Testimony of

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Before the

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– On –

Examining Freight Rail Safety
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Good morning, Chairman Payne, Ranking Member Crawford, and members of the subcommittee. Thank you for inviting the National Transportation Safety Board (NTSB) to testify, discuss our freight railroad accident investigations and the lessons we have learned from those investigations, and reiterate how critical it is for our federal, industry, and labor partners, and for the Congress, to heed those lessons learned and take action to help avoid future accidents. Although this hearing is focused on freight rail safety, we are also more than happy to provide the subcommittee with information regarding passenger rail investigations and recommendations as well.

As you know, the NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—highway, rail, marine, pipeline, and commercial space. We determine the probable cause of the events we investigate and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct special transportation safety research and special investigations, and coordinate the resources of the federal government and other organizations to assist victims and their family members who have been impacted by major transportation disasters. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and the United States Coast Guard, and adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not have authority to promulgate operating standards, nor do we certificate organizations, individuals, or equipment. Instead, we advance safety through our recommendations, which are issued to any entity that can improve safety. Our goal is to identify issues and advocate for safety improvements that, if implemented, would prevent tragedies and injuries and save lives.

Rail Safety and Reauthorization

Our current authorization expires at the end of this fiscal year. As you know, we have sent Congress a reauthorization proposal that requests resources and hiring flexibility to increase the number of investigators in our Office of Railroad, Pipeline, and Hazardous Materials Investigations (RPH), as well as in our other modes.[1] 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.

[1] National Transportation Safety Board Draft Reauthorization Act of 2022. Washington, DC: NTSB.

The NTSB is required to investigate any railroad accident in which there is a fatality or substantial property damage, or that involves a passenger train.[2] We must currently meet this mandate with only 15 railroad investigators, two of whom are eligible for retirement. Those 15 investigators are currently working on 22 investigations, and we open about 11 new investigations each year. This office is understaffed. In fact, as part of our reauthorization proposal, we identified a need for 21 additional staff over the next 5 years. Our reauthorization request only fills a portion of this need.

Even if provided with the requested resources and workforce flexibilities, we would be challenged to meet the broad mandate in Title 49 *United States Code* (*U.S.C.*) 1131, given the tragic number of fatalities that result from crashes at highway–rail grade crossings or involving trespassers on railroad property each year. In 2021, 238 people were killed in crashes at grade crossings, and 625 people were killed in trespassing-related accidents. This represents the overwhelming majority of rail fatalities in the United States, and we are grateful that Congress included several provisions in the Infrastructure Investment and Jobs Act of 2021 (IIJA)[3] to address grade crossing and trespasser safety.

Our reauthorization proposal would amend the current mandate so that crashes at grade crossings or accidents involving rail trespassers no longer fall under our investigative mandate. Instead, we would maintain the flexibility to investigate those grade-crossing crashes or trespasser accidents that may provide a significant safety benefit to the public, similar to how we approach highway crashes. In fact, the Board traditionally treats such grade-crossing crashes as highway investigations that include railroad investigators. This change to our mandate would allow us to focus our resources on investigating those accidents and crashes where we can provide the most effective findings and recommendations to improve safety.

For those railroad accidents that we do not investigate, it is important to note that the Federal Railroad Administration (FRA), as the regulator, may still conduct an accident or incident investigation. We have expressed concern in the past that FRA investigations do not use the party process, as we do, to encourage participation from relevant organizations, including employee unions. We have found that union representation brings operations-specific knowledge to the accident investigation team and helps facilitate employee cooperation. As a result, in 2014, we recommended that the FRA include union participation in its accident investigations, seeking congressional authority to allow such participation, if necessary.[4] We appreciate that the IIJA includes a provision to address this issue by requiring the Department of Transportation (DOT) to develop a standard process for its rail

[2] 49 *United States Code* (*U.S.C.*) 1131(a)(1)(C).
[3] Public Law 117-58.
[4] Safety Recommendation R-14-37.

accident and incident investigations, including consulting with relevant entities, including employees.[5]

Let me be clear: this does not mean that improving safety on and around tracks and at highway–rail grade crossings is not a priority for the NTSB. As you may know, just last month, we launched a team to investigate a fatal crash involving a Metra passenger train that collided with a truck on the tracks in Clarendon Hills, Illinois. You probably do not know, however, that I have an especially strong interest in this rail safety issue. In the early 1950s, my grandfather, a volunteer firefighter, was struck and killed in a railroad grade-crossing crash. He and a colleague were on a call when the collision occurred. The tragedy had a devastating impact on my mother and her family. My mother was a high school student at the time, and the loss of her father changed the course of her life. Consequently, I have made grade-crossing safety a personal priority during my time on the Board.

