

DRAFT REPORT

**VEHICLE QUALITY
STANDARDS &
TENDER EVALUATION**

**WELLINGTON REGIONAL
COUNCIL**

June 2000

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use and information of the Wellington Regional Council
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BOOZ·ALLEN & HAMILTON (NEW ZEALAND) LTD

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1. INTRODUCTION

Wellington Regional Council (WRC) engaged Booz·Allen & Hamilton (NZ) Ltd to review its Vehicle Quality Standards and Tendering Evaluation Framework for public passenger transport services.

This report sets out the results of our analysis.

The remainder of this report is set out as follows:

- Chapter 2 - describes the analysis carried out, and recommendations made, regarding WRC's Vehicle Quality Standards**
- Chapter 3 - describes the analysis carried out, and recommendations made, regarding WRC's Tender Evaluation Framework**
- Appendix A - Provides a summary of evidence available on passenger preferences for vehicle and service quality factors**
- Appendix B - Operator comments and VQS system and Tender Evaluation response forms**
- Appendix C - Existing Operators' Fleet Specification.**
- Appendix D - Proposed Vehicle Attribute Scores**
- Appendix E - Auckland Tenderer Pre-Qualification system**

2. POLICY FRAMEWORK

The Regional Land Transport Strategy 1999-2004 (RLTS) sets out the WRC's policy framework for transport within the Wellington region. The section of the RLTS titled 'Further Regional Passenger Transport Policies' sets out the *'passenger transport policies which will guide the Regional Council in the delivery of the passenger transport elements of the overall strategy on a day to day basis.'* This section of the RLTS and the Schedule of Services constitute the Regional Passenger Transport Plan.

Vehicle quality and safety is covered in this part of the RLTS (page 72). The following points are made in respect of buses:

- The Vehicle Quality Standards (VQS) developed in 1992 will be maintained and reviewed.
- Where operators have introduced super low floor (SLF) buses on particular routes WRC will require such vehicles to be used by any operators who are subsequently contracted to operate those services.
- If necessary, the WRC will amend the VQS to impose standards relating to emissions (including noise) and advertising on vehicles.
- The WRC reserves the right to "contract over" commercial services which do not meet the vehicle quality standards for contracted services.

In addition, page 71 of the RLTS covers transport for people for disabilities. This states that *'the regional council will encourage public transport operators to provide for physically disabled people on ordinary services (largely by means of super-low-floor and "kneeling" vehicles and the provision of wheelchair ramps) where this can be achieved economically and where the measures contribute to the comfort or convenience of other customers.'*

Thus, the main changes to vehicle quality standards foreshadowed by the RLTS are an increasing emphasis on more accessible vehicles, in particular, 'super-low-floor' vehicles and those with a 'kneeling' facility and/or wheelchair ramp. Imposing standards relating to emissions and advertising is also mentioned.

3. VEHICLE QUALITY STANDARDS

3.1 OVERVIEW

The vehicle quality standards for urban bus services in New Zealand are set within the following framework:

- *Legal Framework*

The Ministry of Transport (MOT) sets down the legal requirements with which all passenger service vehicles must comply. These requirements, set down in the Passenger Service Vehicle Rules, are primarily minimum safety standards. They are not aimed at addressing passenger comfort issues. Thus, the MOT standards effectively set the 'quality floor' for passenger service vehicles in New Zealand.

- *Urban Bus Service Contract Requirements*

Where an urban bus service is provided under contract to a regional council, that council may specify any service vehicle quality requirements, including vehicle quality standards, which it wishes to. The only caveat is that these requirements must not unduly restrict competition. Commercial services (not operated under contract to a regional council) are only legally required to comply with the MOT requirements.

Subsequent to the first round (1991) of tendering for passenger transport (PT) services, the WRC developed a system of vehicle quality standards to be applied to vehicles operated on bus services within the Wellington Region. This was subsequently refined by the Bus and Coach Association (BCA), which reproduced it as the BCA officially sanctioned vehicle quality standards. The BCA VQS were adopted by all of the other major PT regions (Auckland, Waikato, Canterbury, Otago). The WRC did not adopt the BCA standards but retained its own (1992) VQS system.

3.2 OBJECTIVE OF VQS

The primary objective of the VQS is to ensure a certain minimum vehicle quality standard given that the MOT requirements are not considered to provide a suitable standard for urban bus services. In particular, although the MOT standards cover safety issues acceptably, they do not address user accessibility, convenience and comfort issues.

A secondary objective for the VQS is to provide a possible optional evaluation feature in tender evaluation ie to provide a weighing for tenders which have a vehicle fleet of a higher standard than the minimum requirement.

3.3 VQS FOR MAJOR REGIONS

3.3.1 VQS – Individual Vehicle Scoring

Table 1 summarises the VQS for large passenger service vehicles (LPSV) of the major PT regions. Table 2 summarises the small passenger service vehicle (SPSV) VQS.

The main differences between the WRC VQS and those of other regions are summarised below:

- **Age:** Canterbury and Otago have reduced the maximum vehicle age, and all of the other regions have reduced the relative weighting of age.

- **Floor/Aisle Height:** Auckland and Otago have reduced the maximum floor height (In addition, Canterbury specifies Super Low Floor buses for interpeak services).
- **Step Heights:** most other regions have reduced the maximum first step height, and have set a maximum height for subsequent steps.
- **Step Visibility** - most other regions give points for step visibility.
- **Entrance Grab Rails:** all other regions give points for this feature.
- **Seating and Aisle Width** - Auckland and Otago give points for seat spacing and aisle width. Otago also gives points for legroom, and Auckland gives points for 'all forward facing seats'.
- **Boarding Illumination** - Auckland gives points for this.
- **Transmission & Suspension** - Auckland, Canterbury and Otago give points for these features.
- **Heating** - points are given for heating in Auckland, Waikato and Wellington, whereas it is a mandatory feature in Canterbury and Otago.
- **Ventilation** - Auckland give points for air conditioning.
- **Fuel Type** - Waikato gives substantial points for alternative fuels.

Vehicle Feature	Wellington	Auckland	Waikato	Canterbury	Otago
Age	<ul style="list-style-type: none"> • Max Age - < 21 ys • Remanufactured bus: 1/3rd actual age plus ys since reman • New - 60 points 	<ul style="list-style-type: none"> • Max Age - < 21 ys • Remanufactured bus: 1/3rd actual age plus ys since reman • New - 30 points 	<ul style="list-style-type: none"> • Max Age - < 21 ys • Remanufactured bus: 1/5th actual age plus 0.5 * ys since reman • New - 80 pts 	<ul style="list-style-type: none"> • Max Age - < 17 ys • Remanufactured bus: 1/5th actual age plus ys since reman • Age 48 pts 	<ul style="list-style-type: none"> • Max Age - < 17 ys • Rebuilt bus: 1/5th actual age plus ys since reman • Age 48 pts
External Appearance	• Up to 7 points	• Up to 5 points	• Up to 7 points	• Up to 6 points	• Up to 5 points
Internal Appearance	• Up to 7 points	• Up to 5 points	• Up to 7 points	• Up to 6 points	• Up to 5 points
Floor/Aisle Height	<ul style="list-style-type: none"> • Max hght 1200 mm • 10 pts < 480 mm 	<ul style="list-style-type: none"> • Max hght 1000 mm • 8 pts < 450 mm 	<ul style="list-style-type: none"> • Max hght 1200 mm • 9 pts < 560 mm 	<ul style="list-style-type: none"> • Max hght 1200 mm • 5 pts < 560 mm 	<ul style="list-style-type: none"> • Max hght 1000 mm • 8 pts < 400 mm
First Step Height	<ul style="list-style-type: none"> • Max ht 410 mm • 5 points < 200 mm 	<ul style="list-style-type: none"> • Max ht 375 mm • 6 points < 250 mm 	<ul style="list-style-type: none"> • Max ht 410 mm • 5 points < 300 mm 	<ul style="list-style-type: none"> • Max ht 360 mm • 5 points < 260 mm 	<ul style="list-style-type: none"> • Max ht 360 mm • 5 points < 260 mm
Subsequent Steps	• None	<ul style="list-style-type: none"> • Max ht 260 mm • 4 points - no steps 	• None	<ul style="list-style-type: none"> • Max ht 260 mm • 5 points < 180 mm 	<ul style="list-style-type: none"> • Max ht 260 mm • 5 points < 180 mm
Wheelchair ramp	• None	• Additional 2pts	• None	• None	• None
Step Depth	• None	• 3 pts - > 400 mm & no steps	<ul style="list-style-type: none"> • Min depth 201 mm • Max 3 pts > 400 mm 	<ul style="list-style-type: none"> • Min depth 200 mm • 2 pts - > 250 mm 	<ul style="list-style-type: none"> • Min depth 201 mm • 3 pts - > 400 mm
Flat Loading Platform	• None	• 1 pt - 450 * 450 mm	• 2 pts - > 500 mm	• Mandatory ?	• Mandatory ?
Step Visibility	• None	• None	• 2 pts - all step edges marked in visible means	• 2 pts - front edge of step highlighted & diagonal strips	• 1 pt - front edge of step highlighted or diagonal strips
Door Width	<ul style="list-style-type: none"> • Min width 600 mm • Max pts > 1150 mm front door, 900 rear • Possible 5 points 	<ul style="list-style-type: none"> • Min width 620 mm • Max pts > 1150 mm both doors • Max 6 pts 2 dr vehs, 5 pts 1 dr vehs 	<ul style="list-style-type: none"> • Min width 600 mm • Max 5 pts > 1150 mm both doors 	<ul style="list-style-type: none"> • Min width 600 mm • Max pts > 1150 mm • Possible 5 points 	<ul style="list-style-type: none"> • Min width 600 mm • Max pts > 1150 mm • Possible 5 points
Entrance Grab Rails (Hand Holds)	• None	• 2 pts - may not be attached to door	• 2 pts - grab rails both sides all doors	• 3 pts - specially designed rails	• 2 pts - grab rails both sides all door
Internal Grab Rails	• 2 pts - grab rail near each seat	<ul style="list-style-type: none"> • Max 3 pts - grab rails through vehicle • 1 additional pt visible colour 	<ul style="list-style-type: none"> • 2 pts - grab rails along inside vehicle • 1 additional pt - desgnd for disabled 	• 2 pts - grab rail near each seat	<ul style="list-style-type: none"> • 2 pts - grab rails along inside vehicle • 1 additional pt - desgnd for disabled

TABLE1 CONTINUED

Vehicle Feature	Wellington	Auckland	Waikato	Canterbury	Otago
Signalling Devices	• 2 pts - bell pushes on grab rails & 'bus stopping sign'	• Max 3 pts - dest display, sig devices 90% of pass, disabled people des	• 3 pts - bell pushes & 'bus stopping' display	• 3 pts - palm-push bell pushes all locations	• 3 pts - bell pushes & 'bus stopping' display
Seat Spacing	• None	• Max 2 pts - 90% of seats > 700 mm	• None	• None	• Min spacng 701 mm • Max 4 pts - > 760
Seat Width	• None	• 1 pt - 90% 450mm	• None	• None	• None
Aisle Width	• None	• 1 pt - > 500mm • Min width - 440 mm	• None	• None	• Min width 400 mm • Max 4 pts > 460 mm
Seat Layout	• None	• 1 pt - all forward facing	• None	• None	• None
Legroom	• None	• None	• None	• None	• Min of 231 mm • Max 4 pts > 300 mm
Boarding Illumination	• None	• Max 2 pts - both ovhd & stepwell, & kerb edge	• None	• None	• None
Pram Facilities	• 2 pts - external lockers +/- or internal pram rack	• 1 pt - internal space of 0.01 m ² / seat • 1 pt - external space of 0.01 m ³ / seat	• 2pts - 2 or more pushchairs & 1 m ² luggage space	• 2 pts - pram hooks/external lockers +/- or internal pram rack	• 2 pts - 2 or more pushchairs & 1 m ² luggage space
Luggage Facilities				• 2 pts - lockers or ovhd parcel shelves	
Destination Displays	• 5 pts - illuminated displays front, rear, & left-hand side	• Max 8 pts - electronic front dest & rte no, side display, large size	• 2 pts - front & side both illuminated • +2 pts for features improve legibility	• 3 pts - front & side illuminated, letters 110 mm	• 4 pts - front & side illuminated, letters 110 mm
Transmission	• None	• 1 pt - automatic	• None	• 5 pts - automatic	• 5 pts - automatic
Suspension	• None	• 1 pt - airbag	• None	• 5 pts - airbag	• 5 pts - airbag
Heating	• 5 pts - at least 2 heating units	• Max 2 pts - 1 saloon heater per 20 seats	• 3 pts - 2 saloon heaters	• Mandatory - 2 heaters	• Mandatory - 2 heaters
Ventilation	• None	• Max 2 pts - air condtg	• None	• None	• None
Fuel Type	• None	• None	• 60 pts - alt fuels	• None	• None

