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AUSTROADS SAFETY AT ROAD WORKSITES, STRATEGIC PRIORITY PROJECT

Managing the risks associated with providing the optimal level of the safety for employees and contractors working in or near traffic, combined with the need to provide a safe road environment for road users, is a significant issue for road agencies in Australia and New Zealand.

The Work Health and Safety Act, 2011 provides a balanced and nationally consistent framework to secure the health and safety of workers and workplaces. Under the legislation, employers are required to eliminate a reasonably foreseeable risk, to the extent reasonably practicable. Only where elimination is not reasonably practical is it acceptable to minimise the risk, which is the approach generally adopted in the provision of traffic control at worksites.

Road agencies have a legislative requirement as an employer and procurer of construction, operational and maintenance services to provide a safe work environment and manage the risks of working in or near traffic through:

- Legislation: duty of care under Commonwealth WHS Act 2011
- Regulation: access and road occupancy, auditing
- Training: accredited national training
- Service delivery and roadwork activity planning: designing for worksite safety, planning maintenance for worksite safety, informing customer journeys

This paper discusses the issues associated with managing the risk of working in or near traffic and identifies the opportunity for Austrroads to undertake research to inform benchmarked best practice and the provision of national guidance to road agencies.

1. Why is safety at road worksites a significant issue?

Managing the risks associated with providing the optimal level of safety for employees and contractors working in or near traffic, combined with the need to provide a safe road environment for road users is a significant issue for road agencies in Australia and New Zealand.

The Work Health and Safety Act, 2011 (<http://www.comlaw.gov.au/Details/C2011A00137>) provides a balanced and nationally consistent framework to secure the health and safety of workers and workplaces. Under the legislation, employers are required to eliminate a reasonably foreseeable risk, to the extent reasonably practicable. Only where elimination is not reasonably practical is it acceptable to minimise the risk, which is generally the approach currently adopted by road agencies in the provision of traffic control at road worksites.

1.1 Policy Response

Road agencies have a legislative requirement as an employer and procurer of construction, operational and maintenance services to provide a safe work environment for workers, contractors and the travelling public.

As part of this legislative responsibility and ‘duty of care’, road agencies have a number of policy responses that enable them to manage the risks associated with traffic control at road worksites.

- Legislation

Road agencies have legislative responsibility under the Commonwealth Work Health and Safety Act 2011 and jurisdictionally based legislation to eliminate a reasonably foreseeable risk, to the extent reasonably practicable.

- Regulation

Road agencies have a number of regulatory roles in the management of work health and safety risk related to traffic control at road worksites that include:

- Access and road occupancy
- Auditing

- Training

At a national level jurisdictions have been working collaboratively with Austroads to develop an accredited national training scheme for traffic control at worksites. Although this national scheme has yet to be adopted by jurisdictions.

- Road agency service delivery and roadwork activity planning

- Designing for worksite safety
- Planning maintenance and construction activities for worksite safety
- Informing customer journeys through the provision of proactive road work advice.

The following are principles that influence the delivery of work health and safety practices.

- The duty of care extends to all whom an agency may influence or affect by its business or undertaking.
- Risk management is the key to road agency safety performance.
- Road agencies and industry will consult, cooperate and coordinate to ensure all safety risks are managed while conducting their business.

1.2 Legislative requirements and codes of practice

The Work Health and Safety Act, 2011 provides a balanced and nationally consistent framework to secure the health and safety of workers and workplaces. Under the legislation, employers are required to eliminate a reasonably foreseeable risk, to the extent reasonably practicable. Only where elimination is not reasonably practical is it acceptable to minimise the risk, which is generally the approach currently adopted by road agencies in the provision of traffic control at road worksites.

The legislative framework that enables and supports traffic control at road worksites activities varies across jurisdictions. Commonly, the states and territories rely on respective Roads Acts to provide a general framework and then policy referencing delegations, manuals and codes of practice for specific

issues relating to approval, training and implementation. However, in Victoria for example, the Roads Management Act provides a detailed structure for traffic control at worksites and identifies processes, such as risk management and auditing, that must be followed for works on all roads across the state.