Most Wanted List of Transportation Safety Improvements: Improve Rail Worker Safety

Improving Rail Worker Safety is one of the issues highlighted in our 2021–2022 Most Wanted List of Transportation Safety Improvements.[6] 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. Since railroad worker safety regulations were implemented by the FRA in 1997, there have been 466 railroad employee fatalities and 134,850 injuries.[7] Although rail worker fatalities have declined overall in recent years, we continue to see recurring safety issues in our accident investigations that are 100 percent preventable, highlighting the need for better worker protections.

[5] Pub. L. 117-58, section 22417.
[6] National Transportation Safety Board. 2021–2022 Most Wanted List of Transportation Safety Improvements. Washington, DC: NTSB.
[7] Bureau of Transportation Statistics. Fatalities and Injuries of On-Duty Railroad Employees. Washington, DC: DOT. Accessed June 1, 2022.

Roadway Workers and Train Approach Warning

The FRA's railroad workplace safety regulations include requirements to protect workers when they are on the tracks and specify railroads' oversight responsibilities.[8] There are several ways to provide on-track safety to roadway workers when their duties require them to foul a track. For example, roadway workers can request protection from the train dispatcher, who will set the signals to prevent trains from entering the work area. Further, if positive train control (PTC) is in effect, the trains will be stopped before entering the designated work areas even if the locomotive engineer fails to do so. The regulations also include the train approach warning (TAW) method for roadway workers who foul a live track for incidental inspections and minor repairs. TAW is a method of establishing on-track safety for roadway workers using a watchperson or lookout whose sole duty is to look out for approaching trains and on-track equipment and provide ample warning time to allow workers to clear to a predetermined place of safety at least 15 seconds before the arrival of a train or other equipment.

Many of the accidents we have investigated have involved TAW, which is susceptible to human errors like miscalculating site distance and underestimating the time needed for workers to clear tracks. We have long been concerned with the risks of using TAW as the sole form of worker protection, especially because it lacks safety redundancy. Trains travel at deceptively high speeds and, without proper warning, workers may not have enough time to react. Additional recurrent issues we see in our investigations are the need to address training, scheduling practices, and briefings. Specifically, lookouts should receive proper training on how to warn work crews of approaching trains and should have the required equipment to perform these duties. Railroads must also develop work schedules and limitations based on science to prevent fatigued workers from being eligible to work overtime. Industry needs to ensure that job briefings are done correctly and that procedures are in place to audit those briefings.

On January 17, 2017, a BNSF Railway train struck and killed two roadway workers, including the watchperson, in Edgemont, South Dakota.[9] The roadway work group had been cleaning snow and ice from the track switch on the main track to prepare for a train that was to have its air brake system tested. The crew of the striking train sounded the train horn and bell and applied emergency braking; however, there was no response from the roadway work group. We found that the probable cause of this accident was the improper use of TAW by the BNSF Railway roadway work group to provide on-track safety.

[8] Title 49 *Code of Federal Regulations* 214. Railroad Workplace Safety.

[9] NTSB. *BNSF Railway Roadway Worker Fatalities, Edgemont, South Dakota, January 17, 2017*. Washington, DC: NTSB. RAR 18/01.

As a result of that investigation, we made recommendations to the FRA to ensure that lookouts have the tools necessary to warn work crews of approaching trains.[10] In this case, BNSF Railroad did not provide the appropriate equipment to its lookouts, despite being federally mandated to do so. The FRA, for its part, was inconsistently enforcing the regulation. In December 2018, the FRA responded to these recommendations, saying that it disagreed with them and would not take any action. The recommendations remain classified "Open—Unacceptable Response," and we continue to urge the FRA to reconsider its position and take action to protect vulnerable roadway workers.

