Issued: November 29, 2025 Railroad Investigation Report: RIR-25-19

New Jersey Transit Light Rail Vehicle Collision

Location	Florence, New Jersey
Date	October 14, 2024
Accident type	Employee fatality
Train	Train 207 2 articulated railcars 1 operator 41 passengers
Track	Federal Railroad Administration regulated track; Class 4 main, signalized
Hazardous materials	N/A
Fatalities	1
Injuries	23 minor injuries
Property Damage	$194,000

Summary

On October 14, 2024, about 5:58 a.m., an Alstom employee operating southbound New Jersey Transit (NJ Transit) train 207 was fatally injured when the train struck a tree that had fallen across the tracks of the River Line at milepost (MP) 24.53 near Florence, New Jersey.[1] (See figure 1.) Train 207 was a light rail vehicle consisting of two railcars with 41 passengers on board.[2] During the collision, a tree branch penetrated the lead railcar's forward windshield and struck the operator. Twenty-three passengers were

[1] (a) Visit ntsb.gov to find additional information in the public docket for this NTSB accident investigation (case number RRD25FR001), including detailed factual reports about the circumstances of the accident. (b) All times in this report are local. (c) At the time of the accident, NJ Transit contracted rail operations to Alstom, a rail equipment and transport company. The accident train's operator and other personnel discussed in this report were Alstom employees.

[2] A *light rail vehicle* is a railcar, locomotive, or other piece of rail equipment used in passenger service but not built to the standards of equipment regulated by the Federal Railroad Administration (FRA). Light rail vehicles are common in transit service. This accident involved a multiagency regulatory environment: NJ Transit falls under the Federal Transit Administration's purview but operates some of its trains over FRA-regulated track. For these operations, NJ Transit is subject to FRA regulations but has obtained waivers for compliance with some FRA requirements, including equipment standards, and is therefore permitted to operate light rail vehicles over FRA-regulated track.

transported to a local hospital with minor injuries. Alstom estimated damages to equipment to be about $194,000. At the time of the accident, visibility conditions were dark with the train's headlights providing the only illumination, and the weather was 60°F with no precipitation.

Figure 1. Aerial view of damaged train and portion of struck tree in their final positions. (Source: 6abc Action News.)

On the day of the accident, the operator reported for duty at 4:48 a.m. at an NJ Transit maintenance facility in Trenton, New Jersey. She started her scheduled trip from Hamilton Avenue Station at 5:47 a.m., operating train 207. This was the first train to operate on the River Line that day. About 5:55 a.m., the train departed Bordertown Station, the last station north of the accident area. According to event recorder data, the operator initiated an emergency braking application at 5:58:56 a.m. while rounding a right-hand curve north of the point of impact. The train was traveling 65 mph when the braking application began, and the train decelerated for several seconds before striking the tree.[3] The train came to a stop about 880 feet past the estimated point of impact. (See figure 2.)

[3] (a) The event recorder was damaged during the collision. Combined with the 1-second sampling rate for the recorder (each snapshot of the train's systems was 1 second apart), this damage reduced the value of event recorder data near and after the moment of impact. The rate of deceleration and speed at impact are unknown. (b) The maximum authorized speed in the area was 65 mph as set by timetable.

