

Transport for NSW

Level Crossing Strategy Council, Yearly Report 2012/13

December 2013

Don't rush to the other side.



Transport
for NSW

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Front Cover

“Don’t rush to the other side” campaign poster, Transport for New South Wales.

Glossary

Active Control	Lights, bells, boom gates regulate motorists
	Lights, bells, booms, and locking swing gates regulate pedestrians
ALCAM	Australian Level Crossing Assessment Model
ARTC	Australian Rail Track Corporation
AS1742.7-2007	Australian Standard 1742.7-2007 Manual of Uniform Traffic Control Devices: Railway Crossings
CRC	Country Rail Contracts (and its predecessor Country Rail Infrastructure Authority (CRIA))
CRN	Country Regional Network (the part of the NSW Rail Network that is owned by CRC)
DDA	Disability Discrimination Act 1992 (C'wth)
DIRN	Defined Interstate Rail Network
ITSR	Independent Transport Safety Regulator
JHR	John Holland Rail
LCIP	Level Crossing Improvement Program
LCSC	Level Crossing Strategy Council
LCWG	Level Crossing Working Group
LCCWG	Level Crossing Communication Working Group
LGSA	Local Government and Shires Associations of NSW
Passive Control	Stop or give way signs regulate motorists at a level crossing
	Signs warn pedestrians
	Mazes control entry to the rail corridor
RailCorp	Rail Corporation NSW
Red Man	A flashing warning sign of a 'Red Man', which is triggered by oncoming trains
RMS	Roads & Maritime Services (and its predecessor Roads and Traffic Authority of NSW (RTA))
TfNSW	Transport for NSW (and its predecessor Department of Transport)

1. Year in Review: 2012/13

In 2012/13, rail and road agencies spent a total of \$24.65 million on level crossing safety initiatives in NSW, \$7.51 million of which was provided through the Level Crossing Improvement Program (LCIP). The LCIP is managed by Transport for NSW (TfNSW) and provides funding to accelerate improvements to level crossings at priority sites across NSW, raise community awareness of level crossing safety issues and promote new technology to improve level crossing safety. It is additional to the funds that rail and road agencies spend on maintaining and upgrading level crossings on their networks.

During 2012/13, LCIP improvement projects were progressed at 49 public level crossings in NSW. This included major level crossing upgrades completed at Mid Western Highway, Goolgowi; Boree Street, Manildra; Primrose Street, Wingham; Mogriguy Road, Mogriguy; Tilly Willy Road, Macksville and Newell Highway, Gilgandra. Development work for upgrades in future years formed a major part of the 2012/13 LCIP, with concept designs prepared for 3 projects, and detailed designs prepared for 6 projects. Minor construction works were completed at 32 sites.

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

- the level crossing motorist awareness campaign, “Don’t rush to the other side”
- level crossing awareness and enforcement campaigns in regional NSW
- Australian Level Crossing Assessment Model (ALCAM) data collection for 188 sites
- the assessment and trial of Low Cost Level Crossing Warning Devices
- level crossing strategy and policy development.

TfNSW has allocated \$21.90 million (\$7.30 million per annum) for the LCIP between 2012/13 and 2014/15. This allows for the planning and completion of future priority level crossing upgrades.

The following subsections provide an overview of all level crossing improvements delivered by rail and road agencies in 2012/13 (including LCIP funded projects).

Appendix A provides a summary of all projects funded under the LCIP in 2012/13 and Appendix B sets out the expenditure on level crossing upgrades funded through the Level Crossing Improvement Program from 2007/08 to 2012/13 in NSW.

1.1. Agency Level Crossing Activities

In addition to the LCIP, RailCorp, the Australian Rail Track Corporation (ARTC), the Country Rail Contract (CRC) and the Roads and Maritime Services (RMS) implemented their own programs of level crossing safety improvements.

RailCorp

RailCorp completed level crossing upgrades at Fairy Meadow and commenced construction at level crossing upgrade at Mullers Lane Berry. Detailed design was completed for two sites, Dapto is scheduled to commence construction in 2013/14 and

Clifton is due for construction in 2015/16. In total, RailCorp has spent \$1.90 million on safety improvement works for level crossings on its network in 2012/13.

ARTC

During 2012/13 ARTC undertook works in the order of \$12.90 million to enhance or eliminate level crossings across its network in NSW. Of this, \$8.80 million was spent on consolidating ten level crossings into one actively protected level crossing in the north of the state. Other works included enhancing passively controlled sites by lowering or widening cuttings, removing trees, improving road approaches, installing active controls, and acquiring land to close a level crossing.

CRC

CRC undertook level crossing safety improvements at 27 sites on the Country Regional Network (CRN) at a cost of \$1.04 million in 2012/13, with works including improvements to level crossing road surfaces, sighting distances and signalling. This was in addition to CRN's ongoing program of inspecting, maintaining and improving sighting distances at various level crossings through vegetation control and removal of obstructions such as embankments and signalling upgrades.

RMS

During 2012-13 RMS continued to assist councils and rail infrastructure managers with the upgrade of level crossings across NSW. Apart from the sites noted in this Report, RMS also provided advice to councils on appropriate safety management measures for railway crossings.

Works undertaken by RMS that were not part of the LCIP include:

- Contributed to the cost of a passive control pedestrian facility on Manildra Street, Narromine, a road managed by Narromine Shire Council.
- Funded progress on planning and land acquisition for safety improvements at Troy Junction Bootherba Road Dubbo, managed by Dubbo City Council. This project will increase the stacking distance between the level crossing and the Newell Hwy to facilitate use by road trains.
- Upgraded linemarking and Raised Reflective Pavement Markings (RRPMs) at level crossings on low speed roads in RMS Western and South West regions.
- Realigned Interface Agreement templates with changes in rail safety legislation.
- Undertook a number of minor safety improvements at level crossings on State roads in response to safety management plans.
- Released Lighting for Railway Crossings and Planning Road Infrastructure Upgrades at Railway Crossings Guidelines.

2. Level Crossings in New South Wales

Rail and road agencies are responsible for managing risks at level crossings in NSW. Safety regulatory oversight is provided by the Independent Transport Safety Regulator (ITSR) for railway operations and infrastructure and the road/rail interface. Enforcement of road laws is undertaken by the NSW Police Force.

2.1. Level Crossing Strategy Council

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

- Transport for NSW (Chair)
- Roads and Maritime Services (RMS)
- Country Rail Contracts (CRC)¹
- John Holland Rail (JHR)
- RailCorp²
- Australian Rail Track Corporation (ARTC)
- Independent Transport Safety Regulator (ITSR)
- NSW Police Force
- Local Government and Shires Associations of NSW (LGSA).

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

2.2. Level Crossing Communication Working Group

In 2012/13 the LCSC supported the establishment of a new Level Crossing Communication Working Group (LCCWG). The objective of the LCCWG is to support the LCSC to ensure that a strategic and consistent approach is taken to communication and enforcement activities to address the fundamental behavioural issues associated with level crossings.

