



# Level Crossing Strategy Council Yearly Report 2019-20



Front cover: Level crossing at Rosler Parade Henty in Riverina NSW

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## Glossary

<b>Active Control</b>	Lights, bells, boom gates regulate motorists Lights, bells, booms and locking swing gates regulate pedestrians
<b>ACRI</b>	Australasian Centre for Rail Innovation
<b>ALCAM</b>	Australian Level Crossing Assessment Model
<b>ARTC</b>	Australian Rail Track Corporation
<b>CRC</b>	Country Rail Contracts (a branch of TfNSW Regional and Outer Metropolitan)
<b>CRSMS</b>	The Centres for Road Safety and Maritime Safety (Safety, Environment and Regulation - TfNSW)
<b>CRN</b>	Country Regional Network (the part of the NSW rail network owned by RailCorp excluding any part under an ARTC lease or licence)
<b>DDA</b>	The Disability Discrimination Act 1992 (Commonwealth)
<b>IPWEA</b>	Institute of Public Works Engineering Australasia
<b>JHR</b>	John Holland Rail
<b>LCCWG</b>	Level Crossing Communication Working Group
<b>LCIP</b>	Level Crossing Improvement Program
<b>LCSC</b>	Level Crossing Strategy Council
<b>LCWG</b>	Level Crossing Working Group
<b>LGNSW</b>	Local Government NSW
<b>NSW TrainLink</b>	The NSW Government agency [constituted as NSW Trains] that provides passenger train and coach services for regional NSW and outer-metropolitan Sydney
<b>NLCSC</b>	National Level Crossing Safety Committee
<b>ONRSR</b>	The Office of the National Rail Safety Regulator
<b>Passive Control</b>	STOP or GIVE way signs regulate motorists Signs warn pedestrians Pedestrian maze control and signage regulate pedestrians
<b>RSNL</b>	The Rail Safety National Law (NSW)
<b>ROM</b>	Regional and Outer Metropolitan
<b>RIM</b>	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
<b>RISSB</b>	Rail Industry Safety Standards Board
<b>Sydney Trains</b>	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
<b>TfNSW</b>	Transport for NSW
<b>TISOC</b>	Transport and Infrastructure Senior Officials Committee

## Executive Summary

### 1 Year in review: 2019-20

In 2019-20, Rail infrastructure managers (RIM) and road managers invested \$30.31 million on safer level crossing initiatives in NSW of which \$7.58 million was allocated through the NSW Level Crossing Improvement Program (LCIP).

Transport for NSW (TfNSW) manages the LCIP, which provides funding to accelerate improvements to priority level crossings across NSW, raise awareness of level crossing safety issues and promote new technology to improve level crossing safety. LCIP funding is additional to the funds RIM and road managers spend on maintaining and upgrading level crossings on their networks.

In response to COVID-19, the Australian Government introduced strict border controls, impacting the availability of materials, equipment, and contractors nationally. The introduction of social or physical distancing meant that on-site construction practices had to be revised to ensure compliance with NSW Health requirements. Both impacts have affected the delivery time frames and costs of some of the LCIP engineering projects in 2019-20.

The effects of COVID-19 restrictions have had an impact on the LCIP 2019-20. Three major upgrades have been commissioned and delivery continues on a further six upgrades. Completed projects include:

- Samuel Street Wellington
- Newell Highway Tichborne
- Newell Highway Welcome

The following projects will be completed in 2020-21:

- Covan Creek Road Lake Bathurst
- Mills Road Towrang
- Jerrawa Road Jerrawa
- Wirrinya Road Wirrinya
- Murrays Flat Road Towrang
- Harefield Road Harefield

In addition to infrastructure works, the LCIP also funded other level crossing safety initiatives during the year, including:

- The level crossing safety education campaign 'Don't rush to the other side'
- Three level crossing awareness and enforcement campaigns in regional NSW
- ALCAM data verification project
- Level crossing strategy and policy development.

The TfNSW Transport Infrastructure Plan provides \$7.3 million LCIP funding a year to 2025-26. This translates to a \$36.5 million LCIP allocation from 2015-16 to 2019-20, enabling the planning and completion of future priority level crossing upgrades.

In June 2017, the LCIP converted to a three year rolling program to provide RIM and Local Government with improved long-term planning and consultation capacity in design and delivery for both LCIP and agency-funded level crossing upgrade projects. This also gives communities greater certainty in managing disruption while works are underway.

This report provides a consolidated overview of level crossing improvements delivered by RIM and road managers in 2019-20 (including LCIP funded projects).

**Appendix A** provides a summary of all projects funded under the LCIP in 2019-20.

**Appendix B** sets out the expenditure on level crossing upgrades in NSW funded through the LCIP and by RIM and road managers from 2013-14 to 2019-20.

## 1.1 Agency level crossing initiatives

In addition to the LCIP, the Australian Rail Track Corporation (ARTC), John Holland Rail (JHR), Sydney Trains and NSW TrainLink implemented their own programs for safer level crossings. Local government also has a role in assessing the safety risk at level crossings on local council roads.

### Australian Rail Track Corporation

During 2019-20, ARTC planned and delivered level crossing safety initiatives to the value of \$5,515,079 across various geographic regions over its NSW network. Initiatives included minor works covering:

- Road surface renewals, improvements and associated works.
- Sight distance improvements including road approach realignment.
- Pedestrian level crossing renewals.

### Country Regional Network (JHRail – TfNSW)

JHR and TfNSW continued to improve level crossing safety on the Country Rail Network (CRN) with improvements totalling \$15,594,000, including \$2,554,000 contribution from the LCIP. These improvements included design works, civil road surface upgrades, passive to active level crossing upgrades, replacement of life expired equipment at an actively controlled location, and upgrades to level crossing passive signage at various locations. As the contracted RIM for the CRN, JHR has a statutory obligation under the *Rail Safety National Law (NSW)* (RSNL) to manage the risk at the level crossings on the network 'so far as is reasonably practicable' (SFAIRP).

In pursuing this obligation, JHR formed a Level Crossing Safety Sub-Committee. The sub-committee meets regularly with the task of ensuring level crossing safety is given the required level of governance and exposure within its business and provides the JHR business with the required level of risk management assurance. The sub-committee abides by the statutory requirements under the RSNL and collaborates with the Level Crossing Strategy Committee (LCSC).

### Sydney Trains

Sydney Trains undertook a program of level crossing improvements across the network during 2019-20. Improvements included upgrade of signalling, the renewal of pedestrian gate motors and level crossing batteries.

Sydney Trains also delivered design and construction upgrade works for key safety initiatives to the value of \$1,612,000 at:

- Bellambi Lane Bellambi
- Bourke Street East Richmond
- St James Road Adamstown
- Rawson Road Woy Woy
- Harley Hill Road Berry

Work was also carried out to improve audible warnings at some level crossings. This work will continue in 2020-21.

For more information relating to agencies and organisations safety initiatives refer to pages 25-30.



## 2 Level crossings in New South Wales

Under the RSNL, RIM and road managers have an obligation to manage risks at level crossings. Safety regulatory oversight is provided by the Office of the National Rail Safety Regulator (ONRSR) for railway operations and rail infrastructure and the road/rail interface. The NSW Police enforces the *Road Rules 2014 (NSW)*.

### 2.1 Level Crossing Strategy Council

The LCSC is a NSW interagency forum that coordinates level crossing safety initiatives by RIM, road managers and other key stakeholders. The LCSC is chaired by TfNSW and comprises executive representation from:

- TfNSW (Centres for Road Safety and Maritime Safety, Regional and Outer Metropolitan, Country Rail Contracts, Customer Strategy and Technology)
- ARTC
- JHR
- Local Government NSW
- NSW Police
- NSW TrainLink
- Sydney Trains

Roads and Maritime Services was a member of the LCSC. On 1 December 2019, Roads and Maritime ceased to exist following the passage of the Transport Administration Amendment (RMS Dissolution) Bill 2019. All Roads and Maritime functions and responsibilities have been transferred into a new and fully integrated TfNSW.

The ONRSR also attends the LCSC meetings to provide a national perspective in discussions on rail safety related issues and to offer independent comment/advice on level crossing safety strategy and policy. ONRSR does not have an endorsement or approval function in LCSC deliberations.

Guided by the *Strategic Plan for NSW Level Crossings 2010–2020*, the LCSC develops policy, reviews incident and safety trends, monitors new technologies, and oversees the development and delivery of the annual capital works program, and education and awareness campaigns.

The LCSC is supported by the Level Crossing Working Group (LCWG) and the Level Crossing Communication Working Group (LCCWG). The LCWG and LCCWG comprises of officer-level representatives from member agencies. TfNSW provides secretariat support and assistance to the LCSC, LCWG and LCCWG, coordinates the implementation of the LCIP, and manages the application of the Australian Level Crossing Assessment Model (ALCAM) in NSW.

### 2.2 Level Crossing Improvement Program

The LCIP was established in 2000 to fund a range of level crossing safety initiatives in NSW. Funding under the LCIP is supplementary to the existing capital and maintenance programs of RIM and road managers to improve and maintain safety at the level crossings on their networks.

