



Standard

# Bicycle Parking Facilities

Version 2.0

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## Standard governance

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## Document history

Version	Summary of changes
1.0	First issued 10 March 2016
2.0	Updates to bicycle locker design requirements and addition of more detailed specifications for bicycle sheds.

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## Preface

The Asset Standards Authority (ASA) is a key strategic branch of Transport for NSW (TfNSW). As the network design and standards authority for NSW Transport Assets, as specified in the *ASA Charter*, the ASA identifies, selects, develops, publishes, maintains and controls a suite of requirements documents on behalf of TfNSW, the asset owner.

The ASA deploys TfNSW requirements for asset and safety assurance by creating and managing TfNSW's governance models, documents and processes. To achieve this, the ASA focuses on four primary tasks:

- publishing and managing TfNSW's process and requirements documents including TfNSW plans, standards, manuals and guides
- deploying TfNSW's Authorised Engineering Organisation (AEO) framework
- continuously improving TfNSW's Asset Management Framework
- collaborating with the Transport cluster and industry through open engagement

The AEO framework authorises engineering organisations to supply and provide asset related products and services to TfNSW. It works to assure the safety, quality and fitness for purpose of those products and services over the asset's whole-of-life. AEOs are expected to demonstrate how they have applied the requirements of ASA documents, including TfNSW plans, standards and guides, when delivering assets and related services for TfNSW.

Compliance with ASA requirements by itself is not sufficient to ensure satisfactory outcomes for NSW Transport Assets. The ASA expects that professional judgement be used by competent personnel when using ASA requirements to produce those outcomes.

### About this document

TfNSW *Sydney's Cycling Future* presents a new direction in the way bicycle facilities are planned, prioritised and provided. This standard facilitates the 'Bike and Ride' initiative which forms part of *Sydney's Cycling Future* by specifying the minimum requirements for bicycle parking and storage facilities.

Version 1.0 of this standard superseded the bicycle facilities requirements of ESB 003 *Station Functional Spaces*, version 1.1. This is the second issue. This standard was previously titled Bicycle Facilities. The changes from the previous version include:

- updates to bicycle locker design requirements
- addition of more detailed specifications for bicycle sheds

This document has been developed by the ASA in consultation with other TfNSW divisions and agencies.

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## 1. Introduction

Bicycle parking facilities include racks, shelters, sheds and lockers. These facilities, which are positioned near the entrances of public transport interchanges, enable customers that use both bicycles and public transportation in their commute to continue their journey conveniently and seamlessly.

## 2. Purpose

The purpose of this standard is to define the types of bicycle parking facilities that can be installed at transport interchanges. This standard specifies the design and location requirements for such facilities.

### 2.1. Scope

This document sets out the minimum design requirements for the installation of bicycle parking facilities.

### 2.2. Application

This standard applies to all relevant personnel involved in the planning, designing, installing, operating, maintaining, and dismantling of bicycle parking facilities.

The requirements of this standard apply to all new bicycle parking facilities and upgrades or alterations to existing bicycle parking facilities at all public transport interchanges.

## 3. Reference documents

The following documents are cited in the text. For dated references, only the cited edition applies. For undated references, the latest edition of the referenced document applies.

### **Australian standards**

AS 2890.3 Parking facilities Part 3: Bicycle parking

### **Transport for NSW standards**

ESB E001 Low Voltage Electrical Standards

RSS-001 Stations

*RSS-001 Stations is not publicly available. If you require access to this standard, please send a request to [standards@transport.nsw.gov.au](mailto:standards@transport.nsw.gov.au)*

T HR EL 08001 ST Safety Screens and Barriers for 1500 V OHW Equipment

T MU AM 01001 ST Life Cycle Costing

#### Other reference documents

Austrroads, Cycling Aspects of Austrroads Guides

Heritage Act 1977

Office of Environment and Heritage January 2005, State Agency Heritage Guide – Management of Heritage Assets by NSW Government Agencies, publication number HO05/01

