



Level Crossing Strategy Council Strategic Plan 2021-2030



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Foreword

This Strategic Plan has been developed by the Level Crossing Strategy Council (LCSC), an interagency forum in NSW that coordinates level crossing safety initiatives by road and rail agencies and other stakeholders.

The LCSC assists NSW to achieve the aspirational goal of Towards Zero trauma – and is committed to improving the safety of level crossings to move closer to this safer future.

Central to moving Towards Zero fatalities and serious injuries on the NSW transport network is the Safe System approach. By focusing on each part of the system – safe people, safe roads, safe speeds and safe vehicles – we aim to achieve that if one part of the system fails, the rest will protect people from being killed or seriously injured.

The Safe System approach is underpinned by the following principles:

- The human body has physical limits to withstanding the impact of a crash
- People sometimes make mistakes – but this shouldn't cost anyone their life
- Roads, roadsides, travel speeds and vehicles need to be designed to help avoid a crash or reduce the impact of a crash if it happens
- Road safety is a shared responsibility. We all need to make decisions with safety in mind, from the design of our roads and vehicles, investments, laws and education, to each road user acting safely every day.



This Strategic Plan has been guided by the Safe System approach. It looks at the system of level crossings as a whole, and provides a framework for consistent and coordinated action by road and rail agencies represented on the LCSC to achieve safer level crossings in NSW.

It is also an action plan. The LCSC, state and local government road authorities, and rail infrastructure managers will use this document to guide their work towards reducing risk at level crossings for a safe and efficient transport network across the state.

The Level Crossing Strategy Council is committed to delivering on this plan because of their strong shared commitment for safer level crossings across NSW.

Bernard Carlon, Executive Director, Centres for Road Safety and Maritime Safety

Strategic Plan at a glance

The safety of the community is at the forefront of this Strategic Plan. Developed by, and the responsibility of the LCSC, this Strategic Plan will guide their work from 2021-2030 to further improve the safety of level crossings, and ultimately create a safe and efficient transport system in NSW working Towards Zero trauma.

The objectives of this Strategic Plan are to eliminate collisions, reduce near misses and minimise the impact of any incidents that occur at level crossings.

This document provides an overview of the context to the strategy and details the key focus areas, initiatives, action plan and key performance indicators that will guide the work of the LCSC.

Our vision is...	Level Crossing Strategy Council Strategic Plan 2021-30 VISION		
	Towards Zero trauma at Level Crossings		
Our objectives are...	OBJECTIVES		
	No fatalities or serious injuries at level crossings	Minimise the occurrence of level crossing collisions	Reduce near miss incidents
We will focus on...	STRATEGIC PRIORITIES		
	Safe people	Safe vehicles, speeds and infrastructure	Harnessing knowledge for safety
We will do...	12 INITIATIVES		
	<ol style="list-style-type: none"> 1. Coordinate level crossing services 2. Increase public awareness 3. Address risk to specific population groups 4. Enforce the law 	<ol style="list-style-type: none"> 5. Equip trains, train crews and road vehicles to reduce risk 6. Reduce heavy vehicle risk 7. Maintain and improve infrastructure 8. Control level crossing environments 9. Eliminate level crossings where appropriate 	<ol style="list-style-type: none"> 10. Evaluate safety initiatives and investigate accidents 11. Collect and analyse data to better understand risk 12. Promote research and development.
We will measure our progress by...	MEASURES OF SUCCESS		
	<ul style="list-style-type: none"> • Number of engineering and behavioural initiatives implemented to reduce risk at level crossings • Number of crashes and near misses involving trains and road vehicles at level crossings per year • Number of fatalities and injuries involving trains and road vehicles at level crossings per year • Number of level crossings closed. 		
Implementation will be the responsibility of...	IMPLEMENTATION		
	<p>Will be guided by an action plan that is the responsibility of the Level Crossing Strategy Council. Members include TfNSW, Australian Rail Track Corporation, John Holland Rail, Local Government NSW, NSW Police Force, NSW TrainLink and Sydney Trains.</p>		
We will report on...	ACCOUNTABILITY		
	<p>The Level Crossing Strategy Council will produce annual reports of progress, against action plans and performance measures, to the NSW Minister for Transport and Roads, and the NSW Minister for Regional Transport and Roads.</p>		

Context

Level crossings in NSW – becoming safer but more to be done

Level crossings are the points at which roads and rail meet at substantially the same grade. There are more than 3,800 level crossings in NSW and more than 1,360 are on public roads.

