

# National Transportation Safety Board

Office of the Chair

Washington, DC 20594



April 7, 2023

The Honorable Charles E. Schumer  
Majority Leader  
United States Senate  
322 Hart Senate Office Building  
Washington, DC 20510

Dear Leader Schumer:

Thank you for your March 15, 2023, letter requesting the National Transportation Safety Board (NTSB) to expand our current special investigation of Norfolk Southern Railway's organization and safety culture to all Class I freight railroads operating in the United States. Thank you for your longstanding interest and leadership in improving rail safety.

We are undertaking the special investigation into Norfolk Southern because we have launched investigation teams to six significant accidents involving the railroad since December 2021. Five of these are under active investigation. Our Office of Railroad, Pipeline, and Hazardous Materials Investigations (RPH) is currently investigating 30 accidents, including two fatal accidents involving Amtrak passenger trains, the derailment of a Washington Metropolitan Area Transit Authority train, multiple accidents in which rail or transit employees were killed, and are also supporting highway investigations into fatal grade crossing events. This office currently has only 13 railroad investigators, 3 of whom are eligible for retirement, and 3 hazardous materials investigators. Expanding the scope of the special investigation to cover all Class I railroads would strain our already limited resources and delay completion of current investigations, therefore delaying identification of safety issues and issuance of safety recommendations.

However, if in the course of our investigation we determine that there is evidence of systemic safety issues throughout the rail industry, we will broaden our investigation as necessary to examine those concerns. In addition, we will work with the Federal Railroad Administration (FRA), which is participating in our investigations and, as the regulator, has authority to audit the railroads and take appropriate enforcement actions, if safety issues are identified.

I know that your request for a broader investigation into the industry is based on real concerns that you, Congress, and the public have regarding the safety of rail transportation in the aftermath of East Palestine. I share those concerns. Several of the

questions that you have asked that we consider will be part of our investigation and responses will be better informed by any findings. However, I addressed several of these issues in testimony before the Senate Commerce, Science, and Transportation Committee on March 22 and can provide some responses at this time.

**1. What specific regulations and standards do you recommend to provide the utmost safety and oversight and directly impact severity of derailments, accidents, or incidents in the rail industry?**

As you know, the NTSB has a long history of investigating accidents, making recommendations, and advocating for improvements to prevent more tragedies from occurring. There are currently over 240 open safety recommendations that we have made as a result of our rail, transit, and hazardous materials investigations, the implementation of which would address many known safety issues. I have enclosed a list of these recommendations.

Among those recommendations, I want to specifically cite our recommendation regarding locomotive cab recorders—data, audio/voice, and video. Like cockpit voice recorders in aviation, audio and video recorders in the locomotive cab are essential for helping investigators determine the cause of an accident and make more precise safety recommendations. Recorders also help operators proactively improve their safety policies and practices. In the East Palestine derailment, the locomotive was equipped with an inward-facing camera. However, since the locomotive was put back in service following the accident, its data was overwritten. That means the recorder only provided about 15 minutes of data before the derailment and 5 minutes after.

The Fixing America's Surface Transportation (FAST) Act in 2015, following terrible tragedies, required Amtrak and commuter railroads to maintain crash- and fire-hardened inward- and outward-facing image recorders in all controlling locomotives that have a minimum 12-hour continuous recording capability. However, the law did not require freight railroads to install such devices. Now is the time to expand that requirement to audio and include the Class I freight railroads in that mandate.

**2. How have recent deregulatory pushes contributed to these derailments and increase in deaths?**

Our investigation will include an examination of the effectiveness of Federal regulations and oversight and how any gaps may have contributed or have the potential to result in accidents.

**3. What general commonalities can you find among the accidents? How can those be addressed?**

Our investigation will consider any common factors in these or other accidents and we will make any appropriate safety recommendations to address.

**4. How often do freight trains carrying hazardous material suffer a derailment or have other incidents occur? Can you assess the efficacy of the rule requiring freight rail notifications to local communities about High Hazard Flammable Trains *only* if there are a certain number of cars and *only* if containing said flammable liquid material? If they had been notified, would it have helped first responders in East Palestine and should we reconsider what is considered a high-hazardous material train?**

The train in the East Palestine derailment was not a high-hazard flammable train (HHFT) because it did not contain a block of 20 or more than 35 total loaded tank cars of a Class 3 flammable liquid. We believe the definition of an HHFT should include a broad range of hazardous materials, including flammable gases and combustible liquids.

People deserve to know what chemicals are moving through their communities – and how to stay safe in an emergency. That includes responders, who risk their lives for each of us every single day; they deserve to be prepared. That means access to real-time information, obtaining the right training and gear, and having the right communications and planning tools.

We also believe that even one railcar of any hazardous material justifies notifying emergency responders, not 20 or more than 35 loaded tank cars, which could contain 1 million gallons of hazardous materials. Such thresholds present an unreasonable risk to public safety as a catastrophic derailment involving even a single tank car loaded with hazardous material can cause extensive destruction and loss of life. Therefore, we believe that the notification threshold should be significantly lower. In addition, the threshold should be based on the worst-case consequences of a derailment resulting in fire.

Expanding the definition of HHFT would address some issues regarding provision of information regarding hazardous materials traveling through communities, but we have many more recommendations on these topics that should be acted upon.

Further, the NTSB strongly believes that DOT-111 tank cars should be phased out of all hazardous materials service as soon as possible. These tank

cars are not as protected as DOT-117 tank cars. In fact, we have pointed out the inadequacy of DOT-111 tank cars for all hazardous materials, including flammable materials, since 1991, and we recommended they be replaced or retrofit in 2015.

**5. Does the railroad have a culture of ignoring their own safety standards? In October, just a few months before the East Palestine derailment, a Norfolk Southern supervisor directed crews to continue operating a train that had jumped the tracks rather than setting aside the train car for further inspection. Is there a pattern of disregard for safety protocols?**

Our investigation will include an examination of the management of safety, and how any gaps may have contributed or have the potential to result in accidents.

We have long recommended the implementation of safety management systems (SMS) in all modes of transportation. SMS is a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies, and procedures. An effective SMS program can help companies reduce and prevent accidents and accident-related loss of lives, time, and resources. Currently, there are a number of industry sectors worldwide that have recognized the benefits of effective safety management, including aviation and the maritime and pipeline communities.

The Rail Safety Improvement Act of 2008 required each Class I railroad to develop and implement a risk reduction program. In 2012, we recommended that FRA require that SMS and the associated key principles (including top-down ownership and policies, analysis of operational incidents and accidents, hazard identification and risk management, prevention and mitigation programs, and continuous evaluation and improvement programs) be incorporated into railroads' risk reduction programs. FRA issued the Risk Reduction Program (RRP) final rule on February 18, 2020, which includes the key principles recommended. We have since recommended that the FRA review all railroads' RRP plans to ensure effectiveness and safety. However, to date, FRA has not finalized guidance to railroads for implementing the plans and has not begun auditing the programs.

**6. Similarly, to what degree are companies protecting or ignoring safety protocols for the workers they employ?**

Improving Rail Worker Safety is one of the issues highlighted in our 2021-2023 Most Wanted List of Transportation Safety Improvements. Improving rail worker safety means making sure that roadway workers have the

training, equipment, rest, and layers of protection they need while working on or around tracks. It means making sure that crews operating trains carrying hazardous materials have time to escape in case of an accident. It also means reducing the risks of derailments and collisions as trains become longer and heavier.

In recent years, we have investigated several railroad and transit accidents where workers have been struck and injured or killed while conducting routine maintenance or switching operations. Other workers are vulnerable when cars carrying hazardous materials are too close to those carrying train crew. We have also investigated accidents where crew have been killed riding on the sides of trains, in violation of rules. We continue to see recurring safety issues in our accident investigations that are 100 percent preventable, highlighting the need to implement our safety recommendations for better worker protections.

As the Congress works on enhancing rail safety, I trust that you will also consider the resources we desperately need to carry out our critical safety mission. Investments in the NTSB are investments in safety across ALL modes of transportation.

The NTSB's authorization expired at the end of last fiscal year. We have sent Congress a reauthorization proposal that requests resources and hiring flexibility to increase the number of investigators in our Rail, Pipeline, and Hazardous Materials Investigations office, as well as in our other modes. These resources will allow us to hire professionals with the needed skills, purchase the equipment necessary for those skilled professionals to do their jobs, and invest in staff training and development. Our workforce is our greatest asset and is essential to our mission.

To that end, we look forward to working with you on reauthorization of the NTSB and hope you will support the President's budget request for the NTSB of \$145 million.

Again, thank you for your continued interest and leadership to improve transportation safety. I look forward to working with you and Congress to address all of the open rail safety recommendations as well as the resource needs of the NTSB to conduct thorough, independent, and transparent investigations into transportation accidents and event.

