

Southwest Pennsylvania Train Accidents 2011-2022

The recent train derailment at East Palestine has brought issues of train safety to the forefront, as images of the dramatic emergency response linger and uncertainties about chemical releases and health impacts remain. Yet these concerns are not restricted to nationally reported incidents.

In spring 2022, for example, a derailment near Harmar, PA released chemicals to the Allegheny River just upstream of where the Pittsburgh Water and Sewer Authority pulls drinking water from the river to treat and distribute to its customers.

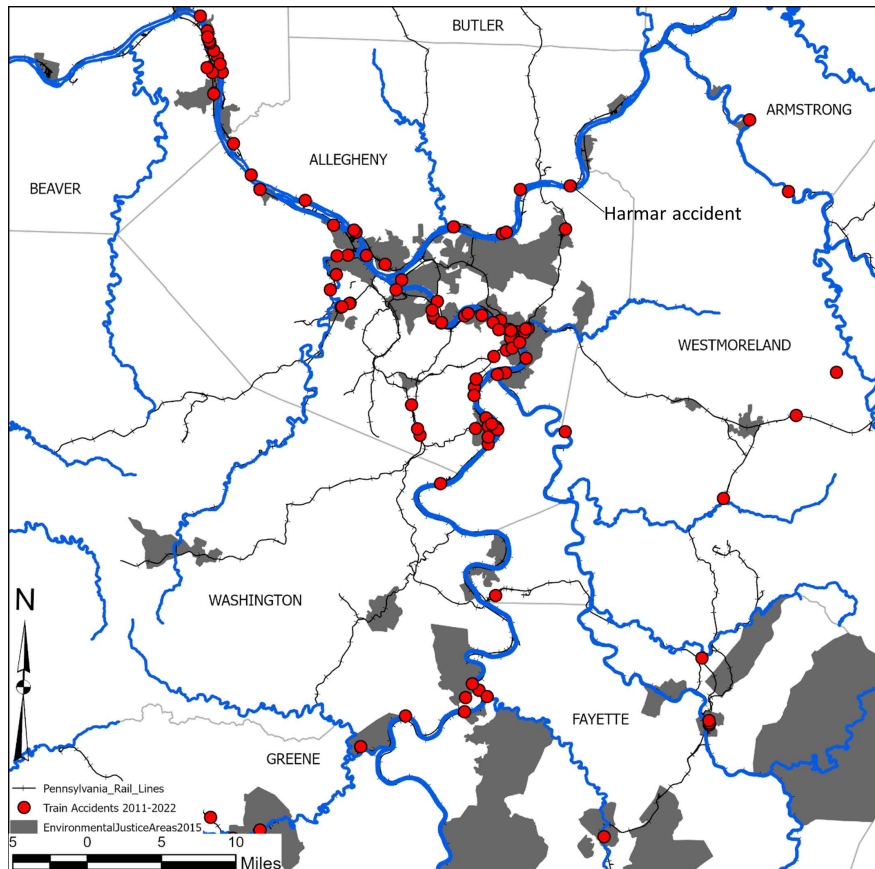


Photo of Train Derailment in Harmar, PA from May 2022 (Credit: Three Rivers Waterkeeper)

Given these events, among others, it is important to consider where these accidents occur and what they threaten. The Federal Railroad Administration tracks railroad accidents, noting where cars actively derail, and makes these data available to the public <<https://data.transportation.gov/Railroads/Rail-Equipment-Accident-Incident-Data/85tf-25kj>>.

We gathered the data and plotted all rail accidents in SW PA between 2011 and 2022 (accidents 1975-2010 do not provide latitude/longitude data and locations are referenced based on a proprietary data structure so they cannot be easily mapped.)

While some of these incidents are minor, the connection between the river valleys and train accidents in our region is clear. 211 of the 270 accidents we examined occurred within 300 yards of a major river. Beyond potential hazards from cargo and fuel, the chemicals and tactics used to contain spills and manage disasters can also post risks to aquatic life.

