

Ethikon Consulting

<u>Team Member Name</u>	<u>Year</u>	<u>Major</u>
Sydney Rothka	2026	Finance
Alexei Darling	2026	Economics & Business Technology
Kareena Shetty	2024	Psychology
Sophia Chavez	2027	English

Advisor(s): Dr. Joan Martinez Evora

Topic Title: Railways to a Better Future

Audience: Norfolk Southern Executive Board

Sustainable Development Goal

SDG 3: Ensure healthy lives and promote well-being for all at all ages.

SDG 6: Ensure availability and sustainable management of water and sanitation for all.

Executive Summary

On February 3rd, 2023, a Norfolk Southern train carrying hazardous materials derailed in East Palestine, Ohio. The fire and pollution caused by the crash led to the temporary evacuation of 5,000 people, the death of 43,000 animals, and ongoing health problems for the residents of the community. This incident, however, was not an outlier. On March 2nd, 2024, another Norfolk Southern derailment resulted in a diesel spill in the Lehigh River. Although you have taken action to prevent further derailments, more than a year after the Ohio incident, it seems financially, legally, sustainably, and ethically advantageous to take steps to prevent train derailments.

We recommend you partner with Rail Vision and license their visual sensor technology to combine electro-optic sensors with AI and machine learning to better identify issues on the tracks, which are the leading cause of train derailments. Rail Vision is much more affordable than the \$1.1 billion paid by Norfolk Southern since Ohio's disaster. With Norfolk Southern having 109 other train derailments (train derailments typically cost between \$10,000-\$40,000) in 2023, even by conservative estimates, they had to pay over a million dollars. Rail Vision, which costs around \$140,000 per train, is affordable and, more importantly, effective at protecting communities and company profits. State Farm, The U.S. Justice Department, Cleveland Ohio attorneys, AG Dave Yost, and countless other entities have sued Norfolk Southern over the past year. The grounds for these claims are preventable if Norfolk Southern adopts our Rail Vision technology. The benefits of Rail Vision would diminish the destruction of habitats and environmental pollution. Tens of thousands of avoidable aquatic life deaths give a representation of how just one derailment can impact the surrounding environment, excluding the long-term effects on water quality and consumption. Our solution would prevent a multitude of issues for the nearby population, including health issues, livestock deaths, and business losses. With Rail Vision, we can also detect human beings on the tracks, mitigating suicides and trespassing deaths, which resulted in 651 of the 954 train deaths in 2022.