

## **Towards Zero – Building a safe road system for Victoria**

Jessica Truong<sup>a</sup> and Samantha Cockfield<sup>a</sup>

<sup>a</sup>Transport Accident Commission

### **Abstract**

During an average week in Victoria, five people are killed and a further 100 people are hospitalised following road crashes. There are far too many deaths and injuries and the ripple effect of road trauma is enormous. The Transport Accident Commission (TAC) no longer accepts deaths and serious injuries as being inevitable consequences of having a road network. The TAC's vision is for a future where no one will be killed or seriously injured and where every journey is a safe journey.

In order to realise the vision, the TAC must bring to life and implement initiatives which are guided by the principles which underpin the *Towards Zero* approach. This paper will detail the TAC's strategy of initiatives being used to help Victoria move *Towards Zero*.

### **Introduction**

The Transport Accident Commission (TAC) is a Victorian Government owned organisation, established under the *Transport Accident Act 1986* to reduce the social and financial cost of transport accident injuries to the Victorian community. Motorists in Victoria pay a transport accident charge as a part of their registration and this is used to fund the work of the TAC and pay for the treatment and support services for people injured in transport accidents, promote road safety and to improve the state's trauma system.

As the compulsory third party insurance agency for personal injuries, the TAC has a natural financial interest in ensuring as few people as possible are injured and killed in transport accidents. In the 2013-14 financial year, the TAC paid out in excess of \$1billion for support services and benefits to over 47,000 people (TAC, 2014). The TAC pays an average of \$150,000 for each road death and an average of \$1,500,000 for each serious injury such as traumatic brain or spinal injuries (TAC, 2015). Reducing the frequency and severity of transport accidents not only saves lives and avoids serious injuries, it also reduces the number of claims the TAC receives. This provides a saving to the Victorian community and also ensures the long term financial viability of the transport accident scheme.

However, the TAC's motivation to prevent deaths and injuries also extends well beyond any financial savings prevention initiatives may deliver. The TAC understands that road trauma can be life changing and recovery a long journey. This is what James, a TAC client, had to say about his journey to recovery:

*'I was in rehab for almost a year. I had to relearn how to do everything again, including eating and walking. It was hard, especially the co-ordination. I felt like a newborn. Now I can walk up stairs and easily go for a walk. I feel very good and have a great sense of achievement' – TAC, 2014*

The TAC sees first-hand through the clients it cares for, the impact road trauma can have on the lives of the people affected as well as their family and friends and this serves as one of the biggest motivation to prevent similar tragedies from occurring again.

Deaths and serious injuries do not have to be the inevitable consequences of having a road network. However, right now, during an average week in Victoria, five people are killed and a further 100 people are hospitalised following road crashes and the ripple effect is enormous. This is too big a price to pay to have a road system and the TAC does not accept that death and serious injury is an inevitable consequence of having an effective road network. The TAC's vision is 'where every journey is a safe journey', for a future where no one will be killed or seriously injured when using the road. It aims to fulfil this vision through its internal accident prevention strategy and through its role within the Victorian Road Safety Partnership (consisting of the TAC, VicRoads, Victoria Police, Department of Justice & Regulation and Department of Health & Human Services).

### **The need for action**

Victoria has a proud road safety history, leading the world on a number of fronts through road safety initiatives, including being the first jurisdiction to introduce:

- mandatory seatbelt wearing in 1970
- random breath testing in 1976
- random drug testing in 2000

