

New South Wales Level Crossing awareness and enforcement campaign: four years of working together

Sen Sgt Michael Timms, B Prof Stud Policing (UNE), NSW Police Force

Abstract

In 2012, conference was told of a new multi-agency campaign in NSW targeting level crossing safety. Up to that point, an average of one person each year had been killed in a collision between a road vehicle and a train in a state with 1,400 public road level crossings.

The Level Crossing Awareness and Enforcement Campaign combined the resources of the New South Wales Police Force and Transport for New South Wales to raise driver awareness of level crossing safety through a localised education and media strategy supported by the tasking and deployment of additional police resources to enforce road rules.

Now its fourth year, the campaign has delivered over 23 localised campaigns targeting some 48 level crossings throughout NSW and three years have passed since the last fatal crash at a level crossing.

The partnership has led to fresh collaborations such as educational displays at major regional events featuring *Pearly Gates*-messaging and a crashed car kindly donated by a driver involved in a level crossing crash.

Along the way, we have discovered level crossing safety is more than obeying the flashing lights or the signs.

This paper will outline the lessons learned about other adverse behaviours including driver distraction, speeding, the over-representation of heavy vehicles and local drivers in level crossing crashes.

The strategic use of social media will also be discussed as well as maintaining the on-going participation of law enforcement in enforcing level crossing safety long after the campaign has finished.

Introduction

The first paper on the Level Crossing Awareness and Enforcement Campaign (LXAEC) presented at the 2012 Australasian Road Safety Research Policing and Education Conference in Wellington NZ outlined the arrangements for the management of level crossings in NSW and how the LXAEC came to be.

The New South Wales Government's NSW2021 plan is "the NSW Government's strategic business plan, setting priorities for action and guiding resource allocation" (https://www.nsw.gov.au/sites/default/files/nsw_2021_plan.pdf). NSW2021 contains goals related to all areas of governmental administration including transport.

Within the area of roads and road safety, two goals are of particular significance:

Goal 7 Reduce Travel Times

Goal 10 Improve Road Safety

Up until 2012, NSW had averaged approximately one fatal crash level crossing involving a vehicle and train per year. By comparison, the annual road toll in 2012 was 369. The focus

of police with regard to the road toll is therefore weighted towards behaviours such as speeding and alcohol, as well as proactively patrolling the freeways and state highways to reduce crashes and to quickly clear incidents that do occur.

Although crashes between vehicles and trains in New South Wales have been declining over the decades, the independent rail regulator, now known as the Office of the National Rail Safety Regulator (ONRSR) continues to receive “near miss” reports from train drivers, some of which are so close that the train drivers can see the vehicle registration numbers.

This presented an opportunity to develop a program that deploys education and enforcement to level crossings where adverse driving behaviour had been identified but does not come at the expense of other road safety taskings such as school zones.

Originally devised to target vehicles queuing over railway tracks, the LXAEC quickly earned a solid reputation within the Level Crossing Strategy Council (LCSC), the interagency group that oversees level crossings, as a cost effective means of increasing road safety issues around level crossings.

At the conclusion of the 2012 paper, it was indicated that the program for 2012-13 was to target motorist’s non-compliance of level crossing controls. Although queuing over railway tracks is inherently dangerous, the data from the regulator tabled at LCSC meetings indicated that disobeying stop signs, flashing lights and bells were the common factor associated with level crossing crashes.

Indeed both Kerang and the “five mates” crash at Gerogery near Albury in 2001 that led to the establishment of the LCSC involved driving contrary to level crossing controls.

Who is involved?

The LXAEC primarily involves New South Wales Police Force (NSWPF) and Transport for New South Wales (TfNSW). It is these agencies that devise and deliver each campaign with the assistance of the relevant local road and rail agencies that are consulted prior to the delivery of each individual campaign.

NSWPF and TfNSW have had continuity amongst the staff responsibly for planning and organising the LXAEC. A Level Crossing Communications Working Group (LCCWG) has also been formed as to advise the LCSC and TfNSW communications officers have delivered new educational materials and initiatives that have assisted the LXAEC.

For roads, the regional Roads and Maritime Services, (RMS) or the local council will be called upon to assist with local logistics and advice. For rail, NSW Trains or the Australian Rail Track Corporation (ARTC) is consulted prior. The attitude and support for the LXAEC has been positive with some councils making additional efforts to promote level crossing safety within their communities. The effectiveness of the campaign would be diminished without the involvement of the local road and rail authorities.

Traffic and Highway Patrol Command (THPC) provides the on-road enforcement of each campaign plus coordination and public awareness.

Funding for the LXAEC continues to be drawn from the Level Crossing Improvement Program which funds engineering upgrades to level crossings as well as education and research. The improvement program is overseen by the LCSC who endorse the annual

\$80,000 budget for the LXAEC. Just over half of that funding goes towards the suite of public awareness measures with the remainder allocated towards the enforcement resources in the form of overtime for highway patrol members.

