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Millions of New Jerseyans at Risk from Hazardous Materials Transported by Rail

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More than 3.6 million New Jerseyans live within the evacuation zone of a hazardous materials train route — yet the state lacks basic safety rules and transparency measures.¹

New Jersey faces unique threats from trains carrying hazardous materials because of its dense population.² While freight rail is considered one of the safest ways to transport hazardous materials, it still poses risks to human and environmental health.³ The 2023 East Palestine, Ohio and the 2012 Paulsboro, New Jersey derailments show the dangers posed by toxic cargo that immediately harm surrounding areas.⁴ Rollbacks of labor, safety, and rail regulations can make these disasters worse.

Unlike neighboring states, New Jersey has resisted efforts to increase safety and has restricted public information about train routes carrying hazardous materials and the type and amount of dangerous cargo. The federal government has stalled in creating policies to make hazmat transportation safer, so state lawmakers must act. To protect rail workers and reduce risks to the public, New Jersey should update its hazmat freight rail policies, especially regarding safety and transparency, to protect the millions of residents who live in harm's way.

Hazardous Materials Endanger New Jersey Residents' Health and Environment

For many New Jerseyans, the threat of a hazmat rail incident is real, not theoretical. In 2024, New Jersey had 55 rail incidents, far more than the previous year.⁵ Five of those incidents involved hazardous materials where toxic chemicals spilled or were vented.⁶

Exposure to hazardous materials (hazmat) released during a derailment can have short- and long-term health risks. Hazmat is defined as any material that when transported, may pose an unreasonable risk to health and safety or property.⁷ This includes chemicals that can poison the air and water, cause fires and explosions, or damage vital organs with long-term exposure. The federal government defines hundreds of chemicals as hazmat, including vinyl chloride, one of the materials released from the derailed trains in East Palestine and Paulsboro.⁸ The gas poses a threat to human health — including long-term risks of damage to vital organs — and is

highly flammable, reactive, and an explosion hazard.⁹ The U.S. Department of Health and Human Services, the U.S. Environmental Protection Agency, and the International Agency for Research on Cancer have all classified vinyl chloride as a human carcinogen.¹⁰

The 2012 derailment of a freight train in Paulsboro, New Jersey demonstrates the risk New Jerseyans face with hazmat. While crossing a bridge, the conductor of a Conrail freight train incorrectly determined it was safe to proceed despite the red signal indicating danger.¹¹ Four freight cars fell into the creek. One punctured and released 23,000 gallons of vinyl chloride into the water and air.¹²

A toxic vapor cloud spread over the town and town officials failed to immediately evacuate residents. Many still report long-term health issues from exposure to the chemical and inadequate warning from town officials.¹³ A Centers for Disease Control and Prevention (CDC) study found that most first responders did not use breathing protection, and only a quarter had specific hazardous response training despite stating they felt they had received sufficient instruction.¹⁴ The study concluded that changes to safety procedures were needed to improve risk assessment for first responders.¹⁵ However, no state or federal agency has conducted a long-term evaluation of the health effects on Paulsboro residents and emergency personnel — meaning we still don't know the full cost of that disaster more than a decade later.

