

Measure Name	Lighting at hotspots
Definition	Lighting to discourage unsafe activity at known trespass and suicide locations.
Tags	
Incident Type	Both trespass and suicide
Location	Both station and right-of-way
Intervention Strategy	Engineering: technological and physical deterrents
Measure Group	Detection and lighting

Description

Lighting at hotspots refers to the installation of lighting at locations where trespass risk is high. Increased lighting is believed to have the potential to reduce crime, influence the behaviors of people, attractiveness of a location and is also consistent with law enforcement best practices [1][2]. Although increased lighting of the entire right-of-way (ROW) is not possible, focusing on known hotspot locations can help to improve safety.

Lighting can be static and constantly illuminate a specific area, or it can be dynamic and activated by a sensor. Dynamic lighting can be activated at specific times, such as from sunset to sunrise, or it can be activated by motion or heat sensors. Lighting at hotspots can help enhance surveillance of an otherwise dark location and deter trespassers, and sensor-activated lighting can have an added benefit of warning individuals that they have entered a restricted area. When lighting is activated, it gives the appearance of active monitoring and may cause individuals to move to a safer place. Additionally, it has been shown that individuals considering suicide on the rail network often seek seclusion [3], suggesting that making an individual more visible could help to disrupt this thinking and prevent an individual from taking action [4].

Lighting can be installed by rail carriers along the ROW, at crossings, or at stations where existing lighting is not sufficient, such as at the ends of a platform. Communities or rail carriers can also install lighting at hotspots, for example at bridges or other areas where tracks meet municipal property.

Additional search terms: *deterrent, lights, spotlight, visibility*

Advantages

- In locations with access to electricity, lighting may offer a low-cost option. Low-cost solar panels may offer an alternative electricity source in locations without ready access to electricity.
- Increased lighting may help train operators to see and react to individuals who are trespassing by slowing the train on approach or sounding the train horn.
- Lighting can be used in a wide variety of hot spot locations throughout the rail system.
- Lighting may increase the perception of safety in an area, which may increase customer or public satisfaction.

- The installation of smart lighting networks using programming to control the light levels and address maintenance issues could improve the overall function and effectiveness of lighting networks [2].
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Drawbacks

- There is the potential for light pollution to affect nearby people and animals.
 - Light levels that are too high may limit the ability for train operators to see clearly and interfere with safe train operation. Excessive brightness can cause a glare and make it difficult for train operators to adjust back to nighttime conditions.
 - Lighting could inadvertently attract trespassers to a location who seek a well-lit location.
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Notable Practices

- Ensure that the brightness and placement of the lighting do not impair the vision of train crews.
 - Before installing new lighting or increasing the brightness of existing lighting, coordinate with nearby communities to ensure that the installation will not be disruptive.
 - When considering the implementation of lighting at hotspots, it is helpful to understand the time of day (e.g., daylight/night) that trespassing tends to occur and the potential reasons behind trespassing at the hotspot location(s).
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References

[1] Clarke, R. V. G. (2008). [*Improving street lighting to reduce crime in residential areas*](#). U.S. Department of Justice, Office of Community Oriented Policing Services.

Document Excerpt: This guide is written to help community policing officers decide whether improved lighting is an appropriate response to a crime or disorder problem that might be confronting a particular neighborhood or community. It assumes that a detailed problem analysis has been conducted and that police, community and business leaders, and other stakeholders are exploring ameliorative responses, particularly improved street lighting. It explains why better street lighting can help reduce fear, crime, and disorder, and summarizes the literature on the effectiveness of better lighting. It discusses the considerations that should be weighed in pursuing this approach, suggests questions that should be asked, and lists the steps that should be followed in improving lighting. Finally, it suggests measures that can be used to assess the effectiveness of the lighting solutions that have been implemented.

[2] Warner, J. E., Lee, D., Trueblood, A. B., Cline, J. C., Johnson, N. A., & Christjoy, A. (2022). Strategies for deterring trespassing on rail transit and commuter rail rights-of-way, volume 1: Guidebook. *Washington, D.C: The National Academies Press*.

Objective: This guidebook is intended to provide information on strategies to deter trespassing on rail transit and commuter rail exclusive and semi-exclusive rights-of-way, including within station areas

outside designated pedestrian crossings. In general, trespassing is accessing rail transit and commuter rail restricted areas without permission or proper authorization, intentionally or unintentionally. The guidebook documents the extent of trespassing in the United States; existing decision-making guidance that agencies can utilize; causes, consequences, and risks associated with trespassing; mitigation countermeasures to reduce trespassing risks; and tools that agencies can utilize to identify possible mitigation strategies for a particular trespassing problem or concern.

[3] Debbaut, K., Krysinska, K., & Andriessen, K. (2014). [Characteristics of suicide hotspots on the Belgian railway network](#). *International journal of injury control and safety promotion*, 21(3), 274-277.

Abstract: In 2004, railway suicide accounted for 5.3% of all suicides in Belgium. In 2008, Infrabel (Manager of the Belgian Railway Infrastructure) introduced a railway suicide prevention programme, including identification of suicide hotspots, i.e., areas of the railway network with an elevated incidence of suicide. The study presents an analysis of 43 suicide hotspots based on Infrabel data collected during field visits and semi-structured interviews conducted in mental health facilities in the vicinity of the hotspots. Three major characteristics of the hotspots were accessibility, anonymity, and vicinity of a mental health institution. The interviews identified several risk and protective factors for railway suicide, including the training of staff, introduction of a suicide prevention policy, and the role of the media. In conclusion, a comprehensive railway suicide prevention programme should continuously safeguard and monitor hotspots, and should be embedded in a comprehensive suicide prevention programme in the community.

[4] Rådbo, H., Svedung, I., & Andersson, R. (2012). Suicide and potential for suicide prevention on the Swedish rail network; a qualitative multiple case study. In C. Bérenguer, A. Grall & C. Soares (Eds.), *Advances in Safety, Reliability and Risk Management*.

Abstract: Acts of suicide on railways represent a serious public health and railway safety problem. Suicides constitute about 75% of all deaths in person-train collisions in Sweden. The aim of the study is to evaluate existing police and rail administration reports on railway suicide incidents from a preventive perspective, and to identify and categorize additional preventive-oriented information. Twenty-two cases of railway suicide have been reviewed, based on regular police and rail administration reports plus observations from complementary site visits. Findings: Neither police nor rail administration reports include sufficient information to guide future safety work. Findings from site visits show that structured preventive-oriented investigation routines may add important complementary details. Relevant data on behavioural, technical and environmental circumstances facilitating railway suicide need to be collected and analyzed by those responsible on a regular basis as an integral part of their safety work.

Related Measures

- Blue lighting
- CCTV and other detection systems
- Identify and monitor hotspots
- Identify funding opportunities
- Incident cost estimation
- Rail corridor risk assessment
- Removal of obstructions to increase visibility