What is involved?

Around the start of each financial year, the small planning team meets to devise a campaign matrix for the following twelve months. The aim is to deliver four individual campaigns throughout the year. Within each campaign, two to three level crossings will be selected for the full suite of measures.

Site selection process

The planning group liaise with police, roads and rail agencies seeking nominations for sites to be targeted during the year. The process results in a campaign matrix to be delivered in the next twelve months.

Sites selected have been a mix of “active” and “passive sites”. Active sites are defined as having flashing lights, bells and may also have boom gates. Passive sites are controlled by stop signs although there are a few sites in NSW with give way signs as the control. Sites selected have been predominantly in regional areas or in the Illawarra.

Data from the regulator relating to crashes at level crossings and near miss incidents is examined as it is a consistent source of information. This is because rail operators are required by legislation to report “[notifiable occurrences](#)” on the network to the regulator. The incident information records specifics such as collisions with boom gates, a short narrative and the date of occurrence so trends at particular sites can be noted.

Highway Patrol supervisors are asked to submit sites that may be suitable and these are compared against data from the regulator. Broken Hill in 2014-15 was case in point.

When a fatal crash occurs at a level crossing, it is the train driver who is the last person to see the deceased alive. Train drivers have a unique perspective on motorist’s behaviour.

At the most recent campaign near Casino in northern NSW, two sites were originally to be targeted. However TfNSW received information from train drivers that a third site was of concern and it was included in the campaign.

In addition to crash and near miss data, the number of trains and vehicles per day that traverse short-listed sites are examined. Although the expenditure is modest compared to some programs, public monies are involved and all efforts made to ensure that campaigns occur in locations where maximum safety benefits can be realised.

Campaign planning

Once the campaign matrix is agreed upon it receives the endorsement of the LCSC. Planning for each individual phase starts two to three months out. Commitments are obtained for police resources and a teleconference is held between the full time planning group members and the relevant road and rail participants.

Roads and rail authorities are asked to nominate locations for the placement of portable variable message signs (VMS), advice regarding train running times, and whether road or track work is scheduled that may impact on the enforcement window, eg, no trains running.

There is flexibility within the planning process to adjust timings and trigger dates should the teleconference reveal that road or track works are to be held during the proposed campaign.

Train running times assist police in tasking with the view to having a highway patrol vehicle on site when a train is going through when any active controls (lights/bells/booms) are operating.

The catchment area for the letterbox drop is also determined during this phase. Residences near the level crossings selected will receive a pamphlet featuring the “pearly gates” message.

Figure 1: TfNSW “Pearly Gates” public awareness pamphlet



The reverse side of the pamphlet advises that that trains can take up to three football fields to stop and that police are now targeting level crossings in the area.

Public awareness phase

TfNSW issues a media release at the start of the public awareness phase. The release tells of the campaign as well as general information on level crossing safety. The letterbox drop occurs in the public awareness phase which usually lasts for two weeks. TfNSW also programs radio and local press advertising during this phase.

Variable Message Signs appear at the approaches to level crossings being targeted. Those signs advise drivers to “obey level crossing controls” with the penalty for non-compliance.

Giving as much warning that the campaign is taking place is of assistance in deflecting any criticism should motorists complain about receiving a penalty notice during the enforcement window.

Level crossings on heavy vehicle and over-dimension vehicle routes are given special mention in public messaging. This is in light of Kerang and findings by the regulator in 2011

that “heavy vehicles are over-represented in level crossing collisions” (ITSR media release 25 August 2011).

Enforcement Window

The enforcement window commences about two weeks after the start of the public awareness phase. Educational measures such as the VMS presence at level crossings continue for the duration of the campaign.

The Police Media Unit issues a release at the start of the enforcement window advising police will be enforcing the controls at the nominated level crossings. This release is issued to traditional media outlets and is accessible via the NSWPF website.

The release will also include the number of near misses at the sites in recent years however the term “near hit” is now being used to reflect the view of rail industry group TrackSAFE, that “near hit” better reflects the potential danger from such incidents (<http://tracksafefoundation.com.au/rail-safety-week/>).

NSWPF also utilises their extensive social media presence by uploading the level crossing release on twitter and Facebook. As of mid-June 2015, THPC had 169,000 followers of their Facebook page and the main NSWPF page had 480,000 followers. Some 90,000 people follow the NSWPF twitter feed. The number of people following NSWPF on social media now exceeds the number of people watching some nightly Sydney news broadcasts, or the number of people reading certain newspapers.

