to incorporate this Standard by reference into part 238. If the standard is adopted into part 238 as proposed by FRA, then the provisions of the APTA Standard will be required by regulation for powered exterior side door safety systems on all new passenger cars and connected door safety systems on all new locomotives used in passenger service subject to this section. The implementation dates proposed in this subsection are consistent with other applicability dates imposed by FRA, and FRA believes they are achievable. A copy of the APTA Standard has been made part of the docket in this proceeding and is available for public inspection.

*Paragraph (a)(2).* This paragraph would require that powered exterior side door safety systems on all new passenger cars and connected door safety systems on new locomotives used in passenger service be designed based on a Failure Modes, Effects, Criticality Analysis (FMECA). FRA proposes to require such door safety systems to be subject to a FMECA to ensure that door system manufacturers consider and address the failure modes of exterior side doors. While conducting an assessment of the door safety systems of various passenger railroads, FRA learned that there was great variability among different models of passenger cars as to how exterior side doors reacted to a system failure. For example, when there had been a loss of electricity to the door control circuit, some powered exterior side door systems responded by automatically closing the exterior side doors, while in other equipment the doors would stay open. FRA believes that subjecting these door safety systems to a FMECA will ensure that passenger car and locomotive manufacturers consider how these systems may fail so that they make informed decisions on the safest approach to their design.

*Paragraph (a)(3).* This paragraph would require powered exterior side doors and door safety systems on passenger trains to contain an obstruction detection system. An obstruction detection system is intended to detect and react to both small and large obstructions in the powered exterior side doors. This new subsection is necessary in light of FRA's assessment of powered exterior side doors on various passenger train operations. In many instances during these assessments, FRA discovered that a passenger's arm or cane could be

caught in a powered exterior side door of a passenger car without the door recognizing the obstruction. As a result of this failure, some passenger trains were able to complete the door summary circuit and receive tractive power to depart even though an obstruction was present in a powered exterior side door. These types of incidents have led to serious passenger injuries and even death. FRA also learned through its door assessments that while smaller obstructions could get caught in the exterior side doors of a train, some door systems were unable to identify large obstructions caught in a train's exterior side doors. For example, FRA learned that some passenger trains were able to generate tractive power even when a large object like a wheelchair or walker had become stuck in the exterior side doors. Passenger door systems that are unable to detect these larger obstructions pose substantial safety hazards to passengers with disabilities or other passengers who may need extra assistance to board or alight from a train.

Through this proposed subsection, powered exterior side doors in all new passenger cars would be equipped with an obstruction detection system, and all new locomotives used in passenger service would have a connected system, intended to identify and release an obstruction while preventing the train from developing tractive power until the obstruction is released. As a result, boarding and alighting from passenger trains should be made safer.

*Paragraph (a)(4).* This paragraph would require that the activation of a door by-pass feature in a passenger train not affect an exterior side door's obstruction detection system. Through its extensive assessment of safety features on exterior side doors in passenger trains, FRA discovered that many passenger door injuries occurred when trains were being operated in door by-pass mode. Operating a train in door by-pass mode can negate some or all of the safety features of the exterior side door safety system, including the obstruction detection system and door status indicator.

FRA also discovered that some railroads had obstruction detection systems that were engineered into their passenger trains' exterior side doors, but did not use them and instead operated trains in door by-pass mode. By negating these important door safety features, the railroads created the potential for passengers to get caught in closing exterior side doors and dragged as the trains developed tractive power and departed from stations.

Therefore, FRA is proposing to require that obstruction detection systems in new passenger cars and locomotives used in passenger service function as designed even if the train in which the equipment is being hauled is operated in door by-pass mode. This would ensure that passenger safety is not compromised by deactivating these safety features in the train's exterior side doors.

*Paragraph (a)(5).* This paragraph would require the use of a door control panel key or some other secure device by the train crew to access the train's door control system. The train crew would need a key or other secure device to operate the door control panel in order to open or close the exterior powered side doors. FRA notes that this proposal is not intended to require passengers in an emergency situation to have access to the door control panel key in order to operate any manual override device for powered exterior side doors, as required by 49 CFR 238.112. Such manual override devices must be readily accessible to passengers in case of an emergency. Instead, this proposal is intended to reduce the risk that passengers in non-emergency situations will gain access to the door control system and open the exterior side doors in order to prematurely exit a train while it is still in motion.

*Paragraph (a)(6).* Proposed paragraph (a)(6) is related to proposed paragraph (a)(5). This paragraph would make clear that if the door control panel key or other similar device is removed from the door control panel, the powered exterior side doors on the train cannot be opened or closed from the door control panel. A door control panel key or other similar device would be required to operate the powered exterior side doors from the door control panel.

This proposal would help to ensure that only the conductor or another qualified crewmember can open or close the exterior side doors from the door control panel. This would minimize the possibility that passengers would themselves open the exterior side doors in non-emergency situations when a train is entering or departing a station. However, FRA notes that, in accordance with § 238.112, powered exterior side doors will continue to be equipped with a manual override device to allow passengers to open the doors in emergency situations.

*Paragraph (a)(7).* This proposed paragraph is intended to ensure that train throttle movement would not have any effect on the proper functioning of exterior side door safety systems in new passenger cars and connected door safety systems in new locomotives used

in passenger service. FRA is proposing this requirement after discovering through its assessments that certain passenger car door systems were designed so that the exterior side doors would automatically close when the train's throttle was applied. As FRA understands, the rationale behind such a design is that it is intended to provide an operational enhancement for the engineer to automatically command the exterior side doors to close when the throttle is applied. However, from FRA's observations during its door safety assessments, the exterior side doors on some railroads' trains would stop moving, and remain open while other exterior side doors would close, when the train's throttle was applied. This could result in doors being partially open while trains are in motion, thereby increasing the risk that passengers could fall out of trains and suffer injuries. Moreover, FRA also learned that powered exterior side doors on trains running in door-bypass mode reacted very differently when the throttle was applied. On these trains, the throttle movement, in combination with the door by-pass feature activation, negated some or all of the exterior side door obstruction safety features. Therefore, FRA is proposing that, for new passenger cars and locomotives used in passenger service, locomotive throttle movement should not open or close a passenger train's exterior side doors, or have any other affect on the proper functioning of the train's door safety system.

*Paragraph (b).* This paragraph (b) would apply to new rail passenger cars, with either manual or powered exterior side doors, along with connected door safety systems on new locomotives used in passenger service, ordered on or after 120 days after the date of publication of the final rule in the **Federal Register**, or placed in service for the first time on or after 790 days after the date of publication of the final rule in the **Federal Register**.

*Paragraph (b)(1).* In general, this proposed subsection would require new passenger cars with manual or powered exterior side doors, along with new locomotives used in passenger service, to be designed with a door summary circuit to prohibit trains from developing tractive power if the exterior side doors are not closed. This subsection is necessary to prevent serious injuries from occurring when trains have their exterior side doors open while in motion.

However, FRA is proposing an exception for train crew use. This requirement would not apply to an exterior side door that is under the

direct physical control of a crewmember for his or her exclusive use when a train generates or is in the process of generating tractive power. This limited exception is necessary to help train crews make platform and other observations outside of the train. For example, train crews often open one exterior side door to ensure that the train is sitting properly along the station platform before opening all of the exterior side doors and allowing passengers to board and exit from the train.

*Paragraph (b)(2).* This paragraph would require that manual and powered exterior side doors on new passenger cars be connected to interior and exterior door status indicators, and that new locomotives used in passenger service be compatible with such indicators. The exterior side doors would be connected to interior and exterior door status indicators, usually lights, which provide an indication to the train crew if a door is not closed. These indicators provide railroad personnel both inside the train and on the station platform a fast, easy way to visually identify whether an exterior side door is not closed as intended. As a result, FRA believes that these interior and exterior door status indicators would help train crews determine whether it is safe for trains to depart stations.

*Paragraph (b)(3).* This proposed paragraph would require that all new passenger cars with manual or powered exterior side doors be connected to a door summary status indicator located in the train's operating cab and viewable from the engineer's normal operating position, and that all new locomotives used in passenger service would be equipped accordingly. When all the exterior passenger side doors on a train are closed, the door summary status indicator, usually a light, illuminates in the engineer's operating cab. As a result, the indicator provides an easy way for an engineer to know that all the exterior side doors have been closed as intended so that it is safe for the train to depart. If the indicator is not illuminated, the engineer knows that the exterior side doors are not closed and that the train's brakes should be maintained so the train does not move.

*Paragraph (b)(4).* This paragraph would require that for all new passenger cars equipped with a door by-pass system and manual or powered exterior side doors, the door by-pass system would be functional only when activated from the controlling locomotive, and that all new locomotives used in passenger service would be designed accordingly. Putting

a train in door by-pass mode allows the train to develop tractive power regardless of the status of the doors. During its various door assessments of passenger railroads, FRA found that for many models of equipment the entire passenger train could be put into door by-pass mode by activating one of several different door by-pass switches throughout the train consist. Moreover, FRA even found that by-pass switches could be activated without the knowledge of the train crew—a dangerous situation.

By requiring that the door by-pass switch be capable of activation only in the controlling locomotive of a passenger train, engineers should always be aware of whether the door safety system has been overridden through the use of the door by-pass switch. In addition, having the switch be capable of activation only in the controlling locomotive of the train greatly minimizes the risk that a passenger may activate the device, whether inadvertently or not. Since this device affects vital safety features, FRA believes that all precautions should be taken to ensure that a train is put in door by-pass mode only after careful consideration by the train's crew.

*Paragraph (c).* For the benefit of the regulated community, FRA is proposing this subsection to identify other sections in this part that include substantive door safety requirements. FRA invites comments on this paragraph as well as suggestions for alternative regulatory text to highlight exterior side door safety requirements in other sections of this part.

#### Section 238.133 Exterior Side Door Safety Systems—All Passenger Cars and Locomotives Used in Passenger Service

FRA is proposing to add this new section to part 238. Each proposed subsection is addressed below by paragraph.

*Paragraph (a).* Proposed paragraph (a) would require that all passenger train crews verify that all exterior side door by-pass devices that could affect the safe operation of the train are sealed in the non-by-pass position when taking control of the train. For example, from its assessments of various passenger railroads, FRA discovered that on some railroads the door by-pass switches in the cabs of trailing locomotives could place an entire train in door by-pass mode if activated anywhere on the train. FRA believes that all train crew members should understand when first taking control of a passenger train whether the exterior side doors of the train they are going to be operating are in door by-pass mode. However, when

there is face-to-face relief of another train crew, the train crew coming on-duty would not need to verify the status of the door by-pass devices by visual inspection. This exception would help railroad efficiency by not requiring on-coming train crews to verify whether their train is being operated in door by-pass status if they are directly notified by the out-going crew through face-to-face relief regarding the status of the train's door by-pass devices. When there is no direct face-to-face relief by the crew going off duty, the on-coming train crew is required to make their own verification of the status of their train's door by-pass devices. Nevertheless, in making this verification, proposed paragraph (a) would also allow railroads to develop a functional test to determine that the door summary status indicator is functioning as intended, instead of a visual inspection of each door by-pass device. Allowing qualified railroad personnel to conduct a functional test instead of a visual inspection of all door by-pass switches would make the verification process more efficient. However, the testing plan developed by the railroad to replace individual visual inspections must be adequate to determine that the door safety system is functioning as intended.