Level crossings represent significant collision potential for rail and road users, including for pedestrians. While collisions have a low likelihood, the consequences can be catastrophic and have the potential to cause multiple fatalities and damage costs exceeding tens of millions of dollars.

Coordinating the safety of level crossings is a complex task, given that they all have different levels of risk, institutional arrangements, and control measures. The LCSC is responsible for delivering coordinated level crossing strategies and associated activities for NSW.

Through the work of the LCSC significant progress has been made in recent years to reduce level crossing risks in NSW.

2010-2020: Our achievements – a strong foundation for further improvement

Successes from the previous plan were achieved through cooperative work of all members of the LCSC, and include:

- **Reduced collisions in NSW.** Incident data collated by the Office of the National Rail Safety Regulator (ONRSR) shows level crossing collisions and fatalities are decreasing in NSW, and level crossing performance in NSW compares well with other states and territories and internationally.
- **Engineering upgrades and safety improvements at priority level crossings.** The Level Crossing Improvement Program (LCIP) funds a range of level crossing safety initiatives in NSW to improve and maintain safety at level crossings, above and beyond existing capital and maintenance programs of road and rail infrastructure managers (RIMs). This program has implemented innovative and proven safe technologies across NSW. From July 2003 to 30 June 2020, road and rail agencies spent \$360 million on level crossing safety initiatives, more than \$113 million of which was provided through Transport for NSW (TfNSW).
- **Reduced number of level crossings and increased safety around existing ones.** Three strategic policies have been implemented across NSW focused on: i) [avoiding building new level crossings](#); ii) [closing existing level crossings](#) where practical and cost effective, and; iii) reducing the road speed limit on approach to level crossings. Together, they have contributed to increased safety around level crossings by reducing collisions and the impact of those that occur.
- **Improved data collection to ensure accurate information is available on the status of NSW public level crossings.** The [NSW Public Level Crossing Finder](#) was developed, as a publicly available tool and a centralised source of reliable information about public level crossings in NSW.
- **Increased public awareness and community engagement.** Successful education campaigns and police enforcement campaigns have been run in regional NSW through the LCIP.

Aligning this Strategic Plan to our policy and governance context

The LCSC is an interagency forum in NSW that coordinates level crossing safety initiatives by road and rail agencies and other stakeholders. This Strategic Plan is the responsibility of the LCSC, and supports member agencies to continuously improve safety at level crossings in NSW.

The LCSC is chaired by TfNSW and comprises executive level representation from: TfNSW (Centres for Road Safety and Maritime Safety, Customer Strategy and Technology, Regional and Outer Metropolitan); Australian Rail Track Corporation; John Holland Rail; Local Government NSW; NSW Police Force; NSW TrainLink; Sydney Trains; and ONRSR (Non-member, observing role only).

The LCSC works to:

- Improve safety at level crossings in NSW
- Improve coordination between road and rail agencies to maximise knowledge sharing, skills and practice
- Avoid opening new level crossings and close crossings where appropriate
- Oversee capital works and the program's supporting activities funded by the TfNSW LCIP
- Develop and deliver on a Strategic Plan for level crossings in NSW.

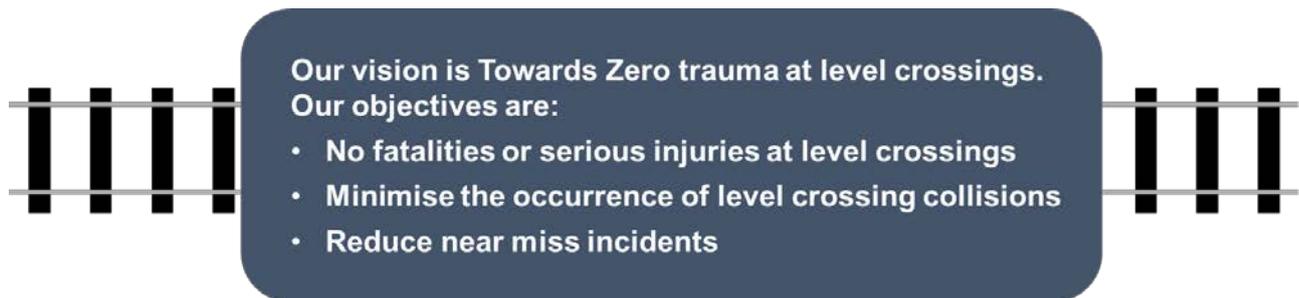
This Strategic Plan has been designed to align with:

