Onsite traffic management project

Phase two report

Background

Poor traffic management at worksites can result in powered mobile plant or vehicles colliding with pedestrians, causing serious injury or death. Across all Queensland industries, between 1 July 2016 and 30 June 2017, 12 workers were killed by mobile plant or transport and 2,087 workers suffered serious injury, according to workers' compensation data.

Workplace Health and Safety Queensland (WHSQ) is working with industry to:

- raise awareness of the importance of traffic management
- provide information and guidance on what good traffic management looks like
- increase levels of work health and safety compliance.

Workplaces in the construction, manufacturing, agriculture, and transport and logistics industries with powered mobile plant (e.g. forklifts, earthmoving equipment, cranes) or other vehicle traffic (e.g. trucks, cars) used in the workplace are targeted for assessment as part of this project.

Phase one of the project was conducted between July and September 2016 and the report from phase one is published on the WHSQ website. Phase two of the project was conducted between March and May 2017. Phase two involved 427 workplace assessments. This report collates findings from the first two phases of the project.

A third phase of the project will be undertaken during September to October 2017. This will consist of re-visits to a small sample of workplaces visited previously to measure improvements and sustainability of previously observed controls.

In addition to workplace assessments, WHSQ inspectors completed 320 workplace advisories during the project to provide information and guidance to workplaces about onsite traffic management.

The breakdowns below provide a snapshot of the types of workplaces that were involved in the 749 assessments completed.

Which industries were assessed?

Industrial (e.g. transport, manufacturing, logistics)
486

Construction
202

Agriculture
61

What size were workplaces?

Small (less than 20 workers)
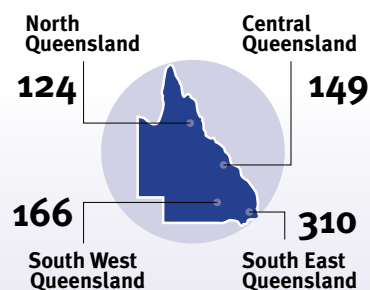**276**

Medium (20-199 workers)
422

Large (200 or more workers)
51

Where were assessments done?

North Queensland
124

Central Queensland
149

South West Queensland
166

South East Queensland
310

What types of plant and vehicles were used at workplaces?

Trucks
93%

Forklifts
77%

Cars
71%

Cranes and elevating work platforms
39%

Earthmoving equipment
30%

Tractors
11%

What was assessed?

Inspectors used a 54-item assessment tool to evaluate the effectiveness of a workplace's onsite traffic management system and practices. The tool used a three-point rating scale:

- 2 – fully implemented
- 1 – attempted/partially implemented/significant improvements possible
- 0 – not implemented.

The assessments consisted of a range of items split into six sections:

1. Understanding the site's traffic needs
2. Developing a traffic management plan (TMP)
3. Controlling the risk of people being hit by plant or vehicles
4. Observing traffic and pedestrian behaviour
5. Preparing for an emergency
6. Construction-specific controls

These sections represent the key components of effective traffic management. The items within each section are based on legislative requirements under the *Work Health and Safety Act 2011* and Work Health and Safety Regulation 2011 and established industry practices to control risks.

What were the findings?

The findings outlined on the following pages provide a summary of the collated results of assessments completed in phases one and two of the project.

