# Safety and Security:
Company is Taking Steps to Address its Risk of Train Strikes but Does Not Have a Comprehensive Risk Management Process

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# Memorandum

**To:**   Steve Predmore
     Executive Vice President/Chief Safety Officer

**From:**   J.J. Marzullo
     Assistant Inspector General, Audits

**Date:**   April 14, 2025

**Subject:**  *Safety and Security: Company is Taking Steps to Address its Risk of Train Strikes but Does Not Have a Comprehensive Risk Management Process*
     (OIG-A-2025-005)

Train strikes—incidents where trains hit people or vehicles—pose a serious and persistent concern for railroads.[1] Amtrak (the company) is no exception, as recent, tragic events highlight.[2] These types of incidents have resulted in hundreds of fatalities and injuries in recent years and can result in operational disruptions and equipment damage. They can also take a heavy toll on the crew members involved. By our estimate, in fiscal year (FY) 2023, one in five of the company's passenger engineers may have been involved in a strike.[3]

Given the gravity of these issues, our objective was to assess the company's efforts to identify and manage its risk of train strikes.[4] To address our objective, we interviewed company officials, reviewed its grade crossing and rail safety documentation, and

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[1] Train strikes can occur at grade crossings or along tracks. A grade crossing is a location where a road and train tracks intersect at the same level.

[2] On April 3, 2025, an Amtrak train struck and killed three family members near Bristol, Pennsylvania. According to news articles about the incident, this was the second fatal Amtrak strike that week in Bucks County, Pennsylvania.

[3] Company officials told us they do not keep a list of passenger engineers involved in a train strike. To develop an estimate, they recommended using the number of passenger engineers who took time off following a critical incident involving a death, a serious injury, or significant trauma. We recognize that this approach has limitations because, for example, passenger engineers are not required to take time off, and not all critical incidents are train strikes.

[4] For the purposes of our report, we define train strikes as incidents in which a train hits a person or occupied vehicle. Other types of train strikes also affect the company, such as when a train hits an unoccupied vehicle. Although we believe that our findings can be applied more broadly, to ensure consistency with our data analysis—which focused on incidents with an associated casualty—we use this narrower definition of train strikes.

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analyzed its train strike data. We also evaluated its policies and procedures for identifying and managing its risk of train strikes. In addition, we reviewed literature and interviewed industry specialists from federal and state transportation agencies, domestic and international passenger railroads, transportation safety organizations, and academia to develop a list of key practices that rail operators can use to identify, prioritize, and manage these risks along a given route. Finally, we visited Springfield, Illinois, to interview local officials and observe grade crossings and common trespassing locations. We chose Springfield because it is in one of the counties the company identified as having a significant history of train strikes. For more information on our methodology, see Appendix A.

## SUMMARY OF RESULTS

Like other railroads, the company faces inherent challenges to reducing train strikes because of factors that are difficult to control, such as suicide attempts, homeless individuals living near active tracks, and motorists who ignore crossing signals. It has laudable efforts underway to reduce its risks. As the company seeks to run a safer railroad, we identified the following two areas to build on its current efforts:

- **Better identify and manage risks.** Historically, the company has focused its efforts on grade crossings where incidents have already occurred, rather than proactively identifying locations with the greatest potential for future incidents. In addition, it has generally not prioritized reducing trespasser strikes that occur away from grade crossings, which comprise more than half of all strikes, according to its data. During our audit, the company began new initiatives to mitigate risks, but most are still in development and do not include strategies focused on trespasser strikes. Sustaining its ongoing initiatives and embedding them in a more comprehensive, proactive risk management process could help the company to better identify all major risks and make informed decisions about where to allocate its limited resources to reduce them. We identified a list of key practices to aid this effort, such as collecting input from train crews about specific hazards and doing a cost-benefit analysis of different mitigation steps. The company has efforts underway that align with these practices but can implement them more widely and consistently.

- **Reconcile its casualty data.** We found discrepancies between the two datasets the company uses to track train strike casualties—fatalities and injuries. These discrepancies exist because the company does not have an effective process for

reconciling the datasets, which could hinder its ability to manage its risks and increase the possibility of not meeting federal reporting requirements.

To improve the effectiveness of the company's efforts, we recommend that it develop a comprehensive, proactive process to identify and manage the risk of train strikes. As it institutes this process, the company should consider expanding implementation of the key practices we identified, as appropriate. We also recommend that it implement a process to regularly review and reconcile its train strike data to ensure their accuracy.

In commenting on a draft of our report, the Executive Vice President/Chief Safety Officer agreed with our recommendations and identified actions the company plans to take to address them. For management's complete response, see Appendix B.