Key elements of the LCIP are: accelerate engineering upgrades and safety improvements at priority level crossings; education campaigns and police enforcement campaigns in regional NSW; and data collection to ensure accurate information is available on the status of NSW public level crossings.

The projects funded under LCIP each year are developed by the Centres for Road Safety

and Maritime Safety (CRSMS), with the assistance of the LCWG and endorsed by the LCSC. The LCWG monitors program delivery and promotes collaboration and consultation between delivery agencies. In April 2017, the LCSC endorsed an approach to establish the LCIP as a three year program to start from the 2017-18 financial year. The next three year LCIP program 2020-21 to 2022-23 was approved by the LCSC on 28 April 2020.

A methodology is in place to determine the level crossings eligible for funding under the LCIP and the priorities for improvements. This methodology, commonly known as the LCIP Infrastructure Works Eligibility Criteria, ensures available funding is applied effectively to level crossing safety improvements. The methodology continues to apply to the development of the LCIP through to 2022-23.

In the first instance, the methodology distributes the LCIP funding across the following three categories:

- Upgrading level crossings controlled by flashing lights to boom gates and flashing lights.
- Upgrading level crossings controlled by passive signage (e.g. give way or stop sign) to boom gates and flashing lights.
- Minor works at passively controlled level crossings.

A prioritisation process is then used to identify the crossings to be upgraded within the first two categories. This process first uses an ALCAM ranking to generate a shortlist of sites. The shortlist is then refined through consultations with relevant stakeholders to nominate sites required for major upgrades. Consultations involve a review of level crossing incident data for NSW, and consideration of local knowledge from RIM, road managers and other relevant stakeholders.

## **2.3 National Level Crossing Safety Committee**

The National Level Crossing Safety Committee (NLCSC) is an initiative of the Australasian rail industry. It operates as an inter-agency forum to coordinate national efforts for safer level crossings and reports to the Transport and Infrastructure Senior Officials Committee (TISOC). Its focus is on maximising knowledge-sharing and best practice, and on strategic opportunities such as greater national consistency in data collection/use and technology trials and take up.

The strategic objectives of the NLCSC are to:

- Reduce the likelihood of crashes and near misses at railway crossings.
- Improve coordination between road managers, RIM, governments and other member organisations through maximising knowledge-sharing, skills and practice.
- Develop and recommend initiatives to align and coordinate safety mitigation strategies developed by member organisations where it is agreed a national perspective provides safety benefits.

The NLCSC is chaired by the Director-General of the Queensland Department of Transport and Main Roads, and includes representatives from Australasian jurisdictions, government and private rail operators, RIM, rail industry associations, regulators, and the Australia New Zealand Police Advisory Agency. The TrackSAFE Foundation provides secretariat support.

## **2.4 Level crossing closures**

The only means of completely eliminating risk at a level crossing is to close the crossing. The closure of public and private level crossings is pursued, where appropriate, by LCSC



member RIM and road managers.

Thorough inspection and detailed assessment of crossings, including alternative means of access (such as grade-separations), is considered before closure. Consultation with the relevant local council, adjacent landowners, the community, Regional and Outer Metropolitan (ROM), emergency services and other rail and road users is also conducted prior to recommending closure. The *Transport Administration Act 1988* (section 99B) provides that level crossings can only be closed with the approval of the Minister for Transport and Roads or the Minister for Regional Transport and Roads. The TfNSW [Level Crossing Closures Policy](#) provides more information on level crossing closures.

Since 2003, a total of 183 level crossings have been gazetted for closure, most of which were on private property. As shown in Table 1 below, 16 level crossings were closed in 2019-20.

Table 1: Level crossings gazetted for closure in 2019-20

Location	Rail km	Line section	Status
Goonumbla	464.317	Parkes - Narromine	Private
Goonumbla	466.537	Parkes - Narromine	Private
Alectown West	470.194	Parkes - Narromine	Private
Alectown West	471.200	Parkes - Narromine	Private
Mickibri	478.010	Parkes - Narromine	Private
Mickibri	478.500	Parkes - Narromine	Private
Dows Road (Public Road) Peak Hill	499.560	Parkes - Narromine	Public
Wyanga	523.520	Parkes - Narromine	Private
Wyanga	526.060	Parkes - Narromine	Private
Wyanga	528.411	Parkes - Narromine	Private
Byron Bay	897.130	Casino - Murwillumbah	Public
Pucawan	491.940	Cootamundra - Griffith	Private
Fisher Street / Pine Street Temora	490.790	Cootamundra - Griffith	Public
Briar Street / Derricks Road Temora	491.470	Cootamundra - Griffith	Public
Stuart Town	368.158	Main West	Private
Charles Street Wellington	410.580	Main West	Public

Due to the closures of the Sandown Line on 1 July 2019 and the Carlingford line on 5 January 2020 to allow for the construction of the Parramatta Light Rail, the following level crossings have been decommissioned in 2019-20:

- Parramatta Road, Granville
- Rose Hill Racecourse Level Crossing
- Telopea Pedestrian Crossing
- Dundas Pedestrian Crossing
- Access Road Sandown Line

## 2.5 Level crossing incident data

Of the 1360 public road level crossings in NSW, 420 have active traffic controls; 162 have flashing lights and bells, 256 have flashing lights, bells and boom gates and two have manually operated booms/gates. The majority of other crossings are passively controlled by 'give-way' or 'stop' signs.

There were five collisions between a road vehicle and a train in NSW in 2019-20. All collisions occurred in regional areas, with one involving a heavy vehicle. Four of the five collisions occurred at crossings with passive control equipment.

The five collisions between a road vehicle and a train is the same as the previous year, however the human consequences were lower, with no fatalities or serious injuries reported.

There was one collision with a person at an active level crossing which resulted in a serious injury.

Figure 1 through to Figure 4 show the number of collisions and fatalities at level crossings from 1989-90 to 2019-20.

Figure 1: Train colliding with road vehicle at level crossing in NSW 1989-90 to 2019-20<sup>1</sup>

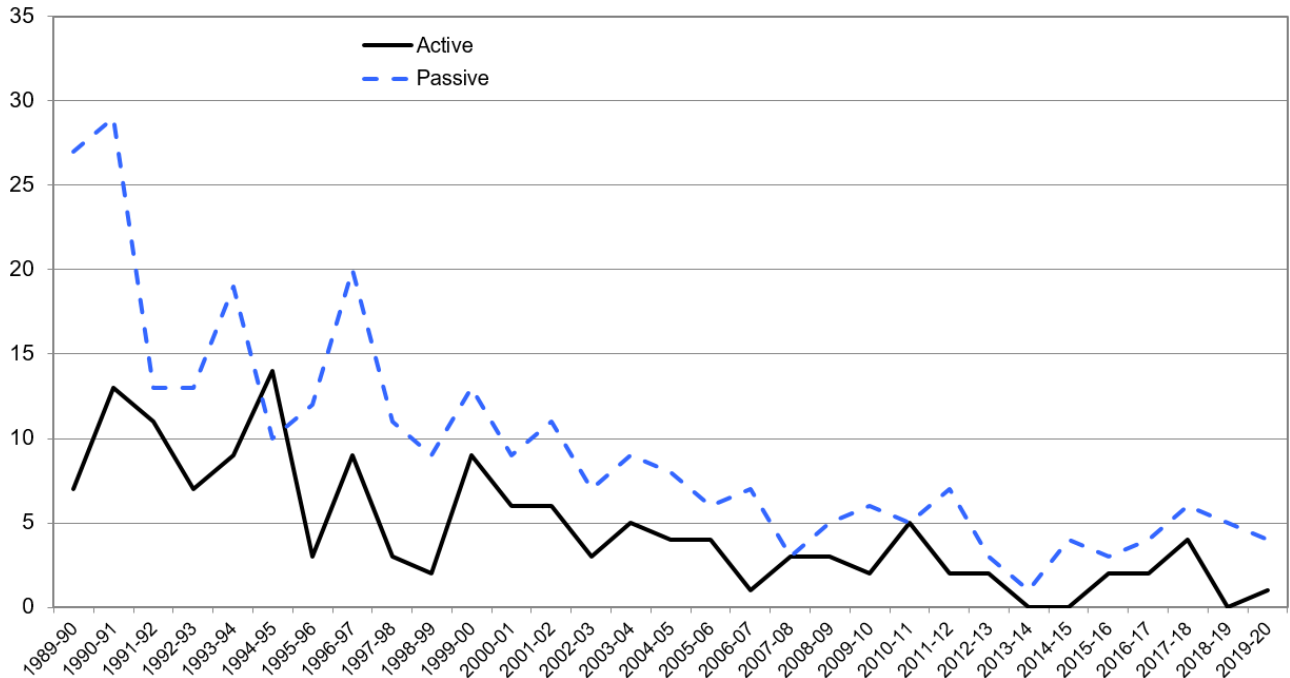
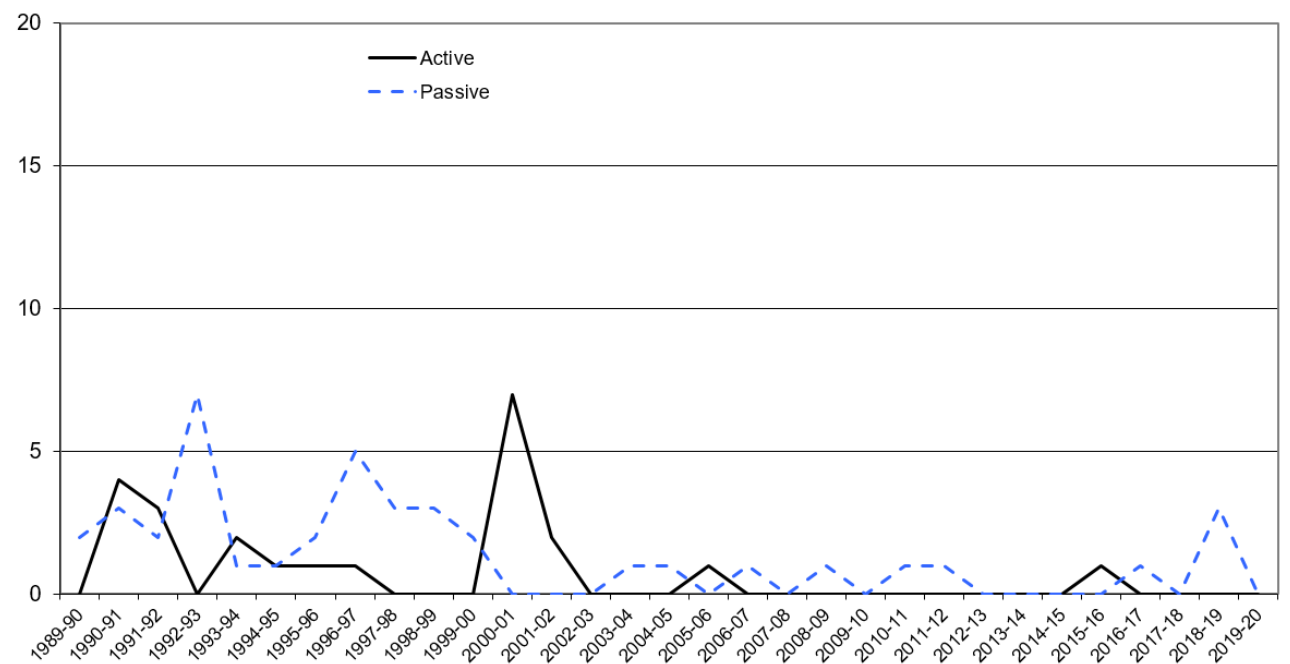


