Requirements for urban buses in New Zealand

New Zealand’s common standard for urban bus quality (2011)
Requirements for urban buses in New Zealand

New Zealand’s common standard for urban bus quality (2011)
## Record of amendments

<table>
<thead>
<tr>
<th>Amendment number</th>
<th>Description of change</th>
<th>Effective date</th>
<th>Updated by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review of RUB first published in 2008.</td>
<td></td>
<td>Chad Barker</td>
</tr>
</tbody>
</table>


Contents

Record of amendments 1
Abbreviations 5

Background and rationale for the consultation 6
   Purpose 6
   What is the RUB? 6
   Why are we reviewing it? 6
   What work has been done so far? 7
   The case for a common standard approach 7
   A note on air conditioning climate control 10
   A summary of the technical amendments 11
   Consultation process 12
   Making a submission 12
   Format for making a submission 13
   What happens next? 14

RUB amendments 15

1.0 Introduction 15
   1.1 Introduction 15
   1.2 Purpose and scope 16
   1.3 Applicability of the RUB 18
   1.4 Process for seeking a variation to these requirements 18

2.0 Design and performance 20
   2.1 Introduction 20
   2.2 Maximum vehicle age and fleet average age profile 20
   2.3 Engine 20
   2.4 Transmission 20
   2.5 Suspension 21
   2.6 Stability and steering 21
   2.7 Braking 21

3.0 Access 22
   3.1 Introduction to the priority seating area 22
   3.2 Doors 23
   3.3 Step height/depths 24
3.4 Floors
3.5 Aisle width
3.6 Seating configuration
3.7 Seating
3.8 Luggage/stroller/prams/mobility devices

4.0 Vehicle interior, entrance and exit
4.1 Introduction
4.2 Step and plinth edges
4.3 Stanchions/handrails
4.4 Grab handles on seat backs and elsewhere
4.5 Lighting
4.6 Security and safety
4.7 Heating, ventilation and air conditioning
4.8 Demisting

5.0 Communication
5.1 Introduction
5.2 Bus stopping signals
5.3 External destination display
5.4 Internal information
5.5 Driver operational communication

6.0 Facilities for passengers with impairments
6.1 Introduction
6.2 Priority seating area
6.3 Wheelchairs
6.4 Boarding or alighting
6.5 Ramp

7.0 Driver compartment

8.0 Existing buses
8.1 Introduction
8.2 Existing bus standards

Appendix 1: Procurement variation application template
Appendix 2: Procurement variation – internal memo seeking approval template
Appendix 3: Research on the benefits and costs of using the RUB as New Zealand’s common standard
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>ABS</td>
<td>Anti-lock braking system</td>
</tr>
<tr>
<td>ASR</td>
<td>Anti-spin regulation/drive slip control</td>
</tr>
<tr>
<td>Auckland Transport</td>
<td>Replacement Agency for the Auckland Regional Transport Authority</td>
</tr>
<tr>
<td>BCA</td>
<td>Bus and Coach Association New Zealand</td>
</tr>
<tr>
<td>BCA</td>
<td>Bus and Coach Association New Zealand</td>
</tr>
<tr>
<td>EBS</td>
<td>Electronic braking system</td>
</tr>
<tr>
<td>GVM</td>
<td>Gross vehicle mass</td>
</tr>
<tr>
<td>IVT</td>
<td>In-vehicle time</td>
</tr>
<tr>
<td>LB</td>
<td>Large bus</td>
</tr>
<tr>
<td>LTMA</td>
<td>Land Transport Management Act 2003</td>
</tr>
<tr>
<td>NLTF</td>
<td>National Land Transport Fund</td>
</tr>
<tr>
<td>NZTA</td>
<td>NZ Transport Agency</td>
</tr>
<tr>
<td>OE</td>
<td>Option estimate</td>
</tr>
<tr>
<td>P&amp;I</td>
<td>NZTA’s Planning and Investment group</td>
</tr>
<tr>
<td>PA system</td>
<td>Public announcement system</td>
</tr>
<tr>
<td>PT</td>
<td>Public transport</td>
</tr>
<tr>
<td>RNZFB</td>
<td>Royal New Zealand Foundation for the Blind</td>
</tr>
<tr>
<td>RTS14</td>
<td>Road and traffic standard series RTS14: Guidelines for facilities for blind and vision impaired pedestrians</td>
</tr>
<tr>
<td>RUB</td>
<td>Requirements for urban buses in New Zealand</td>
</tr>
<tr>
<td>SB</td>
<td>Small bus</td>
</tr>
<tr>
<td>SLF</td>
<td>Super low floor</td>
</tr>
<tr>
<td>TfL</td>
<td>Transport for London</td>
</tr>
<tr>
<td>VQS</td>
<td>Vehicle quality standard</td>
</tr>
</tbody>
</table>
Background and rationale for the consultation

Purpose

The purpose of this consultation is to seek views from central government, government agencies, regional councils, public transport operators, bus builders and suppliers, interest groups, the disability community and any other interested organisations or individuals on proposed amendments to the NZ Transport Agency’s Requirements for urban buses in New Zealand (RUB) (first published December 2008: www.nzta.govt.nz/resources/requirements-for-urban-buses/).

What is the RUB?

The RUB is an NZTA-approved urban bus quality standard for urban bus services developed by the NZTA, Bus and Coach Association New Zealand (BCA), public transport operators, bus builders and suppliers, Auckland Transport, Greater Wellington Regional Council and Environment Canterbury.

The NZTA consulted all of the groups listed under Purpose above prior to approving the document for use by regional councils.

Under the NZTA’s procurement rules ‘All urban bus contracts must incorporate the requirements as published by the NZTA in Requirements for urban buses in New Zealand (2008)’.

Why are we reviewing it?

BCA has expressed concern on behalf of its members that the RUB has not been fully implemented by regional councils, rather it has been implemented as a guide or minimum standard only, and that regional differences are continuing to increase costs for operators and decrease their operational flexibility.

Aside from the technical amendments (which make up the majority of the amendments out for consultation), a key focus of this consultation then is whether the RUB should be implemented as a common standard for urban bus quality specifications in New Zealand, and whether to change the NZTA’s procurement rules and conditions of funding to make this clear. Put another way, the RUB would be the common standard for urban bus quality used by regional councils when tendering and managing their urban bus service contracts to ensure the NZTA’s funding support.

Currently all regional councils in New Zealand specify a different set of urban bus quality standards when tendering and managing their urban bus service contracts. (There has been only a limited amount of commonality since the RUB was published, although Auckland Transport (and its predecessor) and Greater Wellington Regional Council have not undertaken any significant tendering of new contracts for quite some time.) Bus builders, bus industry suppliers and operators are adamant that this leads to increased capital and operating costs for buses, less operational flexibility because buses are not able to be used in multiple regions without modifications, and with minimal additional benefits for passengers.

Research for the NZTA indicates that implementation of the RUB as a common standard rather than minimum standard or guide would result in a net cost saving of $37 million over ten years from 2011/2012, or $22 million present value. The net saving is at least $3.7 million per year. We use the words ‘at least’ because there are a number of other benefits, that were not able to be quantified, that would add to the benefits or cost savings. For more detail refer to section ‘The case for a common standard approach’ below.

In a period of constrained central government funding for public transport services involving buses in the short term, it is imperative that efficiencies are sought and achieved. The savings from a common standard could be put to use, for example in restructuring and/or improving existing urban bus services through measures such as increasing frequencies.
It is also important that this review is consistent with the direction and work being done by the Ministry of Transport, at the request of the Minister of Transport, to deliver a new operating model or framework for public transport in New Zealand (the Public Transport Operating Model). A focus of the operating model is to create incentives for commercial behaviour and practice by public transport operators. This means that public transport operators need further opportunities to create efficiencies in their businesses, achieve a sustainable level of profit to satisfy shareholders and be able to reinvest in services and, also, to invest in innovation to grow patronage.

The NZTA agrees that the quality of buses is important for creating a valued customer experience, attracting patronage from discretionary markets and for accessibility reasons. The NZTA has worked closely with the disability community, regional councils, BCA, bus builders, suppliers and operators to develop an accessible, user-friendly and practical quality urban bus quality standard. The original project developing the RUB also considered a significant number of Australian and overseas standards. A number of buses have been built in Auckland using the RUB and Auckland Transport has been pleased with the results.

**What work has been done so far?**

The RUB was developed with the aim of enhancing the attractiveness of urban buses to encourage increased usage, with a particular emphasis on improving the accessibility and usability of urban buses.

An extensive amount of work was completed in 2007/2008 to finalise and then publish the RUB. This work involved a project team of technical experts from the NZTA, BCA, NZ Bus and Red Bus, DesignLine International Holdings, Auckland Regional Transport Authority, Greater Wellington Regional Council and Environment Canterbury. Issues were scoped and standards and practices in New Zealand, and overseas were researched. There was a consultation process in August to October 2008 and workshops and forums were held with people with physical, sensory and cognitive impairments.

The review of the RUB involves a similar team of technical experts from the NZTA, BCA, NZ Bus, Ritchies Transport Holdings, DesignLine International Holdings, Kiwi Bus Builders, Auckland Transport, Greater Wellington Regional Council and Environment Canterbury.

Issues have been scoped from all the relevant stakeholders who responded and solutions researched. Workshops were held with bus builders and suppliers, and regional councils in December 2010. Additional workshops were held with operators and people with physical, sensory and cognitive impairments in early 2011. Feedback from these workshops has fed in to the various iterations that have led to the amendments to the RUB.

**The case for a common standard approach**

It is clear that there is still wide variation in the urban bus quality standards specified by regional councils in New Zealand. Table 1 provides a comparison of regional council urban bus quality standards versus the RUB on critical dimensions and features contributing to cost.
### Table 1 Comparison of regional dimensions and features with the original RUB (ie 2008)

<table>
<thead>
<tr>
<th></th>
<th>RUB</th>
<th>AT</th>
<th>ECan</th>
<th>GW</th>
<th>EW</th>
<th>EBOP</th>
<th>ORC</th>
<th>Hzons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aisle width</strong></td>
<td>≥760</td>
<td>≥760</td>
<td>≥800</td>
<td>Not specified</td>
<td>≥880</td>
<td>Not specified</td>
<td>≥800</td>
<td>&lt;400-460+</td>
</tr>
<tr>
<td><strong>Door width</strong></td>
<td>F≥1000 R≥700</td>
<td>F≥1000 R≥700</td>
<td>F≥1000 R≥700</td>
<td>F&lt;600-1150+ R&lt;600-900+</td>
<td>F≥1200 R≥625</td>
<td>Not specified</td>
<td>F≥1000 R≥625</td>
<td>F&amp;R&lt;600-1150+</td>
</tr>
<tr>
<td><strong>Wheelchair provision</strong></td>
<td>WL 1300 x 800 N 1</td>
<td>WL 1300 x 800 N 1</td>
<td>WL 1300 x 800 N 2 (ITF)</td>
<td>Not specified</td>
<td>WL Not specified N 2 (IFF &amp; IRF)</td>
<td>Not specified</td>
<td>WL 1300 x 800 N 1</td>
<td>WL Not specified N 1</td>
</tr>
<tr>
<td><strong>Priority seating</strong></td>
<td>N 4</td>
<td>N 4</td>
<td>N 4</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Not specified</td>
</tr>
<tr>
<td><strong>Step height</strong></td>
<td>F≤370</td>
<td>F≤300</td>
<td>SW≤350 LW≤360</td>
<td>Not specified</td>
<td>Not specified</td>
<td>&lt;300-410+</td>
<td>≤330</td>
<td>≤260-360+</td>
</tr>
<tr>
<td><strong>Kneel height</strong></td>
<td>F≤280</td>
<td>F≤300</td>
<td>SW≤260 LW≤300</td>
<td>Not specified</td>
<td>Not specified</td>
<td>≤345</td>
<td>≤110 less than step height</td>
<td>≤320</td>
</tr>
</tbody>
</table>

**Notes:**
- This comparison was based on the regional bus quality standard recently provided by the regional councils to the NZTA (see note below). Many of the regional bus quality standards are under review due to the development of new Regional Public Transport Plans by 1 January 2012.
- Greater Wellington Regional Council’s bus quality standard for all contracted services dates back to 2006. More up to date specifications have been used by Greater Wellington Regional Council for specific contracts.
- All dimensions are in millimetres.
- AT = Auckland Transport; ECan = Environment Canterbury; GW = Greater Wellington Regional Council; EW = Environment Waikato; EBOP = Environment Bay of Plenty; ORC = Otago Regional Council; Hzons = Horizons Regional Council (Manawatu-Wanganui).
- F = Front; R = Rear.
- WL = Width and length; TF = Transverse facing.
- N = Number.
- SW = Small wheels; LW = Large wheels.

From the workshop with regional councils it appears the main reason for the wide variation in dimensions and features is an inward focussing regional delivery model, where regional councils procure and manage urban bus contracts to meet the needs of their local communities. Many of the current urban bus quality standards had evolved from previous regional versions and new dimensions or features had often been introduced via a review process undertaken by different people/consultants, and to address a particular local concern or circumstance, eg what the operator/operators wanted to supply or the use of poorer quality and/or older vehicles by some operators.

We believe that some of the implications of greater dimensions than the RUB may not have been fully assessed. For example a wider aisle (on a bus with a maximum width of 2500mm) narrows the potential market for chassis supply, makes it difficult to achieve satisfactory steering performance and turning circles. This also further reduces seating capacity and can make fitting the necessary suspension, and kneeling technology difficult. After considering overseas practice and the advice of New Zealand bus builders, suppliers and operators, regional councils and the disability community, we have put forward a dimension of 800mm in length, which is supported by Auckland Transport, Greater Wellington Regional Council and Environment Canterbury.
where the fleets make up the vast majority of buses used in public transport services in New Zealand. We are also aware that some other regional councils already support this dimension, eg Otago Regional Council.