## BACKGROUND

The company's Safety & Security department, under the Executive Vice President for Safety & Security, includes the following three groups with responsibilities for identifying and managing the risk of train strikes:

- **The Operational Safety group** develops procedures and tools to manage the risk of train strikes. It also leads periodic meetings of officials from multiple departments to discuss potential mitigation efforts.

- **The Central Reporting group** collects reports from train crews that provide information about any train strikes that occur during their shifts. The group submits data from these reports each month to the Federal Railroad Administration (FRA) to meet federal regulations.[5]

- **The Amtrak Police Department (APD)** collects train strike information from police reports as part of its investigative process. It also maintains a dashboard with the information it collects, which company officials—including those in the Safety & Security department—use for performing analyses and making risk-management decisions. Further, it participates in public outreach and education efforts to raise awareness of the importance of safety around tracks and grade crossings. For an example of a grade crossing, see Figure 1.

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[5] 49 CFR Part 225.

*Figure 1: Grade Crossing, Springfield, Illinois*



*Source*: OIG observation, November 14, 2023

In addition, FRA—as the federal agency that regulates railroads—collects monthly accident and incident data from railroads, including Amtrak. FRA uses these data for the following: (1) to conduct its regulatory and enforcement responsibilities under federal railroad safety statutes,[6] (2) to identify comparative trends of railroad safety, and (3) to develop programs to help prevent railroad injuries and accidents. FRA also makes these data publicly available on its website, along with resources to help railroads assess and minimize the potential for train strikes.

## THE COMPANY COULD BETTER IDENTIFY AND MANAGE ITS RISK OF TRAIN STRIKES

Like other railroads, the company faces inherent challenges to reducing train strikes. It has instituted targeted measures to reduce its risks but would benefit from a more comprehensive and proactive process for identifying and mitigating them.

## Train Strikes Are an Inherent Risk

Train strikes often stem from behavioral and societal factors outside a railroad's direct control. Common causes include the following:

- motorists who ignore crossing signals or attempt to beat trains at crossings

- individuals who attempt suicide on railroad property

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[6] 49 U.S.C. §§ 20101-21311.

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- trespassers who walk on or near tracks as a shortcut or for recreational purposes like fishing and hunting

- homeless individuals who set up temporary shelters near tracks

Given the complexity of these factors, the company faces challenges to addressing them. Moreover, the significant size of its rail network and its limited ownership of the tracks it uses amplifies these challenges. The company operates on about 21,000 miles of track across 46 states and the District of Columbia; its trains pass through more than 17,000 grade crossings. Although it maintains control over most of the tracks in the Northeast Corridor[7] and a small section in Michigan and Indiana, other railroads own approximately 97 percent of the track miles the company uses. This arrangement means that the company cannot unilaterally implement safety improvements on most of its network. Instead, most of its improvement efforts involve collaborating with other railroads, state and local governments, local property owners, and other stakeholders such as community organizations. These coordination efforts can be complex and time-consuming.

## The Company Has Taken Targeted Actions to Reduce Risk

Although recognizing its inherent risk of train strikes, the company has stated its commitment to better identify and manage them. In June 2022, the company set a goal to reduce its incident rate at grade crossings[8] and has implemented targeted measures to do so, including  the following:

- **Public outreach.** The company has collaborated with Operation Lifesaver—the country's leading rail safety organization—on public education efforts. For example, it participates in "See Tracks? Think Train Week" (formerly Rail Safety Week), which focuses on the importance of making safe choices when driving or walking near tracks and trains. This annual event includes Operation Clear Track, an initiative in which APD and other law enforcement agencies educate the public about rail safety. Company data show that the 2024 initiative resulted in more than 1,000 citations and warnings and garnered media attention; online communications potentially reached 182 million people. In addition, in 2023,

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[7] The company has also taken actions along the Northeast Corridor, such as installing fencing, which according to company officials was intended to seal the corridor and improve safety.

[8] This goal captures incidents involving train strikes with pedestrians, bicyclists, and vehicles, as well as equipment-related incidents at grade crossings.

the company conducted a rail safety awareness campaign in Alabama and Mississippi—two of the states where it plans to restore some service.[9]

- **Internal and external coordination.** The Safety & Security department holds recurring meetings involving officials from other relevant departments to discuss specific grade crossing safety topics and action items. Additionally, company officials told us they established a process for stakeholders, such as host railroads and road authorities, to assess safety risks and propose improvements at individual grade crossings after incidents occur. According to company officials, the company has also taken actions to address the risk of strikes involving large industrial vehicles in the aftermath of incidents in Mendon, Missouri, and Moorpark, California, including educating commercial drivers, rail shipping groups, and farm bureaus about the dangers of crossing tracks and grade crossings.

