

LEVEL CROSSING STRATEGY COUNCIL

# Yearly Report 2009/10

LEVEL CROSSING SAFETY IMPROVEMENT PROGRAMS



# Table of Contents

<b>YEAR IN REVIEW: 2009/10</b> .....	<b>1</b>
<b>LEVEL CROSSINGS IN NEW SOUTH WALES</b> .....	<b>3</b>
ADMINISTRATION.....	3
LEVEL CROSSING IMPROVEMENT PROGRAM.....	4
LCIP REVIEW .....	4
LEVEL CROSSING CLOSURES.....	4
LEVEL CROSSING STATISTICS.....	5
<b>PROGRAM ACHIEVEMENTS: 2009/10</b> .....	<b>8</b>
LEVEL CROSSING IMPROVEMENT PROGRAM.....	8
INTERFACE AGREEMENTS.....	11
LEVEL CROSSINGS WEBSITE.....	11
RAILCORP INITIATIVES .....	12
RTA'S LEVEL CROSSING IMPROVEMENT PROGRAM .....	17
BOOM GATES FOR RAIL CROSSINGS PROGRAM.....	19
ARTC INITIATIVES .....	21
FUNDING FOR LEVEL CROSSINGS IN NSW .....	24
LEVEL CROSSING CLOSURES.....	24
RAIL SAFETY ACT 2008.....	24
<b>FUTURE DIRECTIONS</b> .....	<b>25</b>
LOW COST CONTROL DEVICES .....	25
<b>APPENDIX A: LCIP 2009/10 EXPENDITURE</b> .....	<b>26</b>
<b>GLOSSARY</b> .....	<b>27</b>

## Year in Review: 2009/10

In 2009/10 around \$60 million was spent on level crossings in NSW. This was a 300 per cent increase on level crossing funding in NSW in any previous year. The major contributor to this increase was the Commonwealth funded *Boom Gates for Rail Crossings Program* which supported level crossing up-grades funded by NSW road and infrastructure agencies and the projects undertaken as part of the Level Crossing Improvement Program (LCIP).

The Commonwealth strengthened efforts to improve level crossing safety. As part of the *Nation Building – Economic Stimulus Package*, the Federal Government allocated \$42.77 million to install boom gates and other active rail crossing control mechanisms at up to 55 passively controlled level crossings throughout New South Wales to be completed by 30 June 2010. This program finished on schedule with Australian Rail Track Corporation (ARTC) completing 53 level crossing up-grades, and the remaining two being completed by RailCorp. This program was in addition to LCIP and road and rail agencies' own level crossing improvement programs. The effect of the *Boom Gates for Rail Crossings Program* was to increase from 23 per cent in 2008/09 to 27 per cent the number of public level crossings fitted with active warning systems in NSW.

The LCIP contributed \$6.565 million to level crossing upgrades and other level crossing activities in 2009/10. Work progressed on 25 level crossings with major upgrades completed at four level crossings, at Liverpool Street, Scone; Balfour Street, Culcairn; Poplar Ave, Leeton and Bullus Drive, Moree with construction continuing on another 8 level crossings.

Development work for upgrades in future years formed a major part of the 2009/10 Program with concept designs undertaken for upgrades at 6 sites and detailed designs for another 7 level crossings.

In addition to the LCIP, RailCorp, the Country Rail Infrastructure Authority (CRIA), and the Roads and Traffic Authority (RTA) undertook their own programs of level crossing safety improvements.

RailCorp completed two crossing upgrades at Cowan and Berry at a combined cost of \$5.3 million and commenced construction at Unanderra and Dapto. Detailed designs were also completed for four sites to be constructed in 2010/11. The CRIA undertook safety improvement works at 60 level crossings at a total cost of \$2.9 million.

In 2009/10 the RTA managed combined RTA and LCIP funding of \$10 million. In addition to level crossing upgrade works funded by the LCIP, the RTA provided direct funding of \$3.3 million as part of a major level crossing upgrade at Riverstone in north-west Sydney, which was completed in June 2010.

The permanent closure of a level crossing or a grade separation is the only way to eliminate the interface between road and rail and the risk present at the crossing. It is Government policy that rail and road agencies close level crossings wherever possible, and 120 level crossings have been closed since 2002.

The number of collisions between trains and road vehicles has gradually decreased over the past 20 years and the number of incidents in 2009/10 was close to the lowest observed since the start of the Independent Transport Safety Regulator's (ITSR) records. No fatalities or collisions with pedestrians were recorded at level crossings in 2009/10. However, there were eight other collisions with motor vehicles during the year; two at actively controlled crossings, and six at passively controlled crossings.

Provisional data provided by the NSW Police Force shows that in 2009/10 the ongoing patrol of level crossings in NSW resulted in 224 legal actions, the majority being the issue of penalty notices for traffic offences. This was a 9 per cent increase on the 2008/09 figure of 209 infringements.

Transport NSW (formerly NSW Transport and Infrastructure) was established on 1 July 2010 as the lead public transport agency of the NSW Government, with primary responsibility for transport policy, planning and coordination, and oversight of infrastructure delivery and asset management.

The *Transport Administration Act 1988* was amended with effect from 1 July 2010 to reform the structure of the transport portfolio, and to formally vest these responsibilities in Transport NSW, which is responsible for delivering new integrated transport planning and service delivery functions, including the delivery of the LCIP. The establishment of Transport NSW should assist to improve level crossing safety effort through coordination between agencies with RailCorp, the CRIA, and the RTA now all reporting to the Transport NSW Director-General.

The Act now incorporates the following objectives:

- to provide an efficient and accountable framework for the governance of the delivery of transport services,
- to enable strategic directions to be set for integrated transport services,
- to enable effective planning and delivery of transport infrastructure and services,
- to facilitate the mobilisation and prioritisation of key resources across the transport sector,
- to co-ordinate the activities of those engaged in the delivery of transport services,
- to maintain independent regulatory arrangements for securing the safety of transport services.

## Level Crossings in New South Wales

A level crossing is the intersection of a road and railway line at the same grade. There are approximately 3,800 level crossings in NSW, 1,369 of which are the intersection of a public road and public railway. The remaining level crossings are on private roads. Management of safety risks at level crossings requires coordination between the rail infrastructure managers and roads authorities which have primary responsibility for ensuring safety at level crossings.