*Paragraph (b).* Proposed paragraph (b) would require that passenger train crewmembers notify the railroad's designated authority pursuant to the railroad's defect reporting system if a door by-pass device that could affect the safe operation of the train is found unsealed during the train's daily operation. If the train crew can test the door safety system and determine that the door summary status indicator is functioning as intended, then the train can remain in service until the next forward repair point where a seal can be applied by a qualified maintenance person (QMP), as defined in § 238.5, or its next calendar day inspection, whichever occurs first. If the crew cannot determine that the door summary status indicator is functioning as intended, then the train crew must follow the procedures outlined in proposed paragraph (c) of this section.

*Paragraph (c).* This paragraph would require that, if it becomes necessary to activate a door by-pass device on an en route train, the train may continue to its destination terminal provided that the train crew conducts a safety briefing that includes a description of the location(s) where crewmembers will position themselves on the train in order to observe the boarding and alighting of passengers, notifies the railroad's designated authority that the train's door by-pass device has been

activated, and adheres to the operating rules required by proposed § 238.135 ("Operating practices relating to exterior side door safety systems"). After the train has reached its destination terminal, the train may continue in passenger service until the train's arrival at the next forward repair point or until its next calendar day inspection, whichever occurs first, provided that prior to moving the equipment with an active door by-pass device the railroad adheres to the requirements in proposed paragraphs (c)(1) and (2) of this section.

*Paragraph (c)(1).* Proposed paragraph (c)(1) would allow a passenger train with a door by-pass device activated to remain in service past its destination terminal, if an on-site QMP determines that it is safe to use the equipment in passenger service and repairs cannot be made at the time of inspection. If a QMP is not available, a determination to keep the equipment in service may be made based upon a description of the condition provided by an on-site qualified person (QP), as defined in § 238.5, to a QMP off-site. This proposal would help ensure passenger safety by requiring a QMP to make the determination on whether it is safe to move the train, but still provide the railroad with sufficient flexibility to handle an activated door by-pass device.

*Paragraph (c)(2).* This proposed paragraph would require that either the QP or QMP notify the crewmember in charge of the movement of the train that the door by-pass device has been activated, thereby rendering the train defective under the regulation. This notification requirement would ensure that the crewmember in charge of the train's movement knows that the train is operating with its door by-pass device activated and that some or all of the door safety features of the train's exterior side doors may not be properly functioning. In addition, a safety briefing must be held with the train's crew and include information such as the locations where train crewmembers will position themselves on the train in order to ensure that passengers board and alight from the train safely. This proposed safety briefing would help to ensure that the train operates with the same level of safety after the door by-pass device has been activated as it did before the device was activated.

*Paragraph (d).* Proposed paragraph (d) would require each passenger railroad to maintain a record in the defect tracking system required by § 238.19 of any door by-pass activation, unintended opening of a powered exterior side door, and subsequent repair(s) made to the passenger door safety system. While railroads do currently maintain records

concerning the malfunction of exterior side doors and subsequent repairs, FRA is not aware that railroads maintain records in the same manner when a door by-pass device has been activated or when there has been an unintentional door opening. Collecting this information would provide useful data concerning test and maintenance intervals that are developed pursuant to this part, e.g., § 238.107 and subpart F. Like other records collected under § 238.19, railroads would be required to make these records available to FRA for inspection upon request.

*Paragraph (e).* This proposed paragraph is intended to prevent exterior side doors from being operated from a door control panel when the door key or other similar device has been removed. As evidenced by FRA's assessments of various passenger operations, this proposed language is necessary because some trains' door safety systems allowed the door control panel to remain energized after the door control panel key or similar device had been removed from the panel. When door control panels can still be operated after the specific door key or similar device has been removed, passengers can open the train's exterior side doors as simply as by pressing the door open button. FRA is concerned because passengers have opened exterior side doors before their trains have come to a complete stop at stations in order to exit the trains early. Additionally, some passengers have opened the exterior side doors to exit their trains while leaving stations because they had forgotten to exit while the trains were stopped at station platforms. Either of these scenarios could easily result in severe passenger injuries.

As a result, this proposal would require the use of a door panel key or a similar device to energize or activate the door control panel. The door control panel key or device would be held in the possession of the train's crew. FRA does make clear that none of the proposed language in this subsection is meant to change any of the requirements for the accessibility and operation of manual override devices for exterior side doors, found in § 238.112. This proposed requirement would not require passengers in an emergency situation to have access to the door control panel key in order to operate any manual override device for powered exterior side doors required by these sections. Passengers and crewmembers must still be able to utilize the manual override devices for exterior side doors without the use of a door key or other similar device.

*Paragraph (f).* Proposed paragraph (f) would require that if an end-of-train switch is used, then the switch must be secured in such a manner as to prevent unauthorized access. FRA discovered that in many models of passenger cars a simple switch was used to denote the end of the train. This switch was often in the vestibule area of the car and accessible to passengers, and FRA did find a switch that was activated in a car other than at the end of the train. Activation of the switch eliminates all passenger car exterior side doors beyond the activated switch from the door summary circuit, allowing the potential for a passenger in one of those cars to become entangled in an exterior side door and dragged when the train departs because the door safety features do not function. This proposed paragraph would help ensure that if a railroad uses end-of-train switches in its trains, the railroad takes sufficient care of the switches to prevent them from being tampered with or inadvertently activated by unauthorized users.

*Paragraph (g)(1).* Proposed paragraph (g)(1) would require that all exterior side door safety system override devices that could adversely affect a train's door safety system be inactive and sealed in all passenger cars and locomotives in the train consist, if they are so equipped with such a device. This proposal would apply to cab cars and MU locomotives, as well as conventional locomotives. The proposed requirements of this paragraph would be subject to the provisions of proposed paragraph (c) of this section for a train in which it is necessary to activate a door by-pass device, so that the train may safely continue to its destination terminal.

*Paragraph (g)(2).* Proposed paragraph (g)(2) is similar to the language in proposed paragraph (g)(1); however, this paragraph emphasizes that as part of the calendar day inspection, QMPs would verify that all exterior side door safety system override devices are inactive and sealed in all passenger cars and all locomotives in a passenger train's consist, including cab cars and MU locomotives, if they are so equipped with such devices. Passenger cars or locomotives that are found with unsealed or active exterior side door safety system override devices would be considered defective under the regulation and subject to the movement-for-repair provisions of this part. This proposed requirement would apply to all tiers of passenger cars and locomotives used in passenger service. FRA invites comment on this proposal.

#### Section 238.135 Operating Practices Relating to Exterior Side Door Safety Systems

FRA is proposing to add this new section to part 238. Each proposed subsection is addressed below by paragraph.

*Paragraph (a).* This proposed paragraph would require that each crewmember participate in a safety briefing that identifies each crewmember's responsibilities as they relate to the safe operation of the exterior side doors on the crewmember's train. The briefing would take place at the beginning of each crewmember's duty assignment prior to the departure of the train. This requirement would help to ensure that all the crewmembers involved in the operation of a passenger train understand their roles and responsibilities with regard to the safe operation and use of the exterior side doors.

FRA is inviting comment from the railroad industry and the greater public on the manner in which this safety briefing should occur. FRA has no objection if the safety briefing is made part of other safety briefings or discussions involving the operation of the passenger train. FRA's intention is that each crewmember's role in the safe operation and use of the exterior side doors is clearly established.

*Paragraph (b).* Proposed paragraph (b) would require that all passenger train exterior side doors and trap doors be closed when a train is in motion between stations. The exceptions to this proposed requirement are described in paragraphs (b)(1) and (2), below.

*Paragraph (b)(1).* This proposed paragraph would allow a passenger train to depart or arrive at a station with an exterior side door or trap door open when a crewmember needs to observe the station platform (paragraph (b)(1)(i)) and the open door is attended by the crewmember (paragraph (b)(1)(ii)). For instance, observing the station platform is necessary when arriving at stations so that crewmembers can ascertain that their train is properly positioned along the platform before opening the exterior side doors. In addition, crewmembers may need to open an exterior side door on their train to facilitate station platform observations to help ensure the safety of late-boarding passengers for station departures. With a crewmember stationed at each open exterior side door or trap door when departing or arriving at a station, the train crew can better protect passengers from placing themselves in harm's way and more quickly react to an emergency situation occurring on the station platform.

*Paragraph (b)(2).* This proposed paragraph would allow a passenger train to move between stations with its exterior side doors and trap doors open when a crewmember must perform on-ground functions. On-ground functions include, but are not limited to, lining switches, making up or splitting the train, providing crossing protection, and inspecting the train. This exception is being proposed because the Door Safety Subgroup thought it would be too cumbersome and an undue hardship on passenger railroads to require them to operate their trains with their exterior side doors and trap doors closed when performing on-ground functions. For example, passenger train conductors often have to exit and reenter their trains several times when lining switches to establish the proper track route for their trains. However, FRA expects that crewmembers will close any such open exterior side door on their trains as soon as it is practical to do so after completing the necessary on-ground functions.

FRA is inviting comment from the railroad industry and the greater public on the appropriateness of these exceptions, as well as if other exceptions should be provided.

*Paragraph (c).* This proposed paragraph would require that, except as provided in paragraph (b) of this section, passenger railroads receive approval from FRA's Associate Administrator for Railroad Safety/Chief Safety Officer to operate passenger trains with their exterior side doors or trap doors, or both, open between stations. Any request to FRA must include: (1) A written justification explaining why the passenger railroad needs to operate its trains in this manner (paragraph (c)(2)(i)); and (2) a detailed hazard analysis conducted by the railroad analyzing the hazards of running its trains in this manner, including specific mitigations to reduce the safety risk to passengers and train crews. The request must also be signed by the chief executive officer (CEO), or equivalent, of the organization(s) making the request (paragraph (c)(3)). In addition, other documents and different types of information may need to be submitted to FRA in order to support granting the request. Passenger railroads must seek this special approval from FRA before operating trains with exterior side doors or trap doors, or both, open between stations, so that FRA can determine that passengers and train crews riding on such trains are adequately safeguarded against personal injury.

*Paragraph (d).* This proposed paragraph would require railroads to



adopt and comply with operating rules on how to safely override a door summary circuit or a no-motion system, or both, in the event of an en route exterior side door failure or malfunction on a passenger train. Under the requirements of this proposed section, the railroads would have to provide these written rules to their employees and make them available for inspection by FRA. The written rules would have to include: (1) Instructions to crewmembers describing what conditions must be present in order to override the door summary circuit, or the no-motion system, or both (paragraph (d)(1)); and (2) steps crewmembers must take after the door summary circuit, or no-motion system, or both have been overridden, to help provide for continued passenger safety (paragraph (d)(2)). These proposed subsections are intended to make sure that a mechanism exists to communicate that a defect has occurred in a critical safety system on a passenger train and that passenger safety continues to be provided after the critical safety system has been overridden.