- The **National Level Crossing Safety Committee** (NLCSC) which is an initiative of the Australasian rail industry. It is an inter-agency forum that coordinates national efforts for safer level crossings
- The [Towards Zero vision](#) contained in [NSW Future Transport 2056](#), aims to have a NSW transport network with zero trauma by 2056
- The [Safe System](#) approach to improving road safety. This approach recommends that initiatives that create safer roads, speeds, people and vehicles should be implemented together so the road system not only keeps us moving, but safe and protected.

In summary the key drivers for this Strategic Plan are to:

1. Support NSW with Towards Zero and the implementation of a Safe Systems approach across all transport programs
2. Build on the successes and momentum created by the previous plan (2010–2020)
3. Take advantage of new developments in technology to design safer systems
4. Strengthen the shared understanding and commitment of the LCSC to further improve safety at NSW level crossings
5. Outline the LCSC's work plan for the next ten years.

Vision and objectives



Our vision and objectives align with the Towards Zero vision for the safety of the NSW transport network.

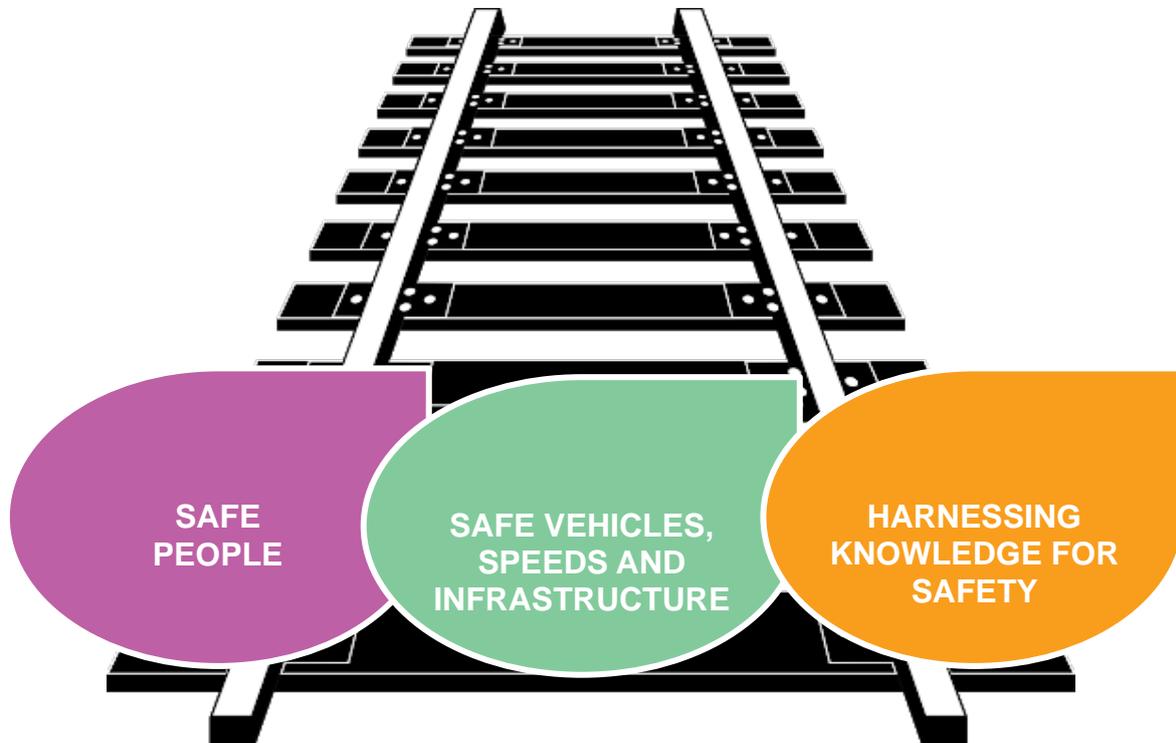
This Strategic Plan focuses on providing safe and reliable level crossings for all users including: road vehicle drivers, train crew and passengers, riders, passengers and pedestrians.

Our vision and objectives will be achieved through the following **principles**:

- Adopt a Safe Systems approach
- Share responsibility, using a cooperative approach by all members of the LCSC
- Engage with rail industry, government, road and rail stakeholders and the community
- Take an evidence-based approach
- Use existing information and build on research, data and international developments.