The level of control provided at railway crossings is determined by a risk assessment of each site. Railway level crossing traffic controls fall into two categories:

- Passive controls: stop or give way signs warn motorists about a level crossing. Signs warn pedestrians, and mazes control entry to the rail corridor.
- Active controls: lights, bells, and boom gates warn motorists, and lights, bells, booms, or locking swing gates warn pedestrians of an approaching train.

### Administration

New South Wales rail agencies and roads authorities are responsible for level crossing safety. Regulatory oversight is provided by the ITSr for rail operations/infrastructure and the road/rail interface, and by the RTA, Local Government and NSW Police Force for roads.

The Level Crossing Strategy Council (LCSC) is a NSW interagency forum which promotes coordination between agencies regarding railway level crossing safety. It is made up of chief executive level representation of:

- Transport NSW (Chair);
- RTA;
- CRIA;
- RailCorp;
- ARTC;
- ITSr;
- NSW Police Force; and
- Local Government and Shires Associations of NSW (LGSA).

The LCSC is supported by a Level Crossing Working Group (LCWG) which comprises officer-level representatives from the member agencies. During the year, RailCorp managed the *Australian Level Crossing Assessment Model* (ALCAM), undertook level crossing assessments, and worked with the RTA in implementing the LCIP. Transport NSW provided secretariat support and assistance to the LCSC and LCWG.

## ***Level Crossing Improvement Program***

The LCIP is a significant source of funds to accelerate level crossing safety improvements in NSW. The Government has allocated \$7 million per year for the LCIP until 30 June 2011. This comprises \$2 million in recurrent funding and \$5 million supplementary Government enhancement funding.

The LCSC endorses and monitors the delivery of the LCIP and promotes collaboration and consultation between all agencies involved in the works. LCIP funding is distributed generally according to a priority list of sites determined largely according to the ALCAM ranking. The ALCAM is used to assess and then rank the comparative risks present at a level crossing.

## ***LCIP Review***

In February 2010, the Director-General, Transport NSW asked for an independent review of the LCIP. The objective of the review was to examine current governance and administrative arrangements for the development and implementation of the LCIP, including:

- overall program and individual project planning and management, including stakeholder and business risk management;
- the development of the annual LCIP;
- performance reporting and accountability structures;
- procurement of concept development, design and construction of level crossing upgrades (both road and rail components); and
- LCIP funding and payment processes to rail agencies and other parties for upgrades, education campaigns, risk assessment related activities and other program components

The Review commenced in April 2010.

## ***Level Crossing Closures***

The only means of completely eliminating risk at a level crossing is to either grade separate or close it, and so the closure of railway level crossings, both public and private is actively pursued by LCSC member agencies. Thorough inspection and detailed assessment of crossings is conducted before closure is pursued. Consultation with the local council, adjacent landowners, the community, the RTA, emergency services and other road and rail users is conducted prior to recommending closure to the Minister for Transport, whose approval is required to close a crossing. During 2009/10 the Minister for Transport approved closure of 8 level crossings, and 120 level crossings have been closed since 2002.

## Level Crossing Statistics

### Level Crossing Incident Information

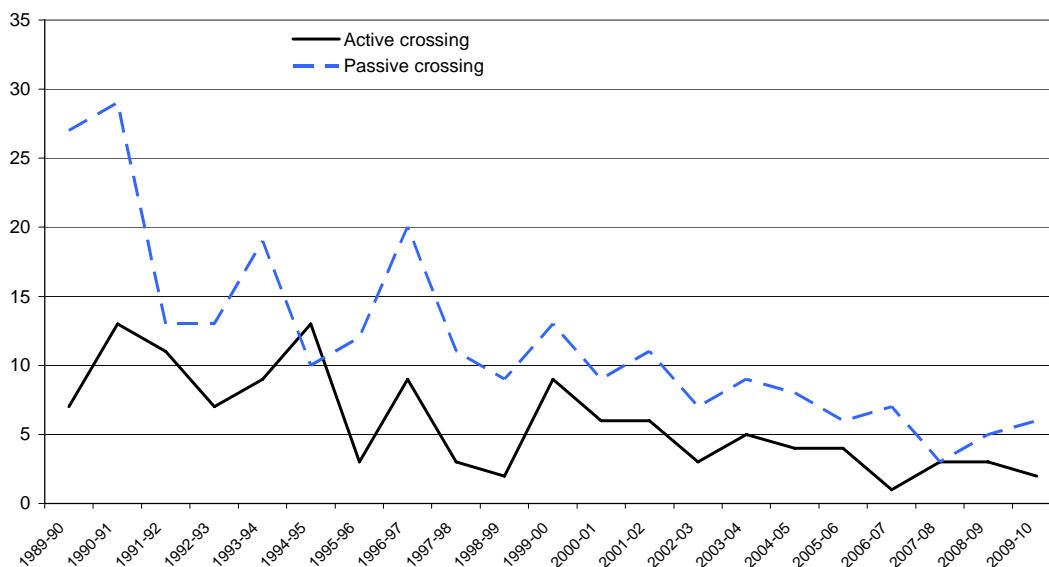
Of the 1,369 public road level crossings in NSW, 377 have active traffic controls; 190 have flashing lights and bells; and 187 have flashing lights, bells and booms. Traffic controls on other crossings are either “give-way” or “stop” signs.

There are now fewer level crossings in NSW as a number of crossings have been closed and some lines have become inactive.

No fatalities or collisions with pedestrians were recorded at level crossings in 2009/10. There were 8 other collisions with road vehicles during the year; 2 at actively controlled crossings and 6 at passively controlled crossings. The number of collisions between trains and road vehicles has gradually decreased over the past 20 years.

