PUBLIC TRANSPORT SERVICES

TECHNICAL STANDARD

PART 129011

STATIONS - BUS INTERCHANGES

AR-PW-PM-SPE-00129011

(D071)

and THINK

Stop and THINK
Document Control

DOCUMENT STATUS

<table>
<thead>
<tr>
<th>Action</th>
<th>Name and Position</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared By:</td>
<td>Name: Kuldeep Zala</td>
<td></td>
<td>11/09/13</td>
</tr>
<tr>
<td></td>
<td>Title: Rail Engineer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewed By:</td>
<td>Name: Keith Charlton</td>
<td></td>
<td>11/17/13</td>
</tr>
<tr>
<td></td>
<td>Title: Rail Engineering Manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approved By:</td>
<td>Name: Rob Taverner</td>
<td></td>
<td>11/17/13</td>
</tr>
<tr>
<td></td>
<td>Title: Director, Asset Management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Risk Category: Low

Document Review Schedule: As Required

DOCUMENT AMENDMENT RECORD

<table>
<thead>
<tr>
<th>Rev</th>
<th>Change Description</th>
<th>Date</th>
<th>Prepared</th>
<th>Reviewed</th>
<th>Authorised</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Initial Issue</td>
<td>March 11</td>
<td>Josh Ward</td>
<td>Doug Gillott</td>
<td>Rob Taverner</td>
</tr>
<tr>
<td>1</td>
<td>Changes in various sections</td>
<td>July 12</td>
<td>Kuldeep Zala</td>
<td>Keith Charlton</td>
<td>Rob Taverner</td>
</tr>
<tr>
<td>2</td>
<td>Document number change</td>
<td>July 13</td>
<td>Kuldeep Zala</td>
<td>Keith Charlton</td>
<td>Rob Taverner</td>
</tr>
</tbody>
</table>
Contents

1.0 INTRODUCTION ................................................................................................................ 4
  1.1 PURPOSE ......................................................................................................................... 4
  1.2 SCOPE ............................................................................................................................ 4

2.0 ANNEX A – TECHNICAL STANDARD – STATIONS - BUS INTERCHANGES .......... 5
1.0 INTRODUCTION

The Department of Planning, Transport and Infrastructure (DPTI) Public Transport Services Division (PTS) owns and operates the Adelaide Metropolitan Passenger Rail Network (AMPRN). There are approximately 85 stations serving the AMPRN. The significant number of stations means that the process of upgrading or renewal is continuous. In order to both economise on design and construction effort and costs and enhance the passengers’ experience a set of common design and construction technical standards for stations has been developed.

Because the set of station standards is primarily used within the contract administration process the technical standards documents must be aligned with both the DPTI wide Master Specification and the PTS engineering management system.

The document attached at Annex A, Technical Standard – Stations - Bus Interchanges, is one of the set of station standards.

1.1 PURPOSE

The purpose of this Technical Standard is to describe the requirements for bus interchange facilities within the station precinct.

1.2 SCOPE

This Technical Standard applies to all PTS projects and contractor organisations designing, constructing or maintaining passenger stations on the AMPRN.
2.0 ANNEX A – TECHNICAL STANDARD – STATIONS - BUS INTERCHANGES

CONTENTS
1. General
2. Standards and Drawings
3. Reference Documents
4. Design Requirements

Appendix 129011.1 Typical Integrated Bus/ Rail Interchange Configuration
Appendix 129011.2 Typical Bus Shelter Configuration

1. GENERAL

This Part specifies the requirements for the design of bus interchanges at railway stations on the Adelaide Metropolitan Passenger Rail Network (AMPRN).

2. STANDARDS AND DRAWINGS

STANDARDS

| AS 1428.4.1 | Means to Assist the Orientation of People with Vision Impairment – Tactile Ground Surface Indicators |

DRAWINGS

| S4070, sheet 7 | Kerb and Gutter Details |
| S7071, sheet 8 | Station Precinct Concept – Car Park & Bus Interchange – Signage & Pavement Marking Layout |
| S7071, sheet 11 | Station Precinct Concept - Sign Schedule |
| S7071, sheet 23 | Station Precinct Concept – Bus Shelter |