Figure 2: Fatalities: train colliding with road vehicles at level crossings in NSW - 1989-90 to 2019-20



<sup>1</sup> There was also a collision between a train and a road vehicle at an uncontrolled level crossing in 2015-16, which is not included in the results shown in Figure 1

Figure 3: Train colliding with person at level crossings in NSW - 1989-90 to 2019-20

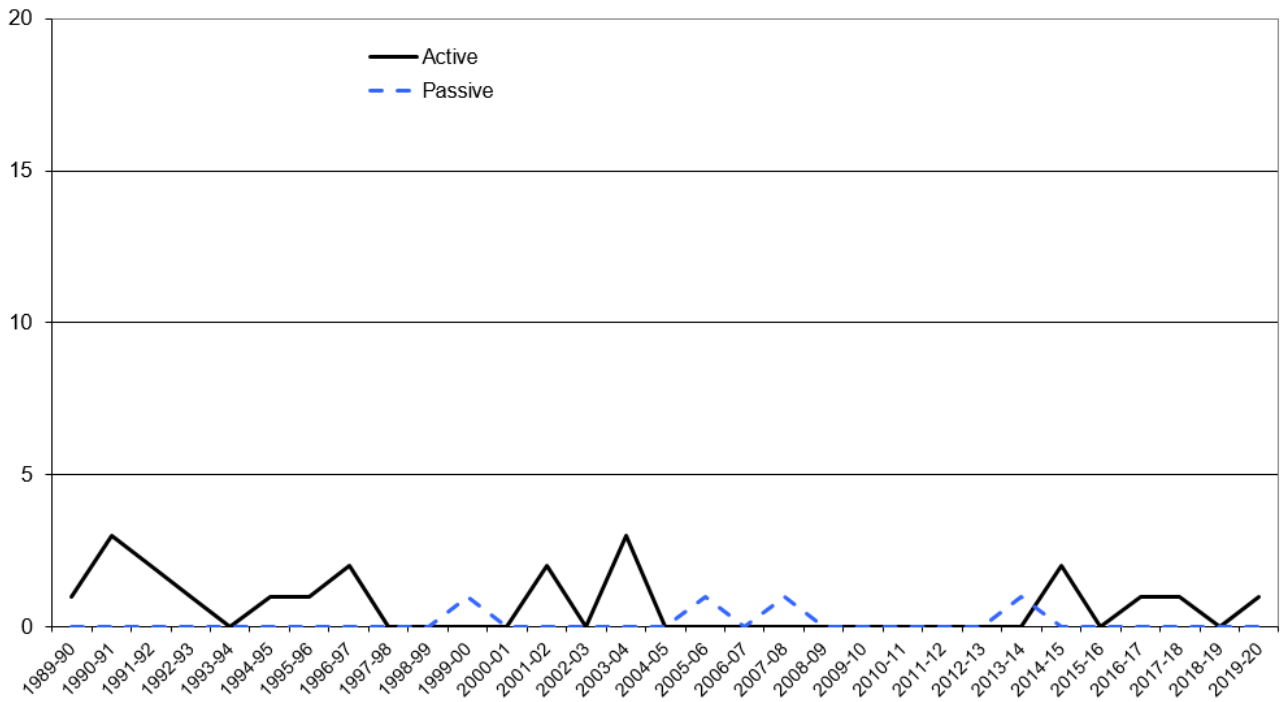
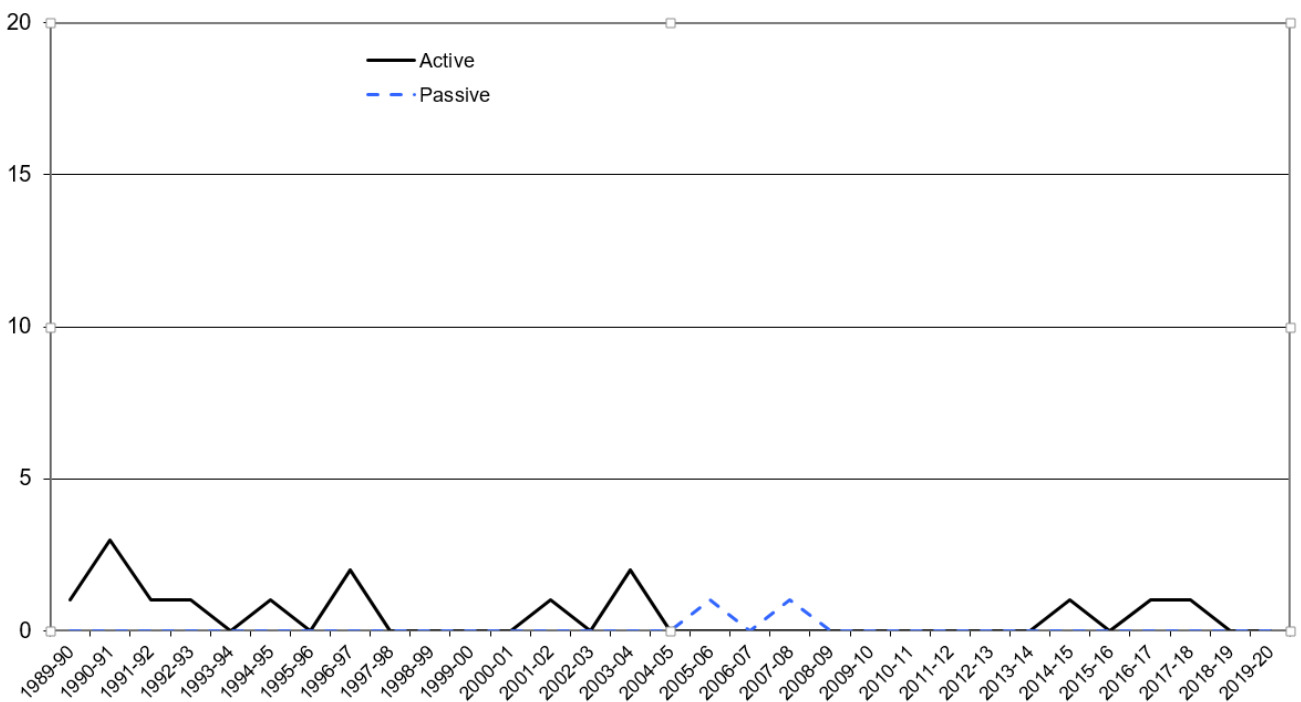


Figure 4: Fatalities: train colliding with person at level crossings in NSW - 1989-90 to 2019-20



# Level Crossing Improvement Program 2019-20

## 3 Infrastructure works

### 3.1 Major works completed

During 2019-20, nine major construction projects were expected to be commissioned across the NSW rail network under the LCIP. Six of the projects due to COVID-19 restrictions will be commissioned in 2020-21. The commissioned projects are shown in Table 2 and described in detail below.