Sincerely,



Jennifer Homendy  
Chair

United States Senate  
WASHINGTON, DC 20510-3203

March 15, 2023

The Honorable Jennifer Homendy  
Chair  
National Transportation Safety Board  
490 L'Enfant Plaza, SW  
Washington, DC 20594

Dear Chair Homendy:

On the heels of the horrific Norfolk Southern freight derailment in East Palestine, Ohio, I applaud the National Transportation Safety Board's (NTSB) investigation into the derailment and the subsequent investigation concerning safety culture at Norfolk Southern. However, due to a troubling and fatal combination of: dangerous deregulations implemented; over 26,500 accidents and incidents in the rail industry in the past 5 years; and the over 30,000 employees cut—roughly 20% of its workforce—in the past five years, it is jarringly evident that the freight rail industry is in desperate need of a full and comprehensive investigation. I strongly urge you to expand your investigation into the safety practices of all Class I freight railroads operating throughout the country, including BNSF Railway, CSX, Union Pacific, Canadian National, Canadian Pacific, and Kansas City Southern; and issue findings, recommendations, and regulations to improve rail safety across the country.

For any investigation into the seven Class I railroads operating in America, I ask that you consider the following questions:

1. What specific regulations and standards do you recommend to provide the utmost safety and oversight and directly impact severity of derailments, accidents, or incidents in the rail industry?
2. How have recent deregulatory pushes contributed to these derailments and increase in deaths?
3. What general commonalities can you find among the accidents? How can those be addressed?
4. How often do freight trains carrying hazardous material suffer a derailment or have other incidents occur? Can you assess the efficacy of the rule requiring freight rail notifications to local communities about High Hazard Flammable Trains *only* if there are a certain number of cars and *only* if containing said flammable liquid material? If they had been notified, would it have helped first responders in East Palestine and should we reconsider what is considered a high-hazardous material train?
5. Does the railroad have a culture of ignoring their own safety standards? In October, just a few months before the East Palestine derailment, a Norfolk Southern supervisor directed crews to continue operating a train that had jumped the tracks rather than setting

aside the train car for further inspection.<sup>1</sup> Is there a pattern of disregard for safety protocols?

6. Similarly, to what degree are companies protecting or ignoring safety protocols for the workers they employ?

As we have seen firsthand, the freight rail industry has time and time again dangerously played fast and loose with the regulations while endangering millions of Americans throughout the country. Over just the past five years there have been almost 13,000 injuries and worse, we have seen an increase in fatalities, resulting in roughly 2,768 deaths attributed to freight rail accidents and incidents. Though freight rail is a vital lifeline for our local economic ecosystems, railroads carry hazardous, and in some cases toxic, materials every day and have a tremendous responsibility to operate safely. However, the public, particularly first responders, have few means of understanding what these multi-billion-dollar companies are doing to operate safely—or if they are cutting corners, thus, making it incumbent on the NTSB to assure all Americans that the companies are operating safely, ethically, and efficiently.

The statistics and data on accidents and incidents for Class I railroads can only tell part of the story. They tell us how many accidents or incidents have occurred in the past five years—26,563—but they don't tell if those accidents occurred in populated areas or how many gallons of oil were spilled or toxic chemicals released. They tell us how many grade-crossing accidents there were but not if any occurred because the tracks are severely degraded or poorly designed. They can tell us how many fatalities there were—2,768—but not why or if company policies could have prevented them. Congress—and the American People—desperately need greater insight into an industry that lacks transparency and clear safety standards all while transporting hazardous and toxic materials through American communities each day.

As we have seen, the East Palestine derailment was not the first dangerous incident for Norfolk Southern, and there have been multiple dangerous accidents since, including two more in Ohio alone. However, I am hopeful that if the NTSB executes a comprehensive and rigorous investigation into the safety practices and culture at all Class I railroads, you can assure Americans that freight rail safety will dramatically improve.

Thank you for your time and consideration of this deeply important matter. Should you have any questions, please do not hesitate to contact me.

Sincerely,



Charles E. Schumer  
United States Senate Majority Leader

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<sup>1</sup> <https://www.propublica.org/article/norfolk-southern-policy-safety-alerts-east-palestine-derailment>



# Recommendation Subjects

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Mode: Rail Overall Status: All Open

Recommendation #	Overall Status	Date Closed	Subject
R-00-002	OAAR		TO THE FEDERAL RAILROAD ADMINISTRATION: Develop, then periodically publish, an easy-to-understand source of information for train operating crewmembers on the hazards of using specific medications when performing their duties.
R-00-003	OAAR		TO THE FEDERAL RAILROAD ADMINISTRATION: Establish and implement an educational program targeting train operating crewmembers that, at a minimum, ensures that all crewmembers are aware of the source of information described in R-00-2 regarding the hazards of using specific medications when performing their duties.
R-01-028	OAA		TO THE MARYLAND TRANSIT ADMINISTRATION: Install, on all your light rail vehicles, independent event recorders that record and retain the most recent 48 hours of data, store data in nonvolatile memory, and have a back-up power source that would enable the entire recording system to function if electric power is lost to the car.
R-06-006	OUA		TO THE FEDERAL TRANSIT ADMINISTRATION: Develop minimum crashworthiness standards to prevent the telescoping of transit railcars in collisions and establish a timetable for removing equipment that cannot be modified to meet the new standards.
R-06-007	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to implement for all power-assisted switch machines, regardless of location, a formal commissioning procedure and a formal maintenance program that includes records of inspections, tests, maintenance, and repairs.
R-07-004	OAA		TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: With the assistance of the Federal Railroad Administration, require that railroads immediately provide to emergency responders accurate, real-time information regarding the identity and location of all hazardous materials on a train.
R-08-004	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Promptly implement appropriate technology that will automatically alert wayside workers of approaching trains and will automatically alert train operators when approaching areas with workers on or near the tracks.
R-08-007	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Revise the definition of covered employee under 49 Code of Federal Regulations Part 219 for purposes of Congressionally mandated alcohol and controlled substances testing programs to encompass all employees and agents performing safety-sensitive functions, as described in 49 Code of Federal Regulations 209.301 and 209.303.
R-09-011	OUA		TO 46 US RAIL TRANSIT AGENCIES: Establish a program to identify operators who are at high risk for obstructive sleep apnea or other sleep disorders and require that such operators be appropriately evaluated and treated.



# Recommendation Subjects

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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-09-014	OAA		TO THE MASSCHUSETTS BAY TRANSPORTATION AUTHORITY: Develop and implement a positive train control system for all of your rail lines.
R-10-001	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require the installation, in all controlling locomotive cabs and cab car operating compartments, of crash- and fire-protected inward- and outward-facing audio and image recorders capable of providing recordings to verify that train crew actions are in accordance with rules and procedures that are essential to safety as well as train operating conditions. The devices should have a minimum 12-hour continuous recording capability with recordings that are easily accessible for review, with appropriate limitations on public release, for the investigation of accidents or for use by management in carrying out efficiency testing and systemwide performance monitoring programs. (Supersedes R-07-003)
R-10-002	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require that railroads regularly review and use in-cab audio and image recordings (with appropriate limitations on public release), in conjunction with other performance data, to verify that train crew actions are in accordance with rules and procedures that are essential to safety.
R-10-005	OUA		TO THE FEDERAL TRANSIT ADMINISTRATION: Seek authority similar to Federal Railroad Administration regulations (Title 49 Code of Federal Regulations 219.207) to require that transit agencies obtain toxicological specimens from covered transit employees and contractors who are fatally injured as a result of an on-duty accident.
R-12-003	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require that safety management systems and the associated key principles (including top-down ownership and policies, analysis of operational incidents and accidents, hazard identification and risk management, prevention and mitigation programs, and continuous evaluation and improvement programs) be incorporated into railroads' risk reduction programs required by Public Law 110-432, Rail Safety Improvement Act of 2008, enacted October 16, 2008.
R-12-007	OAA		TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Require that all newly manufactured and existing tank cars authorized for transportation of hazardous materials have center sill or draft sill attachment designs that conform to the revised Association of American Railroads' design requirements adopted as a result of Safety Recommendation R-12-9.
R-12-016	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to medically screen employees in safety-sensitive positions for sleep apnea and other sleep disorders.
R-12-017	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Establish an ongoing program to monitor, evaluate, report on, and continuously improve fatigue management systems implemented by operating railroads to identify, mitigate, and continuously reduce fatigue-related risks for personnel performing safety-critical tasks, with particular emphasis on biomathematical models of fatigue.
R-12-018	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Conduct research on new and existing methods that can identify fatigue and mitigate performance decrements associated with fatigue in on-duty train crews.