The LCCWG develops a broad range of educative, promotional, enforcement and media-based activities to address safety and behavioural issues at level crossings in NSW. These include generalised and targeted activities that are based on the latest research and analysis of accident and incident data from the ITSR.

The LCCWG comprises officer level representatives from LCSC member agencies, and is chaired by Transport for NSW.

¹ Country Rail Infrastructure Authority became Country Rail Contracts on 1 July 2012

² RailCorp became Sydney Trains and NSW Trains on 1 July 2013

2.3. Level Crossing Improvement Program

Under the *Rail Safety National Law (NSW)* rail and road infrastructure managers have an obligation to manage risks at level crossings. Funding under the LCIP is supplementary to the existing capital and maintenance programs of rail and road agencies to improve and maintain safety at the level crossings on their networks.

The LCIP funds a range of level crossing safety initiatives in NSW. This includes safety improvements at level crossings, media awareness 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 TfNSW, with the assistance of LCWG, and approved by the LCSC. The LCWG monitors program delivery and promotes collaboration and consultation between delivery agencies.

A methodology is in place to determine the level crossings eligible for funding under the LCIP and the priorities for improvements. This methodology is being used from 2011/12 to 2013/14 and will be reviewed after this three year period.

In the first instance the methodology distributes the LCIP funds for level crossing safety improvement across the following three categories:

- upgrading level crossings controlled by flashing lights to boom gates and flashing lights (approximately 33.5% of upgrade funding)
- upgrading level crossings controlled by passive signage (e.g. give way or stop sign) to boom gates and flashing lights (approximately 53.0% of upgrade funding)
- minor works at passively controlled level crossings (approximately 13.5% of upgrade funding).

A four-step prioritisation process is then used to identify the crossings to be upgraded within the first two categories. This process involves the use of ALCAM ranking and level crossing characteristics data, a review of NSW level crossing incident data, consideration of the level of compliance with standards, and consideration of local knowledge from rail and road agencies and other stakeholders. Separate criteria are used to determine which passively controlled crossings are eligible to receive LCIP funding for minor works.

2.4. New LCIP Funding Model

In 2012/13 the LCSC endorsed the implementation of new funding agreement with rail and road infrastructure agencies. The agreement underpins the delivery of engineering improvements at level crossings and provides a fixed allocation of funding for improvement projects. The new agreement provides a more equitable allocation of risks between Transport for NSW and its infrastructure partners and will help to maintain the number of level crossing initiatives delivered by the program each year.

2.5. Level Crossing Closures

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

Thorough inspection and detailed assessment of crossings, including alternative means of access, is considered before closure. Consultation with the relevant local council, adjacent landowners, the community, the RMS, emergency services and other rail and road users is also conducted prior to recommending closure. Under Section 99B of the *Transport Administration Act 1988*, the Minister for Transport is required to approve level crossing closures.

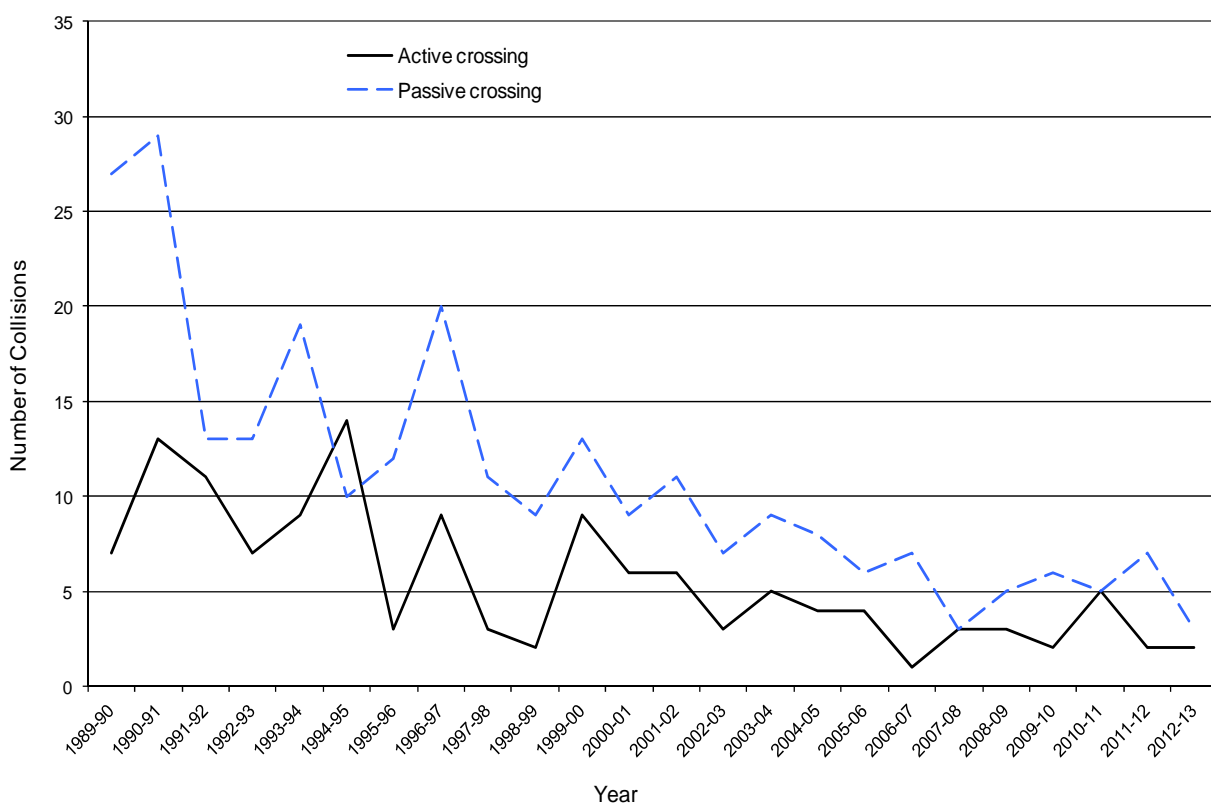
Since 2002 a total of 127 level crossings have been closed, most of which are on private property. In 2012/13, three level crossings were approved for closure in the Hunter Valley and two on the North South Corridor - two on private roads and three on public roads.

2.6. Level Crossing Incident Data

Of the 1,377 public road level crossings in NSW, 381 have active traffic controls; 179 have flashing lights and bells and 202 have flashing lights, bells and boom gates. The majority of other crossings are controlled by “give-way” or “stop” signs.

In 2012/13, no fatalities were recorded between trains and road vehicles or pedestrians at level crossings in NSW. There were five crashes between trains and road vehicles during the year: two at crossings with active controls and the remaining three at crossings with passive controls. Overall, the number of crashes between a train and a road vehicle has decreased over the past 24 years in NSW. The Figures 1 to 4³ show the number collisions and fatalities at level crossings from 1989/90 to 2012/13.