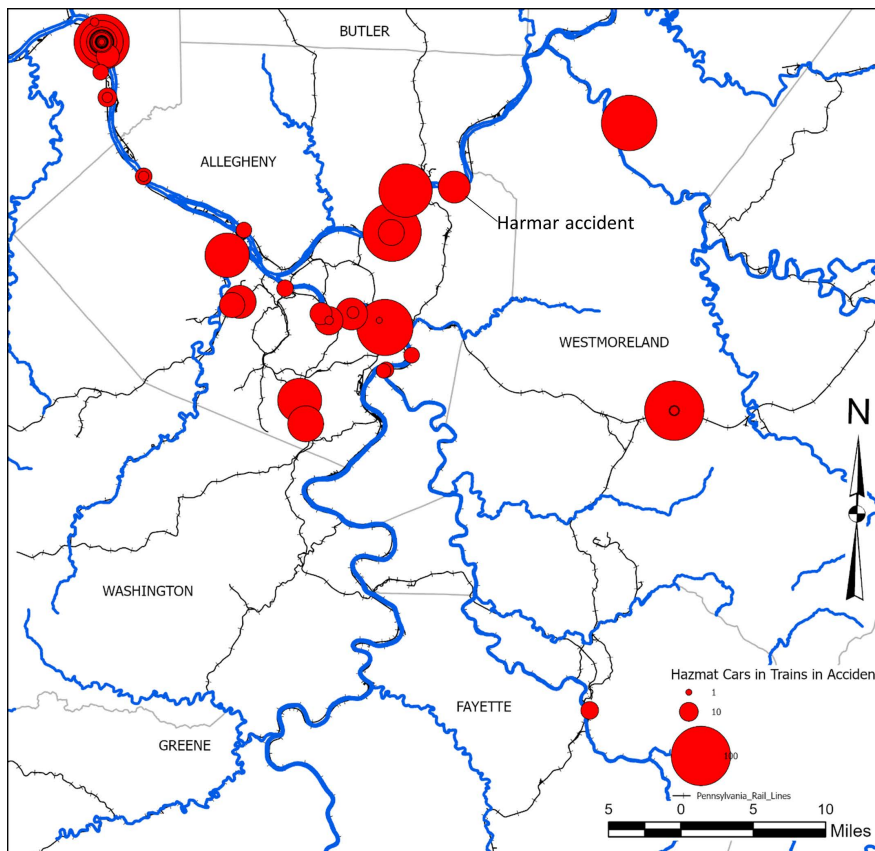


Allegheny County Train Accidents 2011-2022 with Environmental Justice Areas in gray (D. Bain, 2023)

Not only are train accidents heavily focused in river valleys, 245 out of 270 occurred in, or within 1 mile of, communities defined as environmental justice areas by the PA Department of Environmental Protection. This means the additional risk associated with train accidents is placed on communities already impacted by socio-economic and environmental inequities.

To be clear, every accident does not necessarily involve cars carrying hazardous materials (HAZMAT). For train cargo, hazardous materials are defined as those substances, designated by the Secretary of Transportation, “whose transport in commerce in a particular amount and form may pose an unreasonable risk to health and safety or property” (49 U.S.C. § 5101).

Yet HAZMAT-specific data is no less concerning. Between 2011-2021, 22% of all accidents in the region involved trains with some HAZMAT cargo, and a significant percentage occurred in EJ communities. Overall, accidents where cars carrying these materials derailed are focused in more populous areas, including Allegheny and Beaver Counties.



Allegheny County Train Accidents 2011-2021 with Hazmat Cars (D. Bain, 2023)

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Implications

The potential human and environmental costs of train accidents, alongside data illustrating the concentration of hazardous material derailments in river valleys, population centers, and environmental justice areas, highlights the danger degraded rail safety poses to our region. Further analysis of the regulations, oversight mechanisms, reporting, emergency response processes, and technologies should identify additional recommendations to enhance safety and emergency response procedures. For now, the data clearly illustrate that railroad “safety” is an ongoing threat to our communities and waters and deserves increased scrutiny and policy action.