

# Cycling and public transport

## Purpose

This note aims to raise awareness of the opportunities and benefits available to both bicycle riders and public transport operators by combining these two travel modes. It also delivers information on providing facilities at public transport hubs.

## Introduction

Over short distances the bicycle is an effective and efficient mode of transport. Combining public transport with bicycle riding enables people to travel door-to-door over longer distances without relying on the private motor vehicle. This broadens the potential of both cycling and public transport.

Public transport may be used in different combinations with cycling. For instance, public transport may:

- be just one leg in a longer journey otherwise made by bicycle
- allow a journey to be made in one direction by bicycle and in the other direction by public transport, or
- be an option where safe cycling routes are lacking or where cycling is prohibited.

Integrating cycling with public transport involves either providing bike storage at stations or enabling bicycle riders to travel on public transport with their bikes.

Measures to increase the number of trips that combine bicycle riding and public transport should focus not on shifting cyclists or users of public transport away from one mode to the other, but on attracting private car users to these modes.

This note explores the benefits to be gained by providing storage for bicycles at stations and allowing bikes on public transport, the links in the multi-modal chain and issues for maintaining these links.

## Benefits of integrating bicycles and public transport

Integrating bicycle riding and public transport has many benefits including:

- significantly increasing the potential destinations available to bicycle riders
- adding flexibility to public transport commuting
- offering a sustainable alternative to using a private motor vehicle to commute
- increasing the catchment area around public transport by 10 to 14 times that for pedestrians
- allowing the cyclist to avoid unsafe traffic situations
- expanding recreational and touring cycling opportunities
- improving access for bike riders and other users such as pedestrians with mobility aids, wheelchairs and parents with prams
- better health from increased exercise (a convenient way of incorporating physical activity into a person's daily routine).

## Aim

This series of notes aims to assist planners and engineers to provide for cycling in their local area. The Cycle Notes should be read in conjunction with:

- Guide to Traffic Engineering Practice, Part 14 – Bicycles (Austroads, 1999)
- Queensland Manual of Uniform Traffic Control Devices, Part 9 Bicycle Facilities
- Road Planning and Design Manual (Queensland Department of Main Roads).

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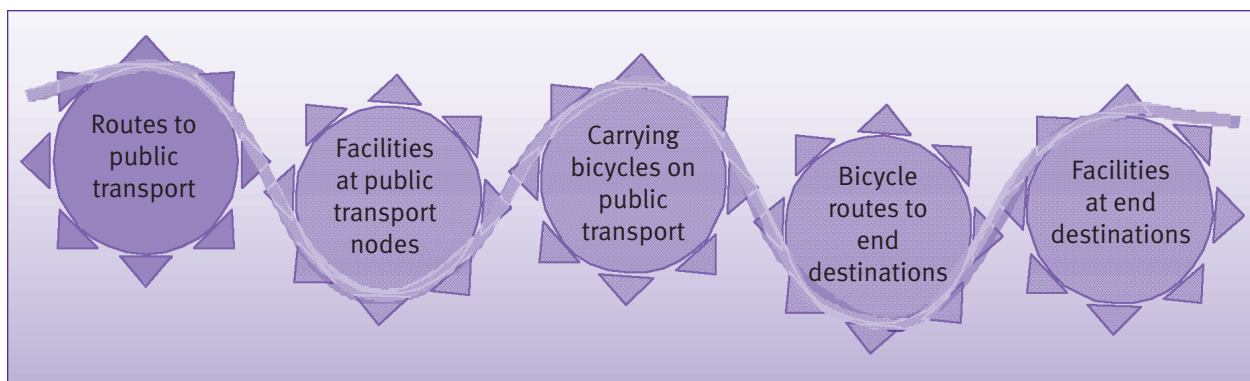
## Cycling and public transport

Quality end-of-trip facilities (e.g. secure parking) at transport hubs may also offer the following benefits:

- improved environmental image
- reduced demand for car parking at transport hubs
- reduced congestion around, to and from transport hubs
- reduced congestion at peak times.

