

WORK ON DRIVING SAFELY

A road safety guide for drivers of fleet vehicles

Speed

Research¹ has shown that the risk of a crash causing death or injury increases rapidly, even with small increases above an appropriately set speed limit.

Speeding and crash risk research

Speeding greatly increases the risk of injury and death. Research on travelling speeds and crash involvement has calculated the crash risk of driving at certain speeds over the speed limit in a 60 km/h zone.

For example a driver travelling at 65 km/h in a 60 km/h zone is twice as likely to have a serious injury or fatality crash as a driver travelling at the speed limit. Driving at 70 km/h in a 60 km/h zone, the driver is more than 4 times as likely to crash.

Based on this research it can be concluded that:

In a 60 km/h speed limit area, the risk of involvement in a casualty crash doubles with each 5 km/h increase in travelling speed above 60 km/h.

There are three reasons that small reductions in speed make such a large difference to risk.

1. Small differences in speeds mean differences both in time to collision and ability to avoid a crash.

Even if a vehicle cannot be stopped in the available distance, the collision can still sometimes be avoided. When a driver is speeding there is less time for both that driver and any other road user (either a pedestrian or another driver) to:

- Recognise danger
- Decide on an evasive action (brake, swerve)
- Complete the evasive action

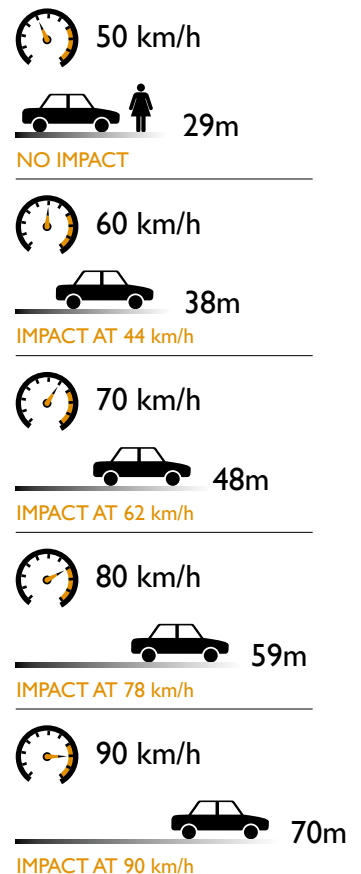
Furthermore, a vehicle travelling at a higher speed is more difficult to manoeuvre.

2. Small differences in vehicle speeds, before braking begins, can result in large differences in impact speeds.

The diagram to the right shows the relationship between speed, stopping distance and impact speed. For each travelling speed, both the stopping distance for vehicles travelling 50 km/h to 90 km/h are shown and the impact speeds for vehicles travelling faster than 50 km/h at the point where the vehicle travelling at 50 km/h would have stopped (i.e. at 29m).

The following example illustrates how impact speed can differ between two cars with only a 10 km/h difference in travelling speeds:

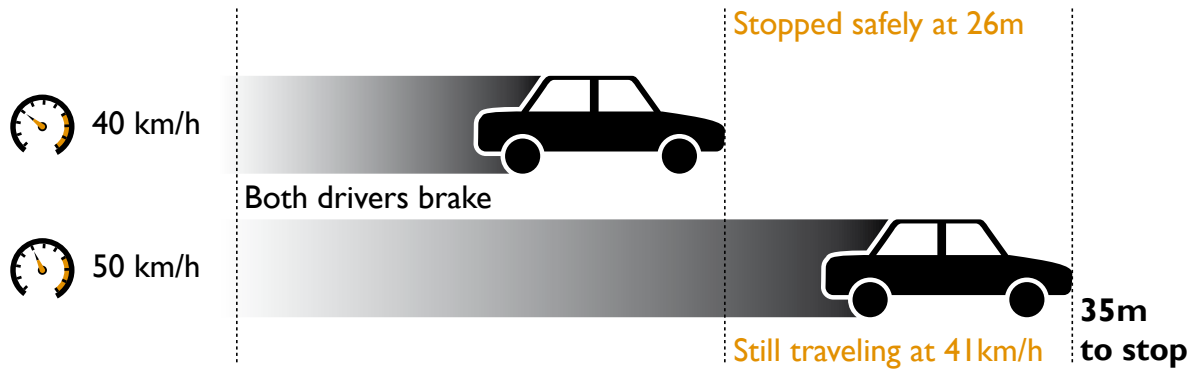
...consider two cars travelling side by side at a given instant, one car travelling at 50 km/h and the other overtaking at 60 km/h. Suppose that a child runs onto the road at a point just beyond that at which the car travelling at 50 km/h can stop. The other car will still be travelling at 44 km/h at that point.²



