

Breakdown Safety Strategy: For improved road safety in breakdown situations

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Abstract

The tragic deaths in February 2012 of a young female motorist who had broken down, and the tow truck driver who came to her aid, highlighted a gap in policy and programs to improve the safety in breakdown situations. The incident emphasised the complex nature of developing Safe System measures to improve breakdown safety, given the variety of situations and road environments on the network, and the different types of vehicles that may provide breakdown assistance. To enable a holistic analysis of this problem, Transport for NSW and Roads and Maritime Services worked with stakeholders from the NSW Police Force, NRMA Motoring and Services and WorkCover to apply the Safe Systems approach to develop the Breakdown Safety Strategy. Released in September, the Strategy contains 22 actions to improve breakdown safety for all road users. The actions include a mix of measures to improve tow truck vehicle standards, engineering remedies, legislative change and an innovative education campaign. The Government is also working with industry to improve training for tow truck operators and first response vehicles to ensure the breakdown site is as safe and secure as possible. An audit of breakdown lanes was undertaken, with further more detailed reviews being undertaken, with the view to future remedial works. A change to NSW legislation will assist in raising awareness of the dangers faced by people in breakdown situations, particularly in high speed environments. Transport for NSW's Breakdown Safety Glove Box Guide was released in December 2012 to provide a handy practical guide for all road users on how to stay safe in a breakdown situation and how to assist in the safety of those who have broken down.

Introduction

On 15 February 2012, a tragic crash on Bendooley Hill on the Hume Highway near Mittagong, NSW claimed the lives of Sarah Frazer and Geoff Clark. Sarah's vehicle had overheated and subsequently broke down in the breakdown lane/shoulder. Geoff Clark, an NRMA tow truck driver, had come to her aid. Both were killed when they were hit by a southbound truck. The NSW Police Force reported that the broken down vehicle and the tow truck were stationary in the breakdown lane and, as a result of the collision, both pedestrians were killed.

This stretch of road had once been a two lane road, however the particular section where Ms Frazer's vehicle had broken down had been widened some years earlier to three lanes to allow trucks to use the left lane, as they ascend Bendooley Hill, leaving a narrower than usual breakdown lane/shoulder.

This tragic crash highlighted a gap; breakdown safety had not previously had the attention it deserves. Consequently, the NSW Government commenced discussions and investigations into the best way to protect road users who find themselves in a breakdown situation.

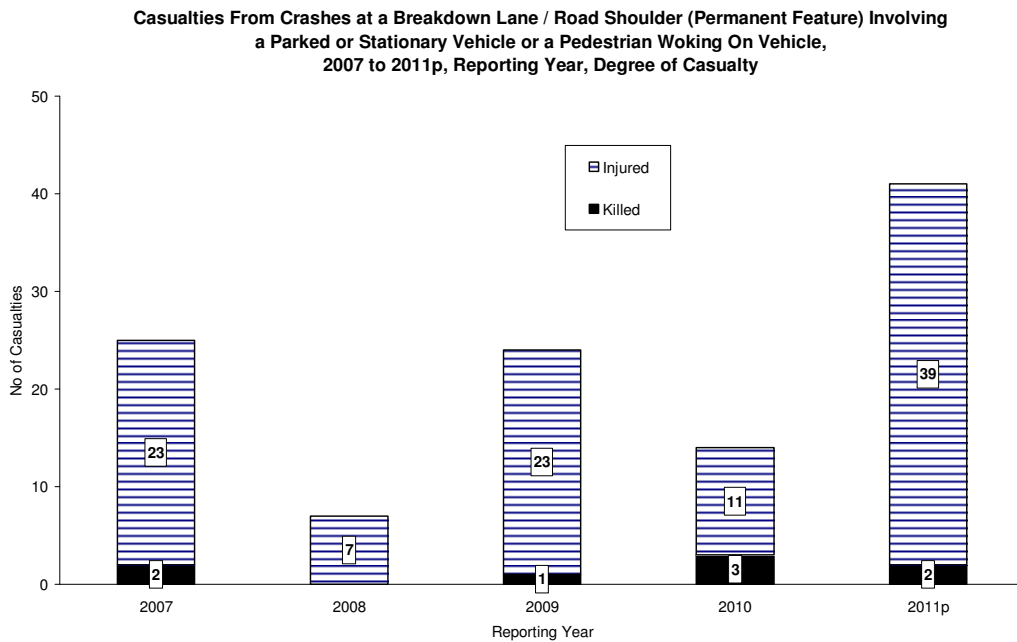
The crash brought the number of people killed over a five year period in breakdown lanes to eight. In response Transport for NSW's Centre for Road Safety (CRS) commenced a review to improve road safety and identify the best means to protect road users if they break down.