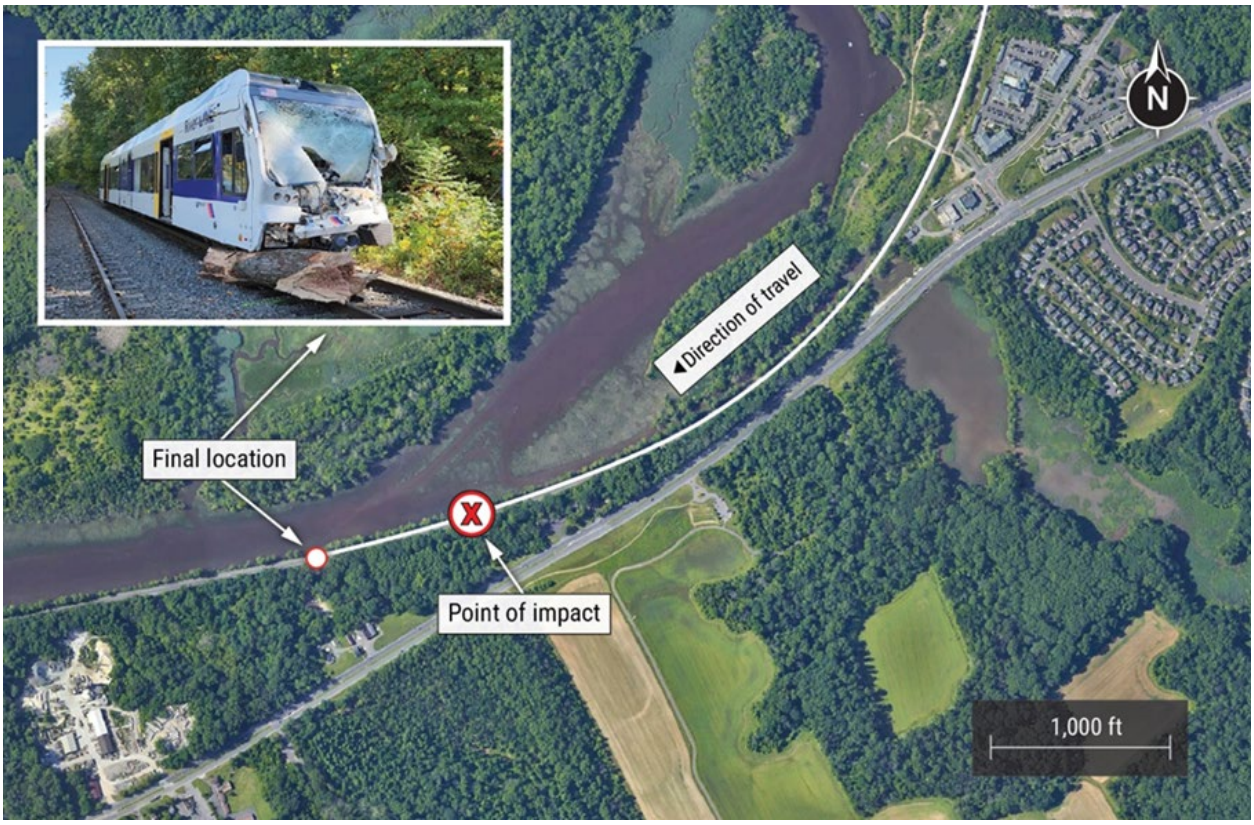

Figure 2. Satellite image of accident location. (Source: Google Earth.)

While on-scene, the National Transportation Safety Board (NTSB) identified abrasive transfer marks on the rails consistent with emergency braking starting near MP 24.61, or about 430 feet north of the point of impact. Because the head end of the train was about 90 feet from its rearmost axle, this corresponds to an emergency braking application beginning when the head end of the train was near MP 24.59, or about 340 feet from the point of impact. The marks ended at the point of impact.

The NTSB conducted a partial reenactment of the accident at low speed under predawn lighting conditions. (See figure 3.) During this reenactment, the fallen tree became visible to an approaching train operator about 350 feet north of the point of impact. According to waivers NJ Transit filed with the Federal Railroad Administration (FRA) when obtaining approval to operate, on FRA-regulated track, the type of light rail vehicle involved in this collision, the headlights were designed to illuminate a person

standing 500 feet away.[4] Daylight observations of the scene found that the point of impact was visible from about 1,400 feet away.

Figure 3. View from test train cab during reenactment.

