

WANNEROO

DEVELOPMENT DESIGN
SPECIFICATION

WD9

**CYCLEWAY AND PATHWAY
DESIGN**

**DESIGN SPECIFICATION WD9
CYCLEWAY AND PATHWAY DESIGN**

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DEVELOPMENT DESIGN SPECIFICATION WD9 CYCLEWAY AND PATHWAY DESIGN

GENERAL

WD9.01 SCOPE

1. This specification sets out requirements to be used in the design of various types of cycleways and pathways in the City of Wanneroo. This specification is to be read in conjunction with the Aus Spec Design Guideline D9.

2. The standards outlined in this specification have traditionally been used throughout the City over many years. Should designers seek to use alternative standards than those prescribed, they are required to support their design with evidence that the design meets minimum acceptable standards in terms of the following criteria.

- Technical Standards
- Aesthetics
- Economics (effective asset management)
- Connectivity and Accessibility
- Safety
- Environmental compatibility

WD9.02 OBJECTIVES

1. This specification aims to set standards and document requirements related to the provision of cycleways and pathways for the City of Wanneroo. The specification seeks to maintain standards that have been traditionally used throughout the City over many years while still allowing designers flexibility to meet specific requirements of the subdivision.

Traditional Standards

WD9.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

- D1 - Geometric Road Design
- D9 - Cycleway and Path Design

(b) Australian Standards

- AS 1742 - Manual of uniform traffic control devices.
- AS 2890.3 - Bicycle parking facilities
- AS 1428 - Design for Access & Mobility

(c) Standard Drawings

- TS 05-3-0 - Kerb Ramp for Dual Use Paths and MRWA Freeway Ramps – Modified and Semi-Mountable Kerbs
- TS 09-1-0 - Footpaths – Layouts for Distributor and Local Roads
- TS 09-2-0 - Dual Use Pathway – Layouts for Arterial Roads, Junctions and Bus Bays
- TS 09-3-0 - Dual Use Pathway – Contraction Joint Strip
- TS 09-4-0 - Dual Use Pathway – Layout for Public Access Ways
- TS 09-5-0 - Access Lane Pathways, Bollards and Reflective Tape

- TS 09-6-0 - Handrail in Median Island, Verge & Public Accessway
- TS 10-1-0 - District Distributor to Local Distributor – Type 1
- TS 10-2-0 - District Distributor to Local Distributor – Type 2
- TS 10-3-0 - District Distributor to Local Distributor – Kerbing and Lane Details

WD9.04 CONSULTATION (See AusSpec D9.04)

WD9.05 PLANNING CONCEPTS

1. When considering the appropriate alignment of the footpath within the road reserve, designers should take into account the following.

Footpath alignment

- The aesthetic outlook of the streetscape and road hierarchy
- The volume and class of traffic using the carriageway
- Pedestrian volume and demographic profile
- Parking requirements

The path alignment, design gradients & crossfalls, width and pavement material type should be determined by considering the above against the performance criteria previously outlined (*i.e. Safety, Amenity etc.*).

2. All footpaths must meet the Disabled Access requirements as outlined in AS 1428

3. The alignment of the footpaths have traditionally occurred 3.0 metres behind the kerb, however designers must take into account the location of services and other road infrastructure and the function of the street when determining the alignment.

Kerblines Widening

If it is determined that an alignment immediately behind the kerb is appropriate, the width of the path should generally be 300mm to 500mm wider than the minimum standards (*i.e.* 1.8m for footpaths or 2.4m for DUP's).

Footpaths in residential areas may be constructed on a zero alignment (*i.e.* alongside property boundaries). These paths however shall be widened by 300mm (*i.e.* 1.8m for footpaths or 2.4m for DUP's) where :-

Zero Boundary Widening

- There are retaining walls constructed alongside the proposed paths.
- Adjacent high density development where fencing along the frontage is likely to be constructed or where buildings are permitted on a zero alignment.
- High trafficked area, *ie* business district centres, shopping precincts, neighbourhood centres, retirement villages commercial developments etc...

Notwithstanding, where the proposed alignment differs from the traditional alignment, designers should discuss their proposal with the City prior its use.

4. When pathways are located immediately behind the kerblines designers need to clearly outline how the path geometry will ensure the safety of path users

- at Pram Ramps,
- at Crossovers,
- at Intersections,
- alongside side entry pits.

The pathway width at intersections curve radii should be increased to accommodate the potential for vehicle overhang as they track through the intersection.

5. Pathways located adjacent to arterial roads or major distributor roads shall be set well back from the kerb line

6. Given the impact that the footpath alignment may have on other design considerations, this issue should be included in the early consultative process with

Consultation

Council

7. Designers attention is drawn to the Australian Road Rules and the requirements of such which will affect the allowable use and consequently the nature of pathways. Given the likely short term implementation of the Rules, designers should take these requirements into account when designing the path network.