The findings are presented using an average score based on the three-point rating scale used in the assessments (2-fully implemented; 1-partially implemented, 0-not implemented).
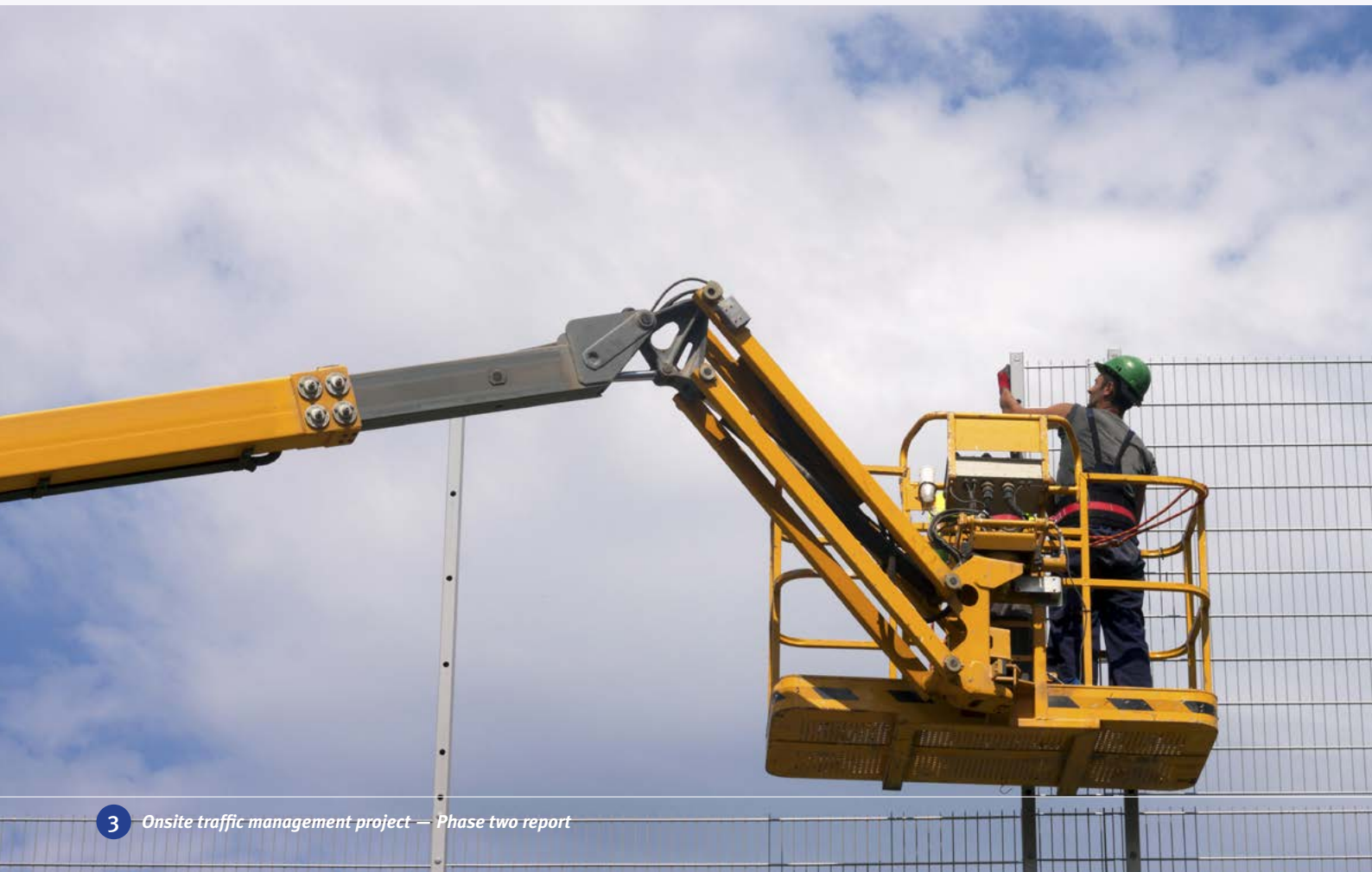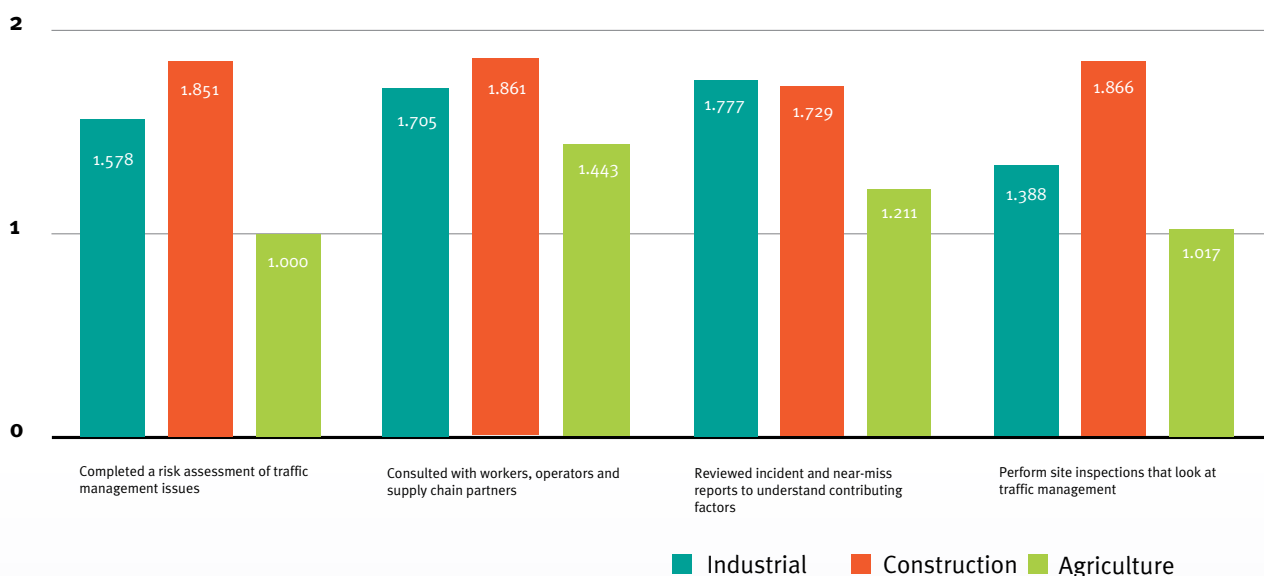
1. Understanding the site's traffic needs:

Understanding the workplace's traffic needs means finding out what could cause harm. This requires observing the work environment, consulting with workers and others, and learning from previous incidents or near-misses. This enables an assessment of the level of risk in the workplace of people being hit by moving plant or vehicles.

Below is a snapshot of the items within this section assessed by inspectors. The results show the average score for workplaces in each industry category.

Bar chart showing average scores by industry category:

Item	Industrial	Construction	Agriculture
Completed a risk assessment of traffic management issues	1.578	1.851	1.000
Consulted with workers, operators and supply chain partners	1.705	1.861	1.443
Reviewed incident and near-miss reports to understand contributing factors	1.777	1.729	1.211
Perform site inspections that look at traffic management	1.388	1.866	1.017

■ Industrial   ■ Construction   ■ Agriculture

The average ratings for section one were 1.61, 1.83 and 1.18 for the industrial, construction and agriculture industry categories respectively. The item with the lowest level of implementation across all industries was 'a documented process for performing site inspections that covered traffic management' (64 per cent). Regular inspections of the worksite can identify traffic hazards that may present a risk to the health and safety of workers or others. Inspections can also help to review whether existing controls are working effectively or identify if additional control measures are required.

Safe Work Australia has developed a Traffic hazard checklist that aims to help identify potential traffic hazards at a workplace as part of a site inspection.
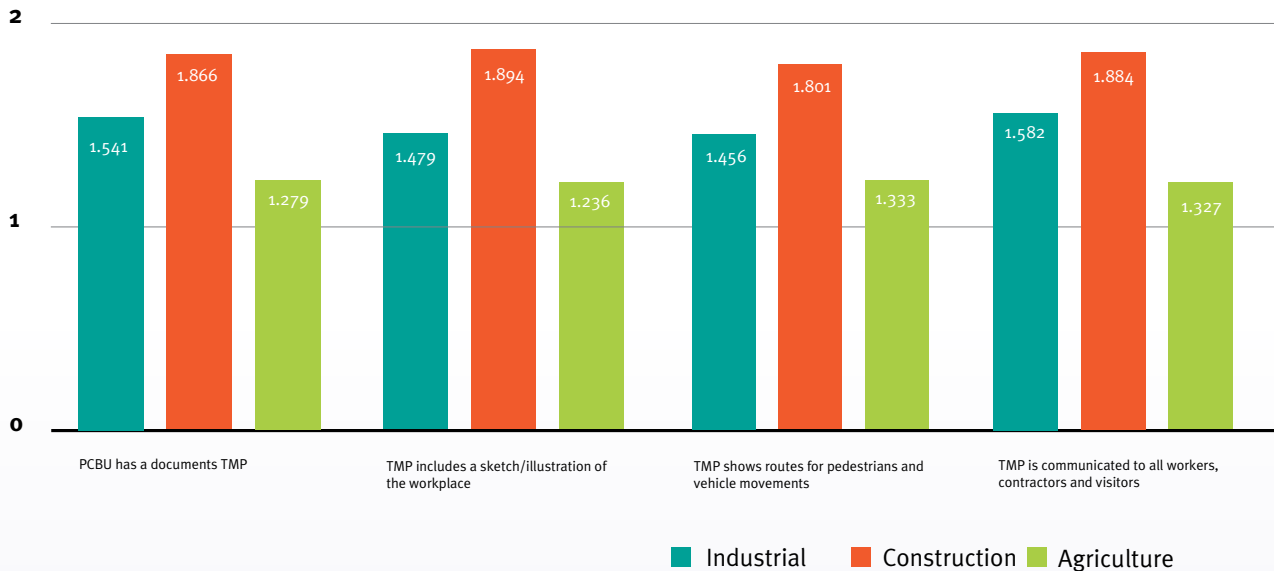
2. Developing a traffic management plan (TMP):

Developing a TMP helps to communicate how risks are being managed at a workplace. It should include:

- designated travel paths for vehicles including entries/exits, haul routes, loading zones and car parks
- pedestrian routes and crossings
- illustration of the site layout to identifying key items (e.g. barriers, walkways, signs)
- the roles and responsibilities of various people relating to traffic management.

Below is a snapshot of the items within this section assessed by inspectors. The results show the average score for workplaces in each industry category.

Chart data:

Item	Industrial	Construction	Agriculture
PCBU has a documents TMP	1.541	1.866	1.279
TMP includes a sketch/illustration of the workplace	1.479	1.894	1.236
TMP shows routes for pedestrians and vehicle movements	1.456	1.801	1.333
TMP is communicated to all workers, contractors and visitors	1.582	1.884	1.327

The average ratings for section two were 1.44, 1.82 and 1.25 for the industrial, construction and agriculture industry categories respectively. The item with the lowest level of implementation across all industries was 'outlining how short term, mobile work or complex traffic situations are managed' (59 per cent). These types of situations lead to unexpected conditions that can contribute to traffic incidents, so documenting how they will be managed is important.

Inspectors identified that the most effective traffic management plans were simple, easily understood by workers, contained pictures and diagrams, and were reviewed regularly to ensure they remained up-to-date.

Safe Work Australia has developed a Guide for workplace traffic management that can assist with managing traffic risks and developing a TMP in your workplace.

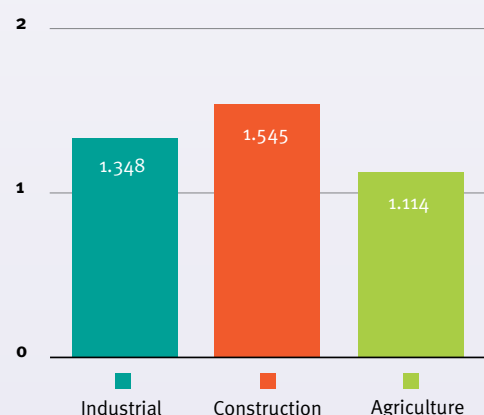# 3. Controlling the risk of people being hit by plant or vehicles:

There are a range of control measures that a workplace can use to manage the risk of people being hit by moving plant or vehicles. Some control measures offer a higher level of protection and reliability than others. A combination of controls is often required to effectively manage risks.

Below is a snapshot of the items assessed by inspectors broken down by the types of controls used. The results show the average score for workplaces in each industry category.