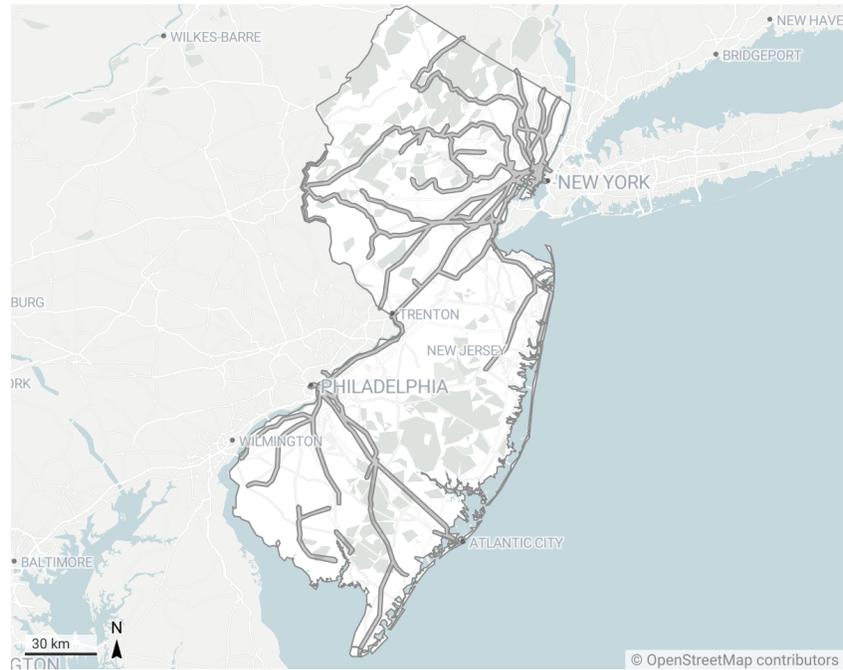
Despite the devastating impacts of these incidents, New Jersey has not made significant improvements to rail safety policies since the 2012 Paulsboro incident. While the East Palestine derailment and explosion educated many on the dangers of hazmat — even prompting bipartisan proposals in Congress to improve rail safety — the proposal has not moved forward.¹⁶

Over One-Third of New Jersey Residents Live Near Hazmat Rail Lines

Without increased safety measures, a significant portion of New Jersey's population remains at risk during a hazmat rail incident. With about 1,000 miles of freight rail lines in New Jersey, the threat to homes, schools, hospitals, and businesses is widespread.¹⁷ More than one-third of New Jersey's residents, or over 3.6 million people, live in a potential evacuation zone.¹⁸ An evacuation zone for the most common types of hazmat, including vinyl chloride, extends half a mile on each side of a freight rail line.¹⁹ However, this is the minimum requirement for large spills, and a fire would necessitate an evacuation zone of at least one mile.²⁰

Hazmat Rail Evacuation Zone Must Be Within at Minimum Mile of Freight Lines

Map of proposed evacuation zone in New Jersey



Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration. 2024 Emergency Response Guidebook. pp.30, 162. • Created with Datawrapper

The counties with the largest at-risk populations are Hudson and Bergen counties, each with nearly half a million residents living within an evacuation zone.²¹ That’s nearly 70 percent of the population in Hudson County and around 50 percent of the population in Bergen County. People in these counties face particular risk because these are the densest counties in the state. Despite having fewer residents in the evacuation zone, rural communities are less likely to be equipped for a hazmat rail incident, posing a different kind of danger for residents and first responders.²²

County	Number of Residents in Evacuation Zone
Hudson	495,000
Bergen	447,000
Middlesex	400,000
Essex	387,400
Union	350,000
Passaic	244,500
Camden	241,900
Morris	209,400
Monmouth	159,000
Somerset	113,300
Gloucester	105,500
Mercer	99,500
Ocean	76,800
Burlington	59,900
Atlantic	59,100
Warren	53,500
Cumberland	41,700
Hunterdon	39,800
Cape May	23,500
Sussex	23,000
Salem	22,800

Source: NJPP analysis of 2020 Census data and NJ freight rail lines. All numbers rounded to the nearest hundred.