# Recommendation Subjects

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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-12-019	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require the implementation of methods that can identify fatigue and mitigate performance decrements associated with fatigue in on-duty train crews that are identified or developed in response to Safety Recommendation R-12-18.
R-12-023	OAA		TO THE ASSOCIATION OF AMERICAN RAILROADS: Revise Association of American Railroads Standard S-580 to provide protection for the occupants of isolated operating cabs in the event of a collision, and make the revision applicable to all locomotives, including those newly constructed, rebuilt, refurbished, and overhauled.
R-12-024	OUA		TO THE ASSOCIATION OF AMERICAN RAILROADS: Develop a standard that specifies the use of suitable crash-protected memory modules for all new and existing installations of on-board video and audio recorders. The memory modules should meet or exceed the survivability criteria specified in Title 49 Code of Federal Regulations 229.135 Appendix D, Table 2.
R-12-025	OAAR		TO THE BNSF RAILWAY: Require all employees and managers who perform or supervise safety-critical tasks to complete fatigue training on an annual basis and document when they have received this training.
R-12-026	OUA		TO THE BNSF RAILWAY: Medically screen employees in safety-sensitive positions for sleep apnea and other sleep disorders.
R-12-027	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to install, along main lines in non-signaled territory not equipped with positive train control, appropriate technology that warns approaching trains of incorrectly lined main track switches sufficiently in advance to permit stopping. (Supersedes R-05-014)
R-12-039	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Develop side impact crashworthiness standards (including performance validation) for passenger railcars that provide a measurable improvement compared to the current regulation for minimizing encroachment to and loss of railcar occupant survival space.
R-12-040	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Once the side impact crashworthiness standards are developed in Safety Recommendation R-12-39, revise 49 Code of Federal Regulations 238.217, "Side Structure," to require that new passenger railcars be built to these standards.
R-12-041	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require that passenger railcar doors be designed to prevent fire and smoke from traveling between railcars.
R-13-005	OAAR		TO THE FEDERAL RAILROAD ADMINISTRATION: Identify, and require railroads to use in locomotive cabs, technology-based solutions that detect the presence of signal-emitting portable electronic devices and that inform the railroad management about the detected devices in real time.
R-13-007	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to implement initial and recurrent crew resource management training for train crews.
R-13-009	OUA		TO THE CANADIAN NATIONAL RAILWAY COMPANY: Discontinue the use of after-arrival track authorities in nonsignaled territory not equipped with positive train control.



# Recommendation Subjects

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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-13-011	OAA		TO THE CANADIAN NATIONAL RAILWAY COMPANY: Incorporate the use of handheld signal detection devices into your operational efficiency program on the use of portable electronic devices.
R-13-013	OAA		TO THE CANADIAN NATIONAL RAILWAY COMPANY: Work with the Brotherhood of Locomotive Engineers and Trainmen and the United Transportation Union, to develop and implement a nonpunitive peer audit program for the North Division, focused on rule compliance and operational safety.
R-13-014	OAA		TO THE BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN: Work with the Canadian National Railway and the United Transportation Union, to develop and implement a nonpunitive peer audit program for the Canadian National Railway's North Division, focused on rule compliance and operational safety.
R-13-015	OAA		TO THE UNITED TRANSPORTATION UNION (SMART UNION): Work with the Canadian National Railway and the Brotherhood of Locomotive Engineers and Trainmen, to develop and implement a nonpunitive peer audit program for the Canadian National Railway's North Division, focused on rule compliance and operational safety.
R-13-016	OUA		TO CANADIAN PACIFIC RAILWAY LIMITED, KANSAS CITY SOUTHERN RAILWAY COMPANY, NORFOLK SOUTHERN RAILROAD, AND UNION PACIFIC RAILROAD: Discontinue the use of after-arrival track authorities for train movements in nonsignaled territory not equipped with a positive train control system.
R-13-018	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Determine what constitutes a reliable, valid, and comparable field test procedure for assessing the color discrimination capabilities of employees in safety-sensitive positions.
R-13-019	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: When you have made the determination in Safety Recommendation R-13-18, require railroads to use a reliable, valid, and comparable field test procedure for assessing the color discrimination capabilities of employees in safety-sensitive positions.
R-13-020	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require more frequent medical certification exams for employees in safety-sensitive positions who have chronic conditions with the potential to deteriorate sufficiently to impair safe job performance.
R-13-021	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Develop medical certification regulations for employees in safety-sensitive positions that include, at a minimum, (1) a complete medical history that includes specific screening for sleep disorders, a review of current medications, and a thorough physical examination, (2) standardization of testing protocols across the industry, and (3) centralized oversight of certification decisions for employees who fail initial testing; and consider requiring that medical examinations be performed by those with specific training and certification in evaluating medication use and health issues related to occupational safety on railroads. [This recommendation supersedes Safety Recommendations R-02-24, R-02-25, and R-02-26.]



# Recommendation Subjects

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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-13-022	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require all information captured by any required recorder to also be recorded in another location remote from the lead locomotive(s), to minimize the likelihood of the information's being unrecoverable as a result of an accident.
R-13-024	OAR		TO THE BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN: Work with the Union Pacific Railroad and the United Transportation Union to develop and implement a nonpunitive peer audit program focused on rule compliance and operational safety for the Union Pacific Railroad.
R-13-025	OAR		TO THE UNITED TRANSPORTATION UNION (SMART UNION): Work with the Union Pacific Railroad and the Brotherhood of Locomotive Engineers and Trainmen to develop and implement a nonpunitive peer audit program focused on rule compliance and operational safety for the Union Pacific Railroad.
R-13-026	OAA		TO ALL CLASS I RAILROADS: Install in all controlling locomotive cabs and cab car operating compartments crash-and fire-protected inward- and outward-facing audio and image recorders. The devices should have a minimum 12-hour continuous recording capability.
R-13-028	OAA		TO UNION PACIFIC: Work with the Brotherhood of Locomotive Engineers and Trainmen and the United Transportation Union to develop and implement a nonpunitive peer audit program focused on rule compliance and operational safety.
R-13-029	OAA		TO UNION PACIFIC: Develop and implement a plan to establish a safety management system that incorporates crew resource management.
R-13-030	OAA		TO UNION PACIFIC: Audit your medical records to ensure that all personnel in safety-sensitive positions have adequate documentation of appropriate medical testing.
R-13-031	OAA		TO UNION PACIFIC: Replace your color vision field test with a test that has established and acceptable levels of reliability, validity, and comparability to ensure that certified employees in safety-sensitive positions have sufficient color discrimination to perform safely.
R-13-032	OAA		TO UNION PACIFIC: Until you have implemented a validated, reliable, and comparable colorvision field test, perform a safety analysis and undertake measures to manage the risk created by the use of an inadequate test. Such measures might include, but are not limited to, restricting crewmembers who have failed primary color vision testing to yard assignments or un signaled territory.
R-13-033	OAA		TO UNION PACIFIC: Once your replacement color vision field test is implemented, retest all certified Union Pacific Railroad employees in safety-sensitive positions who failed the primary color vision testing on their last medical certification exam using the new procedure.



# Recommendation Subjects

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Recommendation #	Overall Status	Date Closed	Subject
R-13-038	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Work with the Federal Highway Administration to (1) include guidance in the Manual on Uniform Traffic Control Devices (MUTCD) for the installation of advance warning devices, such as movement-activated blank-out signs, that specifically use the word "train" to indicate the preemption of highway traffic signals by an approaching train, and (2) amend the MUTCD to indicate that preemption confirmation lights, while not intended to provide guidance to the general public, would be useful in providing advance information on train movements to law enforcement and emergency responders.
R-13-039	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Issue a directive to all transit properties requiring redundant protection for roadway workers, such as positive train control, secondary warning devices, or shunting. (R-13-39) (Urgent)
R-13-040	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Issue a directive to require all transit properties to review their wayside worker rules and procedures and revise them as necessary to eliminate any authorization that depends solely on the roadway worker to provide protection from trains and moving equipment. (R-13-40) (Urgent)
R-14-013	OAA		TO THE CONSOLIDATED RAIL CORPORATION: Amend Hazardous Materials Instructions for Rail, HM-1 to require train crews to immediately provide their train consists and the emergency response information for all hazardous materials on the train to federal, state, or local emergency response officials when accidents occur.
R-14-014	OUA		TO THE UNITED STATES DEPARTMENT OF TRANSPORTATION: Require railroads transporting hazardous materials through communities to provide emergency responders and local and state emergency planning committees with current commodity flow data and assist with the development of emergency operations and response plans.
R-14-015	OAAR		TO THE FEDERAL RAILROAD ADMINISTRATION: Promulgate a regulation for permitting a train to pass a red signal aspect protecting a moveable bridge that is similar to the criteria for allowing a train to cross a broken rail as contained in Title 49 Code of Federal Regulations 213.7 (d) to ensure that the bridge has been inspected by a qualified employee before a train is authorized to proceed across the bridge.
R-14-027	OAA		TO THE NATIONAL VOLUNTEER FIRE COUNCIL: Notify your membership about the circumstances of this accident and develop a plan to incorporate into ongoing training curricula lessons learned concerning the need to promptly use adequate data collection and analysis tools and to develop and implement community protective measures for mitigating the threats of hazardous materials releases.
R-14-028	OAA		TO THE NEW JERSEY STATE POLICE OFFICE OF EMERGENCY MANAGEMENT: Ensure communities base their emergency operations plan content on hazard analysis and risk assessments that adequately provide for response to hazardous materials threats facing communities, including railroad transportation.
R-14-031	OAA		TO THE NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT: Develop an emphasis program that incorporates enforcement and outreach activities to ensure New Jersey state and local public sector employee compliance with the Hazardous Waste Operations and Emergency Response regulations.