Figure 1 – Train Collision with Road Vehicle at Level Crossing, 1989/90 to 2012/13 in NSW



³ Source: ITSR

Figure 2 – Fatalities: Train Colliding with Road Vehicles at Level Crossing, 1989/90 to 2012/13 in NSW

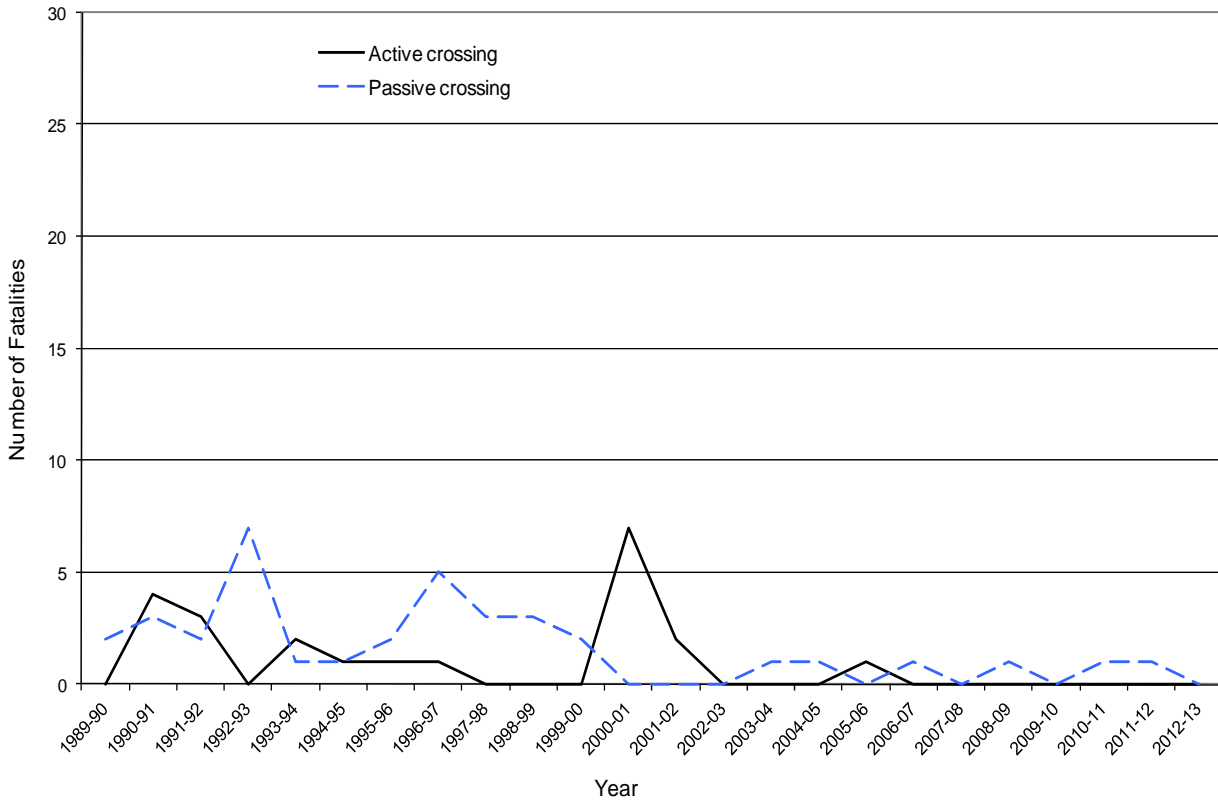


Figure 3 – Train Colliding with Person at Level Crossing, 1989/90 to 2012/13 in NSW

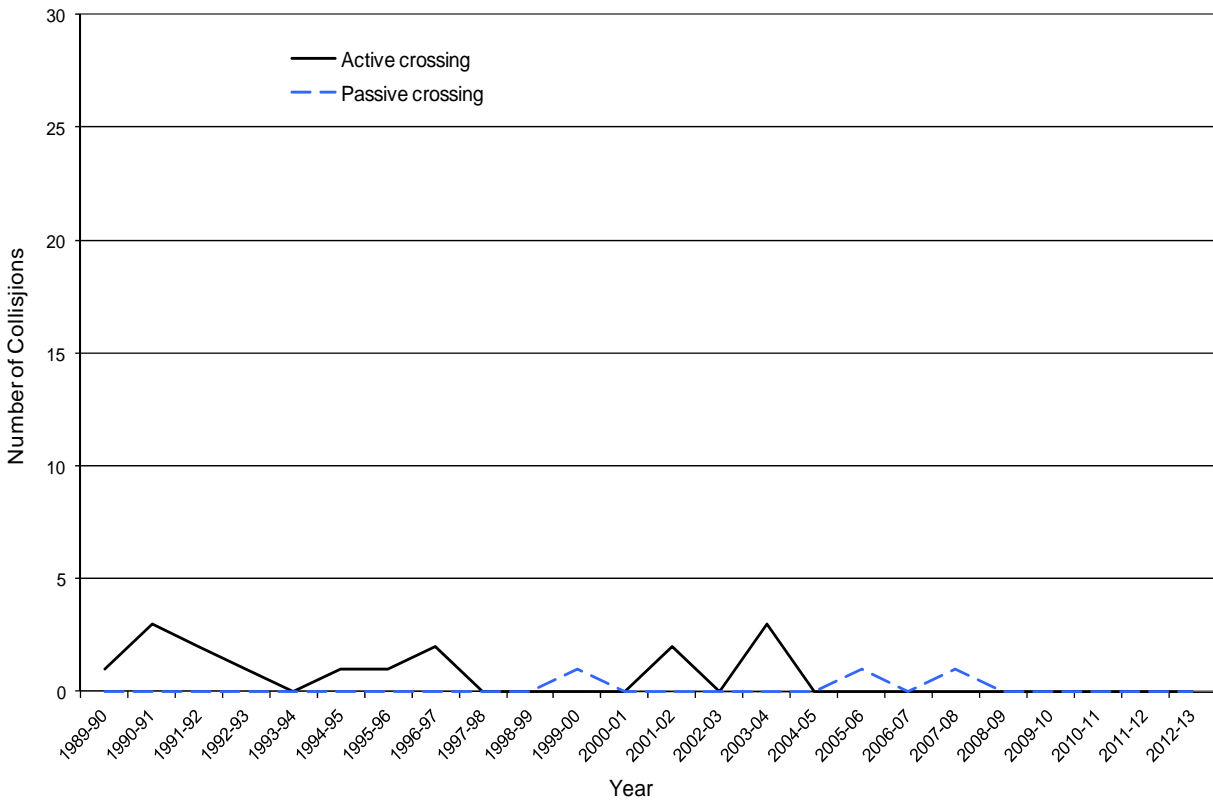
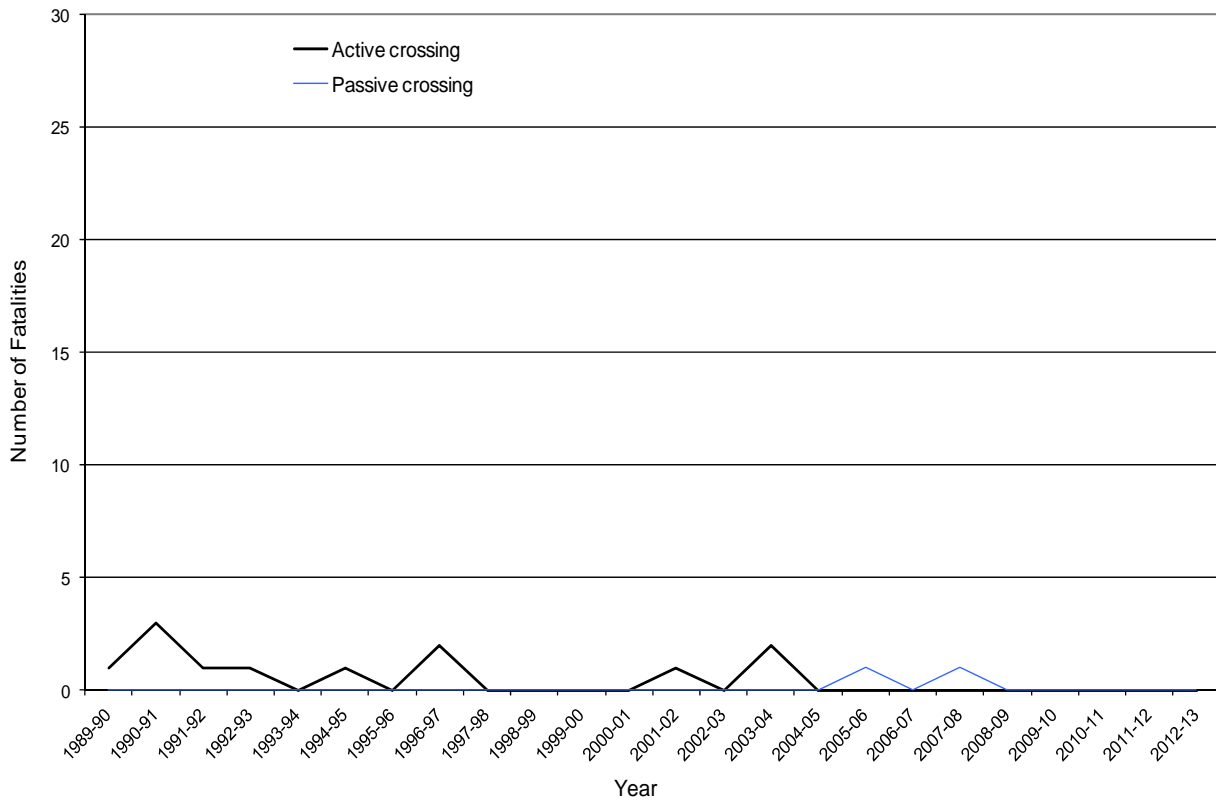


