

**Measure Name** Platform fencing

**Definition** Fencing along a platform to deter individuals from entering the right-of-way.

**Tags**

<i>Incident Type</i>	Both trespass and suicide
<i>Location</i>	Station only
<i>Intervention Strategy</i>	Engineering: technological and physical deterrents
<i>Measure Group</i>	Physical barriers

## Description

Fencing at platform ends and/or along the midline of an island platform prevents individuals from exiting a station platform into the right-of-way. Fencing is appropriate to address known shortcuts, as well as to deter individuals who intentionally enter the path of an oncoming train.

Fencing at platform ends limits access to the tracks from the farthest points left and right of the platform, while mid-platform fencing is installed along the center of island. Mid-platform fencing limits movement from one platform edge, where trains stop, to the opposite platform edge where trains pass through at high speed without stopping [1]. In contrast to fencing at platform ends, mid-platform fencing may deter individuals who seek out high-speed trains for the purpose of suicide, and it can also deter trespassers who seek to cross the platform as a shortcut. Mid-platform fencing is most effectively applied when a station has predictable schedules where trains regularly pass through at high speed.

This measure may be most effective when platform-end and mid-platform fencing is implemented together [2] and/or implemented along with other access-detection strategies, including signage or detection cameras [3]. Evaluations of two platform-end and mid-platform fencing showed a reduction in trespass behavior, although there were other countermeasures in place in these locations that may have contributed to the reduction [2][3]. A more recent pilot study also showed a reduction in trespass behavior as well as a reduction in fatalities and train delays [4]. These findings were not likely due to the presence of other countermeasures or societal circumstances.

Considerations for implementing fencing includes the type of fencing (e.g., chain link, paling), height, and material [5], as well as gate access and the ability to lock the gate. In particular, mid-platform fencing should have gate access in the event that a train stops at that particular platform [1]. A gate may also be appropriate for platform-end fencing to allow authorized personnel to access the tracks as needed.

Additional search terms: *barrier, deterrent, fence*

## Advantages

- The cost of platform-end fencing is low compared to other types of barriers [4].

- The amount of fencing required is likely to be small, which may reduce costs related to materials, installation, and maintenance.
  - Passengers on an adjacent platform may feel an increased sense of security with the fencing in place [6].
  - Fencing installed entirely on railroad property provides control over the design and look of the installation.
  - If an individual is seen in the restricted side of a mid-platform fence, on-site staff or bystanders may be able to approach the individual and intervene.
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## Drawbacks

- This type of fencing may have a limited impact on the rail system because it only applies to platforms. Moreover, mid-platform fencing only applies to island platforms where trains pass through at high speeds.
  - In some locations, mid-platform fencing may not be possible to install, for example if the platform is too narrow [2][6].
  - Mid-platform fencing may create crowding issues if a train is delayed over a long a period, especially during rush hour [2].
  - Gates can be left open, undermining the goal of the fencing [2].
  - It can be difficult to install new fencing around existing station elements, such as planters, columns, or signs [2].
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## Notable Practices

- When determining the height of the fencing needed, consider the potential for individuals to jump over the fence.
- Fencing materials and quality can affect durability and future maintenance needs. Continued maintenance ensures safety and effectiveness.
- It is important to prepare a fencing installation plan that includes how materials will be delivered to the station platform and installation debris will be removed in the presence of passengers [5].
- Consider safety and operational impacts when scheduling installation on the platform [3].
- A gate should be included in the design in case there is a need to gain access to the system, for example for maintenance or during an emergency [5]. It is important to develop plans for who is responsible for unlocking and relocking the gates and communicating when gates will need to be locked and unlocked.

- When installing mid-platform fencing, ensure that there is sufficient room for passengers on both sides of the fence [2].
- Platform-end fencing should be a safe distance from the platform edge to provide clearance for the train. Additional fencing panels may be installed to create an “L” shape at the platform end to extend protection [5].
- Ensure that there are no gaps along the length of the fencing. One study showed that areas with gaps led to several fatal incidents [1].
- Warning signs can be placed on the fence to help convey that the track area is restricted [5].
- Trespassing activity (with and without injury or fatality) can be tracked to help understand the potential effectiveness of the fencing.