TABLE 2 VEHICLE QUALITY STANDARDS OF MAJOR PT REGIONS - SMALL PASSENGER SERVICE VEHICLES					
Vehicle Feature	Wellington	Auckland	Waikato	Canterbury	Otago
Age	<ul style="list-style-type: none"> • Max Age - < 8 ys • New - 60 points 	<ul style="list-style-type: none"> • Max Age - < 15 ys • New - 30 points 	<ul style="list-style-type: none"> • Max Age - < 10 ys • New - 60 points 	<ul style="list-style-type: none"> • Max Age - < 10 ys • New - 40 points 	<ul style="list-style-type: none"> • Max Age - < 10.5 yrs • 250,000 km • New 40 pts; score decr by 4 pts/25,000 k
External Appearance	<ul style="list-style-type: none"> • Up to 7 points 	<ul style="list-style-type: none"> • Up to 5 points 	<ul style="list-style-type: none"> • Up to 7 points 	<ul style="list-style-type: none"> • Up to 5 points 	<ul style="list-style-type: none"> • Up to 5 points
Internal Appearance	<ul style="list-style-type: none"> • Up to 7 points 	<ul style="list-style-type: none"> • Up to 5 points 	<ul style="list-style-type: none"> • Up to 7 points 	<ul style="list-style-type: none"> • Up to 5 points 	<ul style="list-style-type: none"> • Up to 5 points
Headroom	<ul style="list-style-type: none"> • Max 10 pts - > 1.83 m • 1 pt < 1.60 mm 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Max 10 pts - > 1.83 m • 1 pt < 1.35 mm 	<ul style="list-style-type: none"> • Max 10 pts - > 1.83 m • 1 pt < 1.35 mm 	<ul style="list-style-type: none"> • Max 10 pts - > 1.83 m • 1 pt < 1.35 mm
Seat Width	<ul style="list-style-type: none"> • Min width 460 mm • 1 pt - 460 mm =/+ 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Min width 410 mm • 1 pt - 410 mm 	<ul style="list-style-type: none"> • Min width 410 mm • 1 pt - 410 mm 	<ul style="list-style-type: none"> • Min width 410 mm • 1 pt - 410 mm
Seat Spacing	<ul style="list-style-type: none"> • Min spacing 700 mm • 1 pt - 700 mm =/+ 	<ul style="list-style-type: none"> • 2 pts - all seats > 740 mm 	<ul style="list-style-type: none"> • Min spacing 660 mm • 1 pt - 660 mm 	<ul style="list-style-type: none"> • Min spacing 660 mm • 1 pt - 660 mm 	<ul style="list-style-type: none"> • Min spacing 660 mm • 1 pt - 660 mm
Seat Layout	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • 1 pt - all seats forward facing 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Aisle Height	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Min ht 1450 mm • 8 pts - > 1830 mm 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
First Step Height	<ul style="list-style-type: none"> • Max ht 410 mm • 3 pts - < 250 mm 	<ul style="list-style-type: none"> • Max ht - 375 mm • 6 pts - < 251 mm 	<ul style="list-style-type: none"> • Max ht 360 mm • 5 pts - < 201 mm • > 360 if carry portable step 	<ul style="list-style-type: none"> • Max ht 360 mm • 5 pts - < 201 mm 	<ul style="list-style-type: none"> • Max ht 360 mm • 5 pts - < 201 mm
Subsequent Steps	<ul style="list-style-type: none"> • Mandatory Max 300 mm 	<ul style="list-style-type: none"> • Max ht 260 mm • 4 pts - no steps 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Mandatory Max 300 mm 	<ul style="list-style-type: none"> • Mandatory Max 300 mm
Step Depth	<ul style="list-style-type: none"> • Mandatory Min 200 mm depth 	<ul style="list-style-type: none"> • Min depth - 160 mm • 2 pts - no steps 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • 2 pts > 250 mm 	<ul style="list-style-type: none"> • 2 pts > 250 mm
Step Width	<ul style="list-style-type: none"> • Mandatory Min 500 mm width 	<ul style="list-style-type: none"> • 1 pt - 460 mm 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Step Visibility	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • 2 pts - front edge of step highlighted & diagonal strips 	<ul style="list-style-type: none"> • 2 pts - front edge of step highlighted & diagonal strips

TABLE 2 CONTINUED					
Vehicle Feature	Wellington	Auckland	Waikato	Canterbury	Otago
Boarding Illumination	• None	• Max 2 pts - both ovhd & stepwell, & kerb edge	• None	• None	• None
Main Passenger Door	• 5 pts - automatic door of ht 1.83 m	• Min ht - 1.30 m • 4 pts - > 1.80 m	• 5 pts - automatic door of ht 1.65 m	• 5 pts - automatic door of ht 1.65 m	• 5 pts - automatic door of ht 1.65 m
Door Width	• None	• Min width 800 mm • 2 pts - > 950 mm	• None	• None	• None
Entrance Grab Rails (Hand Holds)	• 3 pts - 2 grab handles each side of pass door	• Max 3 pts - grab rails through vehicle, visible colour	• 3 pts - extensive grab rails	• 3 pts - grab handle at front & rear doors, & 1 st row of seats	• 3 pts - grab handle at front & rear doors, & 1 st row of seats
Luggage Facilities	• 3 pts - rear 0.5 cu m luggage space	• 1 pt - internal space of 0.12 m ²	• 3 pts - rear 0.5 cu m luggage space	• 3 pts - rear 0.5 cu m luggage space	• 3 pts - rear 0.5 cu m luggage space
Destination Displays	• 5 pts - front & side illuminated displays	• Max 7 pts - electronic front dest & rte no, side display, large size	• 4 pts - front & side 8 cm high	• 2 pts - illuminated top display 100 mm	• 2 pts - illuminated top display 100 mm
Heating	• 5 pts - ducted heat through cabin	• 2 pts - 1 saloon heater	• 3 pts - ducted heat through cabin	• None	• None
Ventilation	• None	• Max 2 pts - air condtg	• None	• None	• None
Signalling Devices	• None	• None	• None	• 2 pts - bell cord	• 2 pts - bell cord
Transmission	• None	• 2pt - automatic	• None	• None	• None
Fuel Type	• None	• None	• 40 pts alternative fuel	• None	• None

Table 3 shows the relative weighting given to different categories of vehicle quality measures. The relative weightings applied under the WRC VQS are significantly different to that of the other major regions, particularly in regard to Age (WRC - 55%, other regions 31-45%), and Access on to Vehicle (WRC 18%, other regions 14-32%, with most 24%).

Feature	Wellington		Auckland		Waikato		Canterbury		Otago	
	Points	%	Points	%	Points	%	Points	%	Points	%
Age	60	55%	30	31%	80	40%	48	45%	48	40%
Appearance	14	13%	10	10%	14	7%	12	11%	10	8%
Access on to Vehicle	20	18%	31	32%	28	14%	27	25%	29	24%
Internal Access	2	2%	4	4%	5	3%	2	2%	6	5%
Seating	0	0%	5	5%		0%	0	0%	8	7%
Signalling	2	2%	3	3%	3	2%	3	3%	3	3%
Destination Display	5	5%	8	8%	4	2%	3	3%	4	3%
Luggage	2	2%	2	2%	2	1%	2	2%	2	2%
Ride Quality	0	0%	2	2%		0%	10	9%	10	8%
Heating	5	5%	2	2%	3	2%	0	0%	0	0%
Ventilation	0	0%	0	0%		0%	0	0%	0	0%
Fuel Type	0	0%	0	0%	60	30%	0	0%	0	0%
Total	110	100%	97	100%	200	100%	107	100%	120	100%

3.3.2 Fleet Profile

All of the major regional councils, apart from Auckland, require operators to maintain a minimum fleet profile whereby a certain proportion of the operator's fleet must score in different points categories. The main purpose of this requirement is to encourage fleet replacement and ongoing reinvestment in vehicles. This provision was included to counter the tendency for operators to defer fleet reinvestment, and run their fleets down, due to lowest cost tendering pressures.

The fleet profile requirement for the major PT regions is shown in Table 4. Several comments can be made on this:

- The Wellington fleet profile allows for a significantly lower minimum score than that of other regions.
- Waikato has the highest minimum requirement with 100% of the fleet having to be over 50% of the maximum score.
- The Wellington profile has the highest requirement at the top end ie requires 20% over 80 points (73% of maximum points) compared to 12% for Otago and Canterbury (Waikato's top requirement is 50% over 65% of maximum points).

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Points Ranges	% of Fleet - Each Points Range					Cumulative % of Fleet				
	Wellin-gton	Auck-land	Waik-ato	Canter-bury	Otago	Wellin-gton	Auck-land	Waik-ato	Canter-bury	Otago
130 - 200			50					50		
110 - 129			50		12			100		12
100 - 109				6					6	
90 - 99	10					10				
80 - 89	10			6		20			12	
70 - 79	10			30	30	30			42	42
60 - 69	10					40				
50 - 59	10			34	34	50			76	76
40 - 49	10	100				60	100			
30 - 39	10			12	24	70			88	100
20 - 29	10					80				
17 - 19	10			12		90			100	
10 - 16										
9	10					100				
Total	100	100	100	100	100					

3.3.3 Mandatory Features

Table 5 shows the mandatory vehicle and service features for each of the major PT regions. As can be seen, Wellington does not currently require most of the mandatory features listed. A number are common to both Canterbury and Otago, while Auckland has several which are unique to it.

Feature	Wellington	Auckland	Waikato	Canterbury	Otago
COF	+	+	+	+	+
2 Heaters				+	+
Radio Contact				+	+
Approved Fleet Livery				+	+
Emission Standards				+	
Veh > 30 seats - 2 doors				+	+
Front door location					+
Loading Platform > 500mm					+
Vehicle Power for hills					+
Exhaust pipe centre/left					+
Min Top Speed- 90 kph		+			
Power Weight ratio		+			
Acceleration Standards		+			
Tactile non-skid -steps & boarding area		+			
Step edges & rises - highlighter		+			
Electronic Ticketing Facilities	+	+	+	+	

3.4 AUSTRALIAN STANDARDS

3.4.1 Overview

Tendering out of public transport services is being progressively implemented in Australia in most states. However, there are no national (federal) requirements for public transport services to be competitively tendered, and different states are adopting different approaches, with some states only implementing a very limited tendering program. In New South Wales, for example, only night time services (replacements for trains) have been competitively tendered in terms of urban bus services.