It is important to note that regional councils are also required to take into consideration the policies of central government.

While the regional delivery model has many more advantages than disadvantages, it does mean that opportunities to provide significant benefits from a national or common approach can be harder to achieve. This is a prime reason why the NZTA has worked hard to involve all parties and make the necessary information, expertise, arguments and evidence available to them.

The NZTA has been aware of concerns from bus builders, suppliers, operators and BCA about the problems generated from a wide variation of urban bus quality standards for quite some time. The major concerns being:

- more difficulty/less flexibility for operators looking to buy, use and sell vehicles in other parts of the country
- increased costs of building buses.

The NZTA commissioned John Bolland Consulting Ltd in October/November 2010 to quantify and value the benefits and costs if all regional councils were to implement a common standard (ie the RUB) when tendering and managing their urban bus service contracts.

The full report has been attached in this consultation document as appendix 3.

The main findings from the research and the implementation of a common standard include the following:

- **Benefits:**
  - Reduced costs of building buses in New Zealand.
  - Reduced bus building time.
  - Common parts which would speed up repairs and reduce downtime.
  - Easier for operators to sell vehicles to another operator in another region.
  - Potential to decrease operating costs.
  - Some factors were not able to be quantified (eg reductions in inventory required, improving the competitiveness of New Zealand bus builders) but these would add to the benefits or cost savings.

- **Costs:**
  
  There may be a loss of passenger benefits where parts of the regional urban bus quality standard were higher than the RUB but losses tend to be balanced out by gains made from the RUB in other areas.

  Table 2 summarises the monetised impacts with and without discounting. The figures relate to a 10-year period starting in 2011/12, and discounting has been done at the NZTA’s *Economic evaluation manual* rate of 8 percent.

**Table 2 Overall monetised impact of implementing the RUB**

<table>
<thead>
<tr>
<th>Item</th>
<th>Undiscounted total ($ million)</th>
<th>Present value ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in benefits</td>
<td>-$11</td>
<td>-$0.6</td>
</tr>
<tr>
<td>Saving in operating cost</td>
<td>$0.9</td>
<td>$0.6</td>
</tr>
<tr>
<td>Saving in capital cost</td>
<td>$37.0</td>
<td>$22.0</td>
</tr>
<tr>
<td><strong>Net saving</strong></td>
<td><strong>$36.8</strong></td>
<td><strong>$22.0</strong></td>
</tr>
</tbody>
</table>

The cost saving is approximately $37 million undiscounted or an average of $3.7 million per year. The present value of savings is $22 million. In general the increase and decrease of passenger benefits balance each other out and the main saving is in capital costs.
From the workshop with bus builders and suppliers there was some discussion that the research may have underestimated the savings to operator operating costs from common parts. Having common parts would lead to significant savings over the life of the vehicle. There would be less downtime as a result of the improved availability of parts and less training for mechanics, and there would be more competitive pricing of parts.

During the workshop with regional councils there was some concern from one regional council in particular about any loss of passenger benefits if they implemented the RUB, and the impact on patronage. The consensus view was that loss of passenger benefits was likely to be small (if any) and the gains from the RUB would counteract any losses.

John Bolland Consulting’s research considered the limited number of vehicle aspects that the NZTA’s Economic evaluation manual had values for. The RUB provides a lot of detail on accessibility dimensions and features compared to regional council specifications. This ensures that the benefits of these can be fully realised. Examples are grab handle, hand rail and stanchion requirements, destination displays and presentation, priority seating spaces, contrasted flooring, bus stopping signals, lighting requirements and so on. These had not been comprehensively accounted for in the NZTA’s Economic evaluation manual or analysis. In relation to accessibility, many of the regional council urban bus quality specifications leave a lot to the operator’s discretion.

Moreover many of the participants at the workshop with regional councils agreed there are many factors that impact on patronage aside from the quality of the vehicle used. Examples include the associated infrastructure, pricing, journey time, reliability, frequency, simplicity of the system and the information provided, and external factors such as income and fuel price changes.

People with physical, sensory and cognitive impairments have also told us that a common standard will provide consistency throughout the urban bus fleet so they know what to expect and how to use the facilities on board. This ensures confidence and, therefore, increased usage.

Some regional councils in New Zealand provide only a small number of public transport services and have limited staff resources to, for example, regularly and comprehensively review bus quality standards. These regions have been supportive of a common standard approach and welcome the knowledge of technical experts working with the NZTA to undertake this task on their behalf. It is proposed that the RUB is reviewed every three years to accommodate new technology, other innovations and the circumstances at the time.

Two of these regional councils, however, pointed out that improving their urban bus fleet came with cost implications.

A note on air conditioning climate control

Recent workshops with urban operators and the project team meeting of technical experts in February 2011 have expressed a desire to see all new vehicles for urban service fitted with an air conditioning climate control system. The benefits were considered to be improved comfort for passengers in hot, humid as well as cold conditions. There is also the benefit of improved demisting of the windscreen and windows.

It was felt that this was an important feature if public transport was going to be able to attract passengers away from car use for some trips going forward, and to meet a growing demand for air conditioning/adequate heating from existing passengers who had experienced the difference on vehicles that did have the feature. The analogy made was that you would not purchase a new car without air conditioning as a standard feature, and this level of comfort is something we should expect from modern urban bus travel.

Some operators felt the older style heaters mounted at floor level were unreliable, costly to operate and maintain.

While members of the project team said that it was possible to provide ductwork and the necessary roof structure to be able to fit an air conditioning climate control system at a later date, this was considered a waste of effort and would dilute the effort being made to move to a common standard approach. It may also mean that the vehicle would have to be recertified for passenger carrying capacity due to the extra weight of the air conditioning system, which carries a further compliance cost.
A summary of the technical amendments

The table below summarises the proposed technical amendments to the RUB and provides a summary of the rationale for the amendments.

**Table 3 Summary of the main technical amendments**

<table>
<thead>
<tr>
<th>Amendment</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3 Size of bus – SB increased to 32 seats</td>
<td>Industry request</td>
</tr>
<tr>
<td>1.4 Variation process included</td>
<td>Clarity</td>
</tr>
<tr>
<td>3.1 Priority seats – rearward facing wheelchair space on nearside and 4 priority seats on offside</td>
<td>Layout meets the various user and design practicalities/needs</td>
</tr>
<tr>
<td>3.2 LB – two doors as seated capacity increased. One on special request</td>
<td>Reflects increase in size of SB to 32 seats</td>
</tr>
<tr>
<td>3.3 SB – Step Height amended if kneeling fitted</td>
<td>Industry request</td>
</tr>
<tr>
<td>LB – Addition to differentiate height requirements regarding the use of smaller or large wheel rims</td>
<td>Operator to notify use of large rims to regional council</td>
</tr>
<tr>
<td>3.4 Floors</td>
<td>Clarifies interpretation</td>
</tr>
<tr>
<td>Same contrast floor material to be fitted to front and rear entry/exit door area, ramps, fare paying area and in main aisle</td>
<td>Encompasses modern concepts</td>
</tr>
<tr>
<td>Wheelchair signage as an insert in the floor material is an alternative or additional option</td>
<td>Supplier request, must prove the need</td>
</tr>
<tr>
<td>Flat floor to rear door – permits slope of the floor to start from rear of priority seats (not preferred)</td>
<td>Add flexibility to seating layout design, and increases seating and standing capacity in the peak, provides close-by seats for caregivers</td>
</tr>
<tr>
<td>3.5 Aisle width – permits ≥800mm to the front of the rearmost priority seat or rear of wheelchair space</td>
<td>Industry request to give more design and layout flexibility while not compromising the wheelchair manoeuvring space</td>
</tr>
<tr>
<td>3.6 Fold-up seats – Permits use of fold-up seats in any orientation. Seat must remain in stowed position until actively moved by user</td>
<td>Adds flexibility to seating layout design, and increases seating and standing capacity in the peak, provides close-by seats for caregivers</td>
</tr>
<tr>
<td>Extra grab handles on the underside of fold-up seats</td>
<td>Wheelchair user request to give extra stability</td>
</tr>
<tr>
<td>4.3 Stanchions/handrails</td>
<td>Assists standees and general movement, and clarifies the need for stanchions/handrails in the rear saloon area as well</td>
</tr>
<tr>
<td>Needed throughout the bus saloon</td>
<td></td>
</tr>
<tr>
<td>Overhead horizontal handrails added</td>
<td></td>
</tr>
<tr>
<td>Grab handles on the underside of the folding seats where the sidewall-mounted 700mm horizontal handle is obscured</td>
<td>User request</td>
</tr>
<tr>
<td>4.4 Grab handles – permits alternative of seat integral/moulded handles provided some contrast is achieved</td>
<td>Industry request</td>
</tr>
<tr>
<td>4.6 Security – provides for cabling and mounting points for fitment of minimum of two internal CCTV cameras and one external</td>
<td>User request for external camera</td>
</tr>
<tr>
<td>Amendment</td>
<td>Rationale</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4.7 Heating, ventilation and air conditioning/air conditioning climate</td>
<td>Clarifies intent to improve the customer experience throughout the country</td>
</tr>
<tr>
<td>control required</td>
<td>User request</td>
</tr>
<tr>
<td>5.2 Bus stopping signal</td>
<td></td>
</tr>
<tr>
<td>Adds fitment of bell signal to the underside of fold-up seats if other</td>
<td></td>
</tr>
<tr>
<td>bells are obscured</td>
<td></td>
</tr>
<tr>
<td>Permits some types of palm push signals</td>
<td>Industry request to use latest technology higher pressure palm push type</td>
</tr>
<tr>
<td>providing false signal rate is not increased</td>
<td>signal</td>
</tr>
<tr>
<td>6.2 Fold-up seats – as for 3.6</td>
<td></td>
</tr>
<tr>
<td>6.3 Wheelchairs</td>
<td></td>
</tr>
<tr>
<td>Specifies rearward facing position</td>
<td></td>
</tr>
<tr>
<td>6.5 Ramp</td>
<td></td>
</tr>
<tr>
<td>Use of countersunk hinges and handles</td>
<td></td>
</tr>
<tr>
<td>High contrast edge markers preferred to the alternative of raised metal</td>
<td></td>
</tr>
<tr>
<td>edges</td>
<td></td>
</tr>
<tr>
<td>8.2 Particulate filters – adds information on sources of filters and</td>
<td></td>
</tr>
<tr>
<td>approval process</td>
<td></td>
</tr>
</tbody>
</table>

**Consultation process**

A consultation period of six weeks is provided. Identified stakeholders have been emailed a copy of the document. This consultation document is also available on the NZTA’s website [insert web link].

The NZTA welcomes the dissemination of the consultation document by regional councils and other stakeholders to relevant organisations and individuals. The NZTA also welcomes the dissemination of the consultation document by the Accessible Transport Action Committee to its representatives and stakeholders in the disability community.

While no formal presentations or meetings have been scheduled (in addition to the workshops already held), the NZTA welcome invitations to present or discuss the document with interested groups. Interested groups should get in touch with Chad Barker (details below).

**Making a submission**

Please include the following information in your submission:

- Your name and title if applicable.
- Your organisation’s name if applicable.
- Your postal address and email address if applicable.

**Email** your submission to chad.barker@nzta.govt.nz.

Or **post** your submission to:

Chad Barker  
NZ Transport Agency  
PO Box 13364  
Armagh  
Christchurch 8141  

Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality  
Effective from [insert month] 2011
Please note the deadline for submissions is: **8 June 2011**

**Format for making a submission**

While we are happy for you to provide your submission in any format, it may be easier to analyse the submissions if you provide comments in the following format. *(Note: Electronic copies of templates (MS Word) have been provided separately on the NZTA’s website [insert link]*).

### General comments

(Please include the question below in your submission)

1. Do you support a common standard approach to urban bus quality specifications in New Zealand?  
   Yes [ ]  No [ ]
   Why?

2. Other comments, eg implementation issues?

3. Etc

### Specific comment

(Please respond to amendments first before commenting on other aspects)

<table>
<thead>
<tr>
<th>Section, subsection</th>
<th>Comment/issue</th>
<th>Alternative suggestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1, subsection 1.1</td>
<td>[insert here]</td>
<td>[insert here]</td>
</tr>
<tr>
<td>Etc</td>
<td>[insert here]</td>
<td>[insert here]</td>
</tr>
</tbody>
</table>
What happens next?

The NZTA will analyse all of the submissions and then finalise and publish the amendments to the RUB.

All those who made a submission and key stakeholders, will be sent a copy of the final document. Additional information will be provided on the NZTA’s website and by request (within reasonable limits).

Regional councils will be notified of the final outcome and any implementation implications by General Circular.

As a result of this process, the NZTA’s Procurement manual: for the activities funded through the National Land Transport Programme and its Planning, programming and funding manual will need updating and conditions of funding finalised, and imposed.
RUB amendments

1.0 Introduction

1.1 Introduction

Amended words and phrases are underlined.

In 2007/08 regional councils requested advice from the NZTA as to the terms that should be in their new urban bus services contracts so that those contracts provide for better access and usability of vehicles by passengers.

BCA also indicated its interest in obtaining more uniformity than currently exists in ‘vehicle quality standards’ used by regional authorities throughout New Zealand for operational reasons and potential cost savings.

The NZTA agreed that it was beneficial to develop a set of vehicle requirements for urban buses to be applied nationally. A key issue is how to provide for the mobility needs of people with physical, sensory and cognitive impairments.