- **Grant partnerships.** The company has worked with select state and local partners after receiving requests for information they can use when applying for federal grant funding for projects that could reduce train strikes. For example, company officials provided information in response to a request from the state of New York in support of future grant opportunities for closing or upgrading 10 passive grade crossings—crossings that may have signs or pavement markings but not bells, flashing lights, or gates. The company also developed a white paper to educate local governments and communities on how to seek funding for safety improvement projects through federal grant programs.

These efforts are commendable, but historically they have been largely reactive. For example, the company has primarily focused its efforts on grade crossings where incidents have already occurred, rather than proactively identifying locations with the greatest potential for future incidents and attempting to mitigate them. In addition, its efforts have had little focus on trespasser strikes that occur away from grade crossings, despite its data showing that more than half of its incidents occur under such circumstances.

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[9] In 2005, Hurricane Katrina destroyed some critical rail infrastructure in Louisiana, Mississippi, and Alabama. Accordingly, the company suspended some service throughout the region. It plans to restore service between New Orleans and Mobile in 2025.

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## Recent Initiatives Could Strengthen the Company's Risk Management Process, but More Work is Needed

During our audit, the company introduced additional initiatives to better manage its risk of train strikes, but they are generally still in development and do not include strategies focused on reducing trespasser strikes. New initiatives include the following:

- **Hazard index.** In March 2024, company officials told us they began developing a tool that could allow it to proactively rank all grade crossings based on the likelihood of train strikes. This grade crossing "hazard index" considers factors like the number of past incidents, traffic counts, train frequency and speeds, population density, and crossing types. According to company officials, such a tool could help the company assess its current risks along existing routes and future risks along new routes, as well as develop targeted rail safety campaigns. Company officials told us, however, they have not completed the hazard index or developed a formal timeline or plan for its use. Moreover, the company's hazard index focuses only on grade crossing strikes—not on trespasser strikes on tracks that are away from grade crossings, which are more common.

- **Grade crossing safety manual.** In October 2024, the Operational Safety group in the Safety & Security department finalized a grade crossing safety manual,[10] which it plans to incorporate into the next version of the company's System Safety Program Plan.[11] The manual consolidates the company's processes for improving safety at grade crossings into a single document. The manual also outlines specific situations at individual crossings that could prompt a safety assessment, such as the company or other stakeholders proposing new service, increasing train frequency or speeds, installing new grade crossings or changing their configurations, installing quiet zones,[12] or responding to strikes or near-misses involving large vehicles. Additionally, the manual includes a plan for communicating with targeted external audiences that operate near tracks—such as shipping logistics organizations—or those with relevant constituencies, such as state farm bureaus and agriculture committees. Like the hazard index,

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[10] *Amtrak Highway-Grade Crossing Safety Manual (SMS-RM-P-A)*, October 1, 2024.

[11] A System Safety Program Plan—also known as a Safety Management System—is a federally required framework for managing safety risks. See 49 CFR Part 270. The company generally updates the plan annually.

[12] A quiet zone is an area where train horns are not typically sounded when a train approaches a grade crossing.

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however, the manual primarily focuses on grade crossings, and it only briefly
mentions trespassing and train strikes outside of grade crossings.

- **New technology.** The company has also started to explore artificial intelligence
  tools and a near-miss reporting system that could help it better identify
  trespassers. For example, it has partnered with an academic research institution
  to install three cameras equipped with artificial intelligence capabilities at grade
  crossings with a history of strikes to assess the behavior of trespassers and
  identify other locations where similar behavior could occur. These initiatives,
  however, are still in the early stages of development, and it is unclear whether
  the company will fully implement them and, if so, when.

These are positive steps, but they remain incomplete primarily because they are not
embedded in a more comprehensive process for proactively identifying and managing
the risk of train strikes—including trespasser strikes—as common risk management
practices suggest. Such a process typically involves systematically documenting,
assessing, and prioritizing risks through a risk register and using this register to make
trade-off decisions about how to make the most effective use of limited resources. The
company uses a triennial risk assessment process to rank its stations, infrastructure, and
other assets according to the probability and severity of a potential terrorist incident,
among other hazards. This process is an example of how such a structured
methodology can help the company consistently and proactively manage risks that
have the potential for loss of life or injury.

Despite its many positive efforts, without a more comprehensive process, the company
may not be effectively allocating its limited resources. This is especially important given
the challenges in reducing train strikes discussed above. Further, it may be investing
resources in reactive measures that do not fully address emerging risks or overlooking
more cost-effective mitigation strategies. This could lead to missed opportunities and
unnecessary spending on less impactful interventions. Ultimately, any inefficiencies
could hinder the company in its efforts to avoid fatalities and injuries and could add to
the heavy toll on the crew members that such incidents cause.

## Broader Adoption of Key Practices Could Help the Company Improve its Risk Management Process

To help the company build on its current efforts to strengthen its risk management
process, we identified a list of key practices for identifying, prioritizing, and managing

the potential for train strikes along a given route.[13] Table 1 shows these practices. We validated this list with federal agency officials, other industry specialists, and company officials, who agreed that our list was complete and reasonable. For more information on our methodology, see Appendix A.