The vehicle related tendering provisions for the four states which have so far implemented tendering on a substantial scale (South Australia, Western Australia, Victoria, and Tasmania) are shown in Table 6. Several points can be noted:

- **Most states have a maximum vehicle age, generally 20 years.**
- **An average fleet vehicle age is also common, generally around 12 years.**
- **Some states require operators to use state owned buses. The State Government is then able to exercise maximum control over vehicle quality.**
- **Most states are moving to more accessible vehicles, and are mindful of attempting to comply with the draft Disability Discrimination Act (DDA) standards. While these are not yet legally binding standards, they are being progressively adopted in the urban bus industry, so as to minimise the likelihood of a complaint being upheld by the Human Rights and Equal Opportunities Commission.**

TABLE 6 : AUSTRALIA:: VEHICLE RELATED TENDERING PROVISIONS (METROPOLITAN/URBAN ROUTE SERVICES)				
ITEM	SOUTH AUSTRALIA	WESTERN AUSTRALIA	VICTORIA (ex Met Services)	DEVONPORT
Provision of Buses	<ul style="list-style-type: none"> • Conforming tenders: use buses offered by DoT, at agreed lease rates. • Non-conforming tenders: other buses, subject to minimum average fleet score 	<ul style="list-style-type: none"> • Mandatory to use buses offered by DoT, at specified lease rates. (Alternative tenders allowed use of operator buses, but non of this in practice). • DoT have agreed a 12 year contract (Mercedes/Volgren) for fleet replacement/expansion. Contract involves provisional mix of attics, long rigids, standard rigids and midies. Initially all buses to be diesel-powered, but DoT is monitoring the economics of CNG. 		<ul style="list-style-type: none"> • Vehicles to be provided by contractor. • Initially contractors required to use 9 standard buses from Metro for general route services; and may use further 4 Metro vehicles for student-only services.
Vehicle Age Policy	<ul style="list-style-type: none"> • Maximum vehicle age 20 years. 	<ul style="list-style-type: none"> • Policies reflect Dot fleet replacement programme. • Maximum age for single bus is 25 years for 'standard' buses, 15 years for midi buses. • Current fleet average age is c. 14 years. 	<ul style="list-style-type: none"> • Average vehicle age not to exceed 12 years. 	<ul style="list-style-type: none"> • Maximum vehicle age 16-20 years. • Average fleet age is 12 years
Other Vehicle Specifications	<ul style="list-style-type: none"> • Detailed points system to assess fleet quality, covering customer features (vehicle access, comfort, signage etc) and community features (noise, emissions etc). • Each feature has minimum standard with extra points for exceeding this. Points for each feature are added and averaged over the fleet. Average has to at least meet pass-mark (related to DoT fleet characteristics): score is included in tender evaluation. 	<ul style="list-style-type: none"> • Current fleet replacement programme intended to reduce max age to 16 years, average age to 8-5 years by 2012. • DoT new bus order required to: comply with draft DDA standards; comply with appropriate ADMS; be visually attractive; be environmentally sound; and offer high levels of driver and passenger comfort. • Buses to adopted standards • Buses to have in-vehicle communications to contractor's operations centre. 	<ul style="list-style-type: none"> • Some standards to assist people with disabilities (yellow handrails, yellow edge strips etc). • Also standards for vehicle livery etc. 	<ul style="list-style-type: none"> • Detailed set of minimum specifications for 'standard' buses, DDA-compliant bases, and student only services buses. • Within 12 mnths of start of contract, require at least one standard size bus to be fully accessible (compliant with Disability Standards): from January 2005 to have at least 25% of peak capacity provided by accessible vehicles. • Buses to have on-vehicle communications for emergency use.

3.5 OPERATOR COMMENTS

Consultation meetings were held with the three existing WRC contracted operators in the Wellington region: Stagecoach, Mana Coach Services and Community Coach Services. As part of this consultation process these operators were asked to complete forms covering their preferred VQS system and tender evaluation approach. The operators' responses are provided in full in Appendix B. All three operators considered that some changes were desirable to the existing WRC VQS.

Each operator's comments in regard to VQS are summarised below.

3.5.1 Community Coach Services (relate to SPSV)

- **Age:** the current age limit for SPSVs of 8 years is too low. A more reasonable limit would be 11 years, or 500,000 km, whichever came first. A minivan may do 40,000 km a year. Over 11 years that is 440,000 km, which is feasible for a minivan.
- **Headroom:** a semi-high roof at 1.60 m only gets 1 additional point over a standard van height of 1.36 m. There should be more differential between these two. New vehicles brought in to service should be at least 1.60 m.
- **Seatbelts:** these have been fitted in one of the vehicles at a cost of around \$800. Seatbelts are not required by Ministry of Transport in vehicles carrying more than 8 passengers. However, passengers have been very pleased with them, and have commented that they feel much safer..
- **Heating:** there is no need for heating vents throughout a minivan as the vehicle can be heated adequately from the front standard vehicle heater.
- **Refurbishment:** what benefit in the VQS is made for refurbishment ?

3.5.2 Mana Coach Services

- **Accessibility:** improving vehicle accessibility appears to be a concern of the WRC as evidenced by its inclusion in the RLTS. If this is to be addressed through the VQS it needs to be given considerable weighting given the significant cost increases associated with lower floor buses.
- **Options to improve accessibility include:**
 - requiring a % of vehicles to be low floor/ wheelchair accessible
 - adjusting the age of a low floor bus to equate to that of a newer high floor bus
 - allocating additional points to first step height and subsequent steps.

3.5.3 Stagecoach

- **Vehicle Types:** there should be separate standards for urban buses, as against semi coach vehicles which would be confined to long distance express commuter services (eg Wainuiomata/Stokes Valley to Wellington CBD).
- **Aim of VQS:** the VQS points system should be 'directed solely towards encouraging operators to provide customer friendly buses, irrespective of a vehicle's age'. Age should not be a VQS feature at all.
- **Weightings:** 'Customer friendly vehicle attributes can be grouped into broad categories, which we suggest should have the following weightings:

- Accessibility	35%
- Comfort	25%
Appearance	10%
- Customer Information	10%
- Convenience (eg luggage)	10%
- Environment	10%

- **Fleet Profile:** given that age is excluded, there is no need for a graduated fleet profile. Rather, all vehicles must score above 40 points (30 points for school services). In addition, proposed fleet must score at least average score of existing fleet used on Wellington urban services.
- **Mandatory Features:** all vehicles first registered in New Zealand after the commencement of these standards should be required to have the following mandatory features:
 - **Low emissions (minimum of Euro 2 standard)**
Super Low Floor configuration ie low first step with kneeling capability and no subsequent internal steps forward of the rear exit
 - **Wheelchair ramp and one wheelchair tie down position.**

3.5.4 VQS Features and Weightings

Table 6 shows the operators' (excluding Mana which did not provide suggested weightings) preferred weightings for the different possible VQS features.

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TABLE 6 OPERATOR VQS FEATURE WEIGHTINGS		
Attribute	Stagecoach	CCS
Age		55
External Appearance	5	6
Internal Appearance	5	6
Floor/Aisle Height		7
First Step Height	10	4
Subsequent Steps (maximum)	10	
Wheelchair ramp	5	
Step Depth (maximum)	2	
Flat Loading Platform		
Step Visibility	1	2
Front Door Width	2	
Rear Door Width	1	2
Entrance Grab Rails (Hand Holds)	1	2
Internal Grab Rails	2	1
Signalling Devices	1	
Seat Spacing	4	
Seat Width	1	1
Aisle Width	2	
Seat Layout	4	
Legroom		3
Boarding Illumination	2	2
Pram Facilities	10	2
Luggage Facilities		
Destination Displays	10	3
Transmission		
Suspension	2	
Heating	5	2
Ventilation	5	
Fuel Type	10	
Seatbelts throughout		2
Total	100	100

3.6 CURRENT FLEET

The existing operators were asked to complete vehicle specification forms for their existing fleet (main vehicle makes/types). The completed forms are attached in Appendix C. Generally, the newer the vehicle the more accessible it is. This involves lower floor heights, lower first step height, and wheelchair accessibility. However, Stagecoach's newer buses (SLF) are specified without any pram hooks and very minimal (if any) luggage space.

3.7 ISSUES

The main issues in regard to the WRC VQS are outlined and discussed below.

3.7.1 Large Passenger Service Vehicles

- **Maximum Vehicle Age**

The WRC's maximum vehicle age is currently 21 years. This was the age limit set in the initial Bus and Coach Association (BCA) standards and tended to reflect the practice of BCA members throughout New Zealand. However, it did not reflect the practice at the time of the major urban bus operators who generally tend to replace vehicles at a much younger age. Throughout the urban bus industry the generally accepted economic life for an urban heavy duty omnibus is 15-20 years, with remanufacture taking this out to 25 years.

Another important factor in setting the maximum age is user and community perceptions. The vehicle fleet tends to be rated by passengers and the public according to its 'worst bus' rather than its best. Thus, having several 18-20 year old buses in the fleet can produce a negative image of the bus fleet, which will have negative patronage effects. Both the CRC and ORC have reduced their maximum vehicle age from 21 years to 17 years.

The main argument against lowering the maximum age limit (other than cost) is that some older buses, when refurbished, can have a similar appearance (or better) to that of much younger buses. The question raised in this context is, can the passenger tell how old a bus is, and are they concerned?

A possible solution incorporating both these views could involve no change to the current maximum age limit, but a requirement that all buses must go through a refurbishment at 16 years of age.

- **Weighting for Vehicle Age**

The WRC currently allocates 55% of its maximum possible points to age, whereas other regions allocate from 31-45% of maximum points to it. When the WRC's VQS were developed it was considered that age was a good proxy for many vehicle quality attributes, and that giving age a high weighting (and requiring a fleet profile) would encourage operators to bring new vehicles (with the latest technology) into their fleet on a regular basis.

However, several difficulties have arisen in regard to this feature in some regions, and this motivated a lowering of the weighting given to age. The difficulties encountered are listed below:

Some operators have brought in new vehicles which have been built to outdated specifications, and do not contain the latest technology in urban bus design. In some cases these vehicles are not suitable for urban bus service work in New Zealand.

The very high weighting for age means that an operator can meet the fleet profile requirements with several new vehicles, while the rest of the fleet is of a much lower standard.

Remanufactured vehicles have been able to obtain high points scores because of the age weighting even though they may be well behind the latest bus technology.

Thus, giving age a high weighting does not guarantee high quality vehicles.

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- **Access to/from Vehicle**

This covers first step height, subsequent step height, step depth, floor height, step visibility, wheelchair access, and entrance grab rails. In all these areas the WRC VQS are some way behind those of the other regions and appear to be deficient.

First Step Height: the WRC VQS allows a first step height of 410 mm (the maximum legal limit), whereas the ARC, CRC and ORC have all lowered their limit (360 mm for CRC and ORC). In addition, the CRC now specifies Super Low Floor buses in its interpeak services. Feedback from passengers generally finds that high step heights, particularly on the first step, has an adverse impact on the level of usage, particularly for some user groups (eg the elderly, mothers with young children, people with physical disabilities).

Subsequent Step Heights: the WRC does not currently have any standards for subsequent step heights, in contrast to the ARC, CRC and ORC which set a maximum height of 260 mm and award up to 5 points for low or no steps.

Step Depth: narrow steps make getting on and off the bus more difficult, particularly for infirm passengers. All the other major regions award points for step depth and set a minimum step depth (generally 200 mm).

Floor Height: (note: floor height and subsequent step heights both measure the same feature; probably only one of these is required). The lower the floor height the easier it is to board a bus. Super Low Floor (SLF) buses, with no steps at all (apart from the step in to the bus from the kerb) are the best vehicles in this regard. WRC awards the most points for this category of all the major regions, but has a higher maximum floor height than the ARC and ORC (1200mm against 1000 mm). However, the specification for maximum points is above that of ORC (ie WRC - 10 points < 480 mm, ORC - 8 points < 400 mm). SLF buses generally have a floor height of 380 - 400 mm. A possible approach in regard to floor height is to require LF or SLF buses on particular routes and/or at particular times (as per the CRC approach).