NZTA staff worked with BCA, Auckland Regional Transport Authority, Environment Canterbury, Greater Wellington Regional Council and DesignLine International Holdings (NZ) to produce a draft document specifying vehicle quality standards to be applied nationally (a New Zealand national minimum standard for urban buses). The national minimum standard for urban buses document was consulted on publicly in August–October 2008.

The NZTA managed the consultation process for the national minimum standard for urban buses document. Interested groups received the draft document by email and post, and consultation was invited via the NZTA’s and BCA’s websites.

Twenty-nine submissions were received on the national minimum standard for urban buses document, essentially encompassing two key stakeholder groups: regional councils and representatives of people with physical, sensory and cognitive impairments.

Following the written submissions process, the name of the document was changed to Requirements for urban buses in New Zealand to differentiate it from land transport rules (below). This was to avoid potential confusion as use of the word ‘standard’ is often associated with the land transport rules. However, because the RUB sits outside the formal rules framework, it enables changes to be made much more simply and quickly compared with the more lengthy and wider consultation process required for changes to the rules. The first version was published in December 2008 and came into effect on 1 January 2010, providing a transition period for regional councils and operators.

Since the publication and transition period, it is apparent that many regional councils have not implemented the RUB the way it was intended. The original intent was that the dimensions and features would be accepted and implemented by regional councils, and that operators could, depending on the supplier selection method, receive more points in a tender for providing extra comfort, improved accessibility, increased safety or improved emissions performance.

There are a number of reasons for the lower than expected uptake by councils, including the following:

- There has been no significant tendering of new contracts in Auckland and Wellington because of the review of the Public Transport Management Act 2008 (and the development of the Public Transport Operating Model being led by the Ministry of Transport).
- Regional councils are required by law to develop new regional public transport plans by 1 January 2012 and are reviewing a whole raft of policies including vehicle policies.
- The NZTA procurement rule relating to the RUB could have been more direct/clearer about what is expected. Some regional councils have been treating the RUB as a guide or minimum standard without having made substantive changes to their contracting requirements.
There is also work underway on a public transport sector-led project to improve the effectiveness of public transport in New Zealand and a constrained central government funding environment for public transport, particularly involving buses, in the short to medium term.

Therefore, for the above reasons, it is timely that we review the RUB to see how we can improve understanding of the funding and procurement framework, as well as the potential savings to be made and thereby increasing uptake of the RUB by regional councils.

The review was specifically instigated at the request of BCA. An overarching issue for the review has been the importance of implementing a common standard for specifying urban bus quality to achieve cost savings and provide more flexibility in bus deployment for those bus companies operating in more than one region or for subsequent bus sales to another region.

The RUB has also been subject to a ‘tidy-up’ and a general clarification process, particularly in relation to the ability to have inward facing fold-up seating on the bus sidewall in the multi-use/wheelchair space, to accommodate extra seating and more standees in the peak, and seating for carers next to children and their strollers/prams or wheelchair users in their wheelchairs.

This document is subsidiary to the legislative requirements for buses in New Zealand, namely:

- Land Transport Rule: Passenger Service Vehicles 1999 [Rule 31001]
- Land Transport Rule: Heavy Vehicles 2004 [Rule 31002]
- Land Transport Rule: Vehicle Exhaust Emissions 2007 [Rule 33001/2]
- Land Transport Rule: Heavy Vehicle Brakes 2006 [Rule 32015]
- Land Transport Rule: Vehicle Equipment 2004 [Rule 32017]
- Land Transport Rule: Vehicle Standards Compliance 2002 (the Compliance Rule) [Rule 35001/1]

The vehicle must also meet other rules for vehicle systems, parts and components. See www.nzta.govt.nz/resources/results.html?catid=2.

### 1.2 Purpose and scope

#### 1.2.1 Purpose

This document aims to enhance the attractiveness of urban public transport vehicles in order to encourage increased usage, with a particular emphasis on improving accessibility for all users, including people with physical, sensory and cognitive impairments.

The RUB specifies the technical bus specifications that are to be used by regional councils and that have been developed through a collaborative approach involving the NZTA, regional councils, operators, BCA and representatives of the bus industry, including bus builders and suppliers.

The NZTA intends that the RUB forms a common standard and that the dimensions, and features in the RUB be accepted by all regional councils as a prerequisite for receiving the NZTA funding for urban public transport services involving buses, unless otherwise agreed through the process described in 1.4 below. As such, it is intended that uptake of the RUB will be reflected in a new funding condition on urban bus services and that the existing rule 10.30 of the procurement procedure for urban bus contracts be amended for clarification.

Proposed wording of funding condition (for inclusion in the NZTA’s Planning, programming and funding manual at chapter F5.2 W/C511: Bus services):

> ‘It is a condition of funding assistance for all urban bus services that any contract let to provide such a service must incorporate the requirements as published by the NZTA in Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011).’
Proposed amended wording of Rule 10.30 Requirements for urban bus contracts (for inclusion in the NZTA’s Procurement manual: for the activities funded through the National Land Transport Programme at chapter 10.0 Rules):

**Rule 1:** All urban bus contracts funded wholly or partly by the NZTA must incorporate the requirements as published by the NZTA in *Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality* (2011).

**Rule 2:** If an approved organisation wishes to specify additional or higher vehicle requirements than those set out in the NZTA’s *Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality* (2011), it must first apply to the NZTA for approval, using normal processes for procurement procedure variation. The NZTA may approve an application that can show the variation represents value for money and this assessment will consider the whole of life costs and benefits of the proposed amended service. An application is unlikely to be approved if the NZTA determines that value for money would be unduly compromised.

**Guidelines:** In addition, all urban bus contracts should consider the guidance and best practice material as set out in *Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality* (2011).

The benefits of having consistent national bus specifications and requirements are set out in the report of John Bolland Consulting Ltd (appendix 3 of the NZTA’s *Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality* (2011)).

Approved organisations may specify ferry quality standards that they consider appropriate.

At a national level, this will have significant impacts on:

- improving the perception held by existing and potential users that buses can be used for all urban travel, including commuter, shopping, school and recreational activities travel
- an increase in usage of public transport, including people with physical, sensory and cognitive impairments
- minimising the rate of increase of urban traffic congestion
- reducing bus design and feature variations that result in higher unit costs for supply.

This document is intended for use by regional councils in their procurement of urban bus services, and specifies:

- requirements that apply to all buses (both new and used imports) that enter urban service from 1 January 2012 (sections 2 to 7)
- requirements for buses in the existing fleet (section 8).

To clarify, new to urban service means any vehicle entering urban service in one specific location in New Zealand for the first time (as either a new or a used import), as well as any vehicle shifting from one New Zealand region to another region that has already been used in urban service. In the latter case, the bus in question must have previously satisfied the RUB or VQS that was in place at the time that that bus was accepted into service under an urban contract in the region in which it originated, and the move must be approved by the receiving regional council.

As part of any urban service contract, the operator will be required to ensure that it maintains or improves on the fleet age matrix offered as part of the tender and contract, throughout the period of the contract, through regular fleet replacement.

In this manner, an improvement in the standards of buses will be achieved on a progressive basis.

The document specifies requirements that apply to all buses entering urban service from 1 January 2012 (and includes requirements for existing buses). This document is to be used by regional authorities and incorporated into their new tender documentation.

The practical implementation of these requirements may highlight new ways of dealing with particular issues that may arise and the intent is that we should make improvements if need be. It is, therefore, proposed that this document be formally reviewed every three years. The next review is intended to take place in 2014, to be effective from 1 January 2015.
1.2.2 Guidance

In addition to setting out the technical bus specifications themselves, this document provides guidance as to additional matters that can be considered by regional councils. Guidance material and best practice are provided in this document in boxes.

1.2.3 Items not included

The NZTA is also aware that there are other issues that are as important as vehicle design and construction. One example is the quality of the infrastructure that enables use of a public transport system, e.g., bus stop location and design, kerb heights and facilities (in terms of weather protection), information, suitability for use by persons of all ages and capabilities, and ease of transfer opportunities. However, defining the infrastructure requirements is not included as part of this document, nor is driver training.

As part of a programme of work designed to improve the effectiveness of public transport, the NZTA has begun scoping a project to develop national public transport infrastructure guidelines. This document is likely to use common principles and standards to set guidelines for new and refurbished public transport (PT) infrastructure.

The NZTA has commissioned a stocktake of customer services training in public transport, and is currently working with BCA to identify ways of improving this training.

The document also does not cover a special feature that was trialled by Environment Canterbury and allowed in law from 1 May 2010, namely a facility for people to carry bicycles on a rack at the front of the bus. The onus is on the operator to work with councils and the Certificate of Fitness agent to ensure compliance with the law.

1.3 Applicability of the RUB

For the purpose of this document, a bus is a heavy vehicle that provides a service with more than 12 seating positions. At present, many buses do not cater as well as they should to meet the mobility needs of people with physical, sensory and cognitive impairments. This document presents some solutions and provides a way forward.

Where there is a need to further delineate the bus by size in terms of seated capacity, this document uses what is known in the industry as a small bus (SB) and large bus (LB). This will be determined by need and/or the limitations on vehicle design or performance characteristics.

<table>
<thead>
<tr>
<th>SB</th>
<th>13 – 32 seated passengers</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB</td>
<td>33 or more seated passengers</td>
</tr>
</tbody>
</table>

References are to all bus sizes unless specifically noted as to the size category in the relevant sections that follow.

Regional councils are reminded that if they wish to make these requirements mandatory for commercially registered services they must use the process for the imposition of conditions provided in the Public Transport Management Act 2008.

1.4 Process for seeking a variation to these requirements

Any regional council wanting to depart from the requirements of the RUB must first apply to the NZTA for approval, using normal processes for a variation to a procurement procedure. For variations less than $100 million or considered minor, or low risk, this will likely involve a three-step process:

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1 This whole section is new and is not underlined so that it can be read easily.
• The submission of an application form by the relevant council as an approved organisation to the local NZTA representative (example attached to this consultation document).

• The preparation of a memo in support of the application to be completed by that NZTA representative and submitted to the NZTA regional Planning and Investment group (P&I) manager (example attached to this consultation document).

• Consideration of the application and approval/refusal by the NZTA regional P&I manager.

Any more significant variation will require the involvement of either the group manager P&I or the NZTA Board. The NZTA may approve an application that can show the variation represents value for money. The value for money assessment will consider the whole-of-life costs and benefits of the proposed amended service. As part of this assessment, the NZTA will likely consider matters such as the effective, economic and sustainable use of resources, the contribution of the variation to the outcomes the NZTA is trying to achieve, national and regional impacts, any demonstrated value of the standard approach to urban bus specifications and the likely impacts on its effectiveness if a variation is approved. An application is unlikely to be approved if the NZTA determines that value for money would be unduly compromised.

By way of example, it is possible that some services may require a higher or different standard of vehicle to operate temporarily, or for a longer period of time, eg some high-frequency inner-city routes may be better served by a wider rear door or provision for more standees. It is also possible that the RUB may require variation to capitalise on an improvement in technology. The NZTA is keen to see bus companies and regional councils seek to utilise any benefits that flow from technological advances. A variation application will be the appropriate channel until such time as a review of the RUB is actioned.

In some regions buses may be used to provide regular services to satellite dormitory areas and a different/lower specification might seem justified. However, with one exception (i.e. accepting a single door at the front for longer distance), the NZTA does not see a need to relax the requirements set by the RUB for buses operating such services, unless the roading or terrain is such that the operation of buses complying with this specification is not practical (in which case a specific variation application could (and should) be sought). This situation aside, the RUB will continue to apply to the services described above in order to maximise the opportunity to promote public transport as a means of travel to the maximum range and number of people. This is expected to occur because:

• people with disabilities can also be expected to use these services, and

• buses on these routes can be expected to pick up and set down passengers as they move in and out of the urban area and these passengers will expect the buses to be of a similar standard to those used within the urban area;

Moreover, we understand from discussions with commercial operators that there are likely to be times when the bus company running the services described above will want to use the buses on those services on urban services instead, in order to maximise bus utilisation.
2.0  Design and performance

2.1  Introduction

The chassis must be fit for purpose as required by the heavy vehicles rules, eg Vehicle Dimensions and Mass 2002, Passenger Service Vehicles 1999 rules. The chassis shall be of a design and use protective material or techniques such that a bus can be expected to give 20 years reliable life under normal high-intensity urban operational conditions of service, without incurring major structural failures or the need for major overhaul requirements due to operating, roading and environmental conditions excluding those that are attributable to vehicle crashes.

2.2  Maximum vehicle age and fleet average age profile

The maximum permitted vehicle age <20 years.

Note: This applies to all vehicles irrespective of whether they are new to urban service or existing buses.

<table>
<thead>
<tr>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that the urban bus fleet is replaced to achieve a smooth and reliable supply of buses, the desired fleet profile for an urban bus company is:</td>
</tr>
<tr>
<td>- from the date of the introduction of these requirements, ie 1 January 2012: ≤12.5 average years, and</td>
</tr>
<tr>
<td>- by 1 January 2017: ≤10 average years.</td>
</tr>
</tbody>
</table>

2.3  Engine

All sizes. Includes all modes of propulsion, ie liquid fuel, electricity, gas or hybrid.

