# Transport for NSW

Level Crossing Strategy Council, Yearly Report 2011/12

March 2013

# Contents

**Front Cover**
**Active advanced warning signage at Sheep Wash Road, Calwalla level crossing.**

# 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 |
| **CRIA** | Country Rail Infrastructure Authority (and its predecessor Rail Infrastructure Corporation) |
| **CRN** | Country Regional Network (the part of the NSW Rail Network that is owned/managed by CRIA) |
| **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 |
| **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)) |
| **RTA** | Roads and Traffic Authority of NSW |
| **TfNSW** | Transport for NSW (and its predecessor Department of Transport) |

# 1. Year in Review: 2011/12

In 2011/12, rail and road agencies spent a total of $42.69 million on level crossing safety initiatives in NSW, $7.3 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 2011/12, LCIP improvement projects progressed at 31 public level crossings in NSW. This included major level crossing upgrades at Mackays Road, Coffs Harbour; Amaroo Road, Amaroo; Bathampton Road, Wimbledon; Hoddle Street (Illawarra Highway), Robertson; and Tip Road, Dunmore. Development work for upgrades in future years formed a major part of the 2011/12 LCIP, with concept designs prepared for 4 projects, and detailed designs prepared for 5 projects. Minor construction works were completed at 17 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, "Life Before Your Eyes"
- level crossing awareness and enforcement campaigns in regional NSW
- Australian Level Crossing Assessment Model (ALCAM) data collection for over 350 sites
- the assessment and trial of Low Cost Level Crossing Warning Devices
- the development of Transportal for level crossings in NSW
- level crossing strategy and policy development.

TfNSW has allocated $21.9 million ($7.3 million per annum) for the LCIP between 2012/13 and 2014/15. This provides some certainty over the next few years and 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 2011/12 (including LCIP funded projects).

Appendix A provides summary of all projects funded under the LCIP in 2011/12 and Appendix B sets out the expenditure on level crossing upgrades funded through the Level Crossing Improvement Program and by rail and road agencies from 2007/08 to 2011/12 in NSW.

## 1.1. Agency Level Crossing Activities

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

### RailCorp

RailCorp completed level crossing upgrades at Railway Street, Corrimal and Tip Road, Dunmore. Detailed design commenced at two sites which are due to be completed in early 2012/13. Concept designs were also completed for two level crossings which will progress to detailed design and construction in future years. In total, RailCorp spent $3.2 million on safety improvement works for level crossings on its network in 2011/12.

### ARTC

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. 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.

### CRIA

CRIA undertook level crossing upgrades at 20 sites on the Country Regional Network (CRN) at a cost of $2.88 million in 2011/12, with works including improvements to level crossing road surfaces and signalling. This was in addition to its ongoing program of inspecting, maintaining and improving sighting distances at various level crossings through vegetation control and removal of obstructions such as embankments.

### RMS

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 safety management and appropriate safety management measures for level crossings.

RMS also finalised a comprehensive series of documents, the *Railway Crossing Safety Series 2011*, which provide road agencies with detailed guidance on the development of safety systems for level crossings. The documents provide information to assist with the development of Safety Management Plans, and help road agencies to understand their obligations under the *Rail Safety Act 2008*. These documents are freely available on the RMS website at:

http://www.rta.nsw.gov.au/doingbusinesswithus/guidelines/rail_crossing_safety_series/the_documents.html

In addition, RMS developed Safety Management Plans for its 100 level crossings on State roads. These Safety Management Plans will be evaluated and programs of works will be developed to address level crossing risks to safety from a road infrastructure perspective.

RMS continued to maintain level crossings on State roads and implement additional safety management measures, so far as is reasonably practicable.

# 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)[1]
- Roads and Maritime Services (RMS)[2]
- Country Rail Infrastructure Authority (CRIA)
- John Holland Rail (JHR)
- RailCorp
- 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 Improvement Program

Under the *Rail Safety Act 2008* 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 public level crossings in NSW.

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 all the agencies involved in the works.

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[1] Department of Transport became Transport for NSW on 1 November 2011
[2] RTA and NSW Maritime Authority functions were merged to become the Roads and Maritime Services on 1 November 2011

From 1 July 2011, a new methodology has been used to determine the level crossings eligible for funding under the LCIP and the priorities for improvements. This methodology, developed by the LCWG and approved by the LCSC, will be 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.

## 2.3.  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 122 level crossings have been closed, most of which are on private property. In 2011/12, two level crossings were approved for closure in the Hunter Valley - one on a private road and one on a public road.
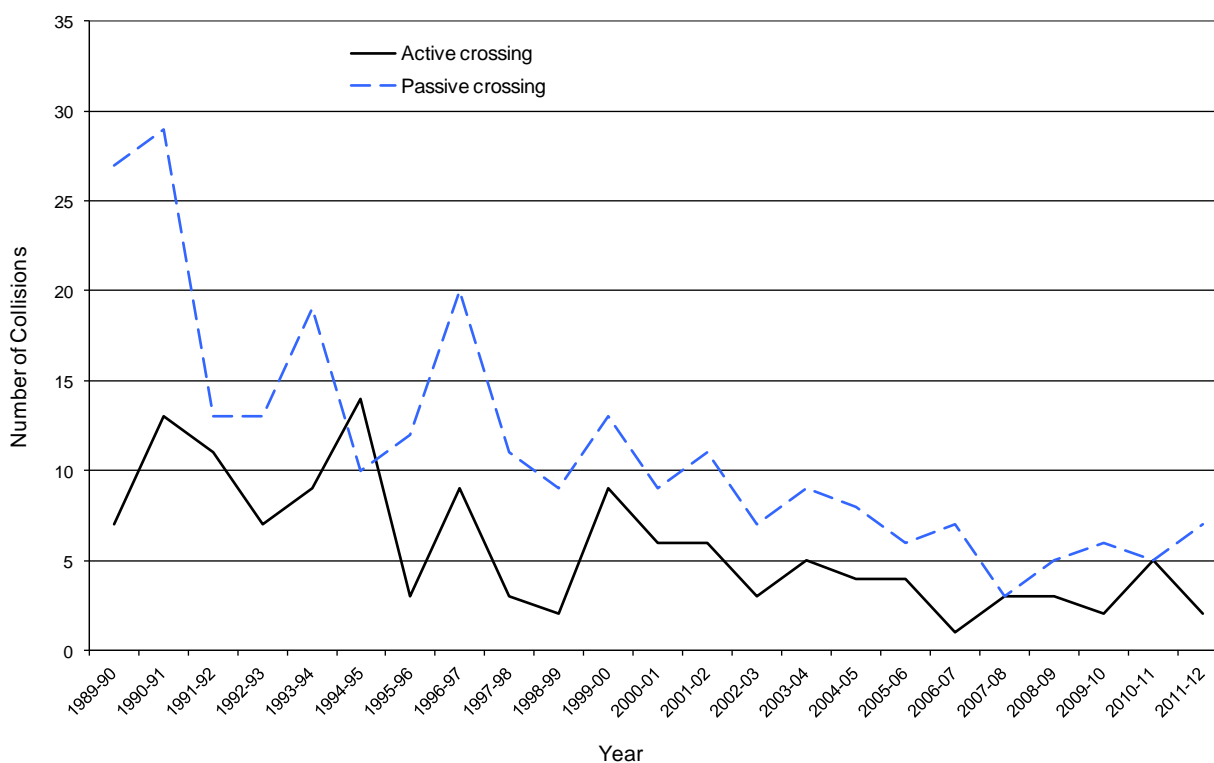
## 2.4.    Level Crossing Data