Elimination controls

The most effective way to protect pedestrians is to eliminate any interaction between people and traffic hazards. This can be done by:
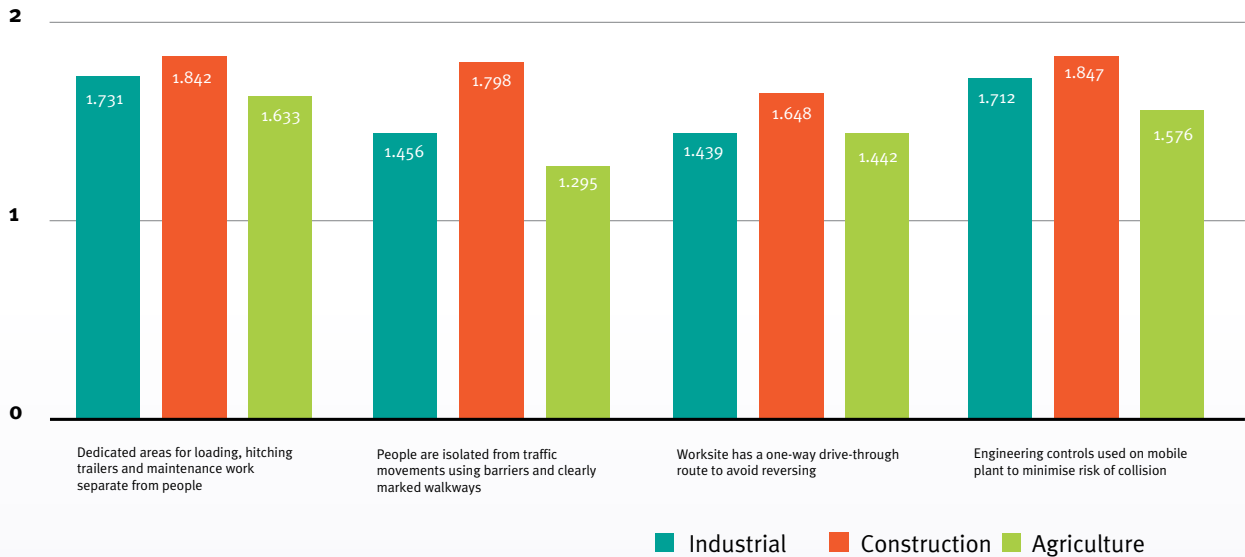
- physically separating pedestrian routes from vehicle areas using permanent barriers or overhead walkways
- conducting activities at times when pedestrians are not present.

Chart data:

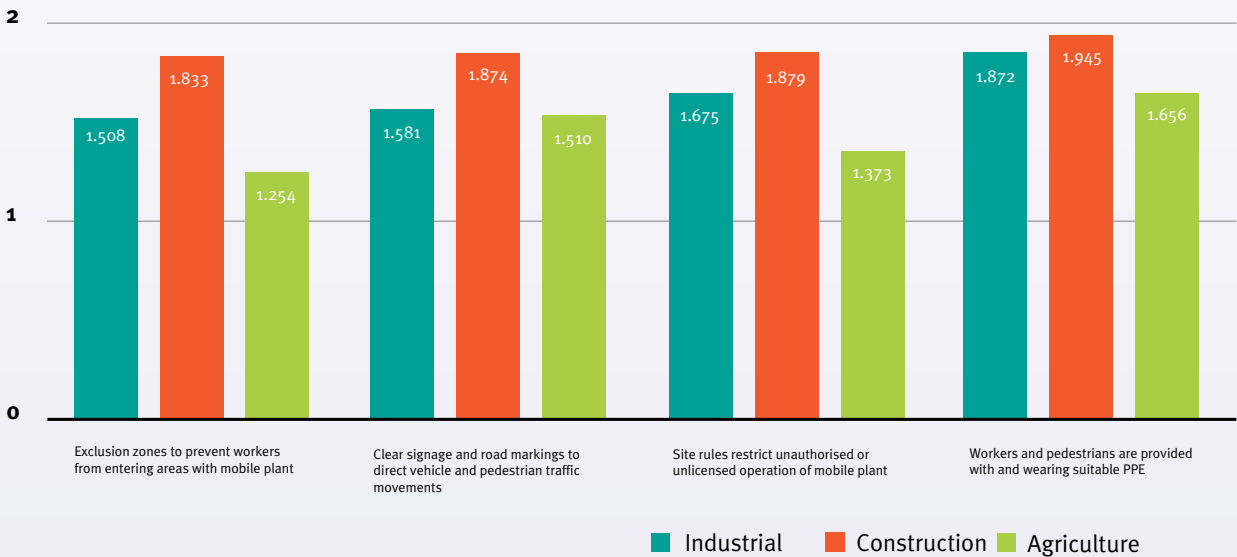| Industrial	Construction	Agriculture
1.348	1.545	1.114