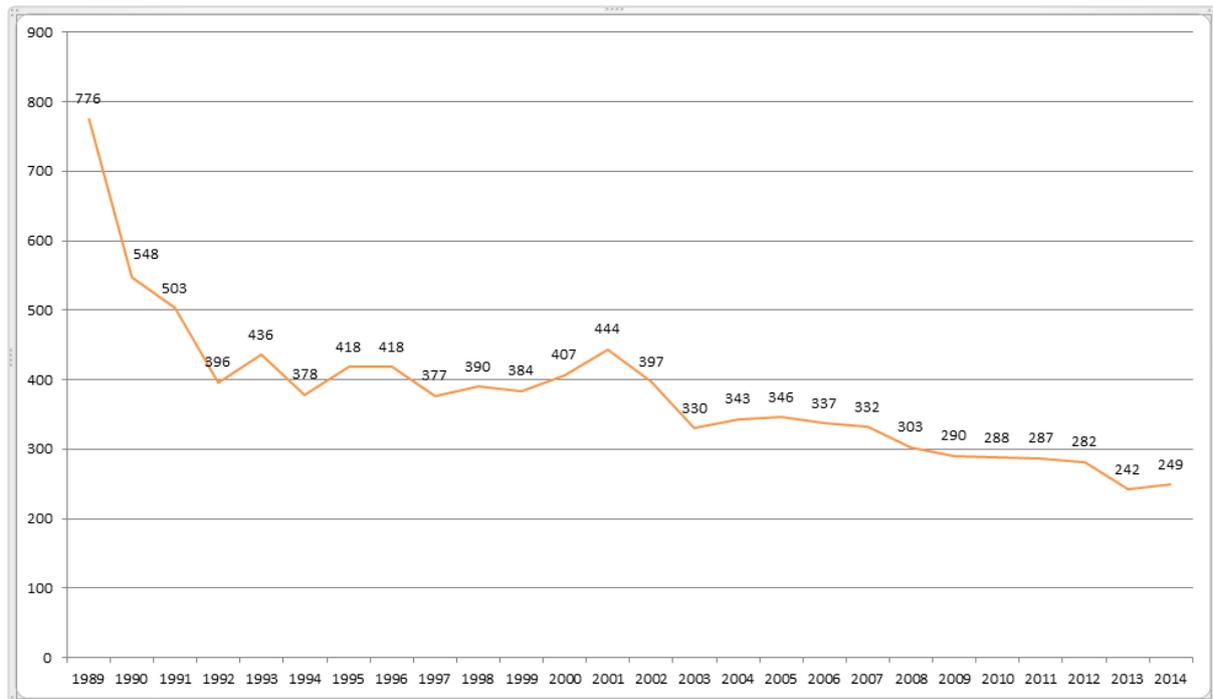


Fig 1. Number of road deaths in Victoria between 1989 and 2014

Despite achieving record low road death results year on year between 2005 and 2013 (refer to Figure 1), Victoria has fallen well behind on the world platform. In 2003, Victoria ranked 5<sup>th</sup> with 6.7 deaths per 100,000 population, when compared to 24 other OECD nations (Bureau of Infrastructure, Transport and Regional Economics, 2005). However, by 2012, Victoria has slipped to 16<sup>th</sup> place, with 5.01 deaths per 100,000 population (Bureau of Infrastructure, Transport and Regional Economics, 2014).

The current Victorian Road Safety Strategy aims to achieve a 30% reduction in fatalities and serious injuries between 2013 and 2022. If Victoria was to reach its target reduction for fatalities by 2022, this would equate to 3 deaths per 100,000 and still place Victoria more than a decade behind some of the best performing jurisdictions in the world. These countries include:

- United Kingdom - 2.8 in 2012
- Norway - 2.9 in 2012
- Sweden - 3.0 in 2012
- Denmark - 3.0 in 2012 (Bureau of Infrastructure, Transport and Regional Economics, 2014)

It is clear additional actions need to be taken to help Victoria further reduce road trauma. The fact that other countries can achieve such positive results encourages the TAC to better understand and learn from the experience of some of the world's best performers in road safety. In particular, the building of a safer road system with respect to the *Vision Zero* and *Sustainable Safety* principles of Sweden and The Netherlands respectively, and developing a

greater safety culture as seen in many of these jurisdictions are areas in which the TAC can play an important role in moving Victoria *Towards Zero*.

## **What needs to be done?**

### ***Implementation of Towards Zero***

*Towards Zero* has been successfully implemented in a number of countries, including in Sweden and The Netherlands. Since 1997, when Sweden implemented *Towards Zero* (otherwise known as *Vision Zero* in Sweden), the number of road fatalities have more than halved, from 541 in 1997 (Lie & Tingvall, 2009) to 260 in 2013 (Swedish Transport Administration, 2014).

At the heart of *Towards Zero* is the belief that life and health are paramount to all else and should be the first and foremost consideration when designing a road network. The principles underpinning *Towards Zero* acknowledge that:

- As people, we will inevitably make mistakes at some point; however, no one should die or be seriously injured on the road as a result of these mistakes.
- The human body is only built to withstand forces up to the equivalent of 30km/h, after which the risk of dying increases significantly.
- Understanding that people are fallible and fragile, we need to build a forgiving system that can absorb our mistakes and limit the transfer of forces that can result in serious injuries or death.
- Road safety is a shared responsibility between everyone in the community.

To help build a safe road system forgiving of our mistakes, we need to invest heavily in the creation of:

- Safe Roads
- Safe Vehicles
- Safe Speeds and
- Safe Road Users

*Towards Zero* challenges the traditional understanding of how to address road trauma, looking at how the elements that our road transport system is comprised of can work together to protect people from being killed or seriously injured. The key differences between the traditional and *Towards Zero* approaches have recently been summarised by the Swedish Transport Administration in Figure 2 below.

