

# Traffic management guidance plan and example template

**WHSQ**

Workplace Health and Safety Queensland  
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# Introduction

This example traffic management guide has been produced to help you assess your own workplace to determine what risks and hazards you have for traffic management and site conditions. It also includes a plan template to help achieve this.

The Traffic management plan risk assessment was used to help identify the risks associated with the development of this traffic management plan guide.

Relevant employees and contractors were also consulted during the hazard identification and risk assessment activities.

## 1. Purpose of a traffic management plan

The purpose of a traffic management plan is to identify hazards and risks and provide a summary of your current controls to eliminate and/or reduce them as far as practical.

The plan should form the basis of training for all workers, contractors and others and should be provided to all through the relevant inductions.

This plan should apply to all vehicles on site regardless of the use of vehicles including company owned, contractor vehicles and personal vehicles.

## 2. Involvement with a traffic management plan

For a traffic management plan to be successful, everyone on site - whether they are operating a vehicle or mobile plant or are a pedestrian - should comply with the traffic management requirements at all times.

All incidents must be reported to your supervisor, including near misses or other hazards. All reported incidents, near misses or issues identified will undergo our standard incident investigation and risk control processes. Incidents will also be analysed periodically as part of the review of the traffic management plan and our practices.

Compliance with the plan should be mandatory for all workers, contractors and visitors on this site. Their behaviour will be supervised or monitored to ensure compliance with the plan, site procedures and rules. Failure to comply may lead to disciplinary action.

## 3. Consultation

A traffic management plan should be developed in consultation with a business's Health and Safety Committee, site safety representatives, health and safety representatives and operators of forklifts and other mobile plant. Where possible the site should consult with relevant contractors and/or customers.

## 4. Legislative obligations

This traffic management plan guide has been developed to comply with legislative requirements.

## 5. Site and mobile plant behaviour

If an employee, contractor or any other person on site observes any person, whether they be operating mobile plant or not, be unfit to fulfill their task, or the task they are attempting is not safe, that person must advise the manager/supervisor on site.

This includes:



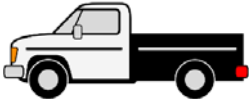





- fatigue
- being under the influence of drugs/alcohol
- erratic behaviour

- Unlicensed work (no high-risk work licence)
- overloading.

## 6. Hazard identification and risk assessment

To develop and document a traffic management plan, workplaces will need to conduct hazard identification and risk assessment activities that are relevant to their site conditions.

## 7. Types of traffic

Photograph	Description
	<b>Forklift</b> Mobile plant which can pick up, move and drop off goods
	<b>Elevated work platforms</b> Man cages, scissor lifts, cherry pickers and boom lifts
	<b>Site vehicles</b> SUV's and utes
	<b>Tanker truck – liquid petroleum gas (LPG)</b> Filling of LPG Tank for site forklifts and gas bottle cage self-unloaded
	<b>Waste trucks</b> Heavy rigid vehicles
	<b>Delivery trucks (various)</b> Delivering products to site such as materials, chemicals, etc unloaded by forklift.
	<b>Courier van / ute / truck</b> Unloaded by forklift or by hand
	<b>Pedestrians</b>

## 8. Site maps

As part of your traffic management plan, you will need to develop a site map based on your site-specific conditions.

## 9. Hazard: Pedestrians in same area as mobile plant / vehicles

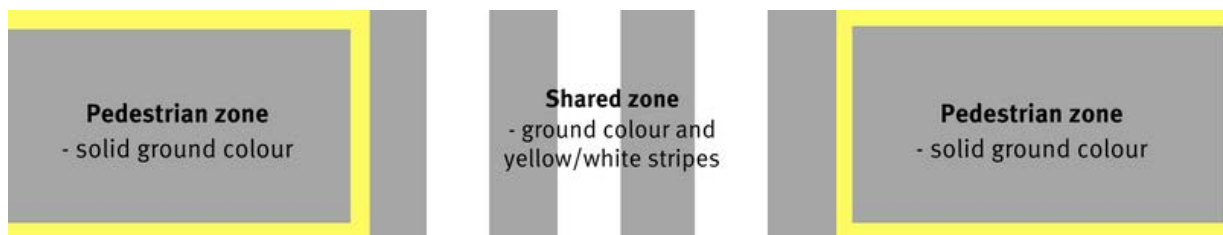
### 9.1 Isolation

Wherever possible, pedestrians should be separated from vehicles and mobile plant. It is recommended your site is divided into the following zones:

- Pedestrian zones –walkways and work areas
- Restricted areas – These are mobile plant working areas plus all roadways for vehicle and mobile plant – they are termed “restricted areas” as pedestrian access is generally not permitted
- Shared zones – crossings over roadways and some work zones where there is both pedestrian access and mobile plant.

Walkway outlines are painted with straight yellow lines, while crossings are painted yellow/white and the existing ground colour “zebra crossing” style to indicate that it is a shared zone.

#### Pedestrian zones



#### Barriers

Walkways and work areas should be fully separated with physical barriers/ line markings between the pedestrian zone and the mobile plant / vehicle zone. In most cases these barriers will provide visual boundaries around the pedestrian zone.

#### “No forklifts” signage

For a pedestrian zone to be effective the area must be a restricted zone for forklifts or other mobile plant and vehicles. However, there may be occasions where mobile plant needs to enter the pedestrian zone (for example, maintenance of fixed plant may require access with a scissor lift or a crane). On these occasions a risk assessment must be conducted and used with additional control measures such as having a safety observer (spotter), signage, temporary closure of the area to pedestrians and working out-of-hours.

#### Temporary closure to pedestrian zone

It is possible to temporarily close a pedestrian zone to pedestrians and allow mobile plant or vehicle traffic. Equipment should be provided for this purpose (signage, barriers, and traffic cones) and communication with affected parties mandatory.

### 9.2 Restricted areas (Mobile plant/vehicle zones)

#### Use designated walkways

Pedestrians must use designated pedestrian walkways (i.e. it is prohibited to take a short cut across a restricted area).

#### “No pedestrians”

As a general rule, pedestrians should be prohibited from entering restricted areas.

However, there may be times when the work task requires access by pedestrians. This places the pedestrian at risk of injury from mobile plant/vehicles and from falling loads. Therefore, pedestrian access should only be permitted with the following conditions:

- Mobile plant operator directly moving to and from their vehicle – to minimise this distance, designated parking bays are allocated for mobile plant/vehicles normally in the area. Where there are no designated parking bays available, the operator/driver is to park as close as practical to the edge of the restricted zone so that they can easily access the pedestrian zone.
- Maintenance access (for inspection, service and repair) – examples include a contractor servicing firefighting equipment located within the restricted zone and maintenance personnel servicing fixed plant. These tasks require a risk assessment to be completed and mandatory controls including temporarily restricting access to mobile plant/vehicle, portable signage, portable barriers and direct contact communication.
- Emergency situations – all mobile plant and vehicle movement should cease during an emergency (other than moving out of harm's way or providing access for emergency vehicles).

#### **Temporary closure of restricted access zone**

It is possible to temporarily close a restricted access zone to mobile plant and vehicle traffic. This is the equivalent of road works on a public road. If this is required, equipment must be provided for this purpose (signage, barriers and traffic cones) and communication with affected parties mandatory.

### **9.3 Shared zones – designated crossings**

If there are pedestrian crossings across roadways and mobile plant working areas, pedestrians could be exposed to the risk of collision with vehicles and mobile plant in these shared zones. Workplaces will need to assess the risk and determine what is reasonably practicable for shared zones.

#### **Give way rules**

Pedestrians must give way to all mobile plant and vehicles. However, this does not remove the responsibility of the mobile plant operator to exercise all caution with regard to pedestrians. don't assume pedestrians have seen the mobile plant.

However, at designated crossings, the mobile plant operator may allow the pedestrian to cross by providing a clear visual signal to the pedestrian. All pedestrians should ensure that they have made direct eye contact with the operator of the mobile plant before moving into a position where they could be injured so that they know they have seen by the operator.