**Australian
Road Rules**

8. Footpaths will generally be constructed of concrete with a broom finish. Dual use paths and paths through public open space may be concrete or asphalt finished paths constructed in accordance with these specifications. The use of coloured asphalt or concrete, brick paving or other material will need to be discussed with Council prior to its approval.

Materials

WD9.06 CYCLEWAY AND PATHWAY TYPES (See AusSpec D9.06)

WD9.07 PROVISIONS FOR CYCLEWAYS AND PATHWAYS AT STRUCTURES (See AusSpec D9.07)

WD9.08 SIGNAGE AND PAVEMENT MARKING (See AusSpec D9.08)

WD9.09 END OF JOURNEY FACILITIES (See AusSpec D9.09)

WD9.10 MINIMUM DESIGN STANDARDS

1. Notwithstanding the guidelines provided in this specification, Aus Spec Guidelines and referenced documents the following outlines those standards that have been traditionally used throughout the City.

a) General Requirements :

- Crossfalls in footway paving should not exceed 2 per cent
- Longitudinal grade usually parallels that of the road and this may be steeper than 5%.
- Surface Irregularities : <2mm
- Level of Path in verge : 2% verge level (in relation to the kerb levels)
- Vertical Alignment : <10mm *in 3m*

b) Footpaths

- Depth : 100mm deep (minimum)
- Width : 1.5m (minimum)
- Joint Spacing : Expansion joints at 5.0 m intervals (maximum) with contraction joints at 1.25m equally spaced between expansion joints.

c) Dual Use Paths

- Depth : 100mm deep (minimum)
- Width : 2.1m (minimum)
- Joint Spacing : Expansion joints at 5.0 m intervals (maximum) with contraction joints at 2.5m equally spaced between expansion joints.

WD9.11 DOCUMENTATION (See AusSpec D9.11)

WESTERN AUSTRALIA
DEVELOPMENT DESIGN
SPECIFICATION

D9

**CYCLEWAY AND PATHWAY
DESIGN**

Amendment Record for this Specification Part

This Specification is Council’s edition of the AUS-SPEC generic specification part and includes Council’s primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is ‘A’ for additional script ‘M’ for modification to script and ‘O’ for omission of script. An additional code ‘P’ is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
<i>EXAMPLE 1</i>	<i>Provision for acceptance of nonconformance with deduction in Payment</i>	<i>XYZ.00</i>	<i>AP</i>	<i>KP</i>	<i>2/6/97</i>

**DESIGN SPECIFICATION D9
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DEVELOPMENT DESIGN SPECIFICATION D9 CYCLEWAY AND PATHWAY DESIGN

GENERAL

D9.01 SCOPE

1. This specification sets out requirements to be used in the design of various types of cycleways and pathways.
2. All relevant design principles contained in the AUSTRROADS Guide referenced below must be integrated in the design of cycleways and associated infrastructure. This specification serves as a companion document to the AUSTRROADS Guide extended to incorporate basic requirements for pathways.

AUSTRROADS

D9.02 OBJECTIVES

1. This specification aims to set standards and document requirements related to the provision of cycleways and pathways which encourage pedestrian activities and cycling for transportation and recreational purposes. Cycleways and pathways are to be safe and convenient and shall maintain a satisfactory level of service for all pathway users including users with disabilities and limited mobility.

Safety

**Level of
Service**

D9.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

- D1 - Geometric Road Design

(b) Australian Standards

- AS 1742 - Manual of uniform traffic control devices.
 AS 2890.3 - Bicycle parking facilities
 AS Collection 005 - Access and mobility - People with disabilities
 SAA HB69.14 - Guide to traffic engineering practice - Bicycles

(c) Other

- AUSTRROADS - Guide to Traffic Engineering Practice - PART 13 Pedestrians, PART 14 Bicycles.
 - Planning and Designing for Bicycles - NAASRA (now AUSTRROADS) Technical Report June 1988.
 Bikewest - Guidelines for the Design of Bicycle Facilities.
 Ministry of Transport, Victoria - State Bicycle Committee
 - Planning and Design of Bicycle Facilities,

D9.04 CONSULTATION

1. The Designer must consult with Council, the Developer's Landscape Architects/Designers and relevant authorities prior to and during the preparation of cycleway and pathway design.

**Landscape
Designers
Public
Authorities**

D9.05 PLANNING CONCEPTS

1. Council will provide specific requirements for cycleways and pathways in Council's Subdivision Code as well as in a regional or local strategic bicycle plan. The Designer will need to enquire about such documents and comply with requirements defined.