Our strategic priorities and initiatives

Aligned with the Safe Systems approach, to improve level crossing safety in NSW the LCSC will focus on three strategic priorities: safe people; safe vehicles, speeds and infrastructure; and harnessing knowledge for safety.



The LCSC will undertake 12 initiatives, organised under these three key focus areas.

12 key initiatives

Safe people – place people at the heart of the Safe System approach to transport



SAFE
PEOPLE

1. Coordinate level crossing services: Coordinate services effectively at all levels, from high-level policy and strategy development to the management of individual level crossings.
2. Increase public awareness: Promote level crossing safety through all available channels and through both road and rail public awareness campaigns.
3. Address risk to specific population groups: Target the special needs and circumstances of young people, seniors, pedestrians and vulnerable people such as people with disabilities.
4. Enforce the law: Deter would-be offenders, apply police resources effectively and use new technologies to strengthen enforcement.

Safe vehicles, speeds and infrastructure – capitalise on technology and continuously improve vehicles and infrastructure to create a safer system

**SAFE VEHICLES,
SPEEDS AND
INFRASTRUCTURE**



5. Equip trains, train crews and road vehicles to reduce risk: Enhance the visibility and audibility of train klaxons, explore the potential of vehicle-to-vehicle Intelligent Transport Systems and strengthen vehicles to reduce the impact of collision.
6. Reduce heavy vehicle risk: Ensure infrastructure is suitable for heavy vehicle use by only approving over-length vehicle use on roads where level crossing risk will not be increased and assist heavy vehicle drivers through education and awareness.
7. Maintain and improve level crossing infrastructure: Assess risk, maintain and upgrade infrastructure as appropriate.
8. Control level crossing environments: Address road speed limits, road and rail design and other environmental factors which contribute to collisions and near misses.
9. Eliminate level crossings where appropriate: Explore opportunities for grade separation or closing level crossings and seek to minimise any proposals to construct a public level crossing on a greenfield site, with a clear objective to add no further new level crossings to the network.

Harnessing knowledge for safety – understand that a safe system is a smart learning system that learns and improves through research, evaluation and data

**HARNESSING
KNOWLEDGE FOR
SAFETY**



10. Evaluate safety initiatives and investigate incidents: Use audits, evaluations and investigations to improve knowledge and understanding of the strengths and weaknesses of particular approaches to level crossing safety.
11. Collect and analyse data to better understand risk: Improve data quality and apply data in ways that will increase knowledge of crash causes and countermeasures.
12. Promote research and development: Encourage and monitor research and development relating to level crossing safety, including matters relating to human factors and driver interactions with level crossing (and other) infrastructure.

Action plan

Key area of focus	Initiative	Key actions	Owner	Timing
Safe people	Coordinate level crossing services	Coordinate level crossing activities state-wide through the NSW LCSC.	LCSC	Annual program
		Contribute to the coordination of level crossing safety activities Australia-wide through membership to national bodies.	LCSC	Annual program
		Implement the TfNSW Funding Deed for the LCIP.	LCSC	Annual program
	Increase public awareness	Promote level crossing safety through public education campaigns.	LCSC	June 2021
		Promote level crossing safety through National Rail Safety Week.	LCSC	Annual program
	Address risk to specific population groups	Contribute to the national project developing primary school resources on level crossing safety.	LCSC	Annual program
		Promote the installation of lockable gates to prevent pedestrians from forcing gates open when a train is in the vicinity.	LCSC	Annual (Standard practice)
		Promote the assessment of pedestrian level crossings compliance with Australian Standards.	LCSC	Annual program
	Enforce the law	Promote the enforcement of the road rules relating to level crossings through traffic policing.	LCSC	4 Campaigns per year
		Consider amendment of state legislation to provide for use of level crossing safety cameras.	LCSC	June 2022
Safe vehicles, speeds and infrastructure	Equip trains, train crews and road vehicles to reduce risk	Promote trials for new vehicle-to-vehicle Cooperative Intelligent Transport Initiative (CITI) warning systems as they become available.	LCSC	Annual program
		Continue to support the Australian Design Rules as an instrument to enhance road vehicle crashworthiness.	CRSMS	Annual program
	Reduce heavy vehicle risk	Encourage road managers to ensure approvals for heavy vehicle routes will not increase level crossing risks.	LCSC	Annual program
		Contribute to the national project reviewing policy on use of level crossings by restricted access vehicles.	LCSC	Annual program
		Contribute to the national project developing an education and awareness program addressing heavy vehicle over-representation in level crossing incidents.	LCSC	As required
	Maintain and improve level crossing infrastructure	Promote the assessment of risk through applications of the ALCAM.	LCSC Members	Annual program
		Promote the upgrades of level crossings in rural NSW.	LCSC	Annual program
		Maintain a dedicated ongoing program of upgrading public level crossing improvements funded by TfNSW.	LCSC	Annual program
	Control level crossing environments	Promote the reduction of road speeds in the approach to active level crossings.	LCSC	Annual program
		Promote cost effective controls at level crossings on less densely used roads and rail lines.	LCSC	As required