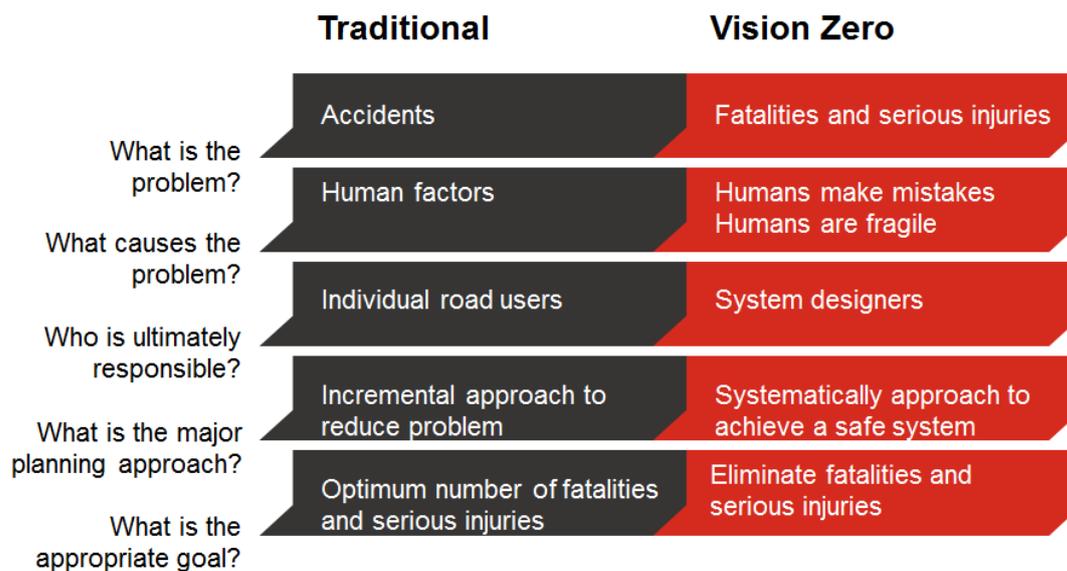


Fig. 2. – Traditional Approach to Road Safety compared with the Towards Zero/Vision Zero approach

(Source: Swedish Transport Administration, 2015)

The TAC adopted the key *Towards Zero* principles as the underpinning philosophy for its internal road safety strategy some years ago, and more recently, other partner agencies and the Victorian Government has adopted these principles for the state. Interestingly, the TAC scheme was formed in line with the principle of people making mistakes. The TAC is a no-fault insurance scheme, formed on a legislation that assumed all people leave on any journey with the same expectation – that they will arrive at their destination safely. If people do not arrive safely and are injured, they are then entitled to the same level of medical and care no matter what the accident circumstances. The scheme is not concerned with who is at fault in an accident. Medical benefits will be paid to an injured person regardless of who caused the accident. The *Towards Zero* approach is a good fit for the TAC. Moving forward, the *Towards Zero* principles will be systematically applied to all future TAC road safety initiatives.

### *Development of a Safety Culture*

The culture of a society can help shape the attitudes and behaviours of the community. It is therefore vital for road safety agencies to encourage the development of a culture in which safety is the primary consideration when designing and using the road network. When a person is killed or seriously injured on the road, it indicates the current road system needs to be strengthened to prevent a similar tragedy from occurring.

Under *Towards Zero*, the safety of the road system is primarily the shared responsibility of the system designers and the users of the system. In the past, it was assumed that safety could

be improved by just working on road user behavior, leading to a ‘blame the victim’ approach where road users are made to bear the majority of the responsibility in the event of a crash. *Towards Zero* sees the focus shift from ‘blaming the road user’ for mistakes they may make, to understanding the deficiencies in the road system as a whole and examining how the system can be improved to prevent future accidents. Creating a greater safety culture will rely on educating key designers of the system and the community about the elements of the road system and how good design can work together to keep everyone safe. The aim is to create a culture where safety is the norm and not the exception.

The current road system and culture is a product of the traditional thinking and approach to road safety. To fully embrace *Towards Zero*, the thinking on the issues faced and how to address them must also change. This will involve a true culture change as key designers of the road system as well as the community will be challenged to think differently about life and death and how the road network is used. The building of a safe road system for Victoria and the development of a safety culture is a long term plan and will not be achieved overnight, but for a future where zero deaths and serious injuries is a reality, step actions must be taken now and in this regard, the TAC can play an important role.