The Australian Building Codes Board, National Construction Code

Transport for NSW, Future Transport

Transport for NSW 2013, Sydney's Cycling Future Cycling for everyday transport

Transport for NSW 2016, Section 170 Heritage and Conservation Register

## 4. Terms and definitions

The following terms and definitions apply in this document:

**ASA** Asset Standards Authority

**bicycle locker** an enclosed lockable space designed to park one bicycle within it. Lockers are made of secure materials for protection against theft and the weather

**bicycle rack** a bicycle parking device for one or more than one bicycle (AS 2890.3)

**bicycle shed** a bicycle parking facility that is roofed and positioned within walls, fences or facilities

**bicycle shelter** a structure that covers bicycle racks providing protection from weather

**CCTV closed circuit television**

**CPTED** crime prevention through environmental design

**interchange** the area where customers access and egress transport services on the public transport network and may transfer between modes or services. Interchanges have the following attributes:

- includes transport infrastructure assets attributed to the main station, wharf or stop, and other transport modes
- can have multiple areas which may not be contiguous
- there are no interchanges within interchanges, although an interchange may contain stations, wharves, stops or sub-areas where specific customer transfers occur but the whole facility is regarded as one interchange

**LED** light-emitting diode

**TfNSW** Transport for New South Wales

## 5. General requirements

The selection of bicycle parking facilities shall be fit for purpose and be provided based on interchange and customer demand or patronage. *Future Transport* strategic direction together with land use planning and development should also be taken into consideration.

Bicycle parking facilities, for example, racks, lockers, shelters and sheds shall have the following common design requirements:

- designed to optimise whole-of-life costs in accordance with T MU AM 01001 ST *Life Cycle Costing*
- designed to include durability and all aspects of security, vandalism, exposure and the like
- a technical maintenance plan (TMP) based on the same costing data and periods between anticipated maintenance activities assumed in the lifecycle cost
- consideration of crime prevention through environmental design (CPTED) principles and compliance with TfNSW's security standard RSS-001 *Stations*
- have a minimum design life of 25 years unless noted otherwise in this standard
- be appropriately lit (an assessment shall be conducted to determine the level of lighting required)
- be designed in accordance with AS 2890.3 *Parking facilities – Part 3: Bicycle parking*
- be designed in accordance with Austroad's *Cycling Aspects of Austroads Guides*

## 6. Heritage requirements

The *Heritage Act 1977* is designed to protect, maintain and manage environmental heritage in NSW, including items of archaeological significance. When changes are proposed to items that have heritage significance, one of the following applies:

- for those items listed on the *State Heritage Register*, the provisions of the Heritage Act shall be followed
- for items listed on TfNSW's *Section 170 Heritage and Conservation Register*, the heritage management principles and relevant asset management guidelines that are outlined in the *NSW State Agency Heritage Guide* shall be followed

Proposals to introduce new bicycle parking facilities into a heritage listed precinct, or in the vicinity of a listed item, shall take the heritage significance of the precinct or the items into proper account. Designs for all new elements shall be developed to ensure that any negative heritage impacts likely to result from the proposal are minimised, and that identified heritage values are not unduly compromised.



Proposals for bicycle parking facilities that are required to be located in the vicinity of heritage listed precincts shall be developed in consultation with the relevant approval authorities, including the nominated operator and maintainer or the regulatory authority, or both as applicable. Designs for bicycle parking facilities shall demonstrate how heritage issues have been addressed as part of the planning process before designs are finalised and submitted for approval or for construction. The scale, form, bulk, configuration and appearance of bicycle parking facilities shall relate appropriately to the existing site features and characteristics. New construction materials, finishes and colours shall complement those that are prevalent locally, both in the built environment and the surrounding landscape.