3. REFERENCE DOCUMENTS

<table>
<thead>
<tr>
<th>OWNER</th>
<th>DETAILS / PART</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPTI</td>
<td>Bus Design – Base Bus Sheet</td>
</tr>
<tr>
<td>Federal Government</td>
<td>Disability Standards for Accessible Public Transport (DSAPT)</td>
</tr>
</tbody>
</table>

4. DESIGN REQUIREMENTS

4.1 Design Life

The Contractor shall design assets for the following minimum design life:

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>DESIGN LIFE (YEARS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural elements of buildings:</td>
<td>50</td>
</tr>
<tr>
<td>Exterior Fixtures and fittings:</td>
<td>40</td>
</tr>
</tbody>
</table>
4.2 **Types of Interchanges**

There are generally two types of bus/rail interchanges at railway stations:

(1) Integrated; and

(2) Separate.

4.2.1 **Integrated Bus/ Rail Interchange**

Unless otherwise specified in the Project Design Brief the bus set down and pick up area shall be integrated with the rail platform and shelter. The bus set down and pick up area and rail platform shall also be at the same level and adjacent to each other.

Refer to Drawing No. S7071, sheet 8 for a typical integrated bus/ rail interchange arrangement.

4.2.2 **Separate Bus/ Rail Interchange**

Where site constraints/ conditions exist, and specified in the Project Design Brief, the bus set down and pick up areas may be separated by distance or height from the rail platform. Refer to typical bus shelter configuration in Appendix 129011.2 for details.

4.3 **Design Vehicles**

Refer to the Project Design Brief for the design vehicle(s) for the bus interchange including exit / entry points.

4.4 **Bus Stop Details**

Refer to the Project Design Brief for number and length of bus stops required.

The set down and pick up area areas shall be parallel to the kerb. Indented bus bays shall not be installed.

The minimum distance between bus stops shall be 35 m measured from tactile to tactile.

4.5 **Layover Areas**

Refer to the Project Design Brief for number and length of bus layovers required.

The layout of the bus layover shall be designed so that the buses travel in a clockwise direction.

4.6 **Entry/ Exit**

Unless otherwise indicated in the Project Design Brief the entry and exit to the bus interchange shall allow buses to turn left and right in to and out of respectively.

4.7 **Bus Lane Widths**

A dedicated bus road shall be a minimum width of 7000 mm between kerb faces. A single bus lane, adjacent to other traffic lanes, shall be a minimum width of 3500 mm.

4.8 **Pavement Design**

Bus lanes shall be surfaced with asphalt. Refer to the Project Design Brief for details.

Pavements for bus lanes shall be provided in accordance Part D026 “Design Road Pavement”.
4.9 **Drainage**

The drainage in the bus interchange areas shall be provided in accordance with Part D022 “Design Road Drainage”.

4.10 **Kerbing**

The bus interchange shall be kerbed using DPTI standard drawing S4070, Sheet 7, ‘Kerb and Gutter (Standard)’.

4.11 **Interchange Surface**

The surface of the waiting (and boarding areas) for all bus interchanges shall be provided in accordance with Part 129006 “Pedestrian Access”, Clause 4.8 “Surfaces”. For integrated bus/rail platforms the platforms shall have the same characteristics as the rail platform surfaces as per Part 129003 “Platforms”, Clause 6.3 “Platform Surface”.

4.12 **Kerb Ramps**

As a minimum a kerb ramp shall provide access from at least one end of the bus waiting area.

Refer to the **Project Design Brief** for locations of kerb ramps.

Kerb ramps shall be provided in accordance with Part 129006 “Pedestrian Access”, Clause 4.4 “Kerb Ramps”.

4.13 **Bus Interchange Shelter**

The station shelter shall be extended from the rail side to incorporate the bus shelter and waiting areas. Refer to Part 129005 “Shelters” for shelter requirements and design.

4.14 **CCTV**

CCTV coverage of bus interchange areas shall be provided as part of the overall station CCTV design in accordance with Part 129015 “Security System”.

4.15 **Lighting**

Lighting for bus interchange areas, shelters and access paths/ramps shall be provided in accordance with Part129014 “Electrical Infrastructure”.

4.16 **Passenger Information Systems**

Unless specified in the **Project Design Brief**, electronic passenger information systems shall not be used to display bus information.

4.17 **Fencing**

For details of usage and fencing types refer to Part 129009 “Fencing”.

