Measure Name: Removal of obstructions to increase visibility

Definition: Removal of sight obstructions to increase the line of sight for pedestrians, drivers, and railroad personnel.

Tags:

Type of Incident:

- ☐ Non-Motorized Users Only
- ☐ Motor Vehicles Only
- ☒ Both

Intervention Strategy:

- ☐ Data: application and planning
- ☐ Education: outreach and messaging
- ☐ Enforcement: policy development and rulemaking
- ☒ Engineering: technological and physical deterrents

Type of Problem:

- ☒ Non-Motorized Users Violating Warning Devices
- ☒ Motor Vehicles Violating Warning Devices
- ☐ Vehicle ROW Incursion
- ☐ Vehicle Congestion
- ☐ Blocked Crossing
- ☐ Vehicle Hang-up

Measure Category:

- ☐ Risk Assessment
- ☐ Policy and Enforcement
- ☐ Collaboration, Training, and Education
- ☐ Public Communication
- ☐ Physical Barriers
- ☒ Detection and Lighting
- ☒ Infrastructure Modification
- ☐ Post-Incident Management
- ☐ Warning Devices

Description

This measure seeks to remove obstructions, such as vegetation growth and topographic features, along the railroad right-of-way (ROW) near grade crossings that could interfere with visibility. This can be achieved by cutting vegetation and relocating signage and other wayside equipment, such as signal bungalows. This allows pedestrians and drivers to see the approaching train sooner and avoid getting struck, while also increasing the engineer's visibility of the ROW thereby making current and impending grade crossing violators more visible.

This measure is best suited for high-priority areas, including areas near stations, crossings (specifically passive crossings), and crossings along high-speed corridors. As of 2022, there are no research studies that investigated the effectiveness of removing vegetation or relocating signage and other wayside equipment in reducing the number of railroad trespass casualties. However, railroads are required to control the vegetation on railroad property as required under federal regulations [1].

Additional search terms: *environment, landscape, landscaping, obstruction, sightline, view*

Advantages

- Vegetation removal is relatively low cost, although it requires periodic maintenance.
- This measure improves the visibility of railroad signs and signals along the railroad ROW and at crossings. [1]
- Improves visibility of both train engineers and pedestrians, which can increase safety at grade crossings, especially passive crossings.
- Vegetation removal can reduce the risk of trackside fires. [1]
- Vegetation removal may reduce illegal dumping of trash on the ROW.
- Vegetation removal can improve accessibility for railroad crews when performing wayside duties. [1]
- Vegetation removal can improve railroad employees' ability to visually inspect moving equipment from their normal duty stations. [1]
- Vegetation removal could also mitigate wildlife mortality on the railways by reducing the number of animals hit by trains. [1]

Drawbacks

- Vegetation removal could reduce the effectiveness of landscaping treatments in preventing trespassing onto the tracks from the grade crossing or from properties bordering the right-of-way near the grade crossing. In this case, consider an alternative barrier. [2]
- Vegetation removal could decrease privacy and increase noise pollution for communities adjacent to railroad tracks.

Notable Practices

- Consider safety and operational impacts when scheduling removal of obstruction on the railroad ROW.
- It is important to gain community approval and acceptance of vegetation removal by communicating the reasons that removal is needed. Communications should not highlight the railroad as a means for suicide. [2]
- Treating cut stumps and stubble with herbicide can help prevent new shoots from emerging around the base of cut plants (i.e., suckering) and resprouting. Herbicides are most effective when sprayed before the weeds start to grow, generally in the early spring.
- Consider the weather conditions when spraying herbicide, as rain can reduce the effectiveness of the herbicide. [3]
- Ensure that any chemicals used for vegetation management are environmentally safe and do not hurt humans or animals. Review federal and state environmental laws, including from the Environmental Protection Agency, to make sure that selected chemicals meet the requirements.
- When applying herbicide over a bridge, ensure that they are not sprayed on neighboring properties and do not spill into the water below. [3]
- The state of Illinois recommends that, outside of municipalities, a minimum of 300 ft along the roadway approaches to a grade crossing should be kept clear of removable obstructions. [5]

References

[1] *Track Safety Standards - Vegetation* 49 C.F.R. § 213.37 (1996).
Description: Link to the electronic Code of Federal Regulations (CFRs).

[2] RESTRAIL. (2019, July 17). *10.1 Removal of vegetation to increase visibility*. Restrail Toolbox.
Description: This webpage provides information on removing vegetation along the right-of-way to increase visibility in Europe, including recommendations, considerations for implementation, and relevant research results.

[3] Progressive Railroading. (2008, February). Vegetation management: Railroads are pulling out all the stops. *Progressive Railroading*.
Description: Article providing information on managing vegetation along the right-of-way.

[4] U.S. DOT Office of Inspector General. (2007). FRA Can Improve Highway-Rail Grade Crossing Safety by Ensuring Compliance with Accident Reporting Requirements and Addressing Sight Obstructions.
Description: U.S. DOT Office of Inspector General report providing information on sight obstructions at passive grade crossings.