Crash Analysis

An analysis of the CRS CrashLink database showed that during the five year period 2007 to 2011 there were a total of 145 breakdown lane crashes in NSW. There were 111 casualties from 145

crashes, 8 (7%) were fatalities and 103 (93%) were injuries (figure 1).

Figure 1



Breakdown lane crashes are more common on high speed roads (figure 2). Almost three quarters (72%) of the crashes occurred on roads with a posted speed limit of 80km/h or more. Almost 40% occurred on roads with a posted speed limit of 100km/h or more and the majority of crashes occurred on dual carriageways (figure 3).

Figure 2

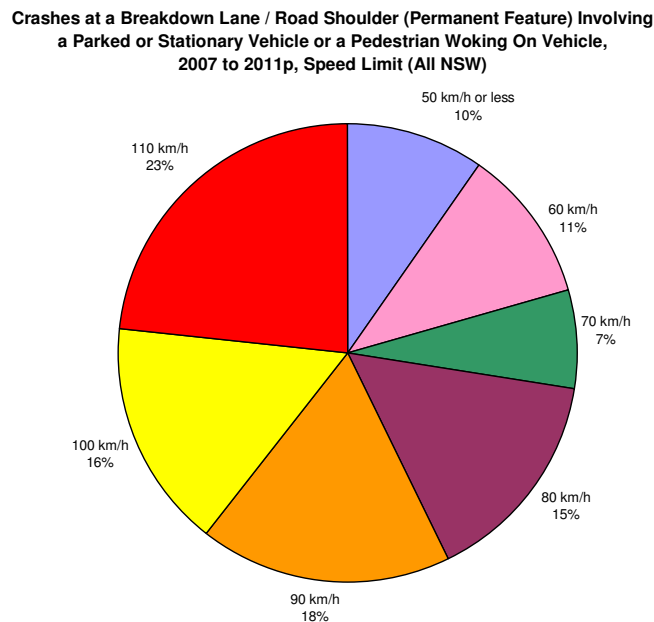
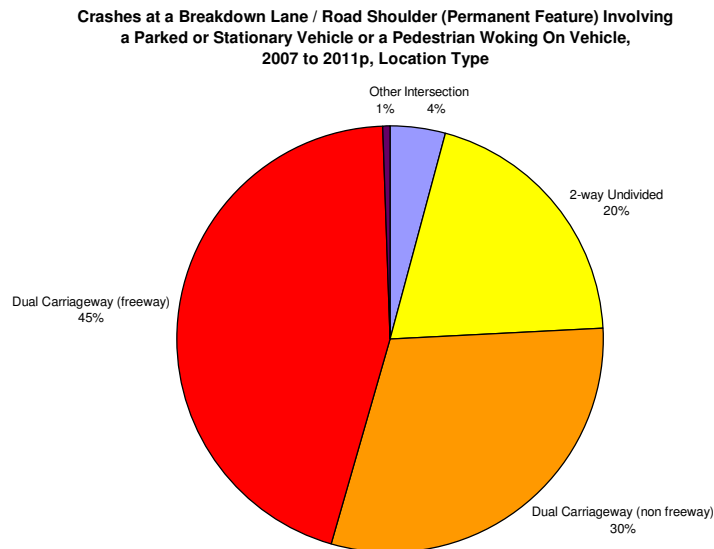


Figure 3

Separate, yet concurrent to the Government commencing investigations into improved breakdown safety, the family of Ms Frazer created the SARAH (Safer Australian Roads and Highways) Group. The SARAH Group presented a petition of 23,000 signatures to the Acting NSW Premier on 15 May 2013 in a bid to improve road safety and avoid a similar incident happening again.

Following the crash involving Ms Fraser and Mr Clark in February 2012, the NSW Minister for Roads and Ports requested Transport for NSW to investigate thoroughly how safety in breakdown situations could be increased and to develop a strategy to deliver and implement actions arising from the consultation.