FRA is proposing a three-year implementation period for the requirements proposed in this paragraph. FRA believes that this three-year period would provide the railroads adequate time to develop and train their train crews on the operating rules, and minimize any cost.

Finally, FRA invites comment on whether proposed § 238.133(b) and (c) should be combined with proposed § 238.135(d) in the final rule. To the extent § 238.133(b) and (c) address operating practices, the provisions may be more suitable together in one section.

*Paragraph (e).* This paragraph would require that each crewmember be trained on: (1) The requirements in this section, and (2) how to identify and isolate equipment with a malfunctioning exterior powered or manual side door. For example, FRA expects that this training would cover how a crewmember determines which exterior side door is malfunctioning. FRA believes that training employees is necessary to ensure that a passenger train's door safety systems are utilized to their designed level of safety. Employees operating exterior side doors on passenger trains and tasked with providing passenger safety must understand the safety risks involved in the use and operation of exterior side doors. Employees need to demonstrate knowledge of their trains' door safety systems, including how to continue the safe operation of malfunctioning equipment and the risks associated with operating such equipment, as part of

each railroad's training and qualification designation program.

FRA makes clear that it is proposing to apply these requirements to both manual and powered exterior side doors. FRA is also proposing a three-year implementation period for compliance with this requirement as proposed. FRA believes that this three-year period would afford the railroads adequate time to train their crewmembers and minimize any cost. FRA invites comment on this proposed paragraph.

*Paragraph (f).* This proposed paragraph would require that each railroad periodically conduct operational (efficiency) tests and observations of its operating crewmembers and control center employees to determine each individual employee's proficiency with the side door safety procedures for both the railroad's exterior powered and manual passenger train side doors.

FRA recognizes the important role control center employees play in ensuring the safe movement of trains. These employees should receive operational (efficiency) testing appropriate to their role in providing door operations support to train crews. For example, control center employees should understand the implications of a crew's activation of a door by-pass device. Due to additional safety precautions that must be taken by the crew, a train might need extra time at station platforms to allow for the safe boarding and alighting of passengers, which may affect the train's schedule adherence. Control center employees should be prepared to respond appropriately in directing train movements.

As in paragraph (e), FRA makes clear that this paragraph would apply to both manual and powered exterior side doors. FRA is also proposing a three-year implementation period before requiring railroads to conduct operational (efficiency) tests and observations of its operating crewmembers and control center employees to determine each employee's knowledge of the railroad's powered and manual exterior side door safety procedures for its passenger trains. FRA believes this three-year implementation period would afford the railroads adequate time to train and then begin testing their crewmembers on exterior side door safety procedures, minimizing any expense. FRA invites comment on this proposed paragraph.

*Paragraph (g).* This paragraph would require each railroad to adopt and comply with operating rules requiring its crewmembers to determine the status

of their train's exterior side doors so their train may safely depart a station. In particular, these rules would require crewmembers to determine that there are no obstructions in their passenger train's exterior side doors before the train departs. This operating rule requirement is being proposed to safeguard against passengers becoming entangled in the exterior side doors of a train when boarding and alighting the train.

#### Section 238.137 Mixed Consist; Operating Equipment With Incompatible Exterior Side Door Systems

FRA is proposing to add this new section to part 238. Each proposed subsection is addressed below by paragraph.

*Paragraph (a).* Proposed paragraph (a) would require trains made up of equipment with incompatible exterior side door systems to be operated within the constraints of each door safety system in each unit of the train. As evidenced by FRA's safety assessments of passenger railroad door systems across the country, in many instances passenger railroads mix and match different models of passenger cars that have different door safety systems when they assemble individual trains. These trains are referred to as "mixed consists" and can contain passenger cars with different types of exterior side doors, such as manual and powered doors. They can also be comprised of passenger cars with different models or types of powered exterior side doors that are not compatible with each other's door safety system. Because the door safety systems on mixed consist trains are constrained in their ability to communicate the presence of an obstruction in a door, or the door's status otherwise, this proposed subsection would require train crewmembers to take extra steps to enhance passenger safety to a level at least equivalent to that of a train operating with compatible exterior side door systems. In this regard, FRA notes that in mixed consist trains with both manual and powered exterior side doors, the manual exterior side doors would require extra attention by crewmembers to ensure that they are closed and it is safe to depart.

*Paragraph (b).* This proposed paragraph would require railroads to develop operating rules to provide for the safe use of passenger cars and locomotives used in passenger service with incompatible exterior side door safety systems when they are operated together in a train as a mixed consist. Implementation of these operating rules

is intended to ensure that the mixed consist train is operated with at least the same level of safety even though the door safety systems on the various cars are incompatible. These rules should take into consideration the constraints of the door systems of the equipment operated by the railroad. For example, the operation of a mixed consist train may require additional measures to help ensure passenger safety, such as operating rules on crew positioning or providing a second look at the station platform to determine that it is safe for the train to depart a station.

#### *Appendix A to Part 238—Schedule of Civil Penalties*

This appendix contains a schedule of civil penalties for use in connection with this part. FRA intends to revise the schedule of civil penalties in issuing the final rule to reflect revisions made to this part. Because such penalty schedules are statements of agency policy, notice and comment are not required prior to their issuance. See 5 U.S.C. 553(b)(3)(A). Nevertheless, commenters are invited to submit suggestions to FRA describing the types of actions or omissions for each proposed regulatory section that would subject a person to the assessment of a civil penalty. Commenters are also invited to recommend what penalties may be appropriate, based upon the relative seriousness of each type of violation.

### **V. Regulatory Impact and Notices**

#### *A. Executive Orders 12866 and 13563 and DOT Regulatory Policies and Procedures*

This proposed rule has been evaluated in accordance with Executive Order 12866 (*Regulatory Planning and Review*), Executive Order 13563 (*Improving Regulation and Regulatory Review*), and DOT policies and procedures. A regulatory evaluation has been prepared addressing the economic impact of the proposed rule over a 20-year period. The economic impacts of the proposed rule are estimated at well under \$100 million per year. This section summarizes the economic impacts of the proposed rule.

The intent of the proposed regulation is to increase safety by reducing the injuries caused by the operation of a passenger train's exterior side doors ("doors"). The doors can cause injuries to passengers from striking or holding them as they board or alight from trains. These injuries are unintended consequences that result from normal train operations. Although most passenger trips occur without a door

incident, the consequences of improper door operations can and have resulted in serious harm and even death. In November 2006, a passenger died after being caught in the doors of a departing NJT train at the Bradley Beach, NJ station.

FRA is proposing to reduce door injuries in two ways. First, the proposed rule addresses the rules and procedures for operating the doors. The proposed rule requires railroads to have operating rules for their employees that emphasize understanding the capabilities and limits of the door safety systems installed on the passenger cars and locomotives used in passenger service that they operate. The overall intent of the operating rules requirement is that the train crew should be aware of the status of the door safety systems on their train, such as if the train is operating in by-pass mode (which overrides certain door safety features), if a door is locked-out because of a malfunction, or if they are working on trains that have cars with different door safety systems. Specific requirements include the need for the train crew to verify that the door by-pass devices are sealed on the train that they are operating, to report instances when a by-pass device is found unsealed, and to understand crew responsibilities to safely operate the train when by-pass mode has been activated. The proposed rule also contains provisions to mitigate existing practices that may unintentionally increase the risk of door-caused injuries. For example, under the proposed rule, door control panels (used to open and close the doors) would be required to become and remain inactive if a door control key or similar secure device is removed from the panel. Also, if switches are used to denote the end of the train, then these switches would need to be secured. Securing the switches used to denote the end of the train would reduce the opportunity for part of the train to be cut-off from the summary circuit and be left unprotected by the door safety system (a situation which could occur if the end-of-train switches are activated at some location other than at the actual end of the train). Additionally, FRA is concerned about the inherent risk posed by a few railroads' practice of running trains with the doors open between stations. However, FRA would allow railroads the flexibility to continue the practice, but only by special approval supported by a hazard analysis. Other proposed requirements for operating rules task the crew with determining that the doors are free of obstructions so that the train may safely depart a station, and with

procedures for safely operating trains that consist of mixed passenger cars and locomotives used in passenger service, such as cars with different door systems. For these operating rules as well as operating rules describing procedures to maintain safety when the train is in by-pass mode, FRA would allow three years for implementing compliance. Passenger railroads would also have a three year period to train crewmembers in these operating rules before being required to conduct operational (efficiency) tests to determine that the employees understand the proposed operating rules.

The second part of the proposed rule concerns requirements for doors on new passenger cars and connected locomotives used in passenger service. FRA is proposing to adopt an APTA standard containing the design requirements for door safety systems on these types of new passenger equipment that are ordered with powered doors. For example, new cars with powered doors would be required to have an obstruction detection system, a key or other secure device to activate (i.e., turn on) a door control panel, and have doors that are not closed or opened by moving the locomotive throttle control (i.e., the doors should be controlled by the crew instead of by the movement of the train). The APTA standard is structured in a hierarchical order, addressing the door safety features at the individual door level through the overall system level. The standard is structured this way to potentially prevent or mitigate unsafe door conditions at one of several levels. This structure also provides railroads flexibility in determining the most appropriate equipment design for their particular operations. Additionally, the proposed rule includes some minimum design standards for new passenger cars and connected locomotives used in passenger service ordered with both powered and manual doors. These types of new passenger equipment equipped with either powered or manual doors would need to have a door summary circuit that prevents the train from taking power and moving if a door is open. Other safety requirements that apply to new cars with either powered or manual doors are door status lights or indicators, a door summary status indicator or light that is easily viewable by the engineer, and by-pass devices that work only when activated from the operating cab of the train. The proposed rule clarifies that these requirements for passenger trains with manual or powered doors apply to both commuter and intercity passenger service railroads (but not to private equipment). The cost

to install additional door safety features on new cars should be less than retrofitting existing cars, as less labor would be needed to remove old equipment, and potentially fewer parts would be used. For example, a retrofit might require additional parts to adapt old equipment for use with new equipment. These safety features are all currently available.

FRA has analyzed the economic impacts of this rule against a “no action” baseline. The no action baseline reflects the state of the world in the absence of this proposed rule. The estimated costs from the extra burden caused by the proposed rule over the 20-year period of analysis total \$15.0 million undiscounted, with a present value calculated using a 7 percent discount rate (PV, 7%) of about \$8.0 million, and a present value calculated using a 3 percent discount rate (PV, 3%) of \$11.2 million. The estimated quantified benefits over a 20-year period total \$81.9 million undiscounted, \$42.4 million (PV, 7%), and \$60.3 million (PV, 3%). These costs and benefits

result in net positive benefits over 20 years of about \$67.0 million undiscounted, \$34.4 million (PV, 7%), and \$49.1 million (PV, 3%).