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[13] Identifying, prioritizing, and managing risks are three attributes of an effective risk management process (as applied to train strikes) and provide the basis for developing appropriate risk responses.

### Table 1. Key Practices for Identifying, Prioritizing, and Managing the Risk of Train Strikes Along a Given Route[a]

| **Identify Risks** |
| --- |
| Conduct a rail corridor risk assessment, which could involve the following efforts:<br><br>• Collect data on the locations of past train strikes and near-misses along a given route.<br><br>• Survey rights-of-way to gather information such as traffic levels, demographic characteristics, surrounding land uses, and the presence of existing mitigation measures.[b]<br><br>• Gather input from train crews to identify locations where train strikes could occur and provide training and education to help them identify and report these locations. |
| **Prioritize Risks** |
| Conduct a cost-benefit analysis to determine which of the risk management practices below, if any, to implement along a given route. Specifically, compare the benefits of reducing train strikes with the effectiveness and feasibility of implementing potential mitigations. |
| **Manage Risks** |
| Make rights-of-way less accessible by using fencing or other barriers. |
| Increase visibility on rights-of-way by removing obstacles that block the view of trespassers and train crews. |
| Perform safety patrols to deter trespassing on rights-of-way. |
| Leverage technology such as information displays and artificial intelligence to address potential strike risks at stations, at grade crossings, and along rights-of-way.[c] |
| Conduct outreach and public education initiatives with local communities, state and local governments, law enforcement agencies, and the media to raise awareness about the risks of train strikes. |
| Collaborate with other rail operators, host railroads, property owners, state and local governments, community organizations, and any other relevant stakeholders to manage the risks of train strikes, including new or emerging risks. |

*Source*: OIG analysis of academic and industry literature and interviews with relevant industry specialists

Notes:

[a] For more information about how we developed this list, see Appendix A.

[b] Right-of-way refers to the land occupied by a railroad.

[c] Other technologies could include cameras and drones, which have a wide range of potential applications, contingent on cost and feasibility. For example, industry specialists told us that cameras equipped with artificial intelligence features could help railroads identify trespassers and alert local authorities. A company executive also told us that emerging technologies offer new opportunities to mitigate the risk of train strikes.

The company has many positive efforts underway that align with each of these practices, according to Safety & Security department officials. For example, the company already works with Operation Lifesaver and regularly collaborates with state and local partners. As another example, during our review the company began piloting on select routes a technology tool for engineers to report near-misses, according to Safety & Security department officials. As it seeks to run a safer railroad, the company has opportunities to more broadly implement or formalize these and other key practices we identified. Although it could act alone on some practices, others would require coordination with external partners, including host railroads.

## THE COMPANY COULD IMPROVE THE ACCURACY OF ITS TRAIN STRIKE DATA

In addition to improving its risk management process, the company has opportunities to improve the train strike data it uses for that process and reports to FRA. The Safety & Security department's Central Reporting group collects these data from operational reports to comply with FRA requirements, and APD maintains a separate dataset to meet the needs of its investigatory process. Our initial analysis of these datasets, however, revealed multiple discrepancies between them in the number of train strikes and casualties (injuries and fatalities) resulting from incidents at grade crossings or along tracks. Specifically, from FY 2020 through FY 2023, we found the following:

- The Central Reporting group data showed 799 train strikes, but the APD data showed 813 train strikes.

- The Central Reporting group data showed 875 casualties, but the APD data showed 863 casualties.[14]

Although approximately 90 percent of the casualties in the Central Reporting dataset were recorded consistently with those in the APD dataset, we identified discrepancies for each year of data we analyzed, as Table 2 shows.

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[14] A single train strike can have multiple casualties.

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***Table 2. Reported Injuries or Fatalities Resulting from Train Strikes, FY 2020–2023***

| Fiscal Year | Injuries | | | Fatalities | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Central Reporting Group | APD | Difference | Central Reporting Group | APD | Difference |
| 2020 | 79 | 68 | **11** | 132 | 142 | **10** |
| 2021 | 46 | 34 | **12** | 119 | 131 | **12** |
| 2022 | 61 | 64 | **3** | 170 | 172 | **2** |
| 2023 | 104 | 84 | **20** | 164 | 168 | **4** |
| **Total** | **290** | **250** | **40** | **585** | **613** | **28** |

*Source*: OIG analysis of Amtrak data

Note: These data do not include incidents involving Amtrak passengers and employees or other rail workers who would not be considered trespassers on railroad property. The Central Reporting group provides its data to FRA, which makes the data publicly available, except for suicides.