# Recommendation Subjects

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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-14-032	OAA		TO THE NEW JERSEY DEPARTMENT OF HEALTH: Develop an emphasis program that incorporates enforcement and outreach activities to ensure New Jersey state and local public sector employee compliance with the Hazardous Waste Operations and Emergency Response regulations.
R-14-036	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION AND THE FEDERAL TRANSIT ADMINISTRATION: Require initial and recurring training for roadway workers in hazard recognition and mitigation. Such training should include recognition and mitigation of the hazards of tasks being performed by coworkers.
R-14-038	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: With assistance from the Federal Railroad Administration and the Occupational Safety and Health Administration, establish roadway worker protection rules, including requirements for job briefings.
R-14-039	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Once the action specified in Safety Recommendation R-14-38 is completed, update the state safety oversight program to ensure that rail transit systems are meeting the safety requirements for roadway workers.
R-14-040	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Establish a national inspection program that specifically includes roadway worker activities.
R-14-041	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Revise Title 49 Code of Federal Regulations (CFR) Part 659 to require all federally funded rail transit properties to comply with 29 CFR Parts 1904, 1910, and 1926.
R-14-043	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Establish a committee for rail transit, similar to the Fatality Analysis of Maintenance-of-Way Employees and Signalmen Committee, that includes participation from interested parties, analyzes all rail transit employee fatalities, and makes recommendations that, when implemented, will prevent future accidents.
R-14-044	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION: Assist the Federal Transit Administration in establishing roadway worker protection rules, including requirements for job briefings.
R-14-045	OUA		TO THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION: Work with the Federal Railroad Administration to establish clear guidelines for use by railroads and railroad workers detailing when and where Occupational Safety and Health Administration standards are to be applied.
R-14-046	OUA		TO THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION: Establish an agreement with the Federal Transit Administration to collaborate on any investigation of the fatality of an on-duty rail transit employee.
R-14-048	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require equivalent levels of reporting for both public and private highway–railroad grade crossings.



# Recommendation Subjects

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Recommendation #	Overall Status	Date Closed	Subject
R-14-051	OAR		TO THE STATE OF MARYLAND: Work with CSX Transportation Company and private landowners to conduct engineering studies of the accident grade crossing (140833J) and the three other private highway–railroad grade crossings (140831V, 140828M, and 140829U) evaluated in this investigation, and take actions to improve their safety, such as removing visual obstructions, installing signage, and altering roadway geometry.
R-14-052	OUA		TO THE ASSOCIATION OF AMERICAN RAILROADS AND THE AMERICAN SHORT LINE AND REGIONAL RAILROAD ASSOCIATION: Develop and disseminate to your members a model program for railroads to (1) evaluate the safety of private highway–railroad grade crossings in their territories, including identifying visibility obstructions and other factors that increase the risk of grade crossing collisions; and (2) work with landowners and communities to mitigate that risk.
R-14-054	OAA		TO THE CSX TRANSPORTATION COMPANY: Assist the state of Maryland in taking actions identified by the state to improve the safety of the accident grade crossing (140833J) and the three other private highway–railroad grade crossings (140831V, 140828M, and 140829U) evaluated in this investigation.
R-14-055	OAA		TO THE CSX TRANSPORTATION COMPANY: Until the improvements cited in Safety Recommendation R-14-54 are made, take action to reduce the risk of grade crossing accidents through the corridor comprising highway–railroad grade crossings 140833J, 140831V, 140828M, and 140829U.
R-14-056	OAA		TO THE UNION PACIFIC RAILROAD: Develop and implement an accelerated schedule for delivering crew resource management training to all employees in safety-sensitive positions.
R-14-066	OAA		TO THE METROPOLITAN TRANSPORTATION AUTHORITY: Require representatives from your operating divisions to regularly review safety and operational data from all divisions to identify safety issues and trends and share the results across your operating properties.
R-14-067	OAA		TO THE METROPOLITAN TRANSPORTATION AUTHORITY: Establish a program to systematically evaluate deficiencies identified on one Metropolitan Transportation Authority property, and determine the applicability of safety mitigations to other Metropolitan Transportation Authority properties.
R-14-068	OAA		TO THE METROPOLITAN TRANSPORTATION AUTHORITY: Develop an oversight and tracking process to ensure that the recommendations from the various investigations and reviews of Metro-North Railroad are coordinated, addressed, and resolved at all Metropolitan Transportation Authority properties.
R-14-069	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: When the proposed system safety program regulation is promulgated, develop and implement a robust performance-based audit program to ensure that railroads are maintaining effective system safety programs.



# Recommendation Subjects

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Recommendation #	Overall Status	Date Closed	Subject
R-14-074	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Develop a performance standard to ensure that windows (e.g., glazing, gaskets, and any retention hardware) are retained in the window opening structure during an accident and incorporate the standard into 49 Code of Federal Regulations(CFR) 238.221 and 49CFR 238.421 to require that passenger railcars meet this standard.
R-14-075	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Revise Title49 Code of Federal RegulationsPart213 to define specific allowable limits for combinations of track conditions, none of which individually amounts to a deviation from Federal Railroad Administration regulations that requires remedial action, but, which when combined, require remedial action.
R-14-076	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Once you have completed the actions specified in Safety Recommendation R-14-75, program your geometry inspection vehicles to detect combinations of conditions that require remedial action.
R-15-001	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Revise Title 49 Code of Federal Regulations (CFR) 238.213 to require the existing forward-end corner post strength requirements for the back-end corner posts of passenger railcars.
R-15-002	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Revise Title 49 Code of Federal Regulations Part 238 to incorporate a certificate of construction, similar to the one found at Title 49 Code of Federal Regulations 179.5, and require that the certificate be furnished prior to the in-service date of the railcar.
R-15-003	OAA		TO METRO-NORTH RAILROAD: Replace the Grade 5 mounting bolts in the M-8 passenger railcar fleet with stronger bolts to ensure that the railcars comply with Title 49 Code of Federal Regulations 238.219.
R-15-018	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Develop a work scheduling program for rail transit agencies that incorporates fatigue science—such as validated biomathematical models of fatigue—and provides for the management of personnel fatigue risks, and implement the program through the state safety oversight program.
R-15-019	OUA		TO THE FEDERAL TRANSIT ADMINISTRATION: Establish (through the state safety oversight program) scientifically based hours-of-service regulations that set limits on hours of service, provide predictable work and rest schedules, and consider circadian rhythms and human sleep and rest requirements. (Supersedes Safety Recommendation R-06-003)
R-15-020	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Identify the necessary training and certification needs for work schedulers in the rail transit industry and require the transit agencies—through the state safety oversight program—to provide additional training or certification for their work schedulers.
R-15-021	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Require (through the state safety oversight program) rail transit employees who develop work schedules to complete initial and recurrent training based on current fatigue science to identify and mitigate work schedule risks that contribute to operator fatigue.
R-15-022	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Require rail transit agencies to implement transmission-based train control systems that prevent train collisions. (Supersedes Safety Recommendation R-09-008)



# Recommendation Subjects

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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-15-023	ORR		TO THE FEDERAL TRANSIT ADMINISTRATION: Require that new or rehabilitated rail transit vehicles be equipped with event recorders meeting Institute of Electrical and Electronics Engineers Standard 1482.1 for rail transit vehicle event recorders.
R-15-024	OUA		TO THE CHICAGO TRANSIT AUTHORITY: Install a transmission-based train control system on all passenger train routes.
R-15-027	OUA		TO BNSF RAILWAY COMPANY: Discontinue the use of a white light as a marking device on the rear of a train.
R-15-028	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Install, in all controlling locomotive cabs and cab car operating compartments, crash-and fire-protected inward-and outward-facing audio and image recorders capable of providing recordings to verify that train crew actions are in accordance with rules and procedures that are essential to safety as well as train operating conditions. The devices should have a minimum 12-hour continuous recording capability with recordings that are easily accessible for review, with appropriate limitations on public release, for the investigation of accidents or for use by management in carrying out efficiency testing and system wide performance monitoring programs.
R-15-029	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Semi-annually, issue a public report detailing Amtrak's progress in installing crash-and fire-protected inward-and outward-facing audio and image recorders. The report should include the number of locomotives and cab car operating compartments that have been equipped with the recorders, as well as the number of locomotives and cab car operating compartments in Amtrak's fleet that still lack those devices.
R-15-033	OAA		TO UNION PACIFIC RAILROAD: Identify and review the records of all employees in safety-sensitive positions who have any history of seizures, and ensure that the current Union Pacific Railroad standard of fitness for duty is met by each employee.
R-15-035	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Enhance your medical standards by identifying a list of medical conditions that disqualify employees for safety-sensitive positions because of the conditions' potential for negatively affecting rail safety.
R-15-036	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Enhance your medical standards by identifying a list of medications whose use disqualifies employees for safety-sensitive positions because of the medications' potential for negatively affecting rail safety.
R-15-037	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Once disqualifying medical conditions and medications have been identified, develop specific criteria (such as standards for medical test results) that may allow employees who have been disqualified but have been determined by a subsequent, individualized assessment to pose no increased danger to rail safety to obtain a medical certification.
R-16-001	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Issue regulatory standards for tunnel infrastructure inspection, maintenance, and repair, incorporating applicable industry consensus standards into those standards.



