



safe work australia

Traffic management: Guide for warehousing

Guidance material

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1. Introduction

This Guide has been developed to supplement the [General guide for workplace traffic management](#). It provides information on how to manage risks that may arise from traffic movements in warehouses.

Managing warehouse traffic is an important part of ensuring the workplace is without risks to health and safety. Vehicles, including powered mobile plant, moving in and around a workplace, reversing, loading and unloading are frequently linked with death and injuries to workers and members of the public.

Traffic includes cars, delivery trucks, vans, cyclists, powered mobile plant like forklifts and pedestrians, including workers and visitors.

At a warehouse, goods are received and stored until they are required and then prepared for transportation. Activities include:

- receiving and unloading goods from manufacturers, importers and suppliers
- transferring goods onto pallets for storage
- storing goods in appropriate conditions e.g. freezers, cold areas, silos or racking
- responding to customer orders by picking products from warehouse shelves and preparing them for transportation e.g. placing them on pallets or wrapping them, and
- loading orders onto vehicles for transport to the customer.

A person conducting a business or undertaking (PCBU) has a duty to ensure, so far as is reasonably practicable, workers and others are not exposed to health and safety risks arising from the business or undertaking. This duty includes implementing and reviewing control measures to prevent people being injured by moving vehicles in warehousing.

1.1. Ways to control traffic risks

Where it is reasonably practicable, a PCBU must eliminate traffic hazards from the workplace. This could be achieved by, for example, removing powered mobile plant and other vehicles from the workplace.

Where a risk cannot be eliminated, it must be minimised, so far as is reasonably practicable. PCBUs should manage risks by working through the hierarchy of control measures from the highest level of protection and reliability to the lowest.

The hierarchy of control measures requires that PCBUs first aim to eliminate a risk. If it is not reasonably practicable to eliminate a risk, the risk must be minimised using one or more of the following approaches, so far as is reasonably practicable:

- substitute the hazard with something safer, for example use a walker stacker instead of a forklift
- isolate the hazard, for example separate pedestrian routes from vehicle areas using physical barricades or overhead walkways, and
- use engineering control measures, such as speed limiting devices.

If after implementing the controls above a risk still remains, the risks should be minimised by using administrative controls, so far as is reasonably practicable. This can be done by planning and controlling vehicle operations and pedestrian movements at the workplace. Any remaining risk must be minimised using personal protective equipment, such as high visibility clothing.

Risk control considerations

Key issues to consider for managing traffic in warehouses include:

- pedestrian safety
- pedestrians working with vehicles including trucks and vans and powered mobile plant
- using loadshifting equipment
- the layout of the work area
- signs, warning devices and visibility, and
- developing, implementing and maintaining a traffic management plan.

A PCBU must ensure, so far as is reasonably practicable, workers and others are not exposed to health and safety risks arising from the business or undertaking. This duty includes ensuring vehicles do not collide with people, other vehicles or things.

The person with management or control of a warehouse should contact the relevant regulator and road authority for advice on traffic control requirements, if the warehouse interacts with public road systems.

1.2. Information, training, instruction and supervision

A PCBU must provide any information, training, instruction or supervision necessary to protect all persons from risks to their health and safety, so far as is reasonably practicable.

A PCBU must ensure, so far as is reasonably practicable, that all workers including contractors, visiting drivers, visitors and others know and understand the traffic rules, safety policies and procedures for the workplace. This could include using an induction process, signage and other written information and verbal instruction. Visiting drivers should be aware of restrictions on vehicle sizes or types, entries and exits, and other safety procedures before entering the workplace.

A PCBU should provide supervision to ensure safety procedures are being followed, particularly if they are relying on administrative controls to minimise risks. A PCBU must ensure that any information, training and instruction provided is presented so it is easily understood by workers. This may require providing information and training material in different languages.

Other people at the workplace, like customers and visitors, must take reasonable care for their own health and safety and not adversely affect other people's health and safety. They must comply, so far as they are reasonably able, with reasonable instructions given by the PCBU to allow that person to comply with the Work Health and Safety (WHS) Act.

1.3. Pedestrian safety

Within the warehousing site, eliminating risks to pedestrians by removing vehicles from the workplace must be considered first.