In December 2024, we alerted company officials to these discrepancies, and in January 2025, they responded and explained how these discrepancies occurred. For example, APD data showed two train strikes that happened in Canada,[15] but the Central Reporting group was not required to report them to FRA because they occurred outside the United States. Nevertheless, based on our analysis, the company corrected data on 27 incidents and updated them to FRA to comply with its regulatory reporting requirement. For example, it had not previously reported to FRA 2 fatalities and 3 injuries and had miscoded 11 fatalities as injuries. Based on this updated information, the company increased the fatalities it reported to FRA from 585 to 594 and decreased injuries from 290 to 279 from FY 2020 through FY 2023.

In assessing the two sets of data, we found that the discrepancies occurred partly because the company has not developed, implemented, and documented an effective process to reconcile these datasets. Company officials stated that they recognize the importance of aligning the data and began a reconciliation process in 2023. The specifics of the process they described, however, are undocumented and largely manual, leading to inaccuracies, as evidenced by the data discrepancies we identified.

Further, the company uses or plans to use APD strike data for various efforts, including as an input for the hazard index it is developing. Internal control standards require the company to rely on data that are complete and accurate; therefore, the absence of an

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[15] Three of the company's routes cross into Canadian territory: *Adirondack*, Amtrak Cascades, and *Maple Leaf*.

effective process for reviewing and reconciling these data could hinder its ability to perform comprehensive risk management, contrary to common internal control standards. Moreover, the types of discrepancies we identified could hinder the company's compliance with its federal reporting requirements; FRA stated it has a "zero tolerance" policy for inaccurate reporting.[16] Without more effective reconciliation procedures, the data the company submits to FRA may not be accurate, which could put the company at risk of not acting consistently with federal regulations.

## CONCLUSIONS

Although the company faces inherent challenges to reducing train strikes, to its credit it has implemented targeted measures to reduce risks across its network. Developing and implementing a more fulsome, proactive process—including implementing key practices we identified, where appropriate—could help it more effectively identify and manage its overall train strike risks. In addition, the company has an opportunity to improve its process for reconciling its two train strike datasets, which could aid its efforts to report complete and accurate data to FRA and comprehensively manage its risks.

## RECOMMENDATIONS

To further improve the company's process for identifying and managing its risk of train strikes, we recommend that the Executive Vice President/Chief Safety Officer take the following actions:

- Develop, implement, and document a comprehensive process for proactively identifying and managing the risk of train strikes. In the context of this new process, the company should consider formalizing successful initiatives that it is currently piloting, as well as expanding implementation of the key practices we identified in this report.

- Develop, implement, and document a process to regularly review and reconcile its train strike data to ensure their accuracy.

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[16] FRA, *Guide for Preparing Accident/Incident Reports* (DOT/FRA/RRS-22), May 23, 2011. An FRA official confirmed that this version of the guidance document is current.

## MANAGEMENT COMMENTS AND OIG ANALYSIS

In commenting on a draft of this report, the company's Executive Vice President/Chief Safety Officer agreed with our recommendations and identified actions the company plans to take to address them, which we summarize below:

- **Recommendation 1:** Management agreed with our recommendation to develop, implement, and document a comprehensive process for proactively identifying and managing the risk of train strikes. Management stated that the Operational Safety group will continue to collaborate with internal and external stakeholders as part of this effort. Management stated that this will include developing an action plan to prioritize the deployment of effective key practices and successful initiatives. The target completion date is September 30, 2025.

- **Recommendation 2:** Management agreed with our recommendation to develop, implement, and document a process to regularly review and reconcile its train strike data to ensure their accuracy. Management stated that the Operational Safety group, the Central Reporting group, and APD will perform this work together. The target completion date is July 31, 2025.

For management's complete response, see Appendix B. Management also provided technical comments that we have incorporated in this report as appropriate.

# APPENDIX A

## Objective, Scope, and Methodology

This report provides the results of our audit of the company's process for managing the risk of train strikes. Our objective was to assess the company's efforts to identify and manage its risk of train strikes. The scope of our work focused on processes in the Safety & Security department to manage the company's risk of train strikes. The scope of our data analysis work, however, was strikes that resulted in a fatality or injury. It did not include strikes involving unoccupied vehicles, which can also impact the company. We performed our work from October 2023 through February 2025 in Washington, D.C., and Springfield, Illinois.

To assess the company's policies and procedures, we reviewed its grade crossing and rail safety documentation and interviewed 35 company officials with responsibilities related to train strike risk identification and management. We spoke with officials from the following groups:

- APD, the Operational Safety group, and the System Safety & Technical Training group in the Safety & Security department

- the Government Affairs & Corporate Communications department

- the Host Railroads group and the Network Development group in the Planning & Asset Development department

- the Network Operations & Transformation group, the Operations California group, and the Transportation department in the Service Delivery & Operations department

- the State Supported Service Line group in the Commercial department

- the Total Rewards group in the Human Resources department

We also attended six meetings of the Grade Crossing Safety Diagnostics Team led by the Operational Safety group. In those meetings, officials from multiple departments discussed issues pertaining to train strike risk identification and management.

