Requirements for urban buses in New Zealand

New Zealand's common standard for urban bus quality (2011)

NZ TRANSPORT AGENCY
WAKA KOTAHI

New Zealand Government

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This document is available on the NZTA's website at www.nzta.govt.nz.

Contents

Record of amendments

Amendment number	Description of change	Effective date	Updated by
1	Review of RUB first published in 2008.	Start of 2012-2015 NLTP.	Chad Barker

Abbreviations

ABS	Anti-lock braking system
AS 3696.13	Australian Standard AS.3696.13 *Wheelchairs – Determination of co-efficient of friction of test surfaces*
ASR	Anti-spin regulation/drive slip control
BCA	Bus and Coach Association New Zealand
EBS	Electronic braking system
ECAS	Electronically controlled air suspension
ESC/ESP	Electronic stability control or programme
GVM	Gross vehicle mass
LB	Large bus
LTMA	Land Transport Management Act 2003
NLTF	National Land Transport Fund
NLTP	National Land Transport Programme
NZTA	NZ Transport Agency
P&I	NZ Transport Agency's Planning and Investment group
PA system	Public announcement system
PT	Public transport
PTOM	Public Transport Operating Model
RNZFB	Royal New Zealand Foundation for the Blind
RTS14	Road and traffic standard series RTS14 *Guidelines for facilities for blind and vision impaired pedestrians* (revision 2, 2009)
RUB	*Requirements for urban buses in New Zealand: New Zealand's common standard for urban bus quality*
SB	Small bus
SLF	Super low floor
TfL	Transport for London
VQS	Vehicle quality standard

1.0 Introduction

1.1 Introduction

1.1.1 Background to the first RUB

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.

The BCA also indicated its interest in obtaining more uniformity than currently exists in VQSs 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.

The NZTA's staff worked with the BCA, Auckland Regional Transport Authority, Environment Canterbury, Greater Wellington Regional Council and DesignLine International Holdings (NZ) to produce a draft document specifying VQSs 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 (page 8 of this document). This was to avoid potential confusion as use of the word 'standard' is often associated with the land transport rules. However, we recently decided to continue with the use of the word 'standard'. The word is now used in the context of the NZTA's planning and investing principles (principles to be followed to ensure transport infrastructure and services comply with accepted network standards, and guidelines). This clarifies that the RUB is to be used 'commonly' by all regional councils using the NZTA's funding for urban bus services.

Because the RUB sits outside the formal rules framework (which are secondary legislation), 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.

1.1.2 Problem with the first RUB implementation

Since the publication and transition period, it was 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 process 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 PTOM being led by the Ministry of Transport).

- Regional councils are required by law to develop new regional PT plans by 1 January 2012 and are reviewing a whole raft of policies including vehicle policies.
- The NZTA's 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.

1.1.3 Strategic context supporting a revised RUB approach

There are a number of factors external to the NZTA that are influencing this revision of the RUB.

First, the review began at the request of the BCA. The BCA was particularly concerned about the importance of implementing a common standard to achieve cost savings and provide more flexibility in bus deployment for those bus companies operating in more than one region. The NZTA has endeavoured to keep these goals in mind in reviewing the RUB.

In addition, work is currently underway on a PT sector-led project to improve the effectiveness of PT in New Zealand, including the development of an action plan (Public Transport Effectiveness Action Plan).

The Public Transport Effectiveness Action Plan was developed through a collaborative process across the government, regional councils and other territorial authorities, and PT operators. It encompasses a broad range of largely collaborative actions to be led by the most appropriate stakeholder.

The Public Transport Effectiveness Action Plan has recently been reorganised according to three perspectives:

1. Customer experience and service delivery.
2. Network design, infrastructure and operations.
3. Government investment.

The RUB is designed to improve the PT customer experience. This is achieved primarily through improving the ease of use of urban buses. The adoption of a common standard approach will also result in:

- net savings, due to reduced capital and operating costs of purchasing, and operating urban buses
- reduced time in understanding and complying with multiple regional VQSs, and
- more efficient use of urban buses by PT operators because buses can be used in more than one region without costly modifications.

The RUB's review was also 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 contracting model for PT in New Zealand (the PTOM). A focus of the PTOM is for regional councils and PT operators to work more collaboratively to improve PT's effectiveness, as well as provide further opportunities for PT operators to:

- create efficiencies in their businesses
- achieve a sustainable level of profit to satisfy shareholders and be able to reinvest in their services
- invest in innovation to grow patronage.

It is intended that this approach will have positive impacts for government investment, including increasing patronage with less reliance on public subsidies.

Finally, we are currently experiencing a constrained central government funding environment for PT, particularly involving buses, in the short to medium term.

Given all of the factors listed above, it was considered timely for the NZTA to review the RUB to see how we could improve understanding of the funding and procurement framework, as well as the potential savings to be made, and the importance of improving the efficiency, effectiveness and usability of PT. All of these contextual factors would increase the uptake of the RUB by regional councils.