The proposed rule incurs relatively small costs and therefore has relatively high net benefits. Most of the initial burdens are expected from changes to railroad operating rules, and the design standards for door safety systems apply to new passenger trains where they can be installed cost-effectively. The largest contributor to costs is the crewmembers’ task of verifying that the door by-pass devices on the train are sealed in the normal, non-by-pass mode. The quantified benefits result primarily from reduced injuries based on a count of door injuries in the past (2001–2005), and the assumption that the proposed rule would be 50 percent effective in reducing similar injuries and fatalities in the future. The count of door injuries used the descriptive, narrative statements on accident reports to better identify door-caused injuries (yielding about 19 potentially avoided injuries per year on average). A count of door-

caused injuries using more recent data from 2011 yielded 19 injuries per year, similar to the previous year results. There may be other additional benefits that were not quantified from the proposed rulemaking, such as fewer passenger claims for personal property damage. Also, as door incidents are often well-publicized in the media, reducing the number of door incidents will maintain and enhance the public’s perception of safe passenger service, or goodwill toward passenger service. Furthermore, railroads for which the APTA standard may serve as an incentive to purchase new cars may as a result have reduced door system maintenance costs. For example, if older door systems that use electro-pneumatic doors are replaced with newer, more reliable powered door systems, maintenance costs could be expected to decrease.

The costs and benefits are summarized in the tables Costs Summary and Benefits Summary, respectively.

TABLE—COSTS SUMMARY

Proposed rule reference (and regulatory evaluation reference)	Cost category	Total undiscounted costs	Total present value of costs discounted at 7%	Total present value of costs discounted at 3%
238.133(a) (8.2(a)), By-Pass Device Verification.	Verify Door By-Pass Devices Are Sealed and Ensure Integrity of the Train.	\$10,961,359 .....	\$5,419,580 .....	\$7,908,974.
238.133(a) (8.2(a)), Developing a Written Functional Test Plan.	As an Alternative, Develop a Written Functional Test Plan to Comply with 238.131(a) By-Pass Device Verification.	\$9,702 .....	\$8,008 .....	\$8,824.
238.133(b) (8.2(b)), Unsealed Door By-Pass Device.	Apply Seal to Door By-Pass Devices when Found Unsealed, Report Defect.	\$548,068 .....	\$279,979 .....	\$395,449.
238.133(c) (8.2(c)), En Route Failure.	Determine if Safe to Proceed with Door By-Pass Activated, and Hold Crew Safety Briefing.	\$76,882 .....	\$40,156 .....	\$56,833.
238.133(d) (8.2(d)), Records.	Record the Door By-Pass Activation.	\$12,848 .....	\$6,711 .....	\$9,498.
238.133(d) (8.2(d)), Records.	Record Unintended Door Openings.	\$51,393 .....	\$26,843 .....	\$37,991.
238.133(e) (8.2(e)), Door Control Panels.	Average of Engineering and Operating Rule Solutions to Prevent Unauthorized Access to Door Control Panels.	(0.5*\$185,910) + (0.5*\$26,515) = \$106,213.	(0.5*\$173,748) + (0.5*\$23,897) = \$98,822.	(0.5*\$180,495) + (0.5*\$25,334) = \$102,915.
238.133(f) (8.2(f)), End-of-Train.	Secure End-of-Train Switches, if Used.	\$204,024 .....	\$190,677 .....	\$198,082.
238.133(g)(1) (8.2(g)(1)), Exterior Side Door Safety System Override Devices.	Seal By-Pass Devices, if so Equipped.	Accounted for in Sections 238.133(a), 238.133(b), and 238.133(g)(2).		
238.133(g)(2) (8.2(g)(2)), Calendar Day Inspection.	Verify Door By-Pass Devices Sealed; Cost for Events Requiring Additional Troubleshooting.	\$78,235 .....	\$40,863 .....	\$57,833.

TABLE—COSTS SUMMARY—Continued

Proposed rule reference (and regulatory evaluation reference)	Cost category	Total undiscounted costs	Total present value of costs discounted at 7%	Total present value of costs discounted at 3%
238.135(a) (8.3(a)), Participate in Daily Safety/Job Briefing.	Emphasize Crew Responsibilities for Safe Door Operations.	Can Combine with Other Safety Briefings, Minimal Marginal Cost.		
238.135(b), 235.135(c) (8.3(b), 8.3(c)), Operate with the Exterior Side Doors and Traps Closed when Traveling Between Stations, and Special Approval to do so.	Railroads that File a Written Justification with FRA Requesting Special Approval to Operate with the Exterior Side Doors Open Between Stations.	\$3,095 .....	\$2,892 .....	\$3,005.
238.135(d), 238.135(g), 238.137(b) (8.3.1), Develop Operating Rules, Mixed Consist.	Developing Operating Rules for Overriding Door Safety Systems, Determining That Passengers are Clear of the Doors, and Operating a Train with Incompatible Door Safety Systems.	\$152,072 .....	\$105,179 .....	\$127,900.
238.135(d) (8.3.1), Addn'l Requirement to Provide Written Operating Rules for By-Pass.	Provide Written Operating Rules to Employees for Safely Overriding Door Safety Systems, Allow Time for Employees to Read Operating Rules.	Enter, Copy, Distribute Rules = \$2,178, Read = \$100,279, Total = \$102,456.	Enter, Copy, Distribute = \$1,439, Read = \$65,706, Total = \$67,145.	Enter, Copy, Distribute = \$1,797, Read = \$82,451, Total = \$84,248.
238.135(e) (8.3.2), Training.	Review and Revise Existing Training Plans for Training on Exterior Side Door Safety Systems and Operating Rules, Perform Training.	Review and Revise Training Plans = \$11,136, Perform Training = \$571,052, Total = \$582,188.	Review and Revise Training Plans = \$8,334, Perform Training = \$378,669, Total = \$387,002.	Review and Revise Training Plans = \$9,736, Perform Training = \$471,921, Total = \$481,657.
238.135(f) (8.3.2), Operational (Efficiency) Tests and Observations.	Conduct Operational (Efficiency) Testing for Exterior Side Door Safety Procedures.	\$114,007 .....	\$51,845 .....	\$79,752.
238.131(a) (8.4), New Passenger Cars and Loco's Used in Passenger Service, Safety Systems for Powered Exterior Side Doors.	Implement APTA Standard for Powered Exterior Side Door Systems on New Passenger Cars and Connected Loco's Used in Passenger Service.	\$300,000 .....	\$280,374 .....	\$291,262.
238.131(b) (8.5.1), Manual and Powered Door Standards for New Passenger Equipment.	Implement Some Safety Features for New Passenger Cars and Loco's Used in Passenger Service With Either Powered or Manual Exterior Side Doors.	\$1,682,368 .....	\$1,010,207 .....	\$1,344,694.
<b>TOTAL .....</b>	<b>.....</b>	<b>\$14,984,983 .....</b>	<b>\$8,007,284 .....</b>	<b>\$11,188,914.</b>

TABLE—BENEFITS SUMMARY

Rule year	(VSL=\$9.1 million) AIS level dollar value	Est. reduction in injuries, monetary value	Est. reduction in injuries, monetary value at 50% effectiveness	Est. reduction in fatalities, monetary value at 50% effectiveness	Total value of reductions in injuries and fatalities
1 .....	\$297,465	\$5,532,849	\$2,766,425	\$929,578	\$3,696,003
2 .....	300,648	5,592,051	2,796,025	939,525	3,735,550
3 .....	303,865	5,651,886	2,825,943	949,578	3,775,520
4 .....	307,116	5,712,361	2,856,180	959,738	3,815,919
5 .....	310,402	5,773,483	2,886,742	970,007	3,856,749
6 .....	313,724	5,835,260	2,917,630	980,386	3,898,016
7 .....	317,080	5,897,697	2,948,848	990,876	3,939,725
8 .....	320,473	5,960,802	2,980,401	1,001,479	3,981,880
9 .....	323,902	6,024,583	3,012,291	1,012,195	4,024,486
10 .....	327,368	6,089,046	3,044,523	1,023,025	4,067,548
11 .....	330,871	6,154,199	3,077,099	1,033,972	4,111,071

TABLE—BENEFITS SUMMARY—Continued

Rule year	(VSL=\$9.1 million) AIS level dollar value	Est. reduction in injuries, monetary value	Est. reduction in injuries, monetary value at 50% effectiveness	Est. reduction in fatalities, monetary value at 50% effectiveness	Total value of reductions in injuries and fatalities
12 .....	334,411	6,220,048	3,110,024	1,045,035	4,155,059
13 .....	337,989	6,286,603	3,143,301	1,056,217	4,199,518
14 .....	341,606	6,353,870	3,176,935	1,067,518	4,244,453
15 .....	345,261	6,421,856	3,210,928	1,078,941	4,289,869
16 .....	348,955	6,490,570	3,245,285	1,090,486	4,335,770
17 .....	352,689	6,560,019	3,280,010	1,102,154	4,382,163
18 .....	356,463	6,630,211	3,315,106	1,113,947	4,429,052
19 .....	360,277	6,701,154	3,350,577	1,125,866	4,476,443
20 .....	364,132	6,772,857	3,386,428	1,137,913	4,524,341
Total undiscounted .....	.....	.....	61,330,702	20,608,435	81,939,137
Total PV @7% .....	.....	.....	31,735,978	10,663,971	42,399,949
Total PV @3% .....	.....	.....	45,149,174	15,171,093	60,320,267

**Notes:**

Average estimated reduction in injuries = 18.6 injuries per year.

Average estimated reduction in fatalities = 0.20 fatalities per year.

Average Abbreviated Injury Scale (AIS) level for door injuries = 1.67

Value of a Statistical Life (VSL) = \$9.1 million in base year 2012, increased at a rate of 1.07 percent annually, to equal \$9.3 million in rule year

1.

PV = Present Value.

**B. Regulatory Flexibility Act and Executive Order 13272; Initial Regulatory Flexibility Assessment**

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) and Executive Order 13272 (67 FR 53461, Aug. 16, 2002) require agency review of proposed and final rules to assess their impacts on small entities. An agency must prepare an initial regulatory flexibility analysis (IRFA) unless it determines and certifies that a rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. FRA has not determined whether this proposed rule would have a significant economic impact on a substantial number of small entities. Therefore, FRA is publishing this IRFA to aid the public in commenting on the potential small business impacts of the requirements in this NPRM. FRA invites all interested parties to submit data and information regarding the potential economic impact on small entities that would result from the adoption of the proposals in this NPRM. FRA will consider all information and comments received in the public comment process when making a determination regarding the economic impact on small entities in the final rule.