Where eliminating risks is not reasonably practicable, a PCBU must minimise the risks so far as is reasonably practicable. For example, the following should be considered:

- separating designated areas for pedestrians and vehicles, for example using overhead walkways and installing barriers and fences Where separate areas are temporary e.g. when loading vehicles or unloading containers, consider using temporary high visibility physical barriers
- using separate pedestrian doors at vehicle entries and exits into buildings
- using safety railings or bollards to prevent pedestrians stepping out into traffic from 'blind spots'
- using safety measures like walkways and safety zones to protect drivers once they have left their delivery vehicles, and
- using engineering controls like interlocked gates, zoning systems, proximity alarms and speed shields.

If a risk still remains after implementing isolation and engineering controls (such as the above control measures) , a PCBU must minimise the risk so far as is reasonably practicable by using administrative controls. This can be done by careful planning and controlling vehicle operations and pedestrian movements at the workplace. Consider:

- separate, clearly marked footpaths or walkways e.g. using lines painted on the ground or different coloured surfacing and traffic cones
- implementing and enforcing right of way procedures which clearly indicate who must give way, and
- displaying site maps of the workplace to indicate traffic flow.

Any remaining risk must be minimised using personal protective equipment, such as high visibility clothing.

1.4. Pedestrians working with vehicles including powered mobile plant

The following safety measures should be considered where pedestrians are working with or near vehicles and powered mobile plant (for example forklifts) delivering or picking up loads:

- prohibiting non-essential workers like office staff from entering areas where vehicles including powered mobile plant are moving or being loaded and unloaded
- providing clear warning signs to show powered mobile plant operates in the area
- ensuring workers, including visiting drivers and other pedestrians, wear high-visibility clothing, and

- instructing workers and visiting drivers to stand clear when vehicles are moving or being loaded and unloaded and have a designated safety zone for them to wait.

Instruct plant operators not to load and unload unless all workers and drivers are clear of the loading area. Where drivers need to be in the loading area, for example to arrange loads, the mobile plant operator should not operate the plant until the driver has completed the task and is clear of the area.

If it is essential for vehicle drivers to observe the loading or unloading operation, a safe viewing area should be provided away from vehicle movement. Drivers should be given clear instructions about the safe viewing area and told when the operation is complete and when it is safe to return to their vehicle.

Powered mobile plant, including forklifts, should not be near a driver who is attending to their vehicle or load. If drivers are not needed during loading and unloading they should be provided with safe access to amenities away from loading areas or other vehicular traffic. Drivers could also stay in the cab of their plant or vehicle to minimise the risk of being hit by other mobile plant and vehicles, However, this may increase the risk of inadvertent drive-off.

1.5. Loadshifting equipment

Loadshifting equipment can include powered mobile plant like forklifts, ride-on pallet movers, walkie stackers and manual equipment (e.g. pallet jacks and trolleys).

The most effective way to minimise the likelihood and severity of collisions is to use low speed, stable, lightweight loadshifting equipment such as powered pallet trucks or walkie stackers.

In warehouses and factories, forklifts are commonly used to lift, stack and transfer loads. Forklifts can be one of the most high risk pieces of equipment in the workplace and workers must be aware of the risks of:

- collisions with pedestrians and loads falling onto them
- rollovers and the forklift moving unexpectedly
- forklifts being unable to stop quickly, and
- reduced visibility when the forklift is loaded.

Where forklifts are used, the best way to minimise the risk of forklift-related injuries is to separate pedestrians and forklifts.

If this is not possible consider:

- changing the layout of the work area to minimise the need for pedestrians to be in areas where forklifts operate
- installing high-impact safety barriers and containment fences
- implementing and enforcing speed limits
- using speed limiting devices, or
- implementing and enforcing pedestrian and forklift exclusion zones.

Wherever possible, restrict access to areas where forklifts operate to those workers who operate the vehicles or have a supervisory role. Provide communication devices including phones, radios or radiofrequency identification device equipment to forklift operators and their supervisors so work can be scheduled without people coming close to the forklift.

Ensure loadshifting equipment has its own clearly marked parking and recharging areas. Design work processes so no loadshifting equipment is required to park on pedestrian walkways.