Not even 6 months after the Edgemont accident, a Long Island Rail Road (LIRR) train struck and killed a roadway worker foreperson who stepped onto active tracks into the path of a train in Queens Village, New York.[11] A five-person crew, including the foreperson and watchperson, were inspecting and making minor repairs to one of four main tracks at an interlocking, using TAW for worker protection. The watchperson had to look for trains moving at nearly 80 miles per hour from both directions on multiple tracks, then warn workers and clear the track within 15 seconds. In this accident, TAW was particularly dangerous for the crew due to several factors, such as there being multiple tracks at the interlocking, trains operating at high speeds in both directions, and the crew having limited areas to which they could clear trains, combined with the additional train traffic due to the Belmont Stakes horse race occurring that day. All these factors created unacceptable risks for the work crew.

We determined that the probable cause of this accident was the LIRR's decision to use TAW to protect the roadway workers on active tracks. We found that TAW regulations do not ensure protection for roadway workers to inspect and work on tracks where trains are allowed to continue to operate, and we recommended that the FRA define when the risks associated with using TAW are unacceptable and revise its regulations to prohibit TAW from being used in those cases.[12] In April 2021, the FRA responded that it disagreed with the recommendation and indicated that it would take no action to revise the regulations. The recommendation is currently classified "Open—Unacceptable Response."

We reiterated this recommendation in September 2021 as a result of our investigation of an April 24, 2018, accident in Bowie, Maryland, where TAW was used for on-track safety.[13] In that accident, an Amtrak train struck and killed an Amtrak rail gang watchperson near the Bowie State Train Station on Amtrak's Northeast Corridor. At the time of the accident, main track 2 was out of service under a continuous track

[10] Safety Recommendations R-18-16, -17, -18, and -19.
[11] NTSB. *Long Island Rail Road Roadway Worker Fatality, Queens Village, New York, June 10, 2017*. Washington, DC: NTSB, RAR 20/01.
[12] Safety Recommendation R-20-6.
[13] NTSB. *Amtrak Roadway Worker Fatality, Bowie Maryland, April 24, 2018*. Washington, DC: NTSB, RAR 21/02.

outage for maintenance, and the adjacent tracks immediately to the east and west of main track 2 were in service. Three lookouts were protecting the roadway workers and watching for trains moving on adjacent tracks. One watchperson was positioned near the boarding platform, another was positioned in a nearby curve, and the third was positioned toward the end of the curve, near a work gang of welders. The third watchperson was struck by the train.

In the Bowie accident, Amtrak's use of TAW circumvented the protections that could have been provided by PTC. One of the specific requirements of PTC is to protect workers and equipment on the track. TAW does not use working limits or speed restrictions and, therefore, gets around the protections that would be provided by PTC in controlled track territory.[14] For a PTC system to protect roadway workers, a roadway worker-in-charge of on-track safety for a work group must establish working limits with the train dispatcher. When working limits are established, the PTC system prevents incursions into that segment of track. Alternatively, temporary speed restrictions can also provide protection. When a temporary speed restriction is placed on the track by the dispatcher, PTC enforces that speed restriction.

In controlled track territory, the risk of roadway workers being struck by a train can be reduced by using working limits or speed restrictions, which would enable PTC protections. We concluded in the Bowie investigation that, had Amtrak established working limits or speed restrictions on the adjacent tracks that enabled the protections available under PTC rather than relying on the use of TAW, the accident may have been prevented. Besides reiterating our recommendation to the FRA to revise its regulations, we recommended that Amtrak and all Class I railroads eliminate the use of TAW protection in controlled track territory during planned maintenance and inspection activities.[15]

The Bowie accident and others also highlight gaps in PTC implementation, including risks of incursions by trains into work zones. Requiring PTC only on certain tracks and allowing exceptions to the rules creates unnecessary risk. We are currently conducting a focused safety research report to specifically examine these issues.

Coverage of Roadway Workers Under Hours-of-Service Law

Fatigue decreases a person's alertness and ability to work safely. The lookout and foreperson in the Queens Village accident were likely fatigued because they had worked consecutive overtime shifts. The lookout had worked and commuted for 38 of the 50 hours before the accident, and the foreperson had been on duty for the same

[14] *Controlled track* means track upon which the railroad's operating rules require that all movements of trains must be authorized by a train dispatcher or a control operator.
[15] Safety Recommendation R-21-5.

length of time. This schedule did not allow either of them the opportunity for restorative sleep in the two nights before the accident.