Postaccident examinations of the train did not identify mechanical defects. Examination of the train's brakes found normal wear patterns on contact surfaces, but damage to the train prevented a brake test and dynamic testing. Braking tests performed by the vehicle's manufacturer in 2003 indicated the type of light rail vehicle involved in this collision had an emergency braking distance of 499 feet from 60 mph under ideal conditions.[5] The manufacturer did not test braking performance above 60 mph.

[4] FRA regulations at Title 49 *Code of Federal Regulations* (*CFR*) Part 229.125 for locomotives require headlights to meet luminous intensity (perceived brightness per unit of solid angle) thresholds and to "be aimed to illuminate a person at least 800 feet ahead and in front of the headlight."

[5] *Braking distance* is the distance covered between application of a vehicle's brakes and the vehicle reaching a complete stop.

The train operator was hired by Bombardier Transportation in August 2004 and became an engineer in November 2004.[6] As an employee operating trains over FRA-regulated track, the operator was subject to FRA requirements for engineer certification and operational testing under Title 49 *Code of Federal Regulations* (*CFR*) Part 240. The train operator's certification was current, and her last certification date was October 19, 2022. In 2024, she passed all four unannounced operational tests related to unexpected stops: two "banner tests," in which Alstom deployed a simulated obstruction across the right-of-way to test the operator's response to unexpected obstacles, and two "stop tests" to test the operator's compliance with signals requiring a stop. Postmortem drug and alcohol testing of specimens from the operator did not find the presence of impairing substances.

The tree involved in this accident was a chestnut oak with 3-foot diameter trunk. It was growing on private property about 40 feet east of the tracks and 11 feet past NJ Transit's property line. On-scene observations did not find visible decay on the tree's exterior. An arborist examined the tree's stump after the collision and identified internal decay extending from the trunk into the tree's root system. The arborist's report did not include a reason why the tree fell when it did. Weather conditions the night before the accident were calm with winds of about 4 mph and no precipitation.

When interviewed by the NTSB, the Alstom maintenance-of-way superintendent described the vegetation monitoring along the River Line as including routine track and signal inspections conducted twice per week. These inspections would identify fallen trees or any vegetation obstructing signals. Monitoring also included walking surveys every spring and fall. Hazardous trees were marked with paint and recorded in supervisor logs. He mentioned "leaning trees" as an example of trees that would likely need to be removed, but he did not describe fixed criteria for determining which trees were hazardous or training that would aid employees in identifying hazardous trees when conducting seasonal walking surveys. He said that Alstom would bring in a contractor to remove hazardous trees located on private property if the danger was imminent; otherwise, Alstom would work with the property owner to address the issue.

The last track inspection of the accident area occurred on October 11, 2024. It did not identify any defects related to trees or other vegetation. The last seasonal survey of the area occurred during the spring of 2024. It resulted in brush removal and tree trimming but no tree removals.

Review of Alstom records for the 18 months before the collision identified four cases of trains striking downed trees and six cases of downed trees being reported on or

[6] Alstom acquired Bombardier Transportation in 2021.

near tracks along the River Line. None of these tree strikes led to injuries, but two resulted in cracked windshields on January 9 and July 17, 2024.

As a result of the accident, NJ Transit and Alstom submitted a corrective action plan to the New Jersey Department of Transportation (NJDOT) November 4, 2024.[7] As part of this plan, Alstom established a temporary 30-mph speed restriction near the accident area and contracted an arborist to assess trees along the River Line during three visits. The arborist's first visit, in October, focused on examining the fallen tree involved in the accident. Two visits in November and December involved a more comprehensive survey from MP 23.9 to MP 27.4. The assessment prioritized identifying unhealthy trees near track locations where trains travel at high speed, maneuver through curves, or pass through densely forested areas. After the assessment, Alstom had 111 trees removed. On February 27, 2025, after completing the tree removal, Alstom lifted the speed restriction, and NJDOT officially closed the corrective action plan on May 15, 2025. NJDOT stated that it would continue to monitor the River Line to ensure that any additional tree hazards were identified and remediated.

