Route assessment for 14.5 metre buses
Contents

1. Introduction .................................................................................................................. 1

2. Vehicle swept path requirements .............................................................................. 2
   2.1 General.................................................................................................................. 2
   2.2 Arterial roads ...................................................................................................... 3
   2.3 Local roads ......................................................................................................... 3

3. Bus zones .................................................................................................................... 4

4. Cost of road and traffic works .................................................................................. 5

5. Roles and responsibilities ......................................................................................... 5
   5.1 Roads and Traffic Authority .............................................................................. 5
   5.2 NSW Department of Transport ........................................................................ 5
   5.3 Bus operator ....................................................................................................... 5
   5.4 Council ............................................................................................................... 6

6. Disputes ..................................................................................................................... 6

Appendix A Contacting RTA ....................................................................................... 7

Appendix B Turning path templates ........................................................................... 9

Figures

Figure 1 14.5 metre bus, 12.5 metre turning radius ..................................................... 10

Figure 2 14.5 metre bus, 15.0 metre turning radius ..................................................... 11
This page intentionally left blank
I. Introduction

The Roads and Traffic Authority (RTA) seeks to encourage efficient, safe public transport services.

The purpose of this manual is to provide a framework for the assessment of the suitability of routes for the operation of 14.5 metre buses.

The length of buses in New South Wales is normally limited under the Road Transport (Vehicle Registration) Regulation 1996 to 12.5 metres. Bus operators currently use 14.5 metre long rigid buses on suitable routes. While the transport efficiency gains from the use of these higher capacity buses offer undoubted advantages, the buses are not as manoeuvrable as standard length buses and they are not suited to all routes.

The overall length, larger than normal front overhang and rear tailswing and consequent swept path characteristics are not always readily apparent to other road users (motorists, cyclists and pedestrians), nor even to the inexperienced bus driver. It is essential therefore that routes for the operation of these buses be selected so as to minimise risk to other road users and property.

Accordingly RTA requires 14.5 metre buses be only operated on specified routes that have been assessed and meet the requirements of this manual.

Uses for 14.5 metre buses include:
- suburban route
- long distance route
- ad-hoc charter
- tourist service.

Where a bus operator provides a service under the terms of a service contract with the NSW Department of Transport it is a condition of that contract that 14.5 metre buses must meet RTA’s registration and vehicle safety standards.

Local advice is available to bus operators by contacting the relevant RTA regional office, see Appendix A, Contacting RTA.

National guidelines for 14.5 metre buses may be implemented in the future. Consequently any routes assessed under this manual may require re-assessment under amended New South Wales or future national guidelines.

This manual supersedes RTA’s Technical Direction 92/15 and its attachment - Provisional guidelines for assessment of routes for operation of 14.5 metre long buses, 11 June 1992.
2. **Vehicle swept path requirements**

2.1 **General**

Not all parts of the road system are designed or constructed to the same geometric standard. The ability of the existing road network to cater for the turning movements of heavy vehicles is therefore a major control on the way these vehicles are permitted to operate.

AUSTROADS has developed a national specification for the swept path performance of heavy vehicles. The swept path requirements for 14.5 metre buses are available in the folder, *Design Vehicles and Turning Path Templates*, AUSTROADS, 1995. This folder may be purchased from RTA Community Relations Branch, 260 Elizabeth Street, Surry Hills.

The most commonly used templates for 14.5 metre buses have been included in Appendix B, *Turning path templates*. These are:

- 12.5 metre turning radius
- 15.0 metre turning radius.

These AUSTROADS turning templates should be used to initially assess the suitability of a route.

A 14.5 metre bus must not operate on a route where the gross vehicle mass (GVM) of the bus exceeds the mass limit of a bridge or any section of road on that route. For example, a local road may have a mass limit of 4.5 tonnes, a 14.5 metre bus could not operate on this road.