Substitution, isolation and engineering controls

If it is not reasonably practicable to eliminate the hazard altogether, planning and controlling vehicle operations and pedestrian movements at the workplace can minimise the risk of people being hit by plant or vehicles. This can be done by:

- substituting mobile plant for something safer, such as replacing forklifts with other load-shifting equipment
- isolating the hazard from people such as creating dedicated loading/unloading areas or installing guardrails at building entrances to stop pedestrians walking in front of vehicles
- using engineering controls on mobile plant such as speed-limiting devices, presence-sensing devices or warning lights and alarms
- using engineering controls in the work environment such as gates, traffic lights, speed bumps, mirrors for blind spots and lighting.

Dedicated areas for loading, hitching trailers and maintenance work separate from people — Industrial 1.731, Construction 1.842, Agriculture 1.633

People are isolated from traffic movements using barriers and clearly marked walkways — Industrial 1.456, Construction 1.798, Agriculture 1.295

Worksite has a one-way drive-through route to avoid reversing — Industrial 1.439, Construction 1.648, Agriculture 1.442

Engineering controls used on mobile plant to minimise risk of collision — Industrial 1.712, Construction 1.847, Agriculture 1.576

Legend: Industrial, Construction, Agriculture

Administrative controls and personal protective equipment (PPE)

Less effective controls that rely on people's behaviour should be considered if a risk still remains following the implementation of higher-level controls. These types of administrative controls include exclusion zones, signage, training and PPE (e.g. high-visibility clothing to make pedestrians visible to plant operators).

Exclusion zones to prevent workers from entering areas with mobile plant — Industrial 1.508, Construction 1.833, Agriculture 1.254

Clear signage and road markings to direct vehicle and pedestrian traffic movements — Industrial 1.581, Construction 1.874, Agriculture 1.510

Site rules restrict unauthorised or unlicensed operation of mobile plant — Industrial 1.675, Construction 1.879, Agriculture 1.373

Workers and pedestrians are provided with and wearing suitable PPE — Industrial 1.872, Construction 1.945, Agriculture 1.656

Legend: Industrial, Construction, Agriculture

The average ratings for section three were 1.61, 1.77 and 1.41 for the industrial, construction and agriculture industry categories respectively. This demonstrates that workplaces are generally implementing a broad range of controls to manage traffic risks. However, there was a higher implementation of administrative controls (74 per cent) than substitution, isolation and engineering (72 per cent) and elimination controls (60 per cent) observed across all three industry categories. This suggests that workplaces should explore opportunities to implement higher-level controls through better design of their workplace environment.