### Links in the multi-modal chain

Integrating bikes and public transport can be improved in each link of the multi modal chain:



**Figure 1: Links in the multi-modal chain**

### Routes to and from public transport

Bicycle routes need to be:

1. Convenient
2. Connected
3. Coherent
4. Safe
5. Attractive.

Bicycle routes to public transport services can be improved at all stages (planning, design and implementation) of cycling and public transport infrastructure development - see Cycle Note A3 – *Funding mechanisms for cycling infrastructure*, Cycle Note A4 – *Developing a local cycle strategy and local cycle network plan* and Cycle Note A6 – *Bicycle riding and new subdivision design*.

#### Bicycle routes to public transport nodes

A key link in successfully combining bicycles and public transport involves providing well-marked, safe and convenient access to and from public transport stops and stations.

When considering how best to provide bicycle routes to and from public transport nodes and destinations, the following principles are necessary. Bicycle routes should:

- be as direct as possible
- include safe and convenient road crossings
- be clearly signed
- not be congested with other cyclists or pedestrians
- terminate with well designed and conveniently located bicycle parking and end-of-trip facilities (see Cycle Note C4 – *End-of-trip facilities for bicycle riders*).

## Facility design

Priority bicycle routes can use on-road or off-road facilities. Both types of facilities should be comfortable, safe, direct, signed appropriately and well lit. The following cycle notes can assist with bicycle facility design:

- Cycle Note B2 - *Selecting appropriate cycling facilities*
- Cycle Note B3 - *Designing good quality off-road facilities*
- Cycle Note B4 - *Designing good quality on-road facilities.*

In addition, where 'at grade' access is not available, lifts or ramps are desirable for the convenient access of bicycles to public transport infrastructure. The design of such facilities also generally accords with the requirements for pedestrian access and mobility.

## Facilities at public transport nodes

Quality bicycle parking facilities at public transport nodes can encourage people to combine bicycle trips with public transport. A secure parking facility must be within or close to the station. It must also be well designed. Overall, the cost of 'bike and ride' facilities is significantly lower than 'park and ride' infrastructure. Currently, bicycle parking is estimated at around \$80-\$1,200 per space while car parking can cost around \$4,000 - \$30,000 per bay. Up to eight bicycle lockers can be used in the space required for one car park.

### Bicycle parking at public transport nodes

To determine the number of bicycles that should be catered for at an end-of-trip facility (e.g. the number of bicycle parks) refer to *Austroads Part 14 Table 10-1: Bicycle Parking – Provision for Planning Purposes*. For more details on bicycle parking refer to Cycle Note C3 – *Bicycle parking facilities*.

Bus stations, railway stations, ferry stops and major public transport nodes require secure, sheltered and high quality bicycle parking facilities (see Figure 2). Other busy public transport stops may also warrant bicycle parking facilities.

Individual bicycle lockers are preferred for long-term parking at major bus and railway stations as they offer the highest level of security. Access to lockers should be managed to give priority to regular users in accordance with an overarching management policy.

Bicycle parking racks are generally sufficient for short-term parking and occasional users. Bicycle racks should allow the bicycle frame to be easily secured to provide good security without the risk of damaging the bike.

Facilities must be sited appropriately to suit the needs of the user. Long-term parking (i.e. bicycle lockers) can be located up to 100m from a bus interchange. Short-term parking should be located close to or inside the public transport node.

Bicycle parking facilities need to be well lit, visible to passers-by or public transport staff and signposted if necessary. Facilities should also be located to minimise conflicts with pedestrians and motor traffic. They are best placed undercover and on a sealed ground surface with adequate drainage.