### 2.4.1.    Level Crossing Incident Information

Of the 1,379 public road level crossings in NSW, 379 have active traffic controls; 180 have flashing lights and bells and 199 have flashing lights, bells and boom gates.  The majority of other crossings are controlled by "give-way" or "stop" signs.

In 2011/12, there were nine crashes between trains and road vehicles in NSW: two at crossings with active controls and the remaining seven at crossings with passive controls. In one of the crashes, a motorist was fatally injured at a passively controlled level crossing. No fatalities were recorded between trains and pedestrians at level crossings during the year. Overall, the number of crashes between a train and a road vehicle has decreased over the past 23 years in NSW. The Figures 1 to 4[3] show the number collisions and fatalities at level crossings from 1989/90 to 2011/12.

Figure 1 - Train Colliding with Road Vehicle at Level Crossing, 1989/90 to 2011/12 in NSW



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Figure 2 – Fatalities: Train Colliding with Road Vehicle at Level Crossing, 1989/90 to 2011/12 in NSW
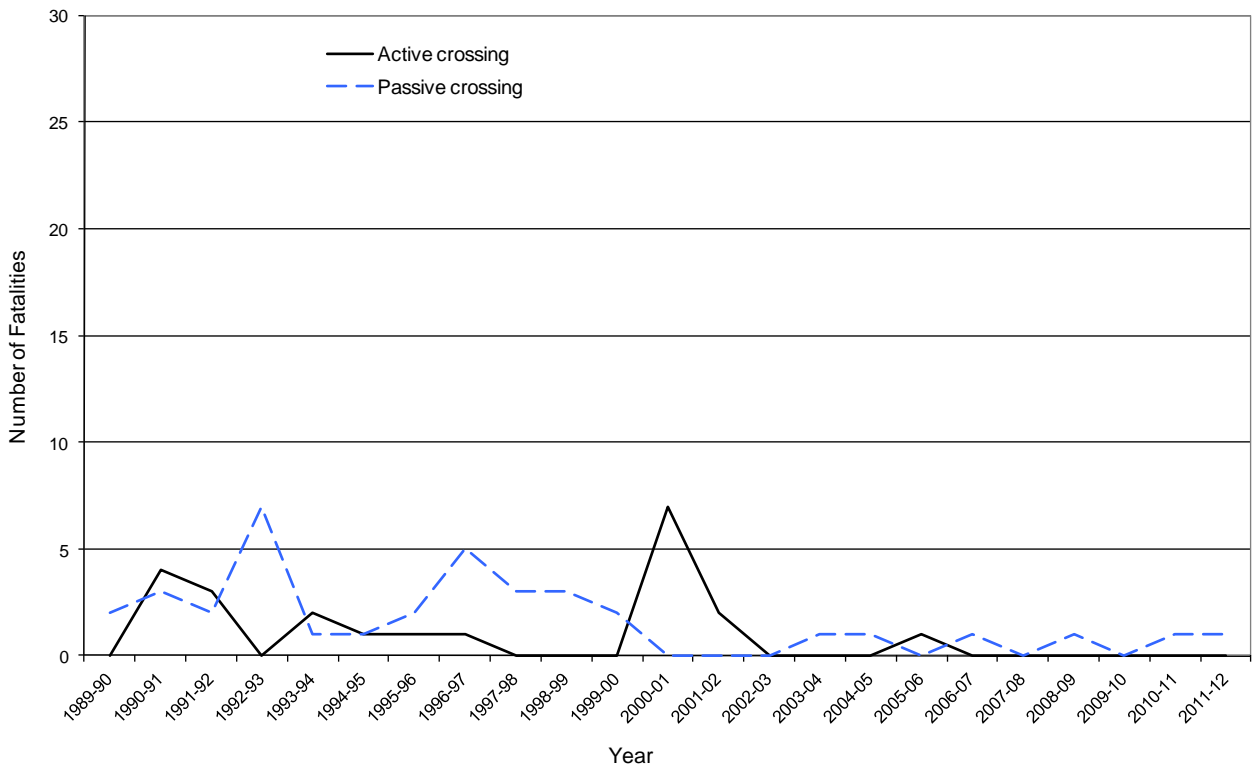


