



Revised Report

3-axle Bus Services Across Australia

NTC (National Transport
Commission)

31st May 2018

Taverner Project Reference: 5366

NTC Contacts: Mandi Mees, Melissa O'Brien & Melanie Learson

Taverner Contacts: Michael Trigwell & Dr Don Porritt

CONFIDENTIAL/DISCLAIMER NOTICE

The information contained herein is confidential and has been supplied under a confidentiality agreement. If you are not authorised to view or be in possession of this document you are hereby notified that any dissemination, distribution or duplication of this document is expressly prohibited. If you receive this document in error, please notify Taverner Research immediately on +61 2 9212 2900.

Table of Contents

1.	Introduction and Background	1
1.1.	Background	1
1.2.	Project Objectives	1
2.	Methodology	3
2.1.	Literature Review.....	3
2.2.	The Depth Interviews	4
2.3.	The Online Survey.....	4
2.4.	Passenger and Trip Survey.....	6
3.	Conclusions from Available Literature.....	8
4.	Findings from Individual Telephone Depth Interviews.....	11
4.1.	Comments on the NTC Weight Review	11
4.2.	Trends in Weight of Buses, Passengers and Luggage	12
4.3.	Concerns About GVM	13
4.4.	Carrying Freight	14
4.5.	Actual 3-axle Bus Fleet	14
4.6.	Obtaining Approvals for Increased Weight Limits	15
4.7.	Passenger Characteristics	16
4.8.	Experience of Being Overweight	16
4.9.	Turnover of 3-axle Buses.....	17
4.10.	Implications for the Online Survey	17
4.11.	Additional Interviews – Lapsed 3-axle Operators.....	18
5.	Results of the Online Survey	20
5.1.	Review and Adjustment of the 3-axle Bus Limits.....	20
5.2.	Risks of a Weight Limit Increase.....	22
5.3.	The 3-axle Bus Fleet.....	23
5.4.	Permits and Approvals	27
5.5.	Weight Limit Increase (Q17A/B)	28
5.6.	Equipment Installed in 3-axle Buses (Q18).....	29
5.7.	Length of Average Trip (Q20B)	32
5.8.	Assessing the Loaded Weight (Q21A)	32

5.9. Actions Taken to Avoid Exceeding the Weight Limits (Q21B)	33
5.10. Managing Bus Weight	34
5.11. Providing Further Data (Q12/13, Q38)	37
5.12. Spreadsheet Data	39
6. Results of the Passenger Survey	42
6.1. Destination	42
6.2. Reasons for Travelling	42
6.3. Reasons for Travelling by Bus	43
6.4. Actions if Unable to Take Bus	46
6.5. Personal and Luggage Weight	47
6.6. Awareness of weight limits	50
6.7. Items carried	51
6.8. Personal Characteristics	52
7. Conclusions	54
8. Appendix 1. The Interview Guide	57
9. Appendix 2. The Online Operator Questionnaire	59
10. Appendix 3. The Passenger Questionnaire	71
11. Appendix 4 – Improving the Online Survey	77

List of Tables

Table 1: Summary of weight limits for 2-axle and 3-axle buses in NSW (Metric Tonnes)	8
Table 2: Average adult weight in kgs by gender and year of survey	9
Table 3: Respondent State/Territories	24
Table 4: Services offered by operators	24
Table 5: Types of client for each operator	25
Table 6: Applying for access permits	27

Table of Figures

Figure 1: Need for review or adjustment of the 3-axle bus weight limit	20
Figure 2: Road or bridge weight limits restricting routes used	26
Figure 3: Acceptability of weight limit increase to cover specified passenger and luggage weight	28
Figure 4: Effects of suggested weight increase	29
Figure 5: Equipment installed on 3-axle buses	31
Figure 6: What would be considered when replacing existing 3-axle buses.....	32
Figure 7: How loaded weight is assessed	33
Figure 8: Actions taken to avoid being overweight	34
Figure 9: Actions taken to limit loaded weight	35
Figure 10: Actions taken to limit loaded weight	37
Figure 11: Providing data about the operator's 3-axle bus fleet	38
Figure 12: Providing data about the operator's 3-axle bus fleet trips.....	39
Figure 13: Actions taken to limit loaded weight	43
Figure 14: Reasons for travelling by bus.....	45
Figure 15: Reasons for travelling by bus.....	46
Figure 16: Other Transport Mode Chosen	47
Figure 17: Passenger weight fully dressed.....	48
Figure 18: Weight of checked luggage	49
Figure 19: Passenger weight fully dressed.....	50
Figure 20: Weight of checked luggage	51
Figure 21: Other Transport Mode Chosen	51
Figure 22: Age distribution.....	52
Figure 23: Frequency of bus or coach travel	52

1. Introduction and Background

1.1. Background

Taverner Research was commissioned by the National Transport Commission (NTC) to conduct a study of 3-axle buses that provide passenger services across Australia.

The NTC is reviewing weight limit standards for this bus type. A previous review had dealt with the weight limits set for 2-axle buses.

The NTC at this point has only limited knowledge of the range of uses of 3-axle buses to provide passenger services. Consequently, NTC requires a more detailed knowledge of the range of uses and loads on the vehicles and how this varies across Australia.

To contribute to the background knowledge for the review, Taverner was commissioned to:

- ✧ Conduct a review of selected relevant literature, including some submissions made to NTC for the 2-axle bus weight limit review, and data available about 3-axle buses
- ✧ Conduct Telephone Depth Interviews (TDIs) with key industry figures and informants from bus operators
- ✧ Set up, manage and analyse data from an online survey of operators running 3-axle bus passenger services
- ✧ Conduct passenger and driver interviews and observations with a sample of express bus services using 3-axle buses

1.2. Project Objectives

The objectives for the total project stated by the NTC were:

1. Collect data on 3-axle bus services which accurately represents all scheduled, on-demand and un-scheduled services that run across all states and territories, during different times throughout the day/night and throughout metro, regional and rural areas, including rail replacement and other ad-hoc public bus services. This includes a variety of government, private, on-demand, community and for-hire buses.
2. Collect data that accurately reflects what is normal business practice for 3-axle bus services, including what items are stowed and/or brought on board.
3. Collect data that accurately describes the passengers using 3-axle bus services. This includes why people are travelling, what they are travelling with, their estimated age and weight, and their choice to travel on the bus, as well as how busy services are and the amount and type of luggage and freight being stowed.
4. Collate this data into a report which helps elucidate how passenger-controlled factors are influencing the overall weight of 3-axle bus services.
5. Collate data on what added equipment, new or upgraded contribute to the overall weight of the national 3-axle bus fleet.