An agreement between the LIRR and its roadway worker labor union, SMART Transportation Division, Local 29, allowed LIRR track workers to take overtime shifts based on their skill and seniority, but without considering other important factors, such as fatigue. This agreement exposed employees and the public to unnecessary risk. In the Queens Village investigation, we found that, had the LIRR used biomathematical models of fatigue avoidance to develop work schedules and approval processes for roadway workers, the foreperson's and lookout's likely fatigue would have been avoided, and their overtime work requests for the day of the accident would have been denied.

Currently, the FRA has hours-of-service regulations that cover service positions and certain employees involved with the movement of a train, including operators, dispatchers, and signal employees. The regulations do not, however, classify roadway workers as personnel in covered service positions and do not, therefore, limit their on-duty time. Consequently, there are limited or no safety controls from the FRA or railroads beyond union agreements and local work practices that limit roadway workers' maximum work hours and ensure adequate opportunities for needed sleep. Because roadway workers' duties often affect the movement of a train and could possibly create unnecessary safety risks for employees and the traveling public, we have recommended that the FRA promulgate scientifically based hours-of-service requirements for roadway workers.[16]

The NTSB believes the FRA has the legal authority, under 49 *U.S.C.* chapter 211, to apply hours-of-service requirements to roadway workers, as it does with all its service positions. However, in April 2021, the FRA told us that it disagrees. Although we maintain that FRA already has the required legal authority, we believe that Congress should consider clarifying the agency's authority in this regard.

Train Crews and High-Hazard Flammable Trains

The NTSB has also investigated accidents involving high-hazard flammable trains (HHFTs) that resulted in breached tank cars and hazardous material fires, increasing the risk of death and injury to crewmembers.[17] In several accidents, we have seen that there was not enough separation between cars carrying hazardous materials and those on which crewmembers were serving. We have also seen issues with placing older tank cars in trains with other cars carrying flammable liquids. In HHFT accidents, freight train crews may survive collisions and derailments only to be injured or killed by hazardous materials released subsequently. A crew involved in a

[16] Safety Recommendation R-20-7.

[17] A high-hazard flammable train is defined in Title 49 *CFR* 171.8 as a single train transporting 70 or more loaded tank cars containing Class 3 flammable liquid.

locomotive collision may experience injuries that would limit their ability to rapidly exit the locomotive, thereby increasing their risk of injury from hazardous material release or fire. We have made recommendations to industry, the FRA, and the Pipeline and Hazardous Materials Safety Administration (PHMSA) to address these risks.

Rail tank cars are built to certain DOT or industry specifications.[18] The Fixing America's Surface Transportation (FAST) Act phased out legacy DOT-111 specification tank cars for transporting certain flammable liquids, such as crude oil, and the cars continue phasing out service for certain other commodities, such as ethanol. By May 1, 2023, nonjacketed and jacketed DOT-111 tank cars must be phased out; nonjacketed CPC-1232 tank cars must be phased out by July 1, 2023; and jacketed CPC-1232 tank cars must be removed or retrofitted by May 1, 2025. Each of those tank cars must be either removed from flammable liquids service or retrofitted with prescribed protective features, such as a head shield, jacket, and thermal protection.

In December 2020, we released a safety recommendation report based on findings from investigations into two HHFT derailments.[19] The first occurred on April 24, 2019, in Fort Worth, Texas, when a Union Pacific Railroad unit train carrying denatured ethanol derailed 25 of the 96 loaded tank cars.[20] Three tank cars, including one severely damaged legacy DOT-111 tank car, were breached and released 65,270 gallons of denatured ethanol, which ignited and formed pool fires. Some of the released ethanol entered a tributary of the Trinity River. The local police evacuated nearby homes, and, fortunately, no individuals were injured; however, three horses in a barn were killed, and three were injured.

The second accident occurred on February 13, 2020, when a CSX Transportation unit train also carrying 96 loaded tank cars of denatured ethanol derailed three locomotives, one buffer car, and four tank cars on a mountainside near Draffin, Kentucky.[21] Two of the derailed DOT-111 tank cars were breached and released 38,400 gallons of denatured ethanol, which, along with diesel fuel from the locomotives, ignited, engulfing the locomotives and the second and third tank cars. The train crew escaped from the burning lead locomotive by jumping into the river, where they were rescued by emergency responders.