Figure 3 - Train Colliding with Person at Level Crossing, 1989/90 to 2011/12 in NSW
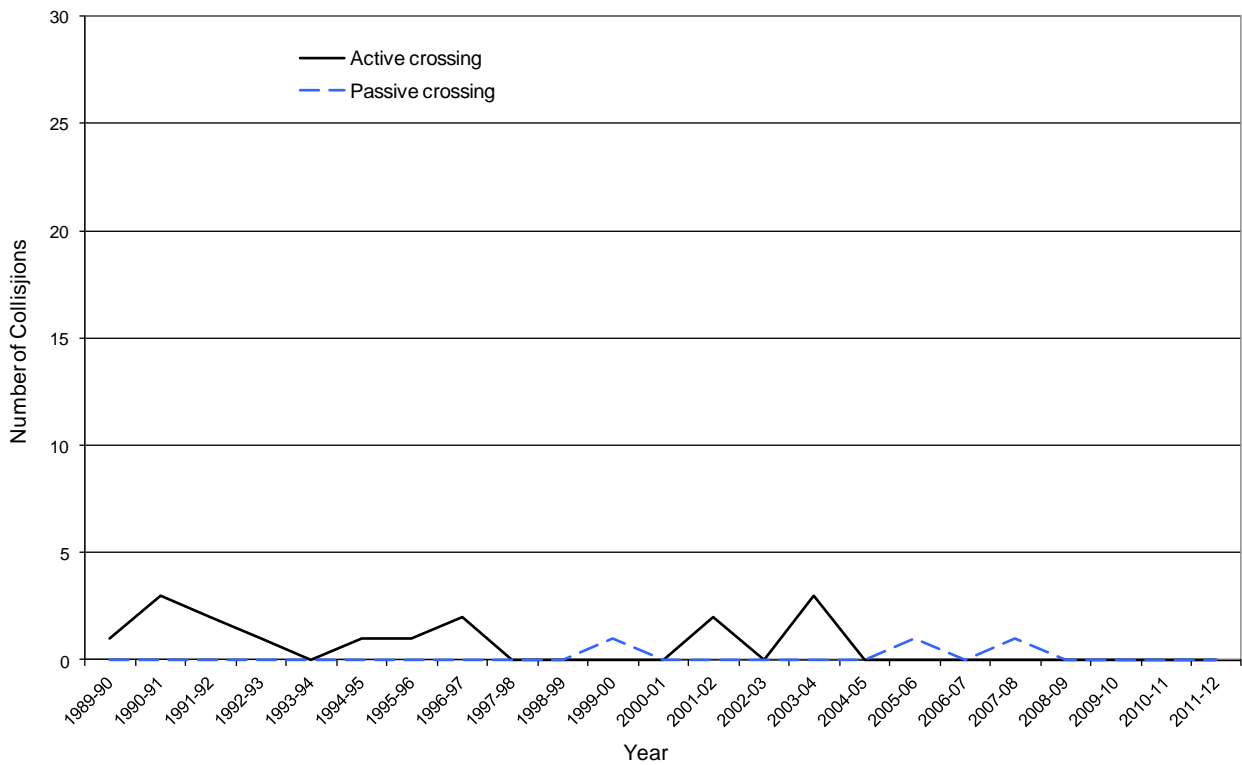
Figure 4 – Fatalities: Train Colliding with Person at Level Crossing, 1989/90 to 2011/12 in NSW
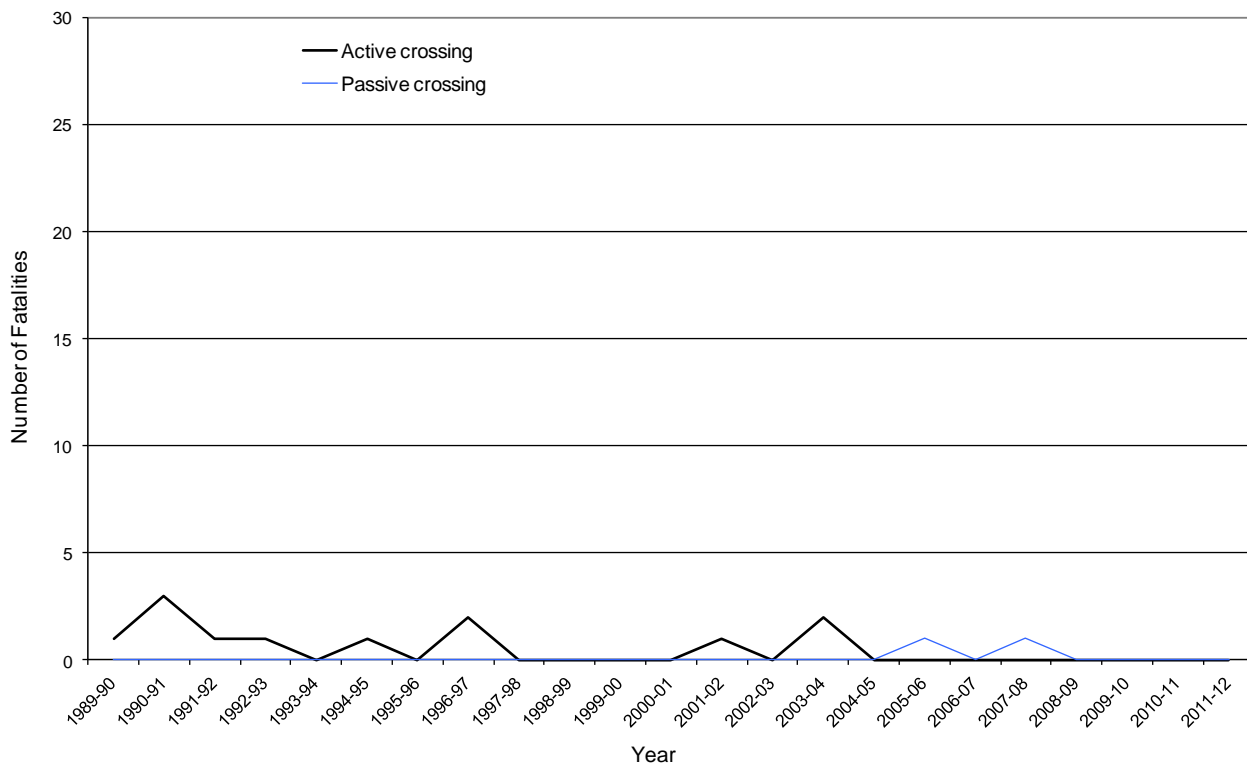
# 3. Level Crossing Improvement Program 2011/12 (LCIP) - Infrastructure Works