1.3 Australian Standard AS1742.3

Australian Standard AS1742 Manual of uniform traffic control devices Part 3: Traffic control for works on roads specifies the traffic control measures and devices to be used to warn, instruct and guide road users in the safe negotiation of worksites on roads including unsealed roads together with footpaths, shared paths and bicycle paths adjacent to the roadway. It is applicable to traffic guidance schemes for road and bridge construction and maintenance sites, works associated with other public utilities and services, or any other works which cause interference or obstruction to the normal use of a road by any road user.

It also provides guidance for the planning, design, installation and operation of such traffic guidance schemes together with requirements for maintaining a safe workplace for workers on site. The objective of this Standard is to provide organisations carrying out works on roads with a set of uniform practices for the signing and delineation of construction and maintenance works which will promote the safety of both workers and road users at the worksite.

A previous Austroads review of traffic control at road worksites found that the largest variation across Australian jurisdictions existed with traffic control at worksites documentation. Several states have prepared simple codes that briefly outline a position of utilising AS1742 Manual of uniform traffic control devices Part 3: Traffic control for works on roads, with only minor variations in specific areas. Others have developed comprehensive manuals that, whilst based on AS1742.3, go beyond the Standard to provide detailed requirements and include a number of pro-forma traffic control plans (TCPs) to apply to a variety of road worksites and work activities.

This would indicate that AS1742.3 may not be meeting the needs of road agencies. AS1742.3 was last updated in 2009 and is currently being reviewed by Standards Australia.

Whether a code of practice or a manual, state and territory traffic control at worksites documentation always identified the following:

- the basis for the state code or manual (i.e. Australian Standard AS1742.3) with variations to accommodate relevant local legislation
- the requirements if conflicts occurred between the local code or manual and AS1742.3 (local code or manual would prevail)
- the state legislation that provided the legal framework for the code or manual
- guidance as to the application of the code or manual
- that persons involved and responsible for traffic control must be appropriately certified under an accredited training scheme
- application of worksite speed zones as per AS1742.3.

1.4 Regulation and Training

1.4.1 Access and Road Occupancy

Road agencies are the legislated authority to provide access to the road network. This authority provides road agencies and their delegates, with the ability to manage the operational network impact of providing access to the road network. Authorities (national, state and local government) provide access to the road network through the issue of Road Occupancy or similar arrangements that allow the proponent to use a specified road space at approved times, provided certain conditions are met.

Proponents can be required to provide a Traffic Management Plan (TMP) that integrates an activity into the operation of the road network. The plan assesses an activity's impact on traffic flow and describes the activities being proposed, their impact on the general area (including public transport passengers, cyclists, pedestrians, motorists and commercial operations), and how these impacts are being addressed.

A Traffic Guidance Scheme (TGS) is a document that shows how traffic is to be separated from a worksite or work route. It is intended as an instruction from the works supervisors to the site crews and is usually in the form of a diagram showing the road conditions (lanes, signs etc.) and how the traffic is to be managed around the site /activities (temporary signs, posting of traffic control staff, etc.). A TGS is an occupational health and safety requirement of a worksite (i.e. should be held on site) and should comply with AS 1742.3 to comply with the Occupational Health and Safety Act.

1.4.2 Risk Assessment and Auditing

The operational process of risk management assessment for road worksites is another area of inconsistency across states and territories. The documentation for the majority of jurisdictions either refers practitioners to AS1742.3 and AS/NZS4360: 2004 Risk Management for guidance on adopting a risk management approach or makes no reference at all. The documentation for only one road authority provides a detailed risk management process designed for road worksites.

Similarly with auditing, there is variability in referencing and requirements for formal auditing of traffic control measures implemented at road worksites. In this regard, auditing can apply at two distinct phases – the selection/design of a traffic management plan (TMP) or traffic guidance scheme (TGS) and after a plan is implemented, to ensure ongoing compliance and appropriate application.

Where auditing is referenced in manuals/codes, it generally applies to the latter and not the selection/design of TMP/TGSs. Auditing should primarily relate to the implementation phase to ensure that on-ground implementation meets the approved plan and is appropriate for the site operations as works progress. AS1742 Part 3 provides a series of field guides that illustrate typical TGSs for common roadwork operations.

Consideration needs to be given to how information about risk assessment and auditing for safety at road worksites can be integrated into the Austroads Guide series.