Key area of focus	Initiative	Key actions	Owner	Timing
	Eliminate level crossings where appropriate	Promote the rationalisation of level crossings where appropriate.	LCSC	Annual program
		Promote the policy to avoid the construction of new level crossings.	LCSC	As required
Harnessing knowledge for safety	Evaluate safety initiatives and investigate incidents	Investigate or assess level crossing incidents, including near misses and respond to findings of investigations as appropriate.	Operator and ONRSR	As required
	Collect and analyse data to better understand risk	Maintain a high standard of data collection including near miss reporting.	Operator & ONRSR	Annual program
		Undertake effective statistical analysis and provide reports enabling level crossing safety measures to be better targeted for enforcement and educational campaigns.	CRSMS	Annual program
		Promote the collection of level crossing ALCAM data and maintain the database.	LCSC	Annual program
		Manage a GIS database of all level crossings in NSW.	CRSMS	As required
		Contribute to the national initiatives towards better data quality and coordination, including a national policy and standards for level crossing data.	ONRSR LCSC	Annual program
	Promote research and development	Research - the application of level crossing quadrant gates controls and obstacle detection technologies for NSW level crossings.	LCSC	June 2022
		Contribute and monitor the Australasian Centre for Rail Innovation (ACRI) to the development of the national research agenda.	LCSC	Annual program
		Monitor current Australian and overseas research and assess its implications for NSW.	LCSC	Annual program
		Contribute to the national project developing safe system guidelines for level crossing environments.	LCSC	Annual program

Implementation, accountability and evaluation

Measuring effectiveness of the Strategic Plan

We will report against the following performance indicators:

- The number of engineering and behavioural initiatives implemented to reduce risk at level crossings
- The number of crashes and near misses involving trains and road vehicles at level crossings per year
- The number of fatalities and serious injuries involving trains and road vehicles at level crossings per year
- The number of level crossings closed.

Accountability

Delivery of the Strategic Plan will be the responsibility of the LCSC. To provide accountability for this plan the LCSC will:

- Outline progress against the action plan, performance measures and other successes
- Prepare an annual report to the NSW Minister for Transport and Roads and NSW Minister for Regional Transport and Roads.

Ongoing implementation: roles and responsibilities

The table below describes the high-level roles and responsibility of the LCSC as a whole, the members and TfNSW in relation to the delivery of the Strategic Plan.

Roles and responsibility	
The NSW Level Crossing Strategy Council	<ul style="list-style-type: none">• Develop, endorse and deliver on this Strategic Plan• Prepare annual reports against actions detailed in the Strategic Plan• Identify priority sites for upgrading• Endorse and monitor the delivery of the LCIP by TfNSW against budget• Provide a forum for member agencies to consider level crossing safety and improvement initiatives, and to research and monitor national and international level crossing safety developments and the application of new technology• Ensure data is collected and analysed to assess safety risk at level crossings• Report on progress to improve, replace or remove level crossings• Support its member agencies to continuously improve safety at level crossings in NSW.

Roles and responsibility

Road managers and rail infrastructure managers

- Manage and maintain safety of the level crossings on their networks, including critical implementation of level crossing risk reduction treatments and initiatives
- Enter into and maintain interface agreements and safety management plans between road and rail infrastructure managers, which must align with this Strategic Plan
- Provide timely and accurate information on level crossing changes
- Commit and deliver on LCIP initiatives identified by the LCSC within agreed timeframes.

TfNSW

- Chairing and secretariat support for the LCSC, Level Crossing Working Group and the Level Crossing Communications Working Group
- Develop and implement education and enforcement campaigns
- Policy development and program management of the LCIP
- NSW administration of the ALCAM.

