

## SPEED AND SPEEDING

What are the risks?

On the roads, speeding is defined as drivers and motorcyclists travelling faster than the sign-posted speed limit, or at speeds that are too fast for the conditions.

TAC survey research<sup>1</sup> shows that most people agree that a safe journey is more important than a quick one. The vast majority (85%) of people think that driving 10 km/h over the limit in a 50 km/h speed zone is unacceptable. Only 17% of people think it's okay to speed by 5km/h in a 50 or 60km/h speed zone.

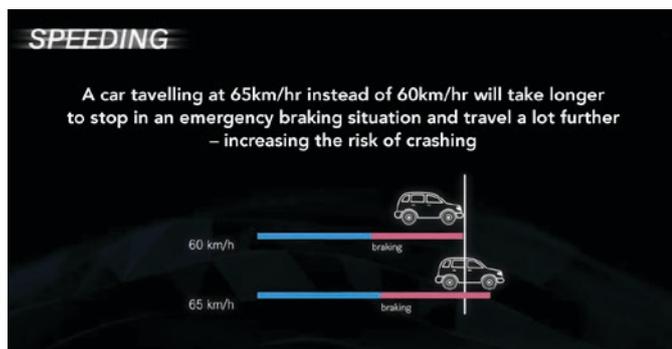
Most drivers do not speed. In fact, speed camera data<sup>2</sup> shows that:

- At fixed speed camera sites, over 99% of vehicles are found not to be speeding
- 98% of vehicles assessed at mobile speed camera sites were not speeding.

### Crash risk and injury outcomes

Outcomes of speeding are a matter of physics. The higher the speed, the longer it takes for a vehicle to stop, and the harder it hits.

Small differences in travel speed can make a big difference to outcomes. In average conditions, a car travelling at 60km/h will take 45m to stop in an emergency braking situation. A car braking from 65km/h will still be moving at close to 32km/h after 45m travelled.



Research from the Road Accident Research Unit of the University of Adelaide has shown:

- the risk of a crash doubles with each 5km/h increase in travel speed above 60km/h<sup>3</sup>
- a 5km/h reduction in speed can lead to a 31% decrease in crashes on rural roads<sup>4</sup>.

Research from numerous countries has shown that a 1 km/h decrease in average travelling speed is associated with a 3% decrease in injury crashes and a 4-5% decrease in fatal crashes<sup>5</sup>.

As much as we like to think we're invincible, we're not. The human body can only withstand certain amounts of force in a car crash. In fact, the impact forces of a car travelling at 30km/h are enough to be fatal for a pedestrian who is hit, or for a driver in a side-impact with a tree, or pole.

There is a high chance of serious injury or death at the impact speeds shown below for each type of crash.

Human tolerance in different crash types



### What works?

Speed cameras are effective at reducing crashes. In fact, research shows a 26% reduction in casualty crashes at intersections where speed cameras are installed.<sup>6</sup>

Lower speed limits on residential streets save lives<sup>7</sup>. Road engineering, known as traffic calming, is also effective in local streets<sup>8</sup>. It can include changes to the road environment that encourage people to drive more slowly, such as roundabouts, raised platforms and narrow streets.

High speed impacts involve crash forces the human body cannot withstand. Flexible roadside and centreline barriers are effective at reducing the severity of crashes on high speed roads<sup>9</sup> by absorbing the impact of the vehicle, and redirecting the vehicle away from roadside objects or oncoming traffic.

Vehicle technologies can reduce speeding, prevent crashes or lessen their severity.

- Intelligent Speed Assist (ISA) technology is associated with a significant reduction in severe crashes<sup>10</sup>.
- Auto Emergency Braking (AEB) systems detect emergency situations when a collision is imminent and reduce travelling speed, reducing the risk of rear-end crashes<sup>11</sup>.

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<sup>1</sup> TAC Road Safety Monitor 2016 & TAC Social Acceptability Survey 2016

<sup>2</sup> <https://www.speedcamerasavelives.vic.gov.au>

<sup>3</sup> Kloeden, C.N., McLean, A. J., Moore, V.M. and Ponte, G. (1997). *Travelling Speed and the Risk of Crash Involvement* (CR 172). Canberra: Federal Office of Road Safety.

<sup>4</sup> Kloeden, C.N., Ponte, G. and McLean, A. J (2001). *Travelling Speed and the Risk of Crash Involvement on Rural Roads* (CR 204). Canberra: Australian Transport Safety Bureau

<sup>5</sup> SWOV (2012) *The Relation between Speed and Crashes*. SWOV Fact sheet, August 2012. Leidschendam

<sup>6</sup> Budd, L., Scully, J. & Newstead, S. (2011). *Evaluation of the Crash Effects of Victoria's Fixed Digital Speed and Red-Light Cameras*. Report No. 307. Monash University Accident Research Centre.

Cameron, M. (2009). *Safety Benefits of Safety Cameras*. Fact Sheet No 5. Curtin-Monash Accident Research Centre.

<sup>7</sup> Islam, M., El-Basyouny, K. & Shewkar, E. (2014). The impact of lowered residential speed limits on vehicles speed behaviours. *Safety Science*, 62, 483-494.

<sup>8</sup> Elvik R. (2001). Area-wide urban traffic calming: A meta-analysis of safety effects. *Accident Analysis & Prevention*, 33, 327-336.

<sup>9</sup> Carlson, A. (2009). *Evaluation of 2+1 Roads with Cable Barrier: Final Report*. Swedish Road Administration. VTI Report 636A.

Candappa, N., D'Elia, A., Corben, B. & Newstead, S. (2009). *Evaluation of the Effectiveness of Flexible Barriers along Victorian Roads*. Report No. 291. Monash University Accident Research Centre.

<sup>10</sup> SWOV (2015). Intelligent Speed Assistance. SWOV Fact Sheet, January 2015. The Hague. <https://www.swov.nl/en/publication/intelligent-speed-assistance-isa>

<sup>11</sup> Fildes, B., Keall, M., Bos, N., Lie, A., Page, Y., Pastor, C., Pennisi, L., Rizzi, M., Thomas, P. & Tingvall, C. (2015). Effectiveness of low speed autonomous emergency braking on real world rear-end crashes. *Accident Analysis & Prevention*, 81, 24-29.