<table>
<thead>
<tr>
<th>Acceleration</th>
<th>0-20km/h ≤4 seconds.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-50km/h ≤30 seconds.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range without refuelling</td>
</tr>
<tr>
<td>Emission</td>
</tr>
<tr>
<td>Noise</td>
</tr>
<tr>
<td>Compartment insulation</td>
</tr>
</tbody>
</table>

2.4  Transmission

| SB | Fully automatic or electronic shift. |
| LB | Fully automatic or electronic shift plus retarder. |
2.5  Suspension

<table>
<thead>
<tr>
<th>SB</th>
<th>Air suspension including kneeling capability is desirable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB</td>
<td>Air suspension. ECAS – electronically controlled including self-leveling. Kneeling at front door ≥60mm drop/lift, driver controlled with in-use indicator/drive-off protection.</td>
</tr>
</tbody>
</table>

2.6  Stability and steering

| LB   | ESC – electronic stability control is desirable. |

2.7  Braking

<table>
<thead>
<tr>
<th>SB and LB</th>
<th>Must meet a brake standard as required by the Heavy Vehicle Brakes Rule if over 3.5 tonnes GVM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB</td>
<td>EBS and ABS, eg electronically controlled braking system with brake blending and anti-lock braking system. Vehicle movement above 5km/h is inhibited while rear door is open or the kneeling system is activated. <strong>Guidance</strong> Some suppliers may offer a combined system incorporating ABS, ASR and EBS. This is acceptable.</td>
</tr>
</tbody>
</table>
3.0  Access

3.1  Introduction to the priority seating area

The ease and speed of accessibility for passengers of all ages, sizes, capability and mobility while boarding or alighting a vehicle, as well as movement within the vehicle, is of prime importance because:

- it removes the perceived barrier that buses cannot be easily used by all members of the public regardless of any physical, sensory or cognitive impairment
- boarding and alighting times are much reduced, which can have a significant impact on the overall travel times and consistency of journey time of a bus service when compared with that of the alternative choices, i.e. using a private or company vehicle.

The priority seating area is a key concept in achieving this accessibility. The priority seating area is located well to the forward end of the saloon, preferably immediately to the rear of the front wheel arches, and encompasses a minimum of one rearward facing space for a wheelchair or pram user on the nearside of the vehicle as well as at least four seating positions preferably on the offside. Its purpose is to provide space for a single occupant wheelchair user and seating for those with physical, sensory and cognitive impairments and parents/caregivers with children, irrespective of whether or not a pram or stroller is being used.

The picture below shows the general location of the priority seating area. It is not intended to show all of the features and dimensions of the priority seating area, and other variations are possible within the parameters of this urban bus quality specification.

For an LB, a minimum of one rearward facing wheelchair space to accommodate a wheelchair with a footprint of ≤700mm width x ≤1200mm length and its user shall be provided (for more detail see section 6).
<table>
<thead>
<tr>
<th>Guidance</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plinth</td>
<td>Raised small step/platform/area within the bus saloon above the level of the central aisle that makes access easier to seats, particularly those that may be mounted onto the wheel arches rather than to the floor or bus sidewall.</td>
</tr>
<tr>
<td>Wheel arch</td>
<td>The covered protective flooring structure directly above the front and rear wheels/axles of the bus. The front wheel arches particularly must allow the suspension and steering action of the bus to fully function.</td>
</tr>
<tr>
<td>Parent/caregiver and child seat</td>
<td>A bench style seat of a narrower width than the normal double-bench seat which may permit a parent/caregiver and child to sit side by side, often used on or forward of the front wheel arch in conjunction with the need to provide a wider aisle for wheelchair/mobility device/pram access. This seat must not protrude over the wheel arch edge into the aisle area as this can restrict easy access for a person in a wheelchair.</td>
</tr>
</tbody>
</table>

Doors and aisle width, step heights, interior floors, seating configuration and revenue collection all impact on accessibility.

For the purpose of this document, it is assumed that boarding and revenue collection for all passengers of any capability, including those using wheelchairs, is through the front door. Alighting and any electronic revenue system using tag on – tag off may be through either door, although the NZTA is aware that some regional councils currently intend to restrict electronic ticketing system tag on to the front door only.

Some of these things have been put in place by regional authorities to provide accessibility but this is the first time clear, achievable requirements have been set nationally.

**3.2 Doors**

<table>
<thead>
<tr>
<th>Number</th>
<th>SB</th>
<th>One</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LB</td>
<td>Two. Larger vehicles that will be used on longer-distance urban express/limited stop style services may use only one door. Regional council prior approval for this configuration is required.</td>
</tr>
<tr>
<td>Location</td>
<td>Front door shall be as close to the front of the bus as possible, preferably forward of the front axle and immediately opposite and in full view of the driver.</td>
<td></td>
</tr>
<tr>
<td>Widths</td>
<td>Rear door</td>
<td>≥700mm single leaf</td>
</tr>
<tr>
<td></td>
<td>Front door</td>
<td>≥850mm single leaf</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥1000mm double leaf</td>
</tr>
</tbody>
</table>

**Guidance**

**Notes:**

1. It is not intended that rear door access be provided for wheelchair users.
2. In addition to the doors for entrance and exit there must be adequate provision made for emergency exit as stated in section 5 of the Passenger Service Vehicles Rule 1999.
3. The requirements for any additional form of rear door/brake safety interlock system is a preferred feature and until such time as this may fall within the Passenger Service Vehicles Rule 1999 amendment process it has been included in the RUB.
3.3 Step height/depths

<table>
<thead>
<tr>
<th>First step</th>
<th>Measured from the ground to top of step nosing (without kneeling in operation).</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB</td>
<td>≤300mm (may be up to 370mm if kneeling ≤300mm is fitted)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LB</th>
<th>19.5 inch rims</th>
<th>22.5 inch rims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>≤370mm</td>
<td>≤370mm</td>
</tr>
<tr>
<td>Rear</td>
<td>≤370mm</td>
<td>≤370mm</td>
</tr>
<tr>
<td>With kneeling: Front</td>
<td>≤280mm</td>
<td>≤300mm</td>
</tr>
</tbody>
</table>

**Guidance**
For some LBs the fitment of larger rims and tyres offer significant benefits in terms of ride quality, maintenance costs and fuel efficiency. The possible intention to fit larger rims should be signalled by operators in any tender documents so that Regional Councils can check and if necessary address any infrastructure requirements.

Any additional steps, including aisle or seat plinths

As per the Passenger Service Vehicles Rule 1999.

There should not be any plinths located forward of the rear edge of the rear door (ie within the low floor area) except where they are necessary to access forward facing seat(s) located on the forward face of the front wheel arches.

3.4 Floors

All floor surfaces shall use a non-slip material with particular attention paid to its effectiveness in the entry and exit areas, including the wheelchair ramp. Front and rear door entry/exit step areas, and areas designated and signed for wheelchair users and priority seating. All of these areas shall use the same easily seen contrasting colour flooring material, which contrasts to the flooring of the rest of the main saloon, including under the other passenger seats and any luggage areas.

Wheelchair signage as part of the flooring insert is an acceptable alternative or in addition to a sidewall-mounted wheelchair sign.

**Guidance**
Royal New Zealand Foundation for the Blind (RNZFB) and the Association of Blind Citizens of New Zealand recommend a 70-percent minimum visual contrast (refer to road and traffic standard series RTS14 Guidelines for facilities for blind and vision impaired pedestrians revision 2, 2009, section 5.3 (RTS 14)).

<table>
<thead>
<tr>
<th>SB</th>
<th>Flat (horizontal) floor from front entry to rear of priority seating area is mandatory and highly desirable to immediately forward of rear axle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB</td>
<td>Flat floor from front entry to rear edge of the rear door or immediately to the front of the rear axle if only one door. Behind the rear door or rear axle stepped access (maximum two) in conjunction with sloping floors are acceptable.</td>
</tr>
</tbody>
</table>
3.5 **Aisle width**

The aisle width from the front door entrance, fare paying and turning area, and unimpeded access for a wheelchair and pram through to at least the front edge of the rearmost set of priority seating or the rear of the wheelchair space.

<table>
<thead>
<tr>
<th>SB</th>
<th>≥780mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB</td>
<td>≥800mm</td>
</tr>
</tbody>
</table>

The swept path from the front entrance to the aisle shall accommodate a wheelchair/mobility device/pram of ≤700mm width x ≤1200mm length, with an allowance for clearance.

Rear of priority seating area for remainder of flat floor area/to rear door ≥440mm, and desirably through to the rearmost seats.

3.6 **Seating configuration**

The NZTA appreciates that different urban operations and chassis design configurations may demand different seating configurations. Seats shall face forward (preferred choice for most passengers) or rearward if utilising the rear side of the front wheel arches.

Inward-facing fold-up style seats are permitted in the multi-use/wheelchair spaces in order to maximise seating capacity when the spaces are not occupied by a wheelchair traveller (or parents/caregivers with a child in a stroller or pram).

Any fold-up seats whether forward, rearward or inward facing must have a mechanism that ensures they stay in the up stowed position unless actively moved by a passenger. This ensures that they are up in the event of the space being required by a wheelchair user. Lever locking systems are not preferred but if used must be able to be readily operated by a passenger with a disability.

Wide single parent/caregiver and child, double and wider three or more person bench style may be used but must not overhang the wheel arch on the aisle side.

However, to ensure passenger confidence along the route as well as speedy accessibility:

- ≥60 percent of the total seated capacity of the bus shall be forward facing (the majority of the forward facing seats may be towards the rear)
- ≥50 percent of the seats in the priority area shall be forward facing.

Note that section 6.6 of the Passenger Service Vehicles Rule 1999 requires that a passenger service vehicle must be designed and constructed to ensure the chassis ratings are not exceeded and at least 25 percent of the actual weight is carried on the front axle or front axle combination, and no component overloading will occur.
To increase the standing/seated passenger ratio and to facilitate wheelchairs/mobility devices/prams, forward, rearward and inward-facing fold-up seating is allowed.

Any fold-up seat in any orientation, located in a space that is available to accommodate a wheelchair user, must have an underseat contrasting colour grab handle that the wheelchair user or smaller stature standees can rely on for stability.

See section 4.3 for other alternative requirement for a horizontal handrail.

See section 6 for further details related to priority seating and wheelchair carriage.

Seat spacing between forward-facing seats shall be ≥670mm, as measured by the same method as set out in the Passenger Service Vehicles Rule 1999.

**Guidance**

**Seat height:**
- The height from the floor to the top of the front of the seat cushion should be ≥400mm and ≤500mm.
- RNZFB recommend 450–500mm as this would better suit elderly clients with mobility limitations.
- The height to the top of the seat back excluding any grab handle should be ≥900mm.

**Seat spacing:**
In contrast to the critical structural elements such as step height, door width and aisle width, regional councils can make a case through the variation process in 1.4 for a different seat spacing dimension to accommodate local circumstances, eg many regions carry a smaller number of passengers per trip and have less standees in the peak. The project team developing the RUB has advised that seats can be moved relatively easily and inexpensively.

### 3.7 Seating

Changes in population demographics means many of our passengers are getting heavier, bigger/wider, older and less mobile, so good easily accessible seating is a requirement for passengers be they short distance hop on hop off or using the longer suburban routes and express/motorway services which may mean a journey of up to an hour.

Seating shall consist of a fabricated frame or moulded shell. The fabricated frame or moulded shell shall support or contain a flat bench style or minimally contoured to body shape integral squab, or padded insert style seat.

All materials shall be vandal, fire, stain and odour resistant. They shall also be hard-wearing and easy to clean.

<table>
<thead>
<tr>
<th>Seat width</th>
<th>Single seat</th>
<th>≥425mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Double bench or paired</td>
<td>≥875mm</td>
</tr>
<tr>
<td></td>
<td>Parent/caregiver and child, on front wheel arch</td>
<td>≥760mm</td>
</tr>
</tbody>
</table>

| Spacing | Forward facing | ≥670mm (see note above) |
3.8 Luggage/stroller/prams/mobility devices

The safe provision of baggage, freight and pushchairs is provided for in section 6.8 of the Passenger Service Vehicles Rule 1999.

**Guidance**

Provision can be toward the front of the saloon area for easy access/safe/secure storage of:

- luggage, ie suitcase, carryall, backpack or similar package
- folded pram/stroller/mobility frame/aids
- folded wheelchair.

The area above the wheel arches immediately above both front wheels is in most configurations the most suitable luggage location but alternatives behind modesty panels at the front or rear door are also acceptable.

In total, sufficient protected space may be provided to accommodate two folded prams/strollers/mobility frames and two pieces of luggage, each of the luggage pieces being capable of being carried by one person, eg ≤25kg with dimensions ≤800mm x ≤300mm.
4.0 Vehicle interior, entrance and exit

4.1 Introduction

Although the Passenger Service Vehicles Rule 1999 includes requirements for handrails, handholds and handgrips, energy absorbent padding and lighting, this document suggests additional requirements to ensure passenger safety, and introduces the now commonly used term grab handle in preference to hand grip.

4.2 Step and plinth edges

All steps at door entry and exits or within the vehicle shall have full width step edges and faces fitted with a distinctive high-visibility, non-slip/trip style nosing in a solid band, contrasting with the immediately adjacent flooring material.

**Guidance**

RNZFB and the Association of Blind Citizens of New Zealand recommend a 70-percent minimum visual contrast (refer to RTS 14 section 5.3).

RNZFB and the Association of Blind Citizens of New Zealand recommend the use of safety yellow as the colour that is most easily distinguished by the visually impaired.

The nosing dimensions in the horizontal and vertical planes should be within the range 45–50mm in width (UK Public Service Vehicles Accessibility Regulations 2000).

Plinths shall have a minimum of similar nosing on the horizontal edge.

Sharks-tooth style reduces the contrasting effect by half so is unacceptable.

4.3 Stanchions/handrails

Vertical high-visibility contrasting colour stanchions from either floor to ceiling or seatback to ceiling, as location dictates, shall be fitted throughout the length of the bus and close to the aisle, but not impede movement along, the aisle so that they are spaced at least at alternate seats left and right of the aisle, and a passenger can stand safely or walk/move the length of the bus while able to hold a stanchion with one hand at all times. This includes in the rear saloon area. Additional overhead horizontal handrails are allowed (see paragraph below).