2. Road Agency and industry to lead sector reform

In 2015, Austroads established the Safety at Road Worksites Steering Committee with executive representation from road agencies and peak industry bodies. The members on the Steering Committee are;

- Chair – Roads and Maritime Services
- Austroads Board Members
 - Tasmania Department of State Growth
 - Main Roads WA
- Industry
 - Roads Australia
 - Australian Asphalt and Pavement Association
 - Traffic Management Association of Australia
- Road Authority representatives
 - Transport and Main Roads QLD
 - New Zealand Transit Agency
- Standards Australia.

The Committee has oversight of number of initiatives relating to safety at road worksites including the review of AS1742.3, implementation of Austroads nationally accredited training and research into contemporary practice in managing safety at road worksites. Other related activities being delivered by industry to inform the future direction have included industry research by AAPA, the Roads Australia series of Safety at Road Worksites national forums and the proposals from industry for National Prequalification/Registration Schemes for both individuals and companies.

2.1 The Current model

The training and registration of traffic controllers in Australia is the responsibility of the state road agency.

Each road agency references the current Australian Standard AS1742.3 however each has developed supplementary guidance, training and certification for their respective state. Austroads has recently released its Nationally Accredited Training for Traffic Controllers to road agencies for inclusion in their state-based training programs.

As an industry that operates nationally across state borders, this model does not support a harmonised approach to traffic management practice and results in companies and practitioners having to meet differing standards and requirements in each State. The New Zealand model with the Code of Practice for Temporary Traffic Management (CoPTTM) delivers an integrated model of guidance, tiered training and individual certification for industry. Figure 1 illustrates the current model showing what is delivered at a state and national level in Australian and the New Zealand model.

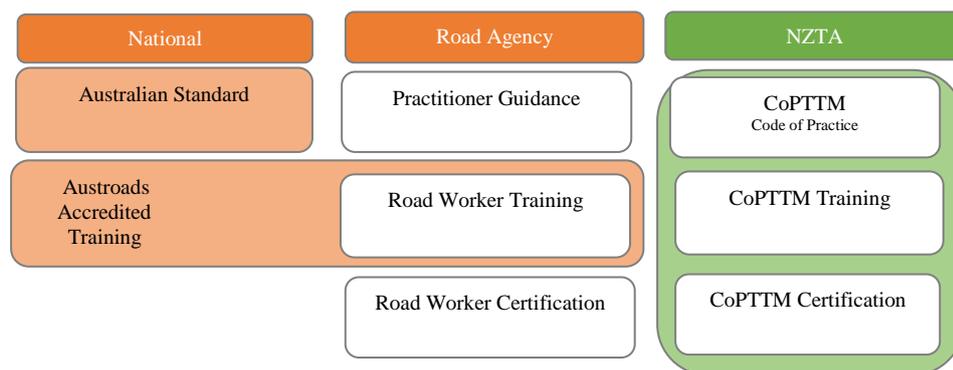


Figure 1 The Current Model

2.2 Industry reform for improved safety outcomes

The Safety at Road Worksites Steering Committee with representation from Austroads and peak industry bodies provides a mechanism to delivery industry reform and harmonisation of temporary traffic management practice that provides agility and transformational change for road works safety.

This reform is underpinned by a number of key principles.

- Harmonised practice and accreditation.
- Agility to adopt changes to guidance and practice.
- Adopting a safe systems approach.
- Accessibility of information for a mobile workforce and industry.

The proposed industry reform focuses on four key elements;

- National Guidance
- National Approach to Training
- National Registration system for individuals
- National Pre-Qualification Scheme for the Traffic Management Industry

The current proposed approach for each of these elements are detailed in the following sections.



2.3 Research into International Best Practice.

Austroads contracted the Centre for Accident Research and Road Safety – Queensland (CARRS-Q) for research services to understand contemporary practice in managing safety at road worksites and to recommend practical guidance from learnings that would be applicable to Australia and New Zealand.

The objectives of the current research project are:

1. to understand contemporary practice in safety at road worksites and benchmark Australia and New Zealand with comparable international transport and industry sectors,

2. to determine learnings from contemporary best practice in managing safety at road worksites that could be applied to the Australian and New Zealand road environment, and
3. to recommend practical guidance for road agencies to improve the management of safety at road worksites in Australia and New Zealand.

