ENGINEERS AUSTRALIA

Transport Australia society

Draft Rail Safety Code of Practice - Level Crossings and Train Visibility

Submission to the Office of the National Rail Safety Regulator

This submission has been developed through Engineers Australia's member-delivered policy and advocacy initiative.

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Introduction

Engineers Australia appreciates the opportunity to provide a submission to the draft Rail Safety Code of Practice – Level Crossings and Train Visibility (the Code) produced by the Office of the National Rail Safety Regulator (ONRSR).

Last year, Engineers Australia made a submission to the draft Australian Standard AS7531 on train lighting and visibility because level crossing safety is important and has not been improving. This submission builds on Engineers Australia's 2023 submission on AS7531 which provides the rationale for recommendations that follow below.

Improving safety on roads and railways is critical for Australian business and society. Engineers will continue to lead the development of new safety measures to improve transport safety for everyone affected. High standards must be applied to provide the safest, most efficient and sustainable transport modes practicable.

Engineers Australia supports commitments to "*improving level crossing safety across Australia by improving illumination and visibility of trains approaching level crossings.*" Engineers Australia believe that the draft Code of Practice – Level Crossings and Train Visibility (the Code) could go further to achieve that objective.

About Engineers Australia

Engineering is the essential link between thinking and doing. Between idea, and implementation. It's our means for positive, sustainable change, with an influence on every aspect of modern society. Engineers are the enablers of productivity because they convert smart ideas into new products, processes and services.

As Australia's national body for engineering, we are the voice and champion of our 120,000-plus members. We provide them with the resources, connections, and growth they need to do ethical, competent and high-value work in our communities.

A mission-based, not-for-profit professional association, Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community. We back today's problem-solvers, so they can shape a better tomorrow.

Engineers Australia's response is guided by our Charter and Code of Ethics which states that engineers act in the interest of the community, ahead of sectional or personal interests towards a sustainable future.

About the authors

This submission is developed by volunteer members of the Transport Australia Society and their working group on road safety. The Transport Australia Society is an Engineers Australia Technical Society for transport professionals in Australia. Transport professional volunteers focus on key transport decisions affecting the well-being, productivity and sustainability of our cities and regions in accordance with Engineers Australia's Charter and Code of Ethics. Through their work they seek to improve public debate on strategic transport issues, and to provide valuable expert advice to governments making decisions regarding transport policy, reform, and infrastructure investment.

Contact information

The Transport Australia Society is keen to contribute to the constructive dialogue on road and rail safety. To discuss the contents of this submission further, please contact policy@engineersaustralia.org.au.

Background

In Engineers Australia's submission to the draft Australian Standard AS7531, Engineers Australia indicated that the requirements of the Standard needed to be improved and that such requirements need to be mandatory. Despite sound rationale and it being affordable, it is unfortunate that the rail industry has chosen to not implement these improvements. During this time, a freight train and a truck collided at the Barrier Hwy level crossing near Cutana in South Australia, with the crew of the train sustaining fatal injuries.[1]

Therefore, it is essential the Code now requires the improvements that are necessary.

Engineers Australia's perspective is based on a holistic systems approach that takes all contributing factors into account, as ONRSR's Contributing Factor Framework Manual describes. It particularly notes the contribution of 'human factors' that may be inadvertent and unavoidable. Relying on road drivers to never make mistakes, without providing sufficient assistance or redundancy is unreliable and not as safe as reasonably practicable.

Engineers Australia notes that under Rail Safety National Law (RSNL)

- railways have an obligation to operate safely "so far as is reasonably practicable" (SFAIRP), and
- ONRSR already have powers to require railways to operate safely and improve safety,
- the Code is not mandatory.

As such, the Code does not appear to add any additional requirements that improve level crossing safety.

The scope of the Code is quite good, covering the aspects of rail and road infrastructure generally within the powers of RSNL and ONRSR. It covers a reasonable approach to managing level crossing risks, technical requirements, risk management, installations and maintenance. Critically, it also covers 'human factors' issues which are extremely important, particularly for road users crossing railways. While the Code is intended to cover all road users in all circumstances, there appear to be some gaps, so ONRSR needs to ensure that the Code sufficient for all road users in all circumstances.

Engineers Australia notes that AS 7531 Rolling stock lighting and visibility, is a "*minimum standard*" that is applicable to any rolling stock operating in any conditions at any time. The Standard should include higher specifications for high-risk operations. The minimum standard prescribed by the Code is therefore inadequate for trains which operate at higher speeds or are used more often or operate in poor light conditions or when rolling stock is dark or dirty. The Code generally needs to require a higher standard than AS7531.

To ensure level crossing safety is improved the Code must clearly specify changes required. These should not be minimum standards but mandatory requirements. If the rail industry can justify a lower level of safety based on risk or cost, then they should demonstrate it to ONRSRs satisfaction.