Figure 4 – Fatalities: Train Colliding with Person at Level Crossing, 1989/90 to 2012/13 in NSW



3. Level Crossing Improvement Program 2012/13 (LCIP) - Infrastructure Works

3.1. Major Works Completed

During 2012/13 six major construction projects were commissioned across the NSW rail network as part of the LCIP. These are set out in Table 1 and described in more detail below.

Table 1 – LCIP Major Construction Works Completed in 2012/13

Street	Location	Network
Mid Western Highway	Goolgowi	CRN
Boree Street	Manildra	CRN
Primrose Street	Wingham	ARTC Lease
Mogriguy Road	Mogriguy	CRN
Tilly Willy Road	Macksville	ARTC Lease
Newell Highway	Gilgandra	CRN

3.1.1. Mid Western Highway, Goolgowi

The existing passive stop signs at Mid Western Highway Goolgowi were upgraded to active controls. The upgrade included the installation of flashing lights, bells, retro-reflective boom gates with high intensity (LED) lights. The upgrade also included new signage, and line marking for both the rail and roadway. The upgrade was completed on 17th May 2013, at an estimated total completion cost of \$889,700. Note that this project was jointly funded by RMS and LCIP.

Figure 5 – Mid Western Highway level crossing, Goolgowi



3.1.2. Boree Street, Manildra

The existing passive stop signs at Boree Street, Manildra, were upgraded to active controls. The upgrade included the installation of flashing lights, bells and retro-reflective boom gates with high intensity (LED) lights. The upgrade also included the widening and resurfacing of road approaches, new signage, and line marking for both the rail and roadway. The upgrade was completed on 26th May 2013, at an estimated total completion cost of \$1,335,300.

Figure 6 – Boree Street level crossing, Manildra



3.1.3. Primrose Street, Wingham

The level crossing was upgraded from flashing lights and bells to flashing lights, bells and retro-reflective boom gates with high intensity (LED) lights and a new Red Man light and pedestrian maze crossing. The upgrade also included minor road works and a footpath, new signage and line marking for both the rail and roadway. The upgrade was commissioned on 26th June 2013, at an estimated total completion cost of \$1,078,700.

Figure 7 – Primrose Street level crossing, Wingham



3.1.4. Mogriguy Road, Mogriguy

The existing passive stop signs at Mogriguy Road, Mogriguy, were upgraded to active controls. The upgrade included the installation of flashing lights, bells, retro-reflective boom gates with high intensity (LED) lights and active advanced warning to the northern approach to the level crossing. The upgrade also included road widening, new signage and line marking for both the rail and roadway. The upgrade was completed on 4th June 2013, at an estimated total cost of \$944,100.

Figure 8 – Mogriguy Road level crossing, Mogriguy



3.1.5. Tilly Willy Road, Macksville

The level crossing was upgraded from flashing lights and bells to flashing lights, bells and retro-reflective boom gates with high intensity (LED) lights and a new motorised swing gate pedestrian crossing. The upgrade also included minor road works and footpaths, new signage and line marking for both the rail and roadway. The upgrade was commissioned on 18th July 2013, at an estimated total cost of \$1,029,500.

Figure 9 – Tilly Willy Road level crossing, Macksville



3.1.6. Newell Highway, Gilgandra

The level crossing was upgraded from flashing lights and bells to flashing lights, bells and retro-reflective boom gates with high intensity (LED) lights. The upgrade also included minor road works, improved intersection street lighting, installation of new queuing crossing hatching pavement marking and associated signage, installation of new 'Keep Clear' pavement markings, new signage and line marking for both the rail and roadway. The upgrade was commissioned on the 30th June 2013, at an estimated total cost of \$759,800.

Figure 10 – Newell Highway level crossing, Gilgandra



3.2. Development Work Undertaken

Development work for upgrades in future years formed a major part of the 2012/13 LCIP, with detailed design undertaken for 6 sites (Table 2) and concept design for another 3 level crossings (Table 3).

Table 2 – LCIP Detailed Designs Completed in 2012/13

Street	Location	Network
Dandaloo Rd	Narromine	ARTC Lease
Summerland Way	Koolkhan	ARTC Lease
Nash Street	Parkes	CRN
Rossglen Road	Rossglen	ARTC Lease
Burrington Road	Moree	ARTC Lease
Darkes Road	Dapto	RailCorp

Table 3 – LCIP Concept Designs Completed in 2012/13

Street	Location	Network
Segenhoe Road	Aberdeen	ARTC Lease
Martins Creek Road	Martins Creek	ARTC Lease
Goondah Road	Bowning	ARTC Lease

3.3. Minor Works

In 2012/13, LCIP funded minor construction works at 32 level crossings (Table 4) in regional NSW.