Limitations of this report

Given the limited sample of responses obtained to the online survey, this data covered in this report must be regarded as a preliminary.

In reviewing the data obtained in the depth interviews, it is important to keep in mind that the views expressed are those of the individuals interviewed, and should not be taken as representing the views of the industry, even when it appears there is consensus about a point.

The online survey data must be regarded as exploratory and illustrative, rather than as providing accurate estimates of the population of 3-axle bus operators and how these buses are used. It cannot be assumed that the results represent the views of all operators of 3-axle buses.

The data from passengers was obtained in only two locations, each over four days. While providing some potentially useful indications, the samples cannot be considered representative of all passengers on all types of service provided by 3-axle buses.

An earlier version of this report was written before the data from the Melbourne passenger survey was collected. This revision incorporates that data.

2. Methodology

The four components of the study – namely a literature review, depth interviews, an online survey, and a passenger and trip survey – are described in turn.

2.1. Literature Review

Literature and available material reviewed included:

- ✧ Online statements for each State and Territory about the total weight limit and weight limits for particular axles
- ✧ A report to VIC Roads by Advantia Transport Consulting¹ about the results of a desktop survey of technical data for 50 currently operating 2-axle buses which estimated the likely upper limit for the gross loaded vehicle mass for these buses
- ✧ A report to the NTC by PTT² about the average gross mass and equivalent standard axle values with recommendations for changes to the 2007 determination of allowed limits
- ✧ Submissions to the NTC for the Bus Industry Confederation (BIC) about the appropriate weight limits for passenger buses, including both 2-axle and 3-axle vehicles³
- ✧ The NTC's Discussion paper on mass limits for 2-axle buses⁴
- ✧ A notification by busnsw to its members⁵ about an increase in the gross loaded vehicle mass limit for 3-axle passenger buses operating in NSW, and the conditions to be met to achieve approval for a 3-axle bus to operate with the higher limit
- ✧ A Press Release about the changes to the GVM limits for 3-axle buses in NSW from the Minister for Roads issued on 6 March 2018⁶
- ✧ Statistics from the National Health Survey data series on average male, female and total adult population weight by survey year⁷

The literature review sought to identify issues to be covered, and sources of information that could be helpful in meeting the overall objectives of the NTC's weight limit review for 3-axle buses.

¹ Di Cristoforo R (2012a) *Survey of axle loads on two-axle buses* Advantia Transport Consulting Pty Ltd, Diamond Creek Victoria

² PTT Pekol Traffic & Transport (2013) *Bus and coach Average Gross Mass and Equivalent Standard Axle Values*. Final Report to NTC Australia, PTT Centre of Transport, Energy & Environment, Spring Hill Queensland

³ These are summarised with additional attention to 3-axle buses, in BIC (2015) *BIC summary Position on the NTC's 2-axle Bus Mass Limits Paper (3 Axle)* BIC Sydney NSW

⁴ NTC (2014) *Mass Limits for 2-Axle Buses. Discussion paper*. National Transport Commission, Melbourne Victoria

⁵ BUSNSW (2018) *Member Information. Three Axle Bus Mass Limits*. Bus and coach Association NSW, Sydney NSW

⁶ Pavey M (2018) *Media Release: New Bus Limit Worth its Weight in Gold*. NSW government, Sydney NSW

⁷ Data tables were downloaded from the ABS website for each round of the National Health Survey and average weights extracted for adult males, adult females, and all adults. The sources can be found on www.abs.gov.au by searching for National Health Survey and the year

2.2. The Depth Interviews

As part of the project, full depth interviews were conducted with the CEO of the Bus Industry Confederation (BIC) and eight operators of 3-axle buses. These varied in locations, the States they operate in, and the size of their bus fleet.

The depth interviews sought the views of those interviewed about:

- ✧ The review of the 3-axle bus weight limit
- ✧ What has contributed to the increased tare and loaded weight of the buses
- ✧ Problems resulting from the current weight limit
- ✧ The information they are willing and able to provide on the 3-axle bus network, routes, road and bridge infrastructure, tare weight and passenger numbers
- ✧ Passenger weights
- ✧ Passenger demographics
- ✧ Weights of luggage, on-board fixed and non-fixed equipment and freight
- ✧ Weights and nature of any other stowed or on-board items brought by passengers or others
- ✧ The variety of services 3-axle buses are delivering to the public
- ✧ The frequency of services of different types
- ✧ How the public would be impacted if there was a reduction in or increase in services

One operator also runs a dealership handling both new buses imported from China and second-hand buses. This interview provided additional insights into the 3-axle bus market.

Additional interviews

Based on the interviews completed, it emerged that there are some operators who have moved away from using 3-axle buses, while others might be interested in using these buses if conditions changed. Thus additional interviews were sought with operators who either have disposed of their 3-axle buses, or have some interest in acquiring 3-axle buses although they had not previously and do not currently operate any.

Additional interviews were conducted with three operators of 2-axle bus services who used to also operate 3-axle buses, but had disposed of them and not replaced them, and one with an operator who had disposed of all but one of the company's 3-axle buses, and was in the process of disposing of that one. To date, no interviews have been achieved with operators who have not so far used 3-axle buses but showed interest in doing so.

The Online Survey

An online survey was then conducted to obtain quantitative data about key issues.

All members of the Bus Industry Confederation or its State and Territory Affiliates were invited to complete the online survey. The NTC also promoted the survey on social media and through other channels.

It was not possible to use personalised links emailed to those invited to take part. Consequently, it is possible that a respondent might not be an operator of 3-axle buses, and that a respondent might have completed the questionnaire more than once. However, given the length of the questionnaire and the detail sought it appears unlikely that anyone would have done so. Further, from the verbatim comments and the internal consistency of the responses received, there was no indication that any of the responses was spurious and none appeared to be duplicated.

The survey was closed on Monday 28th May. The quantitative interview had been opened by 194 potential respondents and completed by 23 respondents.

A substantial number (149 to date) opened the survey and dropped out before going past the first screen, with a few others (16) answering two or three questions only. It is likely that most of these will have terminated because they do not operate 3-axle buses and decided that the survey is not relevant to them, or were in a role that was not appropriate to the survey topic.

A few others (6) screened out because they do not currently operate any 3-axle buses.

However, given the number of operators that were invited, the results should not be considered a sound basis for drawing conclusions about the views of all operators of 3-axle buses across Australia and should be read as representing the views of only the n=23 who chose to participate in the survey.