Safe Work Australia has developed a Traffic control measures checklist that aims to identify potential control measures for your workplace. You should use whichever control measures are most effective and practical for your workplace where reasonably practicable to do so.
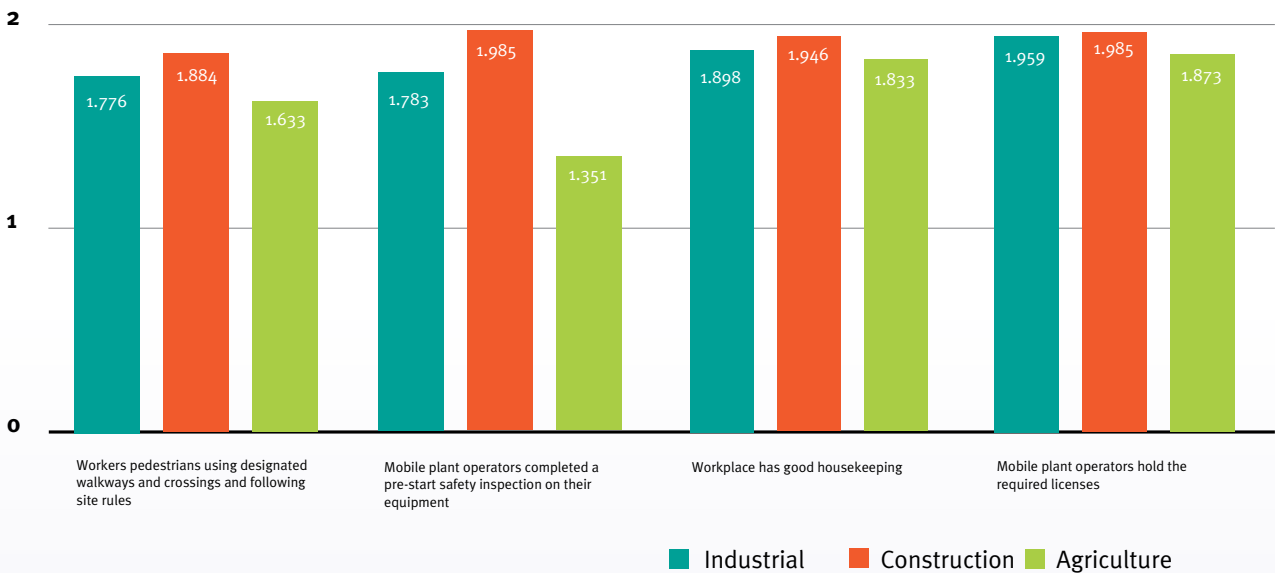
4. Observing traffic and pedestrian behaviour:

This section of the assessment tool involved observation at the workplace to review how traffic management procedures were being followed. This included:

- inspecting mobile plant prior to use to ensure it is in good condition
- ensuring plant operators are adequately trained, hold the required license(s) and are operating their equipment safely
- ensuring workers and pedestrians are using designated walkways and staying clear of exclusion zones
- checking the workplace environment to ensure it is free from collision hazards (i.e. housekeeping).

Below is a snapshot of the items within this section assessed by inspectors. The results show the average score for workplaces in each industry category.

	Industrial	Construction	Agriculture
Workers pedestrians using designated walkways and crossings and following site rules	1.776	1.884	1.633
Mobile plant operators completed a pre-start safety inspection on their equipment	1.783	1.985	1.351
Workplace has good housekeeping	1.898	1.946	1.833
Mobile plant operators hold the required licenses	1.959	1.985	1.873

The average ratings for section four were 1.86, 1.94 and 1.71 for the industrial, construction and agriculture industry categories respectively. The item with the lowest level of implementation across all industries was 'workers and pedestrians using designated walkways and crossings, and obeying site rules' (83 per cent). Workers or pedestrians not following site rules such as using designated walkways or staying clear of exclusion zones can mean that control measures become ineffective and people may be exposed to risk.

Supervision is one method to help ensure safety procedures are being followed, particularly if you are relying on administrative control measures to minimise risks. You must ensure all workers and visitors are aware of any site rules by providing information, instruction and training that is necessary to protect them from risk to their health and safety.

5. Preparing for an emergency:

Preparing for an emergency such as a fire evacuation or traffic accident is an important part of traffic management at workplaces where there are high volumes of vehicle traffic or public interaction. This includes construction sites, manufacturing facilities, warehouses, transport depots and distribution centres, and agricultural packing sheds. Isolating hazardous areas, redirecting traffic and communicating changes can prevent further damage in the event of an emergency.

Only 76 per cent of workplaces assessed across all industries had sufficient procedures relating to traffic management in the event of an emergency.

A person conducting a business or undertaking (PCBU) is required to:

• develop an emergency plan for a workplace (this should include traffic management)

• regularly test their emergency procedures which could take the form of a simulated response to a traffic collision.

6. Construction-specific requirements:

There are a number of specific requirements for workplaces where construction work is being performed, including:

• preparing a work health and safety management plan where the project value is greater than $250,000

• developing safe work method statements (SWMS) for high-risk construction work

• implementing traffic control arrangements.