### Collisions – Motorists<sup>1</sup>

Train Colliding with Road Motor Vehicle at Level Crossing, 1989/90 to 2009/10 in NSW

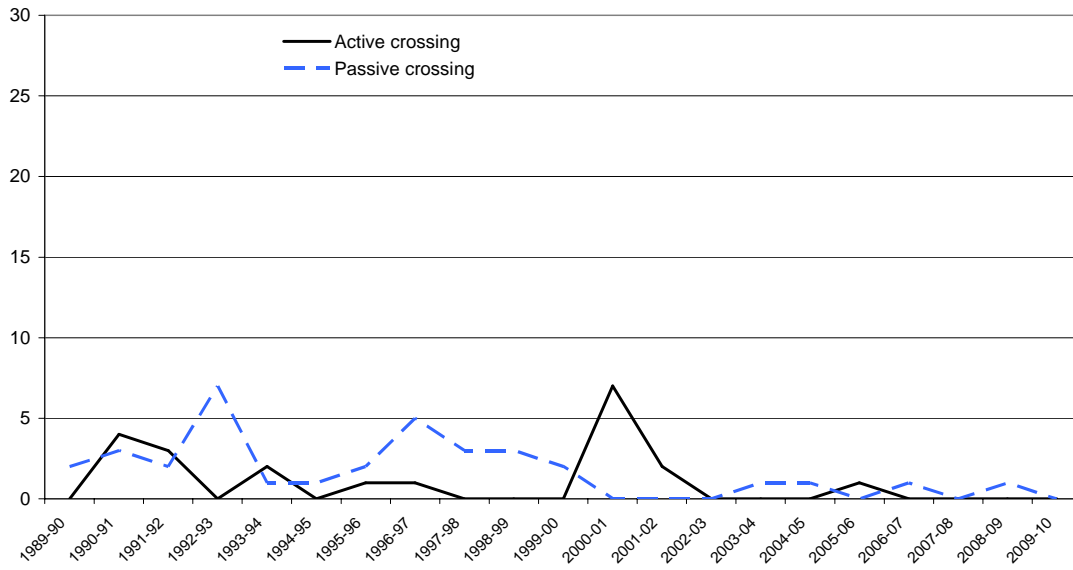


<sup>1</sup> Source of all level crossing incident information: The Independent Transport Safety Regulator



## Fatalities – Motorists

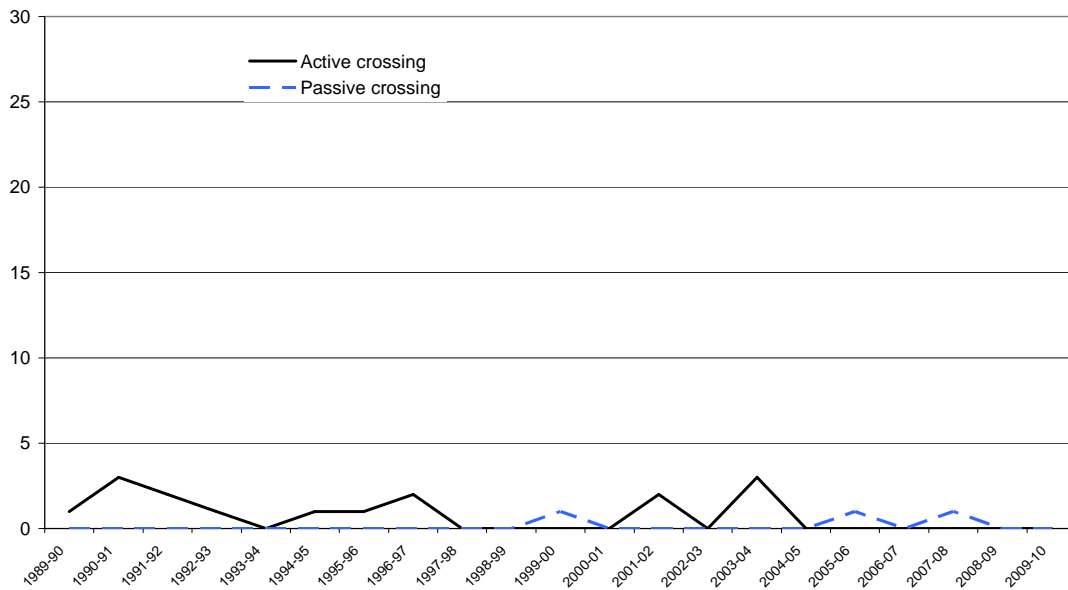
Fatalities - Train Colliding with Road Motor Vehicle at Level Crossing, 1989/90 to 2009/10 in NSW





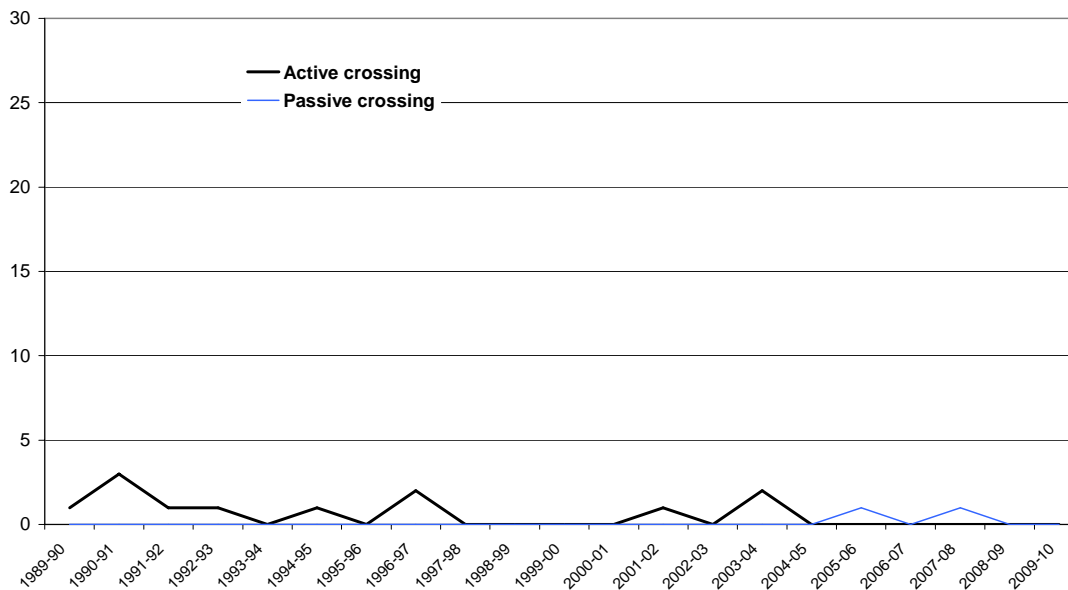
## Collisions – Pedestrians

Train Colliding with Person at Level Crossing, 1989/90 to 2009/10 in NSW



## Fatalities – Pedestrians

Fatalities - Train Colliding with Person at Level Crossing, 1989/90 to 2009/10 in NSW