Table 4 – LCIP Minor Construction Works in 2012/13

Street / Location	Scope	Network
Old Bourke Road, Cobar	Cutting of embankment to improve level crossing sighting distance	CRN
Koonadan Road, Leeton	Level crossing road realignment	CRN
Wilkinson Road, Leeton	Level crossing road realignment	CRN
Golden Highway, Beni	Extended height of existing flashing light posts, and upgraded to LEDs	ARTC Lease
Mt Marsh Road, Whiporie	Widened road and tarred approaches, installed guideposts to delineate approaches and removed non-frangible material	ARTC Lease
Fry Street, Grafton	Removed non-frangible material	ARTC Lease
Poley House Road, Braunstone	Widened road, tarred approaches and removed hump	ARTC Lease
Myrtle Creek Road, Rappville	Removed non-frangible material	ARTC Lease
Studders Lane, Kyogle	Widened road and tarred approaches, installed guideposts to delineate approaches, removed hump and removed non-frangible material	ARTC Lease
Mt George Station Yard, Mt George	Removed non-frangible material and upgraded signage	ARTC Lease
20 Level Crossings, Griffith Council Area	Level crossing signage improvement	CRN
2 Level Crossings, Carrathool Council Area	Level crossing signage improvement	CRN

4. Level Crossing Improvement Program 2012/13 (LCIP) - Awareness and Enforcement Campaigns

4.1. Level Crossing Motorist Awareness Campaign

In 2012/13, Transport for NSW, on behalf of the Level Crossing Strategy Council, launched the 'Don't rush to the other side' level crossing campaign. This was developed using the insights gained from level crossing research conducted in 2012.

The key insights identified were:

- Drivers make judgement calls about when to obey traffic controls at level crossings.
- Regular users of level crossings are more complacent about the risks they pose and the dangers they face.

These insights resulted in a campaign designed to elevate awareness of the consequences and creates a fresh perspective on the need to obey traffic controls at level crossings.

The existing 'Some things in your life are worth waiting for' campaign was optimised to include new elements and to have greater topicality and an in-situ presence. This new element introduced the 'Pearly Gates' concept to provide a timely reminder to drivers that level crossing should not be approached with complacency.

As well as being a strong visual, the campaign used a clear message and tagline – '**Don't rush to the other side**'.

The campaign targeted both light vehicle drivers who live within 10 kilometres of a level crossing in regional NSW and heavy vehicle drivers.

Two public relations road show events, where the 'Pearly Gates' were displayed at selected level crossings, were held in regional NSW in June 2013. This timing coincided with the traditional peak in level crossing accidents.

The events took place on 5 June at Tamworth and 7 June at Orange with Local Members, Police and council representatives attending. They generated significant local media coverage.

Following the event activations, a paid advertising campaign was implemented in regional NSW from 20 June to 10 July 2013. The campaign consisted of television, print, outdoor, radio and online advertising. In addition, letterbox flyers were distributed to residents in the Hunter area in late June to support the local Police enforcement operation.

Post campaign evaluation is currently being undertaken with a plan to continue the 'Don't rush to the other side' campaign in 2013-14.

Figure 11 – The 'Pearly Gates' Don't Rush to the Other Side campaign launch at Tamworth and Orange



(Brisbane Street, Tamworth)



(Woodward Road, Orange)

4.2. Level Crossing Awareness and Enforcement Campaigns

The Level Crossing Awareness and Enforcement Campaign continued into 2012/13 with TfNSW, RMS and NSW Police Force conducting four level crossing campaigns in regional NSW. These campaigns were held in the Hunter (2 campaigns), North West NSW, and the Illawarra regions and involved a public awareness campaign supported by Highway Patrol enforcement at selected level crossings.

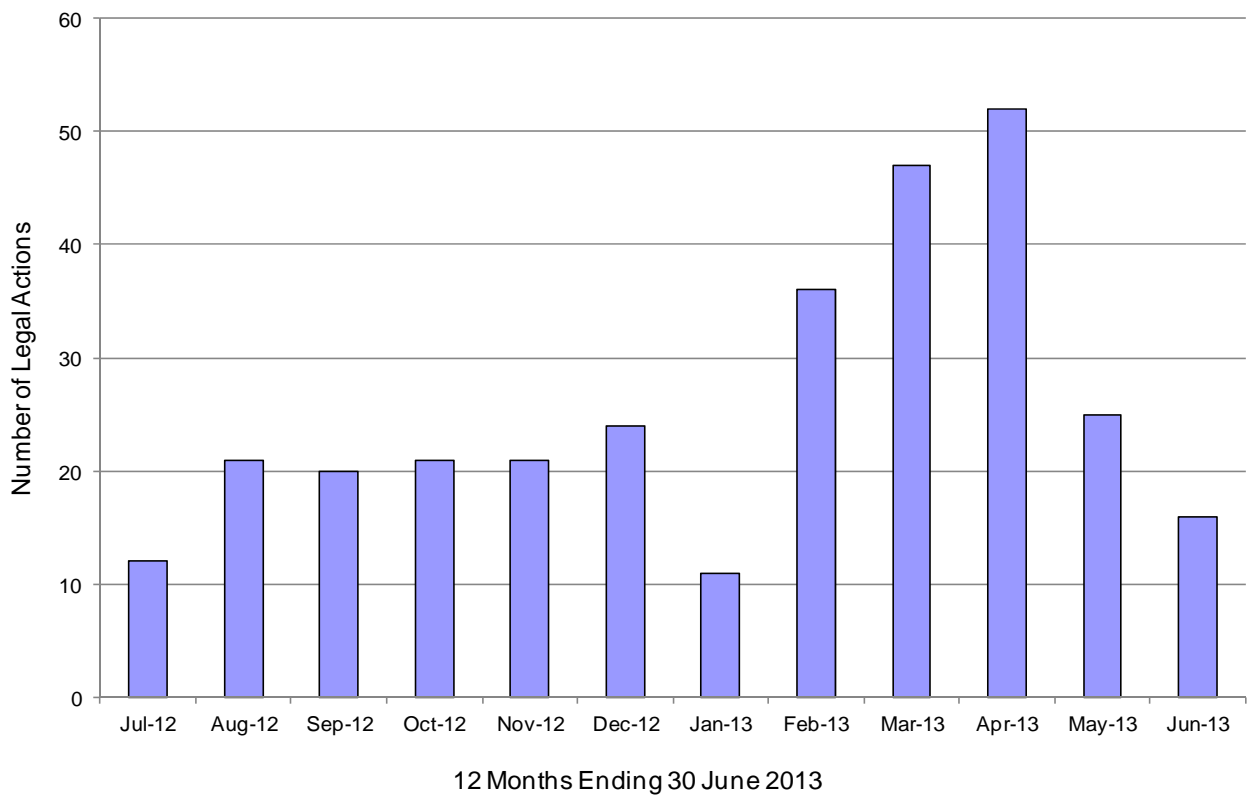
Figure 12 – Level Crossing Police Enforcement in Regional NSW



In October 2012, Senior Sergeant Michael Timms, the NSW Police Force and the LCSC representative, authored and presented a paper on the Level Crossing Awareness and Enforcement Campaign at the 2012 Australasian Road Safety Research, Policing and Education Conference, held in Wellington, New Zealand.