Refer to the **Project Design Brief** for fencing to Bus Interchange.

4.18 **Tactile Ground Surface Indicators**

TGSIs shall be provided in accordance with Part 129006 “Pedestrian Access”, Clause 4.10.1 “Tactile Ground Surface Indicators - General”.

Hazard and directional indicators shall be installed at locations in accordance with AS 1428.4.1 and as follows:
(1) Integrated bus / rail interchanges - all boarding points in accordance with Appendix 129011.1;

(2) Separate bus stops within the Station Precinct - in accordance with Appendix 129011.2.

### 4.19 Allocated Spaces

Allocated spaces shall be provided under shelters in accordance with Disability Standards for Accessible Public Transport (DSAPT) and shall be located closest to the hazard and directional TGSIs.

At stations with integrated bus / rail interchanges, allocated spaces shall be provided adjacent to a seat in line with each bus stop. Refer 129007 “Furniture”.

At stations with separate bus / rail interchange facilities, allocated spaces shall be provided underneath the bus shelter adjacent to the seating, in accordance with the diagram in S7071, Sheet 23.

The allocated spaces shall have no pavement marking.

### 4.20 Waiting Rooms

No waiting rooms shall be provided at bus / rail interchanges.

### 4.21 Signage

Signs shall be provided in accordance with Part 129010 “Signage and Pavement Marking”.

Signs prescribed for use at Bus Interchanges shall include, but not be limited to:

(1) Regulatory signs – various traffic control devices; and

(2) Information signs – Metropolitan quad frame displaying bus stop and timetable information.

### 4.22 Pavement Marking

Pavement Marking shall be provided in accordance with Part 129010 “Signage and Pavement Marking”.

Pavement Marking at Bus Interchanges shall include but not be limited to:

(1) “Bus Only” lane markings; and

(2) General road related pavement markings.

### 4.23 Landscaping

Refer to the Project Design Brief for Bus Interchange landscaping requirements.

Unless otherwise specified in the Project Design Brief, landscaping shall be designed to suit the local environment and conditions as per Part 129018 “Landscaping”.

-----------------
APPENDIX 129011.1

TYPICAL INTEGRATED BUS/RAIL INTERCHANGE CONFIGURATION

- Busbay run out all vehicles
- Rear Doors: Artics
- Middle Doors: Artics
- Front Doors: Midi
- Location of shelter/seating allows for wheelchair ramp deployment from rigid bus
- Pedestrian Movements dependent on footpath location
- Footpath location dependent on whether adjacent to kerbline or boundary line
- Distance of passenger shelter from kerbline dependent on dimension from kerb to boundary alignment

Legend
- Info Unit Base Pad (based on 2m x 3m)
- DDA Base Pad (based on 2m x 3m)
- Pedestrian Movements
- Shelter Base Pad (based on 3m x 3m)
- Concrete/Paving/Bitumen
- Direction Indicators
- Hazard Indicators
- Tactile Indicators to be applied on approach side of shelter
- All Tactile Indicators to be min. 30% contrast to surround texture colour
- Street pole / light pole
- Bin (one or more locations)
- Bus Stop
- Tree
- Shelter Type:
- Additional Comment
- Extent of works
APPENDIX 129011.2

TYPICAL BUS SHELTER CONFIGURATION

Location of shelter/seating allows for wheelchair ramp deployment from rigid bus.
Pedestrian Movements dependent on footpath location.
Footpath location dependent on whether adjacent to kerbline or boundary line.
Distance of passenger shelter from kerbline dependent on dimension from kerb to boundary alignment.

Legend
- Info Unit Base Pad (based on 2m x 3m)
- DDA Base Pad (based on 2m x 3m)
- Pedestrian Movements
- Shelter Base Pad (based on 8m x 3m)
- Concrete/Paving/Bitumen
- Hazard Indicators
- Directional Indicators
- Footpath (variable widths)
- Tactile Indicators to be applied on approach side of shelter
- Concrete/Paving/Bitumen (artic/ rigid)

Street pole / light pole
- Bin (one or more locations)
- Bus Stop
- Shelter Type:
- Tree
- Additional Comment
- End location of shelter
- Extent of works

K-Net Doc: 5414526 (Word copy - 5163917)
Revision No.: 2
Issue Date: July 2013
Doc. Owner: Director Asset Management