Step Visibility: providing visibility markings on the step edges has been recommended by various user groups (particularly the visually impaired) as assisting ease of access. EWRC, CRC and ORC all give points for this feature. WRC does not currently do so.

Wheelchair Access: although the WRC VQS does not have any provisions relating to wheelchair accessibility, the WRC has run, in conjunction with Stagecoach, a trial of wheelchair accessible buses. Although this trial did not show a high demand for such a facility, there is merit in providing points for such features as providing a wheelchair ramp and tie-down points (currently done under the ARC VQS) to promote 'accessible' vehicles.

Entrance Grab Rails: providing grab rails at the entrance of a vehicle assists people who have difficulty boarding buses. WRC does not currently provide any points for this feature, whereas all the other major regions do.

- **Internal Access**

The WRC does not currently provide any points for aisle width. Aisle width is particularly important for accessibility through the vehicle. The legal minimum for omnibuses is 380 mm. The ORC sets a minimum width of 400 mm and the

ARC 440 mm. Failure to set any requirements for this area means that coach type vehicles could operate on urban services.

- **Seat Parameters**

The WRC' VQS does not currently cover any seating parameters. The ARC and ORC currently have provisions covering: seat spacing (distance between seats), seat width, legroom and seating layout in their respective VQS:

Seat Spacing and Legroom: one complaint passengers have about some types of bus is that they are too cramped with not enough room for passengers' legs. This is particularly the case on vehicles designed to Asian specifications where the average size of passengers tends to be somewhat smaller than that in New Zealand. The ORC sets a minimum seat spacing of 701 mm and a minimum legroom of 231 mm, with points awarded for dimensions greater than these. The ARC awards up to 2 points for seat spacing, where 90% of seats are more than 700 mm.

Seat Width: the ARC provides 1 point if 90% of seats are at least 450 mm wide. The legal requirement is 410 mm.

Seat Layout: surveys have found that passengers generally prefer seats to be all forward facing, rather than having some seats side on (which is often the case in Low Floor buses). The ARC awards 1 point if all seats are forward facing.

Other seat parameters that could conceivably be covered include: height off the floor, depth of squabs, and degree of support provided by the seat.

- **Vehicle Ride**

The WRC's VQS does not cover vehicle ride. The ARC, CRC and ORC have all added categories to cover transmission and suspension which affect smoothness of ride.

- **Mandatory Features**

There are a number of vehicle features which could be either mandatory or optional features. Features tend to be made mandatory rather than optional where the tendering authority considers that it represents the minimum standard which should be accepted. An obvious example is Certificate of Fitness. WRC only sets two vehicle related mandatory features: Certificate of Fitness and Electronic Ticketing Machines. This contrasts to the other regions (apart from EWRC) which set up to 9 mandatory features (Otago). WRC could consider setting mandatory requirements in the following areas:

Heating: both the CRC and ORC have mandatory heating requirements whereas the ARC and EWRC do not. Given Wellington's relatively cold climate in the winter it would seem sensible to make this a mandatory rather than an optional feature.

Communications: both the CRC and ORC require vehicles to have a facility to enable contact with the depot, office or 'base' at all times. This is helpful for breakdown, accidents and on-board safety concerns.

Fleet Livery: both the CRC and ORC require operators to have an approved fleet livery. This helps improve the image of public transport, and makes identification of an operator's fleet easier for passengers.

Environmental features: the CRC sets emission standards for buses operating on its services, and the ORC requires buses to have their exhaust pipe either in the centre or on the left of the vehicle so that the fumes are not sent on to passengers and pedestrians.

Number of Doors: both the CRC and ORC require vehicles with more than 30 seats to have two doors (unless operating on a 'rural' service). This requirement is to speed up loading and egress times.

Front Door Location: the ORC introduced a requirement that buses which have the front door and loading area located rear of the driver are not permitted to be used on its services. This recognises the impact this has on boarding times and the greatly reduced ability for effective driver-passenger interaction.

Power/Speed: the ORC requires vehicles to have sufficient power for Dunedin's hills. The ARC requires buses to meet a minimum power weight ratio and acceleration standards, and to have a minimum top speed of 90 kph. These requirements guard against operators running underpowered vehicles which could result in buses running late on some routes.

Non-Skid Steps: the ARC requires all vehicles to have tactile non-skid steps and boarding area. This assists accessibility of vehicles by helping passengers have a sure footing when boarding.

Highlighted Step Edges: the ARC has made highlighted step edges and rises mandatory. This ensures that all vehicles are equally 'impaired sight friendly'.

3.7.2 Small Passenger Service Vehicles (SPSV)

- **Maximum Vehicle Age**
The WRC's maximum vehicle age for SPSV is currently 8 years. This is substantially lower than that of the other regions (10-15 years), and is lower than the original BCA VQS (9 years). There does not seem to be any good reason to have such a low maximum age. With engine reconditioning these vehicles should be easily be able to run to 10 plus years of age.
- **First Step Height**
The WRC'S VQS is "out of step" with other regions in regard to first step height. Other regions set the maximum first step height at 360-375 mm against WRC at 410 mm. One of the complaints that passengers make about SPSVs is the difficulty of getting into the vehicle, which is not helped by a high first step.
- **Subsequent Steps**
Generally there is only one step on a SPSV. However, where there is a subsequent step (eg where the vehicle is fitted with an additional fold-out step), the step height should not be above 260 mm as with large vehicles.
- **Step Depth**
The WRC currently sets a mandatory minimum step depth (200 mm), but does not give any points for dimensions exceeding the minimum (whereas the ARC, CRC and ORC do). Awarding points for this category will encourage more 'accessible' vehicles.
- **Headroom**
As CCS points out, a semi-high roof van with a headroom of 1.60 m only gets 1 additional point over a standard van with a headroom of 1.36 m, which does not accurately represent the additional benefit to passengers. This is a result of the way the points are structured with 9 out of the 10 points available allocated to a relatively narrow range (1.60-1.83m).

- **Air Conditioning**
The ARC provides points for vehicles with air conditioning. This may be a useful feature for passengers in the summer given the relatively confined space of these vehicles.
- **Mandatory Features**
The only other feature (apart from such measures as maximum step heights) which should be made mandatory is step visibility markings (highlighted step edges and rises).

3.7.3 Fleet Profile

As indicated above, the fleet profile requirement was primarily instituted to encourage fleet replacement and ongoing investment in vehicles. The WRC fleet profile, which is a graduated profile, is designed to do this. However, two weaknesses are apparent with the WRC profile: it allows for some vehicles scoring the absolute minimum on every category to be operated, and thus has a very low minimum standard (10% of the fleet can score 9 points); and, it allows 40% of the fleet to be under 40 points (36% of maximum points), meaning that a good proportion of the fleet will be of a low standard.

The CRC and ORC have attempted to address these problems, while still retaining a graduated fleet profile to encourage reinvestment. Their approach has been to lift the minimum points score (17 points for CRC and 20 points for ORC), and to reduce the proportion of the fleet which can be under 40 points (24% of fleet) while increasing the proportion in the middle group (34% in 40-59 points category vs 20% for WRC).

3.8 RECOMMENDED CHANGES

3.8.1 Large Passenger Service Vehicles

The following changes to the current WRC VQS are recommended in respect to LPSVs:

- **Reduce Weighting for Vehicle Age**
The weighting for vehicle age should be reduced to 33% of the total score (currently 55%).
The current maximum age of 21 years should be retained, however, vehicles should be required to be refurbished internally and externally at 16 years of age.
- **Increase Weighting for Accessibility**
Reduce maximum first step height to 370 mm (currently 410 mm).
Increase weighting for first step height to 10% of total score (currently 4%)
Introduce maximum subsequent step height of 260 mm
Reduce maximum floor height to 1000 mm (currently 1200 mm)
Heavily weight points distribution in favour of SLF buses eg SLF scores 10 points on subsequent steps/floor height for 0 steps, buses with additional steps can only score maximum of 5 points on this category.
Points for wheelchair ramp and tie-down points, step depth, entrance grab rails and boarding illumination (currently no points given).
- **Add Seat Parameters**
Add points for seat spacing and legroom (no points currently given).
- **Add Points for Aisle Width**
A minimum aisle width of 440 mm should be set.
Points should be awarded for aisles above the minimum requirement.

- **Reduce Points for Prams/Luggage**
Decrease from 2 points to 1 point for this category.
- **Add points for Vehicle Ride**
1 point for airbag suspension and 1 point for automatic transmission (no points currently given).
- **Remove points for Heating**
Remove points for heating, as this becomes a mandatory feature (currently 5 points given).
- **Mandatory Features**
The following features should be a mandatory requirement on contracted services:
Certificate of Fitness
2 Saloon heaters
Step edges & rises highlighted.

The proposed points system is shown in Table 7. The basis for scoring each category is given in Appendix D.

Attribute	Proposed	WRC Current	
		Points	%
Age	33	60	54.6
External Appearance	5	7	6.4
Internal Appearance	5	7	6.4
Floor/Aisle Height		10	9.1
First Step Height	10	5	4.5
Subsequent Steps	10		
Wheelchair ramp	3		
Step Depth (maximum)	2		
Front Door Width	3	3	2.8
Rear Door Width	3	2	1.8
Entrance Grab Rails	2		
Internal Grab Rails	2	2	1.8
Signalling Devices	3	2	1.8
Seat Spacing	3		
Seat Width	1		
Aisle Width	3		
Legroom	2		
Boarding Illumination	2		
Pram Facilities		2	1.8
Luggage Facilities	1		
Destination Displays	5	5	4.5
Transmission	1		
Suspension	1		
Heating		5	4.5
Total	100	110	100.0

3.8.2 Small Passenger Service Vehicles

The following changes to the current WRC VQS are recommended in respect to SPSVs:

- **Increase Maximum Age**
The maximum age for SPSVs should be increased to 11 years.
Reduce the weighting for age to 33% in line with LPSVs.
- **Step Heights**
The maximum first step height should be reduced in line with LPSVs.
Increase the weighting for step height to 10%.
A maximum of 260 mm should be set for subsequent steps in line with LPSVs.
Provide points for subsequent steps better than the maximum.
- **Step Depth**
Provide points for exceeding the minimum requirement.
- **Headroom**
Rework points scale to provide greater points differential between a standard minivan and a semi-high roof van.
- **Seat Parameters**
Increase points for seat spacing.
Provide points for legroom.
- **Boarding Illumination**
Provide points for boarding illumination.
- **Luggage**
Reduce points for luggage.
- **Heating**
Remove points for heating, make a mandatory requirement (if required).
- **Seatbelts**
Providing seatbelts throughout should attract additional points; however, this would be a no-fail category.
- **Mandatory Requirements**
Certificate of Fitness
Step edges & rises highlighted.

The proposed points system for SPSVs is shown in Table 8.

Attribute	Proposed	WRC Current
Age	33	60
External Appearance	6	7
Internal Appearance	6	7
Headroom	10	10
Main Passenger Door	5	5
First Step Height	10	3
Subsequent Steps	5	
Wheelchair hoist	3	
Step Depth	2	
Entrance Grab Rails	3	3
Internal Grab Rails	1	
Seat Spacing	3	1
Seat Width	1	1
Legroom	2	
Boarding: Illumination	2	
Luggage Facilities	1	3
Destination Displays	5	5
Heating		5
Seatbelts throughout	2	
Total	100	110

3.8.3 Fleet Profile

It is recommended that a fleet profile be retained, however, with the following changes:

- The minimum score for any one vehicle be raised to 40 points
- The fleet be spread over the upper 60 points.

