

## SDAPP

Sustainable Design Assessment  
in the Planning Process  
10 Key Sustainable Building Categories



# 6.0

# Transport

Building design for a sustainable future



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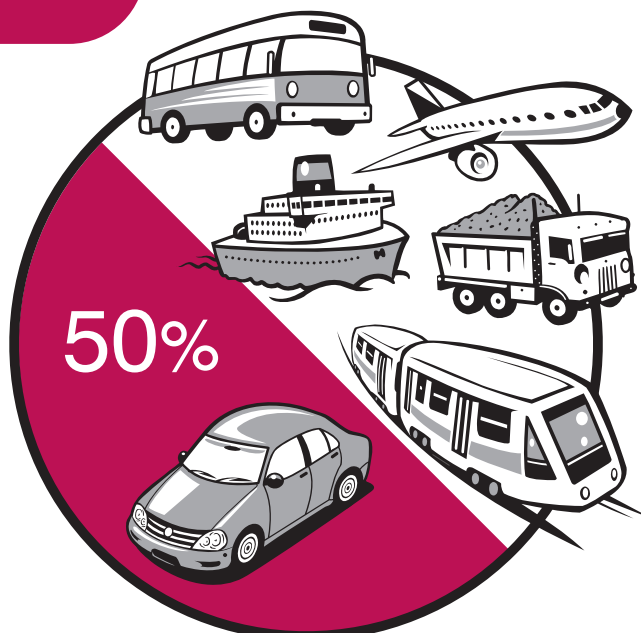
This fact sheet outlines ways in which our reliance on cars can be reduced and how alternative forms of transport should be incorporated into your building design.

## Why do we need to change our Transport patterns?

In Australia, cars account for approximately 50 percent of our total transport greenhouse gas emissions. The other half includes emissions from trucks, buses, aviation, railways and shipping. In addition to contributing to global warming, car exhaust contains toxic pollutants that are dangerous to our health. As the population of cities increases so does traffic congestion, further multiplying the amount of exhaust pollutants and greenhouse gas emissions in our air.

It is Council's aim to reduce the dependency on cars by its residents. Research has shown that approximately 80% of Australian adults rely on their car to commute to work. It is our aim to substantially reduce this figure. And while governments are working on the provision of sustainable transport modes (i.e. public transport services and bicycle lanes), we also rely on collaboration with private developers to encourage the use of these services. By reducing the reliance on private car trips, you can:

- reduce overall building construction costs
- reduce expenditure on petrol and car maintenance
- improve air quality and reduce the incidence of respiratory illness, especially in the young and very old
- improve occupant's health and fitness
- reduce greenhouse gas emissions to support our community's environmental targets.



# Why do we need to change our Transport patterns?



## Reducing onsite car parking

Reducing onsite car parking can save construction costs as either less space is required, or more space can be used for other purposes (i.e. bicycle parking and storage). In areas with readily accessible public transport and bike routes, Council will consider reducing the minimum number of car parking spaces required.

This is provided that a Green Travel Plan is in place and that sufficient provision for alternative transport modes, such as bike parking and car sharing facilities, has been provided. Contact Council to discuss further details and refer to section 'What is a Green Travel Plan?' on the last page of this fact sheet.

## Fuel efficient transport

In addition to promoting public transport, cycling and walking, allocating onsite car spaces for smaller sized vehicles will assist in reducing greenhouse gas emissions. This is because smaller cars generally generate less greenhouse gas emissions than larger cars.

The same applies for the provision of parking spaces for scooters and / or motorbikes. According to relevant Australian Standards, a parking space for small cars is commonly 2.3m by 5m in size.

Encouraging the use of electric vehicles, powered by renewable energy charging stations, will also support development applications as it assists in achieving Council's sustainable transport goals.

## Public transport

Developments should encourage the use of public transport (tram, train, bus, ferries) by providing annual public transport tickets and informing residents, staff and visitors about nearby public transport links. You can do this by making available signs, maps and public transport information in common areas. What's more, the inclusion of Green Travel Plans in Building Users Guides is an excellent way of making residents and staff aware of their public transport options.

## Car share

An emerging low-cost alternative to car ownership, car sharing is available in 600 cities world wide. Generally, the cars are owned by a company who leases them out to a user for a minimum of 1 hour or for a whole day.

With at least 3 car share companies operating in Melbourne, covering most urban areas, it is a viable option for many residential and non-residential building occupiers.