As noted in our report, generally, cars positioned at the rear of a train have a lower probability of being derailed and, therefore, a lower probability of being

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[18] Bureau of Transportation Statistics. Tank Car Specifications and Terms. Washington, DC: DOT. Accessed June 1, 2022.

[19] NTSB. *Placement of DOT-111 Tank Cars in High Hazard Flammable Trains and the Use of Buffer Cars for the Protection of Train Crews*. Washington, DC: NTSB, RSR 20/01.

[20] *Union Pacific Railroad Derailment with Hazardous Materials Release and Subsequent Fire, Fort Worth, Texas, April 24, 2019*. Washington, DC: NTSB, RAB 21/03.

[21] NTSB. *Derailment of CSX Transportation Train K42911, Draffin, Kentucky, February 13, 2020*. Washington, DC: NTSB.

breached by mechanical damage. In both the Fort Worth and Draffin accidents, the breached DOT-111 tank cars were positioned in the front third of the train, putting them at greater risk of derailing in an accident, even though the trains' more robust, puncture-resistant DOT-117J specification tank cars could have been positioned in the front third of each train to decrease the risk of flammable hazardous material releases. In addition, the DOT-111 baseline legacy tank cars could have been placed in the lowest-risk positions for exposure to derailment or collision—and far away from occupied locomotives. In response to recommendations we made, the Renewable Fuels Association updated its Best Practices for Rail Transport of Ethanol guidance with the suggested best practice of placing DOT-111 and DOT-117 tank cars in a train consist.[22] As long as DOT-111 tank cars remain in service, we continue to urge shippers and carriers to reduce risks by adopting placement strategies that account for tank car type.

Although PHMSA requires buffer cars between train crews and hazardous materials, the agency has also issued a regulatory interpretation that provides for a much shorter distance between them. In 2017, we recommended that PHMSA evaluate the risks posed to train crews by hazardous materials transported by rail, determine the adequate separation distance between hazardous materials cars and occupied cars to ensure train crews are protected during both normal operations and accident conditions, and collaborate with the FRA to revise the regulations to reflect those findings.[23] That recommendation is currently classified "Open—Acceptable Response," as PHMSA has initiated a research project in coordination with the John A. Volpe National Transportation Systems Center to address the issue. We understand that the Volpe Center is in the process of finalizing a report. In the meantime, we recommended that PHMSA withdraw its regulatory interpretation and require that all trains have a minimum of five buffer cars between any crew-occupied equipment and cars carrying hazardous materials, regardless of train length and consist.[24] PHMSA has responded that it does not plan to take this interim action, and the recommendation is classified "Open—Unacceptable Response."

Train Handling and Operational Practices

The 2017 recommendations we made to PHMSA came as a result of our investigation of a 2013 derailment and subsequent collision in Casselton, North Dakota, in which a BNSF train carrying grain derailed 13 cars onto an adjacent track, where they were then struck by another BNSF train. The striking train derailed two head-end locomotives, a buffer car, and 20 cars loaded with crude oil.[25] Following the

[22] Safety Recommendation R-20-27.
[23] Safety Recommendation R-17-1.
[24] Safety recommendation R-17-2.
[25] NTSB. *BNSF Railway Train Derailment and Subsequent Train Collision, Release of Hazardous Materials, and Fire, Casselton, North Dakota, December 30, 2013*. Washington, DC: NTSB, RAB 17/01.

collision, the crew of the oil train narrowly escaped the area before the locomotives were destroyed by the eruption of a postaccident fire and energetic fireballs.

The operational practices of sequencing rail cars in a train and controlling train movement continue to be areas of interest in our investigations, not only regarding the safe placement of hazardous materials, but also for reducing the risks of derailments and collisions through effectively managing in-train forces. We have investigated accidents where operational practices[26] and training and oversight of operating crew[27] did not sufficiently provide for safe operation.