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Recommendation #	Overall Status	Date Closed	Subject
R-16-002	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Issue regulatory safety standards for emergency egress in tunnel environments.
R-16-003	OUA		TO THE DISTRICT OF COLUMBIA: Convene an independent panel of experts to (1) assess the District of Columbia Fire and Emergency Medical Services Department's preparedness to respond to mass casualty events in the Washington Metropolitan Area Transit Authority (WMATA) underground system, (2) identify and make recommendations to improve this preparedness, and (3) share the findings of that assessment with the other local jurisdictions with WMATA underground systems.
R-16-005	OUA		TO THE DISTRICT OF COLUMBIA OFFICE OF UNIFIED COMMUNICATIONS: Upon completion of action satisfying Safety Recommendation R-16-04, develop call processing standards for the public service answering point (PSAP) to ensure that 911 calls are processed in accordance with those of other comparable PSAPs.
R-16-006	OUA		TO THE DISTRICT OF COLUMBIA OFFICE OF UNIFIED COMMUNICATIONS: Train call takers for the public service answering point on the standards developed in Safety Recommendation R-16-05, and include the standards in recurrent training.
R-16-007	OAA		TO THE DISTRICT OF COLUMBIA FIRE AND EMERGENCY MEDICAL SERVICES DEPARTMENT: Implement measures to train all command officers who will serve in the role of incident commander in the skills and practices of National Incident Management System incident command and unified command processes. This training should include regular refresher training.
R-16-008	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Review and revise your tunnel inspection, maintenance, and repair procedures to mitigate water intrusion into tunnels.
R-16-009	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: When the revision of tunnel inspection, maintenance, and repair procedures recommended in Safety Recommendation R-16-08 has been completed, train maintenance employees on the new procedures, and ensure that the procedures are implemented.
R-16-016	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Install and maintain a system that will detect the presence and location of fire and smoke throughout the Washington Metropolitan Area Transit Authority tunnel and station network.
R-16-017	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Develop procedures for regular testing of all smoke detectors.
R-16-019	OUA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Ensure that all train operators are trained and regularly tested on the appropriate procedure for emergency shutdown of railcar ventilation.
R-16-020	OUA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Incorporate a specific test in your efficiency testing program to ensure that train operators understand the procedure for emergency shutdown of railcar ventilation



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-16-023	OUA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Review and revise as necessary your Rail Operations Control Center emergency response procedures for smoke and fire.
R-16-024	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Retrain Rail Operations Control Center supervisors on all standard operating procedures for emergencies.
R-16-025	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Develop and incorporate a comprehensive program for training Rail Operations Control Center control operators in emergency response procedures including regular refresher training.
R-16-026	OUA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Conduct regular emergency response drills and develop a program to test the efficiency of the Rail Operations Control Center to ensure that standard operating procedures are properly followed during emergencies.
R-16-028	OAA		TO THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: Implement a regular schedule for the inspection and removal of obstructions from safety walkways and track-bed floors to ensure safe passageways for passengers to use during a tunnel evacuation.
R-16-032	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to install devices and develop procedures that will help crewmembers identify their current location and display their upcoming route in territories where positive train control will not be implemented.
R-16-033	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Modify form 6180.54 (Rail Equipment Accident/Incident Report) to include the number of crewmembers in the controlling cab of the train at the time of an accident.
R-16-034	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: After form 6180.54 is modified as specified in Safety Recommendation R-16-33, use the data regarding number of crewmembers in the controlling cab of the train at the time of an accident to evaluate the safety adequacy of current crew size regulations.
R-16-035	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Conduct research to evaluate the causes of passenger injuries in passenger railcar derailments and overturns and evaluate potential methods for mitigating those injuries, such as installing seat belts in railcars and securing potential projectiles
R-16-036	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: When the research specified in Safety Recommendation R-16-35 identifies safety improvements, use the findings to develop occupant protection standards for passenger railcars to mitigate passenger injuries likely to occur during derailments and overturns.
R-16-037	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Incorporate strategies into your initial and recurrent training for operating crewmembers for recognizing and effectively managing multiple concurrent tasks in prolonged, atypical situations to sustain their attention on current and upcoming train operations.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-16-038	OUA		TO THE AMERICAN PUBLIC TRANSPORTATION ASSOCIATION AND THE ASSOCIATION OF AMERICAN RAILROADS: Develop criteria for initial and recurrent training for operating crewmembers that reinforce strategies for recognizing and effectively managing multiple concurrent tasks and prolonged, atypical situations to sustain their attention on current and upcoming train operations, and distribute those criteria to your members.
R-16-042	OAA		TO THE INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE, INTERNATIONAL ASSOCIATION OF FIRE CHIEFS, NATIONAL ASSOCIATION OF STATE EMS OFFICIALS, NATIONAL EMERGENCY MANAGEMENT ASSOCIATION, NATIONAL VOLUNTEER FIRE COUNCIL: Educate your members regarding the details of this accident, including the lessons learned from the emergency medical response, and the potential utility of integrating police transport of victims into mass casualty incident response plans.
R-16-043	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require freight railroads to use validated biomathematical fatigue models, similar to the models used by passenger railroads, to develop work schedules that do not pose an excessive risk of fatigue.
R-16-044	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Develop and enforce medical standards that railroad employees in safety-sensitive positions diagnosed with sleep disorders must meet to be considered fit for duty.
R-16-045	OAR		TO BNSF RAILWAY, CANADIAN NATIONAL RAILWAY, CANADIAN PACIFIC RAILWAY, CSX TRANSPORTATION, KANSAS CITY SOUTHERN RAILWAY, NORFOLK SOUTHERN RAILWAY, INTERCITY RAILROADS, AND COMMUTER RAILROADS: Review and revise as necessary your medical rules, standards, or protocols to ensure you are informed of any diagnosed sleep disorders that employees in safety-sensitive positions must report and, when an employee makes such a report, perform periodic evaluations to ensure the condition is appropriately treated and the employee is fit for duty.
R-16-046	OAR		TO CLASS I RAILROADS: Revise your scheduling practices for train crews and implement science-based tools, such as validated biomathematical models, to reduce start time variability that results in irregular work-rest cycles and fatigue.
R-16-047	OAA		TO UNION PACIFIC RAILROAD: Revise your medical rules to add any diagnosed sleep disorder to the list of medical conditions that employees in safety-sensitive positions must report and, when an employee makes such a report, perform periodic evaluations to ensure the condition is appropriately treated and the employee is fit for duty.
R-17-001	OAA		TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Evaluate the risks posed to train crews by hazardous materials transported by rail, determine the adequate separation distance between hazardous materials cars and locomotives and occupied equipment that ensures the protection of train crews during both normal operations and accident conditions, and collaborate with the Federal Railroad Administration to revise 49 Code of Federal Regulations 174.85 to reflect those findings. (Supersedes R-08-013)