Pedestrians and operators/drivers must never assume that the other will automatically stop or avoid them.

#### **Gates/barrier/slow down points**

At high-risk crossings, adequate signage and convex mirrors should be installed. The purpose of these controls is to slow down the pedestrians, giving them opportunity to stop and look for traffic. They should be installed at crossings with poor visibility, blind corners and high-risk pedestrian crossings.



*Designated walkways*



*Barriers to separate pedestrians and mobile plant*

## Caution

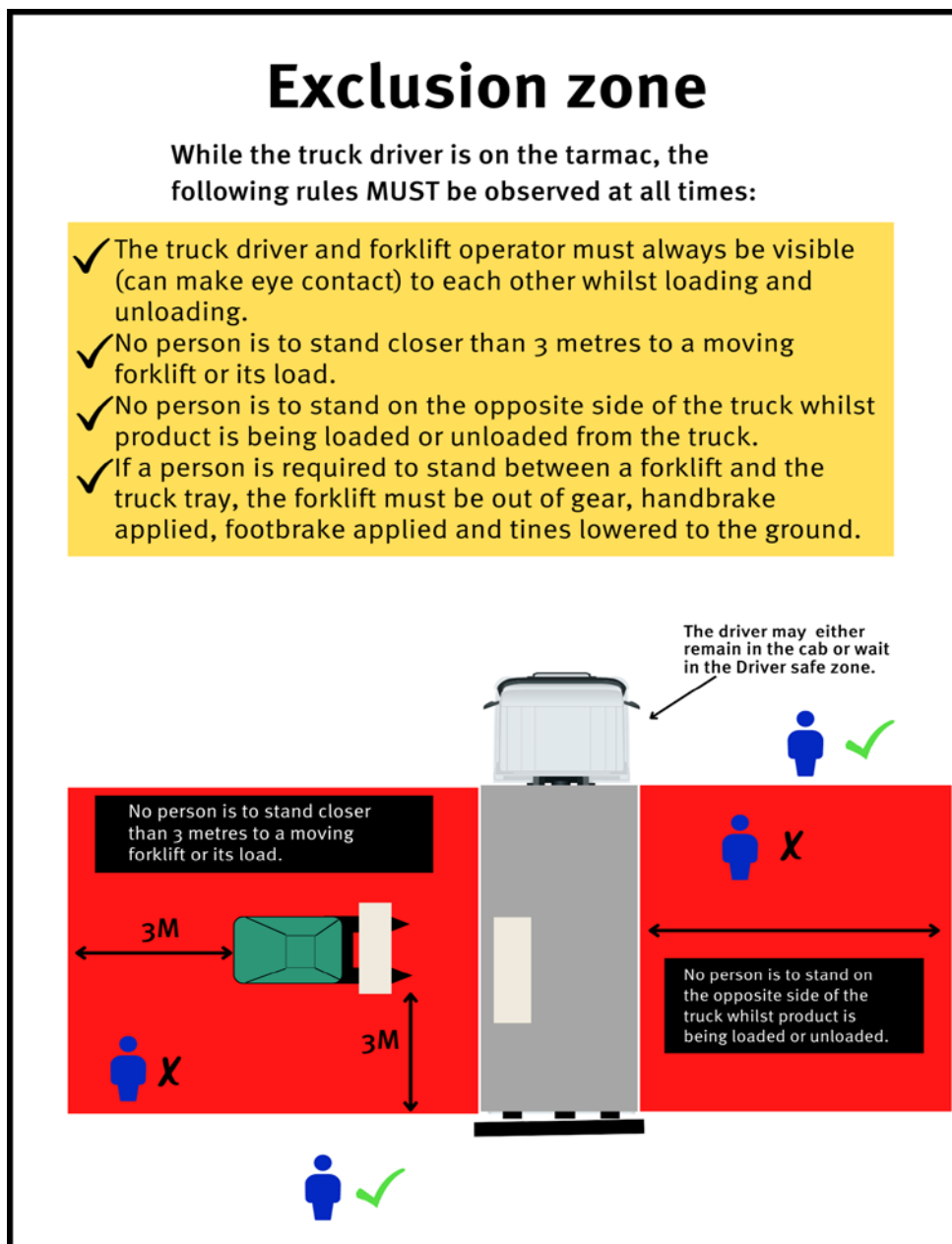
It is critical that pedestrians and operators of mobile plant/vehicles are vigilant. When pedestrians are crossing shared zones, they should look in all directions for mobile plant/vehicles.