Table 2: LCIP major construction works completed in 2019-20

Location	Electorate	Network
Samuel Street Wellington	Dubbo	CRN
Newell Highway Tichborne	Orange	ARTC
Newell Highway Welcome	Orange	ARTC

#### 3.1.1 Samuel Street Wellington

This passive level crossing was upgraded from stop signs to new high intensity LED flashing lights, bells and retro-reflective boom gates. The upgrade also included resurfacing of the road close to and across the crossing with new road and rail signage. The upgrade was commissioned on 15 May 2020 at a total cost of \$1,576,000, including an LCIP contribution of \$688,000.

In conjunction with the upgrade to Samuel Street level crossing, Charles Street level crossing was closed as part of an asset rationalisation project.

Figure 5: Samuel Street Wellington (before and after)



Figure 6: Charles Street Wellington (before and after)



### 3.1.2 Newell Highway Tichborne

This active level crossing was upgraded from flashing lights to new high intensity LED flashing lights, bells and retro-reflective boom gates. The upgrade also included new road and rail signage. The upgrade was commissioned on 11 March 2020 at a total cost of \$889,580 which is fully funded under the LCIP.

Figure 7: Newell Highway Tichborne (before and after)



### 3.1.3 Newell Highway Welcome

This active level crossing was upgraded from flashing lights to new high intensity LED flashing lights, bells and retro-reflective boom gates. The upgrade also included new road and rail signage. The upgrade was commissioned on 18 June 2020 at a total cost of \$984,462 which is fully funded under the LCIP.

Figure 8: Newell Highway Welcome (before and after)



## 3.2 Development work

Development work for upgrades in future years is a key element of the LCIP. In 2019-20 LCIP provided \$1,380,700 funding for the following projects.

Table 3: LCIP accelerated projects in 2019-20

Location	Electorate	Network	Cost
Ulan Road Wollar	Upper Hunter	ARTC	\$520,700
Burley Griffin Way Yoogali	Murray	CRN	\$860,000

The level crossing upgrade at Ulan Road Wollar was provided LCIP funding of \$520,700 to



accelerate the upgrade to offset ARTC projects that were delayed due to COVID-19 restrictions.

The active level crossing at Burley Griffin Way Yoogali will be upgraded with a new signal location, high intensity LED flashing lights, bells and retro-reflective boom gates. The upgrade also includes road widening, intersection treatment and traffic signal interfaced with level crossing controls which is partly funded by the Federal Heavy Vehicle Safety and Productivity Program. The upgrade is scheduled to be commissioned late 2020.

## 4 Education and awareness

### 4.1 Level crossing safety education campaigns

#### Don't rush to the other side



The 'Don't rush to the other side' level crossing safety education campaign provides a timely reminder to drivers that level crossings should not be approached with complacency. The campaign continued throughout 2019-20 and focussed on light vehicle drivers who live within 10 kilometres of a level crossing in regional NSW. The paid advertising campaign was fully integrated and ran across television, outdoor billboards, radio, digital, social media and one burst of cinema.

Level crossings social media content featured two train drivers from NSW TrainLink being interviewed about their personal experiences. There was also a series of informative animations which highlights the risks at level crossings and the need for drivers to always obey the signs and signals. All social content was distributed across TfNSW and key stakeholder channels as well as showcased at key Field Days events in 2019-20 to further engage with attendees and encourage mindfulness when next approaching a level crossing. Train driver interviews show a strong engagement rate with indigenous audiences of more than four per cent, which is higher than mainstream audiences. While nearly one in five are watching the animations to completion.

In addition, social media content was adjusted to support the NSW Road Safety COVID-19 Tactical Response. Messaging was aligned with government requirements and focused around 'essential travel'. In addition, industry communication aimed at Heavy Vehicle drivers was distributed during this time. With more delivery trucks on the road than ever before restocking supermarkets, it has never been more important to remind truck drivers to take care and not rush to the other side.

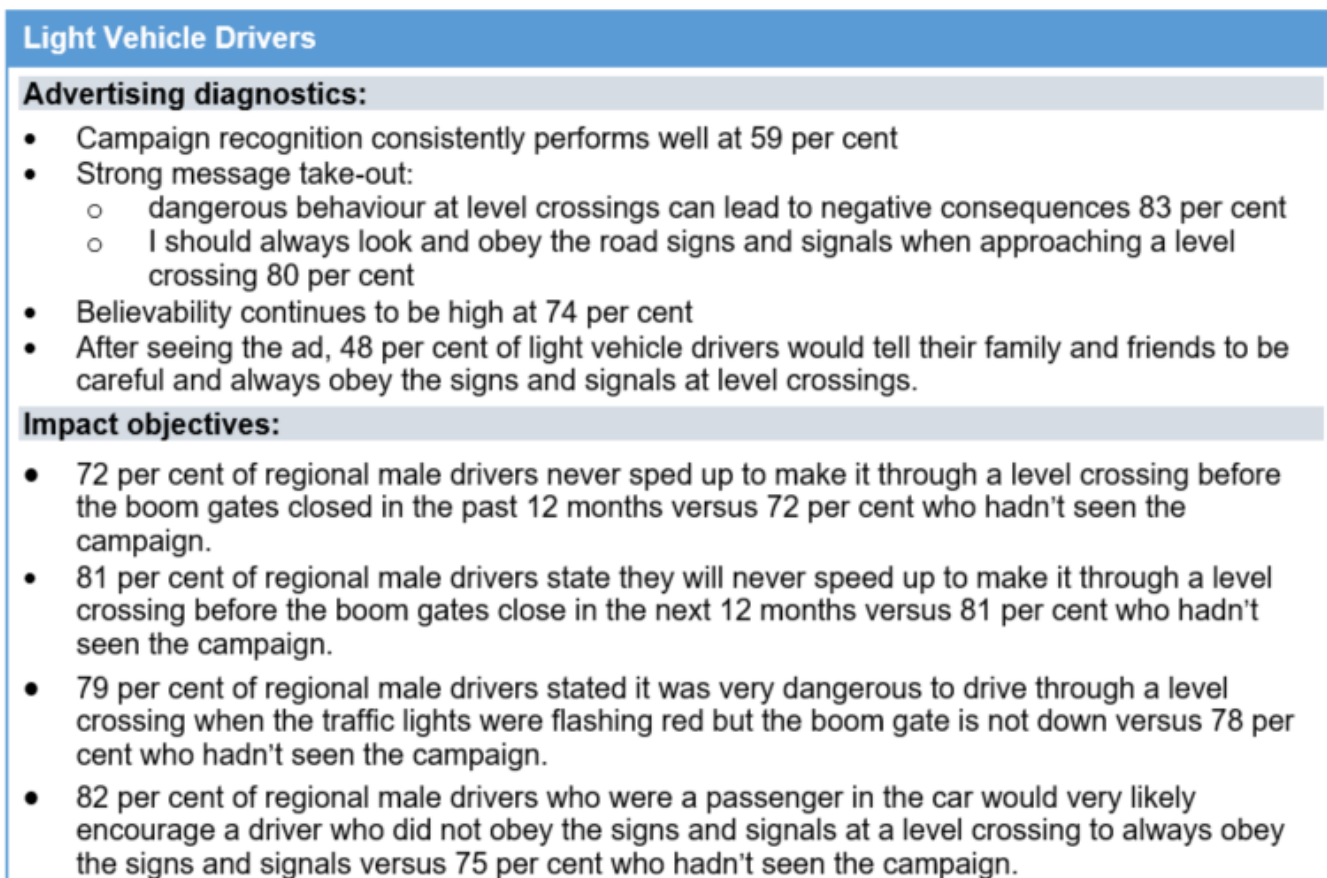
There were three periods of paid advertising in 2019-20:

- November 2019, to coincide with harvest season when more trains are operating and more vehicles are on the road.
- February 2020 and May/June 2020 during the traditional peaks in level crossing collisions.

TfNSW ran three localised radio campaigns and letterbox drops to inform residents of upcoming local police enforcement operations at level crossings, and to remind them of the penalties for disobeying the road rules (see section 4.2). To complement this, the NSW Police Traffic Highway Patrol Command were interviewed by local radio stations in key areas to discuss the risks associated with level crossings.

Campaign tracking research carried out during 2019-20 activity by an independent research agency showed the campaign remains consistent for light vehicle drivers. Summary of the results are set out in Figure 9 below.

Figure 9: Campaign effectiveness – advertising diagnostics and outcomes



Overall, the Level Crossings Safety 'Don't rush to the other side' advertising campaign will contribute to a reduction in casualties occurring at level crossings, in partnership with other level crossing safety campaigns and programs in NSW.

### Regional Field Days

To raise the profile of level crossings and generate discussion, TfNSW again participated in three public engagement exhibitions featuring the 'Pearly Gates' campaign message and a car that had been involved in a level crossing crash. The events included:

- AgQuip Field Days at Gunnedah – 20 to 22 August 2019
- Henty Machinery Field Days at Henty – 17 to 19 September 2019
- Australian National Field Days at Borenore – 24 to 26 October 2019.

Figure 10: 2019 Henty Field Days at Henty



Figure 11: 2019 AgQuip Field Days at Gunnedah



## 4.2 Level crossing awareness and enforcement campaigns

NSW Police enforces the *Road Rules 2014 (NSW)* including level crossing offences. The impact of level crossing awareness and enforcement campaigns in delivering increased road policing around level crossings is reflected in the increase in legal actions for level crossing offences (driving) since the first campaign in February 2011.