FRA estimates that the total cost of the proposed rule for the railroad industry over a 20-year period will be \$15.0 million (undiscounted)—\$8.0 million (discounted at 7 percent), or \$11.2 million (discounted at 3 percent). Based on information currently available, FRA estimates that 1 percent or less of the total railroad costs associated with implementing the

proposed rule would be borne by small entities.

There are two railroads that would be considered small entities for purposes of this analysis and together they comprise about 7 percent of the railroads impacted directly by this proposed regulation. Thus, 7 percent of the impacted railroads could be considered to be a substantial number of small entities in this potentially impacted sector. However, these two small entities represent a much smaller portion of the total railroad industry that is impacted by this proposed rule. This is because of the small number of trains operated annually, or the small number of employees employed by these two railroads, or both. In order to get a better understanding of the total costs for the railroad industry (which forms the basis for the estimates in this IRFA) or more cost detail on any specific requirement, please see the regulatory evaluation that FRA has placed in the docket for this rulemaking.

In accordance with the Regulatory Flexibility Act, an IRFA must contain:

- A description of the reasons why action by the agency is being considered.
- A succinct statement of the objectives of, and the legal basis for, the proposed rule.
- A description—and, where feasible, an estimate of the number—of small entities to which the proposed rule will apply.
- A description of the projected reporting, recordkeeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be

subject to the requirement and the type of professional skills necessary for preparation of the report or record.

- Identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule.

**1. Reasons for Considering Agency Action**

The primary goal of this rulemaking is to improve the safety of passengers and employees on intercity passenger and commuter trains, as they board and alight through the exterior side doors of passenger cars. For convenience, unless otherwise specified, “doors” in this analysis refers to the exterior side doors intended and normally used by passengers for boarding and alighting from the train. For most train operations, passengers use these pathways on and off the train without incidence. They generally take for granted that the doors will function safely. However, there have been some casualties that have occurred in the past, some of which had tragic consequences. These injuries and fatalities are unintended, harmful consequences to passengers and employees that result from normal train operations. The casualties represent a negative externality that could be eliminated or mitigated to reduce the risk of harm to passengers and employees.

Most passengers and employees have an expectation that the train exterior side doors will function safely when boarding and alighting from the train. Therefore, passengers and employees may not properly assess the potential

safety risks of a door problem because door incidents are low-frequency, but potentially high-consequence events. Passengers and employees may not have all the necessary information about how a train's exterior side doors will operate in case of a problem. This information gap affects how passengers and employees interact with the doors. For example, passengers may assume that passenger train exterior side doors will bounce back continuously when an obstruction prevents the doors from closing like most elevator doors do; however, not all passenger train cars are equipped with this safety feature. Additionally, employees might not know whether the exterior side doors on a train will open or close when there has been an interruption in power. Furthermore, for trains that use marker light switches to denote the end of the train, employees may not realize that activating these switches at a point other than the physical end of the train will complete the trainline door circuit at that car. This situation would effectively leave the passenger cars after the car with the marker lights switched on without any exterior side door safety features.

## 2. A Succinct Statement of the Objectives of, and the Legal Basis for, the Proposed Rule

The purpose of this rulemaking is to improve railroad safety through proposed regulatory language that would establish new design standards, as well as operating practices relating to the use of safety devices that are a part of exterior side doors on passenger train cars. This NPRM proposes to incorporate by reference some of these standards from APTA standard PR-M-S-18-10 ("Standard for Powered Exterior Side Door System Design for New Passenger Cars").

The proposed rule prescribes minimum Federal safety standards relating to the design, operation, and use of passenger train side door safety systems. The proposed rule does not restrict railroads from adopting and enforcing additional or more stringent requirements not inconsistent with this part.

In order to further FRA's ability to respond effectively to contemporary safety problems and hazards as they arise in the railroad industry, Congress enacted the Federal Railroad Safety Act of 1970 (formerly 45 U.S.C. 421, 431 et seq., now found primarily in chapter 201 of title 49, U.S.C.), granting the Secretary rulemaking authority over all areas of railroad safety (49 U.S.C. 20103(a)) and conferring all powers necessary to detect and penalize

violations of any rail safety law. This authority was subsequently delegated to the Administrator of FRA (49 CFR 1.89) (Until July 5, 1994, the Federal railroad safety statutes existed as separate acts found primarily in title 45, U.S.C.; on that date, all of the acts were repealed, and their provisions were recodified into title 49, U.S.C.). Accordingly, FRA is using this (and other) authority to initiate a rulemaking that would establish new standards relating to passenger train door operations, enhancing standards codified in part 238, which was originally issued in May 1999 as part of FRA's implementation of rail passenger safety regulations required by section 215 of the Federal Railroad Safety Authorization Act of 1994 (49 U.S.C. 20133).

## 3. A Description of, and Where Feasible, an Estimate of the Number of Small Entities to Which the Proposed Rule Would Apply

The "universe" of the entities considered in an IRFA generally includes only those small entities that can reasonably expect to be directly regulated by this proposed action. Small passenger railroads are the only types of small entities that may be affected directly by this proposed rule.

"Small entity" is defined in 5 U.S.C. 601(3) as having the same meaning as "small business concern" under section 3 of the Small Business Act. This includes any small business concern that is independently owned and operated, and is not dominant in its field of operation. Section 601(4) likewise includes within the definition of "small entities" not-for-profit enterprises that are independently owned and operated, and are not dominant in their field of operation.

The U.S. Small Business Administration (SBA) stipulates in its size standards that the largest a railroad business firm that is "for profit" may be and still be classified as a "small entity" is 1,500 employees for "Line Haul Operating Railroads" and 500 employees for "Switching and Terminal Establishments." Additionally, 5 U.S.C. 601(5) defines as "small entities" governments of cities, counties, towns, townships, villages, school districts, or special districts with populations less than 50,000.

Federal agencies may adopt their own size standards for small entities in consultation with SBA and in conjunction with public comment. Pursuant to that authority, FRA has published a final statement of agency policy that formally establishes "small entities" or "small businesses" as being railroads, contractors, and hazardous

materials shippers that meet the revenue requirements of a Class III railroad as set forth in 49 CFR 1201.1-1, which is \$20 million or less in inflation-adjusted annual revenues, and commuter railroads or small governmental jurisdictions that serve populations of 50,000 or less. See 68 FR 24891, May 9, 2003, codified at appendix C to 49 CFR part 209. The \$20 million limit is based on the Surface Transportation Board's revenue threshold for a Class III railroad. Railroad revenue is adjusted for inflation by applying a revenue deflator formula in accordance with 49 CFR 1201.1-1. FRA is proposing to use this definition for this rulemaking. Any comments received pertinent to its use will be addressed in the final rule.

## Passenger Railroads

If the regulatory language proposed in this NPRM is adopted into a final rule, commuter and intercity passenger railroads would have to comply with all of the proposed part 238 provisions in this NPRM. However, the amount of effort to comply with the language proposed in this NPRM is commensurate with the size of the entity, the number of trains operated by the entity, the number of employees employed by the railroad, and the railroad's current operating rules in regards to the operation of the train's exterior side doors.

There are two intercity passenger railroads, Amtrak and the Alaska Railroad Corporation. Neither can be considered a small entity. Amtrak is not considered to be a small railroad. The Alaska Railroad is a Class II railroad and also not considered to be a small railroad per the definition of small entity in this IRFA. The Alaska Railroad is owned by the State of Alaska, which has a population well in excess of 50,000. Therefore, they will not be considered in the calculations in this IRFA.

There are 28 commuter or other short-haul passenger railroad operations in the U.S. Most of these railroads are part of larger transit organizations that receive Federal funds and serve major metropolitan areas with populations greater than 50,000. However, two of these railroads do not fall in this category and are considered small entities: Saratoga & North Creek Railway (SNC), and the Hawkeye Express, which is operated by the Iowa Northern Railway Company (IANR). All other passenger railroad operations in the United States are part of larger governmental entities whose service jurisdictions exceed 50,000 in population.

In 2011, Hawkeye Express transported approximately 5,000 passengers per game over a 7-mile round-trip distance to and from University of Iowa (University) football games. Iowa Northern, which operates the Hawkeye Express, has approximately 100 employees and is primarily a freight operation totaling 184,385 freight train miles in 2010. The Hawkeye Express service is on a contractual arrangement with the University, a State of Iowa institution (the population of Iowa City, Iowa is approximately 69,000). Iowa Northern owns and operates the six bi-level passenger cars used for this small passenger operation which runs on average seven days over a calendar year. FRA expects that any costs imposed on the railroad by this regulation will be passed on to the University as part of the costs to operate the seasonal, game-day trains, and requests comments on this assumption.

SNC began operation in the summer of 2011 and currently provides daily rail service over a 57-mile line between Saratoga Springs and North Creek, New York. The SNC is a Class III railroad (i.e., below the \$20 million revenue threshold) and a limited liability company wholly owned by San Luis & Rio Grande Railroad (SLRG). SLRG is a Class III railroad and a subsidiary of Permian Basin Railways, Inc. (Permian). Permian is in turn owned by Iowa Pacific Holdings, LLC (IPH). The SNC primarily transports passengers to Saratoga Springs, tourists seeking to sightsee along the Hudson River, and travelers connecting to and from Amtrak service. The SNC is involved with the operation of passenger trains year round using conventional locomotives in the lead, typically pulling consists of passenger coaches and other cars such as baggage cars and dining cars.

Additional service activity includes seasonal ski trains and special trains such as "Thomas the Train." This railroad operates under a five-year contract with the local government and is planning to restart freight operations in the future. SNC has about 25 total employees, including about 7 engineers and conductors.

The cost burden to these two small entities will be considerably less on average than that of the other 28 railroads. FRA estimates impacts on these two railroads could range on average between \$900 and \$1800 annually to comply with the proposed regulations if they are adopted.

The Hawkeye Express provides service under contract to a state institution (i.e., the University). It may be able to pass some or all of the compliance cost on to that institution.

As a result, the Hawkeye Express may not be significantly impacted by these proposed regulations.

#### *Contractors*

Some passenger railroads use contractors to perform many different functions on their railroads. For some passenger railroads, contractors operate trains and perform other safety-related functions. For the purpose of assessing this proposed rule's impact, the pertinent contractors are all larger contractors who perform primary operating and maintenance functions for the passenger railroads. Conversely, smaller contractors perform ancillary functions to the primary operations. Larger contractors are typically large private companies such as Herzog or part of an international conglomerate such as Keolis or Veolia. These international conglomerates have substantial multidisciplinary workforces and are able to perform most to all of the operating functions that the passenger railroad requires. FRA seeks comment on these findings and conclusions.