To assess its process for reporting train strike data, we interviewed officials from the Safety & Security department's Central Reporting group (which reports train strike data to FRA) and APD (which maintains an internal train strike dashboard). Because the two groups collect train strike data using different methods and use the data for different

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purposes, we obtained both datasets and compared them to identify similarities and differences. We also interviewed an FRA official who is responsible for the agency's train strike data analysis and reporting efforts, and we obtained the train strike data that the Central Reporting group had reported to FRA. For our analyses, we used all train strike data from FY 2020 through FY 2023. We focused on this period because they were the only complete years of data in the APD dashboard when we started our work.

To develop a list of key practices that rail operators can use to identify, prioritize, and manage the risk of train strikes, we reviewed academic literature on train strikes, reports from government agencies and research organizations, and relevant documentation from railroads. We used the following key sources for our analysis:

- Abioye, Olumide F., Maxim A. Dulebenets, Junayed Pasha, et al.; "Accident and Hazard Prediction Models for Highway-Rail Grade Crossings: A State-of-the-Practice Review for the USA;" August 25, 2020.

- Amtrak, *Triennial Risk Assessment Summary Report*, n.d.

- Berndt, Mark, Rahim F. Benekohal, Jacob Mathew, et al. *Prioritization Procedure for Proposed Road Rail Grade Separation Projects Along Specific Rail Corridors*. National Academies of Sciences, Engineering, and Medicine, 2019.

- FRA, *Trespass and Suicide Prevention Toolkit*, April 2023.

- FRA, *Law Enforcement Strategies for Mitigating Highway-Rail Grade Crossing Risk Factor*, DOT/FRA/ORD-19/24, June 2019.

- FRA, *National Strategy to Prevent Trespassing on Railroad Property*. October 2018.

- FRA, *Community Trespassing Prevention Guide*, December 2011.

- Federal Transit Administration, *Commuter Rail Safety - Educating the Public*, September 30, 1997.

- International Union of Railways, *Best Practices for Level Crossing Risk Assessment*, December 2022.

- Rail Safety and Standards Board, *Trespass Risk Assessment*, RIS-3786-TOM, September 3, 2022.

- RESTRAIL, *Practical Guide*, September 2014.

- Zhang, Zhipeng, Asim Zaman, Jinxuan Xu, and Xiang Liu; "Artificial Intelligence-Aided Railroad Trespassing Detection and Data Analytics: Methodology and a Case Study;" April 2022.

We also interviewed 47 industry specialists from 24 organizations. We selected these organizations and individuals based on several factors, including the following: (1) recommendations from industry professionals and company officials; (2) the centrality of their mission to our work, such as federal agencies with safety oversight of the rail industry; and (3) their direct experience in developing and implementing rail safety measures. We selected the following organizations:

- **Federal transportation agencies:** Federal Highway Administration, FRA, National Transportation Safety Board, and Volpe National Transportation Systems Center

- **State transportation agencies:** Illinois Commerce Commission, Illinois Department of Transportation, Louisiana Department of Transportation, North Carolina Department of Transportation, Virginia Passenger Rail Authority, and Wisconsin Department of Transportation

- **Domestic and international railroads:** Brightline, Massachusetts Bay Transportation Authority, Metra, Metro-North Railroad, Network Rail, and ProRail

- **Domestic and international transportation industry organizations:** American Association of State Highway and Transportation Officials, International Union of Railways, National Safety Council, Operation Lifesaver, State-Amtrak Intercity Passenger Rail Committee, and TrackSafe

- **Academic research institutions:** Rutgers University and University of South Florida

We combined the recommendations of industry specialists with our literature review to generate a list of key practices. To confirm whether this list was complete and reasonable, we vetted it with a smaller group of 13 industry experts with direct experience with these issues from 6 organizations—FRA, Massachusetts Bay Transportation Authority, Metra, National Transportation Safety Board, ProRail, and Volpe National Transportation Systems Center. The industry specialists from these organizations agreed that our list was complete and reasonable.

Our methodology for developing the list of key practices was dependent on the industry specialists we interviewed and the publications we reviewed. We did not evaluate the effectiveness of any of the key practices. We recognize that if we had interviewed other specialists, we might have identified different practices.

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Nevertheless, we believe that the steps we took to survey the railroad community and vet our list with industry-identified specialists enabled us to develop a list of key practices that is sufficient to inform the company's efforts.