Three joint TfNSW and NSW Police level crossing awareness and enforcement campaigns were conducted during 2019-20 as shown in Table 4 below.

Table 4: Level crossing awareness and enforcement campaigns in 2019-20

Location	Electorate	Region	Period
Campaign 1 Molong	Orange	Central West	Oct 2019
Campaign 2 Bathurst, Perthville and Georges Plains	Bathurst	Central West	Dec 2019
Campaign 3 Aberdeen, Togar and Muswellbrook	Hunter	Upper Hunter	Apr 2020

2019-20 campaigns were significantly impacted by COVID 19, with Campaign 3 held during health/travel restrictions being in place and the planned Campaign 4 at Port Kembla being



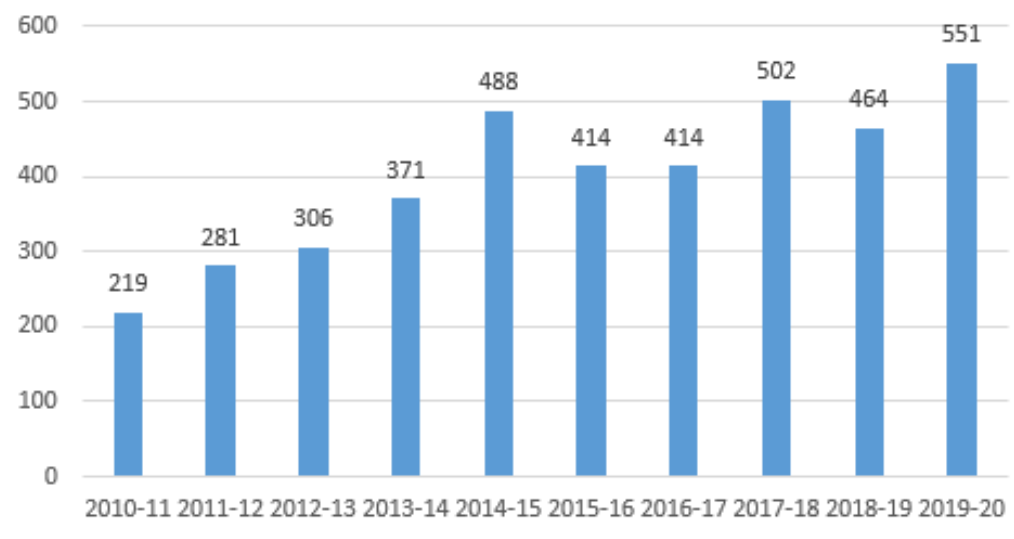
postponed to September 2020. Interestingly, the number of penalty notices have continued to increase, prompting a shift in enforcement strategy. 2020-21 will see the NSW Police include level crossings as a targeted tasking throughout regular shifts in addition to official campaigns.

Figure 12: Campaign 2 Bathurst December 2019



Legal actions for level crossing offences (driving) have been trending upwards since 2010 due to a heightened awareness of level crossing safety brought about through the campaigns. As shown in Figure 13 below, 551 penalty notices were issued to motorists for traffic offences at level crossings in 2019-20.

Figure 13: NSW Police level crossing legal actions between 2010-11 and 2019-20





The Traffic and Highway Patrol Command increased its media footprint in 2019-20. This was done to strategically assist with education rather than solely enforcement.

Media coverage was enhanced through the release of [Sydney Trains video](#) depicting a vehicle crashing through a boom gate at Kembla Grange – see Figure 14.

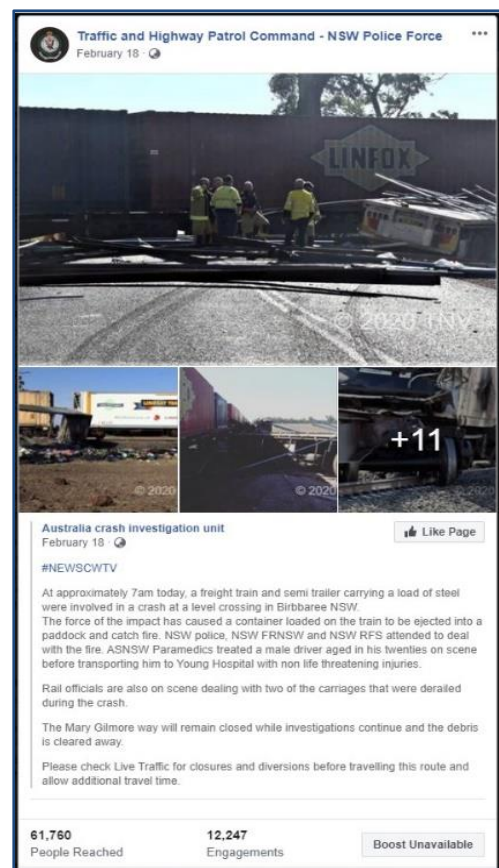
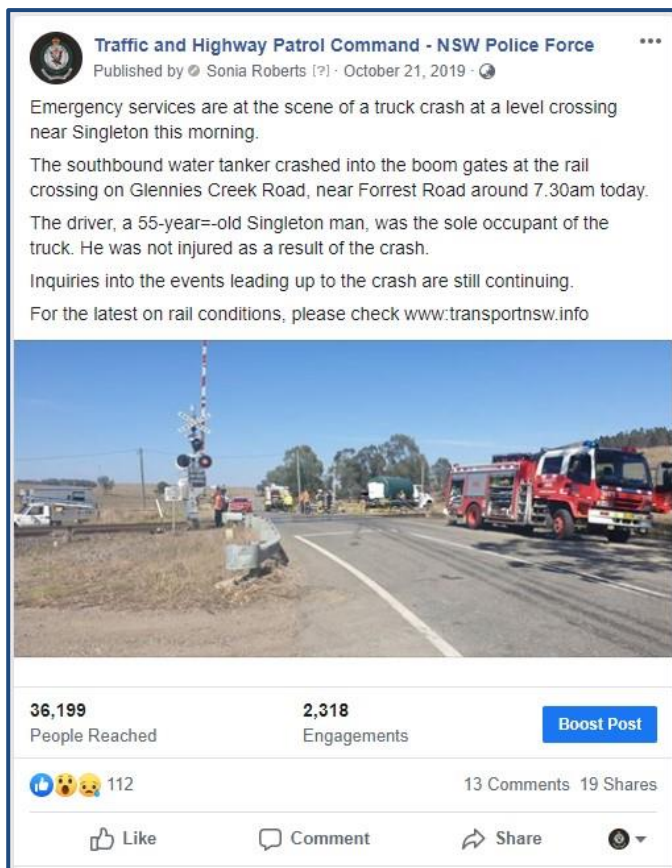
A re-posting of this item via the Traffic and Highway Patrol Facebook page generated the following metrics within only two days:

- Reach of 69,418 people
- 669 reactions, comments and shares
- 7909 engagements (11 per cent of people that saw the post did something in response).



Figure 14: Traffic and Highway Patrol Facebook – level crossing incident at Kembla Grange

Figure 15: Traffic and Highway Patrol Facebook – level crossing incidents at Singleton and Bribbaree



## 5 ALCAM development and data collection

ALCAM is used to assess potential risks at level crossings and to assist in the prioritisation of safety improvements at level crossings according to their comparative safety risks. ALCAM is currently applied across Australia and in New Zealand, and is overseen by the National ALCAM Committee.

### 5.1 National ALCAM Committee

The National ALCAM Committee comprises representatives of all Australian states and the Northern Territory, and New Zealand. The committee's role is to manage the development of ALCAM and to ensure consistency in its application. TfNSW represents NSW on the committee.

#### Transition of ALCAM to RISSB

The National ALCAM Committee conducted a review of its governance and legal status to ensure the continued effective and efficient development of ALCAM. The review considered a number of governance options for ALCAM operations into the future and evaluated how each option aligns with ALCAM strategic requirements. The review recommended that the management of the ALCAM and its Level Crossing Management System (LXM) be transferred from VicTrack to the Rail Industry Safety Standards Board (RISSB) in order to overcome challenges related to ALCAM's legal status, project delivery and resource constraints. This recommendation was approved by TISOC at its 18 October 2019 meeting.

To ensure a seamless, effective and timely transition, the National ALCAM Committee engaged a consulting firm (through the Department of Transport Victoria) to develop a transition plan that incorporates considerations around the management of four key areas: finance, IT, HR and legal. The transition plan will help the National ALCAM Committee and RISSB implement the transition by understanding key activities and responsibilities.

The transition plan for ALCAM and associated recommendations report are expected to be finalised in the first quarter of 2020-21. The National ALCAM Committee will progress the implementation of the transition plan based on the recommendations in the report.

#### Independent review of ALCAM by NLCSC

During 2019-20, the NLCSC commissioned an independent review (the Review) of ALCAM and LXM to provide assurance that the current ALCAM governance structure and assessment tool is fit for purpose and utilised across industry. The Review is intended to be complementary to, and not a duplication of, the National ALCAM Committee's internal governance and legal status review.