1.1.4 Continuous improvement

The RUB has also been subject to a general clarification and continuous improvement process. One important example is the ability to have inward facing fold-up seating on the bus sidewall in the multi-use/wheelchair space. This accommodates extra seating and standing room in the peak times, can lead to increased space for wheelchair users and other customers using the multi-use/wheelchair space, and can provide seating for carers next to children and their strollers/prams or wheelchair users in their wheelchairs.

The NZTA believes that the quality of buses is important for creating a valued customer experience, attracting patronage from people who have a choice about whether they use PT or not, and for accessibility reasons.

1.1.5 Outcome of consultation on the revised RUB

The consultation on the revised RUB was completed in early June 2011. Twenty four submissions (and two late submissions) were received, mainly from organisations such as bus and coach industry and suppliers, regional councils, and representatives of people with physical, sensory and cognitive impairments.

All submitters were sent a letter summarising the main issues raised and the next steps.

The NZTA analysed all of the submissions with particular emphasis on technical and implementation issues. The NZTA then worked with the project team and the NZTA's management to finalise this document.

1.1.6 Land transport rules

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 Dimensions and Mass 2002 [Rule 41001]
- Land Transport Rule: Vehicle Standards Compliance 2002 (the Compliance Rule) [Rule 35001/1]
- Land Transport (Road User) Rule 2004 [S.R. 2004/427].

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 buses used to provide urban services in order to encourage increased usage, with a particular emphasis on improving accessibility for all users, including people with physical, sensory and cognitive impairments. It is intended that eventually the specifications contained in this document will apply to all services that receive funding from the NLTF (contracted services). However, regional councils may also choose to use these specifications as controls on services, or through quality standards as part of the contracts developed under PTOM, that do not receive such funding (commercial services).

Importantly, many of the specifications contained in this document will not apply to existing buses within a regional fleet, but only to those vehicles that are new to urban service (the scope of this phrase is discussed later in this document) on and from the time of their introduction into service in a particular region. That said, there are some minimum specifications that will apply to existing buses (see section 8). This document is also not generally applicable to other forms of bus and coach operations, eg rural services, tourist, charters, intercity services or educational contracts funded by the Ministry of Education and managed by its agents or by private

schools themselves. Again, however, there are some minimum specifications that should apply to buses providing rural services (see section 8).

The above exemptions aside, the RUB specifies the technical bus specifications that must be used by regional councils within their tendering processes for urban bus services on and from (if not before) the start of the NLTP 2012–2015. They have been developed through a collaborative approach involving the NZTA, regional councils, operators, the BCA and representatives of the bus industry, including bus builders and suppliers.

1.2.2 Implementation date

The implementation date is the start of the NLTP 2012–2015.

This formal implementation date does not prevent regional councils and Auckland Transport from incorporating the RUB into both new tenders and existing contracts before this date, depending on funding, their ability to vary existing contracts, and support from operators.

The NZTA encourages regional councils and Auckland Transport to implement the RUB earlier than the implementation date where feasible. This includes reviewing contracts as they come up for renewal and either incorporate the RUB or ensure the contract contain an adequate variation provision that allows for the RUB (as amended from time to time) to be accommodated.

1.2.3 Application to contracted services

It is intended that the RUB applies to contracted urban bus services in all urban centres on and from the start of the NLTP 2012–2015. However, the NZTA recognises that for some councils (generally those having smaller urban centres within their region), the implementation of the RUB across all contracted services on and from the start of the NLTP 2012-2015 might result in significant administrative and financial difficulties. To address this, the NZTA has decided to allow for flexible implementation in some cases. Subject to the NZTA's written approval (and the exclusion noted below in respect of large urban centres), some regions will be permitted to phase-in the RUB over time, as services fall due for retendering.

The onus will be on individual councils to contact the NZTA in writing and identify which of its particular services should be granted the additional time allowed by flexible implementation, including a brief explanation of the reasons. The NZTA will decide whether to approve requests at its sole discretion. However, any service that is operated within the large urban centres listed below is unlikely to be approved unless a compelling case can be made to the NZTA. Any service *not* approved for flexible implementation will be required to implement the RUB on and from the start of the NLTP 2012–2015. The services in large urban centres that at this stage are considered unlikely to be approved for flexible implementation are:

- Auckland
- Hamilton
- Tauranga
- Wellington
- Christchurch
- Dunedin.

Any buses used to provide services that are approved for flexible implementation of the RUB must, at a minimum and until such time as specified by the NZTA for full implementation of the RUB, meet the specifications for existing vehicles set out in section 8. They must also make all reasonable endeavours to provide the highest standards of accessibility and safety that are possible for the available funding.

1.2.4 Application to commercial services

The RUB may, in addition, be used by regional councils as the basis for one or more controls on commercial services. However, that is a matter for determination by individual regional councils.