## 3.1. Major Works Completed

During 2011/12 five 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 2011/12

| Street | Location | Network |
|---|---|---|
| Amaroo Road | Amaroo | CRN |
| Bathampton Road | Wimbledon | CRN |
| Mackays Road | Coffs Harbour | ARTC Lease |
| Tip Road | Dunmore | RailCorp |
| Hoddle Street (Illawarra Highway) | Robertson | ARTC Lease |

### 3.1.1. Amaroo Road, Amaroo

Traffic controls for motorists at Amaroo Road, Amaroo were upgraded from passive stop signs to active controls. This included the installation of flashing lights, bells and retro-reflective boom gates with high intensity (LED) lights and additional warning lights, and associated road works on both sides of the crossing, including road widening.  A new level crossing hut was also installed to accommodate the new equipment which controls the boom gates and flashing lights.  The upgrade was completed in December 2011 at a total cost of $900,000.

Figure 5 - Amaroo Road Level Crossing, Amaroo

### 3.1.2.  Bathampton Road, Wimbledon

The existing passive stop signs at Bathampton Road, Wimbledon, were upgraded to active controls.  The upgrade included the installation of flashing lights, bells and retro-reflective boom gates with high intensity (LED) lights.  Additional flashing light assemblies were installed on both sides of the crossing to provide additional visual warning to road users of approaching trains.  Minor road works, including road widening, was also required as part of the project.  The upgrade was completed in December 2011, at a total cost of $882,000.

Figure 6 - Bathampton Road Level Crossing, Wimbledon



### 3.1.3.  Mackays Road, Coffs Harbour

The existing stop signs at  Mackays Road, Coffs Harbour were upgraded to flashing lights, bells and retro-reflective boom gates, with high intensity (LED) lights. Road improvements included road widening, new road signage and pavement markings.  The upgrade was completed in June 2012, at a total cost of $1,023,400.

Figure 7 - Mackays Road Level Crossing, Coffs Harbour

### 3.1.4.  Tip Road, Dunmore

The LCIP provided $486,100 towards the upgrade at Tip Road, Dunmore, which was jointly funded by RailCorp, RMS and Kiama City Council. 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 road widening, new signage, and line marking for both the rail and roadway.  The upgrade was completed in March 2012, at total cost of $950,000.

Figure 8 - Tip Road Level Crossing, Dunmore



### 3.1.5.  Hoddle Street (Illawarra Highway), Robertson

The upgrade at Hoddle Street (Illawarra Highway), Robertson, involved the installation of a new passive pedestrian crossing and corral fencing, new approach footpaths and improved street lighting.  The upgrade was completed in June 2012 at a total cost of $356,700.

Figure 9 - Hoddle Street Level Crossing (Illawarra Highway), Robertson

## 3.2. Development Work Undertaken

Development work for upgrades in future years formed a major part of the 2011/12 LCIP, with concept design undertaken for 5 sites (Table 2) and detailed design for another 4 level crossings (Table 3).

Table 2 - LCIP Detailed Designs Completed in 2011/12

| Street | Location | Network |
|---|---|---|
| Phillips Street | Gloucester | ARTC Lease |
| Summerland Way | Nammoona | ARTC Lease |
| Mogriguy Road | Mogriguy | CRN |
| Boree Street | Manildra | CRN |

Table 3 - LCIP Concept Designs Completed in 2011/12

| Street | Location | Network |
|---|---|---|
| Summerland Way | Koolkhan | ARTC Lease |
| Dandaloo Rd | Narromine | ARTC Lease |
| Rossglen Road | Rossglen | ARTC Lease |
| Newell Highway | Gilgandra | CRN |
| Nash Street | Parkes | CRN |

# 4. Level Crossing Improvement Program 2011/12 (LCIP) - Awareness and Enforcement Campaigns

## 4.1. Level Crossing Motorist Awareness Campaign ("Life Before Your Eyes")

In 2011/12 RMS, on behalf of the Level Crossing Strategy Council, delivered a two-phase Level Crossing Motorist Awareness Campaign, "Life Before Your Eyes", in regional NSW. The campaign was conducted in May and June 2012, with each phase running for approximately three weeks. The aim of the campaign was to educate drivers about the dangers of ignoring road rules at level crossings and to encourage drivers to consider the consequences of using a level crossing when a train is approaching. A combination of television, radio, newspapers, regional magazines, outdoor billboards, and online advertising were used to convey safety messages. The radio advertisement, in a 15 second and 30 second format, was also distributed to all regional commercial and non-commercial radio stations so that it could be used as a 'community service announcement' to support the campaign.

The campaign's effectiveness was measured using campaign tracking research delivered by Instinct and Reason via an online survey. This research found that 7 out of 10 drivers in regional NSW saw at least part of the campaign, an increase from June 2011 when the campaign last ran. The online advertisement, which was introduced this year, also performed well.

The campaign aimed to convey why it is important for drivers to practice safe behaviours when approaching a level crossing. Seventy three per cent of respondents were able to identify a key message of the campaign as "What you could lose if you don't stop at railway level crossings". In addition, 83% of respondents stated that the campaign reminded them that dangerous behaviour at level crossings can lead to negative consequences.

The campaign also aimed to reduce complacency by drivers using level crossings. Seventy three per cent of respondents clearly understood the other key message of the campaign as "Don't ignore the signals at level crossings" and 84% agreed that the campaign reminded them that they should not ignore the signals at rail level crossings.