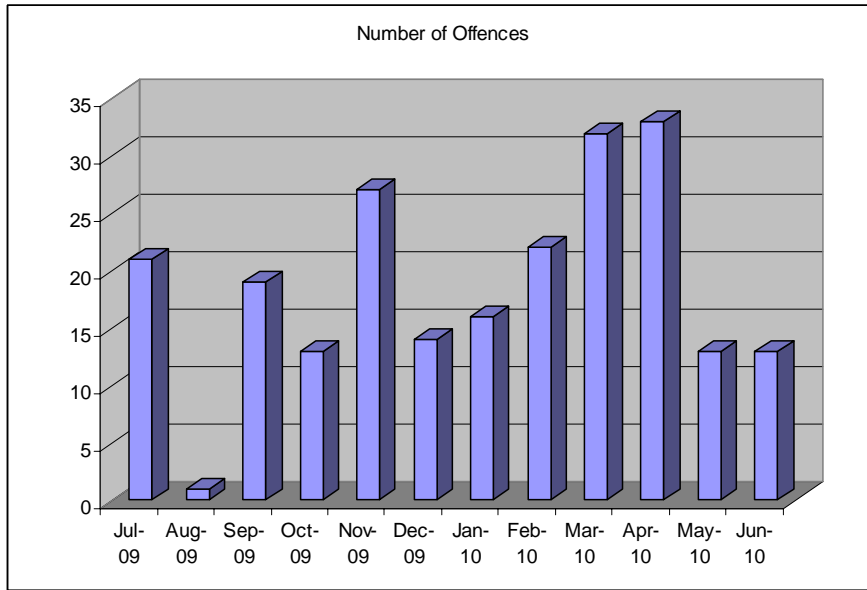


## Level Crossing Enforcement Activities<sup>2</sup>

The NSW Police Force was involved in level crossing safety programs as joint initiatives with RailCorp and the RTA. During 2009/10, the NSW Police Force conducted an ongoing patrol of level crossings in NSW which resulted in 218 legal actions, the majority being the issue of penalty notices for traffic offences. This compares with 209 legal actions in 2008/09.

<sup>2</sup> Source: NSW Police Force

NSW Police targeted level crossing offences in the Griffith and Barwon Local Area Commands where each area recorded more than 40 legal actions; double the next highest area. The chart below shows the number of legal actions recorded each month for 2009/10.



## Program Achievements: 2009/10

Level crossing initiatives undertaken in 2009/10 included the design and delivery of level crossing improvement works through the LCIP and by road and rail agencies. The LCIP also supported road and rail agency education and awareness campaigns. In the 2009/10 LCIP 4 major upgrades were completed with another 8 under construction, 7 were completed to the detailed design stage, and 6 completed to the concept design stage.

### Level Crossing Improvement Program

#### Major Works Completed

**Liverpool Street, Scone:** This upgrade involved the installation of boom gates and the improvement of existing pedestrian crossings on both sides of the road. Major road works were undertaken during 2009/10 with the project being completed and commissioned on 5 May 2010. The total cost of this project including associated road works was \$1.632 million.



Figure 1: Night work construction of the Scone level crossing

**Poplar Avenue, Leeton:** This upgrade involved the installation of boom gates and associated road works on both sides of the crossing including the realignment of approach roads and a pedestrian crossing maze with red-man warning and associated rail infrastructure. This project was completed in June 2010 at a total cost of \$750,000.

**Bullus Dr, Moree:** This project involved road and rail works to widen the track panel and road approaches to provide for safer road train access, to install boom gates, and provide a treatment to reduce the risk of queuing across the railway crossing. Construction was planned to coincide with the Newell Highway Moree Bypass project, however the availability of additional LCIP funds in 2009/10 allowed construction to proceed ahead of schedule while making efficiency gains through utilisation of down-time for construction crews and equipment on the bypass project. The accelerated LCIP project also provided safety gains for the bypass project as Bullus Drive is the heavy vehicle detour route around the bypass project. A total of \$673,000 was expended in 2009/10 to complete the Bullus Drive railway crossing works.



Figure 2: Construction of level crossing and road improvements at Bullus Drive, Moree

**Balfour Street, Culcairn**

The project involved road and rail works including the installation of a pedestrian swing gate maze. The total cost of this project was \$316,000.

*Major Works in Progress*

Major works where construction is due to be completed by 30 June 2011.

Railway Parade,	Corrimal
Couche Crescent,	Koolewong
Creamery Road,	Albion Park Rail
Avondale Road,	Dapto
Hulbert Street,	Sawtell
Lansdowne Road,	Kundle Kundle
Hoddle Street,	Robertson
Warnervale Road,	Warnervale

*Design Works Undertaken*

Development for upgrades in future years formed a major part of the 2009/10 Program with concept design undertaken for upgrades at 6 sites and detailed design for another 7 level crossings.

## Detailed Design

Beaumont Street	Hamilton
Bundarra Street	Blackheath
Primrose Street	Wingham
Oaks Road	Thirlmere
McKay Street	Macksville
Princess Highway	Unanderra
Railway Parade	Corrimal

## Concept Design

Military Road	Yennora
Sheep Wash Road	Calwalla
Fern Street	Gerringong
Adelaide Street	Blayney
Geordie Street	Bowenfels
Parkes Road	Meranburn

## Interface Agreements

The *Rail Safety Act 2008* requires rail infrastructure managers and roads authorities to enter into interface agreements to better manage risks at level crossings. The Act allows for a three-year period, until 1 January 2012, to transition to these arrangements. In the year to 2009/10, roads authorities and rail infrastructure managers, including ARTC, began negotiating safety interface agreements with relevant local Councils. This process will be accelerated during 2010/11.

## Level Crossings Website

In February 2010 the responsibility for managing the level crossings website was transferred from RailCorp to Transport NSW. Since then the site has been up-dated and new features added. The most significant change has been the addition of a map viewer function that enables users to locate, view and obtain specific information on each level crossing in NSW. All public level crossings can be accessed by the map viewer, and it is intended that the facility will be extended to all private crossings as the system is further developed.

## Review of Boom Gates for Rail Crossings Program

The LCWG is working with ARTC representatives to investigate lessons learnt from the Program and how they could be applied to improve the LCIP.