It should also be prohibited to talk, text or email on a mobile phone while walking through an area where mobile plant is in use or operating a mobile plant or vehicle. Using mobile phones has been demonstrated to create a “tunnel vision” effect where the user is concentrating on the conversation, text or email and loses awareness of their surroundings.

### 9.4 Shared zones – operational tasks

Due to operational requirements, there could be some shared zones where pedestrians and vehicles / mobile plant use the same zone. These include:

- Where workers must interact with loads on mobile plant. Examples include hand stacking of a pack/load and straightening a part of the load. Safety can be achieved by isolating mobile plant movement – i.e. handbrake engaged, control in neutral, forklift switched off. It is prohibited for pedestrians to work alongside operating mobile plant.



If a pedestrian was within these exclusion zone distances, the operator must immediately stop the mobile plant. In addition, the mobile plant operator should lower the load to the ground, put it into neutral and apply the hand brake.

These incidents must be reported as a near miss incident.

#### **Communication with mobile plant operator**

If communication with a mobile plant operator is required, the following actions should be taken:

- attract the attention of mobile plant operator (e.g. hand signals, yelling, UHF Radio)
- pedestrian to remain in designated zone
- mobile plant operator to position vehicle safely (e.g. close to pedestrian zone, away from traffic flows) and shut down mobile plant (e.g. tynes/forks down, handbrake on, engine off)
- mobile plant operator to dismount and approach pedestrian unless able to communicate clearly (while the pedestrian remains in the pedestrian zone).

## **10. Hazard: Falling loads when loading / unloading**

Many fatalities have occurred when loads fall from the vehicle, particularly on the opposite side from the mobile plant loading or unloading. Fatalities have also occurred where the driver has been struck by the mobile plant during loading or unloading.

At a business site, each loading and unloading zone should have an exclusion zone marked around the vehicle. There should also be a driver safety zone located a short distance away (and with a direct line of sight to the loading area).

Workers and mobile plant should not be in the same location at the same time as reasonably practicable. Therefore, the loading/unloading process occurs in two distinct phases:

- The driver should not be permitted to do work on the truck (e.g. stow or hold curtains, chains or straps) while the vehicle is being loaded or unloaded. The driver must be in the driver safety zone where the mobile plant operator can clearly see the driver. It is the mobile plant operator's responsibility to ensure the driver is kept clear of vehicles during loading or unloading. If the driver leaves the safety zone or ceases to be in direct line of sight of the mobile plant operator, all mobile plant movements shall immediately cease.
- When all loading or unloading activity has ceased, the mobile plant operator must remove their vehicle from the exclusion zone and advise the driver that it is safe for them to enter the zone. Mobile plant must not enter the exclusion zone when the driver is within the exclusion zone (e.g. securing their load, placing gates or curtains).

If the site is only able to have a three-metre exclusion zone at one side and the front and rear of the truck then the exposed side should have some form of barrier (able to withstand the likely impact) to protect pedestrians, vehicles and mobile plant from falling loads on the exposed side of the truck.

Where a vehicle does not require mobile plant for loading/unloading (e.g. courier deliveries, bulk grain truck, bulk LPG tanker, waste trucks), the exclusion zone should require all mobile plant and other vehicles to keep at least three metres from the vehicle to ensure the driver's safety. Where required, signage and equipment should be provided.

## **11. Falling loads during rear loading/unloading**

Many fatalities/injuries have occurred when loads fall from the vehicle, vehicle tailgate, and or the mobile plant, during the process of loading or unloading from the rear of the truck. Fatalities have also occurred where the driver has been struck by the mobile plant during loading or unloading.