Finally, the campaign aimed to increase safe behaviours by road vehicle drivers traversing level crossings. Eighty two per cent of respondents stated that after seeing the campaign they would be likely to stop at a level crossing and wait for a train to pass, while 60% of respondents found the campaign motivated them to drive safely.

## 4.2.  Level Crossing Awareness and Enforcement Campaigns

Following a successful pilot campaign in March 2011, TfNSW and the NSW Police Force conducted three level crossing enforcement campaigns in country NSW.  The campaigns were held in Orange, Tamworth and Dubbo, and were successful in improving motorist compliance at these level crossings.  During the Awareness and Enforcement campaigns the NSW Police Force conducted ongoing patrols of level crossings in the campaign areas.

Figure 10 shows the number of infringement notices issued at level crossings across NSW by month in 2011/12[4].

The high number of infringements in March 2012 was due to the operation of the level crossing enforcement campaign in Dubbo which resulted in 37 infringement notices being issued.

Figure 10 - Number of Infringement Notices issued at level crossings across NSW by month in 2011/12



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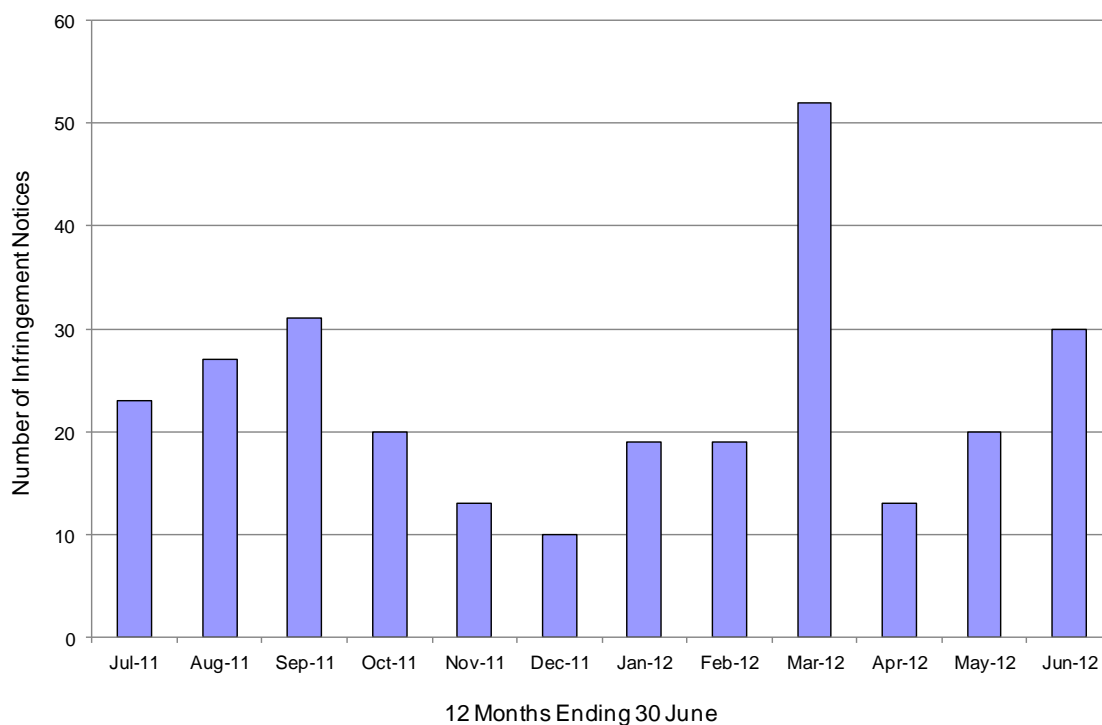
[4] Source: NSW Police Force

# 5. Level Crossing Improvement Program 2011/12 (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. Projects to improve risk weighting and traffic exposure were finalised in 2011/12. Further improvements for the 'consequence component' of the new ALCAM methodology are currently being managed by TfNSW.

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 2011/12, data was collected for over 350 road and pedestrian level crossings and entered into the ALCAM database.

# 6. Level Crossing Improvement Program 2011/12 (LCIP) – Research

## 6.1. Trial of Low Cost Level Crossing Warning Devices

The Cooperative Research Centre for Rail Innovation, major Australian railways, government transportation 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 is being 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 trialling 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 11 - New South Wales Trial Site - Collombatti Link Road, Tamban

Figure 12 - Victoria Trial Site – Russell St (Tall Tree Road), Lethbridge



Figure 13 - Queensland trial site - Antigua Road, Antigua

## 6.2. Development of the Level Crossing Transportal

The Level Crossing Transportal project, which commenced in April 2011, was completed during 2011/12. The Transportal is a centralised definitive spatial dataset of NSW level crossings that provides comprehensive and reliable information that will be used to help TfNSW to develop level crossing improvement programs.

The project also delivered an advanced map tool based on the existing TfNSW Transportal framework. This online interactive map tool allows users to search for level crossings geographically, to view summary details about the crossings, and to view a wide range of other transport information about the crossings such as school and general bus routes, heavy vehicle routes, accident black spots and cycle ways.

# 7. Level Crossing Improvement Program 2011/12 (LCIP) - Strategy and policy development by RMS

In 2011/12, RMS was allocated $50,000 for the development and roll out of level crossing strategies and policies.

During the year, in consultation with rail infrastructure managers and road agencies, RMS commenced the development of a guideline for the lighting of level crossings, which is due for release 2012/13. Improved lighting has the potential to reduce the risk of night time crashes between road vehicles and trains by up to 45%[5]. Lighting also provides a safer road environment on the approach to a level crossing where a road curves before the crossing. The guideline will provide advice to road agencies in the absence of an Australian Standard, and will be freely available on the RMS website once published.

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[5] Lipinski, M and Wortman, R 1976, Effect of illumination on rural at-grade intersection crashes, Transportation Research Record, No. 611, pp. 26 – 27.