Below are the results of the items within this section for the 202 construction workplaces assessed by inspectors.

	Value
WHS management plan prepared that covers traffic management issues	1.888
All workers made aware of WHS management plan before commencing work	1.929
SWMS prepared for high-risk construction work involving powered mobile plant	1.929
SWMS prepared for high-risk construction work performed on or near a road	1.987
Traffic control arrangements to prevent workers being hit by moving road traffic	1.940
Road or footpath closures in accordance with relevant permits and not present risk to other road users	1.938

These findings show high levels of compliance with construction-specific requirements. However, these items largely relate to the presence of paperwork or documentation to explain how a workplace is managing risks. Although implementation levels were high, gaps were identified in key areas, including non-compliance with SWMs prepared for high-risk work involving powered mobile plant. Almost 10 per cent of workplaces that had prepared a SWMs were not or only partially carrying out work in accordance with the SWMs.

The dynamic nature of construction workplaces can make reviewing the implementation or effectiveness of control measures challenging. However, it can also provide scope to re-design the site layout to eliminate interactions between pedestrians and vehicles more than in a static or fixed workplace environment (e.g. factory).

The Traffic Management for Construction or Maintenance Work Code of Practice 2008 provides practical guidance to achieving compliance with the *Work Health and Safety Act 2011* and Work Health and Safety Regulation 2011.
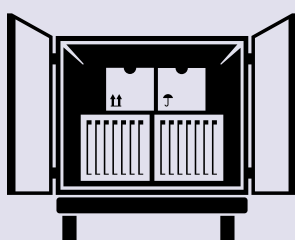
Summary

The majority of workplaces assessed were fully or partially implementing the traffic management policies and procedures that were assessed by WHSQ inspectors as part of the worksite assessments. However, the assessments covered items that were mostly basic regulatory requirements and industry-established control measures. As such, any level of non-implementation should signal an area of concern for workplaces in the industries involved.

There were significant differences in the levels of implementation of traffic management practices observed across the different industries. There were lower levels in the agriculture and industrial (e.g. manufacturing, transport, and logistics) categories compared to the construction industry. Whilst the construction industry had higher implementation levels, the findings relating to non-compliance with SWMs indicate that further improvements in traffic management practices can be made across all industries targeted in this project.

Over 700 workplaces were visited by WHSQ inspectors during phases one and two of this project with the aim of raising awareness, providing information and guidance, and increasing levels of work health and safety compliance. In the course of undertaking these site visits, inspectors identified many workplaces that had effective traffic management practices. These workplaces typically adopted a risk management approach that focused on the following key issues:
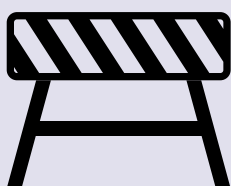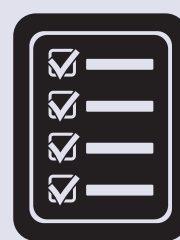
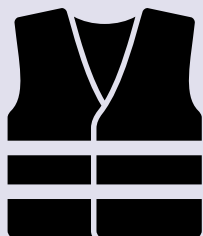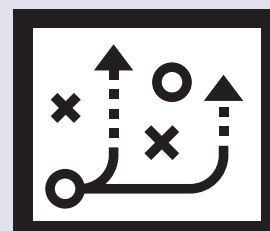|			
Keeping pedestrians and vehicles apart, including on site and at entries and exits	Creating dedicated loading and unloading areas	Installing signage	Providing information and training to workers and visitors
Ensuring vehicles and pedestrians are visible to each other	Locating parking areas away from busy work zones	Avoiding the need for reversing vehicles	Developing a traffic management plan

There are a range of WHSQ resources, including guidance material, presentations and films available on the www.worksafe.qld.gov.au website. Additionally, several case studies have been developed to demonstrate what effective traffic management looks like:

- Dindas Australia
- Hyne Timber
- Roadtek.

Acknowledgement: Information used in this report has been reproduced from the Safe Work Australia General guide for workplace traffic management.