The Department of Transport and Main Roads (TMR) Queensland managed and funded the Review on behalf of the NLCSC. The Review focused on both the governance structure of ALCAM and the technical specifications of ALCAM and LXM. As part of the Review process, interviews were conducted with key stakeholders (e.g. NLCSC members and users of ALCAM and LXM) to understand their experiences and opinions regarding ALCAM and if and how ALCAM is meeting their needs.

A draft Review report was originally due to be handed to NLCSC members for feedback in June 2020, but delayed to 2020-21 because of COVID-19. The National ALCAM Committee and RISSB will be given the opportunity to provide comments on the findings and recommendations outlined in the report. Taking into consideration any feedback received, if required, the NLCSC will update the report and then present the final version to the TISOC for noting.

## **5.2 NSW ALCAM data collection**

Details on traffic controls, level crossing characteristics and other related risks are collected on all public level crossings in NSW on a cyclical basis over a five-year period. These details are loaded into LXM to update the characteristics and risk profiles for level crossings in NSW.

The ALCAM data collection was unable to proceed in 2019-20 due to the contractors being affected by COVID-19 travel restrictions. The funding of the project will be carried over into 2020-21.

## **5.3 NSW ALCAM data verification**

ALCAM plays a critical role in planning and developing the LCIP, and is used as the principal means of ranking public road level crossings for major upgrades funded under the LCIP. It is therefore important that the level crossing data in ALCAM is the most accurate and up-to-date information available.

In 2019-20, TfNSW engaged a consultant agency to undertake the NSW ALCAM Data Verification project. The objectives of this project are to:

- verify the accuracy of previous data entry of ALCAM survey forms into LXM
- verify the accuracy of Train Speed and Heavy Vehicle Route data recorded in LXM
- under-take a stocktake of NSW private crossings in LXM and verify the basic location details of private crossings.

The NSW ALCAM Data Verification project will be completed in September 2020.

## 6 New technology and research

### 6.1 Australasian Centre for Rail Innovation

#### ACRI approach

The Australasian Centre for Rail Innovation (ACRI) is a not-for-profit organisation that provides professional, independent applied research, strategic and economic analysis and innovative solutions for the Australasian rail industry and the broader transport sector.

ACRI's program of memorandums of understanding and co-operation with Australian and overseas rail and logistics bodies enable joint projects and sharing information with participants about current and past research. ACRI agreements include the UK Rail Safety Standards Board, the US Federal Railroad Administration and Transport Canada.

The regular dialogue between ACRI and these entities has resulted in sharing of research program details, provision of reports and expertise contacts to inform ACRI research, facilitation of meetings with Australian contacts, and importantly discussions towards joint projects. In the past year ACRI also completed a first international collaborative project with Rail Safety and Standards Board in the UK to conduct a horizon scan of accessibility innovations which has been further complimented this year with a follow on ACRI project consisting of workshops including rail, lived experience, health and technology expert people to further prioritise the 160 plus identified adaptable innovations from other sectors and countries.

ACRI also continues to provide advisory oversight of the [Rail Knowledge Bank](#). This freely accessible online resource of over 15,000 items celebrates 10 years of operation in 2020. Funded by federal, state and territory governments through the National Interest Services program, it now attracts over 200,000 visits a year, the majority of which are from Australia. It is the online home for the archive of papers and presentations of the major Australasian rail conferences, including CORE and AusRAIL.

ACRI is also the content manager of the NLCSC Level Crossing Safety Interventions Register, providing an access point to technologies and engineering interventions with known trials and evaluations. The Register is hosted on the ACRI website.

#### ACRI Level Crossing Work Program

The safety of motorists, pedestrians, rail workers and operators is the principal area of focus in the ACRI level crossing work program with research across the engineering and human factors disciplines. Since 2014, ACRI has completed 41 projects.

Research projects in progress and development in relation to level crossings include:

- improved the understanding of the efficacy of train horn sounding to alert motorists, motorcyclists, pedestrians and cyclists on approach to a variety of level crossing types, including passive and active controls in urban and rural locations highlighting the need for further research and collaboration to consider standardising train horn practises in Australia. This will now likely continue on with a series of simulator based studies to fully understand train horn effectiveness with motorists and pedestrians
- developed and evaluated the effectiveness of a low-cost retro-reflective screen solution to improve the detection by motorists of tabletop carriages and other trains
- evaluation of rail flange gap fillers at pedestrian level crossings
- evaluating safety measures and behaviours at level crossings along maintained but non-operational rail corridors
- sighting distance estimation tool and guideline to cover private (occupation) crossings

- active 'Expect Trains' follow-on research (video simulation experiments to test other word combos, e.g. 'Stop Ahead')
- identification and review of low-risk low-cost passive to active level crossing upgrade technology and supplier space
- Engineering Solutions to Speed and Distance Perceptions at Level Crossings (e.g. wobbly lights on locos, colour and height coded posts etc.)
- Train Horn Investigation next steps to consist of simulations for motorists and pedestrians to complete effectiveness study
- evaluating the effectiveness on road users of Amber Flashing Lights at actively protected railway crossings to indicate imminent closure
- retro-reflective screens next steps – further video/simulation experiments to confirm night time, low/normal beam headlights screen effectiveness to definitively complete the study and assess type approval and implementation pathways.



## Safety initiatives

### 7 Agency safer level crossings initiatives

#### 7.1 ARTC initiatives

##### Infrastructure works

During 2019-20, ARTC undertook level crossing safety initiatives to the value of \$5,515,079 across its network in NSW as shown in Table 5 below.

Table 5: ARTC initiatives in 2019-20

Line section	Cost \$	Sites	Project scope
Ivanhoe - Parkes	197,000	6	Level crossing surface improvements and associated works
The Rock - Albury	277,000	2	Level crossing surface improvements and associated works
Moss Vale Junction - Joppa Junction	430,000	1	Level crossing surface improvements and associated works
Cootamundra - Parkes	847,000	4	Level crossing surface improvements and associated works
Cootamundra - Junee	406,000	2	Level crossing surface improvements and associated works
Telarah to Stratford Junction	44,360	6	Signage and active equipment upgrades
Stratford Junction to Kundabung	309,164	6	Signage, sighting and active equipment upgrades
Kundabung to Lawrence Road	755,656	6	Signage, sighting and active equipment upgrades
Lawrence Road to The Border	351,799	4	Level crossing surface improvements and associated works
Ivanhoe to Broken Hill	144,000	3	Level crossing surface improvements and associated works
Hunter Valley Network	679,000	16	Sighting distance improvements
Hunter Valley Network	671,000	17	Level crossing surface improvements and associated works
Hunter Valley Network	403,100	4	Active level crossing equipment upgrades
<b>Total</b>	<b>\$5,515,079</b>	<b>77</b>	

##### Community Participation

ARTC regularly participates in local community events and Field Days events across NSW to promote rail safety to the wider community. Events in 2019-20 included: AgQuip Field Days at Gunnedah 20-22 August 2019; and Henty Machinery Field Days between 17 and 19 September 2019.

ARTC established stalls for the community to come and chat with rail professionals about the industry and encourage safe behaviour at level crossings. Engaging safety videos playing on a number of television screens and large displays reinforce the key safety message.

ARTC participated in the annual Rail Safety Week 12-18 August 2019 to support community awareness in safe rail practices and behaviour.

## School Safety Visits

In 2019-20 ARTC targeted rail safety presentations at two schools in the Hunter Valley (Newcastle and Boggabri) to promote rail safety relationships with schools neighbouring the network. ARTC staff talked to students about rail safety behaviours. This enabled a key focus on primary school children to establish safe behaviour around the railways from a young age.

## 7.2 Country Regional Network

JHR and CRC continued to improve level crossing safety on the CRN with improvements of \$15,594,000 set out in Table 6 below. These improvements included design works, civil road surface upgrades, level crossing passive signage upgrades, passive to active signalling upgrades, and replacement of life-expired equipment at one actively controlled site.