### **TAC’s Strategic Approach to *Towards Zero***

Under the *Transport Accident Act 1986*, the TAC has a responsibility to reduce the incidence of transport accidents and to reduce the cost to the Victorian community of compensation for transport accidents. As a lead agency within the road safety partnership and a key designer/influencer of the system, the TAC also has a big role to play in ensuring a safe road system is in place to prevent the occurrence of deaths and serious injuries.

The TAC has a long history of investing in initiatives that meet both the objectives of saving lives and reducing costs to the community. One example is the promotion of curtain airbags to increase consumer demand for the technology. Research has shown that curtain airbags can reduce driver deaths in the event of a side impact by up to 40% (Insurance Institute of Highway Safety, 2006) and the probability of head injuries among occupants of a car equipped with a head protecting side airbag is 71.4% lower (Fiztharris & Stephan, 2012). With the TAC paying an average of \$1,500,000 for each serious injury such as traumatic brain injuries (TAC, 2015), curtains airbags represented an important initiative and investment to help save lives, prevent injuries and reduce the TAC’s claims costs, and thus the TAC has been actively promoting the safety benefits and availability of the technology to consumers (Truong, Cockfield, Thompson, Gubana & Mulholland, 2010).

The TAC recognises that to help build a safe road system in Victoria, it will need to continue to systematically invest in and implement initiatives guided by the *Towards Zero* principles in each of the key areas of safe roads, safe vehicles safe speeds and safe people, as well as invest in enablers such as capacity building, community engagement, communications and research.

## ***Safe Roads***

The key financial investment the TAC makes to improve road safety is road infrastructure. Roads and road features play a vital role in reducing crashes and/or the injury outcomes in the event of a crash. Improved infrastructure provides solid and well understood crash and injury reduction outcomes and are critical for long term and sustainable trauma reduction. The two key infrastructure programs the TAC invests in include:

### *Safe System Road Infrastructure Program*

The TAC has committed \$1 billion for the Safe System Road Infrastructure Program (SRRIP) to improve the road network in Victoria. The SSRIP has phased out the conventional blackspot approach to improved road infrastructure and moved to being guided by *Towards Zero* design principles.

The SSRIP funding goes towards programs such as:

- targeted high volume ‘M’ roads that have high-crash numbers
- intersection treatments such as installation of roundabouts and speed platforms
- run-off road treatments such as wider shoulders and medians, tactile edge-lines and wire rope barriers.
- Innovative trial programs to continually improve treatments types and costs.

### *Local Government Area (LGA) Grants Program*

The LGA Grants Program is an opportunity for local government to apply for funding for small-scale infrastructure treatments to address pedestrian and cyclist safety. Local governments can apply for grants of up to \$25,000 for planning and researching innovative safety treatments. Councils with plans already in place are also eligible to apply for matched-funding grants of up to \$100,000 to cover the cost of implementing the new infrastructure.

## **Safe Speeds**

The Safe Speeds component of *Towards Zero* is concerned with appropriate speed limit setting and compliance. If speed limits are not set appropriately (eg. guided by knowledge of the human body’s tolerance to external forces) and/or speed limits are not complied with, this can in turn affect the effectiveness of initiatives implemented in the road or vehicle space and contribute to road trauma.

To support the work undertaken under Safe Speeds, the TAC will:

- Produce public education campaigns to encourage speed compliance
- Provide support for local government to review their speed limits and adjust if they are not safe
- Support additional enforcement activity

In accordance with *Towards Zero* and with the aim of developing a safety culture, the TAC will provide information and assistance to help drivers and riders comply with speed limits and stay safe on the roads. In this regard, the TAC will continue to investigate and promote the use of technologies such as Intelligent Speed Assist (ISA), which provides a warning to drivers when they exceed the speed limit, as an assistant with compliance.

## Safe Vehicles

Vehicles that are designed well and are safe can either prevent a crash from happening or reduce or absorb some of the forces, so that what ends up being absorbed by the body will be less than the equivalent of an impact at 30km/h – beyond which the risk of death significantly increases. The TAC recognises the potential of improving crashworthiness and the preventive capacity of vehicles in reducing road trauma, as research indicates that if every vehicle could be upgraded to the safest in its class, serious trauma could be reduced by a third (Newstead, Delaney, Watson & Cameron, 2004). Vehicles, along with roads, are the most permanent and sustainable road safety interventions. Once a vehicle is designed safely and have the appropriate safety technologies, the safety benefits should remain in place for the life of the vehicle.