According to provisional police data, there were 306 legal actions for level crossing traffic offences in 2012/13 which is a 9% increase over the previous 12 month period.

Figure 13 – NSW Police Level Crossing Legal Actions in 2012/13



5. Level Crossing Improvement Program 2012/13 (LCIP) - ALCAM Development and Data Collection

The Australian Level Crossing Assessment Model (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. The Committee comprises representatives of all Australian states and territories and New Zealand. The role of the Committee is to manage development of the ALCAM and to ensure consistency in its application. Currently, NSW is represented on the National ALCAM Committee by TfNSW.

5.1. National ALCAM Development

The National ALCAM Committee is currently undertaking significant redevelopment of both the ALCAM methodology and the ALCAM database.

NSW has been leading a number of projects to improve the ALCAM methodology over the last few years, including the recent refinement and extension of the new ALCAM event tree consequence model.

The ALCAM database redevelopment is being managed by VicTrack on behalf of the National ALCAM Committee. This project started in late September 2012. The estimated cost of the project is \$1.6 million over five years. These costs will be shared between Australian and New Zealand jurisdictions; with NSW contributing through the Level Crossing Improvement Program.

5.2. NSW ALCAM Data Collection

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

During 2012/13, data was collected for 188 level crossings in NSW and entered into the ALCAM database.

6. Level Crossing Improvement Program 2012/13 (LCIP) – New Technology

6.1. Trial of Low Cost Level Crossing Warning Devices

The Cooperative Research Centre for Rail Innovation, major Australian railways, government transport departments and Australian universities are evaluating low cost warning systems at sites in New South Wales, Queensland, and Victoria as part of a national low cost level crossing trial.

Low cost level crossing warning systems installed parallel to an existing baseline level crossing warning system at three trial sites will be monitored for a period of 12 months, allowing data to be collected in a wide range of operating and environmental conditions. The trial will be conducted in 'shadow-mode', where the results of the trial road user warning interfaces (flashing lights) are recorded but do not interfere with the existing warning systems at the level crossings.

In early 2012 the program steering committee agreed on a set of nationally consistent requirements for low cost level crossing warning devices and a trial methodology. A request for information (RFI) was subsequently issued to suppliers and received a positive response. From the submissions, a series of evaluation criteria including a lifecycle costing model were developed and applied to facilitate the selection of candidate suppliers. The final selection was made by the program steering committee in a workshop using the results from the evaluation to guide the selection.

The three trial sites have been chosen to provide a good mix of speeds, rolling stock, train traffic volumes, and environmental conditions. Photos of the trial sites are included below. Once host railways provide approval, suppliers will install their low cost systems at each of the sites and commence data collection period which is expected to start in the second half of 2013.

Figure 14 – Schweizer (KH1 Pty. Ltd.) LCLCWD, Tamban NSW



Figure 15 – Sice Pty Ltd. LCLCWD, Antigua QLD



6.2. Development of the Level Crossing Finder

The Level Crossing Finder was developed by TfNSW as a publicly available tool and a centralised source of reliable and comprehensive information on level crossings in NSW. The centre piece of the website is an interactive map which allows the users to search for level crossings geographically and by the unique level crossing identifier. Each level crossing displays a summary page of detailed information about the level crossing, such as the intersecting road and railway line, the type of level crossing control and a Google Street View of the level crossing.

7. Level Crossing Improvement Program 2012/13 (LCIP) - Strategy and Policy Development

7.1. TfNSW Level Crossing Policies

In 2012/13 TfNSW developed two new policy positions in relation to New Level Crossing and Level Crossing Closure. The LCSC reviewed and endorsed these documents, which are currently being reviewed by the Minister Roads and Ports and Minister of Transport.

New Level Crossing

Given the inherent risk attached to level crossings, developers and any organisation seeking to open a new level crossing should exhaust all other options including grade separation and use of existing level crossings prior to proposing to build a new level crossing. The approach taken by TfNSW and rail and road agencies is to avoid building new level crossings wherever possible given the inherent risk attached to any level crossing, even those with modern active controls.

Level Crossing Closure

The new policy regarding level crossing closures states that in order to manage the risks to safety associated with road and rail interfaces, the closure of public and private level crossings in NSW is to be pursued, where it is practical and cost effective to do so. Access may be managed by a grade separation or by redirecting traffic via an alternate approved access route.

7.2. RMS Level Crossing Guidelines

RMS was allocated \$50,000 for the development and release of level crossing safety policies. As noted in Section 1.1, RMS released the *Guideline: Lighting for Railway Crossings* and the *Guideline: Planning Road Infrastructure Upgrades at Railway Crossings*. A brief description of these guidelines follows. These guidelines are freely available on the RMS website.

Lighting for Railway Crossings

This guideline provides planners with guidance when considering lighting as an additional safety management measure to reduce the risk of:

- A road vehicle colliding with a train
- A road vehicle leaving the travel lane at night or during low natural light events.

The purpose is to assist planners to determine if a level crossing will benefit from lighting as an additional safety management measure, and the design criteria when applying road lighting to a level crossing. The guideline does not mandate lighting, but assists in identifying objectives for lighting and the corresponding design criteria, and sets out minimum design principles for the design and performance of lighting as a safety management measure for a level crossing. This guideline links closely with the Railway Crossing Safety Series 2011 which provides planners with the tools to identify, assess, and determine measures to manage risks to safety at level crossings. It promotes the holistic management of risks to safety at level crossings.

Planning Road Infrastructure Upgrades at Railway Crossings

Upgrade projects differ in scope (including inputs and outputs), stakeholder interests and complexity. This guideline provides a robust planning process to ensure consistent delivery of positive outcomes for upgrades of level crossings.

8. LCSC Agency Level Crossing Initiatives

8.1. RailCorp Level Crossing Initiatives

8.1.1. Major Works

Fairy Meadow Station, Fairy Meadow

The upgrade to current standards of the Pedestrian Crossing linking the up and down platforms involved the installation of automatic swing gates, magnetic latches on escape gates and new corral fencing. The upgrade was completed on 6th July 2013.

Project safety improvements included:

- Automatic swing gates, magnetic latches on escape gates
- New compliant signage to AS 1742.7-2007
- New corral fencing

Projected benefits include:

- Improved pedestrian management, provision of DDA compliant pedestrian crossing and reduced train driver trauma

Figure 16 – Fairy Meadow Station Pedestrian Crossing



Mullers Lane, Berry

Construction works at Mullers Lane Berry level crossing are well advanced with a scheduled commissioning by November 2013. The level crossing is being upgraded from stop signs to lights and boom gates to reduce safety risks.