Table 6: CRN initiatives in 2019-20

Location	Cost \$	Project scope
Five locations	334,000	Level crossing designs including one pedestrian LX Design - Public and Pedestrian Warne St Wellington LX Design Orange Junction to Dubbo - Neurea Rd Mumbil C/O LX Design Tarana to Orange Junction - Tarana Rd Gemalla C/O LX Protection Upgrade Design Tarago to Queanbeyan - Mount Fairy Rd LX Design Junee to Narrandera - Ganmain Pedestrian Crossing Design C/O
12 locations	9,148,000	Level crossing civil road surface upgrades including two pedestrian LX Upgrade (Civil) - Level Crossing Newell Highway Parkes 445.737km LX Upgrade (Civil) West Tamworth to Armidale - Limbri-Woolbrook Rd LX Upgrade (Concrete) Narrabri to Burren Junction - LCN80565A Newell Highway Narrabri West C/O LX Upgrade (Steel) Burren Junction to Walgett - LCN80665A Cryon LX Upgrade (Steel) Burren Junction to Walgett - LCN80679A Cryon LX Upgrade (Steel) Burren Junction to Walgett - LCN80680A Cryon LX Upgrade Main Street Wallerawang Pacific Power 170.524 - 170.531km LX Upgrade Stuart Town to Dubbo - Dripstone Rd, Dripstone LX Upgrade Stuart Town to Dubbo LCW00407A Apsley Upgrade to Steel LX Upgrade Wallerawang to Tarana - Western Road / Railway Street Rydal LX (Werris Creek to West Tamworth) - Dud Public Pedestrian 436.132km - Civil works Pedestrian Walkway Upgrade- Stuart Town to Dubbo - Wellington C/O
15 locations	277,000	Level crossing passive signage upgrade including upgrade to active controls at two pedestrian LX Upgrade Various 13 locations - Installation of warning signage at double track passive le C/O LX Upgrade West Tamworth to Armidale - Hill Street Tamworth Pedestrian Crossing Replace Upper Quadrant Boom Mechanisms LX Upgrade West Tamworth to Armidale - Fitzroy Street Tamworth Pedestrian LX Upgrade Replace Upper Quadrant Boom Mechanisms
Passive to Active Level Crossing Upgrades – four Locations	3,237,000	Railway Street Currabubula ID0477 Platform Road Kelly's Plains ID0505 Neurea Road Mumbil ID0691
Active Upgrade to Active Level Crossing - one Location	44,000	Trunk Road Leeton ID0398
<b>Sub total</b>	<b>\$13,040,000</b>	

<b>JHR and CRC contribution to LCIP projects</b>		
<b>Project</b>	<b>Contribution \$</b>	<b>Total project cost</b>
Covan Creek Road Lake Bathurst	823,000	\$1,511,000
Samuel Street, Wellington	888,000	\$1,576,000
Burley Griffin Way – Yenda Road Yoogali/Griffith	843,000	\$1,703,000
<b>Sub total</b>	<b>\$2,554,000</b>	<b>\$4,790,000</b>
<b>Total</b>	<b>\$15,594,000</b>	

### 7.3 Sydney Trains initiatives

Sydney Trains continued to improve the safety of the level crossings on its network during 2019-20 with key infrastructure improvement initiatives shown in Table 7 below.

Table 7: Sydney Trains initiatives in 2019-20

<b>Location</b>	<b>Cost \$</b>	<b>Project scope</b>
Bellambi Lane Bellambi	520,000	Install Emergency and Manual operating switches, install bell bollards for pedestrian crossing and replace DPU track circuit with an Impulse track circuit
Bourke Street East Richmond	488,000	Detailed design for upgrade of existing Sydney-side pedestrian crossing, installation of a country-side pedestrian crossing and commercial construction activities
Harley Hill Road Berry	170,000	Detailed design to upgrade passive level crossing to active
Rawson Road Woy Woy	45,000	Development of options to upgrade level crossings to improve overall safety
St James Road Adamstown	389,000	Detailed design for the first stage completed
<b>Total</b>	<b>\$1,612,000</b>	

### 7.4 NSW TrainLink initiatives

NSW TrainLink is a rolling stock operator only and does not own or maintain level crossings, however it works constructively with RIM to address risks and increase safety at level crossings in NSW.

NSW TrainLink participated in a range of initiatives in 2019-20 to support safer level crossings. These initiatives included:

- Participation in local regional field days and community engagement events to raise awareness of safety at level crossings:
  - Pearly gates and NSW TrainLink stand at AgQuip Field Days event between 20 and 22 August 2019 engaging with local communities.
  - Joint awareness sessions with Gunnedah Local Area Command (NSW Police) at the station, level crossings and school talks plus the 140 year anniversary event.
  - Level crossing awareness displays with ARTC and Pacific National at Steamfest in Maitland.
  - Rail Safety Week sessions at Warnervale, Woy Woy and Hamilton engaging with local communities.

- Working with TfNSW for the Australian National Field Days at Borenore between 24 and 26 October 2019.
- Improvements at Galls Lane passive level crossing at Berry in July 2019. Following up on the preliminary initiatives provided in last financial year's report to address the near miss with three road vehicles at Galls Lane passive level crossing on 6 May 2019, NSW TrainLink engaged with Sydney Trains to organise improvement works. Works were conducted in July 2019 and they included replacement of faded signs, repainting of line markings and trimming of trees and shrubs to increase visibility on approach to level crossing.
- Engagement with Sydney Trains to plan improvements at School Parade active level crossing at Clifton; Sydney Trains committed to start improvement works, including improved line marking and signage. These works were completed in mid-June 2020.
- Level Crossing visits in West Area (part of South and West Region of NSW TrainLink) and interaction with road vehicle drivers to raise awareness around level crossing safety risks.
- Awareness activities planning for the next financial year, such as letter box drops in areas identified as hotspots in regards to level crossing violations.
- Increased engagement with regional train drivers to provide ongoing psychological support.
- Engagement with TfNSW and planning of actions to mitigate near misses at level crossings following the media release from the Minister for Regional Transport and Roads after the two near misses at Bathurst and Orange.
- Raising safety awareness at level crossings during the Rail Safety Week 2019 for three consecutive years.

## 7.5 Local Government NSW Initiatives

On 4 November 2019, Local Government NSW (LGNSW) facilitated an Interface Agreement workshop delivered by the ONRSR.

Julie Bullas, Executive Director, Policy Reform and Stakeholder Engagement along with Martin Jones, Director Operations Sydney met with 13 council members of LGNSW to address concerns or issues experienced by councils with rail infrastructure managers and answer any questions that councils had regarding interface agreements.

ONRSR conveyed that the [Rail Safety National Law \(NSW\) No 81a](#) stated that councils are legally liable if they did not enter into interface agreements. It was clear that most councils had entered into discussions in good faith. Key concerns that councils had included the possession costs imposed on councils by RIM in order to undertake maintenance works as well as concerns about staff safety.

Councils and ONRSR reported at the conclusion of the event that it was worthwhile and helpful in assisting councils who were yet to enter into interface agreements. ONRSR offered to support councils in negotiations with RIM if required.

## 7.6 Institute of Public Works Engineering Australia Initiatives

During the past twelve months, the two main concerns for Local Government have been the completion of outstanding road/rail interface agreements and the identification and review of short stacking on local and regional roads.

In relation to interface agreements, both Local Government NSW and the Institute of Public Works Engineering Australia (IPWEA) NSW have assisted councils in identifying outstanding issues and finding solutions to overcome these complications.

Short stacking on local and regional roads has arisen through the approval of the use of longer vehicles on existing B-Double routes. Problem crossings are being identified and appropriate solutions are being implemented.

## 7.7 Cooperative Intelligent Transport Initiative

The Cooperative Intelligent Transport Initiative (CITI) was established in 2014 by the Road Safety Technology team within the Centre for Road Safety in TfNSW. Using Cooperative Intelligent Transport Systems (C-ITS), 'connected' vehicles talk to each other and roadside infrastructure, such as signalised intersections. The CITI team is working to include the Princes Highway Unanderra level crossing (one of the busiest crossings in NSW with respect to train movements and vehicular traffic).

Vehicles fitted with C-ITS technology will receive in-cab alerts to indicate that the crossing is closing or is closed. Whilst the Unanderra crossing is a small-scale trial, this technology could ultimately translate to larger safety benefits for level crossings where there are no gates, infrequent train movements (where drivers are not currently primed for train traffic) and there are similarly connected heavy vehicles.

This project has drawn on the expertise and collaboration of various government agencies and stakeholders across the transport cluster, including Sydney Trains, road operators, road safety officers and Local Government. The project is in the procurement phase. The equipment is expected to be installed in 2020-21. The Road Safety Technology team will be evaluating the technology over the following 12-18 months.

## 7.8 Inland Rail initiatives

The Inland Rail project is being delivered by the Australian Government through ARTC to provide an enhanced link between Queensland and Southern Australia to enable freight travelling to Brisbane to bypass the Sydney network. There are 13 individual projects and the planned route is approximately 1700 kilometres between Melbourne and Brisbane of which 1047 kilometres is in NSW.

ARTC as the rail infrastructure owner and as part of the Inland Rail project in respect of Parkes to Narromine (P2N) rail line, gave notice in accordance with section 99B(3)(a) of the *Transport Administration Act 1988* of the proposed closure of nine private and one public level crossings. The private and public level crossings have alternative means of access and no impact on travel time.

The Minister for Regional Transport and Roads has approved the closures under section 99B(1) of the Act. The date of closure was 12 August 2019.

Closure of level crossings is ultimately the best method of completely eliminating risk at public and private level crossings and should be pursued where practical and cost effective to do so.

Currently negotiations are underway for further level crossing closures expected for the Narrabri to North Star (N2NS) project.



## 7.9 Level Crossing Road Speed Limit Policy

The Level Crossing Road Speed Limit Policy was endorsed by The Hon. Andrew Constance, Minister for Transport and Roads, and The Hon. Paul Toole, Minister for Regional Transport and Roads, in October 2019.

The purpose of this policy is to set speed limits to a maximum of 80 kilometres per hour on approach to level crossings actively controlled by flashing lights or flashing lights and boom gates.

This policy will help reduce the risk of crashes at level crossings between road vehicle and train by reducing road speeds on high speed approaches to actively controlled level crossings. Reducing the road speeds to a maximum of 80 kilometres per hour allows the motorist more time to react and decreases the likelihood of vehicles not being able to stop at level crossings.