### Bicycle parking at Queensland Rail (QR) train stations

In 2004 there were already over 1,400 high security bicycle lockers at train stations throughout the QR Citytrain network in South East Queensland. Most of these quality bicycle parking facilities have 90-100% usage rates. Many stations also have waiting lists of people requesting bicycle lockers. The provision of these high security facilities helps to attract cyclists to 'bike and ride'.



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**Figure 2: Providing a range of efficient and safe parking facilities will attract users.**

## Carrying bikes on public transport

Often riders prefer to carry their bicycles on public transport rather than parking them prior to boarding. On-board carriage allows for bicycle travel at both ends of the journey. It is particularly useful for bicycle tourists.

### Carrying bicycles on buses

A variety of methods are used to carry bikes on buses including:

- front-mounted racks
- rear-mounted racks
- bike trailers pulled along by buses
- removable or folding seats to allow bikes to be carried on board
- bicycle storage under buses (e.g. the storage area under long haul buses).

Brisbane City Council has trialled front mounted racks that are specifically adapted to minimise danger to pedestrians. They allow cyclists themselves to load and unload a bicycle simply, quickly (generally in less than 30 seconds) and securely.

Interchange between modes needs to be as easy as possible. To ensure this, operators should conduct campaigns to inform and promote potential users about accessing the facilities.



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## Carrying bicycles on trains

There are significant opportunities for carrying bikes on trains for a range of journeys. Newer transport designs accommodate space for wheeled users such as wheelchairs, prams and bicycles. They allow for their transport while minimising conflict with other travellers.

A variety of techniques can be used to carry bicycles on trains including:

- dedicated bicycle storage space in carriages with modified seating arrangements
- policies that allow bicycles to be carried 'contra-flow' (i.e. in the opposite direction of high-volume peak-hour travel)
- policies that promote and encourage the carriage of folding bicycles (see Figure 3).



**Figure 3: Folding bicycles need take up no more room than conventional luggage**

Queensland Rail has a policy for the carriage of bikes on long distance (Traveltrain) and suburban (Citytrain) rail services in Queensland. Details can be found at [www.citytrain.com.au](http://www.citytrain.com.au) (under the heading *Plan your Trip*), or by phoning (07) 3235 2222 (Citytrain) or 132235 (Traveltrain).

## Carrying bicycles on ferries

In Queensland, bicycles can generally be carried on ferries. Ferries often have roll-on/roll-off access. This can make travelling with bicycles easier than on a bus or train. Taking a bicycle on a ferry can provide access to open spaces along waterways.

Providing for bicycles on ferries requires:

- adequate widths on approaches to the ferry and at ferry terminals and jetties
- map information (where the ferry journey offers a link to an established bicycle route)
- storage areas on board the ferry, and
- a clear policy that staff can apply with confidence.

## Bicycle routes from stops to final destinations

Providing quality bicycle and pedestrian access to key destinations such as universities, parks, recreation facilities, shopping centres, schools and employment centres will encourage people to combine public transport, cycling and walking. It also opens up opportunities to improve the quality of the urban environment.

The principles and facility design guidelines (noted in the *Routes to and from public transport* section) also apply to bicycle routes from public transport stops to popular destinations.

## End-of-trip facilities at destinations

People who cycle to workplaces and other popular destinations should be provided with quality end-of-trip facilities. These include:

- secure bicycle parking
- clean, functional and secure shower facilities, and
- clean, functional and secure changing room and locker facilities.

Cycle Note C4 – *End-of-trip facilities for bicycle riders* has further guidance.

## Maintaining the bicycle-public transport chain and its links

Ongoing monitoring of progress within each link in the multi-modal chain is essential.

In particular:

- monitoring both the use and capacity of public transport bicycle parking facilities ensures that parking supply meets demand at particular stations and stops. This can also identify if there are access problems for cyclists attempting to reach the facility
- evaluating and monitoring bicycle carriage on public transport allows for the introduction of policies and procedures that can encourage multi-modal trips while minimising any disruption to other users.



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## Other references

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