# 8. LCSC Agency Level Crossing Initiatives

## 8.1. RailCorp Level Crossing Initiatives

### 8.1.1. Major Works

**Tip Road, Dunmore**

The upgrade at Tip Road, Dunmore involved the installation of boom gates, high intensity warning lights, track panel renewal, road upgrade, signage and line marking, at a total cost of $950,000. The project was jointly funded by RailCorp, RMS and Kiama City Council. The upgrade was completed in March 2012.

Project Safety Improvements included:

- New boom gates and high intensity LED warning lights
- New compliant road signage to AS 1742.7-2007
- Track recondition and new railway track panel
- Wider roadway over the level crossing

Projected Benefits include:

- Improved level crossing controls for vehicles
- Improved traffic flow over the level crossing
- Improved traffic management and reduced train driver trauma
- Improved road approaches to the level crossing.

**Railway Street, Corrimal**

The level crossing at Railway Street in Corrimal was upgraded to improve safety and traffic flow for local motorists and pedestrians. The upgrade was completed in April 2012.

At a cost of $2.3million, this essential upgrade of the level crossing began in January 2012 and included new automatic pedestrian gates, new boom gates and a range of safety improvements such as flashing lights, warning bells, safety signage and improved lighting for pedestrians. The upgrade was completed by RailCorp in partnership with Wollongong City Council and RMS. This important project will help to ensure the ongoing safety of road, rail and users as well as pedestrians in the Corrimal area

To coincide with RailCorp's work, Wollongong City Council upgraded the footpath and pram ramp, which provides access to the station. The Council also installed new fencing, resurfaced the road, and improved the kerb and gutters around the Railway Street station entrance.

Project Safety Improvements included:

- DDA compliant pedestrian swing gate crossings
- New boom gates and high intensity LED warning lights
- New compliant road and pedestrian signage to AS1742.7-2007

- Road resurfacing
- Improved street lighting
- New footpaths, kerb and gutter

Projected Benefits include:
- Improved level crossing controls for vehicles and pedestrian users
- Improved traffic flow over the level crossing
- Improved pedestrian management, provision of DDA compliant pedestrian crossings and reduced train driver trauma
- Improved illumination of pedestrian and road crossing.

Figure 14 - Railway Street Corrimal - Up Sydney side



Figure 15 - Railway Street Corrimal - road crossing, pedestrian crossing

## 8.1.2. Design Works

In 2011/12 RailCorp funded design work for a number of sites, as detailed in Table 4.

Table 4 - RailCorp Design Works in 2011/12

| Name and location | Proposed scope of works |
|---|---|
| Bourke Street & Moray Street, East Richmond | Installation of:<br>• flashing lights and boom gates<br>• DDA compliant pedestrian swing gates<br>• backup power supply<br>• improvements to road width, kerbs and road medians. |
| School Parade, Clifton | Installation of:<br>• flashing lights and boom gates<br>• backup power supply<br>• improvements to road width, kerbs and road medians. |
| Mullers Road, Berry | Installation of:<br>• flashing lights and boom gates<br>• backup power supply<br>• improvements to road width, kerbs and road medians. |
| Darkes Road, Dapto[6] | Installation of:<br>• flashing lights and boom gates<br>• backup power supply<br>• improvements to road width, kerbs and road medians. |

## 8.1.3. Awareness Campaigns

RailCorp's Community Relations Unit (CRU) has continued strong relationships with the project managers delivering major upgrades for level crossings. In 2011/12, the CRU assisted Project Managers with resident notifications at Corrimal and East Richmond level crossings.

As well as notifying community members by letterbox drops/media releases of the upgrade works at Corrimal, the CRU takes a proactive approach to level crossing safety. Taking the time to call on and explain to residents the range of safety improvements and the possible effect the construction may have on them. Positive results were achieved with a high level of compliance and no complaints during this time.

Safety presentations and educational sessions were undertaken at local high schools, primary schools and youth groups.

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[6] This design work was jointly funded by RailCorp and the LCIP.

## 8.2. ARTC Level Crossing Initiatives

During 2011/12 ARTC undertook work in excess of $29 million to enhance or eliminate level crossings across its network in NSW. As shown in Table 5, $23 million was spent on two major grade separation projects as part of the Maitland to Minimbah Third Track (the first two projects listed in Table 5). Other work 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.

Table 5 - ARTC Level Crossing Projects in 2011/1

| Location | Cost | Sites | Project Scope |
|---|---|---|---|
| Hermitage Road, Belford | $9,000,000 | 1 | Replace level crossing with overbridge |
| Station Lane, Lochinvar[7] | $14,000,000 | 1 | Replace level crossing with overbridge |
| Rix's Road, Belford | $4,000,000 | 1 | Property acquisition and closure of level crossing |
| Merrygoen - Gap | $163,305 | 4 | Minor works with safety improvements |
| Goobang Jct - Troy Jct | $145,494 | 3 | Minor works with safety improvements |
| Troy Jct - Merrygoen | $91,844 | 2 | Minor works with safety improvements |
| Merrygoen - Gulgong | $77,645 | 2 | Minor works with safety improvements |
| Walsh Point Line | $59,491 | 1 | Level crossing road surface upgrade |
| Camberwell Jct - Glennies Creek | $15,094 | 1 | Level crossing road surface upgrade |
| Murulla - Werris Creek | $311,124 | 5 | Level crossing road surface upgrade |
| Gunnedah - Boggabri | $180,000 | 2 | Level crossing road surface upgrade |
| Turrawan - Narrabri | $53,118 | 2 | Level crossing road surface upgrade |
| Sandy Hollow Jct - Wilpinjong | $323,970 | 2 | Level crossing signalling and road surface upgrades |
| Telarah - Border | $112,000 | 15 | Level crossing road surface upgrades and removal of non-frangible equipments |
| Peterkins Road, Peterkin | $282,054 | 1 | Level crossing upgraded to active controls |
| Kolodong Road, Kolodong | $162,337 | 1 | Closure of 10 level crossings, consolidated into one active crossing, construction of road – due to be completed in 2012/13 |
| Old Tenterfield Road, Camira Creek | $227,721 | 1 | Level crossing upgrade to active controls |
| **TOTAL** | **$29,205,197** | **45** | |

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[7] The Station Lane Lochinvar level crossing was decommissioned in August 2012.