At a forecasted cost of \$2.10 million, this essential upgrade of the level crossing began in February 2013. The upgrade is to include new boom gates and a range of safety improvements such as flashing lights, warning bells, safety signage and linemarking. The upgrade is being completed by RailCorp in partnership with Shoalhaven City Council. This project will help to ensure the ongoing safety of road and rail users in the Corrimal area.

Project Safety Improvements include:

- New boom gates and high intensity LED warning lights
- New compliant road signage and linemarking to AS1742.7-2007
- New rubber level crossing panels.
- Road resurfacing

Projected Benefits include:

- Improved level crossing controls for vehicles
- Improved traffic flow over the level crossing
- Reduced train driver trauma

Figure 17 – Mullers Lane Berry Construction works



8.1.2. Design Works

In 2012/13 RailCorp funded design work for a number of sites, as detailed in Table 5.

Table 5 – RailCorp Design Works in 2012/13

Name and Location	Scope of Works
Bourke Street & Moray Street, East Richmond	Installation of: flashing lights and boom gates DDA compliant pedestrian swing gates backup power supply improvements to road width, kerbs and road medians.
School Parade, Clifton	Installation of: flashing lights and boom gates backup power supply improvements to road width, kerbs and road medians.
Mullers Road, Berry	Installation of: flashing lights and boom gates backup power supply improvements to road width, kerbs and road medians.
Darkes Road, Dapto ⁴	Installation of: flashing lights and boom gates backup power supply improvements to road width, kerbs and road medians.

⁴ This design work was jointly funded by RailCorp and the LCIP.

8.2. ARTC Level Crossing Initiatives

During 2012/13 ARTC undertook work to the value of \$12.90 million to enhance or eliminate level crossings across its network in NSW. As shown in Table 6, \$8.80 million was spent on consolidating ten level crossings into one actively controlled level crossing. Other work included enhancing passively controlled sites by lowering or widening cuttings, removing trees, improving road approaches, installing active controls, and acquiring land for level crossing closures.

Table 6 – ARTC Level Crossing Projects in 2012/13

Location	Cost	Sites	Project Scope
Wingham – Taree	\$8,800,000	10	Consolidation of ten existing level crossings into one actively controlled level crossing
Telarah - Border	\$1,400,000	2	Upgrade passive level crossings to active control
Telarah - Border	\$150,000	17	Level crossing road surface upgrades
Muswellbrook - Gulgong	\$700,000	1	Private accommodation crossing relocated and upgraded to full active protection
Dartbrook - Murulla	\$30,000	2	Level crossing maintenance
Murulla - Werris Creek	\$160,000	1	Level crossing upgrade
Bengalla – Sandy Hollow	\$720,000	4	Level crossing upgrades
Bengalla – Sandy Hollow	\$80,000	1	Level crossing maintenance
Sandy Hollow - Wilpinjong	\$160,000	1	Level crossing maintenance
Gunnedah - Turrawan	\$610,000	10	Level crossing road surface upgrades
Parkes - Cootamundra	\$50,000	1	Level crossing road surface upgrade
Yass - Cootamundra	\$40,000	1	Level crossing maintenance

8.3. CRC Level Crossing Initiatives

CRC continued to improve level crossing safety on the CRN with a combination of upgrades, sighting distance improvements and major maintenance works to ensure compliance with standards and improved signalling technology. Table 7 lists the level crossing projects funded by CRC in 2012/13.

Table 7 – CRC Level Crossing Projects in 2012/13

Location	Cost	Sites	Project Scope
Dubbo to Coonamble	\$524,390	22	Upgrade level crossing to a 7.2m wide steel panel road surface, install face steel sleepers and grade off road/rail interface
Dubbo to Coonamble	\$261,398	2	Signalling – Axle Counters – Gilgandra
Various	\$204,087	2	Sighting Distance Improvements
Various	\$48,346	1	Level Crossing Manual Operation

9. Interface Agreements

The *Rail Safety National Law (NSW)* requires rail infrastructure managers and road authorities to identify and assess risks to safety at level crossings, and for the purposes of managing those risks, to enter into interface agreements. Rail and road agencies are actively working towards meeting these obligations and are currently negotiating safety interface agreements.

RMS

RMS updated its template Interface Agreements (IA) in line with changes in legislation, namely the introduction of the *Rail Safety National Law (NSW)*, and has agreed templates with Australian Rail Track Corporation (ARTC), John Holland Rail (JHR), and V/Line.

To date, RMS has one IA signed with ARTC, and is in the process of signing seven with JHR.

RMS continues to seek to enter into interface agreements with rail infrastructure managers, and local councils. However, as noted by ARTC, there have been delays by some road managers.

RailCorp

RailCorp has been working with the 47 road agencies to facilitate the development of Rail Road Crossing Safety Interface Agreements over the last 12 months. In 2012/13, RailCorp developed and complete all of the Safety Interface Agreements. These were subsequently issued to the various Road Authorities for execution. With the new *Rail Safety National Law (NSW)* commencing on the 14 January 2013 an addendum letter was sent to all of the agencies that had signed the agreement. A total of 31 have been signed off and executed, the remaining 16 rewritten to take into account the new *Rail Safety National Law (NSW)* and the transition to Sydney Trains.

ARTC

In 2011/12 ARTC and RMS reached agreement on an Interface Agreement document which was to be used as the basis of negotiations with councils. This Interface Agreement was sent to all councils in December 2011 with one council signing their IA in 2011/12. In 2012/13, 4 IAs were signed by councils with the remaining 56 IAs still outstanding. Responses from councils have been impacted by councils referring the IA to their local Regional Organisations of Councils (ROC) group or Institute of Public Works Engineering Australia (IPWEA) / Local Government NSW for review or action which has resulted in very little feedback being received from those councils.

ARTC and RMS are currently finalising a revised IA which reflects the changes arising from the adoption of the *Rail Safety National Law (NSW)*. This document will be provided to councils who do not have a signed IA together with a letter detailing specific timeframes for response.

Interface Agreements covering pedestrian access across the ARTC corridor at RailCorp stations (level crossings and footbridges) were previously issued to RailCorp in December

2011 but no agreement could be reached prior to the RailCorp restructure at the end of 2012/13. Negotiations will be recommenced in 2013/14.

After some negotiation, an Interface Agreement with RailCorp covering ARTC's Sydney metropolitan freight network and in particular RailCorp managed bridges was provided to RailCorp with the agreement being progressed by Sydney Trains.

Interface Agreements with private landholders stalled in 2012/13 with very few additional IAs being signed.

CRC

On the CRN, Interface Agreements were distributed for agreement to 41 private road managers and 69 public road managers (councils) in 2012/13.

In 2012/13, 16 Road-Rail Interface Agreements with Private Road Managers have been signed and 8 have been executed with Public Road Managers (councils).

10. Funding for Level Crossings in NSW

Table 8 provides a summary of the total expenditure on level crossing safety improvements in NSW since 2003/04.