The proposed fleet profile is shown below:

Points Range	% of Fleet - each Points Range	Cumulative % of Fleet
80 - 100	10	10
70 - 79	15	25
60 - 69	20	45
50 - 59	25	70
40 - 49	30	100
Below 40	0	

The proposed fleet profile will result in a minimum fleet average score of 55 points (the current fleet profile results in a fleet average score of 46 points. One possible approach, particularly in the transition period, is to permit fleets which have an average score of 55 points to not be required to comply with the upper two score grouping requirements (ie have a lower % of buses in the 70-79 and 80-100 ranges).

3.9 COSTIMPLICATIONS

Several points can be made in respect to the impact of the proposed changes to the WRC VQS :

- No change to the maximum age limit for LPSVs is proposed (extension to age limit for SPSV).

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- **The proposed fleet profile lifts the minimum vehicle points score up from 9 points to 40 points. A portion of the existing Wellington urban bus fleet will score below 40 points. These are the older vehicles, and the trolley buses. Apart from the issue of the trolley buses, this will not have a significant impact on existing operators' costs given that they have indicated they are planning to replace their older vehicles with newer ones.**
 - **Apart from the minimum, and the impact on the proportion of vehicles allowed in the lower points ranges, the proposed fleet profile is not set at a significantly higher level than the existing profile. Analysis of the current urban bus fleet shows that the existing operators will be able to meet the profile requirements when their older vehicles have been replaced.**
 - **The proposed VQS places a greater emphasis on accessibility than the current VQS. This will encourage operators to purchase SLF vehicles when involved in vehicle replacement (however, the current operators are already tending to purchase SLF vehicles when acquiring new vehicles). The additional capital cost of a SLF vehicle over a 'standard' height vehicle is the additional chassis cost which is estimated to be \$8-10,000 (MAN estimate). There are no additional body building costs (the total cost of a built-up SLF bus is around \$230,000).**

Given the above, the estimated impact of the proposed VQS on WRC's current contract costs is likely to be very small.

3.10 IMPLEMENTATION

It is proposed that the new VQS system be implemented progressively over the next 5 years as contracts are retendered ie apply only to new contracts. This will give the existing operators time to replace their older vehicles which score below the minimum points level.

As indicated earlier, one possible approach in the transition period, is to permit fleets which have an average score of 50+ points to not be required to comply with the upper two score grouping requirements (ie have a lower % of buses in the 70-79 and 80-100 ranges). This will enable existing operators to gradually bring in newer more accessible vehicles.

4. TENDER EVALUATION FRAMEWORK

4.1 OVERVIEW

The simplest tender evaluation approach is to select the lowest price conforming (LPC) tender. This implies that the tendering authority requires specified minimum service levels, service quality, vehicle standards, operator experience, etc; but is not interested in paying extra for tenders that offer more than these minima.

The main advantage of the LPC approach is that it simplifies the tender evaluation process. Once tenders have been checked against the mandatory requirements, and non-conforming tenders have been removed, the tender with the lowest price is selected. No other analysis or consideration is required. This reduces tender evaluation time and costs.

The main weakness of the LPC approach is that it does not allow the tendering authority to provide merit to tenders which offer to provide a level or quality of service above the minimum requirement. Given the link between service quality/level and usage, this can be important in terms of the tendering authority achieving its objectives.

The price/quality trade-off (PQT) approach allows tendering authorities to give merit to tenders providing more than the minimum requirement. Tendering authorities still need to define minimum standards as with the LPC approach. However, they also need to develop an evaluation framework that scores and weights performance that exceeds the minimum standard (where such enhanced performance is seen by the authority as having additional value) and then translates the 'quality premium' into an equivalent 'price adjustment', to be applied to the actual bid price. The preferred tender would then be that with the lowest quality-adjusted price.

The PQT approach is more complex than the LPC approach, and therefore more time consuming and costly. It also requires the tendering authority to make judgements as to the relative weighting of different service quality/level features.

Under the PQT approach, all non-price evaluation factors can be classified into three groups:

- (i) Those subject to pass/fail criteria only.
- (ii) Those subject to quality grading only (with no 'fail' level).
- (iii) Those subject to both pass/fail criteria, and to quality grading of 'pass'.

For these factors subject to quality grading there will be a need to determine:

- A grading scale (eg 1...5).
- What characterises each step on this scale.
- What weighting is to be given to the difference between a maximum (5) and a minimum (1) score for this factor, relative to other quality factors.

The desired trade-off between the different quality features and price is then determined.

Examples of aspects for which quality factors might be defined include:

- Vehicles
 - higher than minimum standards
 - low polluting vehicles

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- **Service quality**
 - **customer orientation**
 - driver training
 - quality assurance (especially reliability)
 - **Service development/innovation ideas (but not specific proposals for initial implementation)**
 - **services (type, frequency etc)**
 - **marketing/passenger information**
 - **Previous experience/track record**
 - **provision of public transport services**
 - IR record**
 - **management practices**
 - **customer orientation/responsiveness**
 - **Financial capacity**
 - **Support facilities quality etc**
 - **depot facilities**
 - **ticketing systems.**

4.2 NEW ZEALAND EVALUATION FRAMEWORKS

4.2.1 CPP Framework

A standard approach to evaluating passenger transport tenders has been set by the Transfund New Zealand Competitive Pricing Procedures (CPPs). The CPPs allow for a quality-price trade-off approach (but do not mandate it). The key elements of this standard approach are:

- **Two Envelope system** - tenderers must submit their tender bids in two envelopes. Envelope A covers conformity with mandatory requirements; and, Envelope B contains other aspects, including price proposals and any optional features the tenderer offers.
- **Optional Features** - the tendering authority may specify optional features for which it is willing to pay additional over and above the minimum service requirement. The CPPs provide some directions and guidance regarding optional features:
 - The value placed on each optional feature should be related to the demonstrable public benefit from it, or the community's willingness to pay for such a feature (assessed through an independent survey).
 - The optional feature values must be determined in advance of tendering and included in the RFT. The value must be specified as either a dollar figure or percentage of tender price.
 - The CPP Guidelines recommend specifying absolute dollar amounts for optional features rather than percentages as *'percentages can have a somewhat arbitrary effect when applied to nef contracts'*.
 - The CPP Guidelines suggest that possible features could include: aspects of overall fleet quality eg door widths, step heights, accessible buses (including low floor), use of alternative fuels, provision of timetables and information, and, participation in area wide ticketing schemes.
- **Alternative Tenders** - tendering authorities may accept alternative tenders (tenders which offer alternatives to some of the RFT conformance requirements). An alternative tender may only be accepted over the lowest conforming tender (adjusted for any optional features) where the additional public benefit from accepting a higher priced alternative tender exceeds the difference in price; or the

price reduction exceeds the loss in public benefit from accepting a lower price alternative tender. Tendering authorities are required to *'define the public policy goals that will drive its considerations in making a choice between a conforming and an alternative tender'*. The CPPs also require that the RFT will explain the basis for evaluating alternative tenders.

Group Tenders – tendering authorities have the ability to not permit group tenders. If they do permit them, tendering authorities are able to set conditions covering group tenders. The method for evaluating group tenders should be specified in the RFT.

4.2.2 Evaluation Approach of Major PT Regions

The tender evaluation approach of the five major PT regions is summarised in Table 8. As can be seen, WRC is currently the only one of the major regions which does not have any optional evaluation features (although Otago only provides additional weighting for electric vehicles). The other regions use a price/quality trade-off (PQT) approach, whereas the WRC's approach is to simply select the lowest price conforming (LPC) tender.

The PQT approaches used are quite different:

(i) Auckland

The ARC approach involves assessing how many vehicles and daily kilometres (km) are involved for each RFT, and then reducing the tender price by a predetermined dollar per vehicle required, and a pre-determined dollar amount per daily km, for each optional feature. The dollar reduction is related to the score assessed for each feature. The optional features and tender price reductions given are shown in Table 7.

Optional Feature	Calculation	Reduction in Tender Price	
		Per vehicle/ day	Per 100km/ day
Tenderer Pre-Qualification	For every point	\$1.00	\$1.00
Vehicle Quality Standards	Every point ave score > 40 points	\$0.40	\$0.30
	Every point min score > 40 point	\$0.20	\$0.15
Extra Passenger Capacity	For every 10% fleet carries standees	\$0.20	\$0.14
	For every 10% fleet exceeds highest min of RFT BY 10-20%	\$0.20	\$0.14
Inter-Vehicle Communications	If Radio Telephones installed in > 90% of fleet	\$3.00	\$2.10
Driver Uniforms	All drivers uniformly attired	\$1.00	\$0.70
Uniform Paint Schemes	All fleet in uniform paint scheme	\$2.00	\$1.40
Low Polluting Vehicles	> 70% of fleet CNG, LPG or electric	\$1.00	\$0.70
	All fleet CNG, LPG or electric	\$1.50	\$1.10

(ii) Waikato

Environment Waikato's approach involves using the tenderer's vehicle fleet score to weight the tender price. Each tenderer's vehicle fleet is scored, and the tender price is then weighted by this score to give an adjusted tender price for tender evaluation.

(iii) Canterbury

The Canterbury approach involves providing weighting for:

- **Tenderer Pre-Qualification**
- **Service Frequency:** reduction in the tender price equal to 10% of estimated gross contract price for a 100% increase in frequency over and above the RFT requirement, actual benefit derived on pro-rata basis.

TABLE 9 TENDER EVALUATION APPROACH OF MAJOR NEW ZEALAND PT REGIONS

Evaluation Feature	Wellington	Auckland	Waikato	Canterbury	Otago
Operator Pre-Qualification	<ul style="list-style-type: none"> Poor previous performance - if has had contract terminated tender may be rejected 	<ul style="list-style-type: none"> Poor previous performance - tender may be rejected Tenderer Evaluation - scored on: relevant experience, track record, management & technical skills, & resourcing program If below cut-off tender rejected 	<ul style="list-style-type: none"> Poor previous performance - if contract terminated in last 12 months tender may be rejected 	<ul style="list-style-type: none"> Poor previous performance - tender may be rejected Tenderer Evaluation - scored on: relevant experience, track record, management & technical skills, & resourcing program If below cut-off tender rejected 	<ul style="list-style-type: none"> Poor previous performance - tender may be rejected
Optional Evaluation Factors	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Tenderer Evaluation Vehicle Quality Extra Pass Capacity Inter-vehicle communications Driver Uniforms Uniform Vehicle Paint Schemes Low Polluting Vehicles \$ weighting calculation 	<ul style="list-style-type: none"> Vehicle Quality - scoring based on VQS 	<ul style="list-style-type: none"> Tenderer Evaluation Level of Service (frequency) 	<ul style="list-style-type: none"> Electric Vehicles

4.3 AUSTRALIAN EVALUATION FRAMEWORKS

The tender evaluation approach adopted in Australia for public transport services is primarily based on 'value for money' (VFM), ie price/quality trade-off rather than lowest price. The non-price evaluation factors used in South Australia, Western Australia, and Tasmania (Devonport), are shown in Table 9.

The approach taken to the price/quality trade-off in these three states is summarised below:

- **South Australia**
No formula given for price vs quality trade-off in determining rankings, but noted that relevant factors will include:
 - spread of price bids
 - spread of quality scores
 - total costs of contracts to PTB
 - capacity to trade off service quality against service volume.

- **Western Australia**
 - Non-price scores weighted and summed (max 100%).
Overall VFM score calculated as total tender price (year 1)/ total Non-Price Score.
 - Preferred tender is that with lowest VFM score.

- **Tasmania (Devonport)**
 - Calculate total non-price score
 - Calculate % price adjustment as $(\text{Score}/100 * 20\%)$. Maximum % adjustment is 20%.
 - Deduct % adjustment from tender price, to give 'quality- adjusted' price.