The NZTA is aware that under the PTOM all public transport services will be contracted in some form, and it will be possible to incorporate quality standards as part of those contracts.

1.2.5 What does 'new to urban service' mean?

'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).

In the case of any vehicle shifting from one New Zealand region to another region that has already been used in urban service, 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
- at a minimum meet the requirements listed in section 8, and
- the move must be acceptable to 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.

1.2.6 Special exemption for some existing bus orders

Any 'new' buses that have been ordered prior to publication of this version of the RUB will be exempt from this current version of the RUB, provided that the last delivery date for any such bus under the contract with the supplier is no later than one year after the start of the NLTP 2012–2015. This includes orders for newly constructed buses, as well as new or used imports. The date of publication of this version of the RUB is 14 September 2011. The publication date is different to (and earlier than) the date that the RUB comes into effect, ie the start of the NLTP 2012–2015.

Operators will need to provide written evidence to the relevant regional council to confirm contracts and delivery schedules in order to qualify for this exemption.

Any bus qualifying for this exemption must still comply in all respects with the previous version of the RUB published in 2008.

1.2.7 Exemption for rural services

As noted earlier, it is not generally intended that the RUB applies to buses used to provide rural services (with the exception of section 8 discussed below). However, in order to provide greater clarity with respect to services that traverse rural and urban areas, we have refined the rules in this area where with the exception of section 8, the RUB does not apply to any vehicle used solely to provide one or more rural services if:

- the vehicle does not enter a large urban centre for any of its services, or
- the relevant regional council has reasonable grounds to believe that imposing the RUB on that vehicle may result in the cessation of one or more services due to budgetary pressures.

In the event that the RUB does not apply to a particular vehicle, that vehicle should at a minimum meet the specifications for existing vehicles set out in section 8 and make all reasonable endeavours to provide the highest standards of accessibility and safety that are possible for the available funding.

'Large urban centre' means Auckland, Hamilton, Tauranga, Wellington, Christchurch or Dunedin.

'Rural service' means any service that begins or ends in a rural area.

'Rural area' means any area judged to be rural in character, based on a reasonable assessment of its geographic features, resident population, dominant forms of employment and other relevant features.[1]

1.2.8 Exemption for contracted school services

Similarly, it is not generally intended that the RUB applies to buses used to provide contracted school services (with the exception of section 8 discussed below). However, regional council contracted school services must at a minimum meet the specifications for existing vehicles as set out in section 8, and make all reasonable endeavours to provide the highest standards of accessibility and safety that are possible for the available funding.

1.2.9 Effect of the RUB - Changes to the NZTA's procurement rules

With the exceptions noted above, 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's funding for urban PT services involving buses, unless otherwise agreed through the process described in subsection 1.4.

Initially the effect of the RUB was going to be incorporated as a condition of funding for urban PT services. However, given the specific requirements relate to procurement, it is intended that uptake of the RUB will apply from the beginning of the NLTP 2012–2015, and the existing rule 10.30 of the procurement procedure for urban bus contracts be amended for clarification.

The 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) is:

- Rule 1
  Unless a regional council has written approval from the NZTA permitting flexible implementation of the RUB by that council (and that approval continues to apply), all urban bus contracts funded wholly or partly by the NZTA must incorporate the requirements as published by the NZTA's *Requirements for urban buses in New Zealand: New Zealand's common standard for urban bus quality (2011)*, as amended from time to time.
- 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 vehicle requirements. An application is unlikely to be approved if the NZTA determines that value for money would be unduly compromised.
- Rule 3
  Where a regional council has received a written approval from the NZTA permitting flexible implementation of the RUB by that council, it must incorporate the requirements of the RUB (as amended from time to time), into its contracts for urban bus services at such time or times as specified by the NZTA (following which, the approval no longer applies). Until such time or times, at a minimum, vehicles must meet the specifications for existing vehicles set out in section 8 of the RUB and make all reasonable endeavours to provide the highest standards of accessibility and safety that are possible for the available funding.
- Guidelines
  In addition, all urban bus contracts should consider the additional matters and good practice material as set out in the NZTA's *Requirements for urban buses in New Zealand: New Zealand's common standard for urban bus quality (2011)*.

[1] In the event of dispute, this is to be determined by the NZTA at its sole discretion. Population and other statistical data (where used) to be sourced from the most recent national census data compiled by Statistics New Zealand.

The benefits of having consistent national bus specifications and requirements are set out in the report of John Bolland Consulting Ltd Bus Quality Specifications Final Report December 2010.

Note: Failure to comply with these procurement procedures for urban PT services will be considered a breach under section 36 of the LTMA.

Note that the Planning and Investment Knowledge Base also requires approved organisations to comply with the RUB to qualify for NLTP consideration, by following the NZTA's *Procurement manual: for the activities funded through the National Land Transport Programme* and procurement rules, as well as any relevant standards or guidelines listed in the NZTA's *Register of network standards and guidelines* (in this case the RUB).