Additional stanchions shall be provided immediately adjacent to doorways and in priority seating or wheelchair areas if not already fitted as above. Care must be taken to ensure that these stanchions do not limit the manoeuvrability of the wheelchair user.

In entry exit areas and the fare paying area or areas where seating may have been reduced to provide for more people to stand, priority seating or wheelchair positions, or is of the folding style, then front dash board, sidewall, wheel arch-mounted or overhead contrasting colour handrails shall be provided.

Stanchions, handrails and grab handles must meet the requirements of section 6.9 of the Passenger Service Vehicles Rule 1999.
Guidance
For contrast refer to guidance for step and plinth edges.

Overhead contrasting colour handrails should be no higher than 1900mm from floor level.

Stanchion/handrail maximum cross-section dimension should be in the range of 30–35mm and should be of a circular or elliptical cross section (UK Public Service Vehicles Accessibility Regulations 2000).

For handrails, eg on the doors, in the fare paying area or on the top face of the front wheel arches, they should have a finger/hand clearance space of between 35 and 45mm between any part of the vehicle, and all parts of a handrail other than its mountings. Our preference is for 45mm which is similar to the United Kingdom requirements of not less than 45mm (UK Public Service Vehicles Accessibility Regulations 2000).

The Hamilton Accessibility Pilot team recommends that handrails mounted horizontally on the side of the bus sidewall immediately to the side of the wheelchair user be at least 700mm in length. These are only required if the wheelchair area is not fitted with fold-up seats fitted with underseat handrails.

Deep knurling is not encouraged for general cleanliness and hygiene reasons.

4.4 Grab handles on seat backs and elsewhere

All forward or rearward-facing seats must have a grab handle fitted towards the aisle side. Additional grab handles on the faces of wheel arches can also be beneficial. As with stanchions and handrails, all grab handles shall be of the same high-visibility contrasting colour material unless they are an integral part of the seat frame construction in which case they can be the moulded colour or another colour contrast.

Guidance
For contrast refer to guidance for step and plinth edges.

Grab handles should have a circular or elliptical cross section of 30–35mm on the maximum section (refer to the United Kingdom Public Service Vehicles Accessibility Regulations 2000). Finger and hand clearance space should be as for handrails above, ie 35 to 45mm. The length should be at least 100mm but our preference is for at least 120mm which is easier to grasp in a moving situation.

4.5 Lighting

Lighting must be adequate as per section 6.15(3) of the Passenger Service Vehicles Rule 1999.

In addition, for the purpose of these requirements, the following lighting should be provided:

- For the internal entry and exit doorway step areas and externally downwards and outwards for 500mm beyond the step edge to a level of ≥100lux. Extinguished on door closure and prior to moving off.
  
  Note: RNZFB recommends this is measured at ground level to ensure maximum visibility.

- Fare paying area ≥65lux. Extinguished on door closure and prior to moving off.

- General saloon – to minimise windscreen reflections, light levels forward of the priority seating area ≤12lux, remainder of the saloon behind the priority seating area ≥20lux.
4.6 Security and safety

Provision for suitable cable ducting and mounting points to allow for the subsequent installation of internal or external above the door CCTV automatic security and or safety/video cameras shall be provided.

| SB | One located immediately forward of the driver to view the fare paying and saloon areas. |
| LB | A minimum of three – two internal and one located as above, ie in the front entry and fare paying area. The second positioned so the saloon and rear door can be observed, and one for an external rearward facing camera mounted above the front door to provide observation along the side of the bus to beyond the rear door, or rear axle if only one door. |

4.7 Heating, ventilation and air conditioning

All buses shall have an air conditioning climate control system provided that acts throughout the whole bus saloon area.

Systems that are independent of the driver adjusting settings are preferred.

**Guidance**

For reasons of offering passengers improved levels of comfort, including improved window demisting, the fitment of an air conditioning climate control system is mandatory.

4.8 Demisting

Refer to section 6.10 of the Passenger Service Vehicles Rule 1999.
5.0 Communication

5.1 Introduction

Section 6.12 of the Passenger Service Vehicles Rule 1999 requires that there be a means of communication with the driver but is not specific. In this section better requirements are set out. Requirements for the external destination display are also set out.

In addition, the Passenger Service Vehicles Rule 1999 was amended to include sections 8.5 and 8.6 allowing the provision of facilities for hearing or vision impaired passengers. This section of the document provides more requirements.

5.2 Bus stopping signals

All buses shall be fitted with dual-indicator bus stopping signalling and acknowledgement display devices that are easily seen and heard by the driver and the passengers, and are in easy reach of all passengers whether seated or standing. Generally, this means they should be:

- easily reached by any person seated in a priority seating area or wheelchair area without having to stand up, eg on side walls or on stanchions
- used by elderly and disabled people with poor hand and finger function or dexterity
- adjacent to and not less than every second row of seats on both sides of the aisle
- fitted to the underside of any fold-up seat fitted in the multi-use/wheelchair space if the other bell push is obscured by the fold-up seat.

The dashboard indicator shall have two components: a general signal and a second signal to indicate to the driver that the signal has been made by a passenger occupying a wheelchair or priority seating position.

The device shall trigger both an audible and visual indication to the driver, and passenger. For the passenger saloon there shall be at least one illuminated bus stopping sign (a mix of upper and lower case characters is best) rearward facing to the saloon to acknowledge the request. This sign shall remain illuminated until cancelled by the operation of the door controls.

Bus stopping request devices shall be of a high-visibility contrasting colour to the surround and with the surface on which surround is mounted, and may take the form of a mix of the following:

- Finger/thumb/knuckle push buttons on the vertical stanchions at a height of ≥1300mm and ≤1600mm above floor level.
- Finger/thumb/knuckle push buttons on the bus side panels at a height of ≥850mm and ≤1050mm particularly in the priority seating area or on the undersides of folding seats.
- Horizontal cordage along the windows of each side of the bus at a height ≥1200mm above floor level.

Note: Cordage alone is not acceptable.

Due to the incidence of false signal calls experienced with many full/large protruding palm push style call systems, these are not recommended unless they are of the modern hydraulic style which require reasonable pressure to activate.
5.3 External destination display

Clear information of the bus route, destination and intermediate points form an essential part of generating passenger confidence. Signs shall be of the electronic matrix style with emphasis on high visibility during all light levels that can be easily read by the majority of sighted current or potential passengers as the bus approaches, or departs. Signs should have the capability to display multi-line information in a mix of upper and lower case characters and also frequently changing displays to facilitate additional route information, eg via station.

The sign must be controlled by the driver from the driving position and be capable of storing a range of different route and destination information as well as displaying whether the bus is not in service, on charter, school or special work.

All buses shall have the following signs:

- Front forward-facing three-route number and destination combination sign ≥1500mm wide located at or above the top of the windscreen.
- Near side, as close as possible to the front entrance, a destination only sign at a height ≥1200mm from ground level.
- Rearward-facing route-number only sign at a height ≥1500mm and ≤2500mm above ground level and central or left of centre, ie toward the nearside of the bus.

| SB | Front and rear route number characters shall be ≥125mm. Front destination characters shall be ≥100mm. Side destination number characters shall be ≥60mm. |
| 4B | Front and rear route number characters shall be ≥150mm. Front destination characters shall be ≥125mm. Side destination characters shall be ≥60mm. |

Guidance

High visibility: Association of Blind Citizens of New Zealand recommend that high-visibility signs be set at a 70-percent minimum visual contrast (refer to RTS 14 section 5.3).

Dot matrix: RNZFB and Association of Blind Citizens of New Zealand advise that dot matrix signs are not easily read by someone with low vision.

Route numbers: Route numbers should be consistently displayed in a large font to the left of the display when viewed from the roadside.

It may also be helpful for passengers to be able to view the route number on the side display.

Use of upper/lower case: RNZFB and the Association of Blind Citizens of New Zealand recommend that except for the first letter, all letters should be in lower case. When signs are written in upper case letters, they cannot be read easily by vision-impaired people. The exception to this would be place names such as Lower Hutt, North City.
5.4 Internal information

5.4.1 PA system

A PA system capable of broadcasting announcements, ie automated, pre-recorded or driver-activated messages, shall be provided.

5.4.2 Electronic information displays and announcements

Ducting and suitable mounting points to enable later ready fitment of 24V automated progressive route and journey-related information and announcements equipment shall be provided.

Guidance

People with hearing impairments represent a large proportion of the New Zealand population (approximately 400,000 people). Approximately 250,000 New Zealanders’ hearing impairment is classified as serious enough to constitute a disability.

Progressive route and journey-related information presented on an electronic information display provides vital information on the route being taken and the current location of the bus. This information provides confidence to the user and helps to ensure they do not find themselves getting off at the wrong stop which also may present safety issues, particularly at night.

Similarly, for the visually impaired, audible announcements via electronic information equipment have been successfully trialled as part of the Hamilton Accessibility Pilot. The Hamilton Accessibility Pilot team also trialled journey-related information presented on an electronic display. Findings from the trial suggest colour contrast is important on the visual display. Angle of the screen and screen quality is important to reduce glare. Text size needs to be readable. Text and background colour should clearly contrast. The audio announcements should focus on place names as opposed to street addresses and numbers.

A submission from the Hearing Association also commented on the usefulness of displaying the fare electronically in the fare paying area (as part of the ticket machine or via a separate display) so that the customer is aware of the correct cash fare to be paid.

The NZTA encourages regional councils to consider the implementation of these systems to cater for those with hearing and visual impairments (and for the wider benefits that such systems may bring for other passengers) where feasible, and to consider lower-cost alternatives that may present themselves in the marketplace.

5.5 Driver operational communication

For an urban fleet service requiring more than five buses in service at any one time, a two-way radio shall be provided to provide communication between buses of the same operator, back to base depot and to any central information or control centre.

For the smaller regional centres, a hands-free cell phone is an acceptable alternative providing the operator can provide evidence of a company safe driving policy that its drivers must follow with respect to hands-free use.
6.0 Facilities for passengers with impairments

6.1 Introduction

The Passenger Service Vehicle Rule 1999 was originally non-specific as regards the provision of special equipment for people with impairments. This was extended and section 8 of the Rule now covers the requirements for the provision of signs, tactile surfaces and public address systems. More detail is given than the Rule in this section of the document.

6.2 Priority seating area

Provision shall be made as follows for passengers with physical, sensory or cognitive impairments:

- Priority seating area well to the forward end of the saloon with at least four preferably all forward facing seats identified for passengers with impairments or extra mobility needs. These seats may be of the folding type in order to facilitate wheelchair access and stowage. Any fold-up seat must be capable of being held in the stowed position and be readily unlocked by simple and obvious mechanism. Non-lever systems are preferred.

- A separate space of dimensions not less than 800mm by 1300mm to cater for a wheelchair with a footprint of $\leq 700$mm width x $\leq 1200$mm length and its user (see section 6.3).

- Signage to indicate the area and request to vacate seats for use by passengers with disability/mobility needs along the following lines:

  Priority seating area - Please vacate these seats for elderly or disabled passengers or parents/caregivers with small children.

Minimum front door and aisle widths, initial step heights and fare paying areas have been already specified in section 3 and make due allowances for access.

6.3 Wheelchairs

Wheelchairs are described as both manual self/caregiver propelled or powered versions of preferred characteristics as follows:

- Indicative combined weight of wheelchair/mobility device and user $\leq 240$kg.

- Footprint to be provided for forward or rearward facing stowage $\leq 700$mm width x $\leq 1200$mm length.

- If transverse stowed, with handles and foot rest capable of being folded or stowed $\leq 700$mm width x $\leq 900$mm length.

Space shall be provided, as part of the priority seating area, for the carriage of an occupied wheelchair/pram as specified above as follows:

<table>
<thead>
<tr>
<th>SB</th>
<th>To carry one wheelchair, preferably rearward facing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB</td>
<td>To carry a minimum of one rearward facing wheelchair (preferably on the nearside).</td>
</tr>
</tbody>
</table>
**Guidance**

For wheelchair carriage purposes a rearward facing orientation is preferred for improved safety and better manoeuvrability, as well as removing the need to fit restraints.

A second wheelchair space could be provided at the discretion of regional councils and/or operators. This may be transverse facing utilising folding seats that can be used by other passengers when the wheelchair space is not occupied by a wheelchair user. The wheelchair space should not cause the wheelchair user and wheelchair to significantly encroach into the aisle space beyond the normal bench seat width and therefore creating a potential hazard to other passengers.

An aisle width of \( \geq 800 \text{mm} \) to at least the front edge of the rearmost set of priority seating or the rear of the wheelchair space may impact on the amount of width available for priority seating in the forward saloon area, that is, behind the front wheel arches. A second rearward facing wheelchair space or larger aisle (\( \geq 800 \text{mm} \)) may mean that appropriate priority seating provided for other passengers with physical, sensory or cognitive impairments and parents/caregivers with children may have to be located further down the back of the bus. This is not preferred as this makes it more difficult for people with impairments, and that do not need a wheelchair to move around (ie the majority of people with impairments), to access the priority seats on the bus.

The requirements and design standards of the fitments of wheelchair and wheelchair-occupant restraints are in section 8.4 of the Passenger Service Vehicles Rule 1999.

Currently in the Passenger Service Vehicles Rule 1999 there is no mandatory requirement to fit restraints. However, for the purpose of these requirements the position is as follows:

- Any wheelchair restraints, if fitted, must be located so that they are capable of being used by the wheelchair occupant unaided, current floor-mounted restraints do not usually meet this requirement.
- For rearward facing wheelchair locations fitted with ironing board-style backrests, there is no requirement for restraints to be fitted or used. There should be signage to indicate that any wheelchair brakes and lap belts should be applied.