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Recommendation #	Overall Status	Date Closed	Subject
R-17-002	OUA		TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Pending completion of the risk evaluation and action in accordance with its findings prescribed in Safety Recommendation R-17-01, withdraw regulatory interpretation 06-0278 that pertains to 49 Code of Federal Regulations 174.85 for positioning placarded rail cars in a train and require that all trains have a minimum of five nonplacarded cars between any locomotive or occupied equipment and the nearest placarded car transporting hazardous materials, regardless of train length and consist.
R-17-003	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Evaluate the risks posed to train crews by hazardous materials transported by rail, determine the adequate separation distance between hazardous materials cars and locomotives and occupied equipment that ensures the protection of train crews during both normal operations and accident conditions, and collaborate with the Pipeline and Hazardous Materials Safety Administration to revise 49 Code of Federal Regulations 174.85 to reflect those findings. (Supersedes R-08-012)
R-17-004	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Utilize your authority under Title 49 Code of Federal Regulations 670.25, and issue a general directive that would require all state safety oversight agencies to direct rail transit agencies to periodically test the performance of all of their rail transit vehicle braking systems to detect potential latent system failures.
R-17-010	OAR		TO THE LONG ISLAND RAIL ROAD, THE NATIONAL RAILROAD PASSENGER CORPORATION, PORT AUTHORITY TRANS-HUDSON CORPORATION, AND SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY: Conduct a risk assessment for all highway-railroad grade crossings that have third rail systems present at or near those highway-railroad grade crossings and implement corrections based on your risk assessment findings that will mitigate the risk of highway-railroad grade crossing accident severity.
R-17-011	OAA		TO THE STATE OF NEW YORK, DEPARTMENT OF TRANSPORTATION: Once you complete an assessment at intersections in your regions near highway-railroad grade crossings with preemptive traffic signals, proceed with making any necessary adjustments based on engineering principles and current industry guidance.
R-17-012	OAR		TO THE TOWN OF MOUNT PLEASANT, NEW YORK: Take action based on the results of your traffic study and the Federal Highway Administration's August 2007 guidelines to improve grade crossing safety in the town of Mount Pleasant.
R-17-013	OAA		TO THE FEDERAL TRANSIT ADMINISTRATION: Require the installation, in all controlling locomotive cabs and cab car operating compartments, of crash- and fire-protected inward- and outward-facing audio and image recorders capable of providing recordings to verify train crew actions and train operating conditions. The devices should have a minimum 12-hour continuous recording capability with recordings that are easily accessible for review, with appropriate limitations on public release, for the investigation of accidents and as a tool to improve operational safety.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-17-014	OAA		TO THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY: Install crash- and fire-protected inward- and outward-facing audio and image recorders capable of recording operator actions in all rail transit vehicle operating compartments. The devices should have a minimum 12-hour continuous recording capability with recordings that are easily accessible for review for the investigation of accidents and as a tool to improve operational safety.
R-17-015	OAA		TO THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY: Publish a semiannual report detailing your progress in installing crash- and fire protected inward- and outward-facing audio and image recorders until the installation is complete. The report should include the number of rail transit vehicle operating compartments with the recorders, and the number of compartments in your fleet that lack them.
R-17-018	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to install technology on hi-rail, backhoes, other independently operating pieces of maintenance-of-way equipment, and on the leading and trailing units of sets of maintenance-of-way equipment operated by maintenance workers to provide dispatchers and the dispatch system an independent source of information on the locations of this equipment to prevent unauthorized incursions by trains onto sections of track where maintenance activities are taking place in accordance with the Congressional mandate under the Rail Safety Improvement Act of 2008.
R-17-023	OAA		TO AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION): Conduct a risk assessment for all engineering projects and use the results to issue significant speed restrictions for trains passing any engineering project that involves safety risks for workers, equipment, or the traveling public, such as ballast vacuuming, as part of a risk-mitigation policy.
R-17-024	OAA		TO AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION): Work with labor to achieve full participation in all applicable safety programs.
R-17-025	OAA		TO AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION): Work collaboratively with labor to develop and implement a viable safety reporting system (for example, C3RS); ensure that employees do not experience reprisal for using the system; respond quickly to the data collected; and communicate any resulting safety improvements to all employees.
R-17-026	OAA		TO AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION): Work collaboratively with labor in an effort to develop a comprehensive safety management system program that complies with pending Federal Railroad Administration regulation Title 49 Code of Federal Regulations Part 270, System Safety Program, and that vitalizes safety goals and programs with executive management accountability; incorporates risk management controls for all operations affecting employees, contractors, and the traveling public; improves continually through safety data monitoring and feedback; and is promoted at all levels of the company.



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Recommendation #	Overall Status	Date Closed	Subject
R-17-027	OAA		TO AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION): Once Safety Recommendation R-17-26 is completed, implement the safety management system program throughout the company with resources sufficient to ensure that all levels of management and all labor unions involved with Amtrak operations accept and comply with the system.
R-17-028	OAA		TO THE BROTHERHOOD OF MAINTENANCE OF WAY EMPLOYEES DIVISION, AMERICAN RAILWAY AND AIRWAY SUPERVISORS ASSOCIATION, BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN, AND BROTHERHOOD OF RAILROAD SIGNALMEN: Work with Amtrak to improve the effectiveness of all applicable safety programs.
R-17-029	OAA		TO THE BROTHERHOOD OF MAINTENANCE OF WAY EMPLOYEES DIVISION, AMERICAN RAILWAY AND AIRWAY SUPERVISORS ASSOCIATION, BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN, AND BROTHERHOOD OF RAILROAD SIGNALMEN: Work collaboratively with Amtrak to develop and implement a viable safety reporting system (for example, C3RS).
R-17-030	OAA		TO THE BROTHERHOOD OF MAINTENANCE OF WAY EMPLOYEES DIVISION, AMERICAN RAILWAY AND AIRWAY SUPERVISORS ASSOCIATION, BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN, AND BROTHERHOOD OF RAILROAD SIGNALMEN: Work collaboratively with Amtrak in an effort to develop a comprehensive safety management system program that complies with pending Federal Railroad Administration regulation Title 49 Code of Federal Regulations Part 270, System Safety Program, and that vitalizes safety goals and programs with executive management accountability; incorporates risk management controls for all operations affecting employees, contractors, and the traveling public; improves continually through safety data monitoring and feedback; and is promoted at all levels of the company.
R-17-031	OUA		TO UNION PACIFIC: Develop and implement a modification to the existing man-down alarms that allows yard workers to reliably differentiate between legitimate and noncritical man-down messages from remote control units.
R-17-032	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Research and evaluate wheel impact load thresholds to find remedial actions that address the mechanical condition of tank cars used in high-hazard flammable trains.
R-17-033	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Mandate remedial actions that railroads should take to avoid or identify mechanical defects that are identified by wheel impact load detectors.
R-17-034	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION AND THE ASSOCIATION OF AMERICAN RAILROADS: Collaborate in the evaluation of safe kip thresholds to determine the remedial actions for suspected defective wheels conditions in high-hazard flammable train service based upon equipment detector data, and revise the Federal Railroad Administration Safety Advisory 2015-01 and the Association of American Railroads interchange rules.
R-18-001	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require intercity passenger and commuter railroads to implement technology to stop a train before reaching the end of tracks.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-18-002	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Include the Collision Hazard Analysis Guide for Commuter and Intercity Passenger Rail Service as part of the regulation or part of a detailed compliance manual to assist railroads in implementing Title 49 Code of Federal Regulations Part 270.
R-18-003	OAA		TO NEW JERSEY TRANSIT AND METROPOLITAN TRANSPORTATION AUTHORITY: Review and revise the hazard management portion of your system safety program plans to ensure that they document previous incidents and use them when identifying and assessing operational hazards.
R-18-004	OAA		TO NEW JERSEY TRANSIT AND METROPOLITAN TRANSPORTATION AUTHORITY: Ensure that operator impairment due to medical conditions, including obstructive sleep apnea, is part of the hazard management portion of your system safety program plan.
R-18-008	OAR		TO THE UNITED STATES DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION: Develop, and use, a process for forwarding notifications of railroad-related incidents and accidents involving railcars, locomotives, and track to the Federal Railroad Administration.
R-18-012	OAR		AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION: Assist the Federal Highway Administration (FHWA) in developing specific criteria to establish when an existing grade crossing should be reconstructed, closed, or otherwise have the risk posed by its unsafe vertical profile comprehensively mitigated, to be incorporated into the FHWA Railroad-Highway Grade Crossing Handbook.
R-18-014	OAA		TO ALL CLASS I RAILROADS: Implement a process to notify and coordinate with the local and state transportation agencies responsible for highway maintenance at grade crossings as early as possible before conducting any planned maintenance work that has the potential to increase track elevation.
R-18-015	OAA		TO ALL CLASS I RAILROADS: Implement a process to make information about incidents of vehicle groundings at grade crossings that did not result in a crash on your railroad available to the appropriate state departments of transportation.
R-18-016	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Review, and modify if necessary, your current inspection guidance regarding watchman/lookout equipment to verify that it requires railroads to provide the necessary equipment for a watchman/lookout to notify a roadway work group of approaching trains and that this accurately reflects the definition contained in Title 49 Code of Federal Regulations 214.7.
R-18-017	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Review railroads' on-track safety programs to determine if the necessary equipment is required and provided for a watchman/lookout to notify roadway work groups of approaching trains. If deficiencies are discovered, use enforcement options to encourage compliance.
R-18-018	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Revise your guidance for inspectors regarding required watchman/lookout equipment and procedures, train all of your inspectors on the revised guidance, and audit subsequent inspections to verify adherence to the specifications outlined in Title 49 Code of Federal Regulations 214.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-18-019	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Modify the National Inspection Plan to require periodic unannounced inspections for roadway worker protection regulation compliance.
R-18-020	OAA		TO BNSF RAILWAY: Include evaluations on the visual detection of trains as a regular component of roadway work group employees' required operational testing.
R-18-021	OUA		TO BNSF RAILWAY: Revise your on-track safety program to include the proper equipment for watchmen/lookouts to provide train approach warning for roadway work groups.
R-18-022	OAA		TO BNSF RAILWAY: Provide instruction for on-track safety procedures and conduct operational testing for roadway worker-in-charge personnel on their knowledge of roadway work group job briefing procedures to ensure that they know to include information on how on-track safety is to be provided when a roadway worker will be fouling a track.
R-18-023	OAA		TO THE AMERICAN PUBLIC TRANSPORTATION ASSOCIATION: Develop performance standards for the use of forward collision avoidance systems technology for light-rail vehicles operating on an urban street environment.
R-18-024	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Issue a guidance document railroads can use to assess their on-track safety program to ensure it encompasses the role of signal and train control equipment, including redundant protection, such as supplemental shunting devices to protect roadway workers and their equipment.
R-18-025	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Study available technologies that automatically alert maintenance-of-way workers fouling tracks of approaching trains, then require that such technology be implemented as a redundant protective measure.
R-18-026	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Provide additional training to all your track inspectors on regulatory track safety standards compliance and provide guidance of available enforcement options to obtain compliance with minimum track safety standards when defective conditions are not being properly remediated by railroads on all routes that carry high hazardous flammable materials.
R-18-028	OAR		TO UNION PACIFIC RAILROAD: Reexamine your track maintenance and inspection program standards on all routes that carry high hazardous flammable materials and ensure those track inspection standards are complied with by both track inspectors and track supervisors.
R-19-002	OAA		TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Prohibit the use of those tank cars transporting poison inhalation hazard/toxic inhalation hazard materials that are constructed of nonnormalized steels and not constructed of steels meeting the highest available fracture toughness specifications, as developed from Safety Recommendation R-19-001.
R-19-004	OAR		TO THE ASSOCIATION OF AMERICAN RAILROADS: Implement revisions to the American Association of Railroads Manual of Standards and Recommended Practices Specifications for Tank Cars, M-1002 to ensure that local postweld heat treatment processes are sufficiently monitored to avoid damage to tank car materials from uncontrolled heat treatment following welding and repairs.