Appendix A contains more details about the approach for how the LCSC will deliver on this Strategic Plan.

Glossary

Active control	Lights, bells, boom gates regulate motorists Lights, bells, booms and locking swing gates regulate pedestrians
ALCAM	Australian Level Crossing Assessment Model
ACRI	Australian Centre for Rail Innovation
ARTC	Australian Rail Track Corporation
ATSB	Australian Transport Safety Bureau
CITI	Cooperative Intelligent Transport Initiative
COAG	Council of Australian Governments
LCIP	Level Crossing Improvement Program
LCSC	Level Crossing Strategy Council
Level crossing	A level crossing is defined by the Standards Australia AS 1742.7:2016 as any crossing of railway at grade, providing for both vehicular traffic and other road users including pedestrians.
LGNSW	Local Government NSW
NSW TrainLink	The NSW Government agency [constituted as NSW Trains] that provides passenger train and coach services for regional NSW and outer-metropolitan Sydney
NLCSC	National Level Crossing Safety Committee
ONRSR	The Office of the National Rail Safety Regulator
Passive control	STOP or GIVE way signs regulate motorists Signs warn pedestrians Pedestrian maze control and signage regulate pedestrians
RSNL	The <i>Rail Safety National Law</i> (NSW)
ROM	Regional and Outer Metropolitan (a division of TfNSW)
RIM	Rail infrastructure manager; a term defined in the RSNL that refers to, among other things, the person or organisation that has effective control and management of the rail infrastructure of a railway
Strategic Plan	Safer NSW Level Crossing Strategic Plan 2021-2030
Sydney Trains	The NSW Government agency that provides passenger train services for the Sydney suburban area and is the RIM for the Greater Sydney metropolitan rail network
TfNSW	Transport for NSW
TISOC	Transport and Infrastructure Senior Officials Committee

Appendix A:

Elements of the implementation approach

- TfNSW uses the Australian Level Crossing Assessment Model (ALCAM) as the principal means of ranking public level crossings for safety improvements funded under the LCIP. Decision-making is supported by incident data from the Centre for Road Safety, ONRSR, local knowledge, road and RIMs.
- Promote the use of ALCAM to help prioritise investment when used with other relevant factors and work collaboratively to improve ALCAM through the National ALCAM Committee.
- Promote the closure of level crossings by undertaking comprehensive analysis of road and rail operational risks/impacts/benefits, consultation with the affected community and key stakeholders, and the availability of safe and convenient alternative access. [Level Crossing Closures Policy](#)
- The approach taken by TfNSW and the road and rail agencies is to avoid building new level crossings wherever possible given the inherent risk attached to any level crossing, even those with modern active controls. [Construction of New Level Crossing Policy](#)
- Reducing safety risks at level crossings requires a thorough assessment of site conditions (both road and road) and a consideration of the effectiveness of existing and potential controls. The application of low-cost treatments is considered first. Higher cost road and rail management measures are considered when necessary.
- When level crossings are upgraded under the LCIP from passive to active controls, the active controls include warning lights and boom gates.
- Where the development of either the road or rail network leads to a change in a risk profile resulting in the need for an upgrade of a level crossing the associated costs for both the road and rail components are met by the developer.
- The purpose of the LCIP is to accelerate safety improvements at priority level crossings by providing supplementary funding to road and rail agencies. The LCIP funds level crossing safety initiatives at level crossings on public roads.
- Keeping abreast of and sharing research on the development of national and international best practice approaches to risk reduction, including intelligent transport systems, to support the early uptake and application of proven cost-effective and innovative approaches in NSW.
- Effective collaboration of key stakeholders in both NSW and nationwide through sharing knowledge, skills and best practice. Involvement in a wide range of stakeholders and shared responsibilities across all factors of level crossing safety.
- Improve awareness and education campaigns and influence regulation, legislation and enforcement. Continue to pursue a better understanding of non-compliant behaviours by acknowledging human factors evidence as much as engineering and design factors.
- Ensure appropriate designs are developed when considering the level crossings environment, including road speed limits.
- Safe system approach where all aspects of the road rail interface focus on improving safety and all parties are expected to contribute, including level crossing users, as well as government and industry organisations that design, build, maintain and regulate road and rail infrastructure vehicles.
- Making cost effective decisions to utilise the funding available to increase the number of active crossings.

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