**Guidance**

If a rule incorporates a standard by reference, the technical specifications effectively form part of the rule. The Passenger Service Vehicles Rule 1999 incorporates joint Australian and New Zealand standards relating to wheelchair hoists, ramps and restraints. If these standards cannot be complied with there are general safety requirements which are an alternative.

An international wheelchair symbol for accessibility sign shall be provided on the bus internal side wall or alternatively may be incorporated in to the flooring material of any wheelchair space. Signage shall also request the vacation of any seats in the wheelchair space to enable the area to be used by a wheelchair user. This may be part of the priority seating area signage.

Externally two international wheelchair symbols for accessibility shall be provided, one on the front left of the bus and one on the side of the bus by the front door entrance.

**6.4 Boarding or alighting**

In sections 2.5 and 3.3, the requirement for the bus to kneel at the front door is specified as this can be of benefit to many passengers whether on foot, with or without an impairment, in a wheelchair or accompanied by one or more small children.

LB shall have a kneeling capability.

The following shall be provided on the exterior of the bus adjacent to the front door:

- A sign stating ‘This bus kneels on request’.
6.5 Ramp

A manually-operated flip-over style ramp shall be provided at the front door that can be deployed and recovered by the driver on request from wheelchair, pram users or any other impaired passengers where the kneeling facility proves to be insufficient. Ramps must comply with section 8.2 of the Passenger Service Vehicles Rule 1999 in terms of any ramp, door brake interlock and driver warning system.

Desirably the ramp hinges should be countersunk/flush with the floor to reduce the interference to passengers on foot or in wheelchairs.

High contrast flat ramp edge marker strips are preferred over the raised metal edges.

### Guidance

A powered ramp may be fitted provided it meets the requirements of section 8.2 of the Passenger Service Vehicles Rule 1999.
7.0 Driver compartment

The role and responsibility of the urban bus driver in coping with the levels of urban traffic and congestion, the various requirements of passenger loading, revenue collection, unloading and dealing with the range of passenger requests for assistance and information is a demanding one. Any features that make the task easier and safer to carry out will be to the overall benefit of the public bus transport industry.

### Guidance

The bus driver’s compartment is part of his/her workplace and they can spend the majority of their working day in that compartment.

### Features

In addition to any overall bus heating and ventilation or air conditioning system, provision can be made to provide the driver with some personal driver-controlled form of heat and cooling, including to the foot area.

### Comfort

- A fully sprung driver’s seat with adjustment for all three planes of driving position.
- For LB, the driver’s seat suspension should be capable of being adjusted to cater for varying driver weight.
- A readily adjustable (tilt and height) steering wheel column and soft style easily cleaned, and dried steering wheel.
- A footrest for the left foot.
- Coat/jacket storage, eg hook.
- Out-of-sight storage for personal belongings such as bag/lunchbox.
- Ticketing equipment and till stand should be ergonomically located.

### On-board security

- Barrier protection panel immediately behind the driver to prevent any form of assault from behind, either directly by a passenger or by a thrown object.
- A revenue collection and holding system so that the driver’s cash can be readily and securely locked into a cash box that can be secured to the bus, eg to the ticket issuing equipment stand.
8.0 Existing buses

8.1 Introduction

There are a large number of buses used in the urban bus fleets that have been purchased over the last 20 years. Some of the more recent ones will meet or exceed all or most of the criteria listed in this document for new buses, but many of the earlier purchases will not.

The NZTA encourages operators to speed up the replacement of the older less user or environmentally friendly vehicles, and to retrofit as many of the features in the previous sections as is possible.

8.2 Existing bus standards

By 1 January 2015 all used buses (a bus registered in New Zealand prior to 1 January 2009) used in urban services, at a minimum, shall meet the following requirements:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| Acceleration| 0-20km/h ≤ 5 seconds  
0-50km/h ≤ 30 seconds |
| Emission | If purchased before 2000, all diesel buses that do not meet the Euro 2 standard or equivalent shall fit particulate filters where it is feasible to do so. See note below. |
| Transmission | LB automatic. |
| Suspension | LB Full air with levelling. |
| Doors | SB: 1  
LB: 2 desirable if ≥ 30 seats.  
Front door width ≥ 700mm. |
| Step height | ≤ 370mm |
| Additional steps or seat plinths | As per Passenger Service Vehicles Rule 1999. |
| Floor and levels | Non-slip material in boarding and aisle area. No more than two steps in the aisle along whole internal length of vehicle. |
| Step edge | Highlighter to top edge of nose. |
| Stanchions/handrails | One close to each door plus at least two in each saloon area, i.e., forward of rear door and behind rear door. |
| Grab handles | On aisle side of all seat backs. |
| Heating and ventilation | Drivers area plus ≥ 2 saloon heaters. |
| Demisting | Front windscreens and front door windows. |
| Bus stop request | Bell push or cord within reach of seated and standing passengers in every second row of seats. Illuminated bus stopping display. |
| Destination | Front route no - three characters ≥ 100mm in height.  
Front and side destination characters ≥ 60mm in height. |
| Luggage | Space allocated towards the front of the vehicle to safely stow two folded prams or one large backpack/suitcase or similar-sized piece of luggage or package. |
**Guidance**

Range without refuelling: ≥300km or 15 hours operation.

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**Note regarding the fitment of particulate filters:**

- Not all older pre-Euro 3 emission standard bus engines are suitable or have the engine compartments with the space to fit particulate filters. In some cases the OE manufacture recommends not to retrofit.
- Transport for London (TfL) has carried extensive approval testing of a large range of diesel particulate filters for many bus and truck engines, some that are fitted to buses currently in service in New Zealand.
- The website below explains the background and options regarding the fitting of these particulate filters and provides a list of accredited suppliers. These filters, when fitted, will meet at least Euro 3 level emission standards for particulate matter.

**Note:** TfL has recently agreed to more stringent standards being imposed in London. From 3 January 2012, Euro 4 level emission standards for particulate matter will be enforced.

- Fitment of any of the TfL recommended filters to NZ buses would be acceptable in terms of meeting these emission standards. Local suppliers of any other make or model of filter will be required to demonstrate that their product will conform as per the TfL accreditation.
- The final decision on the requirement to fit approved particulate filters lies with the regional council and the local operators on an assessment of the economic (ability to retain older buses), environmental and health benefits. Before any decision is made NZTA must be informed to ensure that any national requirements or policies are not being undermined or compromised.
Appendix 1: Procurement variation application template

Procurement procedure variation application

(approved organisation to complete)

This form is to be used whenever an approved organisation wishes to depart from a procurement procedure that includes the specifications known as Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011) of the NZTA’s Procurement manual: for the activities funded through the National Land Transport Programme. Information submitted will assist in the timely and efficient processing of variation requests.

A separate form is required for each separate variation application.

Upon completion, approved organisations should submit this form to their local NZTA regional representative, passenger transport contract manager, or other appropriate contact. Any queries regarding the form should also be directed to that NZTA representative.

Name of procurement procedure and variation

1. [include name], including the NZTA’s Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011) – variation [insert name, eg requested by X Regional Council July 2011]

Background information

2. The service(s) affected by the proposed variation are as follows:
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]
   - [list]

   [Also include a brief description of each service affected by the proposed variation to bus specs, eg route description, frequency, contract commencement and expiration, any other relevant background including previous variations if relevant].

3. The purpose of this section is to explain the relationship between the proposed variation and the NZTA’s previously approved procurement procedure (ie the NZTA’s Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011)), and also the approved organisation’s procurement strategy (if different). Go on to explain how the variation contributes to the objectives of the NZTA’s Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011).

   The proposed variation [state here].

4. The aim here is a short summary. However, try to provide enough information so that the NZTA person responsible for receiving the application and managing it internally has sufficient detail for the memo they will have to submit to the person with authority to approve/decline this application.

   The variation is being sought because [state reasons].

5. Outline whether consultation and/or negotiation with the incumbent operator has been initiated, has the incumbent been informed, have they agreed in principle?

   The current operator of the affected services is [insert name] and it [describe current level of awareness and/or engagement with the
Request for procurement variation

6. In Council’s view, the proposed variation represents a [minor OR significant OR necessary] change to the NZTA’s Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011).

7. The proposed variation concerns the following section of the NZTA’s Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011):
   - [provide section reference and describe how relevant specification will be affected]
   
   [state here]
   
   [state here]
   
   [state here]

8. The purpose of this section is to describe the variation being sought, ie what rule is being breached?
   
   The proposed change will, however, have a number of benefits [describe].

Best value for money, etc

9. In Council’s view, the proposed variation contributes to the goal of obtaining best value for money spent by the NZTA and Council in the following ways:
   - **Best value for money** - describe if and how the requested procurement procedure variation (or your recommended option) achieves best value for money in terms of the use of funds from the NLTF. You may wish to describe this by referring to the alternatives/options assessed above, ie which one (decline or approval or variation on approval) provides the best value for money.
     [state here]
   
   - **Enabling fair competition** - explain whether the proposal does enable fair competition for the right to supply outputs required for the affected passenger service(s). Again, a comparison of alternatives/options could be useful.
     [state here]
   
   - **Encouraging competitive and efficient markets for supply** - explain whether the proposal will encourage competitive and efficient markets for the supply outputs required for the affected passenger service(s). Where possible, this should be quantified, eg size of local/regional market and the share that a supplier will have under this proposal (if applicable). Again, a comparison of alternatives/options could be useful.
     [state here]

Financial matters

10. The current cost of the contract is $[state here].

11. The variation is anticipated to cost $[state here].

Future variations

12. Further variations to the NZTA’s Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011) in respect of this contract [are OR are not] anticipated.
   
   [Are any further variations to this contract anticipated? If so, where appropriate, explain why approval is not being sought for additional variations at this time (or indicate if simultaneous approval is being sought for other variations).]

Alternatives considered
13. Alternatives considered:
   • (in order to assess the proposed variation it is useful to consider a range of options and assess these against s25)
   •
   •
   •
   •

    **Option one - preferred option**
    [describe option, then explain contribution to s25 outcomes].
    Best value for money
    [state here]
    Enabling fair competition
    [state here]
    Encouraging competitive and efficient markets for supply
    [state here]

    **Option two - [eg proceed without variation]**
    [describe option, then explain contribution to s25 outcomes]
    Best value for money
    [state here]
    Enabling fair competition
    [state here]
    Encouraging competitive and efficient markets for supply
    [state here]

    **Option three - [eg any other option as determined by approved organisation]**
    [describe option, then explain contribution to s25 outcomes]
    Best value for money
    [state here]
    Enabling fair competition
    [state here]
    Encouraging competitive and efficient markets for supply
    [state here]

14. Further supporting information is attached in the form of [described or delete this section if not relevant].
Response to the variation application

(NZTA to complete)

<table>
<thead>
<tr>
<th>Date request received</th>
<th></th>
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<tbody>
<tr>
<td>Further information requested</td>
<td></td>
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<tr>
<td>Date returned to requestor</td>
<td></td>
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<tr>
<td>Approved/Not approved an reason(s)</td>
<td></td>
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<tr>
<td>Signed</td>
<td></td>
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<tr>
<td>Date that approved organisation notified</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2: Procurement variation – internal memo seeking approval template

<table>
<thead>
<tr>
<th>To</th>
<th>[insert name], P&amp;I manager [insert relevant region]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cc</td>
<td>[insert name(s) where relevant, otherwise delete this line]</td>
</tr>
<tr>
<td>From</td>
<td>[insert name of NZTA person responsible for handling variation application]</td>
</tr>
<tr>
<td>Date</td>
<td>[insert]</td>
</tr>
<tr>
<td>Subject</td>
<td>Procurement procedure variation – Requirements for urban buses - [insert name of approved organisation]</td>
</tr>
</tbody>
</table>

Purpose

1. To seek the approval of the regional P&I manager for a variation to the vehicle specifications known as Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011), which form part of the procurement procedure in respect of the passenger transport services procured by [insert name of approved organisation].

Recommendations

2. That the regional P&I manager (choose one): approves □ declines □ defers □ a variation to the vehicle specifications known as Requirements for urban buses in New Zealand: New Zealand’s common standard for urban bus quality (2011) for [insert name of approved organisation] in respect of the services (choose one):
   • as set out in this memo □
   • as attached □

Subject to the following conditions: (delete if this is not needed)

   •
   •
   •

Background

3. [Insert a brief description of the named passenger service that is being procured and the reason(s) for the variation being sought].

4. The passenger services affected by the variation request are:
   a. [insert name]
   b. [insert name]
   c. [insert name]

5. [use or delete as needed]

Requested procurement procedure variation

6. [Describe the proposed procurement procedure variation. If it aids the regional manager’s decision (rather than simply adding detail), attach the procedure variation documents or request, as applicable].

7. The annual procurement spend for this service as a result of this variation is considered to be (choose one):
• $100 million or less, or ☐
• minor or low risk. ☐

Thus, the regional P&I manager has delegated authority under the NZTA-consolidated instrument of sub-delegation from group manager of the P&I group to staff, dated 2 December 2010, to endorse this variation.

8. [use or delete as needed]

Assessment of request

9. Insert detail regarding assessment of the variation request. Assessment of the request would usually consider the alternatives of a) declining or b) approving the request, and the consequential impacts of each, if selected. Options, ie variations of approving the request, may also be assessed, if feasible/ desirable. The assessment must be made from the perspective of achieving the best outcome for the land transport system.

10. [use or delete as needed]

Testing against s25 of the LTMA

11. Section 25(1) of the LTMA requires that the NZTA must approve procurement procedures that are ‘...designed to obtain the best value for money spent by the Agency and approved organisations, having regard to the purpose of this Act’. In approving a procurement procedure, the NZTA must also have regard to the desirability of a) enabling persons to compete fairly for the right to supply outputs required for approved activities, if 2 or more persons are willing and able to provide those outputs; and b) encouraging competitive and efficient markets, for the supply of outputs required for approved activities. The same considerations apply to any variation of a procurement procedure.