Approach

Commencement of Audit

The NSW road network is complex and parts of it date back more than a century, built to the standards of the day. Currently the NSW Government seeks to implement a three metre wide shoulder – adjacent to the safety barrier – where the auxiliary lane is a climbing or descending lane, wherever possible on high speed roads.

When a new standard is adopted, the Government is not generally able to retrofit the entire network immediately. Supplementary works are usually determined by maintenance needs and the Roads and Maritime Services (RMS) Technical Guidelines assist in determining design and build.

To improve safety in breakdown lanes, RMS commenced an audit of breakdown lanes and sealed shoulder widths on dual carriageways with a speed limit of 80km/h and above. The high speed environments are considered to pose the greatest risk in breakdown situations. The roads reviewed included the Hume Highway, considerable sections of the Pacific Highway, New England Highway, Great Western Highway and the F3 and F6. This captured the major freight and intercity routes typified by generally high speed high volume characteristics.

The audit of the shoulder widths included interrogation of the Road Asset Management System database matched against the NSW Speed Zone map on the defined routes. This provided a suitable base to determine the initial extent of shoulder widths on selected routes. Analysis was then undertaken to determine if onsite inspections were required. The analysis identified the following:

- 33.7% of the examined network has shoulder widths >1.0m and <= 2.4m
- 49.2% of the examined network has shoulder widths between 2.4m and <= 3.0m.

Workshops

Applying the Safe System approach to road safety, to ensure a total view of the combined factors were considered, a meeting was held with internal experts from across the Centre to initiate discussion and identify appropriate external stakeholders to join a working party to develop the Breakdown Safety Strategy (Strategy). This holistic approach encourages a better understanding of the interaction between the key elements of the road system: road users, roads and roadsides, vehicles and travel speeds.

The following stakeholders were identified as the most appropriate to provide subject matter advice and were invited to be involved in the development of the Strategy:

Transport for NSW - CRS Legislation & Policy	To project manage the development and implementation of the Breakdown Safety Strategy and provide legislative support if required.
Transport for NSW - CRS Safer Vehicles	To provide expertise on the vehicle standards and associated regulations for first response vehicles such as tow trucks and vehicles generally.
Transport for NSW - CRS Safer Roads	To provide expertise on roads and road related areas, in particular breakdown lanes.
Transport for NSW - Marketing & Communications	To provide expertise in the development of a significant communication campaign of all key breakdown safety messages for all road users.
Transport for NSW - Transport Management Centre (TMC)	The TMC monitors and manages 18,000 km of the NSW State road network 24 hours a day and works with other government agencies to maximise safety and efficiency on the network. This expertise, particularly in managing incidents and responding to them, was identified as a crucial element of the working party.
Roads and Maritime Services (RMS) - Road Safety Integration	To provide operational expertise in the delivery of road safety measures on NSW roads and road related areas.
RMS - Tow Truck Licensing and Compliance	This area of RMS provides expertise in relation to tow truck licensing and compliance and given the significance of tow trucks in breakdown situations was considered a vital contributor to the working party.
RMS - Motorway Management	Motorway Management manages the maintenance and operation phase of the Sydney tollways and the M5 East. As many breakdowns occur on motorways, and many motorways have their own incident response vehicles, it was important to involve this stakeholder in the working group.

NRMA Motoring & Services	NRMA Motoring & Services provides the Roadside Assistance program for its members. Roadside Assistance drivers respond to approximately 1.5 million calls for assistance each year. This expertise, particularly in relation to current processes and high visibility vehicle markings standards, was valuable for the working party. Additionally, there are tow truck drivers contracted to the NRMA responding to the call outs.
The NSW Police Force	The NSW Police Force is a critical stakeholder in all matters concerning road safety. They are often first on the scene and provide valuable expertise in this regard. Importantly, they are also responsible for enforcing NSW road transport laws.
WorkCover Authority of NSW	Many people at the scene of a breakdown are there in the course of their work (eg response vehicle driver such as NRMA or a tow truck driver) and, along with pedestrians, their safety is paramount. The WorkCover Authority of NSW was invited to provide expertise in relation to workplace safety, particularly in a breakdown situation.

The May 2012 workshop examined ways to reduce the risk in breakdown lanes, in particular for drivers/passengers of broken down vehicles and the drivers of response vehicles. Following rigorous discussion at the initial workshop a number of approaches were identified to assist in reducing the risk in breakdown situations, particularly for drivers / passengers of broken down vehicles and the drivers of response vehicles. This included:

- The continuation of the RMS audit of shoulder widths and analysis of data
- Communication of key messages to all road users
- Improvements to vehicles standards
- Procedures for roadside warnings
- Possible law changes.