## 8.3.  CRIA Level Crossing Initiatives

**Improvements on the CRIA Country Regional Network**

CRIA continued to improve level crossing safety on the CRN with a combination of upgrades and major maintenance works to ensure compliance with standards and improved signalling technology.

**Sighting Distance Compliance Works**

The level crossing sighting distance compliance program continued during 2011/12 with $608,000 spent on inspecting, maintaining and improving sighting distances at various CRN locations.

# 9. Interface Agreements

The *Rail Safety Act 2008* 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 worked closely with ARTC on the development of draft Interface Agreements for both the ARTC Lease network and the Country Regional Network (CRN). Ninety draft interface agreements were issued to road authorities in late 2011. On 15 January 2012 John Holland Rail (JHR) took up the contract for maintenance of the CRN and added non-operational rail corridors to the draft interface agreements.

As part of the safety system for level crossings, RMS has completed 100 Safety Management Plans for level crossings on State roads, focusing on road safety. The outcomes of these Safety Management Plans are being evaluated and a program of works developed to address risks to safety so far as is reasonably practicable.

## *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 2011/12, RailCorp developed 38 agreements with the various agencies, 20 of which have been signed.

## *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 and covered both the CRN and ARTC Lease network (as John Holland Rail had not yet taken up the CRN and the Interface Agreements needed to be issued).  Council responses have varied from agreement and signing of the Interface Agreement to nil response. Negotiations with councils are ongoing.

Interface Agreements covering pedestrian access across the ARTC corridor at RailCorp stations (level crossings and footbridges) were issued to RailCorp in December 2011. Some preliminary discussions took place in early 2012 and RailCorp is considering the Interface Agreement document. Discussions are ongoing.

Interface Agreements covering approximately 700 lease interfaces and approximately 400 CRN interfaces were issued to landholders with level crossings or bridge access across the ARTC corridor.  Of those, Interface Agreements covering approximately 260 lease interfaces and approximately 150 CRN interfaces have been signed by landholders, with the CRN interfaces being referred to John Holland Rail.

### *CRIA*

On the CRN, 94 Interface Agreements have been distributed to councils for agreement.

# 10. Funding for Level Crossings in NSW

Table 6 provides a summary of the total expenditure on level crossing safety improvements in NSW since 2003/04:

Table 6 - Funding for Level Crossing Safety Improvements in NSW from 2003/04 to 2011/12

| Year | Program / Agency | Expenditure ($ millions) | Total ($ millions) |
|---|---|---|---|
| 2003/04 | CRIA<br>LCIP | 2.00<br>3.00 | 5.00 |
| 2004/05 | LCIP | 5.00 | 5.00 |
| 2005/06 | RailCorp<br>LCIP | 1.30<br>6.00 | 7.30 |
| 2006/07 | RailCorp<br>ARTC<br>CRIA<br>LCIP | 2.40<br>1.65<br>0.28<br>7.00 | 11.33 |
| 2007/08 | RailCorp<br>ARTC<br>CRIA<br>LCIP | 2.65<br>6.90<br>1.94<br>7.00 | 18.49 |
| 2008/09 | RailCorp<br>ARTC<br>CRIA<br>RTA<br>LCIP | 2.81<br>2.47<br>4.53<br>2.94<br>5.28 | 18.03 |
| 2009/10 | RailCorp<br>ARTC<br>CRIA<br>RTA<br>LCIP | 3.27<br>42.77[8]<br>3.87<br>3.30<br>6.57 | 59.77 |
| 2010/11 | RailCorp<br>ARTC<br>CRIA<br>LCIP[9] | 3.60<br>1.65<br>3.37<br>7.33 | 15.94 |
| 2011/12 | RailCorp<br>ARTC<br>CRIA<br>LCIP[10] | 3.20<br>29.21<br>2.88<br>7.40 | 42.69 |

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[8] One off funding for the Boom Gates for Rail Crossings Program was provided as part of the Commonwealth Government's Nation Building Program.
[9] Includes $2 million funding provided from the RTA.
[10] Includes $2.5 million provided by RailCorp and $4.8 million provided by RMS.

# Appendix A: Total LCIP 2011/12 Expenditure

| Street | Location | Cost |
|---|---|---|
| **Construction Projects** | | |
| Avondale Road | Dapto | $89,200 |
| Tilly Willy Road | Macksville | $356,300 |
| Primrose Street | Wingham | $357,100 |
| Mackays Road | Coffs Harbour | $1,023,400 |
| Amaroo Road | Amaroo | $900,000 |
| Bathampton Road | Wimbledon | $882,000 |
| Hoddle Street (Illawarra Highway) | Robertson | $356,700 |
| Tip Road | Dunmore | $486,100 |
| | **Total** | **$4,450,800** |
| **Detailed Design** | | |
| Phillips Street | Gloucester | $291,000 |
| Summerland Way | Nammoona | $173,300 |
| Mogriguy Road | Mogriguy | $60,000 |
| Boree Street | Manildra | $60,000 |
| | **Total** | **$584,300** |
| **Concept Design** | | |
| Summerland Way | Koolkhan | $65,800 |
| Dandaloo Rd | Narromine | $65,000 |
| Rossglen Road | Rossglen | $38,000 |
| Newell Highway | Gilgandra | $20,000 |
| Nash Street | Parkes | $60,600 |
| | **Total** | **$249,400** |
| **Minor Works** | | |
| Williams Crossing | Henty | $27,600 |
| Berthong Road | Cootamundra | $8,000 |
| Olympic Highway | Bethungra | $8,000 |
| Sodwalls Station Road | Sodwalls | $25,000 |
| Springvale Lane | Millthorpe | $19,000 |
| Mills Road | Gregra | $16,000 |
| Limbri Road | Kootingal | $5,500 |
| Clearfield Road | Clearfield | $14,800 |
| Whian Whian Road (off Myrtle Creek Road) | Rappville | $13,400 |
| Coombell Road | Coombell | $11,200 |
| Webbs Road | Kyogle | $5,300 |
| Golf Club | Kyogle | $20,300 |
| Parkesbourne Road (Breadalbane Road) | Breadalbane | $25,400 |