The survey screened out any operators who did not currently use 3-axle buses for passenger services. Given the possibility that the current weight limits might have discouraged use of 3-axle buses, leading some operators to cease using these vehicles, and others to not acquire them, an expanded sample scope with some additional questions would be needed to provide a full quantitative picture of the dynamics of the market for 3-axle passenger buses.

The sample did appear to be quite diverse in where the buses operate, and the services provided, and thus provides a basis for understanding the variations in the use of 3-axle buses within the industry.

The survey questionnaire asked respondents:

Q11. Are you willing and able to complete a spreadsheet listing each type of 3-axle bus (make and model) you operate, with the following details for each type? The data supplied will be aggregated with data from other operators so that the data from any one operator cannot be identified.

PLEASE CLICK ON ONE ANSWER FOR EACH OF THE DETAILS LISTED BELOW.

DETAILS SOUGHT

- 1. The make and model*
- 2. The number of vehicles of that make and model*
- 3. The Tare weight of the bus*
- 4. The approved maximum number of passengers for that bus*
- 5. The types of service that bus is used for*
- 6. The age range of these buses (up to 3 year, 4-5 years, 6-10 years, 10-15 years, over 15 years)*
- 7. The type of bus body (Low floor, High floor, Double deck, Articulated)*
- 8. The types run on that type of bus (single on all axles, Super single on tag axle, Dual on any axle)*

ANSWER OPTIONS FOR EACH INFORMATION CATEGORY

1. Able and willing to do this
2. Maybe - need to check feasibility and gain approval
3. Prefer not to provide any of these details
4. Unable to provide any of these details

Those who replied with codes 1 or 2 to any of the items in Q11 were asked, at the end of the survey to click on a link and download the spreadsheet, and complete it as soon as they can. They were also given an email address they were asked to send the spreadsheet to once they had completed as much of the information sought as possible.

A number of operators indicated they were willing and able to complete at least part of the spreadsheet. To date, [2] spreadsheets have been received.

It must also be recognised that operators who believe there needs to be an increase in the weight limit would be more likely to complete the survey. Thus the survey results might over-estimate the support for a weight limit increase.

The online questionnaire is included as Appendix 1 to this report. Suggestions for improvements to the online survey methodology and questionnaire are given in Appendix 4.

2.3. Passenger and Trip Survey

The final planned element of the project involved conducting interviews and observations at two major departure points, one in Sydney (Central Railway) and the other in Melbourne (Southern Cross Railway Station).

An interviewer was placed at each location over four days. Each interviewer identified departing buses, and conducted Computer Assisted Personal Interviews (CAPI) with as many passengers taking those buses as possible.

The field days for this component of the study were Saturday 26th to Tuesday 28th May in Sydney and Friday 1st, Saturday 2nd, Monday 4th and Tuesday 5th of June in Melbourne. The later dates in Melbourne were due to delays in obtaining permission to conduct the interviews at the Melbourne location.

Where possible the interviewer concentrated on 3-axle buses. Since the passengers will probably not be aware of the difference and similar passengers will travel on 2-axle and 3-axle buses, 2-axle bus passengers were also interviewed if none travelling in a 3-axle bus were available at particular times. The Melbourne location is the departure point for shuttles to the Tullamarine Domestic and International airport. SO far as possible, the interview approached passengers using other services, and avoided those using the airport shuttle service.

This component of the study provided some data on passengers, including:

- ✧ Where passengers live
- ✧ Destination
- ✧ Main reason for taking the trip
- ✧ Reasons for taking a bus to make the trip
- ✧ What the passenger would have done if not able to take this bus to get to their destination

- ✧ Whether carrying check-in luggage, and (if so) what they estimate the weight to be
- ✧ Estimated weight of had, carry-on luggage
- ✧ What they believe is the weight limit for a passenger's luggage
- ✧ Whether they have specified items with them
- ✧ Age group
- ✧ Gender
- ✧ Weight fully dressed
- ✧ How often travel by bus or coach
- ✧ How often travel on a 3-axle coach (shown pictures of 2-axle and 3-axle coaches)
- ✧ Other comments on travelling using a booked coach service rather than other forms of transport
- ✧ Departure time

The full text of the questionnaire is included in Appendix 3.

3. Conclusions from Available Literature

The key conclusions from the available literature are that:

- ✧ There are limits set for both the total loaded weight (Gross Vehicle Mass, GVM) and the load on each axle of 3-axle buses
- ✧ The aim of these limits is to reduce pavement damage and maintain safety
- ✧ The mass limits have been set at State/Territory level and vary with the jurisdiction
- ✧ The National Heavy Vehicle Regulator (NHVR) is seeking to set consistent limits across all jurisdictions, but variations and local exemptions remain
- ✧ The limits allowed in Australia are substantially lower than those allowed in Europe and those specified by manufacturers as the maximum safe weights
- ✧ By way of an example, the NSW limits for the total vehicle and each axle, broken down by bus type are set out in Table 1 below.

Table 1: Summary of weight limits for 2-axle and 3-axle buses in NSW (Metric Tonnes)

Bus Type	Total	Steer axle	Rear axle group
2-axle	18.0	7.0	12.0
3-axle single/dual-tyre tandem axles	22.0	6.5	14.0
3-axle dual-tyre tandem axles	23.0	6.5	16.5
3-axle ultra-low floor rigid	20.8	6.5	14.5
3-axle ultra-low floor articulated	26.8	6.0	Central 9.0 Rear 11.8
3-axle double decker twin-steer axles	22.0	11.0	11.0
3-axle double decker single/dual-tyre tandem axle	22.0	6.5	15.5

Note that the 3-axle limits are those allowed if specific conditions about the safety equipment of the bus are met. Specific approval has to be sought to operate under these limits, with proof that the specified equipment is installed. Without this approval the maximum allowed weight remains 20.5 tonnes

- ✧ NTC is collating data on the current limits applicable in each jurisdiction
- ✧ Multiple sources contend that the gross loaded mass of 3-axle buses is likely to often exceed the current allowable limits
- ✧ The contributing causes of the increased total weight are:
 - The weight of added equipment, including wheelchair lifts and related changes to doors
 - The increasing average weight of the Australian population, which is now well above those assumed in setting current weight limits and passenger numbers

- Increases in the weight of passenger effects included in both stowed luggage and effects carried on-board, such as laptop computers

Table 2: Average adult weight in kgs by gender and year of survey⁸

	1966	1989	1995	2001	2004	2007	2011	2014	2018*
Males	75.4	77.4	82	82	83.6	85.2	85.9	86.4	86.8
Females	63.8	62.6	67	66.6	67.7	70.1	71.1	71.4	71.7
Average	69.6	70.0	74.5	74.3	75.7	77.7	78.5	78.9	79.3
Increase since 1966		0.4	4.9	4.7	6.1	8.1	8.9	9.3	9.7