**Subdivision
Code and
Bicycle Plan**

2. The Designer should be familiar with cycleway geometric design requirements in terms of:

**Geometric
Design**

- width
- grade
- stopping sight distance
- change in grade
- horizontal curvature
- crossfall and drainage
- superelevation
- sight distance on horizontal curves

These requirements are discussed in the AUSTROADS Guide.

**AUSTROADS
Guide**

3. The Designer shall incorporate all the requirements for disabled access as appropriate for pathway design in accordance with any Council Policy or Development Control Plan on Access and Mobility and AS Collection 005.

**Disabled
Access**

D9.06 CYCLEWAY AND PATHWAY TYPES

1. Cycleways can be provided on road and off road. The AUSTROADS Guide provides detailed descriptions, warrants, widths, pavement marking etc for the majority of these cycleways.

**On Road Off
Road**

2. Common alternative cycleway types include:

On Road

- Shared Parking/Bicycle Lanes
- Wide Kerbside Lanes
- Shared Traffic Lanes
- Exclusive Bicycle Lane
- Sealed Shoulder

Off Road

- Shared Bicycle/Pedestrian Pathway
- Segregated Pathway
- Exclusive Cycleway

The AUSTROADS Guide provides advice on the suitability of pavement conditions, drainage pit grates etc for on road cycleways.

**AUSTROADS
Guide**

3. Common pathway types include:

- Exclusive Pedestrian Pathways
- Shared Bicycle/Pedestrian Pathways

By definition pedestrian pathways are "off road" in that pedestrian facilities routinely designed adjacent to roadways are termed footpaths and are designed to meet criteria outlined in Council's Subdivision Code and typically related to road cross section detailing.

Footpaths

4. Pathways by comparison diverge from the road alignment either within the road reserve or across land reserves. Pathways can be provided in conjunction with overland floodways or retention basins.

Land Reserves

D9.07 PROVISIONS FOR CYCLEWAYS AND PATHWAYS AT STRUCTURES

1. Designers shall consider the best way to cater for the uninterrupted movement of cyclists and pedestrians at proposed and existing structures wherever possible. Structures include bridges and underpasses over rivers, roads or railways. The reference and source documents provide information on:

**Bridges
Underpasses**

- acceptable widths and clearances
- types of cycleways and pathways
- handrails
- bicycle bridges
- approach ramps
- etc.

D9.08 SIGNAGE AND PAVEMENT MARKING

1. The Designer shall provide adequate signposting design for cycleways and pathways.

2. Signs and pavement marking will provide for the safe and convenient use of the facility. The signs and pavement marking will comply with AS1742.9 Bicycle facilities.

**Signs
Pavement
Marking**

D9.09 END OF JOURNEY FACILITIES

1. Consideration must be given to the design of adequate facilities at common destinations of bicyclists and pedestrians so as to encourage cycleway and pathway usage.

2. Such facilities could include:

- seats
- standby areas
- secure bicycle parking
- picnic facilities

Facilities

3. Bicycle parking installation design should meet appropriate criteria discussed in the AUSTROADS Guide and be fabricated to meet AS 2890.3.

Parking

D9.10 MINIMUM DESIGN STANDARDS

1. Notwithstanding the guidelines provided in this specification and referenced documents the following minimum standards have been determined as shown in Table D9.1.

Table D9.1 Minimum Design Standards

		Cycleway	Pathway	Dual Use Pathway
Path Width		2.0m	1.2m	2.0m
Formation Width		3.0m	2.0m	3.0m
Crossfall	min.	1:40	1:40	1:40
	max.	1:20	1:20	1:20
Grade	max.	2% for 450m 5% for 90m 10% for 30m	NA	2% for 140m 3% for 70m 4% for 40m 5% for 30m

D9.11 DOCUMENTATION

1. The following listing outlines Council's minimum requirements for presentation of cycleway and/or pathway designs.

- All plans for cycleways/pathways are to be presented at the reduction ratio 1:500. **Plans**
 - The cycleway plan sheet may be incorporated into the road plan where clarity permits. Specific details are to be provided at reduction ratio 1:200.
 - Longitudinal Sections will be required for all off-road cycleways where grades exceed 4%. **Long Sections**
 - Longitudinal Sections will have reduction ratios of 1:500 horizontal and 1:100 vertical.
 - Cross Sections will be presented at 1:100 reduction ratio (natural) and transition tables will be required where cross falls vary or superelevation is provided. **Cross Sections**
 - A typical cross section will be detailed to indicate pavement materials and layer depths.
2. All Drawings shall be in accordance with the minimum drafting requirements in the Specification for QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

SPECIAL REQUIREMENTS

D9.12 RESERVED

D9.13 RESERVED

D9.14 RESERVED