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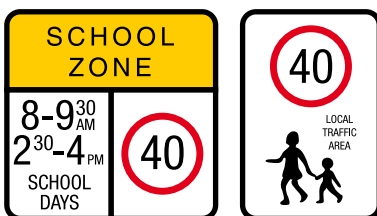
3. Even small differences in impact speed make a large difference to the probability of serious injury.

The reason for this difference is that the force of the crash varies with the square of the impact speed. For example, a 70 km/h collision has about twice the force of a 50 km/h collision.

For every extra kilometre per hour of speed:

- the stopping distance increases.
- the time to react and avoid a crash decreases.
- the impact of a crash is more severe on the vehicle, driver, passengers and pedestrians.
- the likelihood of serious injury or death increases.

40 km/h speed limit



The 40 km/h urban limit is part of a nationwide strategy to reduce the incidence of injury and death in high pedestrian traffic areas – especially school zones, CBD areas and shopping strips.

50 km/h urban default speed limit



The 50 km/h speed limit applies to all built-up areas across NSW. A 'built-up area' refers to an area where there are buildings on the land next to the road or there are street lights along the road with a spacing of 100 metres or less for a total length of at least 500 metres or if the road is shorter than 500 metres, for the whole length of the road.

A 50 km/h default limit applies as soon as you turn onto any urban road without a speed sign. Reduced speed limits at school zones, road works and other special areas still apply.

Why a lower speed limit?

Travelling at lower speeds improves a driver's ability to stop and avoid crashes. Where crashes do occur they are less severe, especially for children and the elderly.

Consider this situation (pictured above):

A car is travelling at 40 km/h. Another car is travelling at 50 km/h. Both drivers see a child about 27 metres ahead, recognise the danger and brake. The car travelling at 40 km/h will stop safely after 26 metres, avoiding the child. The car travelling at 50 km/h will take an extra 9 metres to stop, and will still be travelling at 41 km/h when it hits the child.

Even a small difference in vehicle speed can make a large difference to the probability of serious injury.

Put simply, if a car hits a pedestrian at 50 km/h the car driver is twice as likely to kill the pedestrian than if the car hits a pedestrian at 40 km/h.

Speed and alcohol crash risk comparisons

Researchers¹ from the Road Accident Research Unit in Adelaide have calculated the comparable crash risks for speed and alcohol.

They determined that driving at 65 km/h in a 60 km/h speed zone exposes you to the same crash risk as someone with a Blood Alcohol Content (BAC) of 0.05; whilst travelling at 68 km/h is equivalent to driving with a BAC of 0.08.

¹ Kloeden CN, McLean AJ, Moore VM, and Ponte G (1997) *Travelling Speed and the Risk of Crash Involvement*, NHMRC Road Accident Research Unit, The University of Adelaide

² McLean AJ, Anderson RWG, Farmer MJB, Lee BH, Brooks CG. (1994) *Vehicle travel speeds and the incidence of fatal pedestrian collisions*. Department of Transport, Federal Office of Road Safety, CR 146, Canberra, Australia.

Source: Roads and Traffic Authority (RTA) website 2009

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