1.2.10 Positive impacts of the RUB

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 PT, 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.

1.2.11 Does the RUB apply to new, used and existing vehicles in the fleet?

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

- requirements that apply to all new buses (this includes newly constructed buses, as well as new or used imports) that enter urban service on and from the start of the NLTP 2012–2015 (sections 2 to 7)
- requirements for buses in the existing fleet (section 8).

1.2.12 Regular reviews of the RUB

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 July 2015.

1.2.13 Interpretation, additional matters and good practice

In addition to setting out the technical bus specifications themselves, this document provides:

- information about how to interpret some of the requirements (labelled 'Interpretation')
- additional matters that can be considered by regional councils for inclusion in their VQSs without the need for a variation under subsection 1.4 (labelled 'Additional matters')
- good practice (labelled 'Good practice').

Interpretation, additional matters and good practice are provided in this document in boxes.

1.2.14 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 PT system, eg 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 PT, the NZTA has begun scoping a project to develop national PT infrastructure guidelines. This document is likely to use common principles and standards to set guidelines for new and refurbished PT infrastructure.

The NZTA has commissioned a stocktake of customer services training in PT and is currently working with the 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 Definitions concerning buses

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.

SB	13 – 32 seated passengers
LB	33 or more seated passengers

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 valued at less than $100 million, and considered minor or low risk, this will likely involve a three-step process:

1. The submission of an application form by the relevant council as an approved organisation to the local NZTA representative (example attached to this document).
2. The preparation of a memo in support of the application to be completed by that NZTA representative and submitted to the NZTA's regional P&I manager (example attached to this document).
3. Consideration of the application and approval/refusal by the NZTA's 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 or dormitory areas and a different/lower specification might seem justified. However, with one exception (ie 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 PT 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 Land Transport Rule: Vehicle Dimensions and Mass 2002 and Land Transport Rule: Passenger Service Vehicles 1999. The chassis shall be of an appropriate 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 is <20 years.

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

Additional matters

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:

- from the date of the introduction of these requirements, ie 1 January 2012: ≤12.5 average years, and
- by 1 January 2017: ≤10 average years.

2.3 Engine

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

Acceleration	0-20km/h ≤4 seconds. 0-50km/h ≤30 seconds.

Interpretation

Acceleration measured in an unladen bus on a level road.

Range without refuelling:	≥350km or 15 hours.
Emission:	Current Vehicle Exhaust Emissions Rule.
Noise:	Current Vehicle Equipment Rule.
Fuel efficiency:	Power train management systems that enable settings for both economy or power operations are highly desirable to enable varied topographical conditions to be accommodated.
Compartment insulation:	Non-flammable, noise and heat insulation material. Fire retardancy ISO 3795 (1998) or FMVSS 302 US standard or equivalent ECE standard.

2.4 Transmission

SB	Fully automatic or electronic shift.
LB	Fully automatic or electronic shift plus retarder.

2.5 Suspension

SB	Air suspension including kneeling capability is desirable.
LB	Air suspension. ECAS including self-levelling. Kneeling at front door ≥60mm drop/lift, driver controlled with in-use indicator/drive-off protection.

2.6 Stability and steering

LB	ESC/ESP is desirable.

2.7 Braking

SB and LB	Must meet a brake standard as required by the Land Transport Rule: Heavy Vehicle Brakes 2006 if over 3.5 tonnes GVM.
LB	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. **Interpretation** Some suppliers may offer a combined system incorporating ABS, ASR and EBS. This is acceptable providing the system complies with ECE R13.

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:

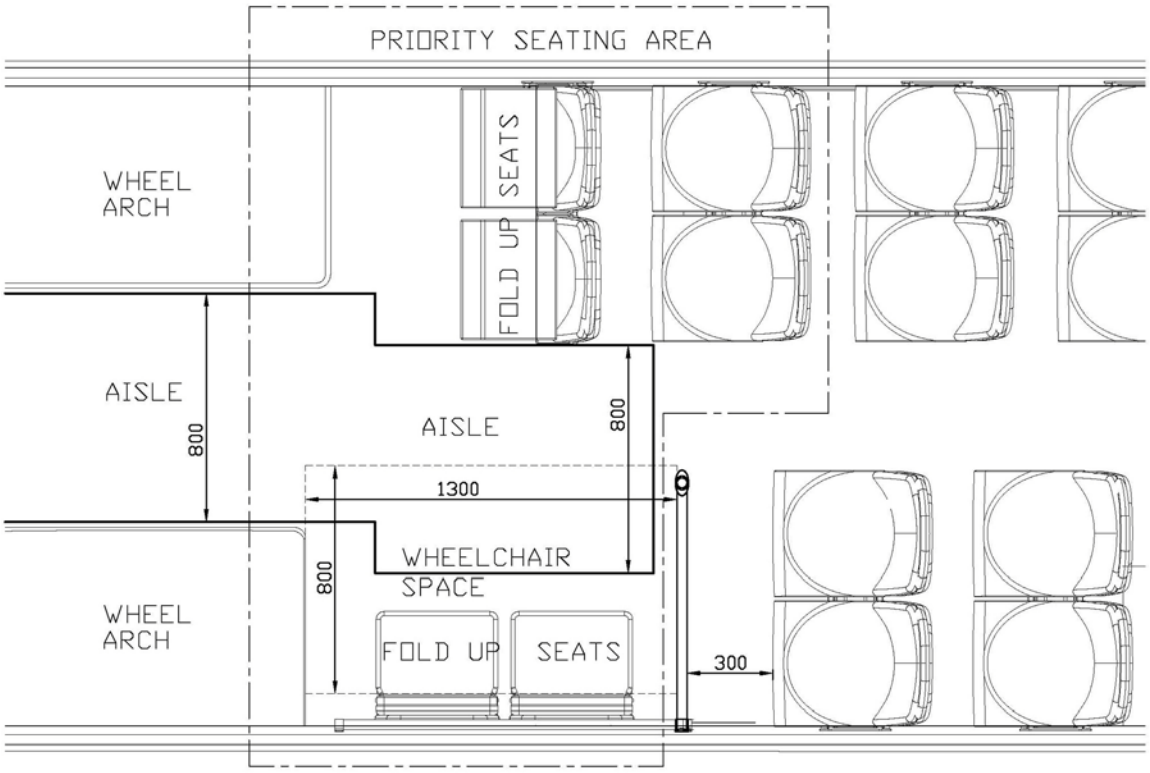
- it removes the perceived barrier that buses cannot be easily used by all members of the public regardless of any physical, sensory or cognitive impairment
- boarding and alighting times are much reduced, which can have a significant impact on the overall travel times and consistency of journey time of a bus service when compared with that of the alternative choices, ie 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 multi-use/wheelchair space that will accommodate one wheelchair and user (preferably rearward facing) or pram user on the nearside of the vehicle, and
- four seating positions preferably on the offside (at least two seating positions must be forward facing).

The purpose of the priority seating area is to provide space for a 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 preferably 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).

Some items needing extra explanation	Definition and requirements
Plinth	**Definition** 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.
Wheel arch	**Definition** 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. **Requirement** Vertical or tapered sides are acceptable provide the minimum width is achieved at the height specified. See subsection 3.5 for the measurement detail.
Parent/caregiver and child seat	**Definition** 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. **Requirement** If fitted 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.

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

For the purpose of this document, all ticketing/revenue collection that requires interaction with the driver (prepaid or cash) for all passengers of any capability, including those using wheelchairs, is to be through the front door. Boarding or alighting using an electronic revenue system using tag-on/tag–off equipment 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.

Any tag-on/tag-off equipment should be readily accessible and be easy to use by adults and children, irrespective of whether they have a disability or not.

The positioning of the tag-on/tag-off equipment must be such that it does not reduce any of the clearances specified for accessibility.

3.2 Doors

Number	**SB**	One.
	LB	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. 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. The rear door should be located as close to the forward side of the rear axle wheel housing as possible.
Location		To achieve standardisation of on street/in terminal/interchange bus infrastructure it is highly desirable that the second/rear door should be located immediately forward of the rear axle at low floor level. For articulated buses a third door further to the rear of the rear section may also be provided.
Widths (Clear space excluding any handrails on the door)	**Front door**	
	SB	≥850mm single leaf.
	LB	≥1000mm double leaf.
	Rear door	≥700mm single leaf.

Interpretation

1. It is not intended that rear door access or egress 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 Land Transport Rule: 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.
4. The door width measurement is the total inside aperture opening width when the door mechanism has been operated, but excludes the handrails from the measurement. It should be taken at the point midway between the top and the bottom of the door opening.

3.3 Step height/depths

First step	Measured from the ground to top of step nosing (without kneeling in operation).
SB	≤300mm (may be up to 370mm if kneeling ≤300mm is fitted).
LB	19.5 inch rims 22.5 inch rims. Front ≤370mm ≤370mm. Rear ≤370mm ≤370mm. With kneeling: Front ≤280mm. ≤300mm.
	Interpretation Kneeling is highly desirable for a SB and is mandatory for a LB. Measurement should be taken at the midpoint of the open door aperture with the bus on level ground (not on a cambered surface) and includes any step edge highlighter strip. 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 Land Transport Rule: Passenger Service Vehicles 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.

Minimum step depth is specified in the Land Transport Rule: Passenger Service Vehicles 1999 as being ≥200mm. While it remains for this version of the RUB, it is intended that an increase in step depth will be proposed at the next review.