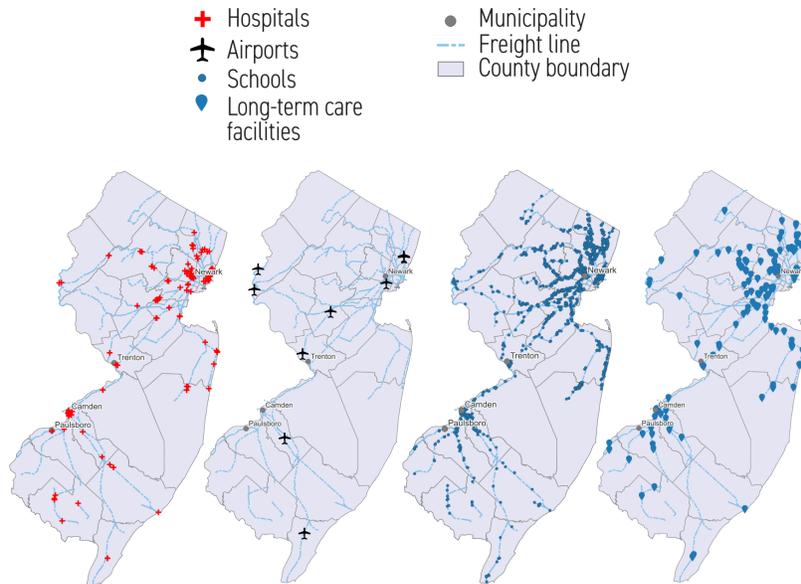
Note: 2020 U.S. Census Data was used because it is the most recent available data down to census block level.

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The statewide evacuation zone for all freight lines includes 1,306 schools, 119 hospitals, 170 long-term care facilities, and 9 airports, including Newark Liberty International.²³ Should an incident occur near any of these facilities, it would disrupt access to emergency care, put young students at risk, and cause major delays and disruptions for transportation and emergency response efforts.

Critical Infrastructure is at Risk in the Event of a Hazmat Rail Incident

Infrastructure along freight lines in New Jersey, 2020



Source: NJPP Analysis of NJGIN Open Data: Hospitals of NJ, Long Term Care Facilities of New Jersey, New Jersey Aviation Facilities, and School Point Locations of NJ.

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Shortfalls in Federal and State Law Leave Residents Vulnerable

While the safety of New Jersey should remain a top priority, lawmakers at both the state and federal levels have failed to address dangerous shortfalls in hazmat rail policy. The federal Emergency Planning and Community Right-to-Know Act (EPCRA) grants public access to information about the location, amounts, and types of hazmat stored at stationary facilities.²⁴ This information is published on the New Jersey Department of Environmental Protection’s website and updated regularly.²⁵ Yet efforts to require federal or New Jersey lawmakers to grant public access to mobile sources of hazmat, such as freight rail trains, have not been successful.

Federal initiatives to increase rail safety and transparency have fallen short. In 2014, the federal government proposed a suite of safety regulations to create stronger requirements for trains carrying flammable liquids.²⁶ However, the rail industry criticized the proposal, and the final rule was narrowed to apply only to crude oil and ethanol while exempting other chemicals.²⁷ In 2018, the Trump administration repealed that rule.²⁸ The second Trump administration continues to propose rollbacks to rail safety rules, worrying rail workers and creating the potential for even more dangerous conditions for New Jersey residents.²⁹

Corporate Lobbying Against Safety Regulations Stalls Progress

Despite safety concerns, corporate lobbyists from wealthy freight companies have repeatedly blocked state-level reforms. After CSX lobbied his administration, Governor Christie vetoed a 2017 bill that would have required corporations to develop hazmat response plans and to publicly disclose freight train routes, citing national security risks.³⁰ Yet there is little evidence that transparency increases the likelihood of a security breach.

Restricting this information leaves first responders and communities unprepared for potential disasters.³¹ After the East Palestine derailment, the National Transportation Safety Board reaffirmed that communities have the right to know what chemicals are moving through their neighborhoods — information critical for local emergency response.^{32 33} Still, efforts to revive similar transparency laws in New Jersey have faced the same corporate opposition, even as calls for reform continue to grow.³⁴

Corporations are unlikely to voluntarily increase safety measures. Between 2010 and 2021, the seven biggest railroad corporations spent 33 percent more on stock buybacks, cash distributions, and dividends compared to infrastructure investments.³⁵ However, when corporations invest more in safety, incidents can decline. Four of the top five largest freight rail corporations reported an increase in incidents in the first 10 months of 2023.³⁶ But Norfolk Southern, which increased its investments in infrastructure and safety upgrades after East Palestine, reported a decrease in incidents.³⁷

The pattern is clear: Without state action, corporate interests will continue to block safety improvements while millions of residents remain at risk. New Jersey cannot wait for federal action or voluntary corporate responsibility.