#### 4. A Description of the Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Rule, Including an Estimate of the Class of Small Entities That Will Be Subject to the Requirements and the Type of Professional Skill Necessary for Preparation of the Report or Record

There are reporting, recordkeeping, and compliance costs associated with this proposed regulation. The practices of some passenger railroads have been in compliance with the proposed requirements in this NPRM voluntarily for some time. For these affected small entities, the additional burden of the proposed requirements is marginal. The total 20-year cost of this proposed rulemaking is \$15.0 million (undiscounted) of which FRA estimates one percent or less will be attributable to small entities. FRA estimates that the approximate total burden for small railroads for the 20-year period could range between \$74,000 and \$149,000 (undiscounted) depending on discount rates and the extent of costs relative to larger railroads. FRA believes this would not be a significant economic burden. For a thorough presentation of cost estimates please refer to the regulatory evaluation, which has been placed in the docket for this rulemaking. FRA expects that most of the skills necessary to comply with the proposed regulation would be possessed by operating crew employees as well as recordkeeping and reporting personnel.

The nature of the operations of these two small entities would be indicative

of lower over-all costs to these railroads. The Hawkeye Express has a very limited operation in both the number of days that the railroad operates and the total trips made by its trains. As a result, the costs for almost all of the proposed burdens on the Hawkeye Express are low. The SNC operates more trains and for more days than the Hawkeye Express, but still has a low number of cars and limited number of trips. This type of operation would keep the costs low if the proposed requirements are enacted.

However, there will be potential new burdens for these two small railroads if the regulatory language in this NPRM is enacted. The regulatory evaluation estimates the proposed requirements in § 238.133(a) and (b) as being the largest cost for railroads under the proposed rule. However, neither of these railroads operate trains that use by-pass devices. Proposed § 238.131 could also be very costly for railroads if adopted because it proposes that "new" passenger cars with exterior side doors, and "new" passenger locomotives with connected door safety systems, meet specified industry standards. However, this section would not have any impact on these two small entities because these two entities do not purchase or order new passenger cars or passenger locomotives. The proposed requirements in paragraphs (a) and (b) of this section are all focused on new passenger cars and adopting the APTA standard for exterior, powered side door systems, as well as requirements for new passenger cars with powered or manual exterior side doors. Due to the limited operations of both entities, it is unlikely that these entities would purchase new passenger cars anytime in the near future. (For all railroads, proposed § 238.131 applies to new rail passenger cars and locomotives used in passenger service ordered on or after 120 days after the publication of the final rule in the **Federal Register**, or placed into service for the first time on or after 790 days after the date of publication. This time period provides the railroads some time to reach compliance.) For proposed § 238.135 the costs will vary for these two entities. For paragraphs (b) and (c) of § 238.135, FRA does not anticipate any burden for these small entities because both of the railroads currently operate with their trains' exterior side doors closed between train stations. Paragraphs (d) and (g) of § 238.135 are focused on the railroads having sufficient operating rules to ensure the safe operation of their trains' exterior side passenger doors. Paragraph (e) requires the

passenger train crewmembers be trained on the requirements of the proposed section. For most railroads this will be a new burden. Railroads would have to review their existing training plans. However, crewmembers responsible for door operations (i.e., the engineer and conductor) would have received some training on door operations as part of their professional training and certification programs. Thus the economic burdens for § 238.135(b), (c) and (f), as well as § 238.137(a) and (b), are dependent on whether the current operating rules of the railroads covered by the proposed rule include the proposed door operation requirements. The proposed door safety features and their associated operating rules are not new or novel procedures, but currently exist. Most of the larger-volume passenger service railroads have some door operating rules; the smaller railroads may have less extensive door operating rules corresponding to the fewer types of equipment they run. For proposed § 235.135(d), (e), and (f), and § 238.137(b), FRA is allowing 1,095 days (3 years) after the date of publication of the final rule in the **Federal Register** for compliance. The cost of all these proposed requirements as relating to small business entities are estimated to be less than two percent of the total cost of the proposed rule.

*Market and Competition Considerations*

The railroad industry has several significant barriers to entry, such as the need to own or otherwise obtain access to rights-of-way and the high capital expenditure needed to purchase a fleet, as well as track and equipment. Furthermore, the two railroads under consideration would only be competing with individual automobile traffic and serve as a service to get drivers out of their automobiles and off congested roadways. One of the two entities, Hawkeye Express, transports passengers to a stadium from distant parking lots. The SNC provides passenger train service to tourist and other destinations between Sarasota Springs and North Creek, New York. FRA is not aware of any bus service that currently exists that competes with either of these railroads. Thus, while this proposed rule would have an economic impact on all passenger railroads, it should not have an impact on the competitive position of small railroads. FRA requests comment on these findings and conclusions.

5. Identification, to the Extent Practicable, of All Relevant Federal Rules That May Duplicate, Overlap, or Conflict With the Proposed Rule

FRA is not aware of any relevant Federal rule that duplicates, overlaps

with, or conflicts with the proposed regulations in this NPRM; the proposed regulation in fact complements most FRA's other safety regulations for railroad operations, especially the safety of railroad passenger operations.

FRA invites all interested parties to submit comments, data, and information demonstrating the potential economic impact on small entities that would result from the adoption of the proposed language in this NPRM. FRA will consider all comments received during the public comment period for this NPRM when making a final determination of the NPRM's economic impact on small entities.

*C. Paperwork Reduction Act*

The information collection requirements in this proposed rule are being submitted for approval to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). The sections that contain the new information and current information collection requirements and the estimated time to fulfill each requirement are as follows:

CFR Section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
229.47—Emergency Brake Valve—Marking Brake Pipe Valve as such.	30 railroads .....	30 markings .....	1 minute .....	1 hour.
—DMU, MU, Control Cab Locomotives—Marking Emergency Brake Valve as such.	30 railroads .....	5 markings .....	1 minute .....	.08 hour.
238.7—Waivers .....	30 railroads .....	5 waivers .....	2 hours .....	10 hours.
238.15—Movement of passenger equipment with power brake defect.	30 railroads .....	1,000 tags .....	3 minutes .....	50 hours.
—Movement of passenger equipment—defective en route.	30 railroads .....	288 tags .....	3 minutes .....	14 hours.
Conditional requirement—Notificat.	30 railroads .....	144 notices .....	3 minutes .....	7 hours.
238.17—Limitations on movement of passenger equipment—defects found at calendar day insp. & on movement of passenger equipment—develops defects en route.	30 railroads .....	200 tags .....	3 minutes .....	10 hours.
—Special requisites—movement—passenger equip.—saf. appl. defect.	30 railroads .....	76 tags .....	3 minutes .....	4 hours.
—Crew member notifications ...	30 railroads .....	38 radio notifications .....	30 seconds .....	.32 hour.
238.21—Petitions for special approval of alternative standards.	30 railroads .....	1 petition .....	16 hours .....	16 hours.
—Petitions for special approval of alternative compliance.	30 railroads .....	1 petition .....	120 hours .....	120 hours.



CFR Section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
—Petitions for special approval of pre-revenue service acceptance testing plan.	30 railroads .....	10 petitions .....	40 hours .....	400 hours.
—Comments on petitions .....	Public/RR Industry .....	4 comments .....	1 hour .....	4 hours.
238.103—Fire Safety—Procuring New Pass. Equipment—Fire Safety Analysis.	2 new railroads .....	2 analyses .....	150 hours .....	300 hours.
—Existing Equipment—Final Fire Safety Analysis.	30 railroads .....	1 analysis .....	40 hours .....	40 hours.
—Transferring existing equipment—Revised Fire Safety Analysis.	30 railroads/APTA .....	3 analyses .....	20 hours .....	60 hours.
238.107—Inspection/testing/maintenance plans—Review by railroads.	30 railroads .....	12 reviews .....	60 hours .....	720 hours.
238.109—Employee/Contractor Tr.—Training empl.—Mech. Inspection.	7,500 employees/100 trainers.	2,500 empl./100 trainers	1.33 hours .....	3,458 hours.
—Recordkeeping—Employee/Contractor Current Qualifications.	30 railroads .....	2,500 record .....	3 minutes .....	125 hours.
238.111—Pre-revenue service acceptance testing plan: Passenger equipment that has previously been used in service in the U.S.	9 equipment manufacturers.	2 plans .....	16 hours .....	32 hours.
—Passenger equipment that has not been previously used in revenue service in the U.S.	9 equipment manufacturers.	2 plans .....	192 hours .....	384 hours.
—Subsequent Equipment Orders.	9 equipment manufacturers.	2 plans .....	60 hours .....	120 hours.
238.131—New Passenger Equipment w/Exterior Side Doors—FMECA Analysis for door safety system (New Requirement).	6 Car Builders .....	3 FMECAs .....	4 hours .....	12 hours.
238.133—Exterior Side Door Safety Systems—Functional Test Plan (New Requirement).	30 railroads .....	30 plans .....	4 hours .....	120 hours.
—Unsealed door bypass device—Crewmember notification to designated authority of unsealed door-by-pass device.	30 railroads .....	9,994 notifications .....	30 seconds .....	84 hours.
—Train crew safety briefing—after activation of door-by-pass device.	30 railroads .....	300 briefings .....	2 minutes .....	10 hours.
—Train crew notification to designated authority.	30 railroads .....	300 notices .....	30 seconds .....	3 hours.
—Qualified Person (QP) or QMP determination that repairs cannot be made and that it is safe to move equipment.	30 railroads .....	300 decision .....	4 minutes .....	20 hours.
—QP or QMP notification to train crew member in charge of train movement that door by-pass device has been activated.	30 railroads .....	300 notices .....	30 seconds .....	3 hours.
—Train crew safety briefing—regarding their position on train.	30 railroads .....	300 briefings .....	2 minutes .....	10 hours.
—Record of door by-pass activation.	30 railroads .....	300 records .....	2 minutes .....	10 hours.
—Record of unintended door opening.	30 railroads .....	20 records .....	2 hours .....	40 hours.
—Record of unsealed door by pass devices as part of calendar day inspection.	30 railroads .....	20 records .....	4 hours .....	80 hours.