* Estimated

- ✧ Calculations of the maximum allowed number of passengers are based on a total GVM of 20.0 tonnes, and a tare weight (unloaded with no more than 10 litres of fuel) of 14.0 tonnes
- ✧ The difference is divided by the assumed average passenger body weight (65 kgs) plus the assumed weight of passengers luggage (stowed and carry-on, 10 kgs) to arrive at the allowed passenger capacity
- ✧ The assumed average passenger body weight might include an allowance for a proportion of passengers being children rather than adults; however, many actual trips will not carry children, and both the proportion of children and the average weight of children will vary substantially
- ✧ Estimates of stowed and carry-on luggage weight used in setting passenger number limits for aircraft are 17 kgs for stowed and 6 kg for carry-on luggage⁹
- ✧ Given the increase in tare weight in modern, better equipped buses, and the difference between the assumed body weight per passenger and the current average adult body weight if a bus carries the currently allowed maximum number of passengers, all passengers are adults and the bus has modern safety and comfort equipment installed, it will risk being over the weight limits in most jurisdictions and might exceed the higher limit allowed in NSW if specified safety equipment is installed
- ✧ On occasions, some passengers with disabilities who do not require a wheelchair can add substantial weight, such as oxygen cylinders
- ✧ The risks from increasing current weight limits mentioned in some discussions of the weight limit are:
 - Increased pavement damage
 - Increased crash risks that could arise if greater vehicle weight results in longer stopping distances and reduced stability when cornering

⁸ Source: ABS National Health Surveys

⁹ 2009 European Aviation Safety Authority report:

<https://www.easa.europa.eu/sites/default/files/dfu/Weight%20Survey%20R20090095%20Final.pdf>

- ✧ Industry stakeholders have argued in formal submissions that neither risk is substantial
- ✧ The arguments supporting the contention that there is no material increase in pavement damage likely to result from an increase in the allowed weight limits are:
 - Modern 3-axle buses have two steerable axles, which reduces the damage to the pavement from the drag of a fixed axle
 - Many buses are in any case travelling over the current limit, so regularising current practice will not increase the actual risk of pavement damage
 - Most pavement damage is done by heavy trucks, which can have a total mass very much greater than a fully-loaded 3-axle bus
- ✧ The arguments supporting the contention that there is no material increase in the safety risks from increasing the allowed weight limits for 3-axle buses are:
 - The manufacturers set safe loaded weight limits based on actual bus performance in terms of stopping distance and turning circles
 - The manufacturer-recommended limits are well above the current allowed weight limits
 - The manufacturer limits have been reviewed and accepted by multiple authorities in Europe as safe on appropriate roads in European jurisdictions
 - The technology for managing speed and stopping distances and other technologies (such as warning systems and autonomous controls over vehicle separations, lane changes, and so on) make modern, heavier 3-axle vehicles much safer overall than older models with a lower total loaded weight and less advanced equipment

Submissions from the BIC calculated some hypothetical, but realistic, total loaded weights for 3-axle buses assuming that the average passenger now weighs 80kgs, with up to 15 kgs of luggage and personal effects (total of 95kgs per passenger). These are compared to the weight calculated with the same passenger numbers using the weights assumed in setting the current limits (65kgs body weight per passenger, plus 15kgs for luggage, total 80kgs per passenger). These calculations also took into account the added weight due to installation of air conditioning, additional equipment required to meet standards for serving passengers with disabilities (including wheelchair lifts and associated equipment), installation of seatbelts, and other changes to meet Euro6 safety standards.

Based on these calculations, a GVM limit of 22.5 to 23.0 tonnes would be required to ensure that 3-axle vehicles with a wheelchair lift and other DDA equipment, seatbelts, and equipment to meet Euro6 standards can operate within a revised weight limit.

4. Findings from Individual Telephone Depth Interviews

This section of the report outlines the methodology of the Individual Telephone Depth Interviews (ITDIs).

The Telephone Depth Interviews were designed to explore with a number of operators of 3-axle passenger buses their views about the possibility and need for an increase in the weight limit, any associated risks, and their experience of operating these vehicles under the existing regulations.

One Telephone Depth Interview (TDI) was completed with the Bus Industry confederation (BIC), and eight full TDIs were completed with selected operators of 3-axle buses. Four additional TDIs were completed, three with operators who had previously used 3-axle buses, but had disposed of them, and one with an operator who had disposed of a substantial fleet of 3-axle buses, and was in the process of selling the last 3-axle bus. No operators with an interest in acquiring 3-axle buses if conditions changed were identified. The 13 TDIs included

- ✧ Both larger and smaller operators
- ✧ Operators based in NSW, Victoria, Queensland, and South Australia
- ✧ Operators providing fixed route Express services, charter services and other services
- ✧ One charter operator who was also a dealer in both new and used buses

The discussion guide can be found in an Appendix.

While this guide was followed in general, it was adapted as appropriate in line with the information emerging during the interview.

In particular, the dealer/operator interview covered several areas not included in the guide, probing about the source of buses, the buyers of buses, and changes in the new and used market for buses. The interviews with operators who had disposed of their 3-axle buses primarily probed their reasons for disposing of those vehicles and what (if anything) might interest them in acquiring 3-axle rather than 2-axle buses in the future.

4.1. Comments on the NTC Weight Review

- ✧ Agreement that weight limits need to be raised, with strong support for change and considerable impatience over how long the process has taken overall, was almost unanimous.
- ✧ Some mentioned that weight limits need to be consistent – no point having a higher limit in one State if another State with a lower limit is on the route – and that this also applies to axle by axle limits
- ✧ Some suggested GVM should be based on the weight that manufacturers specify as maximum safe GVM – usually 24 or 25 tonnes
- ✧ Frustration was expressed with State authorities setting rules without enough consultation with those in the industry who know how vehicles are changing, and the ignorance about both the rules and about vehicles among some inspectors
“Had [an inspector] say he is using out of date data”