Best value for money – describe if and how the requested procurement procedure variation (or your recommended option) achieves best value for money in terms of the use of funds from the NLTF. You may wish to describe this by referring to the alternatives/options assessed above, ie which one (decline or approval or variation on approval) provides the best value for money.

[state here]

Enabling fair competition – explain whether the proposal does enable fair competition for the right to supply outputs required for the affected passenger service(s). Again, a comparison of alternatives/options could be useful.

[state here]

Encouraging competitive and efficient markets for supply – explain whether the proposal will encourage competitive and efficient markets for the supply outputs required for the affected passenger service(s). Where possible, this should be quantified, eg size of local/regional market and the share that a supplier will have under this proposal (if applicable). Again, a comparison of alternatives/options could be useful.

[state here]

12. In summary, analysing the proposal against s25(1) of the LTMA demonstrates that (choose one):

- the proposal does meet the requirements of s25(1) in all respects, or ☐
- does not meet any s25(1) requirements, or ☐
- meets some requirements, namely [XXX] ☐

13. [use or delete as needed]

Conclusion and recommendation

14. [Sum up – provide recommendation – include conditions (if any). Not all variations will achieve all 3 principles in s25(1). In these cases you need to weigh up positives and negatives and make an ‘on balance’ recommendation.]

15. [use or delete as needed]
Attachments

16. [state here]
Appendix 3: Research on the benefits and costs of using the RUB as New Zealand’s common standard

1.0 Introduction

This report has been prepared by John Bolland Consulting for the NZTA. It presents the findings of a study estimating the impacts of a nationally consistent approach to urban bus quality specifications, i.e., if all regional councils were to implement a set of nationally consistent standards when tendering and managing their urban bus service contracts.

The rationale behind the study is that if there were more consistency with the vehicle quality standards required by regional councils throughout the country, this would:
- have benefits for operators who could more easily buy, use, and sell vehicles
- lead to cost savings through less variation on the bus build production line.

In the course of the study, it was necessary to obtain data and information from regional councils, operators, bus builders, and bus chassis suppliers, and the assistance of those who were consulted is gratefully acknowledged. Appendix A gives the names of those who were consulted and appendix B sets out the items for discussion during consultation.

2.0 Background

The purpose of the 2008 Requirements for urban buses (RUB, see section 4 for more details) produced by the NZTA was to ensure that all local councils are delivering the same standards to passengers and to maintain a level playing field for potential tenderers. However, once these standards are exceeded, this could incur additional costs by operators, especially those who operate or may wish to tender in different regions, as they would need to build vehicles to the higher specification at additional cost. These increased costs can be expected to feed through to either the fare or the subsidy required.

While feedback on the original quality standard is understood to have been positive, this study has looked in more detail at the important issue of obtaining national consistency in vehicle quality specifications to save costs. The key difference from the current RUB is that this study has assumed that all regions would use the same values for the critical dimensions that can create significant changes in cost.

It is timely to review this issue as many regional councils are currently reviewing their vehicle quality standards as part of their regional public transport plans, and Auckland and Wellington have not yet been out to tender because of the work being done on the Public Transport Operating Model.
3.0  Minimum and common standards

It is important to distinguish between how minimum and common standards are defined, and the implications for this study.

A minimum standard is similar to the existing RUB (see section 4) and might say, for example that the front door on a SB should be at least 600mm wide. While some regional councils will use this standard, others will specify a standard above the minimum, eg all SBs in region X have to have a door at least 700mm wide. The outcome of this would be regional variations between buses being acquired in different parts of New Zealand, leading to increased cost and time for manufacture. It would also mean that buses could not always be moved to another part of New Zealand when they change hands or the operator wishes to tender elsewhere. For example, a bus with a 600mm door could not operate in a region where 700mm is the standard, although the reverse is not true.

Similarly, with minimum standards there is nothing to prevent a regional council specifying that buses have to have air conditioning, even though there is no national standard specifying this. In this case a bus with air conditioning can be onsold to a region where that is not a requirement, although there are likely to be cost implications, eg higher running costs.

On the other hand a common (national) standard would not allow regional variations in variables such as door width. All new buses in New Zealand would have to have, eg a front door width of 1000mm. This would lead to cost savings and efficiencies in manufacturing, at least for New Zealand manufacturers.

Similarly, in relation to air conditioning, if air conditioning:

- was part of the common standard then all passengers would benefit from it, although there would be an increase in costs in regions such as Wellington where it is currently not required
- was not part of the common standard then regions where it is currently specified (eg Auckland) may lose passengers, or at least passenger benefits, as a result of the lower level of service.

4.0  Requirements for urban buses

The NZTA produced the RUB in December 2008 at the request of regional councils and the BCA. The aim was to assist regional councils in preparing contracts for urban bus services in such a way as to enhance the attractiveness of urban buses and increase usage, with particular emphasis on accessibility.

The rationale behind the RUB was that the national standard should be a minimum in the sense that operators could choose to offer a higher quality vehicle if they wanted to, and regions would provide a higher score for this. On the other hand there is a body of opinion in the industry that believes there should be a single acceptable standard, paying particular attention to reducing room for variation where it has impact on the cost of bus building.

The RUB provides specifications for a wide range of critical dimensions including:

- aisle width and size of entrance area
- door widths, front and (where applicable) rear
- wheelchair width and length, and number of wheelchairs
- priority seating area
- kneeling height
- step heights
- seat width
- seat spacing.
For each of the above critical dimensions, there is a region or regions where the standard is either above or below (or in some cases both) the requirements in RUB. This is discussed further in section 6.3.

Where standards differ from the RUB it leads to problems for bus bodybuilders. For example, in relation to door widths, having several variations makes it much harder for the supplier to carry stock so replacement takes longer. The size of the door also affects the size of the surrounding panels and windows and also the seating layout. This again leads to a requirement for non-standard parts. One example that was given is that if the required front aisle width is too high it can adversely affect the bus’ turning circle. Similarly, a wider rear door would lead to seats being closer together.

In terms of wheelchair provision, there is no commonality in the number of wheelchairs being provided for and also some regional councils specify a dedicated wheelchair space with no fold-down seating. This either reduces the number of seats available for other passengers or increases the size of the vehicle, which in turn increases both capital and operating costs.

Some regions apply the RUB by awarding more points to tenders which comply.

### 5.0 Current situation

#### 5.1 Buses

The BCA estimates that there are around 2000 buses in urban operation in New Zealand, about half of them in Auckland.

There is variation in the number of new buses bought each year, depending on the cycle of contracts but a reasonable average is 5–10 percent of the total fleet. As new buses are bought, roughly the same number is onsold or cascaded down to serve as, for example school buses.

The lead time for delivering new buses is of the order of nine months and changes in the specification can cause this to increase. The typical cost of a new bus is in the range $350,000–$450,000, depending on size and specifications. In contrast one source quoted the resale value of a used bus as less than $10,000, although this is subject to the usual laws of supply and demand. For example one source indicated that there is currently a shortage of super-low floor buses so they would command a higher price.

At least two operators (NZ Bus and Ritchies) operate in more than one centre. During consultation both pointed out that the present standards limit the ability to move buses between operations without costly modifications. For example a bus operating in Christchurch cannot be operated in Auckland as it does not have air conditioning which is prohibitively expensive to retrofit. Similar issues arise with seat pitches and door widths.

DesignLine International Holdings is the main bus bodybuilder in New Zealand. It produced around 100 vehicles in the last year but believes that its capacity could be up to 250 per year if buses were built to a common standard and the demand existed. Kiwibus also produces bus bodies but in much smaller numbers. The main makers of imported bus chassis are MAN and Scania. While bodybuilders are able to lengthen chassis if required they cannot change other aspects of the chassis such as suspension and steering.

Buses are also imported from overseas, particularly China and the United Kingdom. On the international market the requirement for right-hand drive and the New Zealand regulations constrain what vehicles are available. In some cases buses are imported in kit form and assembled in New Zealand. The volume of buses supplied in New Zealand is very small in global terms and one consequence of this is that there is a very limited choice of imported chassis since they are produced in high volumes overseas for a global market.
5.2 Passengers

Table 5.1 shows bus patronage and bus-km operated in New Zealand by region (2009/10 data). It can be seen that between them the three main centres of Auckland, Wellington and Christchurch account for almost 90 percent of the total ridership and 85 percent of bus-km.

Table 5.1 (Note: Waikato bus-km estimated)

<table>
<thead>
<tr>
<th>Region</th>
<th>Patronage '000</th>
<th>% of total</th>
<th>Bus-km '000</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northland</td>
<td>289</td>
<td>0.3%</td>
<td>451</td>
<td>0.5%</td>
</tr>
<tr>
<td>Auckland</td>
<td>47,611</td>
<td>47.8%</td>
<td>38,636</td>
<td>42.6%</td>
</tr>
<tr>
<td>Waikato</td>
<td>4,516</td>
<td>4.5%</td>
<td>5,000</td>
<td>5.5%</td>
</tr>
<tr>
<td>Bay of Plenty</td>
<td>2,151</td>
<td>2.2%</td>
<td>4,678</td>
<td>5.2%</td>
</tr>
<tr>
<td>Gisborne</td>
<td>136</td>
<td>0.1%</td>
<td>98</td>
<td>0.1%</td>
</tr>
<tr>
<td>Hawkes Bay</td>
<td>480</td>
<td>0.5%</td>
<td>740</td>
<td>0.8%</td>
</tr>
<tr>
<td>Taranaki</td>
<td>405</td>
<td>0.4%</td>
<td>472</td>
<td>0.5%</td>
</tr>
<tr>
<td>Horizons Manawatu-Wanganui</td>
<td>1,329</td>
<td>1.3%</td>
<td>1,253</td>
<td>1.4%</td>
</tr>
<tr>
<td>Wellington</td>
<td>24,248</td>
<td>24.3%</td>
<td>17,117</td>
<td>18.9%</td>
</tr>
<tr>
<td>Canterbury</td>
<td>16,594</td>
<td>16.7%</td>
<td>19,663</td>
<td>21.7%</td>
</tr>
<tr>
<td>Otago</td>
<td>1,504</td>
<td>1.5%</td>
<td>2,229</td>
<td>2.5%</td>
</tr>
<tr>
<td>Southland</td>
<td>400</td>
<td>0.4%</td>
<td>437</td>
<td>0.5%</td>
</tr>
<tr>
<td>All</td>
<td>99,663</td>
<td>90,774</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.0 Economic impacts

6.1 Introduction

This section presents a discussion on the benefits and costs of a nationally consistent approach. The estimated monetary value of the benefits and costs over a ten-year period is discussed in the next chapter.

In order to undertake an economic assessment of the benefits and costs of a common bus quality standard it is necessary to compare the existing situation (do minimum) with an alternative scenario in which there is a common, national standard. In relation to what the common standard should be, the only choice seems to be the RUB since no other standard has the agreement of all parties and is (for the most part) common to existing standards across the country.

A further reason for choosing the RUB as the alternative scenario is that many of the issues raised by manufacturers arise when regional councils call for a standard higher than the RUB, for example wider doors or aisles.

Notice that the introduction of a common standard would only apply to new vehicles bought after the standard is introduced. It follows that any impacts on the second hand bus market will not occur until a number of years later and may even be beyond the ten-year term of this study.

As with any similar analysis it has been assumed that all other factors remain unchanged between the do minimum and alternative.
6.2 Who benefits?

If a common standard makes possible a reduction in the cost of operating a contracted service then it is reasonable to assume that the cost savings would be passed on when the contract comes up for renewal. The operator may take a margin from the savings but this would probably be of the order of 5 percent and so is within the margin of error of the wider calculations.

For commercial services it is less certain that savings will be passed on but on the other hand it is possible that the cost savings might allow some marginal contracted services to become commercial.

Clearly it is not possible to model the impact in detail but it is reasonable to assume that cost savings would be passed on for all services and this has been done in this analysis.

6.3 Costs

In discussions with BCA, operators and manufacturers, there was agreement that having a range of standards has several disadvantages. The potential impacts of a national standard with very limited variation across the country include the following.

Reduced costs of having buses built in New Zealand. Both New Zealand bus builders independently stated that if there were one standard for urban buses it would lead to cost savings which were expected to be up to 20 percent of body costs or between 10 and 15 percent of total bus costs. The example was given that something as apparently simple as a wider rear door could add $5000 to the cost of a bus.

Reduced building time required for New Zealand built buses. If there was greater consistency the bus building process could be rationalised and more streamlined which would shorten time in build. This not only contributes to the cost savings given above but also increases the overall capacity for bus building in New Zealand. Currently the lead time for New Zealand-built buses reduces the ability of the industry to be responsive to increased demand for public transport. The resulting increased production capacity could make New Zealand manufacturers better able to compete for business against overseas suppliers.

Having common parts would increase their availability which would speed up repairs and reduce downtime.

Those operators who provide services in more than one town or city would have increased flexibility to move buses between different regions. Examples of this include NZ Bus (Auckland, Wellington and some smaller centres) and Ritchies (Auckland and Timaru).

It could become easier for buses to be sold from an operator in one region to another operator in a different region. However, it will be several years before this effect is felt since it only applies to the second-hand market.

With the many changes and latest standards that have been incorporated into the current city bus, the tare weight of the vehicles has increased and the number of seats has decreased. For example the standard bus supplied by MAN, the A80, previously had 39 or 41 seats but now usually has 37 seats.

A number of those consulted pointed out that the number of bus passengers who are in wheelchairs is very small. If the bus capacity decreases, for example to accommodate wheelchairs, in the longer term it is possible that the peak bus fleet may have to be augmented to carry the same number of passengers.