3.4 Floors

All floor surfaces shall use a slip resistant (refer to AS 3696.13) material with particular attention paid to its effectiveness in the entry and exit door areas, including the wheelchair ramp, and areas designated and signed for wheelchair users and priority seating. Desirably 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 a flooring insert is required in addition to a sidewall-mounted wheelchair sign.

Interpretation

RNZFB and the Association of Blind Citizens of New Zealand recommend a 70-percent minimum visual contrast (refer to RTS14, section 5.3).

Good practice

In terms of luminance contrast and therefore usefulness to people with impaired vision, the colour yellow is several times more visible than other colours. It is, therefore, favoured in areas where high contrast is required, eg for flooring, stanchions, grab handles, handrails and step edge/plinth nosings.

Refer also to RNZFB Accessible Signage Guidelines (www.rnzfb.org.nz/about/business-services/environmental-design-advisory/accessible-signage).

SB	Flat (horizontal) floor from front entry to rear of priority seating area is mandatory and highly desirably to immediately forward of rear axle.
LB	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 (preferably a maximum of two, excluding any step access to the rear seat) in conjunction with sloping floors are acceptable.

Interpretation

A gradual transverse axis sloped area in the front entrance from the first step to the edge of the fare paying area adjacent to the driver is permitted but not preferred.

One of any set of aisle steps to the rear saloon may be located forward of the rear door providing easy access and egress through the door area is not noticeably effected.

The NZTA recognises that for some low-floor chassis the requirement for provision of a flat floor to the rear of the rear door is not easy to meet. Where a chassis supplier can demonstrate to the regional council why their particular chassis has this problem that cannot be solved and that in all other aspects the bus meets/exceeds the RUB, a sloped floor from the rear of the rear most priority seat could be acceptable providing the rear step height is not compromised.

This would be addressed through the variation process.

3.5 Aisle width

The manoeuvring width inside the front door entrance, fare paying and turning area must be at least the same as the aisle width between the wheel arches and up to the rear of the multi-use wheelchair space. There must be unimpeded access for a wheelchair and pram through the front wheel arches to at least the front edge of the rearmost set of priority seating or the rear of the wheelchair space.

The aisle width clearance through the front wheel arches and up to the rear of the multi-use/wheelchair space area must be:

SB	≥780mm: Measured at the middle of the wheel arch at a height of 300mm.
LB	≥800mm: Measured at the middle of the wheel arch at a height of 300mm.

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.

The European (EC)/United Kingdom (UK) and Australian (AS) standards are ≥750mm through the wheel arches.

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, except as specified below:

Fold-up single, double or triple occupant seating in any orientation is permitted in the wheelchair/multi-use space. This includes inward-facing fold-up style seats 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. Passenger operated 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 seating 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 of the bus)
- ≥50 percent of the seats in the priority area shall be forward facing.

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 subsection 4.3 for other requirements relating to handrails.

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 Land Transport Rule: Passenger Service Vehicles 1999.

Leg room is an important feature for passenger comfort and should be ≥250mm measured horizontally from the front edge of the seat squab to the seat back in front.

The use of fixed or fold-up inward facing seats in any other area of the bus than the multi-use/wheelchair space and priority area must comply with the Land Transport Rule: Passenger Service Vehicles 1999 but is discouraged.

Good practice

Seat height:

- The height from the floor to the top of the front of the seat cushion should be ≥400mm and ≤500mm.
- RNZFB recommend s 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.

Interpretation

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 subsection 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 design

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 single, double or triple seat shell shall support or contain a flat bench style or minimally contoured to body shape integral cushion style squab, or padded insert style seat. A single layer unpadded fabric or synthetic material liner is not acceptable.

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

Seat width	Single seat:	≥425mm.
	Double bench or paired:	≥875mm.
	Parent/caregiver and child, on front wheel arch:	≥760mm.
Spacing	Forward facing:	≥670mm (also see Interpretation in 3.6 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 Land Transport Rule: Passenger Service Vehicles 1999.

Good practice

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 should 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.

In the event that for special services or areas e.g., tourist centres or airport services, additional luggage space is required, this can be readily installed on a local basis by the removal of some seating (eg from over or forward of one or both the front wheel arches).

4.0 Vehicle interior, entrance and exit

4.1 Introduction

The Land Transport Rule: Passenger Service Vehicles 1999 includes requirements for handrails, handholds and handgrips, energy absorbent padding and lighting. However, 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 fitted with a distinctive high-visibility, slip resistant/non-trip style nosing in a solid band, contrasting with the immediately adjacent flooring material.

Interpretation

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

Good practice

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 or within the wheelchair/multi-use space (eg floor-mounted stanchions can hinder wheelchair users' manoeuvrability).

Except in the multi-use/wheelchair space and priority seating area, they must be spaced at least at alternate seats left and right of the aisle, and so that a passenger can stand safely or walk/move through the remainder 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 adjacent to priority seating or wheelchair areas if not already fitted as above. Again, 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 vertical stanchions are impractical because 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 Land Transport Rule: Passenger Service Vehicles 1999.