We have also investigated accidents in freight rail where use of available technology would mitigate risks. For example, another issue that our investigators looked into as part of the Casselton investigation was the performance of various train braking types, particularly electronically controlled pneumatic (ECP) brakes. ECP brakes are the most advanced train braking systems available for the freight rail industry today. Unlike conventional or distributed power systems, ECP brake systems simultaneously send an electronic braking command to all equipped railcars in the train. In general, our research has found that ECP brakes out-perform other braking systems in stopping distance and energy dissipation during derailments, but we have not made any recommendations in this area. In May 2015, PHMSA issued a final rule to require HHFTs to operate with ECP braking capability requirements; however, in September 2018, PHMSA, in coordination with the FRA, rescinded the rule and eliminated the requirement for ECP brakes.

Our investigation of the October 4, 2018, fatal collision between two Union Pacific trains in Granite Canyon, Wyoming, found that the accident could have been prevented had the train been equipped with an ECP braking system.[28] This collision occurred when the air brakes on an eastbound UP freight train failed while the train descended a hill. The striking train, consisting of 3 locomotives and 105 railcars, collided with the rear of a standing UP freight train at about 55 mph, causing the lead locomotives of the striking train and railcars of both trains to derail. The locomotive engineer and conductor of the striking train were killed.

We found that the length of the train, curvature of the track, and obstructions due to physical terrain contributed to a loss of communication between the head-of-train device (HTD) and the end-of-train device (ETD) on the striking train. Normally when emergency brakes are applied, in addition to venting the air brake pipe on the lead locomotive, the HTD in the lead locomotive transmits a radio message to the ETD at the rear of the train to initiate an emergency brake application and vent the air

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[26] NTSB. *CSX Train Derailment with Hazardous Materials Release, Hyndman, Pennsylvania, August 2, 2017*. Washington, DC: NTSB, RAR 20/04.
[27] NTSB. *BNSF Railroad Collision, Kingman, Arizona, June 5, 2018*. Washington, DC: NTSB, RAR 21/01.
[28] NTSB. *Collision of Union Pacific Railroad MGRCY04 with a Stationary Train, Granite Canyon, Wyoming, October 4, 2018*. Washington, DC: NTSB, RAR 20/05.

brake pipe to atmosphere at the rear of the train at the same time. In this accident, the locomotive engineer of the striking train applied the emergency brake as the train descended; however, the train's speed continued to increase. After the emergency brake application, the crew received a "front-to-rear no communication" message indicating the emergency brake request was not received at the ETD. With an ECP brake system, the emergency brake commands would have been received through the entire train, thereby applying the brakes on each railcar.

Current FRA regulations allow 16 minutes and 30 seconds to elapse before the engineer is alerted that communication with the ETD has been lost. We recommended the FRA require more frequent communication checks between the HTD and ETD, and that emergency brake signals continue to transmit until to address this vulnerability.[29]

I want to thank you for your efforts to address these issues in the IIJA, specifically the provision requiring the DOT to seek to enter into an agreement with the National Academies of Science to study the impact that train length has on safety, including loss of communication between the ETD and locomotive cab and braking performance.[30] In addition, the provision[31] requiring the FRA to collect more data on its Rail Equipment Accident/Incident Report regarding the number and length of cars as well as the size of the crew on involved trains (the latter of which addresses a recommendation that we made following the 2015 derailment of Amtrak 188 in Philadelphia)[32] will help us understand if further safety improvements are needed following accidents.

Conclusion

Although rail remains one of the safest means of transportation, our investigations have found that railroad safety can be improved with operators, labor unions, government oversight agencies, and local communities sharing responsibility. The safety issues we continue to see in our investigations are tragic because they are preventable.

We urge the FRA and PHMSA, as the regulators, to act now on our recommendations to establish adequate roadway worker and operations crew protections. If they do not address these deficiencies, we will continue to see more accidents and incidents resulting in preventable worker deaths and injuries. However, industry does not need to wait for those agencies to act to protect workers. Eliminating the use of TAW where the risks are too high, not allowing workers to be on the job without adequate opportunity for rest, and reducing the potential for train

[29] Safety Recommendations R-20-28 and -29.
[30] Pub. L. 117-58, Section 22422.
[31] Pub. L. 117-58, Section 22421.
[32] Safety Recommendation R-16-33.

crews to be exposed to the hazards of highly flammable materials will help prevent these accidents and save lives.

We recognize the progress that has been made; yet there will always be room for improvement. The NTSB stands ready to work with the Committee to continue improving rail safety. Thank you again for the opportunity to testify today. I am happy to answer your questions.