## 7. Urban design requirements

The following urban design factors shall be included in proposals for the introduction of new bicycle parking facilities at any type of transport interchange:

- customer circulation routes are safely maintained and not impeded
- visibility and natural surveillance is maintained in the public domain, in accordance with CPTED principles
- suitable connections to existing active transport links, local neighbourhood, public open space, and activity centres are provided and the potential for future connection options are explored in consultation with local government authorities or relevant state government agencies as applicable
- environmental impacts are minimised and the potential for including low carbon energy sources explored
- opportunities for celebrating and interpreting local history and local environmental character are incorporated where appropriate

## 8. Location requirements

Bicycle parking facilities shall be installed at locations near public transport interchange entry points.

Bicycle parking facilities shall not be located inside the rail corridor.

Bicycle parking facilities shall be located and installed as follows:

- located as close to the main interchange entrance as possible and along the most frequently utilised paths to the public transport entry and exit points (this is to minimise the amount of walking from the bicycle parking facility and the main interchange entrance)
- where possible, bicycle parking facilities shall be located no further than 100 m from the main interchange entrance

- cyclists shall be able to safely ride to the facility without obstructing other pedestrians and road users
- located in one consolidated facility at each entry point, and positioned at-grade
- located in open, well illuminated areas that promote passive surveillance and are not surrounded by dense vegetation or structures
- located with an adequate clear distance (5 m is recommended) between the parking facility and the major thoroughfare to minimise obstruction and congestion
- emergency exit points of the transport interchange shall not obstructed
- easily located with appropriate wayfinding signage
- cleaned on a regular basis as that of the surrounding and interchange area
- accessible to police and emergency services personnel

If a bicycle facility is to be constructed directly adjacent to the railway corridor fence and there is a potential for electrification, the design shall comply with T HR EL 08001 ST *Safety Screens and Barriers for 1500 V OHW Equipment*.

## 9. Bicycle racks requirements

Bicycle racks shall comply with the following requirements:

- be located under cover and sheltered from wind and rain
- enable bicycles to be supported upright in a minimum of two places with the front wheel prevented from turning and tipping the bicycle over
- allow for the frame and at least one wheel to be locked to the rack with either a 'U' type lock or a cable lock
- allow positioning of the bikes for front-in parking or rear-in parking or both where the space is available
- be accessible to all bicycle sizes, including racing , mountain, hybrid, electric, upright and cruising bicycles
- be durable, corrosion resistant and vandal resistant
- be manufactured from a suitable material such as stainless steel or with a finish and surface coating, that is corrosion resistant and reduces damage to bicycles. The surface coating shall be either hot dipped galvanised or powder coated steel.
- be securely fixed through the substrate to the pavement with a tamper proof bolting mechanism which prevents theft and forced removal of the rack.
- shall have the fixing details with safety features that prevent tripping hazards to customers

## 10. Bicycle shelter and shed requirements

Bicycle shelters and sheds shall be robust to minimise the risks of vandalism.

Bicycle sheds and shelters shall comply with the following requirements:

- allow for non-intrusive security inspection of the facilities' contents
- be safe and easy to use, free of elements that can injure users or compromise functionality
- have vandal resistant locks and doors as required by the type of parking facility
- have the surfaces and finishes coated to facilitate easy removal of graffiti, for example, through the application of permanent anti-graffiti coatings or non-sacrificial anti-graffiti coatings
- have racks that allow the frame and both wheels of a bicycle to be conveniently and effectively locked in accordance with AS 2890.3
- have the racks arranged adjacent to the external walls or screens to prevent damage to the bicycles
- have the appropriate illumination levels for optimum operation, as recommended by the security risk assessment (a security assessment shall be conducted prior to the commencement of the design stage)
- have internal and external lighting that complement one another and minimise glare
- have vandal-proof light emitting-diode (LED) fittings
- have power sourced from a suitable power supply if solar power is found to be inadequate
- have the electrical power supply complying with ESB E001 *Low Voltage Electrical Standards*
- have all visible welds smoothed off
- have wayfinding signage leading to the facility
- have mesh walls (applicable only for sheds) with a minimum of 70% open area
- have 95% visibility target through the mesh walls using a combination of the minimum aperture and dark colour paint ( applicable only for sheds)
- have smartcard (Opal) access to bicycle sheds
- have the structural steel earthing and bonding requirements addressed as required

## 11. Bicycle locker requirements

Bicycle lockers protect bicycles and related gear, including helmets, bags, shoes, lights, and clothing. Bicycle lockers provide a locked enclosure for individual bicycles and can be a better

choice for long-term bicycle parking. The lockers currently used at interchanges are a standard shape and size.