ARTC considers the key factors contributing to the success of the *Boom Gates for Rail Crossings Program* were the following:

- It was project driven.
- It had an experienced management team.
- Non-performing contractors were removed.
- Focussed on functional requirements rather than gold-plating of projects.
- Decisions were made promptly.
- Determination to deliver the defined outcomes



The following are before and after photographs of the level crossing at Nemingha near Tamworth on the Tamworth - Armidale line on the CRIA Network, which was upgraded through the Boom Gates for Rail Crossings Program.



Figure 3: Level crossing at Nemingha – before, with passive “stop” control



Figure 4: Level crossing at Nemingha – after, with active controls, boom gates, flashing lights and bells.

## ***RailCorp Initiatives***

### ***Major Works***

#### **Cowan Station, Cowan**

Cowan Pedestrian Crossing and platform access ramp were part of RailCorp’s Level Crossing Safety Improvement Program on the North Shore Line. The Cowan Pedestrian Crossing was commissioned and opened for public use on 8 November 2009.

This was a major, complex project to provide for the safety of pedestrians and the general public who access the nearby wildlife park situated on both sides of the crossing. RailCorp invested \$2.4 million to complete the project.

Project Safety Improvements included:

- *Disability Discrimination Act 1992* (DDA) compliant access ramps to both platforms
- New DDA compliant pedestrian swing gate crossing
- New pedestrian lighting and modifications to CCTV systems
- New compliant pedestrian signage to Australian Standard AS1742.7
- Modifications to main line signals

Projected Benefits included:

- Improved accessibility to station platforms
- Improved pedestrian management, provision of DDA compliant pedestrian crossings and reduced train driver trauma
- Improved illumination of pedestrian crossing and CCTV coverage

The successful completion of this project can be attributed to a positive working relationship and the substantial coordination of work and liaison between RailCorp and Hornsby Council, and the on-going support by RailCorp's Metro North Region, and Communications and Safety Divisions.

The commissioning of this project provides a safe and reliable pedestrian crossing that meets safety and comfort requirements for commuters whilst meeting Easy Access disability statutory requirements. \$1.12 million was spent on the project during the 2009/10 financial year.



Figure 5: Cowan Station Northern Line

### **Wharf Road, Berry**

Berry pedestrian and road level crossing was part of RailCorp's Level Crossing Safety Improvement Programme on the Illawarra Line. The crossing was commissioned and opened for public use on 30 November 2009.



Project Safety Improvements included:

- DDA compliant pedestrian and cyclist swing gate crossing
- New boom gates and high intensity LED warning lights
- New compliant road and pedestrian signage to AS 1742.7
- Wider roadway over the rail level crossing
- Improved street lighting
- New footpaths, road medians, kerb and gutter
- Reconditioning of rail track panel and new road surface
- New signal location

Projected Benefits included:

- Improved rail level crossing controls for vehicles and pedestrians users
- Improved traffic flow over the rail level crossing
- Improved pedestrian management, provision of DDA compliant pedestrian crossings and reduced train driver trauma
- Improved illumination of pedestrian and road crossing

The successful completion of this project can be attributed to a positive working relationship and the substantial coordination of work and liaison between RailCorp and Shoalhaven City Council, and the on-going support by RailCorp's Metro Illawarra Region, and Communications and Safety Divisions.

This major, complex project has provided a safe and reliable pedestrian, bicycle and motor vehicle crossing. RailCorp invested a total of \$2.9 million to complete the project, including \$580,000 in the 2009/10 financial year.



Figure 6: Berry Pedestrian/Cycle Crossing and Road Crossing (Illawarra Line)

### **Dapto Avondale Road Level crossing**

On 7 April 2010, the then Minister for Transport and Roads and the Member for Shellharbour attended the site to announce the level crossing upgrade at Avondale Road Dapto. The visit was also attended by representatives of Wollongong Council, the RTA and the local media. During the site visit a new electrical transformer and kiosk were installed.

This is an important project at an approximate cost of \$2.3 million, which will help to provide for the ongoing safety of road and rail users, and pedestrians.

Project Safety Improvements included:

- DDA compliant pedestrian swing gate crossing
- New boom gates and high intensity LED warning lights
- New compliant road and pedestrian signage to AS 1742.7
- Wider roadway over the rail level crossing
- Improved street lighting
- New footpaths, road medians, kerb and gutter
- New signal location
- New upgraded power supply

Projected Benefits included:

- Improved rail level crossing controls for vehicles and pedestrians users
- Improved traffic flow over the rail level crossing
- Improved pedestrian management, provision of DDA compliant pedestrian crossings and reduced train driver trauma
- Improved illumination of pedestrian and road crossing



Figure 7: Installation of new power supply Avondale Rd Dapto (Illawarra Line)

During 2009/10 \$460,000 was spent to finalise planning, procurement of long lead-time materials, and preliminary construction works.

### **Princes Highway, Unanderra**

The Princes Highway, Unanderra level crossing currently has no crossing facility for pedestrians and cyclists. Currently, the RailCorp upgrade has delivered the installation of an advanced warning light on the southern approach for road traffic travelling north with limited visibility. This took account of the prominent bend in the road and vegetation in the rail corridor and will provide an early notification for motorists and cyclists of an approaching train.

Project Safety Improvements included:

- DDA compliant pedestrian and cyclist swing gate crossing
- New boom gates to replace life expired existing and high intensity LED warning lights
- New compliant road and pedestrian signage to AS 1742.7
- Advanced warning light
- Improved street lighting
- New footpaths and fencing
- New signal location
- New upgraded power supply

Projected Benefits include:

- Improved rail level crossing controls for vehicles and pedestrians users including advanced warning on the southern approach
- Improved traffic flow over the rail level crossing
- Improved pedestrian management, provision of DDA compliant pedestrian crossings and reduced train driver trauma
- Improved illumination of pedestrian and road crossing

Wollongong City Council has completed fencing along the Princes Highway, and finalised concrete footpath interfaces with RailCorp paths. Unanderra pedestrian/cyclist crossing is to be commissioned on 5 September and opened for public use on 6 September 2010.