| Street | Location | Cost |
|---|---|---|
| River Street | Dubbo | $8,400 |
| Brolgan Road | Parkes | $9,000 |
| Manildra Street | Narromine | $9,000 |
| Tallamore Road | Narromine | $10,000 |
| | **Total** | **$235,900** |
| **Accelerated Projects (Procurement of Long Lead Materials)** | | |
| Mogriguy Road | Mogriguy | $174,200 |
| Newell Highway | Gilgandra | $219,300 |
| Boree Street (Yellow Box Road) | Manildra | $158,300 |
| Mid Western Highway | Goolgowi | $236,700 |
| | **Total** | **$788,500** |
| **Projects Withdrawn/On Hold** | | |
| Wheelers Lane | Dubbo | $196,600 |
| Bango Road | Coolalie | 0 |
| Armores Road | Binalong | 0 |
| Bushs Road | Jerrawa | 0 |
| Nubba Road | Nubba | 0 |
| Hen & Chicken Lane | Raglan | 0 |
| Kerrs Creek Road | Euchareena | 0 |
| Farnham Road | Stuart Town | 0 |
| Woolbrook Yard | Woolbrook | 0 |
| Camira Creek Yard | Camira Creek | 0 |
| Harley Hill Road | Berry | $1,400 |
| Mullers Lane | Berry | $1,100 |
| | **Total** | **$199,000** |
| **Other Level Crossing Initiatives** | | |
| Level Crossing Awareness and Enforcement Campaign | | $431,500 |
| ALCAM Development & Data Collection | | $256,900 |
| Assessment & Trial of Low Cost Level Crossing Warning Devices | | $110,000 |
| Development of Level Crossing Transportal | | $41,400 |
| Level Crossing Strategies and Policies Development | | $50,000 |
| | **Total** | **$889,800** |
| | **Grand Total** | **$7,397,700** |

# Appendix B: Expenditure on Level Crossing Upgrades in NSW Funded through the Level Crossing Improvement Program and by Rail and road Agencies 2007/08 – 2011/12

**Expenditure ($million)**
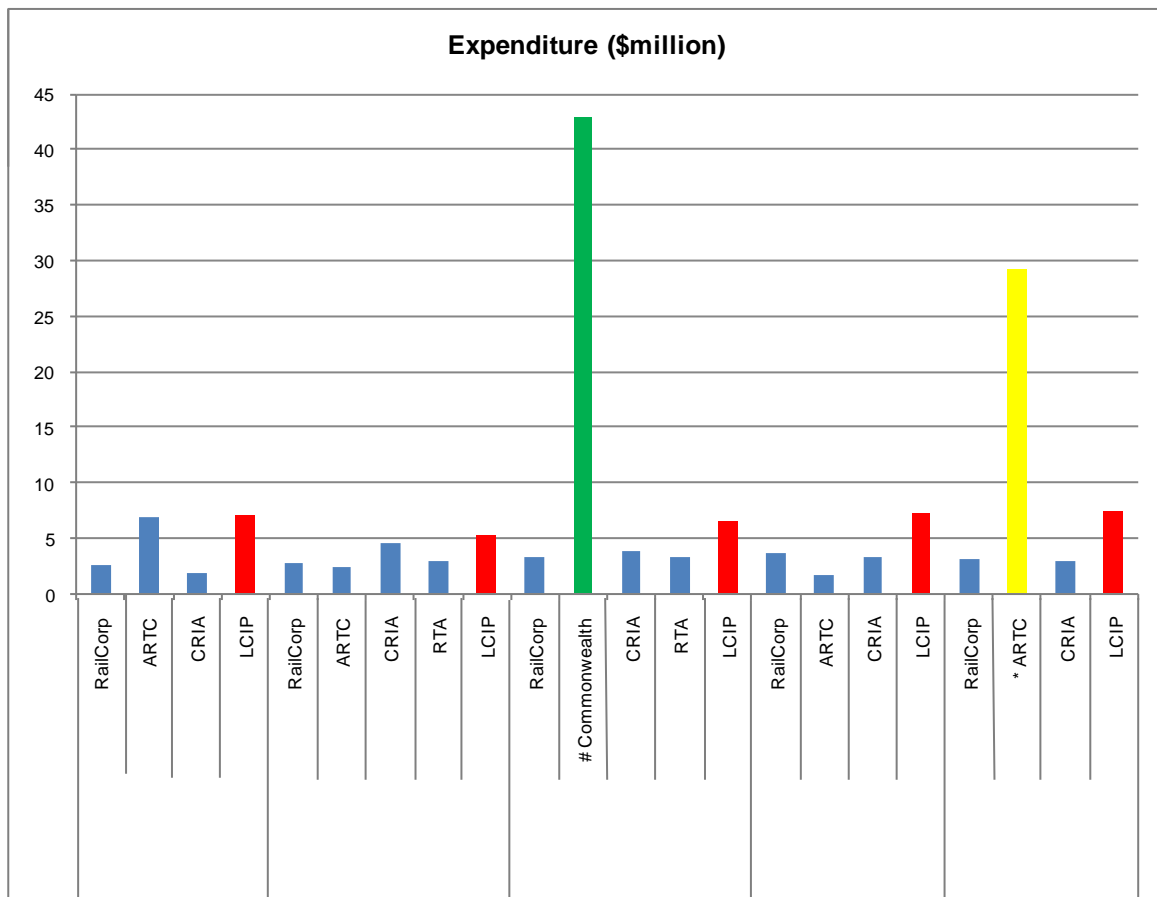


Note: # - 🟩 Federal stimulus funded projects under the National Building Program: *Boom Gates for Rail Crossings* (*55 sites*)

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.