Lawmakers Must Act to Protect New Jersey Residents

With inconsistent progress on federal safety measures, states must act to protect their residents. New Jersey needs strong safety and transparency measures to ensure that residents, first responders, and communities can prepare for and respond to hazmat rail incidents. New Jersey lawmakers should pass laws requiring the following measures to reduce risks to residents, many of which have been proposed at the federal level or by other states.³⁸ These policies cost the state very little to implement because freight rail companies — not taxpayers — would bear the costs. In fact, preventing major derailments can save more than these safety measures cost. The East Palestine cleanup alone has cost Norfolk Southern hundreds of millions of dollars.³⁹

Increase Transparency: Grant public access to hazmat cargo information while implementing safeguards against security risks.

Allowing reasonable public access to cargo information for communities near freight rail lines will bring New Jersey in line with neighboring states and bring freight rail hazmat in line with stationary sources of hazardous materials, which are already required to be public under the federal EPCRA. A proposed compromise is to allow access to a list of past cargo and their components published by the NJ Department of Environmental Protection (DEP) after a reasonable amount of time. Additionally, bridge inspection reports, which the NJ Department of Transportation generates based on inspections of bridge integrity and appraisal, should be sent to NJ DEP, the agency responsible for hazmat control. For example, the bridge in Paulsboro was known to be malfunctioning, yet the rail company that owned it failed to address it.⁴⁰ By sharing these reports, agencies can break down regulatory siloes and work together to create more transparency and higher standards for rail safety.

Mandate Safety Upgrades: Require rail companies to upgrade safety technologies such as wayside defect detectors, maintain a minimum two-person crew on all hazmat freight trains, and restrict train length to reduce derailment risks.

Increasing the frequency of wayside defect detectors, which are devices placed alongside rail lines to detect issues with train equipment, has been shown to increase safety and reduce dangerous incidents.⁴¹ However, there are no current federal laws requiring the use of these detectors. Additionally, requiring a two-person crew allows for flexible sharing of responsibilities and increases the likelihood of catching a problem. While this is currently a federal rule, it is not yet a law and could be rolled back.⁴² Restricting train length reduces its total weight, lowering the likelihood of a derailment, while also reducing the overall amount of hazmat carried by the train. Longer trains are more likely to derail and should only be used if emergency response systems are capable of dealing with a derailment.⁴³

Strengthen First Responder Training: Mandate specialized training for emergency personnel in communities along freight lines, ensuring they can respond effectively to hazmat incidents.

Requiring the owners and operators of freight rail companies to provide specialized training for first responders in areas near freight rail lines will improve responses if and when an incident occurs. As shown in the Paulsboro derailment, first responders had a clear gap in understanding the risk of not using breathing protection. And officials did not order an immediate evacuation of the area affected by the cloud of vinyl chloride. Helping first responders prepare for any kind of incident also helps civilians. The better equipped first responders are, the more likely they will be able to limit damage and protect their community.

Ensure Financial Accountability: Require freight companies to demonstrate financial responsibility for disaster response, preventing communities from bearing the costs of corporate negligence.

Without strict policies requiring freight rail corporations to prove they can pay, taxpayers may have to bear the burden of paying to clean up after an incident.⁴⁴ After the East Palestine and Paulsboro derailments, the freight companies paid for the entire cost of the cleanup and emergency response.⁴⁵ This requirement must be written into law, and corporations must provide the government with proof of financial ability to pay for disaster response and cleanup before an incident occurs.

Conclusion

New Jersey lawmakers must reject corporate lobbying efforts that put profit over public safety. Transparency, improved emergency preparedness, stronger safety policies, and stricter corporate accountability are essential to protect the 3.6 million residents living in potential hazmat rail evacuation zones. Lawmakers need multiple layers of safety to both prevent incidents and to ensure that if an incident does occur, the damage is limited. Strengthening regulations will not only enhance public safety but also prevent future derailments from becoming full-scale disasters.

New Jersey lawmakers should pass comprehensive hazmat rail safety legislation in the current session — before the next derailment puts communities at risk.