A 14.5 metre bus should not operate on any route where, in making a turn at an intersection, any part of the bus encroaches onto:

- the opposing traffic side of an unbroken centre-line
- the opposing traffic side of a road centre-line (broken or not marked) except where the risk is assessed as low
- any footpath area.

No part of the swept path of a 14.5 metre bus, including front overhang or the inside swept path, may encroach on any part of a median or traffic island, where it:

- is frequented by pedestrians
- has signs erected.

Further, no vehicle may encroach onto any roundabout central island.

There are two exceptions, intended for heavy vehicles:

1. the collar of the central island of a roundabout. The collar is designed for this purpose.
2. where the central island has been designed to be mountable.

In addition to the on-road constraints, bus operators should be aware that parking facilities for 14.5 metre buses will also have to be carefully checked.
Examples include hotel access ramps and bus parking areas, often at
destinations. Buses in these and similar situations must not impact on the
free movement of other road users when picking up, setting down, waiting
or when parked.

2.2 Arterial roads

Arterial roads are normally designed to ensure adequate movement of a
prime mover and semi-trailer combination up to the legal maximum overall
length. Except for the front overhang, the 14.5 metre bus turning path will
fit within the turning path of a prime mover and semi-trailer combination
and larger articulated combinations. The difference in front overhang
between 14.5 metre buses and these vehicles can be up to 900 millimetres
for the minimum on-road turning radius of 12.5 metres.

Arterial roads are usually classified as State Roads under RTA’s
administrative arrangements. However, no State Road should be assumed
to be suitable for the operation of 14.5 metre buses. Further, RTA reserves
the right to declare any part of a State Road unsuited to 14.5 metre bus
operations where those operations fail to meet the requirements of this
manual.

The bus operator may consult RTA for details of suitable routes. Advice on
known unsuitable sections on State Roads can be obtained from relevant
RTA regional offices. See Appendix A, Contacting RTA.

2.3 Local roads

Local roads are normally designed for smaller vehicles. Generally the
minimum design vehicle is a 12.5 metre rigid vehicle rather than the prime
mover and semi-trailer combination used to design arterial roads.

The difference in front overhang between a 14.5 metre bus and a 12.5 metre
rigid bus/truck can be up to 400 millimetres. The inside of the swept path
for a 14.5 metre bus can be up to 1100 millimetres wider than that of the
12.5 metre rigid bus/truck. These differences are based on the minimum
on-road turning radius of 12.5 metres.

Geometric constraints on local roads limit the turning movements of large
buses, semi-trailers and the like. They can usually only complete turns at
local road intersections by using some of the opposing traffic’s road space.
While semi-trailers are not necessarily prohibited from using the narrower,
tighter local road system, they do so irregularly and infrequently.

The same cannot be said of route service buses. These buses by definition
operate on their respective routes both regularly and comparatively
frequently. There is accordingly a higher risk of an accident on these routes
arising from any manoeuvres requiring an excursion into opposing traffic
space. There is also a risk of injury to pedestrians and damage to awnings,
poles, signposts and the like where the swing-out arising from the large
front and/or rear overhang during a sharp turn encroaches onto footpaths or traffic islands. It is therefore appropriate that 14.5 metre buses only operate where the risk of incident arising from a swept path excursion is assessed as low.

Many Councils have implemented traffic calming schemes. These schemes are designed to limit the speed of traffic by use of tightly constrained road geometry and devices such as roundabouts, road humps, raised platforms, road narrowing, slow points and the like. Roads containing these devices are not intended for use by large vehicles on a regular or frequent basis.

A 14.5 metre bus must be able to negotiate any road hump, raised platform, slow point or other traffic calming device without making bodily contact with the device, road surface, or a roadside object.

3. Bus zones

Many bus stops and bus zones have been fixed on the basis of the length and manoeuvrability of standard length buses. These may be inadequate to fully accommodate a 14.5 metre bus without obstructing traffic. This is particularly the case where the bus zone includes an indented bay.

For all proposed routes the 14.5 metre bus operator must assess the adequacy of bus stops and bus zones with or without indented bays to safely accommodate the bus without obstructing other traffic.