Figure 8: Unanderra Princes Hwy Pathway and Lighting (Illawarra Line)





Figure 9: Unanderra Princes Hwy Swing gates (Illawarra Line)

## Design Works

In 2009/10 RailCorp developed designs for the following sites:

Name and location	Proposed scope of works
Yennora Military Road	Yennora Military Road level crossing also involves a pedestrian/cycleway crossing located approximately 200 metres on the Sydney side of the level crossing. These crossings are currently passively controlled and are to be upgraded to half or quad boom barriers and active swing gate facilities. A new pedestrian crossing with lighting will also be constructed.
School Parade, Clifton	Installation of: <ul style="list-style-type: none"> <li>flashing lights and boom gates</li> <li>upgrade of street lighting</li> <li>back up power supply; and</li> <li>improvements to road width, kerbs, guttering and road medians.</li> </ul>
Tip Road, Dunmore	Installation of: <ul style="list-style-type: none"> <li>flashing lights and boom gates;</li> <li>upgrade of street lighting;</li> <li>back up power supply; and</li> <li>improvements to road width, kerbs, guttering and road medians.</li> </ul>
Telopea Station, Telopea.	New primary and back up power supply for pedestrian facilities.
Minor Works – 4 Sites: Wickham, Bellambi, Albion Park, & Camellia	The main scope includes installation of retrofit magnetic escape gate latches and re-alignment of footpaths across the tracks together with associated pedestrian mazes, lighting (if required) and enclosures. Camellia only requires re-alignment of footpaths across the track and renewal of worn out level crossing timber panels.

## RTA's Level Crossing Improvement Program

### Major Works

#### Garfield Road, Riverstone

The RTA and RailCorp invested over \$7 million to upgrade the level crossing at Garfield Road, Riverstone on the Western Line in north-west Sydney to provide advanced facilities for the safety of road and rail users and pedestrians. The project was completed on 30 June 2010.

Project Safety Improvements included:

- New DDA compliant pedestrian swing gate crossings
- New boom gates and high intensity LED warning lights
- New cantilevered light
- Interfacing of road and rail traffic
- New compliant road and pedestrian signage to AS 1742.7
- Wider roadway over the rail level crossing
- New pedestrian lighting and modifications to CCTV systems
- Improved street lighting
- New road traffic signals
- New footpaths, fencing, kerb and gutter

Project Benefits included:

- Improved rail level crossing controls for vehicles and pedestrians users
- Improved traffic flow over the rail level crossing
- Reduced high risk of queuing across the rail level crossing
- Improved pedestrian management, provision of DDA compliant pedestrian crossings and reduced train driver trauma
- Improved illumination of pedestrian and road crossing
- Improved CCTV coverage
- Improved intersection turning radius for heavy vehicles;

The successful completion of this project can be attributed to a positive working relationship and the substantial coordination of work and liaison between RailCorp, the RTA and Blacktown City Council, and the on-going support by RailCorp's Metro West Region, and Communications and Safety Divisions.

Phase 1 of the works was completed and commissioned in September 2009. The upgrade of the existing pedestrian crossing at country side was completed in June 2010. This Level Crossing is the first crossing in NSW to utilise a cantilever mast for improved visibility of the crossing warning lights. Actual expenditure in the 2009/10 financial year was \$3.39 million.



Figure 10: Riverstone Garfield Rd Metro West Line

### ***Boom Gates for Rail Crossings Program***

The *Boom Gates for Rail Crossings Program* funded the upgrade of two level crossings in the township of Jaspers Brush, between Berry and Nowra on the south coast line. The level crossings are on Jaspers Brush Road and O’Keefe’s Lane.

This was the first design and construct project delivered through the RailCorp / NovoRail Alliance, and was commissioned on 17 June 2010.

These projects involved upgrading both crossings from “Stop Sign” controlled to new boom gates and high intensity LED warning lights, improved road / rail signage and road widening. These upgrades have provided improved safety for road users, commuters and train drivers travelling over the level crossing.

The RailCorp/NovoRail Alliance project team worked together with residents during the implementation of the project to ensure minimal disruption during construction. RailCorp’s Communications Section undertook regular community consultation to address community concerns.

The commissioning of this project will see some improvements to the train section running time by lifting the existing speed restrictions, which were in place due to the poor sighting at the level crossings.

\$3.2 million was invested to upgrade the 2 level crossings.



Figure 11: Jaspers Brush (South Coast) (L) O'Keefe's Lane & (R) Jaspers Brush Road

### ***National Rail Level Crossing Group***

In November 2009 the Australian Transport Council (ATC) released its National Railway Level Crossing Safety Strategy 2010 – 2020. The ATC comprises Commonwealth, State and Territory roads and transport Ministers. The Strategy was developed by the Rail Level Crossing Group (RLCG), which reports to the ATC.

The RLCG was formed in 2009. It comprises representatives of all Australian Governments and/or road agencies, and its objective is to reduce the likelihood of crashes and near misses at level crossings. The National Railway Level Crossing Strategy 2010-2020 delivers a nationally coordinated action plan to achieve that objective.

The Strategy replaces and builds on the ATC's 2003 Rail Level Crossing Strategy. The Strategy forms part of the work being done by the Safety Standing Sub Committee, which ATC established to progress work on achieving "a safe land transport system that meets Australia's mobility, social and economic objectives with maximum safety for all its users".

NSW is represented on the RLCG by the RTA, ITSr and the chair of the National ALCAM Committee. This representation provides a feedback channel to and from the RLCG.

### ***National ALCAM Committee***

ALCAM is a methodology used to assess risk at level crossings and to assist in the prioritisation of level crossings according to their comparative safety risk. It provides a process to assist with decision-making on which road and pedestrian level crossings to upgrade, as well as a method to help determine the optimum safety improvements for individual sites.

ALCAM is used across Australia and is overseen by the national ALCAM Committee which reports to the RLCG. The role of the Committee is to manage the development of ALCAM and to ensure consistency in its application.

NSW is represented on the National ALCAM Committee by Transport NSW and ITSr, and currently chairs the Committee.



## ALCAM Development & Data Collection

This work involved the ongoing input to ALCAM development projects. These projects are approved by National ALCAM Committee and jointly funded through the Committee. ALCAM data was collected at over 450 sites and is to be entered into the system early in the 2010/11 financial year.

