Level crossings

4. Continuous improvement

How level crossing risk is reduced over time

Continuous improvement in level crossing safety depends on the effective application of risk assessment, regular review of control measures, and the adoption of improved solutions as risks, usage and technology change. Dutyholders are expected to manage level crossings as dynamic risk environments rather than static assets, recognising that risk profiles can evolve over time.

Maintaining effective risk assessment and review

Risk at level crossings should be reduced so far as is reasonably practicable. This requires dutyholders to understand the risk profile of each crossing through the production of suitable and sufficient risk assessments, identifying control measures and ensuring those measures are implemented effectively.

Risk assessments must be:

- drawn up and reviewed by suitably competent persons;
- informed by knowledge of crossing risks, controls and user behaviour; and
- reviewed regularly, after incidents, or where significant change is likely or has occurred.

Changes that should trigger reassessment include:

- changes in train operation or frequency;
- changes in user profile or behaviour;
- local developments such as housing or schools; and
- infrastructure enhancement or renewal.

Where reassessment indicates that risks are no longer adequately controlled, changes to control measures may be justified, including closure, alternative crossing arrangements, or enhanced protection.

Using innovation and technology to strengthen control

Technological developments are increasing the range and affordability of options available to manage level crossing risk. Continuous improvement requires dutyholders to consider whether new or improved technologies can reduce reliance on user judgement or improve the conspicuity and effectiveness of warnings.

ORR encourages research, innovation and the use of new technologies where these can deliver improved risk control, particularly at crossings with higher risk profiles or restricted sighting. When risks are reassessed, new controls may have become available or existing controls may have become more practical or cost-effective to install.

Applying consistent approaches across the network

For the mainline railway, continuous improvement depends on the consistent application of Network Rail's level crossing strategy for 2019–2029, ensuring that improvements are targeted in accordance with risk. Decision-making should be risk-based and proportionate, with reasonably practicable measures adopted to reduce harm to users and railway operations.

ORR will continue to monitor the implementation of this strategy and expects consistent application across routes and regions, supported by effective governance and assurance arrangements.

Sector-specific approaches to improvement

Approaches to continuous improvement reflect the operating context of different sectors:

- **Mainline railways** are expected to prioritise risk reduction at higher-risk crossing types and adopt improved techniques and digital technologies to manage and maintain their crossings more effectively.
- **Heritage railways**, while generally operating at lower speeds, are subject to the same legal principles and are expected to achieve the same legal standard. Operators should regularly inspect crossings, review risk assessments and implement improvements where justified.
- **Tramways** generally manage road crossings using highway principles rather than traditional railway level crossing arrangements. Responsibilities for control and enforcement sit primarily with highway authorities and the police. Refer to ORR's Strategy for regulation of health and safety risks – chapter 14: Tramways for further information.

The mainline and heritage sectors are currently the focus for ORR's targeted proactive activity. Work in other parts of the industry will primarily be reactive.

Embedding improvement as normal practice

Sustained improvement in level crossing safety relies on embedding these arrangements into routine planning, operation and review activities. Early engagement on new or reinstated crossings, regular reassessment of existing crossings, and the adoption of improved controls where reasonably practicable are essential to maintaining effective risk control.

Continuous improvement is therefore an ongoing requirement, supporting the long-term reduction of risk to users, communities and the railway.

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