



Station Overpasses – Train System

Engineering Standard

Rail Commissioner

AR-PW-PM-SPE-00129004 (D063)

Document Amendment Record

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1. Introduction

The Department of Infrastructure and Transport owns the Adelaide Metropolitan Passenger Rail Network (AMPRN) currently operated and maintained under the Rail Accreditation of third party. There are approximately 89 train stations serving the AMPRN.

2. Purpose

The purpose of this standard is to outline the design requirements for overpasses at the station precinct. This standard should be read in conjunction with the remainder of the DIT Station Standards for the Train System, as listed in DIT Master Specification Part RW-STS-D1 Stations.

Access to and from an overpass at a station shall be via the provision of stairs and a ramp. Additional lift access may be provided.

This standard shall be used as a guide for overpasses away from stations. Lifts shall not be provided at overpasses away from stations.

3. Scope

This standard applies to all new DIT overpasses at station precincts. Existing overpasses may be rated against this standard.

4. Related Documents

| DOCUMENT NAME | DOCUMENT NUMBER |
|---|--------------------------|
| Station Precinct Concept – End of Platform – Signage Layout | S7071 sheet 10 |
| Standard Drawing Signage Schedule Drawing Register | CS1-DRG-361816 |
| Standard Drawing Station Platform General Layout | CS1-DRG-361819 |
| Electrical and mechanical Clearances for the 25kV Electrified Train Network | TP1-DOC-000389 |
| Pit and Conduit Standard for Signalling and Communication Cables | PTS-MS-10-SG-STD-0000094 |
| Signal Sighting | PTS-MS-10-SG-STD-0000033 |

5. References

- *AS/NZS 1170 Structural Design Actions*
- *AS 1428 Design for Access and Mobility*
- *AS 1735 Lifts, Escalators and Moving Walks*
- *AS 2700 Colour Standards for General Purposes*
- *AS/NZS 4534 Zinc and zinc/aluminium-alloy coatings on steel wire*
- *AS 4586 Slip Resistance Classification of New Pedestrian Surface Materials*
- *AS 4799 Installation of Underground Utility Services and Pipelines within Railway Boundaries*
- *AS 5100 Bridge Design*
- *BCA/NCC Building Code of Australia/ National Construction Code*
- CP-TS-955 DPTI Volume two - Structural clearances
- *Structural Clearances Design and Rating PTS-MS-10-TR-STD-00000047*

- CP-TS-957 DIT Code of Practice – Volume two – Train System [CP2] Part 7 – Structures
- CP-TS-962 DIT Code of Practice – Volume two – Train System [CP2] Part 12 – Guard/Check Rails, Buffer Stops and Derails
- DIT Design Standard: Structural
- AUSTRROADS Guide to Traffic Management
- AUSTRROADS Guide to Road Design
- Electrical and mechanical Clearances for the 25kV Electrified Train Network

Legislative Requirements

- *Disability Standards for Accessible Public Transport (DSAPT)*

6. Acronyms

| ACRONYM | FULL NAME |
|---------|--|
| AMPRN | Adelaide Metropolitan Passenger Rail Network |
| DIT | Department of Infrastructure and Transport |
| DSAPT | Disability Standards for Accessible Public Transport |

7. Definitions

| TERM | DEFINITION |
|---------------------|--|
| Overpass | A bridge over the rail corridor intended for use by pedestrians only, which provides access to a platform and/or to cross the rail corridor. |
| Shared use overpass | An overpass that may be used by cyclists and pedestrians. |
| Overpass structure | The overpass including any stairs, lifts or ramps that lead to the overpass. |

8. Design Requirements

New overpass and existing overpass structures being redesigned or upgraded shall be designed to meet the requirements of Disability Standards for Accessible Public Transport (DSAPT), AS 1428 and DIT Design Standard: Structural. The overpass structure shall comply with sight line requirements and shall not obstruct signal sighting, in accordance with PTS-MS-10-SG-STD-00000033 Signal Sighting.