A 14.5 metre bus typically needs additional bus zone length to pull up clear of traffic, not just because of the extra vehicle length but also because of the poorer manoeuvrability (greater swept path). Many bus zones will require lengthening. Also, it may be necessary to convert some bus stops to bus zones by delineating the required length of zone more positively by the use of a pair of BUS ZONE signs.

The assessment of the adequacy of bus zones must take into account the longer dwell time of 14.5 metre buses and the possible use of the same bus zone by other bus services. The bus zone should be of sufficient length to accommodate more than one bus (including one or more 14.5 metre buses) where concurrent use is likely.

To determine the geometry of an indented bus bay or the length of a bus zone, use the appropriate AUSTROADS template. As a minimum, use reverse 15 metre turning radii on entry and reverse 12.5 metre radii on exit with a 5 metre straight section between reverse turning radii. See Appendix B, Turning path templates.

Where adjustment to a bus zone is necessary, this must be arranged with RTA or Council as appropriate.

When a 14.5 metre bus leaves a bus zone the rear tailswing in a sharp turn can catch pedestrians unaware as it encroaches onto footpath areas. This can be a particular problem where a bus zone is located on the approach to
an intersection on a multi-lane road and requires an abrupt departure from the bus zone to move to the median lane for an immediate turn to the right at the intersection.

For pedestrian safety, the front overhang and rear tailswing must not encroach over the footpath area by more than 350 millimetres when the bus pulls into or departs from a bus zone.

Cost of road and traffic works

RTA and Councils will not be held responsible for the costs of adjustments to roads, intersections or traffic devices needed to make a route comply with this manual. It may be necessary for bus operator(s) to meet these costs.

Roles and responsibilities

5.1 Roads and Traffic Authority

RTA is responsible for the:
- registration of motor vehicles in New South Wales
- management of State Roads
- maintenance and review as the need arises of this manual. Any review will be undertaken in consultation with:
  - NSW Police Service
  - NSW Department of Transport
  - State Transit Authority — responsible for government buses
  - Bus and Coach Association — responsible for private buses
  - Local Government and Shires Association.

5.2 NSW Department of Transport

The Department is responsible for the regulation of all bus services in New South Wales. Where a bus operator provides a service under the terms of a service contract with the Department it is a condition of that contract that 14.5 metre buses must meet RTA’s registration and vehicle safety standards.

5.3 Bus operator

It is the responsibility of the bus operator to assess all their proposed 14.5 metre bus routes for conformity with this manual.

A 14.5 metre bus may be used for operational assessment of proposed routes provided it does not carry fare paying passengers. The bus operator may invite RTA and / or Council staff to be present during this operational assessment.
The bus operator must give RTA and Council(s) 28 days notice prior to commencement of service of 14.5 metre buses on any route. The notice must include certification by the bus operator that the route has been assessed in accordance with this manual and meets the requirements for operation of a 14.5 metre bus. Bus operators should also note that RTA reserves the right to declare the entire route or part of the route unsuitable if it be found that the route originally certified does not comply with this manual.

A route assessment by a bus operator is subject to audit. The bus operator must be able to demonstrate compliance with this manual. The bus operator must therefore retain documentation identifying each route serviced by 14.5 metre buses together with the assessment of each such route for compliance with this manual. The documentation must include copies of notification to RTA and Council(s).

Should a dispute arise between a bus operator and RTA or Council, refer to Section 6, Disputes.

Bus operators must also ensure that:

- drivers are adequately trained and competent to drive 14.5 metre buses
- the requirements of this manual are reflected in the way in which the vehicle is driven
- drivers are adequately trained in accordance with any guidelines contained in the bus operator accreditation, service contract or other policy guidelines issued by NSW Department of Transport.

### 5.4 Council

Councils are responsible for the management of all roads other than State Roads. Councils also have delegated responsibility for traffic management on local roads. Councils role is to advise the bus operator, on request, regarding 14.5 metre bus operations on roads under their care and control. Such advice should be on the basis of this manual and be formulated with input from the Local Traffic Committee.