The locations designated for rear loading and unloading zones should be identified by markings on the road surface.

At times there may be a requirement that the driver must be in the rear of the truck, to assist with the process for unloading and loading of the truck.

The driver should assist with the movement of the truck. When a driver is within the rear of the truck, or near the tailgate, the driver and mobile plant operator must have visible contact with each other.

## 12. Hazard: Lack of visibility

There are times that the mobile plant operator may not be aware of the pedestrian, or vice-versa.

### High visibility clothing

All people should be required to wear high visibility clothing or vests except while in office areas. High visibility clothing may help increase the visibility of pedestrians so that mobile plant operators are more likely to see them.

### Blind corners

There are several blind corners that have been identified as high risk:

- on entry to warehouse doors
- entry to rear factory from both access points.

Mobile plant operators are required to sound their horn while approaching all blind corners.

Convex mirrors can be installed in some locations to allow a worker to see around blind corners – everyone should be aware of their location and use them when approaching the corner.

### “Keep clear” zones

In order to maintain visibility, particularly on corners, “Keep clear” zones should be marked, including:

- bulk grain truck unloading bays
- areas adjacent to bulk LPG tanks
- factory access points.

Stock shouldn't be placed on these keep clear zones. Vehicles and mobile plant are not to park on these keep clear zones, unless specifically nominated as a parking bay.

### Reversing vehicles/plant

Reversing vehicles and mobile plant can create an increased risk as the operator has restricted vision. Everyone should be aware of reversing vehicles and keep clear. Reversing trucks and other vehicles should have a spotter allocated at all times to ensure the safety of all pedestrians and prevent damage to vehicles and infrastructure.

### Flashing lights

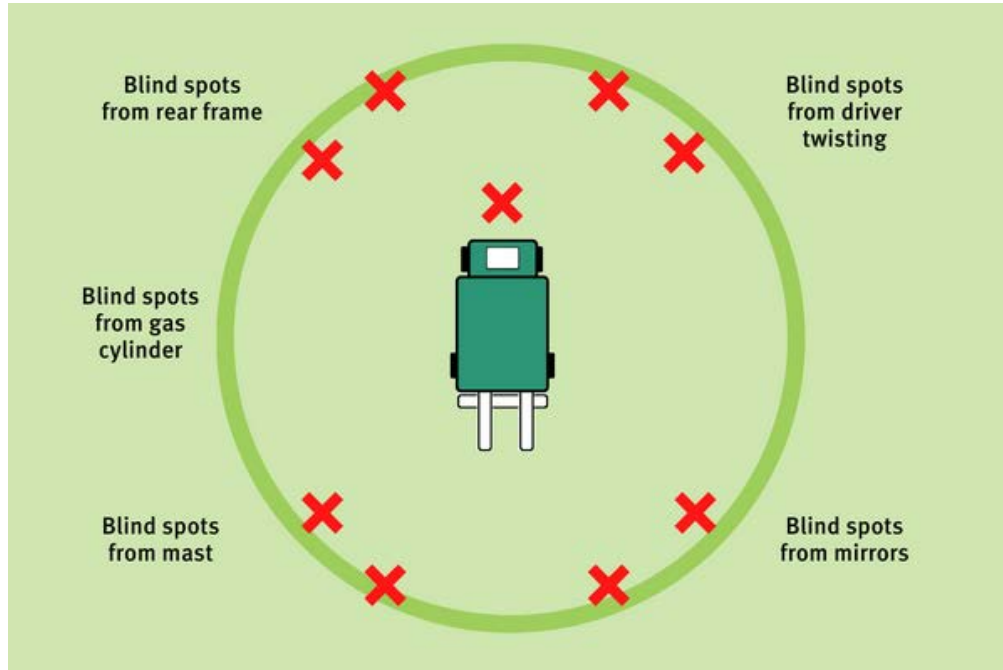
If possible mobile plant should be fitted with rotating or flashing lights to increase their visibility to pedestrians and other drivers and should activate automatically when the ignition is switched on. The mobile plant operator must ensure these are working as part of their daily pre-operation inspection.

