



# Risk-based approach to temporary traffic management

Working on or near roads is a high-risk activity. Will a risk-based approach improve worker safety?

At road works sites, temporary traffic management (TTM) is used to:

- protect road workers from road users
- protect road users from any hazards related to the work site
- reduce disruption to traffic flows during works.

In Aotearoa New Zealand, TTM is shifting from the former code of practice to a more risk-based approach that manages people's exposure to risk from road works. To be successful, information about the new approach must help users find the best TTM solution for the situation. This research looked for evidence of improved TTM safety using the new approach.

## The research method

The researchers reviewed international and national research and literature on solutions to risk-based safety concerns at TTM sites. They used their review to develop site evaluation guidance material and a '60-second' tool. A workshop and think tank helped ensure the guidance and tool are easy to use.

- The site evaluation guidance is a consistent way to evaluate and report on TTM case studies (monitoring the success of new and existing setups).
- The 60-second tool tests whether the TTM plan will work on site and identifies any new on-site information about the setup or conditions that may alter the risk profile.

The literature review and 11 interviews with those involved in the TTM process provided the basis for the development of a survey to identify worker attitudes, behaviours and perceptions around TTM safety culture. A total of 316 workers responded to the survey.

## Survey results: key findings

### Safety culture

- 1 in 4 people surveyed believe risk around live traffic is a part of the job.
- Around half believed that safety on site was traded off against competing needs like cost and traffic flow.
- 2 out of 3 people feel empowered to actively make changes to improve safety.

### The risk-based approach to TTM

- 9 out of 10 people have some confidence in their understanding of the controls in a risk-based approach.
- 6 in 10 people are willing to adopt the risk-based approach.

### Complex work sites

- 1 in 4 people said that workers did not always use full personal protective equipment (PPE).
- Only half of workers always had a spotter when needed.
- 1 in 4 people said that there are unsafe work vehicle movements.

### Workers say that public drivers aren't following the speed limit at work sites

- Over half of respondents experienced aggression or abuse from other road users.
- 2 in 5 workers reported other road users had trouble navigating the site.



### Near misses at complex work sites

- Near misses happen, with 2 out of 3 people observing or hearing about a near miss at the last complex site they worked on.
- Sites with single-lane alternating flow setups (stop/go with either manual traffic controllers or portable traffic lights) had the highest rate of near misses, while sites with reduced lane width had the lowest rate of near misses.

### The following recommendations relate to:

- risk-based safety solutions (identified from the literature)
- governance, contracting and monitoring (based on the survey and workshop insights).

### Risk-based safety solutions for TTM

1. Use the wider set of tools to avoid and reduce exposure to risk, including:
  - a. strategically planning roadworks to ensure worker safety at all stages of the project
  - b. having processes that require opting out of the more effective risk-based controls
  - c. using traffic demand management techniques to reduce traffic volumes through work sites
  - d. providing better quality information to drivers about site characteristics (as drivers approach, communicate all information relevant to site driving behaviour and decision making)
  - e. identifying, evaluating and using site layouts that reduce workers crossing live lanes of traffic (eg, sign simplification techniques)
  - f. using sensor technology where appropriate (eg, instantly relay any cone or barrier strikes to controllers), which reduces the need for routine inspections (and improves safety monitoring data).
2. Organise an annual, independent review of TTM sites and solutions to identify:
  - a. the rate of use of risk-based controls (ie, elimination, minimisation, administrative control measures and PPE)
  - b. opportunities for higher controls within this hierarchy
  - c. mechanisms to share this knowledge.
3. Consider using speed camera enforcement where speed limits and speed reduction techniques (such as traffic calming and speed feedback) are not effective.
4. Review TTM solutions for adaptation in poor visibility conditions, particularly night time (considering factors such as glare and wet nights).