TABLE 9 NON PRICE EVALUATION FACTORS – SOME AUSTRALIAN STATES		
SOUTH AUSTRALIA	WESTERN AUSTRALIA	DEVONPORT, TASMANIA
<p>Qualitative evaluation divided into four groups, with separate teams: Service Design, Infrastructure, Customer Service, Transition Issues.</p> <p>Each team defined:</p> <ul style="list-style-type: none"> evaluation criteria as sub-criteria (sub) criteria which are critical and to be worked on a P/F basis, and other (sub) criteria to be scored. relative weightings for the scored sub-criteria. <p>For P/F (sub) criteria, any 'Fail' mark would lead to rejection of tender (subject to PEC review).</p> <p>For other (sub) criteria, scores are awarded by individual team members and then merged, a scale Excellence/VG/Satis/Poor/Unacceptable.</p> <p>Scores for sub-criteria are then weighted and summed (by the teams) to give total criteria scores.</p> <p>Criteria scores are then weighted and summed across all qualitative (scoring) aspects, by PEC using weights determined by PTB: this gives an overall quality score, and quality ranking, for each tender.</p>	<p>Quality Service (8%)</p> <ul style="list-style-type: none"> Ability to provide customer responsive services consistent with Transperth principles (4%) Current quality procedures in place (3%) Implementation of quality standards (1%) <p>B. Current Operational Ability (21%)</p> <ul style="list-style-type: none"> Previous experience in bus ops or similar transport (3%) Office organisation (3%) Complaint handling (2%) Lost property (1%) Statistics (2%) Communication systems (2%) Rostering & scheduling (3%) Training, skills & maintenance policies & practices (4%) Disciplinary procedures (1%) <p>C. Service Operation Plan (21%)</p> <ul style="list-style-type: none"> Bus default recording (2%) Current maintenance standards (4%) Spare ratio (1%) Current management structure (4%) Bus presentation (3%) Maintenance plan (2%) Management structure for tendered service (5%). <p>D. Customer Service Charter (7%)</p> <ul style="list-style-type: none"> Customer service charter (2%) Public relations, customer liaison (3%) Consistency with Transperth requirements (2%). <p>E. Financial Capacity (11%)</p> <ul style="list-style-type: none"> Tenderer financial capacity to expand with growth in services. <p>F. Ability to Plan for the Future (5%)</p> <ul style="list-style-type: none"> Tenderers long term plans exis operation & tenderers scheduling, planning systems (4%). Bus maintenance programs (2%) Tenderer's proposed scheduling and planning team (3%). <p>G. Disability Services (5%)</p> <ul style="list-style-type: none"> Provision made to cater for people with disabilities (2%) Staff training in handling people with disabilities (3%). <p>H. Industrial Relations Experience (5%).</p> <ul style="list-style-type: none"> Tenderer experience in IR field (2%). Staff relations (3%). <p>J. MetroBus Employees (5%)</p> <ul style="list-style-type: none"> Tenderer strategic plan to recruit MetroBus staff. <p>K. Innovation (9%)</p> <ul style="list-style-type: none"> Innovations introduced by operator in their current operation (5%). Innovations offered to improve the standard of service currently provided and to provide services not currently not provided (4%). 	<p>Vehicles (max 20 points), above min standards.</p> <ul style="list-style-type: none"> quality of (4) student-only buses (was 15 points) quality of (1) DDA compliant bus (max 5 points) points based on capital value of vehicles relative to value for min spec in vehicle. <p>Management and Planning/ Service Development (max 15 points).</p> <p>Management and Planning: provision of Management! Business Plan covering:</p> <ul style="list-style-type: none"> management structure and personnel roles approach to staffing, management and training employment of staff currently involved in bus service provision in area staff disciplinary procedures financial forecasts for business. <p>Service Development and Innovation, including:</p> <ul style="list-style-type: none"> procedures for service review potential service innovation procedures for stakeholder input in service development proposed marketing strategies <p>Support Facilities and Infrastructure (max 15 points), including proposals re:</p> <ul style="list-style-type: none"> depot facilities depot computer ticket sales outlet provision/maintenance of bus stops, seats, shelters bus interchange operation/ maintenance. <p>Operations (max 30 points), including documentation on:</p> <ul style="list-style-type: none"> collection and reporting of operational statistics rostering and scheduling systems plans for emergency/ breakdown situations. identification and recording of bus faults procedures for presentation of buses details of vehicle maintenance plan. <p>Customer Service Aspects (max 20 points) including documentation on:</p> <ul style="list-style-type: none"> provision of Customer Service Charter staff training in customer relations provision of passenger information safety and security procedures performance monitoring procedures complaints procedures lost property facilities and procedures procedures for monitoring customer satisfaction.

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4.4 OPERATOR COMMENTS

As indicated above, consultation meetings were held with the three existing contracted bus operators. Their comments in regard to tender evaluation are summarised below. A copy of their completed response forms in regard to this matter are attached in Appendix B.

4.4.1 Community Coach Services

- **Driver Attitude:** the driver needs to make the passenger feel welcome and comfortable. This 'driver courtesy' includes not taking off until people are seated (something which passengers comment positively on in CCS' regard compared to bigger buses), and helping someone get their bags on the bus when they are having difficulty.
- **Customer Service:** related to driver attitude, CCS believe that customer service should be recognised in the tender evaluation. CCS will drop people off nearer their home if possible (eg on outward leg when time available). On their school runs they will go and look for the children if they are not at the bus stop, and will not leave children behind. CCS has the phone number of parents and will attempt to contact them if they cannot locate their children. CCS always drop-off on the same side of the road as the passenger destination, even if this means making an extra turn.

4.4.2 Mana Coach Services

- **The WRC should include in its tender evaluation framework its overall public transport (PT) policy initiatives, including: increased PT market share, increased PT ridership, avoidance of otherwise costly roading expenditure, and ongoing steps achieve other transport policy objectives. In light of this the WRC should include in its tender evaluation a means of scoring tenders in terms of their likely potential to contribute to achievement of the Council's policy objectives.**
- **Mana provided a list of features which could be considered in the tender evaluation. These included:**
 - **Reporting regime (Key Factor Reports)**
 - **Driver safety training**
 - **Driver presentation (uniforms)**
 - **Vehicle quality**
 - **Workplace health and safety**
 - **Uniform vehicle livery**
 - **Integrated ticketing**
 - **Driver public relations training/customer service**
 - **Business development plans**
 - **Marketing**
 - **Supporting infrastructure/ systems**
 - **Quality partnership**
 - **Relevant experience**
 - **Track record**
 - **Tenderer pre-qualification score.**
- **Mana did not provide any indicative weightings for different features, and considered that this was 'rather difficult in the abstract'. Mana suggested the WRC trial the quality/price trade-off method instead of the weighted attribute method on the basis that this would give the Council more flexibility in what features could be considered in tender evaluation.**

4.4.3 Stagecoach

- The factors used to weight tenders should have a combined weighting of 35% of the tender price.
- Stagecoach's research shows that the most important factors in encouraging growth in patronage are : reliability, service frequency, service information and promotion. Vehicle quality, which was previously seen as very important by customers, is now seen as a 'given'. The tender evaluation process should therefore seek to 'lock in' the improvement of standards since 1991.
- Suggested weightings for tender evaluation were provided.

4.4.4 Tender Evaluation Features and Weightings

Table 10 shows the operators' (excluding Mana which did not provide suggested weightings) preferred weightings (% of lowest price conforming tender price) for the different features which are possible tender optional evaluation factors in a Price/Quality Trade-off approach.

Attribute	Stagecoach	c c s
Vehicle Quality Score	8	10
Tenderer Pre-Qualification Score	8	15
Extra Capacity		5
Inter-vehicle Communications	2	5
Driver Uniforms	1	
Driver Training Program	5	
Uniform Vehicle Paint Scheme	1	
Low polluting vehicles		5
Frequency of Service	3	
Quality Assurance Procedures		15
Health & Safety Procedures		5
Integrated Ticketing Capability	2	
Service Innovation Capability & Plans	5	5
Marketing Plans		
Total	35	65

Note: Stagecoach consider low polluting vehicles should be in VQS, and Quality Assurance procedures & Health & Safety procedures should be in Tenderer Pre-qualification.

4.5 VEHICLE & SERVICE QUALITY FACTORS - PASSENGER PREFERENCES

A review of studies examining passenger preferences for vehicle and service quality factors was carried out. The findings are set out in Appendix A. Conclusions which can be drawn from the analysis undertaken are as follows :

- Convenience, cost and safety factors are the most important considerations in regard to modal choice decisions. Vehicle quality is not one of the most important factors affecting modal choice.
- Improving vehicle quality is not therefore likely to significantly change the modal split for most trips.
- Reliability, service frequency and fares are the most important service features for bus users. Although vehicle quality issues are of lesser importance, they do have a small impact on usage (eg low floor buses).
- Particular vehicle quality features have significant impacts on certain market segments. An example of this is step height, which can limit the use of certain vehicles by the elderly and/or physically impaired.

Improving some vehicle quality features would also provide some perceived benefits for users, and therefore generate some additional patronage. Low floor buses, for example, are thought to have a small impact on patronage (1-4%) when they replace buses with high steps.

4.6 ISSUES

The main issues relating to the tender evaluation framework are:

- Evaluation Approach - should a Lowest Price Conforming (LPC) or Price/Quality Trade-off (PQT) approach be used for WRC tenders.
- If PQT, what evaluation (optional) features should be used ?
- How would each of the optional features be measured ?
- What weighting would be given to each feature ?
- What approach would be used to calculate the financial impact of the optional features ?
- Should there be a maximum benefit (\$ or %) that could be gained through optional features ?

- Evaluation Approach

As discussed above, the main advantage of the LPC approach is that it simplifies the tendering process, and therefore reduces tendering costs (both for operators and the tendering authority). The main disadvantage of the LPC approach is that it doesn't provide merit for tenders which provide a level or quality of service above the minimum requirement. The Price/Quality Trade-Off approach does facilitate this, although it is more complex than the LPC approach.

The other main New Zealand regions, and the Australian states, have all moved towards a PQT approach of some sort. This has generally been prompted by concerns that although the VQS system sets the minimum standard for vehicles, it does not appear to have had a large impact in encouraging 'higher quality fleets'.

- **Optional Features**

Possible optional evaluation features include:

Tenderer Capability: the experience and skills of the operator will have a direct impact on the quality of service provided, which will have an impact on patronage (which the Council is aiming to maximise). Aspects which can be covered under this feature include: relevant experience, track record, management and technical skills, and resourcing program. Both the ARC and CRC currently have tenderer capability as an optional feature.

Vehicle Quality: the quality of then vehicle fleet will have some impact on passenger acceptability of the service and usage. It will also affect the public image of the service, which will impact on long-term patronage. Both the ARC and EWRC currently have vehicle quality as an optional feature.

Service Frequency: where a tenderer offers to provide more frequent services than that required by the RFT there will be benefits in terms of increased patronage. However, given known service frequency elasticities the increase in revenue will typically not cover the increased costs. Tenderers therefore need some incentive to provide higher frequencies, and providing a weighting for frequency in the tender evaluation can do this.

Extra Capacity: passengers do not like to travel in cramped conditions, and prefer to be able to get a seat. Depending on how the RFT's capacity requirements have been set, there may be scope to reward tenderers who are going to provide additional seating capacity. However, if the specified capacity is considered to be more than adequate to meet expected loadings there may be little merit in rewarding additional seating. The ARC currently has extra-passenger capacity as an optional feature.

Environmentally Friendly Vehicles: the ARC and EWRC currently provide benefits for tenderers with vehicles using alternative fuels. This encourages operators to use vehicles with environmental benefits over conventional diesel vehicles.