Any other vehicles fitted with rotating or flashing lights must have these switched on when driving on site, including contractors' vehicles.

### Blind spots on mobile plant and vehicles

Most types of mobile plant and vehicles have blind spots where the operator cannot see certain angles due to obstructions by the plant (mirrors, mast, frames, stacking of dunnage), or difficulty for the driver to twist in position to see in all reversing directions.

All pedestrians and other mobile plant operators should be made aware during the induction period, that mobile plant have blind spots. Mobile plant operators should not create blind spots by storage of materials or items on their mobile plant.



## 13. Hazard: Excessive speed

Speeding vehicles and mobile plant increase the collision risk and the risks of forklifts tipping over or losing their loads. Braking distance is greatly increased with speed, as shown in the table below.

Forklift braking							
Speed (km/h)	6 km/h	12 km/h	14 km/h	16 km/h	18 km/h	20 km/h	22 km/h
Speed – metres per second	1.7 m/s	3.3 m/s	3.9 m/s	4.4 m/s	5.0 m/s	5.6 m/s	6.1 m/s
Distance travelled while driver reacts to emergency	2.5 metres	5.0 metres	5.8 metres	6.7 metres	7.5 metres	83 metres	9.2 metres
Minimum theoretical emergency stopping distance	2.8 metres	6.0 metres	7.0 metres	8.5 metres	9.5 metres	11 metres	12.5 metres
Minimum actual emergency stopping distance (Test results)	2.9 to 3.2 metres	7 to 8 metres	8 to 10 metres	9.5 to 12 metres	11 to 14 metres	13 to 16.5 metres	14.5 to 19 metres

**Notes:**

- The theoretical emergency stopping distance is the calculated minimum emergency stopping distance under full braking with no allowance for stability.
- The actual emergency stopping distance is the minimum result of forklift braking tests without losing load or tipping over but decelerating at the extreme limits of stability.
- The values given are based on an alert and skilled driver braking on a level, non-skid surface. The reaction distance may be doubled if driver is distracted.

**Source: Monash University Accident Research Centre**

Even at a reasonably slow walking pace, a forklift requires at least three metres to stop. While the mobile plant may have stopped, the load could slide off in an emergency stopping incident.

Speed limits and visibility distances to intersections have been based on this information and a risk assessment process, considering braking distances, reaction times, road surface conditions and proximity to pedestrians.

The speed limit applies to all forklifts, trucks, cars and other mobile plant, without exception.

## **14. Hazard: Malfunction**

Significant risks are created when a vehicle or mobile plant malfunctions – for example, a truck's brake failure or a forklift's hydraulic system failure allows a load to be dropped. These additional risks can be controlled through maintenance and inspection regimes.

### **Pre-operation checklist for mobile plant and vehicles**

Mobile plant operators and vehicle drivers should be responsible for ensuring their equipment is working correctly and safely. The daily pre-operation inspection should identify any potential problems such as damaged or worn items.

### **Out of service tag-out**

Where problems are detected, the plant should be removed from service until repairs are undertaken. This includes the use of 'Out of service' tags, if required, 'Lock out, tag out' tags, and removal of keys to prevent others from inadvertent use of the plant.

### **Maintenance program for all mobile plant and vehicles**

All types of mobile plant and vehicles should document maintenance, inspection, and servicing programs. These activities are undertaken by qualified personnel.

Contractors bringing mobile plant or vehicles onto our site must undertake similar maintenance programs as a condition of their contract.

## **15. Hazard: Operator training and experience**

Untrained or inexperienced operators have a higher risk of making errors and must be supervised.

Incidents can also occur when operating unfamiliar equipment. Therefore, the commissioning process must ensure that procedures are updated, and operators informed of changes.

Operator impairment through drugs or alcohol is not acceptable. Impairment through fatigue must be managed through the human resources process.

## **16. Hazard: Inappropriate use**

Although forklifts and other plant have a wide range of capabilities, they are not to be used for any unauthorised purpose. Inappropriate use may exceed design capabilities and safety features. Examples include using forklift tynes/forks instead of a jib attachment as a crane or lifting excessive loads. Passengers are not permitted, and people are not to be raised on tynes/forks.