By applying the Safe Systems approach, it was also agreed to expand the scope from breakdown lanes to include a broader approach to safety in all breakdown situations.

Further meetings were held with the key stakeholders on 21 June 2012 and 30 August 2012 to develop the key actions and the way forward for the Breakdown Safety Strategy. There was also considerable consultation between meeting dates to fine tune elements of the strategy and to finalise the actions.

Outcome

Transport for NSW, in conjunction with key stakeholders, developed the *Breakdown Safety Strategy – A Way Forward* to improve breakdown safety generally across the NSW road network. The NSW

Government released the Strategy in Parliament on 13 September 2012. The Strategy is attached as Appendix 1.

The Strategy details actions to improve breakdown safety including improved dissemination of communications to motorists, auditing of the road network and improved visibility of vehicles.

More specifically, the NSW Government developed the following 22 actions, with the goal of increasing safety around breakdown incidents:

Audit of Shoulder Widths

1. Following on from the audit of shoulder widths, RMS will develop an internet application that will allow all emergency services vehicle operators and other first response vehicle operators to click on a given point and see the width of the shoulder.
2. As upgrades to the road network are finalised they should be mapped as part of the RMS Information Strategy & Services (RISS) project. This can be used as a tool for future planning.
3. Of the roads initially audited the portions of road highlighted red/orange on the map (sealed shoulder widths below 2.5m, which equates to approximately 900km) will undergo a more detailed review which will examine adjacent road space. Based on these reviews a program may be developed recommending the retrofitting of pull off bays at high risk locations.
4. RMS to continue to install 3 metre wide shoulders on high speed roads, for new projects, wherever possible.
5. RMS will map all State roads with a speed limit of at least 80km/h, to further analyse shoulder widths throughout the State.
6. When retrofitting safety barriers, RMS will ensure that road shoulder width is not compromised.

Communication of Key Messages to all Road Users

7. Implementation of a communications plan to generate discussion in the community about the need to be vigilant following and incident or breakdown. This includes educating drivers how to mitigate risks when involved in an incident or breakdown, or when passing an incident or breakdown.
8. The information contained in the communications plan will be distributed and disseminated through a wide variety of channels.

Improvements to Vehicle Standards

Improve Visibility of People and Vehicles

9. Encourage the voluntary use of safety devices and high visibility vests rather than mandate. Also encourage people to be cautious when deploying safety devices.
10. Transport for NSW will encourage manufacturers to retain warning triangles in vehicles when importing them into the Australian market.

Tow Truck Industry Standards

11. To ensure that tow truck operators comply with Clause 52(1)(a) of the Road Transport (Vehicle Registration) Regulation 2007, RMS will ensure the carrying and installation of warning devices required under ADR44/02 is checked on tow trucks undergoing safety inspections at an Authorised Inspection Station (AIS), and the absence of this mandatory equipment should be deemed a reason for a tow truck to fail the inspection.
12. RMS will develop guidance material to help ensure this equipment is used properly. Training will also be rolled out to industry, to remind operators to turn hazard lights on and use light bars. Also the review of the Tow Truck Industry Act will consider how to better ensure the use of warning lights.
13. RMS will also be in regular communication with industry through newsletters, which will ensure the latest information is being communicated. It is hoped that this approach will ensure the equipment is carried on tow trucks and that it is properly used in order to help improve safety around incidents.

Tow Truck Vehicle Design

14. Transport for NSW will continue advocating for the revision of ADR44/02 to include the technical specifications for the hoisting and winching mechanisms applicable to all types of tow trucks.
15. Transport for NSW to advocate Standards Australia to have AS1418.8 amended to incorporate technical specifications for tow trucks, including requiring the capacity for the vehicle to be controlled from the left hand side, including by dual, pendant or remote controls.

Procedures for Roadside Warnings*Procedures for Tow Truck Operators*

16. RMS will work with WorkCover to amend the tow truck accreditation program to include specific safety messages around high speed roads and breakdown lanes.

Use of Flashing Lights

17. An opportunity exists to educate the public, through a communications campaign which:
 - (i) reinforces when to use amber lights; and
 - (ii) emphasises that when motorists see flashing amber lights, they should slow down and be cautious.