The overpass shall be designed such that each end of the overpass is visible from the other end of the overpass.

Any ramps shall be provided in accordance with AR-PW-PM-SPE-00129006 Pedestrian Access.

Shelter components of the overpass structure shall be designed in accordance with the requirements of AR-PW-PM-SPE-00129005 Shelters.

Station overpass structures shall not be designed for use by vehicles. Overpasses shall be designed for pedestrian use. On an overpass that is only accessible by stairs, ramps or lifts, cyclists are required to dismount and walk their bike across the overpass. This is indicated by cyclist dismount signage on ramps leading to the overpass. Overpasses shall have hand rails and kerb rails provided in accordance with AS 1428.1.

Overpasses that do not require lift, stair or ramp access from the road level may be treated as a shared use overpass with approval from Unit Manager Track & Civil Engineering, provided the path is wide enough to comply with the requirements of Austroads Guide to Road Design

Part 6A: Paths for Walking and Cycling. If the shared use overpass is at a level gradient, then hand and kerb rails are not required.

8.1. Design Life

The design life of an overpass structure shall be 100 years, in accordance with AS 5100.

8.2. Structural Dimensions

8.2.1. Span

The overpass structural span shall allow for the operation of Rolling Stock and shall not protrude/extend into any clearance envelopes.

8.2.2. Width

The minimum clear width between handrails of the overpass shall be 1 800 mm in accordance with AS 1428.2.

For an overpass that incorporates lifts the minimum clear width between handrails shall be 3 000 mm, to accommodate lift landing circulation space requirements in accordance with CS1-DOC-002336 Lifts for Public Transport Infrastructure – Engineering Specification.

8.2.3. Internal Height

The minimum clear internal vertical ceiling height of the overpass to the underside of any light fittings, CCTV cameras or other equipment shall be 2500 mm.

8.2.4. Clearances

Clearances shall comply with the relevant standards.

- PTS-MS-10-TR-STD-00000047 – Structural Clearances- Design & Rating
- TP1-DOC-000389 Electrical and Mechanical Clearances for the 25kV Electrified Train Network
- ARTC Structural Clearance Standards

8.3. Additional Structural Support Piers in the Railway Corridor

Intermediate support piers are not permitted within the railway corridor.

8.4. Earthquake Protection

Overpasses shall be designed for BEDC-1 in accordance with AS 5100.2. The forces given in clause 9 may be omitted.

Overpass structures shall be designed to minimise the risk of collapse during earthquakes with consideration given to the following:

1. bearing arrangements;
2. widths of bearing shelves;
3. lateral and uplift restraints; and
4. reinforcing steel in columns.

8.5. Material Selection

The overpass structure shall be unpainted hot dip galvanised steel or prestressed concrete.

The roof cladding shall be in accordance with AR-PW-PM-SPE-00129005 Shelters.

The side cladding shall be steel welded mesh with 35% solidity, class W10Z10A in accordance with AS/NZS 4534.

All metal finishes shall have no sharp edges, be de-burred, smooth and shall provide a minimum radius of 3mm. Use of potentially reflective materials in areas that could cause glare for train drivers shall be avoided

8.6. Waterproofing

The overpass surface shall be waterproofed to prevent water seeping through joints.

8.7. Vandal Resistance and Anti-graffiti Coating

All overpass surfaces (excluding trafficable areas) shall have anti-graffiti coating and this shall provide resistance to discolouration due to age, spill, gum, food, graffiti etc. and allow for ease of cleaning. The coating shall not compromise DSAPT luminance contrast and non-slip requirements.

8.8. Screens/ Solid Barriers

The overpass and stairs shall be fully enclosed with use of roof and side cladding. The under stairs area shall be fully enclosed from ground level.

