

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.



## Introduction

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, powered mobile plant like forklifts and pedestrians like 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.

The most effective way to protect pedestrians is to eliminate traffic hazards. This can be done by designing the layout of the workplace to eliminate interactions between pedestrians and vehicles. Examples include prohibiting vehicles from being used in pedestrian spaces or providing separate traffic routes so pedestrians cannot enter areas where vehicles are used.

Where this is not possible the risks must be minimised so far as is reasonably practicable. This can be done by careful planning and controlling vehicle operations and pedestrian movements at the workplace.

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 powered loadshifting equipment
- the layout of the work area
- signs, warning devices and visibility, and
- developing and implementing a traffic management plan.

A person conducting a business or undertaking 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 control measures to prevent people being injured by moving vehicles at the workplace.



## Information, training, instruction and supervision

A person conducting a business or undertaking has a duty to provide any information, training, instruction or supervision necessary to protect all persons from risks to their health and safety.

A person conducting a business or undertaking must ensure, so far as is reasonably practicable, that workers including contractors know and understand the traffic rules, safety policies and procedures for the workplace. Visiting delivery drivers should be aware of the site traffic safety rules and procedures.

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



## Pedestrian safety

Within the warehousing site, eliminating the risk by separating vehicles and pedestrians should be considered first, for example by using overhead walkways.

Where this is not reasonably practicable consider the following:

- Installing physical separation structures like barriers or fences to keep pedestrians out of areas where powered mobile plant or other vehicles operate and to keep powered mobile plant out of areas where pedestrians work.
- 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 delivery trucks and vans.
- Using engineering controls like interlocked gates, zoning systems, proximity alarms and speed shields.
- Separating designated areas for pedestrians and for vehicles. Where separate areas are temporary e.g. when loading vehicles or unloading containers, using temporary high visibility physical barriers should be considered.
- Implementing and enforcing right of way procedures which clearly indicate who must give way.
- Displaying site maps of the workplace to indicate traffic flow.



## 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.
- 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 move bearers, 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 instructed to use a reception or waiting area where available. Drivers waiting in the cab may minimise the risk of being hit by a forklift but may introduce other risks including inadvertent drive-offs.



## Loadshifting equipment

Loadshifting equipment can include powered mobile plant like forklifts, ride-on pallet movers, walkie stackers and manual equipment, for example pallet jacks and trolleys.

The most effective way to minimise the likelihood and severity of collisions is to use low speed, stable, light-weight loadshifting equipment like 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 should be aware of:

- collisions with pedestrians and loads falling onto them
- rollovers and the forklift moving unexpectedly which can crush the operator
- forklifts being unable to stop quickly, and
- reduced visibility when 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, for example check for licensing, qualifications and fitness for work when engaging drivers and operators or hiring contractors.



Further guidance on powered mobile plant including forklifts is provided in the *General guide for industrial lift trucks* and the *General guide for workplace traffic management*.



## 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 'customer pick-up' parking areas so they can be accessed without crossing driveways or loading dock vehicle paths.
- Clearly marking pedestrian walkways or using temporary physical barriers to separate pedestrians from roadways and powered mobile plant operating areas where pedestrians and vehicles often interact based on speed limits, stopping distances and efficient workflow.

- 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 e.g. 1 metre increments advising drivers of proximity to the dock to reduce the need for assisted reversing.
- 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.



## 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.

A person conducting a business or undertaking must not allow powered mobile plant to collide with a pedestrian. 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 person conducting a business or undertaking 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 to control manoeuvres.
- 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.
  - 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, and
  - hand signals, eye contact, verbal commands and confirmation of warnings and signals.



## 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
- 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 should be aware of and understand the traffic management plan and receive information, instruction, training and supervision. Site induction should include the traffic management plan.



## 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](http://www.swa.gov.au) website (www.swa.gov.au).