The Code must be as clear as possible to be fair to stakeholders, to maximise safety and to ensure ONRSR operates as efficiently, effectively and as quickly as possible. The Code must avoid confusion, misinterpretation or argument. The Code must clearly describe more than principles and concepts, it must clearly specify requirements.

The Code must ensure that railways implement the requirements quickly and consistently. It should state timeframes to meet for rolling stock, infrastructure and management processes. Implementation must start immediately for new rolling stock, and as soon as possible for existing rolling stock. A five-year timeframe is generally reasonable as it is consistent with rolling stock maintenance programs. Doing so will ensure road users will encounter the same visual information to help them to choose to

[1] Refer to ATSB Investigation No RO-2023-009 31/12/2023).

cross railways safely. Any rolling stock not complying within five years should have a formal a risk assessment and be explicitly approved by ONRSR.

Level crossings need to be assessed and upgraded as soon as possible on a priority basis based on risk. Level crossings with high exposure (road and rail traffic volumes), high speed trains, passenger trains and substandard infrastructure must be assessed and improved first. The crash at the Barrier Hwy level crossing near Cutana in South Australia is a case in point. Both the road and rail are crucial interstate routes and carry high volumes of freight, including heavy vehicles. The railway is also used by the Indian Pacific passenger train. Yet the crossing has no boom gates that afford the highest level of compliance, and curved approaches that ATSB has described as being more difficult for road users to negotiate safely (ATSB Report RS-2021-001 "*Review of level crossing collisions involving trains and heavy road vehicles in Australia*").

Railways should be required to investigate and introduce innovations such as new infrastructure and vehicle systems to improve safety as appropriate. These may include low-cost crossing warning systems, train visibility improvements and direct train to road vehicle warning systems.

Recommendations

1. The Code needs to be reviewed and revised to ensure it covers all road users in all circumstances. These include, but are not limited to oversize trucks, pedestrians and cyclists, farm vehicles and towed vehicles.
2. The Code needs to specify timeframes for implementation.
    a. Revision of management processes must start immediately and be completed within two years.
    b. Assessment of the priority of level crossing infrastructure must start immediately and crossings must be upgraded on a priority basis as soon as possible.
    c. New rolling stock should comply immediately, and existing rolling stock should comply withing five years.
    d. Any rolling stock not complying after five years must be specifically exempted by ONRSR based on a risk assessment.
3. The Code must require railway operators to implement any measures that improve level crossing safety.
    a. It should not encourage or provide railways any excuses or opportunities to minimise safety.
    b. The following two paragraphs do not add any value to the Code and send unhelpful messages. It is recommended they are removed:
        i. paragraph 3 Page 12, Section 6, starting "*For example, …*". It is simply not possible for rail or road managers to implement changes across whole sections of a network.
        ii. first paragraph Page 18, Section 8.3, Cost is an issue for every stakeholder involved in level crossing safety, and taken account of under SFAIRP. The improvements Engineers Australia is recommending in this submission are affordable and therefore practicable.
4. The Code must specify:
    a. Flashing lights must be installed on the front of all regional passenger and freight trains.
    b. Side marker lights must be installed on all regional passenger and freight trains.

c. Wagons need to be much more visible with either improved reflective delineators or side lighting, either

    i. Higher standard and more reflectors on wagons.

    ii. Wagons should have side lights when they are a high hazard

5. The Code must clearly identify that rail operators and road authorities are required by law to identify hazards and to eliminate risks to health and safety or, if this is not reasonably practicable, minimise those risks so far as is reasonably practical (Regulations 34 and 35 of the Federal Work Health and Safety Regulations 2011).

    a. The failure to comply with this requirement can result in Industrial Manslaughter charges. It could therefore be argued that the failure of the Code to eliminate risks or reduce these to as low as practicable where this is not practicable is not consistent with Federal, State and Territory Laws and Regulations in this regard.

6. Railways should demonstrate to ONRSR regularly that they are investigating, testing and applying potential innovations such as new infrastructure and vehicle systems to improve safety.

7. ONRSR also needs to ensure that the code is enforced. At this stage the draft Code is too vague so there is too much room for railways to delay, argue endlessly or simply avoid doing any more than what they are already doing.

Conclusion

The Code has good coverage of concepts that should be applied to improve level crossing safety. However, it has some weaknesses that can easily be strengthened and are necessary to meet the Minister's objectives to improve level crossing safety and be consistent with Federal Work Health and Safety requirements.

The Code must be mandatory and implemented as soon as possible by all relevant participants, leaving no chance of being ignored or delayed. The Code must ensure higher and more specific standards for safety at level crossings including management processes, infrastructure and rolling stock. The Code must be clearer and must specify higher requirements for train lighting and visibility for locomotives, passenger trains and wagons operating in regional areas than AS7531 currently describes.