The car share vehicles are commonly found in a designated parking bay on the street for access by a range of potential users who live or work nearby. A Car share vehicles may also be located on site in multi-residential or large commercial developments. The space should be located on the site to maximise accessibility on a 24/7 basis to members of the relevant car share scheme (not just the residents or workers within the building). Council recommends confirming the feasibility of an onsite scheme with a car share company before a planning permit application is lodged.

Every car share space takes about 7-10 cars off the road, reducing transport greenhouse gas emissions. For people who drive less than 15,000kms per year, research indicates that car sharing will save money as opposed to owning a vehicle. And, car sharing encourages more sustainable travel patterns for users who already rely on public transport, cycling and walking. Provision of a car share system within or near a large development, can form an important part of a Green Travel Plan and reduce onsite car parking requirements. Contact Council and local car share companies to discuss further details.

## Bicycle facilities

Bicycle use is growing in popularity, so it's important to offer residents, workers and visitors convenient and secure bicycle parking facilities.

Whilst the Planning Scheme defines the allocation of required bicycle spaces for each building type, these figures represent absolute minimum requirements. Meeting these requirements does not represent a sustainable transport solution. Exceeding the minimum requirement will encourage the use of sustainable transport modes and therefore reduce a development's overall greenhouse gas emissions.

As a rule of thumb, at least one bicycle space should be provided per dwelling for residential buildings. Non-residential buildings should provide spaces for at least 10% of building occupants. To complement this, incorporate appropriate signage to guide bike riders from the entry point to the bike parking area.

Further to bicycle parking for residents and staff, a development should provide visitor bike parking. Residential developments should provide 0.25 visitor spaces per dwelling, offices should provide 1 visitor space per 500m<sup>2</sup> net lettable area. Visitor spaces are best located in an accessible location, sign posted and close to a major building entrance.

## Showers and lockers for staff

In addition to secure bicycle parking facilities, building staff will appreciate the availability of showers and lockers when either using their bicycle to commute to work or walking to work. Office buildings and other workplaces should offer one shower per 10 bicycle spaces and one secure locker for each bicycle space provided.



# Why do we need to change our Transport patterns?



## Bicycle parking

When designing bicycle parking facilities, it is important to consider their space efficiency, accessibility, security and convenience. Below, we have summarised key design considerations:

- Which style of rails suits the need of the development's users?
- Is there an opportunity to install different types of rails that cater for different user's heights and strength? Children and the elderly, for example, wouldn't be able to use hanging style rails.
- Do the selected rails comply with Australian Standard AS 2890.3?
- Is there enough room to park and remove a bike without bumping into other bikes?

- Is there sufficient access for riders to lock and unlock their bike?
- Is there an opportunity to provide different parking facilities for short term visits and long term storage?
- Are rails securely fixed to floor or wall?
- Can the bike be supported securely and both wheels and the frame be locked to the rail?

In recent years, the bicycle industry has developed a wide range of parking solutions addressing product selection criteria, such as space availability, user preferences and security requirements. The table below provides an overview of the most common bicycle parking systems. For further details, we recommend referring to the 'Bicycle Parking Handbook' from Bicycle Network Victoria and talking to their 'Bike Parking Experts' division



One car space can usually be converted to 10 to 14 bike parking spaces.

Parking rail	Spatial requirements	
<b>Ned Kelly</b> Space effective due to staggered heights and vertical hanging. Front wheel and frame are easily locked and fully supported.	<ul style="list-style-type: none"> <li>• wall mounted or free standing on framing</li> <li>• recommended rail spacing 0.4-0.5m</li> <li>• rails alternate in height; 1.75m and 2.05m (top of rail)</li> <li>• minimum ceiling height is 2.2m</li> <li>• bicycles will extend up to 1.2m from the wall</li> <li>• minimum access corridor width 1.5m</li> </ul>	
<b>Mona Lisa</b> As mounted as part of a car park space (above car bonnet), a useful system for space efficient bike storage. Not useful for short term bike parking. Each rail can store up to two bikes.	<ul style="list-style-type: none"> <li>• wall mounted</li> <li>• above a passenger car space, mount top of bar at 1.8m from floor; for a 4WD allow 2.05m</li> <li>• minimum ceiling height above a passenger car space is 2.3m, above a 4WD space 2.55m</li> <li>• from the wall, one bicycle extends 0.6m, two bicycles extend 0.8m</li> </ul>	
<b>Flat Top</b> An indoor or outdoor upright parking system for resident, staff and visitor spaces. Easy to use, accommodates all types and sizes of bicycles. Each rail parks two bicycles.	<ul style="list-style-type: none"> <li>• free standing</li> <li>• allow 1.7m in length for parking spaces</li> <li>• mount rails at least 0.4m off a wall or kerb</li> <li>• allow for 1m minimum spacing between rails</li> <li>• allow for 0.7m parking space at the start and end of each row of rails</li> <li>• minimum access corridor width 1.5m</li> </ul>	
<b>Anaconda</b> Similar use and benefits to the 'Flat Top' parking rail, Anaconda is a free-standing continuous rail that can be used permanently or temporarily.	Same as 'Flat Top' parking rail. <ul style="list-style-type: none"> <li>• 10 bicycles require a parking space of 1.7 x 5.4m, plus a 1.5m access corridor</li> </ul>	
<b>Towel Rail</b> A space-effective solution for parking single bikes against a wall. Useful for short term parking, accommodates all types and sizes of bicycles.	<ul style="list-style-type: none"> <li>• wall mounted</li> <li>• recommended rail spacing centre to centre 1.8-2m.</li> <li>• mount approximately 0.7m above the floor</li> <li>• bicycles will extend the width of a handlebar (up to 0.7m) from the wall</li> </ul>	