# Recommendation Subjects

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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-19-005	OAA		TO AMERICAN RAILCAR INDUSTRIES, INC.: Develop inspection and maintenance procedures to address cracks in cradle pad weld attachments applicable to pressure tank cars equipped with ACF-200 stub sill underframes.
R-19-006	ORR		TO CSX TRANSPORTATION AND THE NATIONAL RAILROAD PASSENGER CORPORATION: Prohibit employees from fouling adjacent tracks of another railroad unless the employees are provided protection from trains and/or equipment on the adjacent tracks by means of communication between the two railroads.
R-19-007	OAR		TO THE UNITED STATES DEPARTMENT OF TRANSPORTATION: Require the Federal Railroad Administration to issue regulations for inward-facing recorders that include image and audio recordings as recommended by the National Transportation Safety Board in R-10-01 and R-10-02.
R-19-008	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Study the efficacy of how signs used in other modes of transportation may be effectively used in the railroad industry.
R-19-009	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to periodically review and update their speed limit action plans to reflect any operational or territorial operating changes requiring additional safety mitigations and to continually monitor the effectiveness of their speed limit action plan mitigations.
R-19-010	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to apply their existing speed limit action plan criteria for overspeed risk mitigation to all current and future projects in the planning, design, and construction phases, including projects where operations are provided under contract.
R-19-011	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Prohibit the operation of passenger trains on new, refurbished, or updated territories unless positive train control is implemented.
R-19-012	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Remove the grandfathering provision within Title 49 Code of Federal Regulations 238.203(d) and require all railcars comply with the applicable current safety standards.
R-19-013	OAAR		TO THE FEDERAL RAILROAD ADMINISTRATION: Use your authority and compel all commuter and passenger railroads to meet the requirements outlined in Title 49 Code of Federal Regulations Part 238 without delay, such that in the event of a loss of power, adequate emergency lighting is available to allow passengers, crewmembers, and first responders to see and orient themselves, identify obstacles, safely move throughout the railcar, and evacuate safely.
R-19-014	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Reevaluate existing seat securement mechanisms and their susceptibility to inadvertent rotation, to identify a means to prevent the failure of these devices to maintain seat securement.
R-19-015	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Conduct research into the effectiveness of occupant protection through compartmentalization for passengers whose size (including children) is not within the current range of anthropomorphic passenger sizes in Federal Railroad Administration standards.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-19-016	OAR		TO THE UNITED STATES DEPARTMENT OF DEFENSE FIRE AND EMERGENCY SERVICES WORKING GROUP: (1) Identify all military installations that provide emergency services to areas outside of their installations, make them aware of this accident, and determine the effectiveness of the communications system between that military installation and the adjacent jurisdictions. (2) Implement a plan to address any deficiencies with interoperability caused by the incompatibility between the US Department of Defense communications system and that of adjacent civilian agencies.
R-19-022	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Implement a formal, systematic approach to developing training and qualification programs to identify the most effective strategies for preparing crewmembers to safely operate new equipment on new territories.
R-19-023	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Work with host railroads and states that own infrastructure over which you operate to conduct a comprehensive assessment of the territories to ensure that necessary wayside signs and plaques are identified, highly conspicuous, and strategically located to provide operating crews the information needed to safely operate their trains.
R-19-026	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Incorporate all prerevenue service planning, construction, and route verification work into the scope of your corporate-wide system safety plan, including your rules and policies, risk assessment analyses, safety assurances, and safety promotions.
R-19-027	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Work collaboratively with all host railroads and states that own infrastructure over which you operate in an effort to develop a comprehensive safety management system program that meets or exceeds the pending Federal Railroad Administration regulation, Title 49 Code of Federal Regulations Part 270, "System Safety Program."
R-19-028	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Conduct risk assessments on all new or upgraded services that occur on Amtrak-owned territory, host railroads, or in states that own infrastructure over which you operate.
R-19-029	OAA		TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK): Develop policies for the safe use of child safety seats to prevent uncontrolled or unexpected movements in passenger trains and provide customers with guidance for securing these child safety seats.
R-19-033	OAA		TO THE METROPOLITAN TRANSIT AUTHORITY FOR NEW YORK CITY TRANSIT: Revise your flagging procedures to prohibit the movement of trains at greater than restricted speed while flagging protection is being established and require the Rail Control Center to communicate a flagger's location to train dispatchers, tower operators, and train operators.
R-19-037	OAA		TO CSX TRANSPORTATION CORPORATION: Develop and implement a safety management system that includes but is not limited to operations, training, maintenance, equipment, and medical standards.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-19-038	OAA		TO ALL HOST RAILROADS: Work in partnership with Amtrak (National Railroad Passenger Corporation) to establish safety management criteria that support the implementation of Amtrak's safety management system.
R-19-039	OUA		TO THE FEDERAL TRANSIT ADMINISTRATION: Use your authority under Title 49 United States Code Part 5329 to develop standards for safety messaging for end-of-railcar doors, including appropriate sign location, text, and symbols to be placed on rolling stock.
R-19-040	OUA		TO THE FEDERAL TRANSIT ADMINISTRATION: Once the messaging standards are successfully developed, use your authority under Title 49 Code of Federal Regulations 670.25 to immediately issue a general directive that would require all rail transit agencies to implement those standards on applicable rolling stock.
R-19-041	OAR		TO THE CLASS I RAILROADS: Review and issue guidance as necessary for the inspection of end-of-railcar air hose configurations to ensure the air hose configuration matches the intended design.
R-19-042	OAR		TO THE CLASS I RAILROADS: Review and revise your air brake and train handling instructions for grade operations and two-way end-of-train device instructions to include: monitoring locomotive air flow meters, checking the status of communication between the head-of-train and end-of train devices before cresting a grade, and the actions to take if the air pressure at the rear of the train does not respond to an air brake application.
R-19-044	OAA		TO METRO-NORTH RAILROAD: Following a report of a track condition, rail traffic controllers should issue a speed restriction through the vicinity of a reported track condition that would require all trains to operate at a slow speed that will afford a train crew the ability to stop the train if the encountered track condition is determined to be severe enough. The speed restriction should remain until a qualified Metro-North Railroad track inspector can respond and issue an appropriate speed restriction for trains to safely operate.
R-20-001	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION AND PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Work together to develop maximum coupling speed thresholds and impact mass limits for hazardous materials railcars.
R-20-002	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION AND THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Require that tank cars involved in high-energy coupling-force events undergo a structural integrity inspection by a qualified technician before returning to service.
R-20-003	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION AND THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Develop methods to identify tank cars that have sustained overspeed and high-energy coupling force events.
R-20-004	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION AND THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: After the successful development of methods to identify tank cars that have sustained overspeed and high-energy coupling force events, require that rail carriers have monitoring processes in place to promptly remove damaged tank cars from hazardous materials service.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-20-005	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Revise your oversight inspection process to focus on roadway worker activities, especially when roadway workers are using train approach warning for protection.
R-20-006	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Define when the risks associated with using train approach warning are unacceptable and revise Title 49 Code of Federal Regulations 214.329 to prohibit the use of train approach warning when the defined risks are unacceptable.
R-20-007	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Promulgate scientifically based hours of service requirements for roadway workers.
R-20-008	OAA		TO THE METROPOLITAN TRANSPORTATION ADMINISTRATION: Identify the risks associated with using train approach warning as a method of on-track protection and require mitigations of the risks and prohibition of its use if effective mitigations are not possible.
R-20-009	OAA		TO THE METROPOLITAN TRANSPORTATION AUTHORITY: Work with the International Association of Sheet Metal, Air, Rail and Transportation Workers to develop and implement a work scheduling program for roadway workers using a validated biomathematical model of fatigue avoidance to ensure that roadway workers at risk of being fatigued are not eligible for overtime.
R-20-010	OAA		TO THE INTERNATIONAL ASSOCIATION OF SHEET METAL, AIR, RAIL AND TRANSPORTATION WORKERS (SMART UNION): Work with Metropolitan Transportation Authority management to develop and implement a work scheduling program for roadway workers using a validated biomathematical model of fatigue avoidance to ensure that roadway workers at risk of being fatigued are not eligible for overtime.
R-20-011	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require new roadway maintenance machines to be equipped with operator presence controls to prevent unintended movement and protect workers on and around the machines.
R-20-012	OAR		TO CSX TRANSPORTATION: Include operator presence controls as a mandatory safety feature for all newly purchased or manufactured self-propelled roadway maintenance machines.
R-20-013	OAR		TO CSX TRANSPORTATION: Inspect your existing self-propelled roadway maintenance machines and install operator presence controls on any machines without such controls.
R-20-015	OAR		TO THE UNITED STATES DEPARTMENT OF TRANSPORTATION: Request that the US Department of Transportation Inspector General conduct an audit of CSX Transportation's drug- and alcohol-testing program to determine the circumstances that allowed a regulated employee to operate for an extended time period without being subjected to random drug testing.
R-20-016	OAR		TO UNITED STATES DEPARTMENT OF TRANSPORTATION: Upon completion of this examination, make any needed recommendations to CSX Transportation in its implementation of its drug- and alcohol-testing program, as well as the Federal Railroad Administration in its auditing of CSX Transportation.
R-20-017	OAR		TO THE UNITED STATES DEPARTMENT OF TRANSPORTATION: If necessary, apply any lessons learned to broadly implement enhancements to railroad drug- and alcohol-testing protocols to prevent a similar scenario from occurring at other railroads.