¹ NJPP Analysis of 2020 U.S. Census Data and New Jersey freight rail lines. 2020 U.S. Census Data was used because it is the most recent available data down to census block level.

² United States Census Bureau, [2024 Highest Density States Table](#).

³ U.S. Department of Transportation Federal Railroad Administration. [Hazardous Materials Transportation](#).

⁴ National Transportation Safety Board. [Failed Wheel Bearing Cause Norfolk Southern Train Derailment in East Palestine, Ohio](#). June 25, 2024.

National Transportation Safety Board. [Conrail Train Derailment with Vinyl Chloride Release, Paulsboro, New Jersey, November 30, 2012](#). July 29, 2014.

⁵ See New Jersey data at [Federal Railroad Administration's Office of Safety Analysis accident database](#).

⁶ See New Jersey data for 2024 at [PHMSA's incident database](#).

⁷ U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration. [Federal Hazmat Law](#). p. 2.

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- ⁸ 49 CFR § 172.101. [Hazardous Materials Table](#).
- ⁹ New Jersey Department of Health. [Hazardous Substance Fact Sheet: Vinyl Chloride](#). Oct. 2015.
- ¹⁰ Agency for Toxic Substances and Disease Registry. [Vinyl Chloride - ToxFAQs™](#).
- ¹¹ National Transportation Safety Board. [Conrail Train Derailment with Vinyl Chloride Release, Paulsboro, New Jersey, November 30, 2012](#). Jul. 29, 2014. p.2.
- ¹² National Oceanic and Atmospheric Administration. [A Train Derails in Paulsboro, N.J., Releasing 23,000 Gallons of Vinyl Chloride Gas](#). Dec. 17, 2012.
- ¹³ Read, Zoë. [A decade after Paulsboro, N.J. train derailment, questions linger over rail safety and public health](#). WHYY. Apr. 6, 2023.
- ¹⁴ Centers for Disease Control and Prevention. [NIOSH Technical Assistance Report: Assessment of Emergency Responders Following Vinyl Chloride Release from a Train Derailment—New Jersey, 2012](#). Dec. 2013. p.13.
- ¹⁵ Centers for Disease Control and Prevention. [NIOSH Technical Assistance Report: Assessment of Emergency Responders Following Vinyl Chloride Release from a Train Derailment—New Jersey, 2012](#). Dec. 2013. p.13.
- ¹⁶ [Railway Safety Act of 2023](#), S.576, 118th Congress.
- ¹⁷ New Jersey Department of Transportation. Freight Rail Strategic Plan. Jun. 2014. p.ES-2.
- ¹⁸ NJPP Analysis of 2020 U.S. Census Data and New Jersey freight rail lines. 2020 U.S. Census Data was used because it is the most recent available data down to census block level.
- ¹⁹ U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration. [2024 Emergency Response Guidebook](#). pp.30, 162.
- ²⁰ U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration. [2024 Emergency Response Guidebook](#). pp.30, 162.
- ²¹ NJPP Analysis of 2020 U.S. Census data and New Jersey freight rail lines. 2020 U.S. Census Data was used because it is the most recent available data down to census block level.
- ²² Junod, Anne N. Urban Institute. [Why Hazardous Train Derailments Happen, Who Pays, and How to Prevent Them](#). Feb. 22, 2023.
- ²³ NJPP Analysis of [NJGIN Open Data](#): Hospitals of NJ, Long Term Care Facilities of New Jersey, New Jersey Aviation Facilities, and School Point Locations of NJ.
- ²⁴ United States Environmental Protection Agency. [Hazardous Chemical Inventory Reporting](#). Accessed Oct. 2025.
- ²⁵ New Jersey Department of Environmental Protection. [How to Get Community Right to Know Information](#). Accessed Sept, 2025.
- ²⁶ [Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains](#). Vol 79, No. 148, Fed. Reg. 45016. Proposed Aug. 1, 2014.
- ²⁷ Wolfe, K. A. and Schor, E. Politico. [DOT issues final rules on flammable oil trains](#). May 1, 2015.
- U.S. Department of Transportation. [DOT Announces Final Rule to Strengthen Safe Transportation of Flammable Liquids by Rail](#). May 1, 2015.