- ✧ One respondent operates primarily 2-axle buses taking students to and from school in a country NSW area, and used to also have a charter business using 3-axle buses; for reasons unrelated to the weight limit, he disposed of the charter business, but kept one 3-axle bus for incidental charters from schools he serves
- ✧ He reported that, for the 3-axle bus when calculating how many school children he can take on a charter that involves camping, he allows 120kg per passenger, to cover the weight of food, tents, portable showers, and other gear, so that the bus (which weighs around 12.5 tonnes unloaded) will be under the approved limit of 22.5 tonnes GVM when fully loaded
- ✧ One respondent who operates three bus-related lines of business (charters, importing new buses for sale, and dealing in second-hand buses) had disposed of his last 3-axle bus as there was more profit in operating 2-axle vehicle, due to:
 - Lower purchase cost
 - Lower running cost
 - Less likely to run overweight given the new weight limit of 18 tonnes, and the much lighter tare weight, so there is more margin for passengers and their luggage; this operator has not installed any wheelchair lifts
- ✧ The same respondent reported that in his dealership, smaller operators who had 3-axle buses have stopped acquiring them, many have disposed of them, and that the only way to sell second-hand 3-axle vehicles is for use as motor homes
- ✧ This suggests that checking with smaller operators whether they have had 3-axle buses and disposed of them, and why they would or would not consider buying more might be useful

4.2. Trends in Weight of Buses, Passengers and Luggage

- ✧ All recognized that the average weight of population is increasing
- ✧ All believed the original calculations are now unrealistic; the assumed average passenger body weight of 65kgs was considered unrealistically low
- ✧ The proposed weight of 80 kgs was considered more realistic.
- ✧ Some suggested that 100 kgs per passenger (or more) was closer to their experience.
- ✧ The weight of luggage carried on board was also thought to be higher than the 15kgs allowed for in the original limit.
- ✧ One company tries to limit Express passenger stowed luggage to 20 kgs and carry on to 7 kgs; it is difficult to enforce this on backpackers, and when passengers have none to take their excess away; this respondent pointed out that *"We can't simply charge more as airlines do."*
- ✧ This point is a key difference in the management of loaded weight by between an airline and a bus operator:
 - An airline can usually accept additional luggage above the stated limit and simply charge for that service to cover the cost of additional fuel and handling, and make additional profit

- If accepting additional or overweight luggage increases the GVM of a bus above the allowed limit, that operator is in breach of the law and can be fined; thus if operators believe being overweight is likely to be detected, they have strong motivation to not accept the additional weight, and cannot simply charge an additional fee
- ✧ Another charter operator warns passengers for its tours to keep luggage under 20 kgs, and checks weights. This respondent reported that they can allow a few to be over if others are under.
- ✧ These weight policies are as much for OH&S as to limit total GVM
- ✧ Passengers who often have luggage being well overweight include backpackers, and business class passengers picked up at airports with 30-40 kgs of luggage
- ✧ Operators occasionally have to allow passengers on with oxygen cylinders
- ✧ Electric wheelchairs can weigh 200+ kgs; 4/5 have wheelchair lifts installed
- ✧ Other additions to added tare weight include:
 - Wheelchair lifts and associated glass door panels (up to 500 kgs total; lifts weigh at least 350 kgs) although this weight is slightly offset as two ordinary seats (and passengers) are removed to make room for the wheelchair and lift;
 - Extra braking systems
 - Air conditioning
 - Toilet
 - All leather seat covers
 - Seatbelts
 - Other safety gear
 - Some have drinking water tanks; one operator eliminated these to reduce weight
 - WiFi
 - Video screens

4.3. Concerns About GVM

- ✧ Due to 3-axle weight distribution and improved suspensions, the damage to the roads by modern 3-axle buses was thought to be less than with 2-axle and older 3-axle buses.
- ✧ With the new steering third axle, some claimed that there is less drag on the pavement
- ✧ Several operators stated that trucks are heavier than buses with higher load on each axle and they are allowed on the road; some added that they find the limits set for buses hard to understand and accept given the overall weight and weight per axle of heavy freight vehicles
- ✧ One (who also drives) stated that drivers should always take loaded weight into account in their driving practice, and that modern equipment such as computerized retarder systems, and the ability of drivers to set maximum speed (e.g., for downhill or

in snow) ensures greater safety of the bus and other road users with modern 3-axle buses

- ✧ Several mentioned the safety features and improved braking in modern vehicles as making them safer even if heavier and argued that stopping distances in modern 3-axle buses are actually shorter and certainly no longer than in older 2-axle buses
- ✧ One operator (who has disposed of all 3-axle buses and switched to 2-axle) argued that given the number of lives at risk if there is a crash, and the potential for a crash to be more serious if the bus weighs more, that an increase in the weight limit cannot be justified
- ✧ His view was exceptional and was the opposite of the views expressed by other operators interviewed

4.4. Carrying Freight

- ✧ This is only thought to be feasible for the Express market
- ✧ One operator carries small freight packages (limit 5 kg) on some Express routes
- ✧ All but one of the others indicated they have no interest in carrying freight – they see passengers as their business and freight would be a distraction
- ✧ One was open to the idea, but believed it would only be feasible for Express operators using fixed routes; however, when operating in the NT and the Kimberley, his drivers routinely call ahead and ask if their next stop needs them to bring anything, so long as they have some spare capacity

4.5. Actual 3-axle Bus Fleet

- ✧ The number of 3-axle buses varied widely, from zero to over 70
- ✧ The respondent with no 3-axle buses disposed of the last one about 3 months ago, largely for reasons of operating cost and because all his charters could be handled by smaller 2-axle vehicles with a better allowance for passengers and luggage
- ✧ Some operate only timetabled Express services with these buses; others only Charters, and some operate a mix; some operate Rail Replacement services; some contract maintained buses with drivers out to schools for regular services
- ✧ Most (not all) can provide data on the number of vehicles, tare weight and number of passengers for each 3-axle bus type
- ✧ To provide data for selected periods on actual passenger numbers, for a sample of trips, most indicated they would need to check on feasibility with their IT department, and might need CEO or Board approval; they would probably need assurance that their individual data could not be identified in any reporting
- ✧ They predominantly stay on the main roads; if a bus is over 12.5 metres (and 3-axle buses are) they can only operate on specified major roads or with special approvals
- ✧ Bridges are not generally an issue, although some Charter operators have to check acceptable routes for all charters; bus height can be more of an issue than weight
- ✧ Charter routes are very opportunistic. Examples of charters given include:

A gardening group would like to go to Maitland's gardens and that might be only once a year

Football teams (from local to international) going to and from away matches or annual club holidays

Tourist groups can go almost anywhere that has points of interest

Tours can have both local and international passengers; a lot have retired people as the typical tour passenger

