



ENGINEERING DESIGN CODE
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
1	Major Revision of specifications for adoption by Armidale Regional Council	All	AMO	SPM	6/07/16

CLAUSE	CONTENTS	PAGE
GENERAL		1
D9.01	SCOPE	1
D9.02	OBJECTIVES	1
D9.03	REFERENCE AND SOURCE DOCUMENTS	1
D9.04	CONSULTATION	1
D9.05	PLANNING CONCEPTS	2
D9.06	CYCLEWAY AND PATHWAY TYPES	2
D9.07	PROVISIONS FOR CYCLEWAYS AND PATHWAYS AT STRUCTURES	3
D9.08	SIGNAGE AND PAVEMENT MARKING	3
D9.09	END OF JOURNEY FACILITIES	3
D9.10	MINIMUM DESIGN STANDARDS	4
D9.11	DOCUMENTATION	4
SPECIAL REQUIREMENTS		5
D9.12	RESERVED	5
D9.13	RESERVED	5
D9.14	RESERVED	5

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 Austroads Guide referenced below must be integrated in the design of cycleways and associated infrastructure. This specification serves as a companion document to the Austroads Guide extended to incorporate basic requirements for pathways.

AUSTROADS

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
- DCP 2016 - Armidale Regional Council Development Control Plan 2016

(b) Australian Standards

- AS 1742 Manual of uniform traffic control devices.
- AS 1428 Design for Access and Mobility set
- AS 2890.3 Parking facilities - Bicycle parking facilities
- AS 2156.1 Walking tracks, Classification and signage
- AS 2156.2 Walking tracks, Infrastructure design

**Applicable
Australian
Standards**

(c) Other

AUSTROADS - Guide to Road Design - Part 6A Pedestrians & Cyclist Paths.

Ministry of Transport, Victoria - State Bicycle Committee
Planning and Design of Bicycle Facilities

Armidale Regional Council Bicycle Strategy

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 Development Control Plan 2016 (DCP 2016) 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.

*DCP 2016 and
Bicycle Plan*

2. The Designer should be experienced in 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 AUSTRROADS Guide.

*AUSTRROADS
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 1428 Australian Standard set

*Disabled
Access
AS 1428 Set*

4. The Designer shall pay particular attention to the design of the connection of a cycleway to a road. It is critical to design the connection point to reduce the speed of cyclist and to make it clear that they are coming to the end of a cycleway and entering a road. The use of chicanes, tight direction changes, signs and line marking should be considered. An assessment of the vision of the entry point by cyclists, pedestrians and drivers should be considered. Safe sight stopping distance for vehicles must be assessed and that information submitted on the design drawings.

*Connection to
Road*

Sight Distance

5. In all but exceptional circumstances cycleways shall be designed to be off road and shall be designed to mitigate possible conflicts with vehicular traffic. On road cycleways must be approved by Council prior to design commencing.

Off Road

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

**AUSTRROADS
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 DCP 2016 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 an 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 'Manual of uniform traffic control devices - 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.

Path Widths and Grades

Table D9.1 Minimum Design Standards

	Cycleway	Pathway	Dual Use Pathway
Path Width	2.0m	1.2m	2.5m
Formation Width	3.0m	2.0m	3.0m
Minimum Crossfall	1%	1%	1%
Maximum Crossfall	2.5%	2.5%	2.5%
Maximum Grade	2% for 450m 5% for 90m 10% for 30m	NA	2% for 140m 3% for 70m 4% for 40m 5% for 30m

2. Notwithstanding the guidelines provided in this specification and referenced documents the following key design elements shall be incorporated into Cycleway design:

Key Design Elements

- a) Pavement design shall consider the subgrade where the cycleway is to be constructed – issues arise where the ground is expansive clay and the subgrade exhibits cracking which reflects through the cycleway surface;
- b) Compaction of the subgrade - refer to road construction section
- c) Typical pavement will be a 150mm compacted depth base gravel layer with an AC surface a minimum of 25mm thick in 10mm nominal size Class 170 Type N asphalt;
- d) Compaction of the base course shall be 98% standard compaction except where vehicle loads are to be experienced where base course compaction shall be increased to 100% standard compaction;
- e) Concrete pavements are permitted. Where site constraints limit construction of a flexible pavement concrete pavements are encouraged;
- f) Consideration should be given to the use of the shared path/cycleway by maintenance plant and emergency service vehicles when designing the pavement, particularly in parks and reserves. Additional gravel base course depth or subgrade treatment may be required.

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.
- 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%.

Plans

Long Sections

- Longitudinal Sections will have reduction ratios of 1:500 horizontal and ~~1:100~~ 1:50 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