The project involves four major Work Tasks:

1. Benchmarking safety at road worksites
2. Identifying best practices for safety at road worksites
3. Recommending new and improved practices for Australia and New Zealand road worksites
4. Reporting project deliverables

The findings from this research have identified the following recommendations;

- 1) Harmonisation of Signage and Worksite Controls
- 2) Point-To-Point Speed Enforcement
- 3) Higher Fines/Demerit Points
- 4) Review Practices for Selecting Speed Limits
- 5) Communication Strategy and Community Engagement
 - a) Public awareness campaigns
 - b) Emphasising worksites in driver licensing programs
 - c) Create positive perception among drivers regarding roadworks
 - d) Improved communication among workers
 - e) Radio cut-in messages
 - f) Display appreciative messages in Termination area
- 6) NEXT GENERATION DEVICES AND PRACTICES
 - a) Automated technologies for worksite set-up & removal
 - b) Object retrieval systems
 - c) Variable message signs
 - d) Worksite lighting for reduced glare – balloon lights
 - e) Sequential warning lights
 - f) Rolling blockades
 - g) Rumble strips
 - h) Queue warning systems
 - i) Rapid flashing beacons
 - j) Portable traffic lights and automatic flagger assistance devices
 - k) Different coloured traffic cones combined
 - l) Merging procedures
 - m) Closer spaced traffic cones
 - n) Additional markers of lateral clearance/buffer
 - o) Perceptual speed control measures
 - p) Taper length (refine/revise)
 - q) Clear taper area
 - r) Clear buffer space
 - s) Maintain forgiving roadsides
 - t) Pilot cars
 - u) Worksite intrusion alarms

- v) Minimise length of work area
- w) Anti-gawk screens
- x) Maintain tapers in the Termination area
- y) Increased size of channel marking devices

The results of this research project are to be published in an Austroads Research Report in 2016/17.

3. National Guidance

Guidance to practitioners needs to reflect contemporary traffic management practice and be nationally harmonised to meet the needs of an industry that operates across state borders.

Industry consultation has suggested that the process for the update of the Australian Standard does not support an industry that needs to be agile and realise the benefits of adopting new technology. A review of AS1742.3 has provided an opportunity to transition all guidance information from the current Standard to an Austroads Guidance publication, which will facilitate the regular review and update.

Standards Australia review of AS1742.3 is proposing that all guidance information be removed from the Standard, leaving only the device information. It is the intention that guidance information will be transitioned to Austroads for publication and release to road agencies and industry.

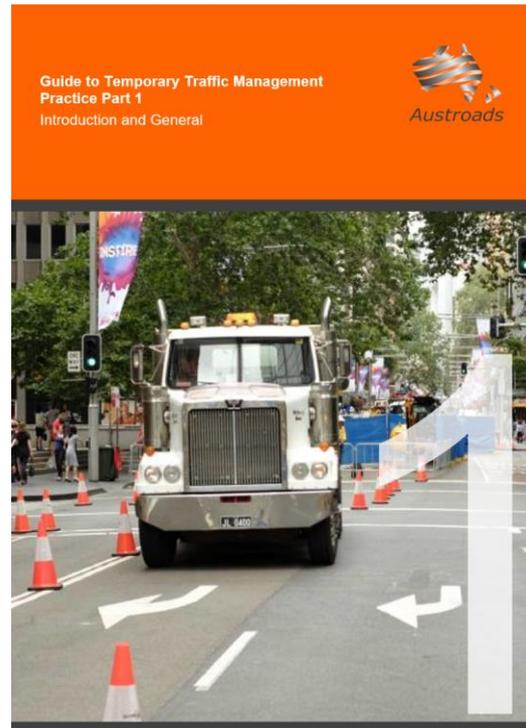
It is proposed that Austroads will assume responsibility for the establishment and management of a Guide to Temporary Traffic Management Practice.

Immediately prior to the December 2015 Steering Committee Meeting, NZTA officers provided a presentation to the Austroads Safety at Road Worksites Steering Committee on the New Zealand Code of Practice for Temporary Traffic Management (CoPTTM) and the training and accreditation system for individuals employed within the industry.

An outcome from this presentation was the agreement that documentation based on the NZ Code of Practice model for all Austroads member authorities would lead to a substantial improvement in documentation for application in Australia. A detailed review of the NZ CoPTTM was undertaken to compare the content against documentation in AS1742.3 and various Australian State documents.