CFR Section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
238.135—(New Requirements)—RR Request for Special Approval from FRA to operate passenger train w/ exterior side doors or trap doors, or both, open.	30 railroads .....	2 requests .....	24 hours .....	48 hours.
—RR Written operating rule on how to safely override a door summary circuit or no-motion system, or both.	30 railroads .....	30 operating rules .....	42 hours .....	1,260 hours.
—Copy of RR written operating rules to employees.	30 railroads .....	10,000 copies .....	1 minute .....	167 hours.
—RR Employee Training in this section's requirements and how to identify/isolate malfunctioning exterior powered or manual side door.	30 railroads .....	3,383 tr. employees .....	30 minutes .....	1,692 hours.
—Operational/efficiency tests of RR operating crewmembers and control center employees.	30 railroads .....	3,383 tests .....	2 minutes .....	113 hours.
—RR Operating rule requiring train crewmembers to determine status of their train's exterior side doors.	30 railroads .....	30 operating rules .....	4 hours .....	120 hours.
238.137—RR Operating rule to provide for the safe use of equipment with incompatible exterior side door systems when used in a mixed consist (New Requirement).	10 railroads .....	10 operating rules .....	4 hours .....	40 hours.
238.213—Corner Posts—Plan to meet section's corner post requirements for cab car or MU locomotives.	30 railroads .....	10 plans .....	40 hours .....	400 hours.
238.229—Safety Appliances—Welded safety appliances considered defective: lists.	30 railroads .....	30 lists .....	1 hour .....	30 hours.
—Lists Identifying Equip. w/ Welded Saf. App.	30 railroads .....	30 lists .....	1 hour .....	30 hours.
—Defective Welded Saf. Appliance—Tags.	30 railroads .....	4 tags .....	3 minutes .....	.20 hr.
—Notification to Crewmembers about Non-Compliant Equipment.	30 railroads .....	2 notices .....	1 minute .....	.0333 hr.
—Inspection plans .....	30 railroads .....	30 plans .....	16 hours .....	480 hours.
—Inspection Personnel—Training.	30 railroads .....	60 workers .....	4 hours .....	240 hours.
—Remedial action: Defect/crack in weld—record.	30 railroads .....	1 record .....	2.25 hours .....	2 hours.
—Petitions for special approval of alternative compliance—impractical equipment design.	30 railroads .....	15 petitions .....	4 hours .....	60 hours.
—Records of inspection/repair of welded safety appliance brackets/supports/Training.	30 railroads .....	3,060 records .....	12 minutes .....	612 hours.
238.230—Safety Appliances—New Equipment—Inspection Record of Welded Equipment by Qualified Employee.	30 railroads .....	100 records .....	6 minutes .....	10 hours.
—Welded safety appliances: Documentation for equipment impractically designed to mechanically fasten safety appliance support.	30 railroads .....	15 document .....	4 hours .....	60 hours.
238.231—Brake System—Inspection and repair of hand/parking brake: Records.	30 railroads .....	2,500 forms .....	21 minutes .....	875 hours.
—Procedures Verifying Hold of Hand/Parking Brakes.	30 railroads .....	30 procedures .....	2 hours .....	60 hours.
238.237—Automated monitoring—Documentation for alerter/deadman control timing.	30 railroads .....	3 documents .....	2 hours .....	6 hours.

CFR Section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
—Defective alerter/deadman control: Tagging.	30 railroads .....	25 tags .....	3 minutes .....	1 hour.
238.303—Exterior calendar day mechanical inspection of passenger equipment: Notice of previous inspection.	30 railroads .....	25 notices .....	1 minute .....	1 hour.
—Dynamic brakes not in operating mode: Tag.	30 railroads .....	50 tags .....	3 minutes .....	3 hours.
—Conventional locomotives equipped with inoperative dynamic brakes: Tagging.	30 railroads .....	4 documents .....	3 minutes .....	3 hours.
—MU passenger equipment found with inoperative/ineffective air compressors at exterior calendar day inspection: Documents.	30 railroads .....	4 documents .....	2 hours .....	8 hours.
—Written notice to train crew about inoperative/ineffective air compressors.	30 railroads .....	100 notices .....	3 minutes .....	5 hours.
—Records of inoperative air compressors.	30 railroads .....	100 records .....	2 minutes .....	3 hours.
—Record of exterior calendar day mechanical inspection.	30 railroads .....	1,959,620 records .....	10 minutes + 1 minute .....	359,264 hours.
238.305—Interior calendar day mechanical inspection of passenger cars—Tagging of defective end/side doors.	30 railroads .....	540 tags .....	1 minute .....	9 hours.
—Records of interior calendar day inspection.	30 railroads .....	1,968,980 records .....	5 minutes + 1 minute .....	196,898 hours.
238.307—Periodic mechanical inspection of passenger cars and unpowered vehicles—Alternative inspection intervals: Notifications.	30 railroads .....	2 notices/notifications .....	5 hours .....	10 hours.
—Notice of seats/seat attachments broken or loose.	30 railroads .....	200 notices .....	2 minutes .....	7 hours.
—Records of each periodic mechanical inspection.	30 railroads .....	19,284 records .....	200 hours/2 minutes .....	3,857,443 hours.
—Detailed documentation of reliability assessments as basis for alternative inspection interval.	30 railroads .....	5 documents .....	100 hours .....	500 hours.
238.311—Single car test—Tagging to indicate need for single car test.	30 railroads .....	50 tags .....	3 minutes .....	3 hours.
238.313—Class I Brake Test—Record for additional inspection for passenger equipment that does not comply with § 238.231(b)(1).	30 railroads .....	15,600 records .....	30 minutes .....	7,800 hours.
238.315—Class IA brake test—Notice to train crew that test has been performed (verbal notice).	30 railroads .....	18,250 notices .....	5 seconds .....	25 hours.
—Communicating Signal Tested and Operating.	30 railroads .....	365,000 tests .....	15 seconds .....	1,521 hours.
238.317—Class II brake test—Communicating Signal Tested and Operating.	30 railroads .....	365,000 test .....	15 seconds .....	1,521 hours.
238.321—Out-of-service credit—Passenger Car: Out-of-use notation.	30 railroads .....	1,250 notes .....	2 minutes .....	42 hours.
238.323—End of Train—Provisions to denote end-of-train so that all side doors are protected by door summary circuit.	30 railroads .....	30 modified operating rules.	4 hours .....	120 hours.
238.445—Automated Monitoring—Performance monitoring: alerters/alarms.	1 railroad .....	10,000 alerts .....	10 seconds .....	28 hours.
—Monitoring system: Self-test feature: Notifications.	1 railroad .....	21,900 notices .....	20 seconds .....	122 hours.

CFR Section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
238.503—Inspection, testing, and maintenance requirements—Plans.	1 railroad .....	1 plan .....	1,200 hours .....	1,200 hours.
238.505—Program approval procedures—Submission of program/plans and Comments on programs.	Rail Industry .....	3 comments .....	3 hours .....	9 hours.

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information. Pursuant to 44 U.S.C. 3506(c)(2)(B), FRA solicits comments concerning: Whether these information collection requirements are necessary for the proper performance of the functions of FRA, including whether the information has practical utility; the accuracy of FRA’s estimates of the burden of the information collection requirements; the quality, utility, and clarity of the information to be collected; and whether the burden of collection of information on those who are to respond, including through the use of automated collection techniques or other forms of information technology, may be minimized. For information or a copy of the paperwork package submitted to OMB, contact Mr. Robert Brogan, Information Clearance Officer, Federal Railroad Administration, at 202–493–6292, or Ms. Kimberly Toone, Records Management Officer, Federal Railroad Administration, at 202–493–6139.

Organizations and individuals desiring to submit comments on the collection of information requirements should direct them to Mr. Robert Brogan or Ms. Kimberly Toone, Federal Railroad Administration, 1200 New Jersey Avenue SE., 3rd Floor, Washington, DC 20590. Comments may also be submitted via email to Mr. Brogan at [Robert.Brogan@dot.gov](mailto:Robert.Brogan@dot.gov), or to Ms. Toone at [Kim.Toone@dot.gov](mailto:Kim.Toone@dot.gov).

OMB is required to make a decision concerning the collection of information requirements contained in this proposed rule between 30 and 60 days after publication of this document in the **Federal Register**. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

FRA is not authorized to impose a penalty on persons for violating information collection requirements which do not display a current OMB control number, if required. FRA

intends to obtain current OMB control numbers for any new information collection requirements resulting from this rulemaking action prior to the effective date of the final rule. The OMB control number, when assigned, will be announced by separate notice in the **Federal Register**.

*D. Federalism Implications*

Executive Order 13132, “Federalism” (64 FR 43255, Aug. 10, 1999), requires FRA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” are defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Under Executive Order 13132, the agency may not issue a regulation with federalism implications that imposes substantial direct compliance costs and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or the agency consults with State and local government officials early in the process of developing the regulation. Where a regulation has federalism implications and preempts State law, the agency seeks to consult with State and local officials in the process of developing the regulation.

This proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132. This proposed rule will not have a substantial effect on the States or their political subdivisions, and it will not affect the relationships between the Federal government and the States or their political subdivisions, or the distribution of power and responsibilities among the various levels of government. In addition, FRA has determined that this regulatory action will not impose substantial direct

compliance costs on the States or their political subdivisions. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

However, the final rule arising from this rulemaking could have preemptive effect by operation of law under certain provisions of the Federal railroad safety statutes, specifically the former Federal Railroad Safety Act of 1970, repealed and recodified at 49 U.S.C. 20106, and the former Locomotive Boiler Inspection Act (LIA) at 45 U.S.C. 22–34, repealed and re-codified at 49 U.S.C. 20701–20703. Section 20106 provides that States may not adopt or continue in effect any law, regulation, or order related to railroad safety or security that covers the subject matter of a regulation prescribed or order issued by the Secretary of Transportation (with respect to railroad safety matters) or the Secretary of Homeland Security (with respect to railroad security matters), except when the State law, regulation, or order qualifies under the “essentially local safety or security hazard” exception to section 20106. Moreover, the former LIA has been interpreted by the Supreme Court as preempting the field concerning locomotive safety. See *Napier v. Atlantic Coast Line R.R.*, 272 U.S. 605 (1926).

*E. International Trade Impact Assessment*

The Trade Agreements Act of 1979 (Pub. L. 96–39, 19 U.S.C. 2501 et seq.) prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards.

FRA has assessed the potential effect of this rulemaking on foreign commerce and believes that its requirements are consistent with the Trade Agreements Act. The requirements are safety standards, which, as noted, are not considered unnecessary obstacles to trade. Moreover, FRA has sought, to the

extent practicable, to state the requirements in terms of the performance desired, rather than in more narrow terms restricted to a particular design or system.

#### F. Environmental Impact

FRA has evaluated this rule in accordance with its “Procedures for Considering Environmental Impacts” (FRA’s Procedures) (64 FR 28545, May 26, 1999) as required by the National Environmental Policy Act (42 U.S.C. 4321 et seq.), other environmental statutes, Executive Orders, and related regulatory requirements. FRA has determined that this proposed rule is not a major FRA action (requiring the preparation of an environmental impact statement or environmental assessment) because it is categorically excluded from detailed environmental review pursuant to section 4(c)(20) of FRA’s Procedures. See 64 FR 28547 (May 26, 1999).

In accordance with section 4(c) and (e) of FRA’s Procedures, the agency has further concluded that no extraordinary circumstances exist with respect to this regulation that might trigger the need for a more detailed environmental review. As a result, FRA finds that this proposed rule is not a major Federal action significantly affecting the quality of the human environment.

#### G. Unfunded Mandates Reform Act of 1995

Pursuant to section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4, 2 U.S.C. 1531), 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).” Section 202 of the Act (2 U.S.C. 1532) further requires that “before promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in 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) in any 1 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. This proposed rule will not result in the expenditure, in the aggregate, of \$100,000,000 or more (as adjusted annually for inflation) in any

one year, and thus preparation of such a statement is not required.

#### H. Energy Impact

Executive Order 13211 requires Federal agencies to prepare a Statement of Energy Effects for any “significant energy action.” See 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 proposed rule in accordance with Executive Order 13211. FRA has determined that this proposed 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 the Executive Order.