A person with management or control of a workplace must ensure workers have the necessary training, qualifications or licenses to operate loadshifting equipment. This includes checking for licences, qualifications and fitness for work when engaging drivers, operators or contractors.

Further guidance on powered mobile plant including forklifts is provided in the model [Code of Practice: Managing the risks of plant in the workplace](#), the [General guide for industrial lift trucks](#) and the [General guide for workplace traffic management](#).

1.6. Layout of the work area

Consider the layout of the workplace and physical barriers to separate pedestrians and vehicles.

Control measures to consider include:

- minimising the cross flow of traffic, intersections and eliminating blind spots
- clearly defining and positioning worker and customer pick-up parking areas so they can be accessed without crossing driveways or loading dock vehicle paths
- clearly marking pedestrian walkways or using physical barriers to separate pedestrians from roadways and powered mobile plant operating areas
- using speed limits, stopping distances and efficient workflow as controls where pedestrians and vehicles often interact
- defining areas where powered mobile plant is used as 'pedestrian exclusion zones' and excluding powered mobile plant from pedestrian walkways and work areas
- using line markings and marker posts in docking areas to indicate distances from the dock. For example, one metre increments advising drivers of proximity to the dock to reduce the need for assisted reversing, and
- clearly indicating:
 - traffic flow with line markings or signs
 - loadshifting equipment parking areas
 - driver designated safety zones
 - pedestrian exclusion zones
 - car parking areas
 - keep clear zones, and
 - speed limits and speed inhibiting devices like speed humps.

1.7. Signs, warning devices and visibility

Display clear warning signs in areas which are easy to find and are well lit to remind people of the traffic management hazards and other requirements.

Examples of signs which can be used include:

- Pedestrians Prohibited – Forklift Operating Area.
- Forklift and Powered Loadshifting Equipment Prohibited.
- Pedestrian Safety Zone.
- Beware loadshifting equipment operating within the area.
- Pedestrians must give way to vehicles.

If there is a possibility of powered mobile plant colliding with pedestrians or other powered mobile plant, the person with management or control of the plant must ensure the plant has a device to warn people at risk from the movement of the plant.

A PCBU must also ensure, so far as is reasonably practicable, lighting is provided to allow workers to carry out their work without risk to health and safety. Bad weather, shadows from plant and blind spots can reduce visibility.

The following control measures should be considered:

- installing mirrors, reversing cameras, sensors or alarms to help drivers see movement around the vehicle.
- installing visual warning devices like flashing lights and high-visibility markings for powered mobile plant.
- implementing safe systems of work so loads are not carried forward where they impair clear vision.
- appointing a trained person, such as a traffic controller to direct vehicle movement.
- ensuring high-visibility or reflective clothing is worn by workers, plant operators and pedestrians at the workplace.
- Using communication methods like:
 - radios – but ensure a back-up communication process is in place in case it fails, and
 - line of sight communication e.g. hand signals or cap lamp light signals.

The person receiving the message should acknowledge the message has been received and understood.

1.8. Traffic management plans

A traffic management plan documents and helps explain how risks will be managed at the warehouse. This may include details of:

- designated travel paths for vehicles including entry and exit points or traffic crossing other streams of traffic
- pedestrian and traffic routes
- how often powered mobile plant and pedestrians interact
- traffic control measures for each expected interaction, including drawings of the layout of barriers, walkways, signs and general arrangements to warn and guide traffic around, past, or through the workplace or temporary hazard. This may be achieved using traffic controllers
- the responsibilities of people managing traffic at the workplace
- the responsibilities of people expected to interact with traffic at the workplace

- instructions or procedures for controlling traffic including in an emergency, and
- how to implement and monitor the effectiveness of a traffic management plan.

The traffic management plan should be monitored and reviewed regularly including after an incident to ensure it is effective and takes into account changes at the workplace.

Workers must be aware of and understand the traffic management plan and receive information, instruction, training and supervision that is easily understood by the worker. Site induction should include the traffic management plan.

1.9. Further information

More information on how to manage traffic at a workplace is in the [General guide for workplace traffic management](#).

Further guidance on the risk management process is in the [Code of Practice: How to manage work health and safety risks](#).

Codes of practice, guidance material and other resources are available on the [Safe Work Australia](#) website (www.swa.gov.au).