### 6. Disputes

In the event of a dispute between a bus operator and RTA / Council regarding the suitability of any section of road for the operation of 14.5 metre buses, the matter must be referred to the Regional Traffic Committee for resolution. The only basis for appeal to the Regional Traffic Committee will be the compliance or non compliance with this manual.
# Appendix A Contacting RTA

<table>
<thead>
<tr>
<th>RTA region</th>
<th>Contact details for 14.5 metre buses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunter Region</td>
<td>59 Darby St Newcastle 2300</td>
</tr>
<tr>
<td></td>
<td>(Locked Bag 30 Newcastle 2300)</td>
</tr>
<tr>
<td></td>
<td>Phone: (02) 4924 0341</td>
</tr>
<tr>
<td></td>
<td>Fax: (02) 4924 0342</td>
</tr>
<tr>
<td>Northern Region</td>
<td>31 Victoria St Grafton 2460</td>
</tr>
<tr>
<td></td>
<td>(PO Box 576 Grafton 2460)</td>
</tr>
<tr>
<td></td>
<td>Phone: (02) 6768 1482</td>
</tr>
<tr>
<td></td>
<td>Fax: (02) 6768 1499</td>
</tr>
<tr>
<td>South West Region</td>
<td>1 Simmons St Wagga Wagga 2650</td>
</tr>
<tr>
<td></td>
<td>(PO Box 484 Wagga Wagga 2650)</td>
</tr>
<tr>
<td></td>
<td>Phone: (02) 6938 1145</td>
</tr>
<tr>
<td></td>
<td>Fax: (02) 6938 1183</td>
</tr>
<tr>
<td>Southern Region</td>
<td>71–77 Kembla St Wollongong 2500</td>
</tr>
<tr>
<td></td>
<td>(PO Box 477 Wollongong East 2520)</td>
</tr>
<tr>
<td></td>
<td>Phone: (02) 4221 2468</td>
</tr>
<tr>
<td></td>
<td>Fax: (02) 4227 3705</td>
</tr>
<tr>
<td>Sydney Operations</td>
<td>85 Flushcombe Rd Blacktown 2148</td>
</tr>
<tr>
<td></td>
<td>(PO Box 558 Blacktown 2148)</td>
</tr>
<tr>
<td></td>
<td>Phone: (02) 9831 0983</td>
</tr>
<tr>
<td></td>
<td>Fax: (02) 9831 0111</td>
</tr>
<tr>
<td>Western Region</td>
<td>51–55 Currajong St Parkes 2870</td>
</tr>
<tr>
<td></td>
<td>(PO Box 334 Parkes 2870)</td>
</tr>
<tr>
<td></td>
<td>Phone: (02) 6861 1478</td>
</tr>
<tr>
<td></td>
<td>Fax: (02) 6861 1414</td>
</tr>
</tbody>
</table>
This page intentionally left blank
Appendix B  Turning path templates

The most commonly used templates for 14.5 metre buses are reproduced on the following pages.

These templates have been extracted from the folder, Design Vehicles and Turning Path Templates, AUSTROADS, 1995. This folder may be purchased from RTA Community Relations Branch, 260 Elizabeth Street, Surry Hills.

Note: The dimensions of the AUSTROADS 14.5 metre bus on which the template is based, differs slightly from RTA vehicle standards for this bus. The differences in the swept path are minimal. The AUSTROADS templates have been checked and found to be suitable for use with 14.5 metre buses in New South Wales.
AUSTROADS
LONG RIGID BUS (14.5 metre)
SCALE 1:500

Figure 1 14.5 metre bus, 12.5 metre turning radius
AUSTROADS
LONG RIGID BUS (14.5 metre)
SCALE 1:500

Desirable minimum radius, 15.0 metre
Turning speed: 5 – 15 km/h

Figure 2  4.5 metre bus,  5.0 metre turning radius