Finally, to understand the operational challenges associated with managing train strike risks, we visited Springfield, Illinois—the seat of one of the counties the company identified as being one of its priorities based on its assessment of grade crossing data. We toured multiple grade crossings and trespassing locations with a police officer from Norfolk Southern. We also interviewed Amtrak train crew and station agents, as well as officials from the City of Springfield's police and engineering departments, the Illinois Commerce Commission, the Illinois Department of Transportation, and the Sangamon County Regional Planning Commission.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

## Internal Controls

We reviewed internal controls related to the company's efforts to comprehensively identify and manage its risk of train strikes. Specifically, we assessed internal control components and underlying principles and determined that the following three components were significant to our audit objective:

- **Risk assessment.** Management should identify, analyze, and respond to risks related to achieving the defined objectives. Management should identify, analyze, and respond to significant changes that could impact the internal control system.

- **Control activities.** Management should design the entity's information system and related control activities to achieve objectives and respond to risks. Management should implement control activities through policies.

- **Information and communication.** Management should use quality information to achieve the entity's objectives. Management should internally communicate the necessary quality information to achieve the entity's objectives. Management

should externally communicate the necessary quality information to achieve the entity's objectives.

We developed audit work to ensure that we assessed each of those controls. This included reviewing the following:

- the extent to which the company has designed and implemented policies and procedures for identifying, analyzing, and managing the risk of train strikes

- the extent to which it has designed and implemented policies and procedures for collecting and reconciling train strike data

- its practices for reporting train strike data to FRA

- the extent to which it uses the APD train strike data to make decisions

We determined that it was necessary to evaluate information system controls as part of our audit scope. We performed the following steps and did not identify any control deficiencies in the information systems the company uses to record train strike data:

- We reviewed the FY 2023 Consolidated Financial Statement Audit report, in which the company's independent public accounting firm stated that it did not identify any control deficiencies with the information system the company uses to record injury claims related to train strikes.

- We verified that the train strike data from FY 2020 through FY 2023 on the FRA website matched the data reported to FRA by the Safety & Security department's Central Reporting group for those years.

- We identified discrepancies between the APD and Central Reporting group's train strike datasets. After interviewing the officials responsible for maintaining the datasets and reviewing documentation to obtain a sufficient understanding of the discrepancies, we determined that the discrepancies were not because of the design, implementation, or operating effectiveness of information system controls.

We did not review the company's overall system of controls and procedures. Because our review was limited, we may not have identified and therefore disclosed all of the relevant internal control deficiencies that existed at the time of our audit.

## Computer-processed Data

To determine the number and type of train strikes from FY 2020 through FY 2023, we used computer-processed data from the Safety & Security department's Central Reporting group and APD. We assessed the reliability of the data by interviewing department officials who maintain the datasets and an FRA representative who uses the Central Reporting group's submitted data. We also compared the records in the datasets to determine the extent to which they contained the same information.

During our audit, we identified discrepancies between the two datasets. Through our analysis, we determined that these discrepancies were primarily attributable to differences in data collection methods and a manual, informal data reconciliation process rather than underlying data reliability issues. Although the datasets were not in perfect alignment, they demonstrated general consistency in key areas relevant to our audit objective, which was to assess the company's efforts to comprehensively identify and manage its risk of train strikes. Based on our professional judgment and the work we performed, we determined that the data were sufficiently reliable for the purposes of our audit, and we reported on the discrepancies we identified between the two datasets. We, however, acknowledge the limitations of the data and have appropriately qualified our use of the data to support our findings and conclusions.

Further, to estimate how many of the company's passenger engineers may have been involved in a train strike in FY 2023, we analyzed data from two sources. The first was the company's Critical Assistance and Response for Employees Program data, which we used as the numerator to identify how many passenger engineers took time off in FY 2023 following a critical incident involving a death, serious injury, or significant trauma. The second was its employee master system, SAP, which we used as the denominator to identify how many passenger engineers it had in FY 2023. We recognize that this approach has limitations because, for example, passenger engineers are not required to take time off, and not all critical incidents are train strikes. Nevertheless, company officials told us these were the best data to use for estimation purposes. Based on our professional judgment and the work we performed, we determined that the data were sufficiently reliable for the purpose of our audit.

## Prior Reports

In conducting our analysis, we reviewed information from the following Amtrak OIG reports:

- *Safety and Security: The Company Has Made Significant Progress Implementing New Safety Program* (OIG-A-2021-008), April 8, 2021

- *Safety and Security: The Company Can More Effectively Use Injury Claims Data to Help Reduce Risks* (OIG-A-2021-007), February 25, 2021

- *Safety and Security: The Company Can Take Steps to Evaluate Its Current Safety Culture* (OIG-A-2021-001), October 2, 2020

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*Amtrak Office of Inspector General*
**Safety and Security: Company is Taking Steps to Address its Risk of Train Strikes but
Does Not Have a Comprehensive Risk Management Process**
OIG-A-2025-005, April 14, 2025