To comply with AS 5100 clearances and to prevent objects being dropped or liquids being poured from the structure, a screen or solid barrier shall be provided to protect the 25 kV traction wire assembly (catenary). The screen material and design shall be selected in consultation with DIT and shall consider the structural integrity of the overpass/stairs. The exterior hole in the mesh shall point upwards.

8.9. Surfaces

Surfaces for all overpasses, stairs, lifts and pedestrian areas (e.g. waiting areas) shall be provided in accordance with AR-PW-PM-SPE-00129006 Pedestrian Access.

8.10. Roof Drainage

Overpass roof drainage shall not be allowed to drain onto the track. Overpass roof drainage shall be in accordance with AR-PW-PM-SPE-00129005 Shelters.

8.11. Vermin Proofing

Appropriate measures shall be taken to prevent vermin infestation. The design of the overpass structure shall prevent opportunities for winged species to nest or roost.

8.12. Utility Services**8.12.1. Above Ground**

The overpass structure shall allow for all communications, power, CCTV, and any other services that are required to cross the rail corridor.

Services attachment shall have a 100 year design life and shall be designed for replacement with minimal delay to train services.

Services, conduits and junctions shall be concealed from view.

8.12.2. Under Ground

Alteration, relocation, lowering or replacement of existing underground services shall be designed in accordance with PTS-MS-10-SG-STD-00000094 Pit and Conduit Standard for Signalling and Communication Cables and AS 4799.

8.13. Earthing Studs to Overpass

The overpass shall be provided with four M16 x 50 mm hot dip galvanised studs, two either side, 3.5 m from the centreline of the overpass structure, fixed at the bottom of the vertical face.

8.14. Lighting

Lighting for overpasses, stairs, lifts and pedestrian areas shall be provided in accordance with CS5-DOC-003511 - Public Transport Standard: Electrical Infrastructure Engineering – Design.

8.15. CCTV

CCTV coverage of overpasses, stairs, lifts and pedestrian areas is to be provided as part of the overall station CCTV design. CCTV shall be provided in accordance with PI5-DOC-003517 – Public Transport Infrastructure Security Systems – Engineering Specification.

8.16. Public Address System

A public address system shall be provided in accordance with AR-PW-PM-SPE-00129016 Passenger Information System.

8.17. Signage and Pavement Marking

Signage and Pavement Marking shall be provided in accordance with AR-PW-PM-SPE-00129010 Signage and Pavement Marking.

8.18. Tactile Ground Surface Indicators

TGSIs shall be provided in accordance with AR-PW-PM-SPE-00129006 Pedestrian Access.

8.19. Advertising Hoardings

Advertising signs and other hoardings shall not be placed on the overpass structure.

9. Stairs

9.1. General

Stairs shall be provided in accordance with DSAPT, AS 1428.1 and AS 1657.

Stairs leading directly onto platforms shall not have a wheel channel for bicycles. Refer to AR-PW-PM-SPE-00129013 Bicycle Facilities.

Stairs shall have opaque risers, open risers are not permitted.

9.2. Positioning of Stairs

Where the lift car door opening is directly opposite the stair/ramp exit, a minimum horizontal width of 3 000 mm shall be provided between the two access points.

9.3. Structural Dimensions

9.3.1. Width

The minimum clear width between handrails of the stairs and ramps shall be 1 800 mm in accordance with AS 1428.2.

9.3.2. Height

The minimum clear internal vertical ceiling height of the stairs to the underside of any light fittings, CCTV cameras or other equipment shall be 2400 mm.

9.4. Stair Nosings

Stair nosings shall be installed on all stairs in accordance with DSAPT. Adhesive stair nosings shall not be used.

9.5. Handrails

Handrails shall be provided along both sides of the stairs in accordance with AS 1428.1, AS 1428.2 and DSAPT.

10. Lifts

Lifts shall be in accordance with CS1-DOC-002336 Lifts for Public Transport Infrastructure – Engineering Specification.