It is considered that the proposed CoPTTM documentation provides a substantial improvement in the range of guidance to be provided and would assist in achieving Austroads goals to improve the quality and safety performance of Temporary traffic management.

A preliminary framework for the ten-part Guide series will be based on the holistic approach adopted by the NZ Code of Practice for Temporary Traffic Management (CoPTTM), in provision of technical guidance with supporting training and traffic controller accreditation.



Guide to Temporary Traffic Management Practice	Source Information to Guide Part
Part 1 Introduction and General	CoPTTM A
Part 2 Traffic Management Planning	CoPTTM A, AS1742.3
Part 3 Equipment and Devices	CoPTTM B, AS1742.3 Sections 3
Part 4 Static Work sites – Layout Guidance	CoPTTM C, AS1742.3 Section 2,3,4
Part 5 Mobile Works – Operations Guidance	CoPTTM D, AS1742.3 Section 4.6
Part 6 Implementation Guidance	Working Group Development
Part 7 Forms	CoPTTM E, Standards Australia/Road Agencies
Part 8 Sample and Example Layouts	CoPTTM F-J, Risk Management
Part 9 Supporting Guidance (Risk management)	AS1742.3/Road Agencies/AP-R403
Part 10 Traffic Controller Instructions	AS1742.3/Road Agencies

Figure 2 Austroads Guide to Temporary Traffic Management

This model was forwarded for consideration by Austroads Executive and is the subject of further review and business case development.

4. National Approach to Training

Training needs to be nationally adopted and harmonised to ensure that there is a consistently high standard of traffic management practice, supporting a nationally mobile industry.

Austroads has developed a nationally accredited training program for traffic management personnel which is progressively adopted by Australian road agencies. The skills set included within this program includes the following;

- Road worker – individuals who work at roadwork sites where traffic control occurs. These personnel are expected to operate within the confines of the TCGP area and adjust their duties to suit the traffic environment and in accordance with OHS and site operational requirements
- Traffic Controller – individual responsible for operating a Stop / Slow bat to control traffic at a roadworks site
- Traffic Control Guidance Scheme Implementer – individual required to identify and select traffic control signs and devices and correctly position them in accordance with the approved TCGP. It may be necessary for personnel to adjust the location of signs and devices within stated tolerances to suit the specific road environment.
- Work Zone Supervisor – individual who ensures traffic control is undertaken in accordance with the approved TCGP and may be required to identify and select required type of traffic control sign and devices and position them in accordance with the approved TCGP. Additional duties may include reviewing the designed TCGP prior to implementation to verify that all hazards have been identified and an appropriate risk treatment has been applied, schedule traffic control works and supervise the installation and removal of TCGP, undertake aftercare inspections, review and retain records according to site procedures.
- Traffic Guidance Plan Developer – individual required to identify site risks and design TCGPs to meet the site-specific road environment and in accordance with relevant regulations,

standards, and road authority requirements. Personnel will be required to select appropriate signs and devices, sign-off on the prepared TCGP and maintain records of any modifications made to the TCGP that may be required to suit the site

A comparison of the various training qualifications across the Austroads and NZ models demonstrates that while there are similarities on the types of tasks undertaken, there are also significant differences in the roles and responsibilities of the individual qualifications. However there were two aspects of the NZ model that were of particular interest.

The first of these is the categorisation of the road network into 5 categories reflecting a range of risk profiles. These road categorisations have then been used in the NZ model to drive the range of training categories. It was considered that breaking the road network into categories allowed the risk profile to be more succinctly defined and therefore to assist in determining the appropriate individuals to undertake TTM on the various road types.

The definitions for the varying road levels used in NZ are as follows;

- Level LV low risk - This is a subcategory of level LV roads which may be declared by the Road Controlling Authority. These roads have an AADT volume of less than 250vpd.
- Level LV - These roads have an AADT volume of less than 500vpd. This encompasses some urban streets and some local roads (with or without a centreline), sealed and unsealed.
- Level 1 - This encompasses most urban streets, most rural roads, and most state highways, (with or without a centreline) sealed or unsealed.
- Level 2 - These are high-volume roads that have an AADT volume of greater than 10,000vpd. This lower limit is a guide only. This encompasses major urban streets in the central business district, some arterial roads, two-lane two-way roads, one-way streets and multi-lane roads.
- Level 3 - These are high-volume, high-speed multi-lane roads and motorways with a divided carriageway. This will include any on-ramps or off-ramps. They have an AADT volume generally greater than 10,000vpd and a speed limit greater than 75km/h.