## ARTC Initiatives

### Level Crossing Improvements in Regional NSW

The CRIA commissioned ARTC to undertake a number of upgrades and improvements to level crossings on the Country Regional Network (CRN) in 2009/10 as follows:

Location	Cost	Sites	Project Scope
Molong to Goobang	\$320,000	10	Upgrade private level crossings
Werris Creek - Armidale	\$75,000	1	Upgrade of level crossing surface with asphalt at Gostwyck 572.242Km.
Werris Creek - Armidale	\$75,000	1	Upgrade level crossing surface with asphalt and widen 411.187Km
Werris Creek - Armidale	\$75,000	1	Upgrade LX, Install AUS Std signage.
Werris Creek - Armidale	\$75,000	1	Realign road approaches & relocate LX at Kootingal 471.779Km
Narrabri Junction - Bellata	\$83,500	1	Upgrade level crossing road surface & signage to AS
Bellata - Moree CRN	\$75,000	1	Upgrade level crossing road surface & signage to AS
Wallerawang - Kandos	\$38,000	1	Upgrade Private level crossings with steel top
Wallerawang - Kandos	\$38,000	1	Upgrade Private level crossings with steel top
Wallerawang - Kandos	\$38,000	1	Upgrade Private level crossings with steel top
Wallerawang - Kandos	\$38,000	1	Upgrade Private level crossings with steel top
Wallerawang - Kandos	\$38,000	1	Upgrade Private level crossings with steel top
Wallerawang - Kandos	\$38,000	1	Upgrade Private level crossings with steel top
Tarana - Blayney	\$76,000	2	Upgrade level crossings with steel top, double track
Tarana - Blayney	\$76,000	1	Upgrade level crossings with steel top, double track
Tarana - Blayney	\$38,000	1	Upgrade Private level crossings with steel top
Blayney - Orange Jct	\$75,000	1	Upgrade level crossing surface to steel top
Blayney - Orange Jct	\$75,000	1	Upgrade level crossing surface to steel top
Stuart Town – Dubbo	\$38,000	1	Level Crossing upgrade with steel top
Stuart Town - Dubbo	\$75,000	1	Level Crossing upgrade, Reseal with concrete (Gisborne)
Stuart Town - Dubbo	\$38,000	1	Level Crossing upgrade top to steel
Narromine - Nevertire	\$75,000	1	Up grade level crossing bitumen surface
Narromine - Nevertire	\$75,000	1	Up grade level crossing bitumen surface
Nevertire - Nyngan	\$38,000	1	Up grade level crossing "Illyria"
Nevertire - Nyngan	\$38,000	1	Up grade private level crossing

Location	Cost	Sites	Project Scope
Nevertire - Nyngan	\$38,000	1	Up grade private level crossing
Nevertire - Nyngan	\$75,000	1	Up grade Hoskins St level crossing, concrete surface
Joppa Junction Queanbeyan	\$135,000	3	Level Crossing renewals
Junee - Narrandera	\$60,000	1	level crossing renewal bitumen
Narrandera - Yanco	\$90,000	2	2 level crossing renewals
Yanco - Griffith	\$190,000	5	5 Road crossing renewals - steel panels
Ardlethan - Griffith	\$228,000	6	6 Level Crossing renewals Barellan - Griffith- Install steel top
Griffith - Hillston	\$5,000	1	Install Level Crossing bells suppressors to activate out of hours.
Griffith - Hillston	\$85,000	1	Upgrade pedestrian maze and crossing at Crossing St Griffith
Griffith - Hillston	\$5,500	1	Level Crossing Upgrade
Gap - Turrawan	\$95,000	1	Upgrade of Level Crossing of Baan Baa with new concrete surface
Bellata - Moree	\$120,000	1	Level Crossing Upgrade at Bullus Drive - Moree
Stockinbingal - Temora	\$28,000	1	Temora - Carry out modifications to Victoria St LX track circuit.
<b>TOTAL</b>	<b>\$2,878,000</b>	<b>60</b>	

### ***Sighting Distance Compliance Works***

The CRIA engaged ARTC to undertake an assessment of all level crossings on the CRN against applicable rail standards and AS1742.7, and to develop and implement a plan to rectify all "base condition" non-compliant level crossings.

ARTC completed the assessment of all level crossings on the CRN and completed stage 1 of the rectification works in 2009/10. Stage 1 works involved improvement works on the CRN to rectify non-compliant crossings.

This stage 1 work included achievement of sighting distance compliance by means of vegetation removal, earthworks to widen or lower cuttings, realignment of approaches, relocation of level crossings, changing the passive control, implementation of permanent level crossing speed restrictions and conditional level crossing speed restrictions.

Stage 2 works have commenced and will continue through 2010/11. This stage generally involves works outside the rail corridor and requires extensive liaison with landowners, Councils and the RTA to facilitate completion. Many crossings require realignment of the approaches, clearing of vegetation on the road reserve and in private property, or conversion to active protection to achieve compliance.

Below is a list of locations where sighting distance compliance works were undertaken in 2009/10:

Location	Cost	Sites	Project Scope
Passenger lines:			
Lithgow to Orange	\$76,000	32	Sighting compliance achieved by vegetation removal, earthworks to cuttings, realignment of approaches, changing control from stop to give way (or visa versa), implementation of permanent or conditional level crossing speeds.
Orange to Parkes	\$28,000	10	
Orange to Dubbo	\$21,000	9	
Werris Creek to Armidale	\$210,000	29	
Junee to Griffith	\$48,000	30	
Gap to Moree	\$26,000	14	
Joppa Junction to Canberra	\$115,000	15	
Freight lines:			
Wallerawang to Kandos	\$32,000	9	Sighting compliance achieved by vegetation removal, earthworks to cuttings, realignment of approaches, changing control from stop to give way (or visa versa), implementation of permanent or conditional level crossing speeds.
Stockinbingal to Temora	\$18,000	6	
Temora to Griffith	\$75,000	41	
Narromine to Nyngan	\$6,000	4	
Nyngan to Cobar		0	
Grain lines:			
Narrabri to Walgett	\$32,000	16	Sighting compliance achieved by vegetation removal, earthworks to cuttings, realignment of approaches, changing control from stop to give way (or visa versa), implementation of permanent or conditional level crossing speeds.
Temora to Lake Cargelligo	\$68,000	38	
Ungarie to Naradhan	\$32,000	17	
The Rock to Boree Creek	\$34,000	17	
Griffith to Hillston	\$38,000	19	
Burren Junction to Merrywinebone	\$12,000	3	
Moree to Weemelah	\$18,000	5	
Camurra to North Star	\$45,000	16	
Bogan Gate to Tottenham	\$25,000	11	
Nevetire to Warren	\$4,000	2	
Dubbo to Coonamble	\$24,000	9	
TOTAL	\$987,000	352	