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<b>Recommendation #</b>	<b>Overall Status</b>	<b>Date Closed</b>	<b>Subject</b>
R-20-018	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Review the software changes being developed by the Interoperable Train Control Application Committee regarding positive train control restricted mode and amend Title 49 Code of Federal Regulations Part 236 to require railroads to revise their positive train control systems to implement engineering controls that will automatically limit the use of restricted mode on main tracks.
R-20-019	OAR		TO THE ASSOCIATION OF AMERICAN RAILROADS, THE AMERICAN SHORT LINE AND REGIONAL RAILROAD ASSOCIATION, THE NATIONAL RAILROAD PASSENGER CORPORATION, THE ALASKA RAILROAD CORPORATION, AND THE AMERICAN PUBLIC TRANSPORTATION ASSOCIATION: Inform your members of circumstances of this collision and request they undertake a review of their training and managerial oversight programs as they relate to restricted speed operations on territories that operate positive train control systems in restricted mode to identify opportunities for training improvement and to implement appropriate mitigating actions.
R-20-020	OAR		CSX TRANSPORTATION: Review and revise your training program to ensure employees are properly qualified on positive train control, including restricted mode.
R-20-021	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Develop and issue guidance for railroads to use in developing the risk reduction programs required to be submitted for approval by the Federal Railroad Administration.
R-20-022	OAR		CSX TRANSPORTATION: Revise your rules for building train consists to require that large blocks of empty cars be placed toward the end of the consist.
R-20-023	OAR		TO CSX TRANSPORTATION: Prohibit the use of hand brakes on empty rail cars for controlling train movement in grade territory.
R-20-024	OAR		TO CSX TRANSPORTATION: Incorporate lessons learned about the hazards caused by fire-exposed jacketed pressure tank cars in first responder hazardous materials training and outreach programs.
R-20-025	OUA		TO THE ASSOCIATION OF AMERICAN RAILROADS: Work with member railroads to develop guidance material and best practices for the development and implementation of their risk reduction programs.
R-20-026	OAA		TO THE SECURITY AND EMERGENCY RESPONSE TRAINING CENTER: Incorporate lessons learned from the Hyndman, Pennsylvania, accident about the hidden hazards caused by fire-exposed jacketed pressure tank cars in first responder hazardous materials technician and tank car specialist training programs.
R-20-027	OUA		TO THE ASSOCIATION OF AMERICAN RAILROADS, THE AMERICAN SHORT LINE AND REGIONAL RAILROAD ASSOCIATION, AND THE RENEWABLE FUELS ASSOCIATION: Develop and adopt guidelines and recommended practices for the systematic placement of the most vulnerable tank cars in high hazard flammable trains, such as unmodified US Department of Transportation-111 tank cars, in positions of trains where they are least likely to derail or to sustain mechanical damage from the effects of trailing tonnage or collision in an accident.



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Recommendation #	Overall Status	Date Closed	Subject
R-20-028	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Revise Title 49 Code of Federal Regulations Part 232 to require more frequent communication checks between a head-of-train device and an end-of-train device.
R-20-029	OUA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require that the emergency brake signal transmission is repeated until received by the end-of-train device.
R-20-030	OAR		TO THE ASSOCIATION OF AMERICAN RAILROADS AND THE AMERICAN SHORT LINE AND REGIONAL RAILROAD ASSOCIATION: Alert your member carriers to (1) conduct analysis of radio frequency propagation in grade territories over which they operate to identify areas where head-of-train device and end-of-train device communication may be lost and (2) make remediations to provide continuous head-of-train device and end-of-train device communication.
R-20-031	OAR		TO THE ASSOCIATION OF AMERICAN RAILROADS: Revise your Manual of Standards and Recommended Practices, Locomotive Electronics and Train Consist System Architecture, Standard S-9152.v2.2, Paragraph 3.8.8 to develop a communication protocol that will continue to transmit an emergency air brake command to the end-of-train device until a confirmation message or a decrease in brake pipe pressure message is received by the head-of-train device.
R-21-001	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require all railroads to establish working limits that prevent trains or other on-track machinery from entering zones where employees, including those who work on or from maintenance-of-way equipment or on trains engaged in maintenance-of-way tasks, are working.
R-21-002	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Require all railroads to revise training and increase oversight to ensure that operating crews properly use restricted speeds.
R-21-003	OAA		TO THE FEDERAL RAILROAD ADMINISTRATION: Modify Title 49 Code of Federal Regulations Part 214 to prohibit the use of train approach warning in controlled track territory during planned maintenance and inspection activities.
R-21-004	ORR		TO AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION): Modify your site-specific safety work plan to require all work zone hazards for roadway workers and watchmen be identified and mitigated, including hazards associated with multiple track work zones.
R-21-005	OUA		TO AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION) AND CLASS I RAILROADS: Eliminate the use of train approach warning protection in controlled track territory during planned maintenance and inspection activities.
R-22-001	ORR		TO NORFOLK SOUTHERN: Review and revise the terminal instructions in the Harrisburg Division Timetable Number 1 that govern the close-clearance restriction locations within the Baltimore Consolidated Terminal, and ensure the instructions contain consistent language related to close-clearance locations.
R-22-002	ORR		TO NORFOLK SOUTHERN: Revise the Baltimore Consolidated Terminal training and testing program to emphasize the close-clearance restriction locations and location-specific hazards.



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Recommendation #	Overall Status	Date Closed	Subject
R-22-003	ORR		TO THE CALIFORNIA PUBLIC UTILITIES COMMISSION: Revise your instruction to Sacramento Regional Transit District to require that Sacramento Regional Transit conduct a formal risk assessment of high-speed testing on mainline track and implement controls to mitigate identified risks.
R-22-004	ORR		TO THE SACRAMENTO REGIONAL TRANSIT DISTRICT: Ensure that an employee's performance is monitored and evaluated while on a performance improvement plan for the intended duration of the plan or until the employee has demonstrated competency in the position they occupy.
R-22-005	ORR		TO THE SACRAMENTO REGIONAL TRANSIT DISTRICT: Identify factors that may deter train operators from following the rule to report delays to Metro Control from all time points and develop training or testing and/or modify the reporting process to ensure compliance.
R-22-006	ORR		TO THE SACRAMENTO REGIONAL TRANSIT DISTRICT: Conduct a formal risk assessment of high-speed testing on the mainline track then revise testing schedules and communication requirements to ensure that necessary controls are in place to mitigate the identified risks.
R-22-007	ORR		TO THE SACRAMENTO REGIONAL TRANSIT DISTRICT: Install a transmission-based train control system, which includes bi-directional collision avoidance, on all passenger train routes.
R-22-008	ORR		TO THE CLASS I RAILROADS AND AMTRAK: Revise your criteria for train operations to provide dynamic weather alerts that take into account current, persistent, and past weather conditions to improve location-based adverse weather alerts.
R-22-009	ORR		TO THE CLASS I RAILROADS AND AMTRAK: Once the weather alert criteria are revised based on Safety Recommendation R-22-8, ensure that railroad operational and engineering personnel are aware of the revision and that they adopt any changes in practices or protocols it may require.

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**Total Number of Recommendations for Recommendation Subjects Report: 243**

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