# APPENDIX B

# Management Comments

NATIONAL RAILROAD PASSENGER CORPORATION

## Memo

AMTRAK

| | | | |
|---|---|---|---|
| Date: | April 4, 2025 | From: | Steven Predmore, EVP CSO |
| To: | John Marzullo, Assistant Inspector General, Audits | Department(s): | Safety & Security |
| | | cc | Roger Harris, President |

cc: Roger Harris, President
Eliot Hamlisch, EVP Marketing & CCO
William Herrmann, EVP General Counsel
Laura Mason, EVP Capital Delivery
Jennifer Mitchell, EVP Strategy & Planning
Gerhard Williams, EVP Service & Delivery Ops
Tracie Winbigler, EVP Business Transformation & CFO
Christian Zacariassen, EVP CIO

Subject: Management Response to *Safety and Security: Company is Taking Steps to Address its Risk of Train Strikes but Does Not Have a Comprehensive Risk Management Process (Draft Audit Report for Project No. 004-2024).*

This memorandum provides Amtrak's response to the draft interim audit report titled, "*Company is Taking Steps to Address its Risk of Train Strikes but Does Not Have a Comprehensive Risk Management Process*". Management agrees with all the noted OIG recommendations below and appreciates the opportunity to provide a response.

To further improve the company's process for identifying and managing its risk of train strikes, the OIG recommends that the Executive Vice President/Chief Safety Officer take the following actions:

**Recommendation #1:**

Develop, implement, and document a comprehensive process for proactively identifying and managing the risk of train strikes. In the context of this new process, the company should consider formalizing successful initiatives that it is currently piloting, as well as expanding, implementation of the key practices identified in this report.

**Management Response/*Action Plan*:**

Management agrees with the OIG recommendation.

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*Amtrak Office of Inspector General*
**Safety and Security: Company is Taking Steps to Address its Risk of Train Strikes but Does Not Have a Comprehensive Risk Management Process**
OIG-A-2025-005, April 14, 2025

NATIONAL RAILROAD PASSENGER CORPORATION

Operational Safety will continue to collaborate with both internal and external stakeholders to develop, implement and document a comprehensive process for proactively identifying and managing the risks of train strikes.

  a. Evaluate existing, emerging and innovative key practices identified by U.S. Department of Transportation, Association of American Railroads and transportation industry benchmarking.

  b. Catalog successful initiatives in the Amtrak Grade Crossing Safety Manual.

  c. Develop an action plan for prioritizing the deployment of effective key practices and successful initiatives as possible.

  d. Monitor and measure the effectiveness of key practices and initiatives.

*Responsible Amtrak Official(s)*:

Justin Meko, VP Operational Safety

*Target Completion Date*:

September 30, 2025

**Recommendation #2:**

Develop, implement, and document a process to regularly review and reconcile its train strike data to ensure its accuracy.

Management Response/*Action Plan*:

Management agrees with the OIG recommendation.

Operational Safety working in conjunction with Central Reporting and Amtrak's Police Department will develop, implement and document a process to regularly review and reconcile its train strike data to ensure its accuracy.

  a. Develop process to review and standardize reconciliation of train strike data.

  b. Socialize and implement process with relevant stakeholders.

  c. Establish a standing review cadence to validate the accuracy of data.

*Responsible Amtrak Official(s)*:

Justin Meko, VP Operational Safety; Doyle S. Dotson, VP Corporate Security & Chief of Police

*Target Completion Date*:

July 31, 2025

# APPENDIX C

# Abbreviations

| | |
|---|---|
| APD | Amtrak Police Department |
| FRA | Federal Railroad Administration |
| FY | fiscal year |
| OIG | Amtrak Office of Inspector General |
| the company | Amtrak |

# APPENDIX D

# OIG Team Members

Anne Keenaghan, Deputy Assistant Inspector General, Audits

Leila Kahn, Senior Director, Audits

Melissa Hermes, Director, Audits

David Grossman, Senior Audit Manager

Alejandra Rodriguez, Senior Manager, Data Analytics

Alexander Cullen, Senior Auditor, Lead

Alexandra Gabitzer, Senior Auditor, Lead

Sean Thorpe, Auditor

Alison O'Neill, Communications Analyst

Nadine Bennett, Senior Associate Counsel

Sid Schwartz, Contractor

# OIG MISSION AND CONTACT INFORMATION

## Mission

The Amtrak OIG's mission is to provide independent, objective oversight of Amtrak's programs and operations through audits and investigations focused on recommending improvements to Amtrak's economy, efficiency, and effectiveness; preventing and detecting fraud, waste, and abuse; and providing Congress, Amtrak management, and Amtrak's Board of Directors with timely information about problems and deficiencies relating to Amtrak's programs and operations.

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or

**800-468-5469**

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