To support the acceleration and adoption of Safe Vehicles in Victoria, the TAC will:

- Increase consumer awareness and demand for technologies that have proven road safety benefits - some examples of technologies the TAC has promoted include electronic stability control, curtain airbags (Truong, Cockfield, Thompson, Gubana & Mulholland, 2010) and auto emergency braking.
- Develop, demonstrate and promote new and emerging technologies with road safety potential via the TAC's SafeCar project (Truong & Cockfield, 2013).
- Support the dissemination and provision of independent vehicle safety information, such as Australasian New Car Assessment Program (ANCAP) and Used Car Safety Ratings program results, to assist the community make safe choices when purchasing a vehicle.
- Work with fleets to encourage the purchase of safe vehicles.
- Work with and encourage vehicles manufacturers and importers to make available technologies that have a proven road safety benefit.

## Safe People

*Towards Zero* acknowledges that road safety is a shared responsibility and everyone in the community can play an important role. To support the community to help themselves and others stay safe on the road, the TAC will:

- Be transparent and share what we know about road safety to help them make the decisions about safety on the roads.

- Support Police enforcement to deter behaviours that could lead to road trauma.
- Engage with workplaces to encourage the adoption of a Safe Driving Policy for employees.
- Encourage the involvement of the community in making the road system safer, through initiatives such as the TAC's Community Road Safety Grant Program which offers community groups the opportunity to apply for funding for road safety projects.

### **Building Capacity**

To build a safe road system, the key designers of the system must be well versed in the *Towards Zero* principles and understand the practical applications of the principles. Some of the key designers of the system include road engineers, road safety agency staff and local government. In order to build capacity, the TAC:

- has starting working with key road safety partners to develop and deliver *Towards Zero* training specific to their organisation to enable their staff to understand the *Towards Zero* principles, how to apply it to their work in designing the system and their role within the system.
- developed an e-learning module to educate its own internal staff about *Towards Zero* and increase knowledge (Waller & Cockfield, 2014).
- will investigate and implement training for other key designers of the system such as local government staff.

### ***Community Engagement & Public Education***

Road safety is a shared responsibility and the road safety agencies need the assistance and support of the community. In 2014, the TAC and its road safety partners launched the inaugural *Towards Zero* Road Safety Leadership Symposium which called on the leaders of Victoria to commit to assisting Victoria move towards zero deaths and serious injuries. At the event, leaders from different sectors learnt about *Towards Zero* and how they can assist. The Symposium will be an annual opportunity for the agencies to share with leaders how Victoria is performing in road safety terms and work together to do better. In addition, the TAC will continue to investigate other avenues to engage different sectors of the community in road safety.

The TAC recognises that if the community is to engage and join in the journey *Towards Zero* they need to be fully informed about the plan. Moving forward, the TAC's aim will be for more transparent communications that share with the community any knowledge about issues such as the human body's tolerance to energy forces, how wire rope barrier works to protect people, why certain vehicle safety technologies are so important, in order to increase their level of understanding and buy in to the vision and help foster the development of a safety culture of shared responsibility. Previous communications concentrated efforts on advising road users about how they should behave, however, new communications will be about

sharing the data and evidence base and providing the information that will help the community make the best decisions for themselves.

To this end, the TAC is currently developing a series of communications designed to help the community understand the key *Towards Zero* principles of mistakes and human vulnerability, as well as how safe roads, safe cars, safe speeds and safe people interact to reduce road trauma. This series of campaigns will be the launch of the TAC's new *Towards Zero* communication approach.

### ***Research***

To help build a safe road system for Victoria, all initiatives implemented must be guided by sound research evidence demonstrating an impact in reducing deaths and serious injuries. One of the most significant research investments for the TAC currently is the Enhanced Crash Investigation Study (ECIS). ECIS is an \$8 million research program designed to examine more than 400 serious injury crashes in detail to provide an understanding of how crashes and injuries occur. The outcomes from ECIS will help guide the TAC and other road safety partners' efforts in reducing accidents and the cost of serious injuries.

As Victorian continues work on building a safe road system, the TAC will continue to invest in further research as needed to help guide future investments and initiatives.

### **Conclusion**

The ultimate road safety goal for Victoria is to have zero road deaths and serious injuries. In order to realise this goal, the TAC along with its road safety partners in Victoria, must bring to life and implement initiatives which are guided by the principles which underpin the *Towards Zero* approach. The TAC will continue to support the development of a safe road system in Victoria through its investments and initiatives and believe that with a systematic approach to road safety underpinned by *Towards Zero* principles, the vision of zero will be realised.

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