

Roadworks safety

CARRS

- Accurate data on roadwork crashes in Australia are lacking. However, in Queensland alone from 2009–2013, there were at least 3.5 fatalities and 14.5 hospitalisations yearly due to vehicle crashes at roadwork sites¹.
- Speeding in road worksites is a significant road safety issue².
- Crash rates increase during roadworks compared to the pre-work period³.



State of the Road A Fact Sheet of the Centre for Accident Research & Road Safety - Queensland (CARRS-Q)

THE FACTS

- Road construction and repair is essential for maintaining and improving road user mobility and safety. However, the process of building safer roads and roadsides must be managed to minimise risks to both motorists and roadworkers.
- Studies show that crash rates increase during roadworks compared with pre-work periods, and worksite crashes can be more severe than other crashes^{3,4}.
- The challenge of identifying best safety treatments for Australian road worksites is complicated by a lack of detailed and accurate safety^{1,2,5}.
- Driver frustration can occur at roadworks due to interrupted traffic flow, reduced speed limits and associated increased travel times. This may negatively affect driver behaviour and compliance with worksite traffic controls².
- Frustration and non-compliance may increase where there is no apparent work activity².

Common types of road worksite incidents^{1,2}

- Rear end crashes at roadwork approaches.
- Single vehicle run off road.
- Public vehicle intrusion into work areas.
- Public vehicle hitting traffic controllers.
- Reversing incidents involving work vehicles and machinery.

Main causes of worksite incidents^{1,2}

- Driver distraction and inattention.
- Excessive speed (over the limit or too fast for conditions).
- Disobeying signs and signals.

- Following too close (tailgating).
- Road conditions.

Slow down and obey posted speed limits in roadworks. There may be hazards you cannot see.

Speeding is a major hazard at road worksites²

- Studies at urban and rural Queensland worksites showed that most vehicles (52-98%) speed when approaching worksites, with high proportions (46-89%) speeding inside work areas^{6,7}. This high rate of non-compliance poses a significant threat to roadworkers as well as to motorists themselves.
- Research reveals factors influencing driver speeds at road worksites:
 - Drivers travel significantly slower if they see workers than if they do not^{8,9}.
 - Motorists are more likely to speed if other vehicles in the traffic stream are speeding⁶.
 - Light vehicles are more likely to speed than trucks⁶.
 - Average speeds are higher at night than during the day⁶.
- While removing lower speed limits at inactive sites can improve compliance, lower limits must remain at some inactive sites due to concealed hazards^{8,9}.

Other worksite hazards

- As well as speeding, common hazards in worksites hazards as perceived by workers include¹⁰:

- Working at night and in wet weather (reduced skid resistance and, and visibility);
- Driver frustration and aggression towards roadworkers and traffic controllers; and
- Distracted driving (particularly mobile phone use) and drink/drug driving.

Types of safety measures and controls

• Informational

Measures may include warning and directional signs, speed limit signs, variable message signs (VMS), speed feedback systems, media announcements and electronic navigation aids.

• Physical

May include portable barriers, truck-mounted attenuators (TMAs), safety buffers, rumble strips, speed humps, reduced lane width, remote controlled portable traffic lights, anti-gawk screens.

• Regulation and Enforcement

Roadwork speed limits should be appropriate to conditions. Enforcement is likely the most effective speed reduction measure, where resources permit^{2,7}. A visible speed camera or police car with flashing lights may have significant local effects, though only limited general deterrence¹¹.

• Educational

Public awareness campaigns, inclusion in driver training courses and materials.

Expect the unexpected!
Stay alert and minimise distraction as you travel through a worksite.

Challenges for roadworks safety improvement in Australia

• Lack of quality data^{1,2}

Conventional road crash data in Australia lacks detail and accuracy for identifying crashes at roadwork sites and examining contributing factors. Much can be learned from international research, but improved local knowledge about specific hazards at Australian sites helps to ensure best practice safety management. CARRS-Q is active in this area, examining real-world driver behaviour, testing new treatments and using innovative data collection and analysis methods.

• Safe and credible speed limits

While removing lower speed limits at inactive sites can improve compliance and perceived credibility, lower limits often remain at inactive sites due to concealed hazards. Additionally, workers are known to have been killed or injured during signage installation and removal. In many cases it may be considered safest to leave signage in place during temporary periods of inactivity.

CARRS-Q RECENT WORK IN THE AREA

- Benchmarking road worksite safety performance².
- Identifying best practice in roadwork safety management^{2,5,10,13}.
- Analysis of alternative data sources for understanding roadwork crashes¹.
- Understanding common roadwork hazards

and their mitigating measures^{1,2,10}.

- Examining the factors influencing driver speeds at roadworks^{6-9,12}.
- Effect on driver speeds of police presence accompanying truck-mounted attenuators⁷.
- Effectiveness of pilot car operation at rural highway worksites¹².
- Evaluating effectiveness of remotely operated traffic control devices¹³.
- Integrating technological and organisational approaches to enhance roadwork safety¹⁴.

FUTURE DIRECTIONS

- Further research is needed to improve worker and road user safety in Australia, and should support 'proactive' safety management practices.
- Intelligent transportation systems (ITS) offer great potential to improve roadwork safety through advanced communication and related technologies.
- Improved methods for recording and management of roadwork incident data will enhance current knowledge and support development of targeted, effective safety measures.
- Emerging worksite safety measures of all types (Informational, Physical, Regulation/Enforcement, Education) should be monitored closely. Promising new safety measures should be trialed and evaluated on Australian roads.



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