#### I. Privacy Act

FRA wishes to inform all potential commenters that anyone is able to search the electronic form of all comments received into any agency docket by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). Please see the privacy notice at <http://www.regulations.gov#!/privacyNotice>. You may also review DOT’s complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477–78).

#### List of Subjects in 49 CFR Part 238

Incorporation by reference, Passenger equipment, Railroad safety, Reporting and recordkeeping requirements.

#### The Proposed Rule

For the reasons discussed in the preamble, FRA proposes to amend part 238 of chapter II, subtitle B of title 49, Code of Federal Regulations as follows:

#### PART 238—[AMENDED]

##### Subpart A—General

■ 1. The authority citation for part 238 continues to read as follows:

**Authority:** 49 U.S.C. 20103, 20107, 20133, 20141, 20302–20303, 20306, 20701–20702, 21301–21302, 21304; 28 U.S.C. 2461, note; and 49 CFR 1.89.

■ 2. Section 238.5 is amended by adding in alphabetical order definitions of “By-pass,” “Door isolation lock,” “Door summary circuit,” “End-of-train,” “Exterior side door safety system,” “No-motion system,” and “Trainline door circuit” to read as follows:

#### § 238.5 Definitions.

\* \* \* \* \*

*By-pass* means a device designed to override a function.

\* \* \* \* \*

*Door isolation lock* means a cutout/lockout mechanism installed at each exterior side door panel to secure a door in the closed and latched position, provide a door-closed indication to the summary circuit, and remove power from the door motor or door motor controls.

*Door summary circuit* means a trainline door circuit that provides an indication to the controlling cab of the train that all exterior side doors are closed as intended, or locked out with a door isolation lock, or both.

\* \* \* \* \*

*End-of-train* means a feature typically used to determine the physical end of the train, or the last passenger car in the train, or both, for the door summary circuit.

\* \* \* \* \*

*Exterior side door safety system* means a system or subsystem of safety features that enable the safe operation of the exterior side doors of a passenger car or train. The exterior side door safety system includes appurtenances and components that control, operate, and display the status of the exterior side doors, and is interlocked with the train’s traction power control.

\* \* \* \* \*

*No-motion system* means a system on a train that detects the motion of the train.

\* \* \* \* \*

*Trainline door circuit* means a circuit used to convey door signals over the length of a train.

\* \* \* \* \*

#### Subpart B—Safety Planning and General Requirements

■ 3. Section 238.131 is added to subpart B read as follows:

#### § 238.131 Exterior side door safety systems—new passenger cars and locomotives used in passenger service.

(a) *Safety systems for powered exterior side doors.* All powered exterior

side door safety systems in passenger cars, and connected door safety systems in locomotives used in passenger service, that are ordered on or after [DATE 120 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], or placed in service for the first time on or after [DATE 790 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], shall:

(1) Be built in accordance with APTA standard PR-M-S-18-10, "Standard for Powered Exterior Side Door System Design for New Passenger Cars," 2011. In particular, locomotives used in passenger service shall be connected or interlocked with the door summary circuit to prohibit the train from developing tractive power if an exterior side door in a passenger car other than a door under the direct physical control of a crewmember for his or her exclusive use, is not closed;

(2) Be designed based on a Failure Modes, Effects, Criticality Analysis (FMECA);

(3) Contain an obstruction detection system sufficient to detect and react to both small and large obstructions and allow the obstruction to be released when detected;

(4) Be designed so that activation of a door by-pass feature does not affect the operation of the obstruction detection system;

(5) Require a door control panel key or other secure device to activate a door control panel;

(6) Not be operated from a door control panel when the door control panel key or other secure device is removed; and

(7) Not be affected by the movement or position of the locomotive throttle. A train's throttle position shall neither open nor close the exterior side doors on the train.

(b) *Safety system for manual and powered exterior side doors.* All manual and powered exterior side door systems in passenger cars, and connected door safety systems in locomotives used in passenger service, that are ordered on or after [DATE 120 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], or placed in service for the first time on or after [DATE 790 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**] shall:

(1) Be designed with a door summary circuit and shall be so connected or interlocked as to prohibit the train from developing tractive power if an exterior side door in a passenger car other than a door under the direct physical control of a crewmember for his or her exclusive use, is not closed;

(2) Be connected to interior and exterior side door status indicators;

(3) Be connected to a door summary status indicator that is readily viewable to the engineer from his or her normal position in the operating cab; and

(4) If equipped with a door by-pass device, be designed so that the by-pass device functions only when activated from the operating cab of the train.

(c) *Additional requirements.* In addition to the requirements of this section, requirements related to exterior side door safety on passenger trains are provided in §§ 238.112, 238.133, 238.135, 238.137, and 238.439.

■ 4. Section 238.133 is added to subpart B to read as follows:

**§ 238.133 Exterior side door safety systems—all passenger cars and locomotives used in a passenger service.**

(a) *By-pass device verification.*

(1) Visual inspection. Except as provided in paragraphs (a)(2) and (a)(3) of this section, a member of the crew of each passenger train must verify by observation that all door by-pass devices that can affect the safe operation of the train are sealed in the normal (non-by-pass) position when taking control of the train.

(2) Functional test. Instead of a visual inspection of the door by-pass devices, the railroad may develop a plan to perform a functional test to determine that the door summary status indicator is functioning as intended. The functional test plan shall be made available for inspection by FRA.

(3) Face-to-face relief. Crewmembers taking control of a train do not need to perform either a visual inspection or a functional test of the door by-pass devices in cases of face-to-face relief of another train crew and notification by that crew as to the functioning of the door by-pass devices.

(b) *Unsealed door by-pass device.* A crewmember must notify the railroad's designated authority pursuant to the railroad's defect reporting system if a door by-pass device that could affect the safe operation of the train is found unsealed during the train's daily operation. If the train crew can test the door safety system and determine that the door summary status indicator is functioning as intended, the train can travel in service until the next forward repair point where a seal can be applied by a qualified maintenance person (QMP) or until its next calendar day inspection, whichever occurs first; if not, the train crew must follow the procedures outlined in paragraph (c) of this section.

(c) *En route failure.* If it becomes necessary to activate a door by-pass

device, the train may continue to its destination terminal, provided that the train crew conducts a safety briefing that includes a description of the location(s) where crewmembers will position themselves on the train in order to observe the boarding and alighting of passengers, notifies the railroad's designated authority that the train's door by-pass device has been activated, and adheres to the operating rules required by § 238.135. After the train has reached its destination terminal, the train may continue in passenger service until its arrival at the next forward repair point or its next calendar day inspection, whichever occurs first, provided that prior to movement of equipment with a door by-pass device activated:

(1) An on-site QMP shall determine that repairs cannot be made at the time and it is safe to move the equipment in passenger service. If a QMP is not available on site, these determinations may be made based upon a description of the condition provided by an on-site qualified person (QP) to a QMP offsite; and

(2) The QP or QMP shall notify the crewmember in charge of the movement of the train that the door by-pass device has been activated. A safety briefing must be held and shall include a description of the location(s) where crewmembers will position themselves on the train in order to observe the boarding and alighting of passengers.

(d) *Records.* The railroad shall maintain a record of each door by-pass activation and each unintended opening of a powered exterior side door, including any repair(s) made, in the defect tracking system as required by § 238.19.

(e) *Door control panels.* Exterior side doors shall not be capable of operation from a door control panel when the key or other similar device is removed.

(f) *End-of-train.* If end-of-train switches are used, the switches shall be secured in a manner to prevent access by unauthorized personnel.

(g)(1) *Exterior side door safety system override devices.* Exterior side door safety system override devices that can adversely affect the train's door safety system must be inactive and sealed in all passenger cars and locomotives in the train consist, including cab cars and MU locomotives, if they are so equipped with such a device.

(2) *Calendar day inspection.* As part of the equipment's calendar day inspection, all exterior side door safety system override devices must be inactive and sealed in all passenger cars and all locomotives in the train consist, including cab cars and MU locomotives,

if they are so equipped with such a device.

■ 5. Section 238.135 is added to subpart B to read as follows:

**§ 238.135 Operating practices relating to exterior side door safety systems.**

(a) At the beginning of his or her duty assignment prior to a train's departure, each crewmember must participate in a safety briefing that identifies each crewmember's responsibilities relating to the safe operation of the exterior side doors on the train.

(b) All passenger train exterior side doors and trap doors must be closed when a train is in motion between stations except when:

(1) The train is departing or arriving at a station if:

(i) A crewmember needs to observe the station platform; and

(ii) The open door is attended by the crewmember; or

(2) A crewmember must perform on-ground functions, such as, but not limited to, lining switches, making up or splitting the train, providing crossing protection, or inspecting the train.

(c)(1) Except as provided in paragraph (b) of this section, passenger railroads must receive special approval from FRA's Associate Administrator for Railroad Safety/Chief Safety Officer to operate passenger trains with exterior side doors or trap doors, or both, open between stations.

(2) Any request for special approval must include:

(i) A written justification explaining the need to operate a passenger train with its exterior side doors or trap doors, or both, open between stations; and

(ii) A detailed hazard analysis, including a description of specific measures to mitigate any added risk.

(3) The request must be signed by the chief executive officer (CEO), or equivalent, of the organization(s) making the request.

(d) No later than [DATE 1,095 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], each railroad shall adopt and comply with operating rules on how to safely override a door summary circuit or no-motion system, or both, in the event of an en route exterior side door failure or malfunction on a passenger train. Railroads shall provide these written rules to their employees and make them available for inspection by FRA. These written rules shall include:

(1) Instructions to crewmembers describing what conditions must be present in order to override the door summary circuit or no-motion system, or both; and

(2) Steps crewmembers must take after the door summary circuit, or no-motion system, or both have been overridden to help provide for continued passenger safety.

(e) No later than [DATE 1,095 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], each passenger train crewmember must be trained on:

(1) The requirements of this section; and

(2) How to identify and isolate equipment with a malfunctioning exterior powered or manual side door.

(f) Beginning [DATE 1,095 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], each railroad shall periodically conduct

operational (efficiency) tests and observations of its operating crewmembers and control center employees to determine each employee's knowledge of the railroad's powered and manual exterior side door safety procedures for its passenger trains.

(g) No later than [DATE 1,095 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], each railroad shall adopt and comply with operating rules requiring train crewmembers to determine the status of their train's exterior side doors so that their train may safely depart a station. These rules shall require crewmembers to determine that there are no obstructions in their train's exterior side doors before the train departs.

6. Section 238.137 is added to subpart B to read as follows:

**§ 238.137 Mixed consist; operating equipment with incompatible exterior side door systems.**

(a) A train made up of equipment with incompatible exterior side door systems shall be operated within the constraints of the door safety system in each unit of the train.

(b) No later than [DATE 1,095 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], each railroad shall develop operating rules to provide for the safe use of equipment with incompatible exterior side door systems when utilized in a mixed consist.

**Joseph C. Szabo,**  
*Administrator.*

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