[5] Illinois Department of Transportation. (rev. 2018). Local Roads and Streets Manual.
Description: Illinois DOT manual providing information on grade crossing design, including sight distances and obstruction guidance.

Additional Resources

Federal Railroad Administration. (2013). Compilation of state laws and regulations affecting highway-rail grade crossings, 6th edition.

Description: This document provides an up-to-date look at the various state laws and regulations concerning the regulation of highway-rail grade crossings and driver behavior at all highway-rail grade crossings.

Federal Railroad Administration. (2012). Model State Law to Address Sight Obstructions.

Description: This document documents the FRA development of a model state law to address sight obstructions at passive highway-rail grade crossings.

U.S. DOT Office of Inspector General. (2007). FRA Can Improve Highway-Rail Grade Crossing Safety by Ensuring Compliance with Accident Reporting Requirements and Addressing Sight Obstructions.

Description: This document presents the results of the Office of Inspector General's (OIG) audit of the FRA activities to oversee safety at highway-rail grade crossings, including documenting instances of incidents in which sight obstructions were contributing factors and recommendation for developing model legislation for the issue.

Related Measures

- Crossing Illumination
- Risk Assessment using CCTV
- Crossing Alignment adjustment for bicycles and other wheeled devices
- Crossing Alignment adjustment for Motor Vehicles

Images

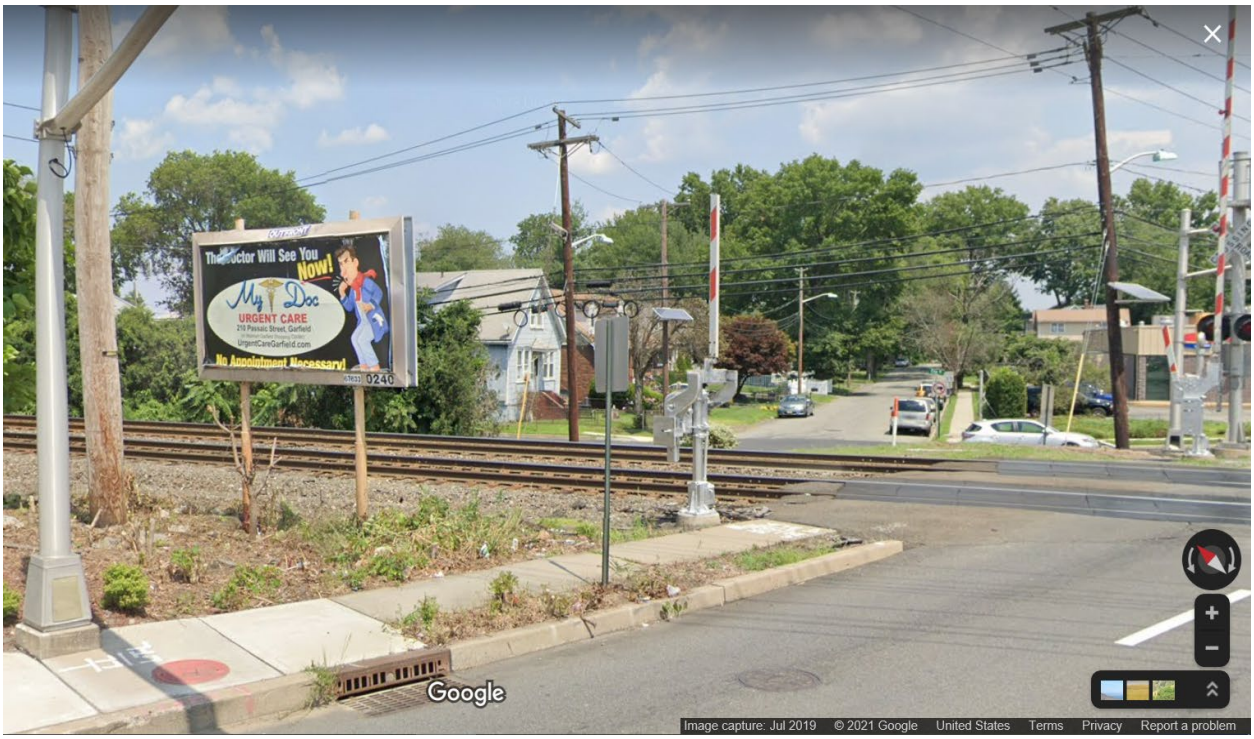

Figure 1. Billboard potentially blocking sightlines at a crossing in Elmwood Park, IL from Google Street View

Figure 2. Example of vegetation obstructing advanced warning signage on approach to a crossing in Brunswick, ME
Image Credit: Volpe Center

Figure 3. Example of vegetation obstructing pedestrian and driver view of the tracks at a crossing in Osceola County, FL
Image Credit: Volpe Center

Figure 4. Example of signal cabinet obstructing pedestrian and driver view of the tracks in Katonah, NY
Image Credit: Volpe Center

Figure 5. Example of vegetation obstructing pedestrian and driver view of the tracks at a passive crossing in Swanton, VT
Image Credit: Volpe Center