Figure 2: Highway Patrol vehicle during the Broken Hill campaign



Photo by Broken Hill Highway Patrol

Figure 2 depicts the highly visible approach that is taken whilst conducting campaigns. Although this can limit the number of offences detected, the campaign is about deterrence not detection. Due to the heightened level of public awareness, motorists caught during these campaigns can expect to receive a penalty notice (\$425 as of 1/7/15 and three licence demerit points).

Level crossing controls are the primary offence targeted. Unlike a stop sign where a motorist can commit an offence at any time, controls at active sites needed to be triggered by an approaching train in order for disobey control offences to occur.

Over the course of the campaign, other behaviours that impact on level crossing safety have now been included as secondary offences during these campaigns.

A speed survey conducted by TfNSW prior to campaigns in the Hunter Valley in 2014 showed some that on some days, 10-20% of vehicles that traverse the surveyed level crossing were travelling in excess of the sign-posted speed limit of 100km/h. Those vehicles would have difficulty stopping if active controls such as flashing lights were to activate.

Driver distraction is an emerging road safety challenge and no more so than when motorists should be directing their attention to on-coming trains and level crossing warnings. Over the years, these campaigns have identified dozens of drivers committing mobile phone offences and highway patrol lookout for these offences.

Post Campaign

Following each campaign, the participating highway patrol section is debriefed and the details of any offences detected and items of interest are obtained. TfNSW also makes note of any difficulties and areas that could be improved upon next time.

A police report on the activities is prepared and tabled at the next LCSC and the LCCWG meetings. Where level crossing offences have been detected, the police report will include demographics of offending drivers and vehicle type with a view to ensuring that future awareness messaging are targeted to the groups most likely to be offending at level crossings.

Outcomes and Evaluation

Over the four years of the LXAEC, some 307 penalty notices have been issued to motorists for road rules offences at level crossings during campaign phases. Most of those offences have been for disobeying stop signs (Rule 121, Road Rules 2014).

Although the purpose of the highly visible police enforcement is deterrence rather than detection, the LXAEC appears to have raised the level of awareness and interest in level crossing road safety of police beyond the areas that have hosted campaigns. The number of state-wide penalty notices issued for level crossing offences has risen from a baseline of 263 in 2011 to 442 in 2014, an increase of 68% over three years. Sites targeted during the LXAEC contributed to about 20% of total penalty notices issued for these offences.

During 2014, police detected level crossing traffic offences at over 75 towns/localities throughout the state. Enforcement legal actions are not the only area where NSWPF has been more active with opportunities being seized with public awareness and social media engagement. Penalty notice data for 2011 to 2014 appears in Table 1.

Table 1: Legal Actions (penalty notice) Level Crossing Road Rules offences

Year	Legal Actions
2011	263
2012	271
2013	392
2014	442

Provisional Police Data

Dissecting level crossing offences detected during the LXAEC has shown that offending drivers are more likely to be local drivers or at least motorists from other rural areas. There is an absence of “novice” drivers offending and most offences have been committed by males over the age of 40.

The other sources of data that can be used to evaluate the LXAEC are near miss occurrences. Near miss data, a factor in site selection, have been examined pre, during and post-campaign to see if the LXAEC has made an impact in the occurrence of near misses between trains and vehicles at targeted locations.

Table 2: Near Miss data from targeted level crossings

Year	No. Of Sites targeted*	Near Misses Jan 2009 to May 2015	No. Of Near Misses before campaign	No. Of near misses during campaign	No. Of Near misses after campaign
2011(pilot)	2	0	0	0	0
2011-12	7	8	0	3	5
2012-12	8	59	46		7
2013-14	13	43	38		2
2014-15	3	14	13	1	0
Totals	33	124	97	4	14

Data compiled by TfNSW

*Not all locations measured due to site improvements such as grade separation

Table 2 indicates that of 124 recorded near misses at LXAEC-targeted level crossing, only 11% were recorded following a campaign.

As with most road safety campaigns, the benefits and improvements can diminish over time. In this case, most of the post-campaign near misses have occurred at sites visited in the early years. This data was examined during the planning process for 2015-16 to see if some sites need to be re-visited.

In early 2015, TfNSW engaged Deloitte Touche Tohmatsu (Deloitte) to prepare the business case and to undertake the evaluation of the Level Crossing Improvement Program including the LXAEC. That report found that the benefit to cost ratio of the LXAEC was 7.12.

Perhaps most importantly, more than three years have elapsed since the last level crossing fatal crash in March 2012. Whilst this result can be attributed to a combination of the E's of road safety, the LXAEC has been ongoing throughout the state during this time and should be credited accordingly.

New Opportunities and initiatives

Since the 2012 conference paper, several new initiatives have eventuated as a result of the LXAEC partnership.

Social media

Experience has shown that there is a public appetite for the strategic use of social media promoting level crossing safety. In late September 2014 a post on the TfNSW level crossing safety display at the Henty Field Days (attended by 60,000 people in Southern NSW) resulted in a reach on both the NSWPF main Facebook page and the Traffic and Highway Patrol Command page of 275,000 people.