4.6. Obtaining Approvals for Increased Weight Limits

Access Permits

- ✧ These are required for a vehicle over 12.5 m in length and/or if the loaded weight is expected to go over the standard limit
- ✧ Can be difficult to negotiate due to the number of approving authorities involved – often local Councils and State authorities in two States, with each body taking a different amount of time, with different requirements
- ✧ One reported that on Melbourne-Sydney routes it can gain quick approval from the City of Sydney and Liverpool Councils, slower approval from NSW RMS and will be automatically refused by Victoria
- ✧ Another reported having to apply to both Victoria and NSW for a Tour route, and had great difficulty finding out where to submit the application in Victoria; also NSW changed to an online form partway through the process, and the applicant had to start again as the information required changed with the change in form; the overall process was described (especially in Victoria) as “going around in circles”

Performance Based Standards (PBS) Permits

- ✧ Most have not sought any PBS permits
- ✧ Those who have done so or looked into doing so, consider the system opaque and too difficult to negotiate
- ✧ Others have not needed to use the PBS system, or prefer to seek access permits, or accept operating under the existing weight limit (even if they believe they will often exceed the limit)
- ✧ The number of different authorities required to give approval for some routes also makes seeking PBS permits difficult
- ✧ None of those who had looked into obtaining PBS permits mentioned issues with the actual technical standards; their issues were more with the amount of data required and the complexity and uncertainty of the application process

Increased NSW limits

- ✧ Respondents reported that this system is not generally operating as yet
- ✧ A couple had “pioneered” negotiating extra weight limit in return for having improved braking and safety gear installed in their 3-axle buses

- ✧ One charter operator had negotiated access to the increased limit as all buses had the required gear
- ✧ One difficulty in taking advantage of the NSW increased limit is that routes that go outside NSW then face the lower limit in those States (Victoria, Queensland, and possibly SA), although there is less active checking and enforcement in those States

4.7. Passenger Characteristics

- ✧ Age groups can be extremely varied on both Express and Charter services
- ✧ Some (but not all) operators believe their adult passengers are heavier than the population average
- ✧ Backpackers (often lighter people, being younger, but heavier luggage that they cannot cut back) are widely carried on both Express and tour services
- ✧ Tour passengers often (but not always) are older retired people who tend to be heavier than the adult average
- ✧ Some passengers are more budget conscious, so likely to be younger (including backpackers) or older (retirees) or otherwise have restricted incomes
- ✧ If services were reduced, this would impact adversely on the lower income groups and those without rail services, and the retired leisure market

4.8. Experience of Being Overweight

- ✧ The financial cost of being fined affects margins
- ✧ Defending cases has a substantial time cost
- ✧ Two had challenged fines for being overweight in court, and both were successful (not necessarily for 3-axle buses); they reported that they had proved to the Magistrate's satisfaction that the bus was safely loaded and would not increase pavement damage
- ✧ One had been fined twice in SA and once in the NT, and been found slightly over the limit once at the Marulan checking station in NSW without a penalty being issued
- ✧ One had terminated some Express routes because, given the fines for being overweight, the routes were no longer financially viable
- ✧ One was being found over the limit so often in NSW that it negotiated approval for a higher limit in return for installing improved braking, and instituted weight limits for passenger luggage (20 kgs) and carry-on (7 kgs); drivers use suspension scales when luggage looks likely to be over 20 kgs; but it is difficult to enforce the weight limit when a passenger has no-one to take any possessions away, e.g.,
 - Backpackers (sometimes can redistribute between members of a party)
 - International passengers
 - Passengers picked up at rural stops, especially late night pickups
 - Passengers with no-one seeing them off
- ✧ One mentioned two occasions when a bus was stopped at the Marulan checking station and found overweight and not allowed to continue:

- Once the operator had to call in a driver to operate a spare bus that was located that night at Marulan; this delayed the trip for half an hour
- Once the operator had to bring a bus and driver from Canberra, with a delay of 2.5 hours
- ✧ To avoid being found overweight, one has imposed a lower limit on passenger numbers, below the approved number, on a route that passes the Marulan checking station
- ✧ One charter operator has not encountered problems, as it was able to warn passengers to keep luggage under 20kgs, and has not so far installed wheelchair lifts; this operator still considered an increase in the national limit desirable, although he has not experienced problems due to being overweight
- ✧ One charter operator believes that most of the company's long-distance charters on 3-axle buses with four parties would be overweight

4.9. Turnover of 3-axle Buses

- ✧ Companies keep these buses for quite varied periods, from as little as 5 years up to 15 years; one had kept two 3-axle buses for 25 years (the limit for passenger vehicles in their State) but is now leaning to disposing of the coaches after 12-13 years
- ✧ One shifts 15 year old buses to transporting mine workers between their accommodation and the mine location
- ✧ The distance covered can be more the basis for disposal than age – most run a bus for about 1 million kms, maybe up to 1.5 million
- ✧ At least one has a waiting list of buyers for the buses they wish to dispose of
- ✧ Others sell direct to smaller operators; one advertises in Bus & Coach magazine; two mentioned they had sold to an individual owner for conversion to a motor home
- ✧ Some also use dealers to find buyers
- ✧ One dealer reported that his only sales of 3-axle buses in the last 2 years were to private owners to convert to mobile homes; this dealer also imports new buses from China, and reported that he had stopped importing 3-axle buses due to a lack of market interest
- ✧ He also believes that many operators who have 3-axle buses will now run them until they have exhausted their useful life as passenger vehicles (around 20 years) and then replace them with 2-axle buses

4.10. Implications for the Online Survey

- ✧ It appears that many operators can be reached through BIC or constituent State associations, but there will be some (estimates varied) who are not members – mostly smaller operators
- ✧ Thus invitations should be distributed both through the BIC and its State/Territory affiliates, and by more general publicity, while taking care to minimise multiple responses from the one operator

- ✧ It is not practical to ask for bus by bus details within the survey; these details need to be sought by other means (e.g., link to a spreadsheet to be downloaded and emailed back, or capture an email address to send a spreadsheet to)
- ✧ A process for gaining details on the actual 3-axle bus fleet for individual operators doing the survey, and to obtain additional data on the bus tare weight, and for a sample of trips spread across the past year, the origin and destination, the bus tare weight and the number of passengers has been implemented in association with the online survey
- ✧ The survey had been launched before the issue of operators switching to 2-axle buses or being interested in operating 3-axle buses but being unwilling to do so until the weight limit is raised arose after the online survey was in field
- ✧ It was thus not possible to add items exploring this issue with respondents who did not currently have any 3-axle buses
- ✧ There would be value in obtaining more evidence from smaller operators who might not currently have any 3-axle vehicles about:
 - Whether they have had them in the past
 - If so, why they disposed of them
 - If not, why they prefer 2-axle buses
 - Whether or not, and why, they would consider acquiring 3-axle buses in the future
- ✧ Additional telephone depth interviews are being organised with some operators meeting the criteria
 - Have stopped using 3-axle buses, or
 - Do not operate 3-axle buses but are interested in doing so if conditions changed

4.11. Additional Interviews – Lapsed 3-axle Operators

Four interviews have been completed. The respondents were probed in particular about their reasons for disposing of their 3-axle buses and for not replacing these vehicles with new 3-axle buses.