Interpretation

For contrast refer to guidance for step and plinth edges.

Overhead contrasting colour handrails should be no higher than 1900mm from floor level, unless fitted with strap hangars to reach to, or below this height.

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 stanchions and handrails, eg on the doors, in the fare paying area or on the top face of the front wheel arches, or within the multi-use/wheelchair space, 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.

Interpretation

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 Land Transport Rule: Passenger Service Vehicles 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 ≥300mm 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 – Light levels in the general saloon area from immediately behind the drivers modesty panel should be ≥40 lux.

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

The very strong passenger and bus operator preferences are that in order to compete with the attractiveness of the private car and encourage more patronage, all urban buses should have an air conditioning climate control fresh air system provided that acts throughout the whole bus saloon area.

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

However, in recognition that there are capital and operating cost and vehicle weight concerns, the alternative provision of an adequate saloon heating and ventilation system (eg forced air system with a mix of hopper or sliding style opening side windows and roof vents) that maintains a saloon temperature range of 18 – 26°Celsius is highly desirable.

Good practice

The fitment of an air conditioning climate control fresh air system is highly recommended to offer passengers improved levels of comfort (eg a stable interior environment of 22°Celsius in summer or winter), including improved window demisting.

This recognises that in some urban centres the general levels of external air pollution are such that merely drawing untreated/polluted outside air into the bus is becoming unacceptable.

4.8 Demisting

Refer to section 6.10 of the Land Transport Rule: Passenger Service Vehicles 1999 for windscreen requirements.

Where a full air conditioning climate control system is not fitted, the demisting system must be capable of initial demisting and keeping demisted at all times the glass panels of both front and rear doors and all side windows.

Interpretation

Misted up side windows is a major complaint from customers. Initial demisting of the windscreen, driver side windows, front and rear door glass and all other side windows should be achieved within 10 minutes of vehicle start-up.

5.0 Communication

5.1 Introduction

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

In addition, the Land Transport Rule: Passenger Service Vehicles 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 in all areas of the bus saloon. Signalling devices should be in easy reach of all passengers whether seated or standing. Generally this means that signalling devices should be:

- easily reached by any person seated in a priority seating area or wheelchair area without having to stand up, eg fitted on side walls below the window frame or on stanchions
- easily 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 two illuminated bus stopping signs (a mix of upper and lower case characters is best) with associated audible acknowledgement signals. The signs shall consist of one rearward facing to the saloon adjacent to the driver's area and a second forward and rearward facing repeater located near the rear door 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.
- Finger/thumb/knuckle push buttons fitted as near as possible to the top edge of any fold up seat for use when the seat is in the fold up position if the side wall button is obscured
- 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.

Interpretation

RNZFB recommends that high contrast and consistent colours should be used such as a red button on yellow background.

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. Use of upper and lower case is therefore paramount for all bus internal and external signage.

The Hamilton Accessibility Pilot team recommends for the wheelchair space, that bus stopping buttons are placed to the side of the seated passenger and behind the grab handle.

Disability representatives see the provision of the second bus stopping repeater as essential if wheelchair users are to accept rearward facing orientation. It also improves the situation for all passenger especially those seated or standing in the rear saloon area.

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 electromechanical or 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 digit/character 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 route number and destination repeater sign preferably fitted at the top of the first side window so that it can be seen over the heads of any queuing passengers.
- At the back of the bus a rearward-facing three digit/character 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 route number and destination characters shall be ≥60mm.
LB	Front and rear route number characters shall be ≥150mm. Front destination characters shall be ≥125mm. Side route number and destination characters shall be ≥60mm.

Interpretation

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

Good practice

- 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.

5.4 Internal information

5.4.1 Electronic information displays and announcements

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

Due to feedback from stakeholders the NZTA will investigate the benefits and costs of PA and audio-visual on-bus information systems as part of the Public Transport Effectiveness Project, and this may result in a future amendment to the RUB.

Good practice

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 New Zealand 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 Land Transport Rule: Passenger Service Vehicles 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 ≤700mm width x ≤1200mm length and its user (see subsection 6.3).
- Contrasting easily seen 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 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:

- Footprint to be provided for forward or rearward facing stowage ≤700mm width x ≤1200mm length.
- If transverse stowed, with handles and foot rest capable of being folded or stowed ≤700mm width x ≤900mm 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:

SB	To carry one wheelchair, preferably rearward facing.
LB	To carry a minimum of one wheelchair (preferably rearward facing and on the nearside).

Interpretation

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. Rearward facing is the preferred position in many overseas jurisdictions, and particularly in Europe.

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 ≥800mm from the front entry 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 (≥800mm) 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 for those with impairments but who 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 Land Transport Rule: Passenger Service Vehicles 1999.