# Why do we need to change our Transport patterns?



## Walking

Traditionally, the urban design of our cities has been based on car usage. Important amenities including public transport, parks and open spaces, schools and other services, were often located in areas that are not easily accessible by foot.

An important concept in sustainable urban design, walkability is a measure of how good an area or particular site is for walking. Whilst the location of a site is often pre determined at the planning stage, it is a worthwhile exercise to determine what amenities are accessible within walking distance of your site to help support your application.

Walkscore is an online tool based in the United States which can also be used for sites in Australia. The Walkscore algorithm provides a site with points that are based on the number of amenities located nearby.

## What is a Green Travel Plan?

A Green Travel Plan is a suite of onsite initiatives and offsite services to encourage residents and staff of large developments to use sustainable transport options. Depending on the development type, a Green Travel Plan should highlight:

- parking facilities for bicycles, motor bikes, small cars, electric cars and onsite and nearby car share systems
- end of trip facilities for staff, including the location of showers and the availability of personal lockers
- bicycle and walking maps
- nearby public transport stops
- timetables for public transport services
- availability of free or substituted public transport tickets through the employer or relevant Owners Cooperation
- nearby recreation areas (e.g. parks)
- an organisation's car-pooling scheme.

A Green Travel Plan is highly valued by future residents and staff. It provides a valuable resource when choosing sustainable transport options such as walking, cycling, car-sharing and public transport.

A Green Travel Plan assists property developers to actively advocate for the sustainability initiatives incorporated in a building's design and operation. It allows organisations to meet environmental targets, such as the reduction of annual greenhouse gas emissions. Residents and staff will also value the associated health and fitness benefits when increasing their activity levels through regular walking and cycling.

A Green Travel Plan should be a dynamic document that reflects changing on and offsite services. Providing and implementing a Green Travel Plan not only brings a number of social, economic, environmental and health benefits to occupants, but also to the wider community.

## Mandatory Requirements and Council's Best Practice Standards

### Mandatory Requirements

The objectives and standards of the local planning scheme.

### Council's Best Practice Standards

- For residential developments, provide at least one secure bicycle parking space per dwelling and one visitor bicycle parking space per 4 dwellings.
- For non-residential developments, provide at least one secure bicycle parking space for 10% of building occupants and sufficient end of trip facilities (showers and lockers).

- For large developments, commit to the development of a Green Travel Plan.
- Incorporate electric vehicle charging infrastructure into the development.
- Allocate 5% or at least 5 parking spaces for motorbikes and/or small vehicles.

Developments, which seek to vary from these best practice standards, must demonstrate how sustainable transport modes will be satisfactorily promoted.

## Where can I find out more?

### The Bicycle Parking Handbook Bicycle Parking Brochure

Bicycle Network Victoria  
[www.bicyclenetwork.com.au](http://www.bicyclenetwork.com.au)

### Bike Parking Experts

Bicycle Network Victoria  
[www.bikeparkingexperts.com.au](http://www.bikeparkingexperts.com.au)

### Walk Score

[www.walkscore.com](http://www.walkscore.com)

### Transport Technical Manual

Your Home  
[www.yourhome.gov.au](http://www.yourhome.gov.au)

### TravelSmart resources

Department of Transport  
[www.transport.vic.gov.au](http://www.transport.vic.gov.au)

### Car Share

City of Melbourne  
[www.melbourne.vic.gov.au](http://www.melbourne.vic.gov.au)

**Other Fact Sheets in this series are also available to provide guidance on the 10 Key Sustainable Building Categories. For further information on Transport, consider the Fact Sheet entitled:**

- Construction and Building Management