## Funding for Level Crossings in NSW

The following table is a summary of funding provided for level crossing safety improvements in NSW:

Year	Program / Agency	Expenditure (\$million)	Total (\$million)
2003/04	CRIA	2	5
	LCIP	3	
2004/05	LCIP	5	5
2005/06	RailCorp	1.3	7.3
	LCIP	6	
2006/07	RailCorp	2.4	11.327
	ARTC	1.65	
	CRIA	0.277	
	LCIP	7	
2007/08	RailCorp	2.65	18.49
	ARTC	6.9	
	CRIA	1.94	
	LCIP	7	
2008/09	RailCorp	2.807	18.027
	ARTC	2.473	
	CRIA	4.528	
	RTA	2.939	
	LCIP	5.280	
2009/10	RailCorp	3.27	59.77
	ARTC	42.77 <sup>3</sup>	
	CRIA	3.865	
	RTA	3.300	
	LCIP	6.565	

## Level Crossing Closures

Apart from grade separation, the permanent closure of a level crossing is the only way to eliminate the interface between road and rail and the risk present at the crossing. It is Government policy that LCSC agencies actively pursue the closure of both public and private level crossings, wherever possible. Sites for potential closure are identified either by their ALCAM ranking, or by Councils, the RTA, the rail industry or the general public. During 2009/10 the Minister for Transport approved the closure of 8 level crossings, and 120 level crossings have been closed since 2002.

## Rail Safety Act 2008

The *Rail Safety Act 2008* now requires rail infrastructure managers and roads authorities to enter into interface agreements to better manage the risks at level crossings. There is a three-year period, until 1 January 2012, to transition to these arrangements.

To assist with implementation and to inform road and rail agencies of their obligations, the ITSR conducted workshops across NSW in May 2009 to which all Councils and the RTA were invited. The ITSR also developed an interface template in consultation with all LCSC member agencies. The template is available from the ITSR website.

---

<sup>3</sup> One off funding for the Boom Gates for Rail Crossings Program was provided as part of the Commonwealth Government's Nation Building Program.

The RTA and rail infrastructure managers are working together to develop interface agreements.

## **Future Directions**

### ***Low Cost Control Devices***

The LCSC is supportive of the use of low cost control devices at selected locations in regional NSW, and is developing a draft strategy to assess and trial suitable devices.

## Appendix A: LCIP 2009/10 Expenditure

Street	Suburb	Money Spent
<b>Construction Projects</b>		
Creamery Road	Albion Park Rail	\$32,000
Couche Crescent	Koolewong	\$270,000
Liverpool Street	Scone	\$1,632,000
Bullus Drive	Moree	\$673,000
Balfour Street	Culcairn	\$316,000
Avondale Road	Dapto	\$643,000
Warnervale Road	Warnervale	\$2,000
Poplar Avenue	Leeton	\$750,000
Railway Parade	Corrimal	\$20,000
Hoddle Street,	Robertson	\$29,000
Lansdowne Road,	Kundle Kundle	\$245,000
Hulbert Street	Sawtell	\$85,000
	<b>Total</b>	<b>\$4,697,000</b>
<b>Detailed Design</b>		
Beaumont Street	Hamilton	\$105,000
Bundarra Street	Blackheath	\$115,000
Primrose Street	Wingham	\$11,000
Oaks Road	Thirlmere	\$143,000
McKay Street	Macksville	\$55,000
Princess Highway	Unanderra	\$150,000
Railway Parade	Corrimal	\$20,000
	<b>Total</b>	<b>\$629,000</b>
<b>Concept Design</b>		
Military Road	Yennora	\$50,000
Creamery Road	Albion Park	\$32,000
Sheep Wash Road	Calwalla	\$65,000
Adelaide Street	Blayney	\$13,000
Geordie Street	Bowenfels	\$28,000
Parkes Road	Meranburn	\$1,000
	<b>Total</b>	<b>\$189,000</b>
<b>Projects Withdrawn/On Hold</b>		
Robertson & Darling Sts	Carrington	11,000
Stewart Street	Wickham	1,000
Fern Street,	Gerringong	19,000
Bong Bong Road	Dapto	14,000
	<b>Total</b>	<b>\$45,000</b>
<b>Other Level Crossing Initiatives</b>		
ALCAM Development		\$58,000
Education and Enforcement Campaign		0
Data Collection		\$400,000
Motorist Campaign		\$191,000
5 year safety strategy - RTA		\$266,000
Policy Development - RTA		\$90,000
	<b>Total</b>	<b>1,005,000</b>
	<b>Grand Total</b>	<b>\$6,565,000</b>

### 2008/09 Projects Completed in 2009/10

Location	Expenditure (\$,000)
Fern Street, Gerringong	19
Warnervale road, Warnervale	2
Popular Road, Leeton	750
Balfour Street, Culcairn	316
<b>Total</b>	<b>1,087</b>

## Glossary

<b>Active Control</b>	Lights, bells, boom gates warn motorists
	Lights, bells, booms, and locking swing gates warn pedestrians.
<b>ALCAM</b>	Australian Level Crossing Assessment Model
<b>ARTC</b>	Australian Rail Track Corporation
<b>ATSB</b>	Australian Transport Safety Bureau
<b>CRIA</b>	Country Rail Infrastructure Authority (and its predecessor Rail Infrastructure Corporation)
<b>CRN</b>	Country Regional Network (the part of the NSW Rail Network that is owned by CRIA)
<b>DDA</b>	Disability Discrimination Act 1992 (C'wth)
<b>ITSR</b>	the Independent Transport Safety Regulator
<b>LCIP</b>	Level Crossing Improvement Program
<b>LCSC</b>	Level Crossing Strategy Council
<b>LCWG</b>	Level Crossing Working Group
<b>LGSA</b>	Local Government and Shires Associations of NSW
<b>OTSI</b>	Office of Transport Safety Investigations
<b>Passive Control</b>	Stop or give way signs warn motorists about a level crossing.
	Signs warn pedestrians.
	Mazes control entry to the rail corridor.
<b>RailCorp</b>	Rail Corporation NSW
<b>RLCG</b>	Rail Level Crossing Group
<b>RTA</b>	the Roads and Traffic Authority of NSW
<b>SCOT</b>	Standing Committee on Transport
<b>SSSC</b>	Safety and Security Standing Committee