TfNSW has identified the highest priority sites for speed zone reviews under the policy and will monitor and evaluate the implementation of lower speed limits at level crossings.

Improving road safety on approach to, and at, level crossings aligns with the Safe System principles that underpin the NSW Road Safety Plan 2021, and assist in achieving the *Future Transport 2056* commitment of zero fatal and serious injuries by 2056.

## 8 Interface agreements

### Context

The RSNL requires RIM and road managers to identify and assess risks to safety at level crossings and to enter into interface agreements to manage those risks. RIM and road managers are working to meet these obligations and are currently negotiating interface agreements for the level crossings on their networks.

Interface agreements have been a long-standing requirement since the introduction of the Model Law in 2006 and continued through the RNSL.

### Progress

In July 2019, an amendment to the RSNL came into effect allowing penalties to be imposed on managers of public roads who do not comply with requirements for interface agreements under RSNL, matching the penalties already in place for RIMs and managers of private roads.

To support this, ONRSR wrote to all councils identified as having outstanding interface agreements and published a fact sheet to provide guidance for road managers on issues such as maintenance responsibilities and road maintenance boundaries.

In November 2019, ONRSR conducted a workshop for councils, giving them the opportunity to ask questions and raise issues that were affecting the progress of agreements. The workshop discussions were constructive and contributed to a number of agreements being progressed.

During 2019-20, 12 agreements were signed and two new agreements were identified, leaving the three major RIM with a total of 39 outstanding agreements as at 30 June 2020. ONRSR continues to actively engage with these RIM to progress the outstanding interface agreements.

Table 8: Outstanding interface agreements in NSW as at 30 June 2020

Summary of interface agreement implementation	
Agreements required in NSW	161
Agreements outstanding in NSW	39 (24%)

## 9 Funding for level crossings in NSW

Table 9 provides a summary of the total expenditure on level crossing safety improvements in NSW since 2003-04 through to 2019-20.

Table 9: Funding for Level crossing safety improvements in NSW from 2003-04 to 2019-20

Year	Program / Agency	Expenditure (\$ millions)	Total (\$ millions)
2003-04	CRIA	2.00	5.00
	LCIP	3.00	
2004-05	LCIP	5.00	5.00
2005-06	RailCorp	1.30	7.30
	LCIP	6.00	
2006-07	RailCorp	2.40	11.33
	ARTC	1.65	
	CRIA	0.28	
	LCIP	7.00	
2007-08	RailCorp	2.65	18.49
	ARTC	6.90	
	CRIA	1.94	
	LCIP	7.00	
2008-09	RailCorp	2.81	18.03
	ARTC	2.47	
	CRIA	4.53	
	RTA	2.94	
	LCIP	5.28	
2009-10	RailCorp	3.27	59.77
	ARTC <sup>2</sup>	42.77	
	CRIA	3.87	
	RTA	3.30	
	LCIP	6.57	
2010-11	RailCorp	3.60	15.94
	ARTC	1.65	
	CRIA	3.37	
	LCIP <sup>3</sup>	7.33	
2011-12	RailCorp	3.20	42.69
	ARTC	29.21	
	CRIA	2.88	
	LCIP <sup>4</sup>	7.40	
2012-13	RailCorp	1.90	24.65
	ARTC	12.90	
	CRN	1.04	
	RMS	1.30	
	LCIP <sup>5</sup>	7.51	

<sup>2</sup> One-off funding for the Boom Gates for Rail Crossings Program was provided as part of the Australian Government's Nation Building Program.

<sup>3</sup> Includes \$2 million funding provided from the former RTA.

<sup>4</sup> Includes \$2.5 million provided by RailCorp and \$4.8 million provided by RMS

<sup>5</sup> Includes \$2.5 million provided by RailCorp and \$5.0 million provided by RMS

<b>Year</b>	<b>Program / Agency</b>	<b>Expenditure (\$ millions)</b>	<b>Total (\$ millions)</b>
2013-14	Sydney Trains	1.80	20.85
	ARTC	8.17	
	CRN	2.82	
	RMS	0.46	
	LCIP <sup>4</sup>	7.60	
2014-15	Sydney Trains	2.78	19.62
	ARTC	5.36	
	CRN	1.16	
	RMS	3.05	
	LCIP <sup>4</sup>	7.27	
2015-16	Sydney Trains	1.96	16.70
	ARTC	3.88	
	CRN	3.79	
	RMS	0.00	
	LCIP	7.07	
2016-17	Sydney Trains	2.94	29.21
	ARTC	3.03	
	CRN	12.70	
	RMS	3.26	
	LCIP	7.28	
2017-18	Sydney Trains	0.11	13.16
	ARTC	2.00	
	CRN	4.71	
	LCIP	6.34	
2018-19	Sydney Trains	1.55	21.57
	ARTC	3.87	
	CRN	8.10	
	RMS	0.48	
	LCIP	7.57	
2019-20	Sydney Trains	1.62	30.31
	ARTC	5.52	
	CRN	15.59	
	LCIP	7.58	

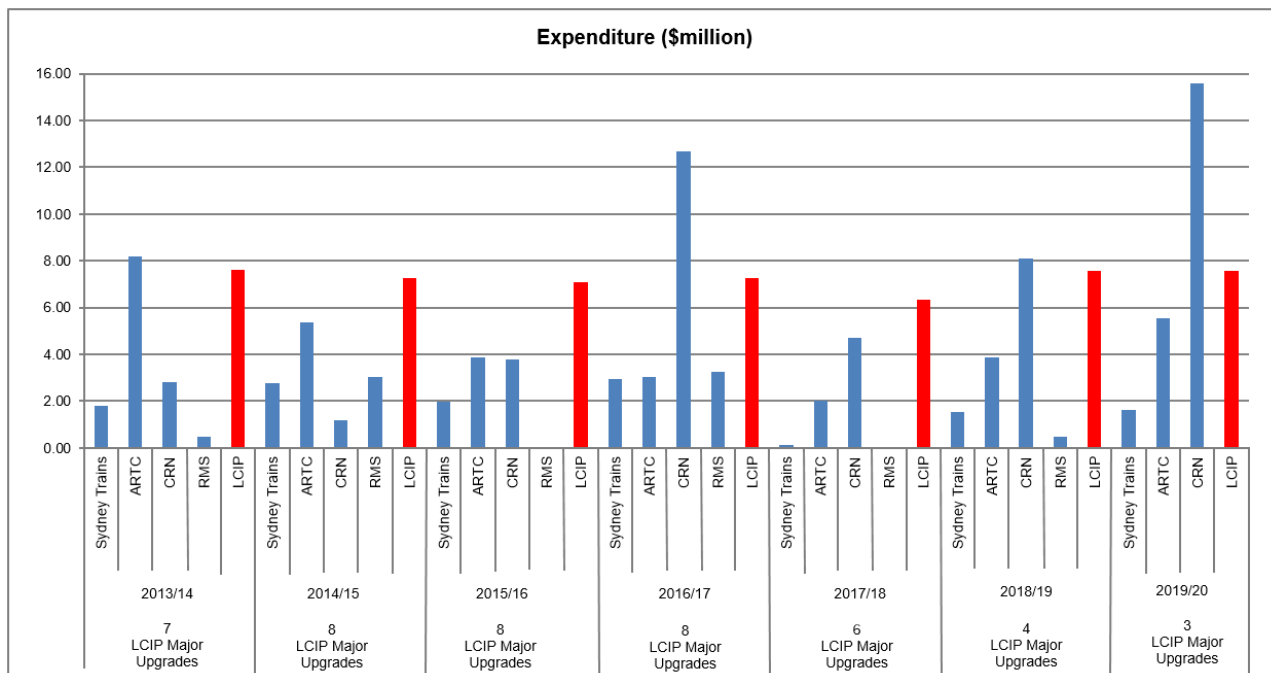
## Appendix A: Total LCIP 2019-20 work completed

Table 10: Total LCIP 2019-29 work completed

Location	Electorate	Value
<b>Construction projects</b>		
Mills Road Towrang	Goulburn	579,493
Wirrinya Road/Back Marsden Road Wirrinya	Orange	329,850
Murrays Flat Road Towrang	Goulburn	557,546
Jerrawa Road Jerrawa	Goulburn	507,800
Ulan Wollar Road Wollar	Upper Hunter	520,700
Covan Creek Road Lake Bathurst	Goulburn	688,000
Samuel Street Wellington	Dubbo	688,000
Burley Griffin Way – Yenda Road Yoogali/Griffith	Murray	860,000
Newell Highway Tichborne	Orange	633,580
Newell Highway Welcome	Orange	709,462
Harefield Road Harefield	Cootamundra	428,000
	<b>Sub Total</b>	<b>\$6,502,431</b>
<b>Other safer level crossings initiatives</b>		
		0
Level Crossing Education and Enforcement Campaigns		827,516
ALCAM Data Verification project		39,740
National ALCAM Contribution		80,000
Level crossing policy and strategy development		130,000
	<b>Sub Total</b>	<b>\$1,077,256</b>
	<b>Total</b>	<b>\$7,579,687</b>



## Appendix B: Expenditure on level crossing upgrades in NSW funded through the LCIP and by RIM and road managers 2013-14 to 2019-20



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