Driver Training & Uniforms: the attitude and presentation of drivers has been found in repeated surveys of passengers to have a significant effect on their perception of a service. The ARC currently has driver uniforms as an optional feature. Tenderers who provide evidence of effective driver training programs could also be given benefit in tender evaluation.

Customer Orientation & Service: as in any service industry, the degree of customer orientation and provision of good service has a definite impact on usage and satisfaction with the service. Some operators are very customer focused and provide service over and above simply running a bus between two points. When passengers have difficulty getting on the bus the driver immediately is around to help, inquiries to the operators depot/office are dealt with quickly and with courtesy, etc. It is possible to provide weighting to 'good operators' where they are able to provide evidence in support of this eg testimonials from passengers etc.

Service Development/Innovation: some operators who have operated services for a number of years have spent a lot of time and money in developing the service, making innovative changes and marketing the service. Other operators hold services but do not make any investment of their own in developing them. The operators who have invested in service

development and innovation in the past can be given benefit in the tender evaluation to recognise the benefit they bring to the overall public transport system.

- **Weighting for Optional Evaluation Features**

The weighting for different optional evaluation features should be related to either the weighting that passengers would put on each factor (and thus the expected impact on patronage), or any environmental benefits which would accrue for each factor. As indicated in Section 4.5, reliability is generally rated by passengers as the most important service feature. This is related to the operator's management and quality assurance procedures. Service frequency also has a significant impact on patronage; however, tendering authorities specify the level of service they require and they may only wish to pay a minimal amount for service above that. Vehicle quality is generally considered to have only a small impact on patronage. However, where vehicle quality falls below generally acceptable standards it can have a significant detrimental effect on patronage.

- **Approach to Calculate \$ Value of Features**

The main approaches available to calculate the \$ value of optional features are:

Percentage of Tender Price: each feature is rated on a scale out of a maximum number of points. The maximum score incurred over all features is deemed to be worth a certain percentage of the tender price (net or gross price). The advantage of this approach is that the relationship between the tender price and the value of each optional feature is transparent. This approach was used in Devonport, Tasmania.

Formula by Variable: each feature is rated on a scale, and then the points score is multiplied by a \$value for every variable eg vehicles per day/100 km per day. This approach can make it very difficult to establish the weighting of each feature to price. This approach is used in Auckland.

Adjust Tender Price by Feature Score: the tender is scored on the non-price evaluation features. The tender price is then adjusted by the weighted tender score (ie actual score over maximum possible score). Another variation is to simply multiply or divide the tender price by the tender score. This approach also makes it difficult to determine the relationship between price and optional features. This approach is used in Perth and by Environment Waikato.

- **Maximum Benefit for Optional Features**

Setting a maximum benefit, generally as a percentage of the tender price, allows the tendering authority to determine how much additional it is willing to spend to secure a service above the minimum specified level. This is a desirable practice given constrained resources, and competing areas for investment. Of the approaches available for calculating the optional feature benefit, The 'percentage of tender price' lends itself best to this.

4.7 RECOMMENDED CHANGES

It is recommended that the WRC adopt a price/quality trade-off approach to tender evaluation. The weighted attribute method specified in Transfund's Competitive Pricing Procedures is a suitable approach. It is recommended that each optional feature be assigned a % value of the Lowest Conforming Tender Price (for a maximum score on that feature), with a maximum possible weighting of 33% of the tender price.

An issue to be resolved by WRC is whether the weighting for optional features will be of the gross contract price or of the net contract price. The advantage of using the gross cost is that this approach reflects the public benefit to the region of the feature more accurately than if the net cost is used. For example, assume two tenders are received, both with a gross cost of \$1 million. Tender A has revenue of 0.6 M and Tender B has revenue of 0.9 M, giving net prices of \$0.4M and \$0.1M respectively. If the gross price is used the potential weighting for optional features is \$0.33M for both Tender A and B, whereas if the net cost is used the potential weightings are \$0.13M for Tender A and \$0.03M for Tender B. Thus, under the net cost approach, Tender B's potential weighting is substantially lower than Tender A's even though Tender B represents a much higher patronage than Tender A. In addition, the actual public benefit attributable to a particular feature does not change with a change in revenue, and the gross cost approach reflects this.

The disadvantage of using the gross cost as the basis for calculating weightings is that the \$ amount of the weighing may be large when compared to the lowest net tender price, which is the amount the tendering authority would actually have to pay if it didn't take a higher priced tender with optional features. This can be overcome by reducing the weightings; for example, use half the weightings which would be used if the net price was used.

The recommended optional features, and relative weightings, are detailed below. These weightings are those which would apply if the net price was used to calculate weightings.

1. Tenderer Pre-Qualification	
ARC system (copy attached in Appendix D) rating on:	<ul style="list-style-type: none"> • 10 points score for each category, maximum 40 points • 40 points = 10% of Lowest Conforming (LC) Tender price, pro-rata down eg 20 points = 5%
- Relevant Experience	
- Track Record	
- Management & Technical Skills	
- Resourcing Program	
2. Vehicle Quality Score	
Score based on fleet average VQS points score	<ul style="list-style-type: none"> • Minimum fleet average VQS score is 40 points • Current fleet average scores around 55 points • Tender with fleet average of 70 points receives maximum weighting ie 10% of LC tender price • Pro-rated down to 0% at 40 points.
3. Frequency of Service	
Approach assumes that RFT is desired level of service, and that WRC only wishes to pay marginal amount for additional frequency	<ul style="list-style-type: none"> • Service frequency 50% or more above RFT requirement receives maximum weighting of 3% of LC tender price. • Pro-rated down to 0% at RFT level of service.

4. Innovation & Marketing Plan	
Assessment based on documentation provided with tender, and evidence previous innovation & marketing	Tender scored on Innovation and Marketing of separately out of 5 points for each category. Maximum weighting of 3% for 10 points, pro-rated down to 0 for 0 points.
5. Inter-vehicle Communications	
Weighting applied if all of fleet fitted with radio telephones or other communication systems approved by WRC	Weighting of 2% of LC tender price if condition met. Otherwise, no benefit.
6. Driver Uniforms	
Weighting applied if all drivers outfitted in matching uniforms (consist of, at minimum, shirt/blouse, trousers or skirt, & jacket)	Weighting of 2% of LC tender price if condition met. Otherwise, no benefit.
7. Uniform Vehicle Paint Scheme	
Weighting applied if all vehicles in standard paint scheme, and no advertising on windows and side of vehicle.	Weighting of 1% of LC tender price if condition met. Otherwise, no benefit.
8. Low Polluting Vehicles	
Based on Euro standards	<ul style="list-style-type: none"> . 70% of vehicles Euro 1 standard - 1% . 70% of vehicles Euro 2 standard - 2%

Attribute	% of LC Tender Price
Tenderer Pre-Qualification Score	10
Vehicle Quality Score	10
Frequency of Service	3
Innovation & Marketing Plan	3
Inter-vehicle Communications	2
Driver Uniforms	2
Uniform Vehicle Paint Scheme	1
Low polluting vehicles	2
Total	33

It is also proposed that the Tenderer Pre-qualification be a Pass/Fail criterion. Thus, tenderers which did not attain the minimum required pre-qualification score would have their tenders returned to them unopened.

The proposed tender evaluation approach is shown below:

1. Tenderer Pre-Qualification

Tenderer's pre-qualification scores are assessed. Tenders received from tenderers who do not achieve Pass mark are returned unopened. This stage could be carried out prior to close of tenders ie required pre-qualification documentation to be submitted earlier than tender close-off. This is the current practice in Auckland.

2. Other Mandatory Features

All other mandatory tendering factors are checked. These include: service specification, vehicles specified, and other required information.

3. Price and Optional Features

The price envelope is opened and optional features scored. The adjusted tender prices are then calculated, and ranked.

4. Alternative Tenders

Any alternative tenders are then assessed. This report does not cover the assessment of alternative tenders.

5. Group Tenders

Any group tenders are then assessed. This report does not cover the assessment of group tenders.

4.8 COST IMPLICATIONS

Several comments can be made in regard to the impact of the proposed tender evaluation approach on contract prices:

- The expected range between tenders will be substantially lower than the total weighting range. Typically, tenders fall within a range of 10% on these types of scales.
- The current Wellington operators would most likely score reasonably highly in terms of this proposed evaluation approach. It is unlikely that a new entrant to the Wellington market will score much, if any, higher than the existing operators. The weighting system will therefore be unlikely to result in higher contract prices than currently being paid.
- However, a new entrant may tender at lower prices than the current prices. In this case the proposed tender evaluation approach may restrict potential savings from competition. However, any such savings would be with a concurrent reduction in vehicle and/or service quality.
- The proposed tender evaluation approach does involve greater complexity than the current WRC approach. This will result in some additional administration costs for both operators and the WRC.

APPENDIX A - VEHICLE QUALITY FACTORS: PASSENGER PREFERENCES

A.1 OVERALL MODAL CHOICE FACTORS

In considering the likely impact of vehicle quality on public transport (PT) patronage, it is first helpful to examine the relative importance of different factors affecting modal choice. A study conducted by Steer, Davies and Gleave (SDG) in 1992¹ for the Wellington Regional Council found that the most important factors determining choice of travel mode were, in descending order (the order did not differ substantially by mode used, or between work and non-work trips):

Convenience
 Cost
 Safety
 Comfort
 Environment
 Information
 Image.

Thus, in choosing between different travel mode options, people will consider convenience, cost and safety issues before comfort.

As part of the research, SDG asked respondents to rate travel by car, bus and train on these seven factors. Significantly, on the most important factor, convenience, car was rated substantially higher than bus or train. There was little difference between modes on cost and safety. Car was also rated substantially higher than bus or train in terms of comfort. The only factor on which bus and train rated substantially better than car was environment, which is of relatively low importance.

The SDG findings are consistent with those of other similar studies which have been conducted around the world. These have found that, for most trips, PT compares unfavourably with travel by motor vehicle, and many people do not consider PT as a travel option. A survey conducted by Symonds Travers Morgan²(STM) for Transit New Zealand in Wellington and Hamilton found that 83% of trips were made by motor vehicle, with PT making up only 5% of trips overall. An interesting finding from this research was that, of trips not made by PT, respondents indicated that 60% of these could not have been made by PT. This may mean that an area was not served by PT (very unlikely as PT service has extensive coverage in both cities), but is more likely to mean that the service operated at the wrong time; or would have involved several transfers and a long journey time; or a long walk to/from the bus/train. Respondents indicated that only 20% of trips not made by PT could have been made by PT. The main reasons why PT was not used for these trips were that PT 'takes too long', 'doesn't run at the time I want to travel', or is 'too expensive'.

A 1993 SDG study for the WRC asked motor vehicle users what factors would encourage them to travel by bus/train. Around 70% of those surveyed would not switch modes, or would only switch because of other, not PT related, factors. Those who would switch

¹ Steer, Davies and Gleave, 'The Effects of Quality Improvements in Public Transport: Part IIA-Exploratory Market Research Results', 1991.

² Symonds Travers Morgan, 'Survey of Public Transport Dependent People, Stage 2: Telephone Survey', April 1996

would do so because of either improved service features (routing, frequency, travel time) or lower fares.

A.2 PUBLIC TRANSPORT SERVICE FEATURES

Experience from various surveys carried out by Booz-Allen & Hamilton, and evidence from overseas research, shows that the most important attributes of public transport services for users are generally those detailed below, in descending order of importance:

- Reliability (almost always first)
- Frequency, or convenient arrival/departure times
- Short access/egress distances
- Low/moderate fares
- Adequate timetables/information
- Availability of a seat (particularly for medium to long trips)
- Adequate evening/weekend services
- Avoidance of transfers
- Short travel/in-vehicle time
- Friendly/helpful drivers.