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## References

[1] Wronska, U., & Ryan, B. (2017). [\*Using contextual information in the evaluation of the effectiveness of barriers restricting access to the main line at stations.\*](#)

Abstract: The use of fencing at railway stations to reduce the numbers of fatalities is a common safety intervention. This study examines the effectiveness of a mid-platform fencing programme as a means of preventing access to the track area. Two aspects of the programme are considered: firstly the extent to which fencing has been fitted to provide a secure barrier to fast lines at the target stations; and secondly, investigation of incidents in which the physical barrier has been overcome by individuals. The study involved the analysis and collation of descriptive data, using station visits, interviews with industry staff, examination of reports on the incidents and data from the SMIS database. It was found that the desired level of restriction of access to the intended areas through fencing was not always provided. So far, there have been few examples where somebody attempted or succeeded in climbing over a barrier to access the track. Factors affecting the effectiveness of physical barriers are presented and some shortcomings in current collection of evidence through incident reporting are highlighted.

[2] RESTRAIL. (2014). [\*Evaluation of measures, recommendation and guidelines for further implementation, Pilot test #6: Mid-platform fencing.\*](#)

Description: This report describes a study, conducted through the RESTRAIL program, to evaluate the impact of mid-platform fencing on the Great Britain (GB) rail network. The report includes data on the impact of mid-platform fencing on the number of incidents at these stations as well as interview data about perceptions of this measure.

[3] RESTRAIL. (2014). *Evaluation of measures, recommendations and guidelines for further implementation: Pilot test #5, [\*A combination of measures at Ayden Station – TCD.\*](#)*

Description: This document describes a pilot test of a combination of countermeasures, including fencing at platform ends, in order to prevent trespassing as part of the RESTRAIL project.

[4] Fredin-Knutzén, J., Hadlaczy, G., Wigren, A., & Sokolowski, M. (2024). [\*A pilot study evaluating the preventive effects of platform-end lengthwise fencing on trespassing, person struck by train and traffic delays.\*](#) *Journal of safety research*, 88, 78-84.

Abstract: Background: Trespassing at train tracks and “person under train” (PUT) incidents are serious health, societal and transportation concerns. There is a need for developing different measures to prevent

these events. Here, we hypothesized that platform-end lengthwise fences (PLF) reduce trespassing, the number of PUT incidents (suicides and accidents), and train traffic delays. Method: PLFs were installed as the intervention at one station in Stockholm in 2020. The number of trespassers detected using CCTV-cameras was compared before and after at the intervention station over a total period of 29 months (using incidence rate ratio, IRR). The reduction in the number of PUT (over 20 years) and train traffic delays (over 9 years) was also investigated by IRR, and by using three control groups. Results: After installation of PLF there was a significant ~90% reduction in trespasses (IRR = 0.10, 95%CI 0.04–0.23; one-sided exact  $p < 0.0001$ ). No PUT incident occurred at the intervention station after the installation, compared to 1.11 per year before installation (IRR = 0.32, 95%CI 0–1.82; one-sided exact  $p = 0.1216$ ). There was a significant reduction in delay minutes post installation compared to before the installation (Mann Whitney  $U = 0$ , upper one-sided exact  $p = 0.0357$ ). The effect of the PLF was also observable in comparison to the three control groups, suggesting that the preventive effect was not due to wider societal events affecting all stations. Conclusion: PLF had a large effect on reducing the number of trespasses and the number of delay minutes due to trespasses and PUT incidents. PLF may also have an effect of reducing PUT incidents. Practical Applications: PLF is deemed to be relatively easy and cheap to install and thus scalable (as compared to full barriers, e.g., platform screen doors) and may be considered at platform-ends having an exit, provided there is enough space to install them.

[5] RESTRAIL. (2019, July 22). [8.3 Fencing at platform ends](#). Restrail Toolbox.

Description: This webpage provides information on implementing fencing at platform ends in Europe, including recommendations, considerations for implementation, and relevant research results.

[6] Rail Safety and Standards Board. (2020, June 15). [Mid-platform fencing](#).

Description: This webpage provides information on implementing mid-platform fencing in the Great Britain, including effectiveness, recommendations, and considerations for implementation.

## Additional Resources

- Description of different types of fencing by the Federal Highway Administration: [https://www.fhwa.dot.gov/environment/recreational\\_trails/publications/rwt/fencing.cfm](https://www.fhwa.dot.gov/environment/recreational_trails/publications/rwt/fencing.cfm)

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## Related Measures

- Anti-suicide pits
- CCTV and other detection systems
- Fencing between tracks at stations
- Identify funding opportunities
- Incident cost estimation
- Platform gates and doors
- Station design considerations
- Warning signs