Table 8 – Funding for Level Crossing Safety Improvements in NSW from 2003/04 to 2012/13

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	42.77 ⁵	
	CRIA	3.87	
	RTA	3.30	
	LCIP	6.57	
2010/11	RailCorp	3.60	15.94
	ARTC	1.65	
	CRIA	3.37	
	LCIP ⁶	7.33	
2011/12	RailCorp	3.20	42.69
	ARTC	29.21	
	CRIA	2.88	
	LCIP ⁷	7.40	

⁵ One off funding for the Boom Gates for Rail Crossings Program was provided as part of the Commonwealth Government's Nation Building Program.

⁶ Includes \$2 million funding provided from the RTA.

⁷ Includes \$2.5 million provided by RailCorp and \$4.8 million provided by RMS.

Year	Program / Agency	Expenditure (\$ millions)	Total (\$ millions)
2012/13	RailCorp	1.90	24.65
	ARTC	12.90	
	CRC	1.04	
	RMS	1.30	
	LCIP ⁸	7.51	

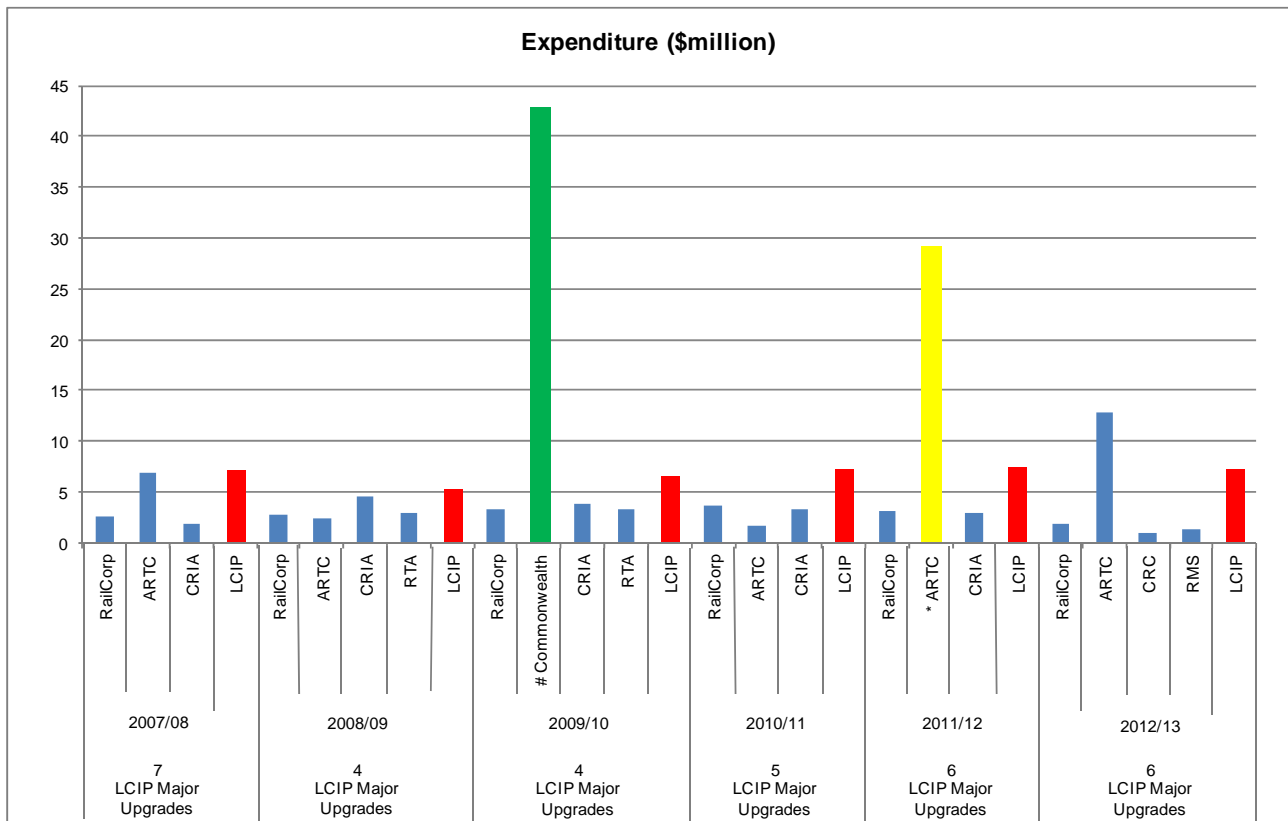
⁸ Includes \$2.5 million provided by RailCorp and \$5.0 million provided by RMS

Appendix A: Total LCIP 2012/13 Expenditure

Street	Location	Cost
Construction Projects		
Mid Western Highway	Goolgowi	\$450,000
Boree Street	Manildra	\$1,093,978
Primrose Street	Wingham	\$710,635
Mogriguy Road	Mogriguy	\$709,928
Tilly Willy Road	Macksville	\$521,169
Newell Highway	Gilgandra	\$520,455
Summerland Way	Nammoona	\$214,119
Phillips Street	Gloucester	\$891,200
	Total	\$5,111,484
Detailed Design		
Dandaloo Road	Narromine	\$22,540
Summerland Way	Koolkhan	\$48,800
Nash Street	Parkes	\$129,697
Rossglen Road	Rossglen	\$83,000
Burrington Road	Moree	\$49,200
Darkes Road	Dapto	\$106,661
	Total	\$439,898
Concept Design		
Segenhoe Road	Aberdeen	\$40,100
Martins Creek Road	Martins Creek	\$77,000
Goondah Road	Bowning	\$31,646
	Total	\$148,746
Minor Works		
Old Bourke Road	Cobar	\$349,630
Koonadan Road	Leeton	
Wilkinson Road	Leeton	
Golden Highway	Beni	\$76,400
Mt Marsh Road	Whiporie	\$70,000
Fry Street	Grafton	
Poley House Road	Braunstone	
Myrtle Creek Road	Rappville	
Studders Lane	Kyogle	
Mt George Station Yard	Mt George	\$94,305
20 Level Crossings	Griffith Council Area	
2 Level Crossings	Carrathool Council Area	\$8,814

Street	Location	Cost
	Total	\$599,149
Accelerated Projects		
Rossglen Road	Rossglen	\$276,891
	Total	\$276,891
Other Level Crossing Initiatives		
Level Crossing Awareness and Enforcement Campaign		\$677,681
ALCAM Development & Data Collection		\$109,289
Level Crossing Strategies and Policies Development		\$141,989
	Total	\$928,959
	Grand Total	\$7,505,127

Appendix B: Expenditure on Level Crossing Upgrades in NSW Funded through the Level Crossing Improvement Program and by Rail and road Agencies 2007/08 – 2012/13



Note: # – ■ Federal stimulus funded projects under the National Building Program: *Boom Gates for Rail Crossings (55 sites)*

Note: * – ■ During 2011/12 ARTC undertook works in excess of \$29 million to enhance or eliminate level crossings across its network in NSW. Twenty three million of this was spent on two major grade separation projects as part of the Maitland to Minimbah Third Track and other safety improvements within the network.