Bicycle lockers shall comply with the location requirements for bicycle facilities provided in Section 8. In addition to these requirements, bicycle lockers shall also be placed so that they do not provide a climbing aid for access to high-risk areas such as the rail corridor, boundary fence or building rooftops.

Bicycle lockers are essentially large lockable containers. Clearances are important for lockers to provide space for access and egress of bicycles.

Bicycle lockers shall have the following characteristics:

- spaced to allow >90° door opening
- wheel tracked for stacked lockers
- metal construction
- design life of a locker is 20 years
- provided with clear wayfinding signage
- located within the interchange's closed circuit television (CCTV) coverage
- potential for smartcard (Opal) access

## Appendix A Preferred specifications

This appendix provides preferred specifications for bicycle sheds and lockers. Designers should consider the specifications shown below as a guide only.

### A.1. Specifications for bicycle sheds

Preferred specifications for bicycle sheds, which have recently (since 2016) been used at several interchanges, are provided in Table 1:

**Table 1 – Preferred specifications for bicycle sheds**

Parameter	Description
Minimum dimensions	<ul style="list-style-type: none"> <li>height 2400 mm</li> <li>length and width to suit the number of bicycles to be stored</li> <li>eave overhang in all directions: 200 mm preferable</li> </ul>
Roof	Sheet metal roof in Colourbond (or equivalent) finish, except for heritage sites where heritage approval guides the choice of finish.
Roof drainage	Eaves, gutters, down pipes and leaf guards as required.
Walls	<ul style="list-style-type: none"> <li>reinforced galvanised mild steel wire mesh with a minimum aperture (open space ratio) of 70%</li> <li>colour – dark grey to black</li> <li>transparency – 95% visibility target through structure (this can be achieved using a combination of the minimum aperture and a dark colour)</li> </ul>
Slab	<ul style="list-style-type: none"> <li>Finished floor level, with shed slab entrance to be as close as possible to the external level to minimise ramping. The National Construction Code (NCC) stipulates a 5 mm maximum lip for ramp transition.</li> <li>Reinforced concrete with broom, cove or other slip resistant finish and sealed with an appropriate sealant.</li> </ul>
Building frame	Structural steel earthing and bonding requirements addressed as required.
Finish	<p>Hot dipped galvanised or powder coated with Dulux 'Duratec' or similar designed for outdoor use and UV stabilised with a minimum 10 year warranty. Minimum three-step process should include:</p> <ul style="list-style-type: none"> <li>Step 1. Grit blast</li> <li>Step 2. Zinc rich primer powder coat</li> <li>Step 3. Finish colour powder coat</li> </ul> <p>For sheds within 500 m of the ocean, step 2 should use thermal zinc spray to ensure longer service life and reduce onset of rust and corrosion.</p>