Response Vehicle Measures

18. Ensure incident and breakdown respondents can use additional visibility measures such as safety cones and high visibility markings to notify oncoming motorists of a hazard ahead.
19. In consultation with the NSW Police Force, develop regulations to provide for nominated incident respondents to use the breakdown lane (if safe to do so) to enable a quicker incident response time.

Assistance

20. A partnership between Government, industry and other stakeholders will be established to ensure consistency of messaging from call centres / point of first contact and to explore the development of a centralised contact point.

Possible Law Changes

21. The Government will introduce legislative amendments to make it clearer that failing to appropriately slow down and exercise care when approaching and passing a broken down vehicle or a crash could be considered negligent, dangerous, or reckless driving.
22. The communications plan will raise awareness of the current offences, in combination with a breakdown safety education campaign.

The implementation of the above Strategy actions is at varying stages. Following is a brief overview of some of the achievements to date:

- *Audit of shoulder widths* has been completed and RMS has mapped all State roads with a speed limit of at least 80km/h. RMS is currently progressing the scoping of the internet application to allow all emergency services vehicle operators and other first response vehicle operators access to shoulder width information which will assist in knowledge of a specific area, prior to arriving at the scene of a breakdown or incident.
- *Communications* - A significant component of the strategy is communicating key messages to all road users. In December 2012, Transport for NSW produced a Breakdown Safety Glove Box Guide (Appendix 2) for all road users, detailing a range of measures to reduce crashes in breakdown situations. The aim of the guide is to show road users how they can improve their safety if they find themselves breaking down or passing someone who has broken down.

The Glove Box Guide is available at all RMS registries, online through the CRS website and NRMA roadside assistance are distributing them to customers who have broken down. Additionally the Guide is being distributed through registration renewals and it is expected that 3.9 million brochures will be distributed in the current twelve month period. The information in the Guide is now also included in the NSW Road User Hand Book which is used as preparation for the Learner Licence test.

The Strategy recommends additional visibility measures and Transport for NSW distributed 20,000 high visibility vests to the community at the 2013 Sydney Royal Easter Show.

To further increase breakdown safety awareness, during the holiday periods roadside Variable Message Signs are displaying “If you see a breakdown – Slow Down” messages.

- *Tow Trucks* – The Tow Truck Driver Training Program has been amended to include the Use of Warning Devices fact sheet. Additionally, in December 2012 RMS issued a tow truck industry newsletter advising of the Breakdown Safety Strategy.
- *Law changes* – The Road Transport Amendment (Obstruction and Hazard Safety) Bill 2013 will make it clear that a court is to take into account the presence of obstructions and hazards on a road in determining whether a person has committed an offence of driving a motor vehicle negligently, furiously, recklessly or at a speed in a manner dangerous to the public. This can be applied in a breakdown situation if required.

- *Vehicle Standards* – Discussions have been underway with the appropriate organisation in relation to retaining warning triangles in vehicles when imported into the Australian market. This has been extended to include warning triangles in vehicles manufactured in Australia. Additionally Standards Australia, on behalf of Transport for NSW, has formed a working party to amend AS1418.8 to incorporate technical specifications for tow trucks, including requiring the capacity for the vehicle to be controlled from the left hand side.

Work is continuing on the implementation of all other Strategy actions.

In addition to the Strategy, measures were taken to upgrade the Hume Highway location where the crash involving Ms Fraser and Mr Clark occurred. These include:

- The 1.5km climbing lane on the stretch of the Hume Highway between Mittagong and Berrima was closed in December 2012 to provide a three metre breakdown lane. The NSW Government will investigate longer term solutions at this location.
- The emergency breakdown bays at this stretch of road have been lengthened and upgraded.

Evaluation

Given that it is less than a year since the Breakdown Safety Strategy was released, it is not yet feasible to undertake meaningful evaluation.

Through an extensive media campaign, the distribution of the Breakdown Safety Glove Box Guide, and working with industry, awareness of the risks of breakdown situations appears to have increased.

While Transport for NSW is continually monitoring fatalities and injuries in breakdown situations, due to the relatively small numbers, it is considered that an evaluation of the effectiveness of the Strategy should commence two years after its release (ie September 2014). This should provide greater scope to adequately identify any trends in relation to fatalities and injuries in breakdown situations.

It is hoped that out of the tragic crash that prompted the Strategy, this range of positive measures will save lives and prevent serious injuries in future breakdown situations.