By comparison, a post on fatigue and “driver reviver” sites over the October Labour Day long weekend on the THPC facebook site could only attract a reach of 15,464. Only 2% of people engaged with the fatigue post, compared to 18% of the level crossing item, and comments ran 29 to 1 in favour of the level crossing post.

Crashed car display

In June 2013, a level crossing crash occurred at a level crossing in southern NSW where a country motorist drove contrary to flashing lights and bells before colliding with the side of a freight train. The vehicle was then spun around before being dragged along for ten metres. Fortunately the driver who was the sole occupant was uninjured as the car was travelling at a low speed.

Police and TfNSW obtained the details of the driver as this presented a unique opportunity to “debrief” a driver who survived a level crossing crash. The driver had already been issued with a penalty notice so there was no impact on the crash investigation.

The driver explained that they had just driven off from an adjacent intersection and was “looking through” the level crossing at the junction with a highway on the other side of the railway tracks. This highlights that engineers need to be mindful of treatments when railway tracks run parallel to a main road. The driver had also come from visiting a patient in hospital and may not have been concentrating as much as they should have on their driving.

Figure’s 3 and 4: 2013 Crash and 2014 Henty Field Days display



Photo’s: Albury Highway Patrol (3) and TfNSW (4)

Efforts being made by TfNSW and NSWPF to improve safety at level crossings were explained to the driver. As the vehicle was uninsured and beyond repair, the owner agreed to donate the vehicle so it could be used for level crossing public awareness in the hope that future tragedy can be averted. The driver did not want to be credited and asked that nothing be said that could identify them. Those wishes are being respected here.

Field days display

About the same time, moves were underway for TfNSW to stage the first level crossing display at the mid-September Henty Fields Days in southern NSW. The crashed car and TfNSW's "pearly gates" display are integral to the display. Henty Field days is now an annual event and along with displays at Orange and this year, Gunnedah Ag Quip, the message of level crossing safety has been taken to the communities most at risk from level crossing crashes.

Visitors to the field days site have an opportunity to express any concerns they have about level crossings. Measures are now being taken in NSW to remove "stop" signs at level crossings on disused lines. Members of the public visiting the Henty Field Days display raised concerns that the presence of these signs encouraged non-compliance which road users may then carry over onto active lines, with potentially fatal consequences.

Another issue which has been raised is the difficulty motorists have in seeing freight cars at night time at unlit passive level crossings. The cleanliness and on-going maintenance of any reflective marking on the side of coal cars has also been questioned by visitors to the field days.

Road or rail; whose problem is it?

Issues around level crossing design and compliance by motorists who have a legal responsibility to comply with controls raises a broader question as to who is best to improve safety at level crossings; road safety, the rail industry issue, or both?

Thus far, there has been a dearth of road safety participation at forums such as the recently formed National Level Crossing Safety Committee. The interface between road and rail and the trains that use level crossings could benefit from the safe systems framework as it is applied to road safety.

Conclusion

The LXAEC is an example of the conference theme of "taking action together". It is a model that could transfer to other road safety issues.

The campaign is borne from an engineering program to upgrade level crossings and uses a combination of education and enforcement to deliver improved safety for a modest cost. These benefits have been felt beyond the local areas that have hosted campaigns and the partnership between TfNSW and NSWPF has seized on new opportunities to further promote awareness and community input into road safety at level crossings.

Acknowledgements

The work of Godwin Camilleri and Nicole Douglas from Transport for NSW is acknowledged. Both have worked tirelessly to delivering the LXAEC and related initiatives such as the field days displays (in all weather conditions). Neither the Level Crossing Awareness and Enforcement Campaign nor this paper would have been possible without the assistance and support of the Godwin and Nicole.

The support and encouragement of the Level Crossing Strategy Council of NSW is also acknowledged

References

- Transport for NSW (December 2014) Level Crossing Strategy Council Yearly Report 2013-14, retrieved from <http://www.transport.nsw.gov.au/sites/default/files/b2b/levelcrossings/2013-14-lcsc-yearly-report.pdf>
- Timms, M, (2012) Level Crossing Awareness and Enforcement Campaign, retrieved from <http://acrs.org.au/publications/conference-papers/database/>
- NSW Department of Premier and Cabinet (30 June 2014), NSW2021 Goals 7 and 10, Retrieved from https://www.nsw.gov.au/sites/default/files/initiatives/2014-15_performance_report_-_2021.pdf
- Office of the National Safety Regulator, Notifiable Occurrences, retrieved from <http://www.onrsr.com.au/operations/reporting/notifiable-occurrences>
- Delotte Touche Tohmatsu (February 2015) Transport for NSW Level Crossing Improvement Program.