The second aspect of interest was the use of Non-practitioner and Practitioner qualifications. In many jurisdictions, there are individuals within road agencies and other organisations with responsibility for the approval of TMPs. However, these individuals typically do not have opportunities to gain practical experience. This has subsequently led to issues relating to the practical element of any assessment and whether it should apply in all cases. In many situations it has resulted in approving officers not gaining the necessary qualification yet still being expected to provide approvals.

It is proposed that the existing training material consisting of eight units of competency will be reviewed to align with a new harmonised model of guidance and training based on the CoPTTM model. A suggested approach to this is as follows;

Austroads training model	NZ training	Proposed Skills set		Comments
Labourer		Road Labourer		Austroads Labourer skills set
Traffic Control		Traffic Controller		Austroads Traffic Controller skills set
Implement / Supervisor	L1 TC	Implementer of TCGP / Site supervisor	Level 1/LV	Austroads Implement skills set for specified situations only. Austroads Supervisor skills set for all other circumstances
	L2/3 STMS		Level 2	Austroads Supervisor skills set
			Level 3	Austroads Supervisor skills set plus specialist training for motorway set-up
Guidance Plan Developer	L1 STMS	Guidance Plan Developer	Level 1/LV NP	Austroads Developer skills set with a Cert 4 unit in place of RIICWD503D
			Level 1/LV	L1 NP and practical assessment
	L2/3 STMS NP L2/3 STMS		Level 2 NP	Austroads Developer skills set
			Level 2	L2 NP and practical assessment
			Level 3 NP	Austroads Developer skills set and Motorway / High Speed Road skills And Level 3 Roads Risk Management Process
			Level 3	L3 NP and practical assessment

5. National Qualification Registration Scheme

Registration of individuals with traffic management qualifications will ensure that practitioners are trained by approved Registered Training Organisations (RTOs) and that accreditation can be readily accessed by a mobile industry across Australia and New Zealand.

Currently, each road is responsible for the training and certification of traffic management qualifications within their state. Each state road agency administers their scheme with differing operating models and price structures. Austroads has developed a nationally accredited traffic management training program which is being progressively adopted, however the state based approach is limited in its ability to provide a nationally harmonised approach to competency based training and the current certification by each state does not fully support a national industry that works across state borders.

Austroads has been approached by industry associations to partner in the establishment of a training portal for industry with the aim to achieving greater harmonisation of practice and improved training outcomes. To this end an on-line portal to achieve a harmonised platform for the delivery of quality competency-based training is proposed. A partnership with Austroads will deliver a range of benefits to road agencies including single registration portal for Registered Training Organisations (RTOs), a single portal for the registration of traffic controllers, provision of on-line and mobile phone applications and provision of an RTO audit capability.

6. National Pre-Qualification Scheme for the Traffic Management Industry

The Traffic Management industry in Australia is governed by a range of legal and regulatory requirements with registration pre-qualification schemes operating in Queensland, Victoria, South Australia and Western Australia.

To improve harmonisation of practice, the Industry associations have approached Austrroads with a proposal to establish a national pre-qualification scheme similar to that used in Queensland and Western Australia.

Industry is seeking in-principle agreement from road agencies on the development of a harmonised prequalification scheme. If in-principle support is obtained, it is proposed that the Queensland/Western Australia framework be considered as the preferred model and that a review of practice in all states is undertaken to determine what is required to transition to a national prequalification scheme.

7. Future Direction

Austrroads provides the opportunity for jurisdictions to work collaboratively towards improving the safety of employees and contractors working in or near traffic. This paper discusses the issues associated with managing the risk of working in or near traffic and Austrroads has identified the opportunity to undertake research to inform benchmarked best practice and the provision of national guidance to road agencies.

It is proposed that the new guidance would be fast-tracked for delivery within the next eighteen months to coincide with the release of an update to Australian Standard AS1742.3. Each State Road Authority is currently working towards the harmonised training model with some states having already adopted a number of the skills sets and competency units.