Parameter	Description
Gate or door	<ul style="list-style-type: none"> <li>• construction to match enclosure</li> <li>• dimensions: 1200 mm between gate posts</li> <li>• 2450 mm from ground to header</li> <li>• KABA brand door closer 7303 series or similar suitable in achieving good balance between cost and life expectancy</li> <li>• stainless steel hinges</li> <li>• mortise lock with stainless steel hardware</li> <li>• master key barrel to match existing bike parking doors</li> </ul>
Racks	<p>Horizontal and vertical bike placement is permitted and designed using AS 2890.3 for determining the spacing layout to ensure that bikes can be parked with sufficient manoeuvring space.</p> <p>Preferred split between horizontal and vertical bike parking is 50%.</p>
Timed LED light strips	<ul style="list-style-type: none"> <li>• 12 V LED vandal proof lighting on a light sensor to be installed within the ceiling and 5 W security lighting to be permanently lit from light sensor 18 W main lighting to be activated when a smartcard (e.g. an Opal card) is successfully swiped.</li> <li>• 10 min run time on light sensor.</li> </ul>
Wayfinding signage	<p>A suite of five signs should be installed as part of the construction of each new bike shed. Sign specifications are as follows:</p> <ul style="list-style-type: none"> <li>• cantilevered identification sign attached to the post or rafter at a minimum of 2400 mm above ground</li> <li>• 900mm x 600 mm poster cases with instructional poster to the left of the door 900 mm above the ground and installed both Internally and externally</li> <li>• external 'No Smoking' and 'CCTV Camera' regulatory signage to the right of the door and 'Terms &amp; Conditions of Use' signage</li> <li>• internal '131500' sign for emergency exit assistance to the left of the exit door</li> </ul>
CCTV cameras	<p>CCTV coverage (linked to the transport interchange CCTV coverage) of the entry point at a minimum.</p>
Bike symbol and branding on door	<p>Large white super-graphic of standard wayfinding bike symbol installed on the front of the door on every new bike shed.</p>

Parameter	Description
Solar power (preferred source where possible or more cost effective)	<p>Where the shed is solar powered, the specifications are as follows:</p> <p>Solar battery and cabinet:</p> <ul style="list-style-type: none"> <li>lithium ion battery bank with safety factor inside a secure temperature controlled IP56 Rate cabinet with security lock inside the shed</li> </ul> <p>Solar panels:</p> <ul style="list-style-type: none"> <li>20 year warranty with no more than 80% losses over this period</li> <li>securely fixed to the roof</li> <li>low profile, low maintenance, low exposure to potential damage and vandalism</li> </ul>
Lock and access	<p>Smartcard (e.g. Opal card) access is highly recommended. External and internal smartcard readers installed at the entry and exit to every shed except where classified 9B under NCC requirements. In this case, only one smartcard reader is required on entry to the shed, with manual, free release door handle installed internally.</p>

Figure 1 shows a photograph of a typical bicycle shed installed at the Blacktown interchange.



Figure 1 – Bicycle shed

## A.2. Specifications for bicycle lockers

Preferred specifications for bicycle lockers (two single individual lockers constructed as a pair), which have been implemented across the TfNSW network are provided in Table 2.

**Table 2 – Preferred specifications for bicycle double lockers (two single lockers constructed as a pair)**

Parameter	Description
Size	1070 mm x 1270 mm x 1850 mm deep
Material	1.6 mm galvabond or galvanised or powder coated steel in a range of colours and dark green colour (pantone colour code to be confirmed by TfNSW) has generally been adopted around the transport network.
Inclusions	<ul style="list-style-type: none"> <li>• reinforced door and roof stiffeners</li> <li>• clothes and helmet hooks</li> <li>• three-way locking</li> <li>• CCTV coverage</li> </ul>

Preferred specifications for single bicycle vertical lockers are provided in Table 3:

**Table 3 – Preferred specifications for single bicycle vertical lockers**

Parameter	Description
Size	770 mm x 1837 mm x 1650 mm deep
Material	0.8 mm galvanised or powder coated steel sheet in a range of colours and dark green colour (pantone colour code to be confirmed by TfNSW) has generally been adopted around the network.
Inclusions	<ul style="list-style-type: none"> <li>• reinforced door and roof stiffeners</li> <li>• wheel rail</li> <li>• clothes and helmet hooks</li> <li>• three-way locking</li> <li>• CCTV coverage</li> </ul>



Figure 2 shows a photograph of a typical bicycle locker.



Figure 2 – Bicycle locker