There are a number of possible consequences of this reduced seating capacity:

- Increased capital investment to augment the fleet.
- Increased fuel, maintenance and other direct running costs per seat.
- Increased overheads such as depot space.
- Increased buses on the road leading to more congestion.
- Increased exhaust emissions and damage to the environment.

However this argument is only valid for buses which are currently full, which limits the impacts to peak times in the larger urban centres.
With a common standard there may also be savings in operating costs. The obvious example of this is air conditioning, which is not part of the RUB but is part of the standards in Auckland, Waikato and Bay of Plenty. One supplier indicated that air conditioning adds about 7 percent to a bus’ fuel consumption, which amounts to approximately an extra 2.5 litres per 100km.

6.4 Benefits

If the RUB became the national standard where existing standards are:

- lower than the RUB there would be positive passenger benefits
- higher than the RUB there would be a loss of passenger benefits in future.

Table 6.1 shows where existing regional standards are, respectively, higher and lower than the RUB and the approximate percentage of total New Zealand passengers affected (based on 2009/10 patronage and including commercial services). Notice that in some regions a bus specification matching the RUB scores more points but is not compulsory. In other regions a particular feature (eg super low floor (SLF)) may be required for some but not all routes. The table takes these factors into account as far as possible.

It is clear from table 6.1 that there would be some loss of benefits if the RUB were to be the national standard, since several regions currently specify a higher standard. For example Auckland standards would drop in terms of rear door width, step height, seat width and seat spacing. It should, however, be pointed out that only around 30 percent of Auckland buses currently meet these standards. The table also shows that in several regions there would be an increase in benefits, particularly in relation to bus access.

Table 6.1

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Regions where standard higher than the RUB (and % of New Zealand passengers)</th>
<th>Regions where standard lower than the RUB (and % of New Zealand passengers)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front door width</td>
<td>Waikato (5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear door width</td>
<td>Auckland (48%)</td>
<td>Waikato (5%)</td>
<td></td>
</tr>
<tr>
<td>First step height</td>
<td>Auckland (48%)</td>
<td></td>
<td>Canterbury is both, depending on wheel size</td>
</tr>
<tr>
<td>Kneeling height</td>
<td></td>
<td>Auckland, Bay of Plenty, Horizons (51%)</td>
<td></td>
</tr>
<tr>
<td>Aisle width</td>
<td>Waikato, Canterbury, Otago (23%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheelchair area</td>
<td>Waikato (5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low floor entry</td>
<td></td>
<td>Bay of Plenty, Horizons, Wellington, Otago (29%)</td>
<td></td>
</tr>
<tr>
<td>Seat width</td>
<td>Auckland, Canterbury, Otago (66%)</td>
<td></td>
<td>Average over all seat types</td>
</tr>
<tr>
<td>Seat spacing</td>
<td>Auckland, Horizons, Canterbury, Otago (67%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air conditioning</td>
<td>Auckland, Waikato, Bay of Plenty (54%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aspect</td>
<td>Regions where standard higher than the RUB (and % of New Zealand passengers)</td>
<td>Regions where standard lower than the RUB (and % of New Zealand passengers)</td>
<td>Comment</td>
</tr>
<tr>
<td>Front door width</td>
<td>Waikato (5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear door width</td>
<td>Auckland (48%)</td>
<td>Waikato (5%)</td>
<td></td>
</tr>
</tbody>
</table>
7.0 Monetised impacts

7.1 Introduction

In this section we compare the monetised costs and benefits of:

- the do minimum, retaining the present RUB as a minimum standard
- the option of RUB becoming a common national standard.

Both discounted and undiscounted results are presented. As discussed in section 6, the option would result in cost savings but also some change in benefits.

Following discussions with the NZTA the analysis has assumed that air conditioning would continue to be part of the standard in Auckland due to the city’s climate, and the more urgent need there to attract car users to passenger transport by offering a better quality service than has been the case in the past.

In the three major centres it has been assumed that the proportion of buses meeting RUB in the option case will grow year on year as new contracts are let. However for the remaining regions, given that the scale of passenger transport operation is much smaller, no growth has been assumed since the turnover of contracts will be much less. This affects both benefits and operating costs.

7.2 Benefits

The NZTA’s Economic evaluation manual (volume 2) gives some values for the passenger benefits of in-vehicle features, those of the greatest relevance here are:

- step-free boarding: 0.1 minutes of in-vehicle time (IVT).
- forward facing, individually shaped seats: 0.1 minutes of IVT
- tip-up seats in standing/wheelchair area: 0.1 minutes of IVT
- air conditioning: 1 minute of IVT.

In the light of this and table 6.1 the following loss of benefits has been assumed for the option case:

- Auckland: 0.5 minutes IVT
- Waikato: 1.5 minutes IVT
- Canterbury: 0.3 minutes IVT
- Bay of Plenty: 1 minute IVT
- Horizons: 0.1 minutes IVT
- Otago: 0.3 minutes IVT.

It can be seen from table 6.1 that some standards would increase in the option case and that many of them relate to bus accessibility. Currently regional council examples do specify SLF but not always the flat floor requirements as stated in the RUB. It follows that there would be additional passenger benefits from specifying the accessibility standards extensively and more thoroughly (as the RUB does) and having these applied consistently throughout the country, which is not currently the case.

Improved accessibility (including features such as SLF, wide doors and level aisles) has been shown to have a number of benefits, not just for the elderly and less mobile but for other users such as parents with pushchairs. It has also been shown to reduce boarding times generally, which clearly benefits those already on the bus.

Nonetheless it is not given a specific value in the NZTA’s Economic evaluation manual. In research overseas the value of low floor buses in London was valued at around 1 minute of IVT and in Australia it was 2 minutes. In the light of this a benefit of 1.5 minutes has been used here.
A reduction in passenger level of service (eg the loss of air conditioning) would cause a small shift from passenger transport to car, resulting in increased congestion, ie a loss of road user benefits. The reverse is true if passenger service is improved. However for regions outside Auckland, Wellington and Christchurch, non-user benefits (decongestion) have low unit values in the NZTA’s Economic evaluation manual and existing passenger transport use is relatively small (see table 5.1) so they have been excluded. For the major centres any change in road user benefits has been calculated using standard elasticity values and SP10 of NZTA’s Economic evaluation manual.

7.3 Cost savings

Savings in capital costs from new buses being cheaper have been calculated using the estimated annual financing cost. Hence for each new bus there is a cost saving over a number of years after purchase. Put another way, savings in year 2 would include both buses bought in that year and those bought in year 1.

On the basis that 5–10 percent of the fleet is replaced annually, backed up by information from operators, the annual number of new buses purchased for urban operation in New Zealand has been calculated using a range of values. In the same way the cost per vehicle has been taken to be in the range indicated by the industry. The most likely annual saving of the resulting range has then been used, based on:

- 140 new buses nationally per annum (approximately 7 percent of the total fleet)
- a capital cost of $400,000 per bus
- a cost saving of 10 percent.

Variations in these assumptions give a range of values around the most likely.

Savings in operating costs from having a common national standard have also been calculated using information from the industry representatives who were consulted.

7.4 Overall

The results of the analysis are presented in table 7.1 below, with and without discounting. The figures relate to a 10-year period starting in 2011/12 and discounting has been done at the NZTA’s Economic evaluation manual rate of 8 percent.

Table 7.1

<table>
<thead>
<tr>
<th>Item</th>
<th>Undiscounted total ($m)</th>
<th>Present value ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in benefits</td>
<td>-$1.1</td>
<td>-$0.6</td>
</tr>
<tr>
<td>Saving in operating cost</td>
<td>$0.9</td>
<td>$0.6</td>
</tr>
<tr>
<td>Saving in capital cost</td>
<td>$37.0</td>
<td>$22.0</td>
</tr>
<tr>
<td><strong>Net saving</strong></td>
<td><strong>$36.8</strong></td>
<td><strong>$22.0</strong></td>
</tr>
</tbody>
</table>

It can be seen that the cost saving is almost $37 million undiscounted, or an average of $3.7 million per annum. The present value of savings is $22 million. In general the increase and decrease in passenger benefits balance each other out and the main saving is in capital costs.

Of necessity the analysis has made a number of simplifying assumptions. However, the forecast cost saving is large enough to be robust under sensitivity testing.
8.0 Factors not included

The above analysis does not include the second-hand bus market, for a number of reasons. Firstly the number of buses which are both bought and onsold within a ten-year period will be relatively small. Secondly, standards when buses are traded are not always an issue (only if they are moving to a region with higher standards). Thirdly, at least one person in the industry who was consulted did not see this as an issue.

If all new buses in New Zealand were made to a common standard there can be no doubt that more timely delivery would be possible in many cases. It could also potentially reduce the extent of inventory required, eg at chassis suppliers. However, these items are difficult to assign a value to so have not been included, moreover their inclusion seems unlikely to affect the outcome significantly. For example if an inventory holding of $4 million (ten complete buses) is shortened by two months and the cost of capital is 7 percent then the saving would be less than $50,000.

Finally the analysis takes no account of the longer-term effects of increased wheelchair space, such as the potential need for a larger fleet to cater for the same number of passengers. There are a number of reasons for this. Currently the regions where more than one wheelchair space is needed do not include the major centres of Auckland and Wellington which account for 72 percent of New Zealand ridership. Environment Canterbury requires two spaces on new buses but the second space has minimal impact on seating capacity. Secondly, the impact will only be felt at peak times, if at all. Thirdly, it would be very complex to model whether, if bus capacity falls slightly, more vehicles would be needed, more passengers would be prepared to stand or change their time of travel or there would be a small drop in patronage.

During the consultation it was pointed out that with the emphasis on cost reduction it is increasingly difficult for New Zealand manufacturers to compete against the Chinese, and a common standard would help by reducing the cost of New Zealand-made buses, making them more attractive to operators. This in turn would have national economic impacts, for example reducing the trade deficit and providing local employment. No attempt has been made to quantify these impacts.

9.0 Implementation

The economic analysis presented above assumes that the RUB would be taken as a common national standard from 1 July 2011 but clearly this would require agreement to be reached by all parties before that date on issues such as door and aisle widths. Agreement between the three main urban areas would go a long way to achieving such a consensus.

Regional public transport plans are required from 1 January 2012 and this provides the opportunity for regions to review their vehicle polices, and bus specifications simultaneously. However, it is possible that the RUB or a similar common national standard would have to be implemented progressively, given the diversity which presently exists. This would mean that the cost savings achieved would be less than those given in section 7.3 Indicatively, if the cost savings were deferred by a year the present value of cost savings would fall by 8 percent or about $1.8 million.
10.0 Conclusions

- The 2008 RUB as currently used is a minimum standard.
- Several regions have a standard which is either lower or higher than RUB and this is the main cause of variations in bus specification.
- If the RUB became a common standard there would be a change in passenger benefits but overall this would be small since losses and gains are roughly equal across the country.
- On the other hand if the RUB became a common standard there would also be significant cost savings.
- The analysis has shown that the net cost saving after the change in benefits is taken into account would be around $37 million over the ten years from 2011/12, or $22 million present value.
- The quantum of savings is sufficient to be robust under sensitivity testing.
- Some factors cannot be included in the monetary analysis and they would add to the benefits or cost savings.
- Implementation of a common standard would be most effective if it started in the three major urban regions.
Appendix A: Consultees

Raewyn Bleakley, Bus and Coach Association New Zealand.
Garth Stewart, NZ Bus.
Allan Aitken, Ritchies
Kevin Gale, Associated Coach Sales (NZ).
Barry Jones, DesignLine International Holdings.
Richard Drummond, Kiwibus.
Paul Williams, MAN.
Sue Callis, Environment Waikato.
Mike Furniss, Environment Bay of Plenty.
Terry Davill, Auckland Transport.
Raymond Malcolm, Greater Wellington Regional Council.
Appendix B: Discussion note on bus quality specifications

The aim of this study is for the NZTA to provide a report estimating the benefits and cost savings which would result from a nationally consistent approach to urban bus quality specifications, ie if all regional councils implement a set of nationally consistent minimum standards when tendering and managing their urban bus service contracts.

The topics below are designed to stimulate discussion with stakeholders to assist with the study. However, the list should not be taken to be exhaustive.

**For manufacturers:**
- Are there particular issues arising from the present variations in standards (eg are door widths more important than aisle widths)?
- Their views on the current RUB.
- How many buses do they supply per year on average, split by body/chassis/whole bus?
- How many variations are there in terms of factors such as door width and what is the associated number of buses?
- If national standards reduce the amount of spares which are kept, what are the expected cost savings?
- Can an operator expect reductions in operating cost (fuel, tyres) due to standardisation?
- What is the typical extra capital cost per bus as a result of the current variations in standards?
- Are there cases where it is impossible to meet certain standards?

**For operators:**
- Their views on the current RUB.
- How many buses do they buy in an average year and how many are wholly or partly sourced in New Zealand?
- Are regional variations in standards a problem?
- Is it possible to quantify the impact of the variations in standards, eg in terms of the number of buses and costs?
- Would national standards lead to savings in overheads such as maintenance, and if so how much might be saved over the life of a bus?
- The market for second-hand buses, how it works and how many buses per annum?.
- The market for imported buses, how it works and how many buses per annum?.
- Whether any operator cost savings would be passed on, eg as reductions in contract prices, and if so whether this would apply to commercial services?

**For regional councils and Auckland Transport:**
- What are their standards based on?
- What would be the implications if their standards were adjusted to match a national standard?
- Their views on the current RUB
- If current standards are being revised, when will the updates kick in and why are they being revised?
- What proportion of bus–km operated is covered by commercial contracts?