One regional NSW company reported that they used to operate 3-axle charter coach services that were largely patronised by seniors. NSW Country Link introduced a bus-rail combined service that covered the most popular routes they had been serving with the 3-axle coaches. Since most of those who had been the company's customers for the coach services were able to use the bus-rail government service for \$2.50 a day, the coach service ceased being viable. The company disposed of its 3-axle buses and concentrated on providing school bus services with occasional school charters using much cheaper 2-axle buses.

This operator did remark that they have weight problems with the limit on the front axle of their 2-axle buses. The limit set by regulation is well below the seven to seven and a half tonne safe limit set by the manufacturers, and it is very difficult to not exceed the regulated limit for the front axle of their 2-axle buses, especially if they carry students plus sporting or camping

gear. Their views about the limits for 2-axle buses were very similar to those expressed about the 3-axle weight limits – that the limits should be set based on what the manufacturers have determined is a safe operating weight, and that with modern suspensions, this should not increase pavement damage beyond what occurred with older buses with the same weight limit.

The second lapsed user mostly operates 2-axle buses under contract with Transport for NSW to transport students to and from school. The company also provides charter services to the schools it serves for special events and excursions.

This operator had disposed of one quite old 3-axle bus as it was found there was very little business available in their area that required a bus of this size, the bus was much more expensive to operate than their (mostly smaller) 2-axle buses, and it was approaching the maximum age allowed for passenger buses (25 years in NSW).

If a profitable opportunity emerges that requires the greater carrying capacity of 3-axle buses the company is open to acquiring such vehicles, but at this point there is no business case for the investment. They disposed of their one 3-axle bus largely for economic reasons unrelated to the weight limit.

The other two operators who had disposed of or was disposing of 3-axle buses both reported that they could not use these buses profitably due to higher operating costs. Both were now primarily running services in regional NSW for children travelling to and from school, with occasional charters from participating schools. Neither indicated interest in acquiring more 3-axle buses given the nature of their business following disposal of the 3-axle buses. One had disposed of a substantial number of 3-axle buses to another company that runs charter services and tours.

It is clear from these interviews that the weight limits for 3-axle buses might not always be the reason for exiting the 3-axle market.

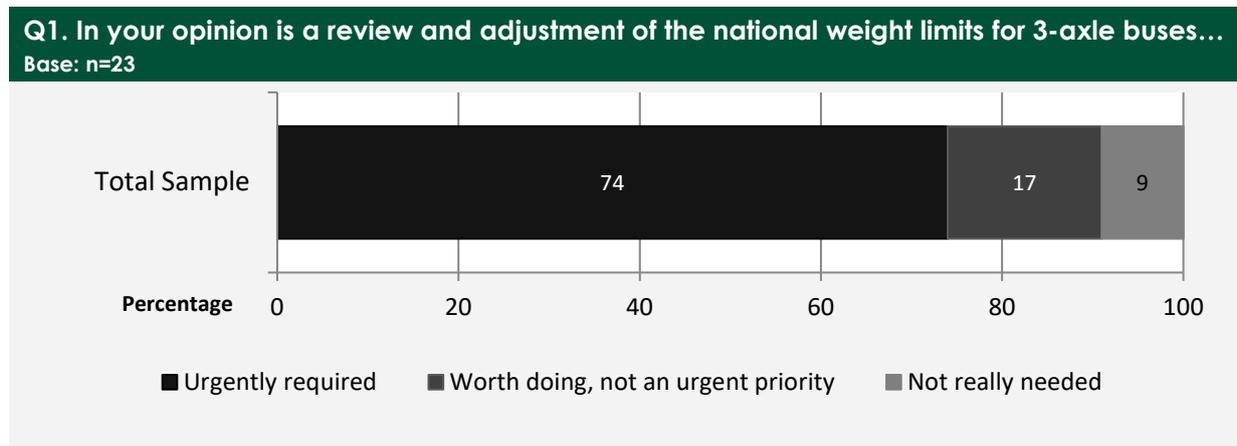
5. Results of the Online Survey

To date, a total of 23 completed online surveys from operators of 3-axle buses have been obtained. Two have also submitted spreadsheets with data about their 3-axle fleet.

5.1. Review and Adjustment of the 3-axle Bus Limits

Most of those who completed the survey believe that review and adjustment of the current weight limits is urgently required (75%, 15) or is worth doing (15%, 3). Two (10%) considered that this is not really needed (see Figure 1)

Figure 1: Need for review or adjustment of the 3-axle bus weight limit



When asked their reasons for giving that rating, the two who consider such a review is not required replied:

We purchase ADR 58 compliant vehicles in the first place so [sic] to operate legally with the seating capacities up to 83

Rarely a problem in practice. Need to discourage overloading

The four who considered such a review worthwhile but not urgent said:

In some situations it is easy to overload the front axle. More concerned with vehicle length restrictions

Current weight limits have been in place for a long time during which [sic] the specifications and requirements of vehicles have increased without corresponding weight limit increases.

We don't have a problem normally with weight

Because of the 14.5 [tonne?] coaches

Some of the larger group that considered review and adjustment to be urgent simply repeated that they see a need for change, or that vehicles are currently running overweight:

Our 3-axle bus operates school runs, where numbers are needed.

Needs to increase

Too many buses going over the weight limit

Most gave reasons based on either the increased tare (unloaded) weight of the vehicles and equipment installed, or the increased weight of passengers and luggage, or both. Some extended their argument to include reasons for concluding that such limits would not have adverse effects:

Restrictions currently in place are not necessary. Local councils are concerned about weight issues, not vehicle length. To treat a 13.5m bus the same as a B-double truck is absurd.

The current limit is unreasonable when taking into account the tare weight of three axle coaches, which are increasingly required to have wheelchair lifts and extra equipment fitted. The current limits are very restrictive and limit the use of such vehicles.

Passengers are getting heavier all the time, baggage too.

As an Operator, we are forced to be Wheelchair Compliant which adds approximately 450kgs of mass as opposed to not being compliant. Emission Standards also force us to have vehicles with SCR. These SCR systems and Adblue capacity adds significant mass. Modern vehicle safety systems like ABS, EBS, ECAS whilst all provide vital safety enhancements, it all adds mass. The average weight of a human as specified in the ADR's is grossly understated.