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- ²⁸ U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration. [PHMSA Rescinds ECP Brake Mandate After RIA Finds Costs Outweigh Benefits](#). Sept. 24, 2018.
- ²⁹ Gallagher, John. Freight Waves. [Rail unions warn DOT rollbacks could jeopardize train safety](#). Jun. 24, 2025.
- ³⁰ Tate, Curtis. NorthJersey.com. [CSX lobbied Christie officials before he vetoed oil-train bill](#). Aug. 11, 2017.
- ³¹ NorthJersey.com. [Editorial: Oil train veto leaves New Jerseyans at risk](#). Jul. 17, 2017.
- ³² Fischler, Jacob. New Jersey Monitor. [Priorities for rail safety bill debated in U.S. Senate hearing with Norfolk Southern CEO](#). Mar. 23, 2023.
- ³³ Fischler, Jacob. New Jersey Monitor. [Priorities for rail safety bill debated in U.S. Senate hearing with Norfolk Southern CEO](#). Mar. 23, 2023.
- ³⁴ Weinberg, Loretta. NJ.com. [We need protection from the ‘bombs’ that rumble through New Jersey](#). Jul. 14, 2022.
- ³⁵ Rowland, Darrel. ABC6. [Norfolk Southern plied Ohio politicians with campaign cash, extensive lobbying](#). Feb. 20, 2023.
- ³⁶ Eavis, Peter. New York Times. [Since Ohio Train Derailment, Accidents Have Gone Up, Not Down](#). Jan. 28, 2024.
- ³⁷ Eavis, Peter. New York Times. [Since Ohio Train Derailment, Accidents Have Gone Up, Not Down](#). Jan. 28, 2024.
- ³⁸ Evans, Nick. Ohio Capital Journal. [Bipartisan rail safety bill headed for U.S. Senate Vote](#). May 12, 2023.
- New York State Senate. [Senate Passes Comprehensive Rail Safety Legislation in Light of Recent National Train Disasters](#). May 23, 2023.
- Williams, David O. Colorado Newline. [New rail safety office could add protections for Colorado residents and environment](#). May 9, 2024.
- Caruso, Stephen. Spotlight PA. [A train safety bill inspired by the East Palestine derailment faces tough odds in the Pa. legislature](#). June 12, 2023.
- ³⁹ Guillen, Alex and Marquette, Chris. Politico. [“Norfolk Southern to pay over \\$500M for cleanup, rail safety after East Palestine derailment.”](#) May 23, 2024.
- ⁴⁰ National Safety Transportation Board. [“Conrail Freight Train Derailment with Vinyl Chloride Release.”](#) Accessed Nov. 2025.
- ⁴¹ U.S. Department of Transportation Federal Railroad Administration. [Effectiveness of Wayside Detector Technologies on Train Operation Safety](#). May 2022.
- ⁴² Federal Railroad Administration Office of Railroad Safety. [Compliance Guide for Train Crew Size Safety Requirements](#). May 2024. p.7.
- ⁴³ Madsen, P. M., et al. Risk Analysis. [The relationship between freight train length and the risk of derailment](#). Nov. 2024. P.1.
- Verma, M. Transportation research part C: emerging technologies, 19(5). [Railroad transportation of dangerous goods: A conditional exposure approach to minimize transport risk](#). Aug 2011. p.801.
- ⁴⁴ Junod, Anne N. [Why Hazardous Train Derailments Happen, Who Pays, and How to Prevent Them](#). Feb. 22, 2023.

⁴⁵ U.S. Environmental Protection Agency. [EPA Orders Norfolk Southern to Conduct All Cleanup Actions Associated with the East Palestine Train Derailment](#). Feb. 21, 2023.

Walsh, Jim. Courier Post. [Conrail sues insurers over losses from 2012 Paulsboro derailment](#). Dec. 1, 2017.