## Governance

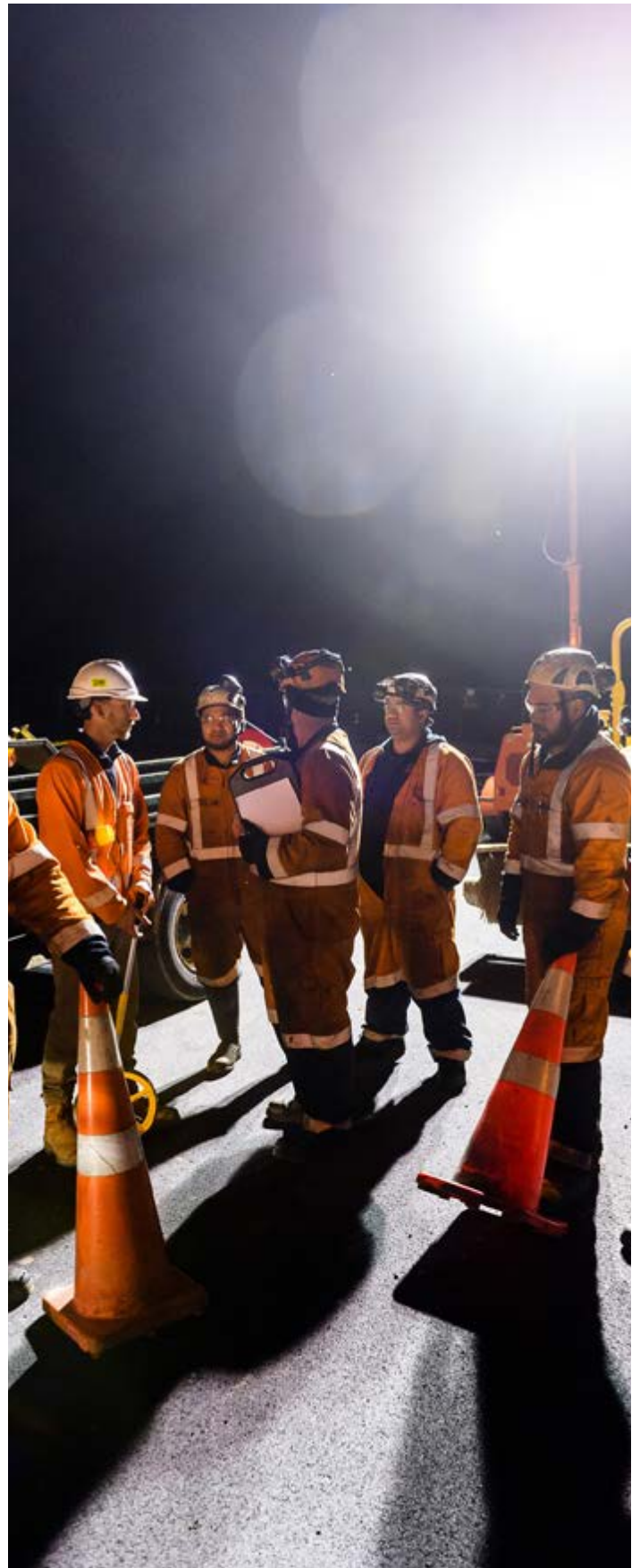
5. Establish a TTM solution evaluation sub-group, which would:
  - a. identify sources of competitive funding and processes for looking after that funding
  - b. build minimum monitoring requirements (following evaluation guidance from this report) into evaluation funding
  - c. administer the evaluation case studies at a national level, including delivery of practice notes and communications back to industry
  - d. identify innovation incentives that aim higher up the hierarchy of controls
  - e. develop capability, with pathways to developing technical evaluation competency
  - f. establish and monitor TTM evaluation performance indicators and report back to the Road Worker Safety Governance group annually.

## Contracting

6. Change language in contracts to include data collection and analysis to feed into evaluation case studies, especially around larger contracts and alliances (eg, the New Zealand Upgrade Programme, alliance contracts, network outcome contracts).
7. Change language in contracts to include capability building around evaluation and demonstrating evidence of this responsibility within key contractor roles.
8. Develop a competitive research allocation in Waka Kotahi to ensure a diverse range of sites and solutions are covered (ie, not just those from larger alliances).

## Monitoring

9. Develop, and agree to use, a consistent industry definition for serious near misses (including cause typologies and movement types), TTM site classification codes, and other data that industry will analyse and report.
10. Continue monitoring industry perceptions, culture, and serious near misses (especially causes) annually to compare with the baseline survey data captured from this study.
11. Enable open, consistent sharing of data from on-site safety tools.



RR 708: *Research to support the application of a risk-based approach to temporary traffic management*, Waka Kotahi NZ Transport Agency research report.  
Available at [www.nzta.govt.nz/resources/research/reports/708](http://www.nzta.govt.nz/resources/research/reports/708)