Currently in the Land Transport Rule: Passenger Service Vehicles 1999 there is no mandatory requirement to fit restraints. However, this is likely to change for forward facing wheelchair carriage as part of an amendment to the Rule underway.

For the purpose of the RUB 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 irrespective of the orientation of the wheelchair.
- Any passenger safety/modesty panel and any associated vertical stanchion fitted immediately behind the multi-use/wheelchair space should be designed so that it does not hinder the manoeuvring of the wheelchair user and wheelchair in to and out of the wheelchair space. Clearance for the wheelchair user's feet and/or foot plates under any panel while manoeuvring is desirable.

Interpretation

If a rule incorporates a standard by reference, the technical specifications effectively form part of the rule. The Land Transport Rule: Passenger Service Vehicles 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 and must 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 or caregiver with a pram. This may be part of the priority seating area signage. See subsection 6.2.

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

Subsections 2.5 and 3.3 specify the requirement for the bus to kneel at the front door. This can be beneficial to many passengers whether on foot, with or without an impairment, in a wheelchair or accompanied by small children.

Automatic kneeling capability is not required rather this should be manually controlled by the driver. If the capability is used every time the bus stops it will use unnecessary air and, therefore, increase fuel costs, as well as slow down overall journey times.

A sign stating 'This bus kneels on request' shall be provided on the exterior of the bus adjacent to the front door.

6.5 Ramp

A manually-operated flip-over style ≥800mm width 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 Land Transport Rule: Passenger Service Vehicles 1999 in terms of any ramp, door brake interlock and driver warning system.

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

Preferably the driver's lifting handle should be of the full-hand width style rather than a single digit ring style pull up.

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

The ramp surface material must be slip resistant. See subsection 3.4.

Interpretation

A powered ramp may be fitted provided it meets the requirements of section 8.2 of the Land Transport Rule: Passenger Service Vehicles 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.

Good practice

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 July 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:

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 ≥33 seats. Front door width ≥700mm.
Step height	≤370mm.
Additional steps or seat plinths	As per Land Transport Rule: Passenger Service Vehicles 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 excluding any footrest plinth to the rear seats.
Step edge	Highlighter to top edge of nose.
Stanchions/handrails	One close to each door plus at least two in each saloon area, ie 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 windscreen 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 with audible signal.
Destination	Front route no - three characters ≥100mm in height. Front and side destination characters ≥60mm in height.

Good practice

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

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 original equipment manufacture recommends not to retrofit.
- 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.

www.tfl.gov.uk/roadusers/lez/default.aspx.

- Fitment of any of the TfL recommended filters to New Zealand 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 the 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 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)* (RUB) 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 RUB – 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]

   [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 identify affected sections of the RUB, explain the relationship between the proposed variation and the NZTA's previously approved procurement procedure (ie the RUB and also the approved organisation's procurement strategy (if different). Go on to explain how the variation contributes to the objectives of the RUB.*

   The proposed variation concerns the following section of the RUB:
   - [list section reference]
   - [provide other information described above]

4. *The purpose of this question focussing on reasons is to uncover as much helpful information as possible for identifying benefits, value, options and other information relevant to the statutory tests in section 25. A short summary only is required, 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].

Best value for money, etc

5. 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 how the variation contributes to the 5 objectives of the LTMA (ie assisting economic development, assisting safety and personal security, improving access and mobility, protecting and promoting public health, ensuring environmental sustainability), and/or by describing other benefits that will result, and/or 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

6. *The purpose of this section is help with the value for money assessment*

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

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

Future variations

7. [state here].

Alternatives considered

8. *The purpose of this section is help with the s25 assessment by comparing the proposed variation to other available options.*

   Alternatives considered:

   - [describe]
   -

   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]

Supporting

9. Further supporting information is attached in the form of [describe or delete this section if not relevant].

Response to the variation application

(NZTA to complete)

Date request received	
Further information requested	
Date returned to requestor	
Approved/Not approved and reason(s)	
Signed	
Date approved organisation notified	

Appendix 2: Procurement variation – internal memo seeking approval template

To	[insert name], P&I manager [insert relevant region]
Cc	[insert name(s) where relevant, otherwise delete this line]
From	[insert name of NZTA person responsible for handling variation application]
Date	[insert]
Subject	Procurement procedure variation – Requirements for urban buses - [insert name of approved organisation]

Purpose

1. To seek the approval of the regional P&I manager for a variation to the vehicle specifications known as the NZTA's *Requirements for urban buses in New Zealand: New Zealand's common standard for urban bus quality (2011)* (RUB), 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 the RUB 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, and ☐
   - 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.*

   [inset here]

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 how the variation contributes to the 5 objectives of the LTMA (ie assisting economic development, assisting safety and personal security, improving access and mobility, protecting and promoting public health, ensuring environmental sustainability), and/or by describing other benefits that will result, and/or 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]