NJDOT also added a risk item, "Trees along the right-of-way (overgrowth, compromised root systems, fallen trees, and cuttings left along the track area)," to the quarterly inspection schedule of its Federal Transit Administration–mandated risk-based inspection program.[8] It set up a dedicated risk-tracking log for tree hazards and completed four inspections in 2025.

Analysis

This collision resulted from the operator having insufficient time and distance to stop the train after the tree became visible. The investigation did not find evidence of defects with the train or track, and the operator was not impaired by drugs or alcohol.

Postaccident observations and the design specifications of the train's headlights suggest that the fallen tree became visible when the train was 350–500 feet away. Daylight observations showed that even though the accident happened near a curve, a train approaching from the north, as this train did, would have had a sightline of about 1,400 feet to the fallen tree's location. The 1,000-foot difference between these

[7] NJDOT is NJ Transit's state safety oversight agency and is responsible for ensuring safe operations.

[8] Under federal regulations at 49 *CFR* Part 674, state safety oversight agencies must establish risk-based inspection programs, a requirement included in the 2021 Bipartisan Infrastructure Law (49 United States Code 5329). NJDOT's risk-based inspection program is documented in its current April 2025 program standard. As of the date of this report, NJDOT's program is still under review by the Federal Transit Administration, but NJDOT has begun implementation.

observations indicates that darkness and the reach of the train's headlights were the factors limiting visibility during the accident.

Rail abrasions indicate that the operator initiated emergency braking—the appropriate response to a hazardous obstruction—when the train was about 340 feet from the tree. Given the train's speed of 65 mph (about 95 feet per second), the operator applied the train's brakes less than 2 seconds after seeing the tree. The operator's actions were therefore correct and timely, and they did not contribute to the accident.

Although available records did not include the train's minimum braking distance at 65 mph, this distance would have exceeded the 499-foot braking distance expected at 60 mph under ideal conditions because braking distance increases with speed. The tree was therefore already within the train's minimum stopping distance when the operator saw the tree, and the train retained enough speed at impact for a tree branch to penetrate the forward windshield and fatally strike the operator.

The train traveled 880 feet after striking the tree and before coming to a stop. There were no marks on the rails after the point of impact consistent with an emergency braking application, which suggests that the train was applying less braking force after the collision. A postaccident inspection found no defects with the train's brakes, but damage to the train prevented brake tests. The collision damage may have affected the train's braking systems, but there was not enough evidence to determine exactly how.

The arborist's report found that the tree involved in this accident had decayed internally. The tree fell as a result of this decay, but there was no evidence of a specific event that caused the tree to fall when it did. Investigators on the scene did not see external decay or obvious indications that the tree was unhealthy, and it is therefore unlikely that Alstom's regular track inspections and seasonal surveys could have identified the tree as a hazard.

Probable Cause

The National Transportation Safety Board determines that the probable cause of New Jersey Transit train 207 striking a fallen tree, resulting in a tree branch piercing the front windshield and fatally injuring the train operator, was the predawn low light conditions that prevented the operator from seeing the tree in time to stop the train.

Lessons Learned

The investigation identified four cases of trains striking downed trees before this accident. These collisions were minor but indicated the presence of a risk that, on October 14, 2024, led to a fatal collision. This accident underscores the importance of incorporating all measurable hazards into system safety programs.

Comprehensive safety oversight programs are required under federal regulations at 49 *CFR* Part 674. As a result of this accident, NJ Transit and Alstom completed a corrective action plan to remove tree hazards along the River Line, and NJDOT, as the state safety oversight agency, will continue to monitor efforts to identify and remediate hazards along the River Line.

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For more detailed background information on this report, visit the NTSB Case Analysis and Reporting Online (CAROL) website and search for NTSB accident ID RRD25FR001. Recent publications are available in their entirety on the NTSB website. Other information about available publications also may be obtained from the website or by contacting—

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