All incidents must be investigated, and if deemed necessary, appropriate disciplinary action undertaken.

## **17. Hazard: Tip-over**

A significant number of deaths and serious injuries have occurred in industry due to forklifts being used incorrectly and therefore reducing their stability. This includes tipping over to the

side or forward. Deaths and serious injuries have occurred where the driver jumped or fell from a forklift during a tip-over and then was crushed between the forklift and the ground.

To be effective, a forklift must be manoeuvrable. To achieve manoeuvrability, forklifts are designed to be compact. When used incorrectly forklifts can be less stable than other vehicles and mobile plant and cause them to have a lower safety margin.

#### **Causes of forklift tip-over**

The main causes of tip-over are:

- driving with raised loads
- cornering too fast
- striking low doors or beams
- driving across inclines and uneven ground
- overloading
- incorrect use of attachments
- colliding with another vehicle
- braking too quickly.

#### **Causes of loader and telehandler tip-over**

The main causes of tip-over are:

- driving with raised bucket / grab
- cornering too fast
- driving across inclines and uneven ground, or sand or gravel piles
- overloading
- colliding with another vehicle or stationary object.

#### **Seatbelts**

It is a legislative requirement that all mobile plant operators wear a seat belt to prevent an operator being crushed in the event of a roll over. This applies at all times when moving mobile plant, even at slow speed or for short distances.

When a forklift overturns, the safest place for the operator is in the cabin with a seatbelt on. The operator is advised to hold on, stay with the truck and lean in the opposite direction of the overturn. Almost every time an operator jumps from their forklift while it is overturning they are killed or injured.

## **18. Hazard: Loss of load / falling object**

There is always a risk that the forklift load may fall from the forklift, creating a danger to the forklift operator, truck drivers, pedestrians and other nearby workers.

Typically, this occurs at the following times:

- loading or unloading vehicles
- placing load on or removing from stacks
- placing load into or removing from pallet racking
- sudden braking
- sudden turns
- bumps, impact with other plant or structures or running over objects on the ground.

All pedestrians should keep clear of forklifts while they are working or approaching a designated crossing. Loads can often fall or bounce several metres.

## **19. Hazard: Mobile plant / vehicle collisions**

In addition to the risk to pedestrians, the risk of collision between two vehicles and/or mobile plants must be recognised.

### **One way traffic flow**

In certain areas one way traffic should apply. This minimises the risk of collision as vehicles do not need to negotiate across other traffic.

### **Intersection give way rules**

Standard roadway rules apply at all intersections – i.e. where give way or stop signs are displayed.

### **Non-intersection give way rules**

Away from intersections, all vehicles must give way to mobile plant traffic. Mobile plant frequently carries loads which are not secured, and sudden braking can cause the load to fall.

### **Passing rules**

There must be direct communication with the operator of the mobile plant before proceeding to pass.

### **Restricted area rules**

Certain vehicles can be prohibited from entering restricted areas. Vehicle restrictions should be signposted at the entrance to these areas.

### **High visibility markings**

In addition to high visibility clothing on people, mobile plant and corners of buildings/fixed plant should be marked with high visibility reflective markings. This increases the visibility of these items, particularly at night and in rain conditions, which may decrease the risks of vehicle collision and building / plant damage.

## **20. Hazard: Damage to plant and buildings**

Where there is a risk of damage to plant or buildings from mobile plant or vehicles, appropriate impact protection should be installed. This includes concrete barriers and steel bollards which are separated from the equipment being protected (i.e. not supported by or tied back to the equipment).

Safety critical plant, such as firefighting equipment must also be protected. Plant which could cause secondary hazard, such as gas and steam pipelines must also be protected.

Overhead hazards should be marked with signs or high visibility markings to provide warning of their presence. Operators should be familiar with overhead hazards in their work areas.