The ranking and relative weighting of these features will vary by market segment. For example, students generally rate low fares as the most important feature, whereas workers will rate short journey time higher than other groups.

An obvious feature missing from the above list is vehicle quality or comfort. This is not a totally unimportant feature, and its absence probably reflects the generally good level of vehicle quality/comfort of PT vehicles. Where the perceived quality profile of a vehicle fleet has fallen substantially, vehicle quality has been an important issue, with patronage impacts. The main areas involved have been vehicle cleanliness and appearance, and step heights. The latter is particularly an issue with either elderly or physically impaired people.

A.3 BUS QUALITY WEIGHTINGS

A.3.1 SDG Study

Passengers do value vehicle quality factors such as lower step heights and lower floor heights; and, set a negative value on vehicles perceived to be of lower quality. Thus, vehicle quality will have some impact on patronage levels. Only limited market research has been carried out seeking to value these vehicle features. The best research available on this matter has been carried out by SDG on behalf of London Transport Buses, and this research is reported below.

The SDG research sought, via a Stated Preference study, to 'identify areas in which service improvements could be made, prioritise them, from the point of view of passengers, and provide monetary valuations for them ..'. The monetary values of different service attributes were determined from respondents willingness to pay fares for the improvements. Each attribute was valued relative to a base level of provision. In most cases this was 'none' or 'not provided' (eg bus shelter with roof was worth 5.6p compared to no shelter at all). The monetary values determined for the vehicle quality features, and other key features, are set down in Table 4.1 (Note: average fare of 42.7 pence, and average journey time of 15 minutes).

Given the above results, the expected impact on patronage from instituting one of the specified improvements would be in the order of the expected effect of a fare change of a similar magnitude to the monetary value of the improvement. For example, low floor buses have a value of 2.4 pence. Introducing low floor buses would effectively give passengers a 5% fare decrease, which (with an elasticity of -0.3) would result in a patronage increase of 1.5%. When interpreting the SDG results it is important to recognise that features are not simply additive, and that passengers appear to have a maximum willingness to pay. In this case, the maximum value passengers were prepared to pay for any package of improvements was 26.1 pence (such a package would result in a passenger increase in the order of 15-20%).

The most important vehicle features, in terms of values gained were, in descending order:

- vehicle motion (rough versus smooth)
- degree of crowding
- bus interior cleanliness
- number of doors (two versus one)
- electronic display of next bus stop name
- size of seats (roomy versus cramped).

Interestingly, low floor buses did not come in the ten most important vehicle features; and, the disbenefit of having some seats sideways on (generally associated with low floor buses) outweighed the benefit of having a low floor bus.

Feature	Value (pence)
<i>Vehicle Features</i>	
Low Floor Bus (versus high steps)	2.4
Split steps (versus high steps)	0.3
Luggage area replaced with standing room	2.0
Some seats sideways on	-3.0
Medium crowded (versus low crowded)	-4.7
Highly crowded (versus low crowded)	-9.5
Medium smooth vehicle motion (versus smooth)	-6.4
Rough vehicle motion (versus smooth)	-10.5
Roomy seats (versus cramped)	3.0
Bucket seats (versus standard seats)	-1.1
Ventilation grille (versus opening windows)	-2.5
Dirty bus interior	-8.5
Two sets of doors	4.2
Electronic display of next bus stop name	3.9
Bus branding	2.8
<i>Non-vehicle features</i>	
Phone service giving information about how buses actually running	2.8
Bus shelter with roof and end panel	5.6
Dirty bus stop	-11.8
Reliability improvement	7.0
Bus stops close to kerb	5.8
Helpful driver	1.5
Standard timetables at home	5.5

As indicated earlier, improving vehicle features on their own would not have a large impact on passenger perception of the worth of the service. However, it would result in

some benefits to passengers, and therefore would have some (even if minimal) impact on patronage.

Given the relative importance of driver and operator performance to passengers' perceptions of the service, it is clearly important that contract obligations in terms of vehicle cleanliness and driver performance be met.

A.3.2 Low Floor Bus Evidence

A report by Symonds Travers Morgan (STM) for the Canterbury Regional Council (CRC) in 1996 summarised evidence on the likely effects on public transport patronage of 'low floor' (LF) and 'super low floor' (SLF) buses in replacement for conventional buses. This report summarised evidence from the United Kingdom, Europe, USA, Australia and New Zealand. Very little direct evidence was available, and that which was available was not well founded, and often little more than anecdotal.

The best and most relevant evidence was that from the UK, although even this was subject to considerable uncertainties. It suggested that SLF/LF buses have resulted in increases in patronage on the urban/suburban routes concerned by between 1% and 4%. However, these figures may still over-state the patronage impacts of the type of bus: a part of these increases may result from newer buses, rather than SLF/LF buses as such.

Subsequent to the STM report the CRC began a program of introducing new SLF buses. Currently around 40% of buses operating in Christchurch are SLF. The CRC comment that their experience has been that where new SLF buses are introduced on routes where older buses were operating it was difficult to discern any significant increase in patronage within the first year of the change. Any patronage effects, which are probably in the order of 0-2%, have also been obscured by other changes to the service often made at the same time (eg frequency increases).

However, despite this small short-term impact on patronage, the CRC is convinced that investment in SLF buses has had a very positive impact on the public attitude towards the bus service. The image of the bus service has improved markedly, and is a vital element in the overall public transport improvement programme instituted by the CRC.

A.4 CONCLUSIONS

Several conclusions can be drawn from the evidence reported here (which is a summary of the research conducted in this field) in regard to passenger preferences with respect to vehicle quality:

- Convenience, cost and safety factors are the most important considerations in regard to modal choice decisions. Vehicle quality is not one of the most important factors affecting modal choice.
- Improving vehicle quality is not therefore likely to significantly change the modal split for most trips.
- Reliability, service frequency and fares are the most important service features for bus users. Although vehicle quality issues are of lesser importance, they do have a small impact on usage.

- **Particular vehicle quality features have significant impacts on certain market segments. An example of this is step height, which can limit the use of certain vehicles by the elderly and/or physically impaired.**
- **Improving some vehicle quality features would also provide some perceived benefits for users, and therefore generate some additional patronage. Low floor buses, for example, are thought to have a small impact on patronage (1-4%) when they replace buses with high steps.**

APPENDIX B OPERATOR COMMENTS

APPENDIX C EXISTING OPERATOR FLEET SCORES

APPENDIX D PROPOSED VEHICLE ATTRIBUTE SCORES

LARGE PASSENGER SERVICE VEHICLES

Note: 0 = Fail, except for the following No-Fail features:

- Wheelchair Ramp
- Boarding Illumination
- Luggage
- Transmission
- Suspension.

LPSV Attribute & Measurement	Points Score
1. Age	
0 years	33
1 year	31
2 years	30
3 years	28
4 years	26
5 years	25
6 years	23
7 years	22
8 years	20
9 years	18
10 years	17
11 years	15
12 years	13
13 years	12
14 years	10
15 years	8
16 years	7
17 years	5
18 years	3
19 years	2
20 years	1
21 years	0 - Fail
2. External Appearance	0 - 5
3. Internal Appearance	0 - 5

LPSV Attribute&Measurement	Points Score
4. First Step Height	
Up to 180 mm	10
181 - 200 mm	9
201 - 230 mm	8
231-260 mm	7
261-300 mm	6
301-320 mm	5
321-340 mm	4
341-359 mm	3
360-370 mm	1
Over 370 mm	0
5. Subsequent Steps (maximum)	
No subsequent steps	10
up to 150 mm	7
151- 200 mm	5
201-230 mm	3
231-260 mm	1
Over 260 mm	0
6. Wheelchair Ramp	
Hydraulic Driver Operated Ramp	3
Manual Ramp	2
7. Step Depth	
Over 300 mm	2
200 - 299 mm	1
Under 200 mm	0
8. Front Door Width	
Over 1150 mm	3
900-1150 mm	2
600 - 899 mm	1
Under 600 mm	0
9. Rear Door Width	
Over 1150 mm	3
900-1150 mm	2
600 - 899 mm	1
Under 600 mm	0
10. Entrance Grab Rails	
2 Grab Rails	2
1 Grab Rail	1
0 Grab Rails	0

LPSV Attribute & Measurement	Points Score
11. Internal Grab Rails	
Grab rails throughout vehicle	2
Vehicle doesn't score 2 points	0
12. Signalling Devices	
All seated & standing passengers can reach cord or bell push & 'bus stopping display' fitted	3
Majority of seated & standing passengers can reach cord or bell push & 'bus stopping display' fitted	2
Majority of seated & standing passengers can reach cord or bell push	1
13. Seat Spacing	
Over 760 mm	3
730 - 760 mm	2
700 - 729 mm	1
14. Seat Width	
90% of seats minimum width of 450 mm	1
15. Aisle Width	
Over 460 mm	3
430 - 460 mm	2
400 - 429 mm	1
16. Legroom	
Over 270 mm	2
230 - 270 mm	1
17. Boarding Illumination	
Overhead & stepwell	1
External pavement/herb edge	1
18. Luggage	
1 metre of luggage space	1
19. Destination Displays	
Front & side display > 120 mm, Rear Rte	5
Front & side display > 110 mm, Rear Rte	4
Front & side display > 100 mm, Rear Rte	3
Front & side display > 120 mm	2
Front & side display > 100 mm	1
20. Transmission	
Automatic transmission	1
21. Suspension	
Airbag suspension	1

SMALL PASSENGER SERVICE VEHICLES

Note: 0 = Fail, except for the following No-Fail features:

- . **Boarding Illumination**
- . **Luggage**

SPSV Attribute & Measurement	Points Score
1. Age	
0 years	33
1 year	30
2 years	27
3 years	23
4 years	20
5 years	17
6 years	14
7 years	10
8 years	7
9 years	4
10 years	1
2. External Appearance	0 - 6
3. Internal Appearance	0 - 6
4. Headroom	
1.80 m & over	10
1.71 - 1.79 m	7
1.66 - 1.70 m	5
1.60 - 1.65 m	4
Less than 1.60 m	1
5. Main Passenger Door	
Power Door 1.83 m	5
Power Door less than 1.83 m	4
Manual sliding door 1.83 m	2
Manual sliding door less than 1.83 m	1
4. First Step Height	
Up to 180 mm	10
181 - 200 mm	9
201 - 230 mm	8
231 - 260 mm	7
261 - 300 mm	6
301 - 320 mm	5
321 - 340 mm	4
341 - 359 mm	3
360 - 370 mm	1
Over 370 mm	0

SPSV Attribute & Measurement	Points Score
5. Subsequent Steps (maximum)	
No subsequent steps	5
U	4
201 - 230 mm	3
231 - 260 mm	1
Over 260 mm	0
6. Wheelchair Hoist	
Hydraulic Driver Operated Hoist	3
7. Step Depth	
Over 300 mm	2
200 - 299 mm	1
Under 200 mm	0
8. Entrance Grab Rails	
2 Grab Rails	3
1 Grab Rail	2
0 Grab Rails	0
9. Internal Grab Rails	
Grab rails throughout vehicle	1
10. Seat Spacing	
Over 760 mm	3
730 - 760 mm	2
700 - 729 mm	1
11. Seat Width	
90% of seats minimum width of 450 mm	1
12. Legroom	
Over 270 mm	2
230 - 270 mm	1
13. Boarding Illumination	
Overhead & stenwell	1
External pavement/herb edge	1
14. Luggage	
1 sq metre of luggage space	1
15. Destination Displays	
Front & side display > 120 mm	5
Front & side display > 110 mm, Front display > 150 mm	3
Front & display > 100 mm	1
26. Seatbelts	
Seatbelts throughout	2

APPENDIX E AUCKLAND PRE-QUALIFICATION SYSTEM