## **21. Resources**

- [Onsite traffic management self- assessment tool](#)
- [Forklifts specific guidance](#)
- [Hyne Timber case study](#)
- [RoadTek;Toowoomba Depot case study](#)
- [Working in or around mobile plant](#) short film
- [Managing your drivers' safety at delivery points](#) short film
- Information on the different classes of high-risk work licences
- [Onsite traffic management project – phase 1 report](#)
- [Onsite traffic management project - phase 2 report](#)

## 22. Appendix A: Example traffic management plan template

<b>Name of business</b>		
<b>Author:</b>		
<b>Endorsed by:</b>	State Operations Manager	Date_____
	Site Manager	Date_____
	Supervisors	Date_____
<b>Next review date:</b> After an incident, near miss or if recognised by workers or others a review should be done.		

### Risks identified

recognises significant risks are created through the potential interaction between vehicles (trucks, cars etc), mobile plant (forklifts, tractors) and pedestrians.

Significant risks identified\*:

• injury to pedestrian by vehicles or mobile plant	
• injury to pedestrian by falling load from mobile plant or vehicles	
• collision between vehicles or mobile plant	
• collision of vehicle or mobile plant with buildings, fixed equipment, such as pallet racking or other stationary items	
• overturning (tip-over) of mobile plant.	

\*Tick relevant risks identified for your business

The above risks are particularly significant as potential consequences include fatalities.

## Site and mobile plant behaviour

The manager/supervisor on site will follow the site's relevant issue resolution process to manage the situation. Refer to Chain of Responsibility Policy.

## Change management and review

Refer to the management plan.

## Exclusion zones

At site each of the loading and unloading zones have an exclusion zone marked around the vehicle. There is also a driver safety zone located a short distance away (and with a direct line of sight to loading area).

At , this process applies to each of the loading and unloading zones for the different types of vehicles being loaded or unloaded by mobile plant:

- permanent zone for loading/unloading delivery vehicles with driver safety zone.
- temporary zone for loading/unloading delivery vehicles as and when required with portable signage and equipment to establish loading/unloading exclusion zone and/or driver safety zone.

## Visibility requirements

requires day/night standard with reflective stripes. These are required at all times by all persons on site, including employees, visitors and contractors and delivery drivers.

### Reversing cameras

To overcome the blind spot issues, fitted reversing cameras to their:

- bulk delivery vehicle
- garbage trucks
- mobile cranes.

### UHF radio channels

site uses a UHF radio fitted to forklifts.

## Speed limit controls

uses the following methods to control speed:

- it is the operator's duty to drive at an appropriate speed for the conditions. For example, if operating in wet or icy conditions, the operator would need to drive slower than the speed-limiter controls.

The posted speed limits on site are:

- All site – 10 km/h

## Operator training and experience

All persons operating vehicles and mobile plant shall be authorised as outlined in the Forklift Safety Procedure. Authorisation requires evidence of training, competency and the appropriate licence (where applicable).

Training of new operators shall follow the Australasia Forklift Safety procedure, which ensures that training is provided in accordance with a training plan and under direct supervision. Risks involved during the practical training shall be controlled appropriately (e.g. training during quieter times of the day, away from other personnel).

## Glossary

The following definitions and abbreviations have been used throughout this plan:

- Hazard – potential to cause harm. ie: injury, illness or disease.
- Risk – a measure of human harm, environmental impact or economic loss, which considers the likelihood of an incident and the magnitude of the consequence.
- Exclusion zones – exclusion zones are the minimum safe distance from a risk and/or hazard.
- Hazard management database - a compilation of the hazards and their relevant risk scores (assessments) for the division, state and site, to ensure risks are prioritised and corrected accordingly.
- Forklift – a powered industrial truck equipped with a mast and an elevating load carriage with a pair of fork arms or other load holding devices attached. This includes any type of load carrying counterbalance truck.
- Interaction – a situation where an unprotected person comes within the turning circle radius of a forklift, within close proximity to vehicles and there is no isolation, separation or enclosing.
- The term 'near' is defined as a distance of three metres.
- Barrier – physical engineering design to separate pedestrians from mobile plant designed in a fashion that can prevent pedestrians being hit by mobile plant.
- Walkway – a defined pathway that is in a location that is less hazardous.



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