There is uncertainty within the industry as to limits that apply.

Vehicle design allows a lot greater GVM than currently allowed. Passenger weights are based on 65 kg no luggage and 85kg including luggage. The majority of adult Australians are over 80 kg without any luggage. Improved safety features in vehicles have increased tare weight thus reducing carrying capacity.

Limits are far behind what the vehicles and roads are capable of.

Chassis are able to handle the extra weight

When operating Coaches at present and having on-road enforcement in every direction that we travel we have to be compliant and as such are extremely careful when spec'ing vehicles. We build Coaches to ADR 58 Compliance. (This is where the industry has become very sloppy as not many manufacturers do the ADR 58 Compliance) and even then we run very close to the wind. Back when 2 Axle coaches got a 2 tonne tolerance the 3 Axle coach did not gain any additional weight. The 3 Axle Coach needs the 22T however only under the same conditions 1/ Vehicle must be built to ADR 58 Calculation 2/ Vehicle Must have all the latest Braking and safety equipment for all new builds. 3/ Must be ADR 59/68 and 80 Compliant. If you allow the industry just a base weight calculation without any other checks and measures like an ADR 58 Calculation you will find we will end up with buses getting heavier and heavier all the time. Maybe the ADR calculation needs to be done on 16.5tonne for a 2 axle and 20.5 tonne for a 3 axle with a 1.5 tonne operating tolerance for each vehicle. Note a 2 Axle coach to be compliant to ADR 58 with 57 Passengers needs to be built at 11.4 Tonne. Most imported vehicle will weigh around 13t. A 3 axle coach with 54 Seats needs to tare off at 15700 which is easy with some chassis and bodies at 64 seat Coach 14800 which is a challenge which is possible but not many

manufacturers can comply. History shows and I have the information that my controlled access coaches with 64 seats on paper comply to ADR 58 but in real operation need to run at either 21.5 or 22t for compliance at the weighbridge. Note if you raise the ADR 58 figures you will end up with Buses and Coaches running over the new weights. Proof is already there with 2 Axle. If ADR 58 is retained at its current format or close to it the Industry will be compliant at all times.

We are being forced to fit safety braking systems, emission reduction systems, fire suppression systems and wheelchair lifters all of which greatly increase the tare weight of the bus.

Touring coaches have the added issue of increased passenger body mass, luggage to be carried by passengers on tour/express services and wheelchair accessibility. Approximately 900kg as well as the increased weight of modern emission controls, a Blue tanks, SCR and braking /stability controls.

General mass limits are lower (than) the current vehicle specs and also (the) increased in average weight of passengers.

Coaches are heavier now than when the current weight rules set up, however coach GVMs are also higher but our laws haven't kept up. Coaches are now carrying more equipment such as wheelchair lifters. People are getting heavier. Rego is done at 70kgs but that is nowhere near the current average adult weight.

One respondent cited the business necessity to compete with 2-axle buses that have an increased limit:

Due to 2 axle bus mass limits being raised we are being restricted in our business for (sic) having a 3 axle bus.

5.2. Risks of a Weight Limit Increase

Respondents were asked the following questions about the risks of vehicle weight limit increases:

Q3. *In your opinion, will increasing the weight limit for 3-axle buses without exceeding the manufacturer's indicated maximum safe GVM....*

CLICK ON ALL RESPONSES THAT APPLY

1. Risk increased damage to road surfaces
2. Increase the risk of accidents or injury to other road users
3. Increase other risks
4. Involve no added risks

IF 1-3 IN Q3, THEN ASKED:

Q5. How serious would these increased risks be?

1. Negligible
2. Minor
3. Moderately serious
4. Serious
5. Very serious

Q6. How might these risks be reduced or removed?

PLEASE TYPE YOUR ANSWER IN THE BOX BELOW

Most (87%, 20) believed that increasing the weight limit for 3-axle buses without exceeding the manufacturer's indicated safe maximum GVM will involve no added risk.

One indicated that it will result in a moderate increase in the risk of accident of injury to other road users. The reason given for these responses was:

You can't (safely increase the limit). If you increase the passenger mass, you increase your braking distance (and) raise the centre of gravity of the vehicle.

This respondent went on to ask:

Will the increase in mass effect the ADR59 calculations and does the vehicle have enough energy value in the body for the increased load?

Two believed that an increase in the GVM limit will increase the risk of damage to road surfaces. One of these judged this risk to be negligible because better roads can be built. The other believed that the risk of road damage was moderate, and also suggested "Building [better] road bases" as a solution.

5.3. The 3-axle Bus Fleet

This section describes the sample completing the online survey. This cannot be taken as providing estimates of the national fleet of 3-axle passenger buses, but does show that the sample obtained is quite diverse.

Number of 3-axle buses (Q7)

About half (52%) the 23 respondents operated under five 3-axle buses, and about half (48%) operated between 5 and 85.

Only three (12%) operated 20 or more such buses.

The Telephone Depth Interview sample included two operators that have fleets of 75 3-axle buses, one with a fleet of 35, one with a fleet of 15, one with a fleet of 10, one with five, one with two, one with one and one with none (but had disposed of one about three months before the interview).

Combining the two samples (total n=32), we have a median fleet of four 3-axle buses 47% of n=3), with a range from zero to 85. Just under 40% operated 10 or more.

Note that the larger operators were deliberately targeted in the TDI sample.

Thus any operator with 20 or more 3-axle buses has a relatively large fleet, and it appears that most operators will have 10 or fewer.

Those with smaller fleets of 3-axle buses might have much larger numbers of 2-axle buses.

Where they operate (Q10A)

The online sample of n=23 operate in a number of States and Territories. Table 3 demonstrates the wide coverage, with most of those completing the survey operating in more than one State or Territory (70%, 16).

Two operated only in NSW, two only in Victoria, and one only in Queensland.

Table 3: Respondent State/Territories

State/Territory	Number	Percentage
NSW	17	74%
Victoria	16	70%
Queensland	14	65%
South Australia	10	44%
Western Australia	4	17%
Tasmania		22%
ACT	12	52%
Northern Territory	6	26%

Services provided (Q10B/C)

The sample also provided a very wide range of services, with individual operators offering up to five different types of service.

Almost all offered (90%, 18) offered charter services to other operators (such as tour companies), followed by charter services for sporting, cultural and other groups (80%, 16), including school groups and seniors groups as shown in Table 4 Rail replacement services were also widely provided (70%, 14). Some offered scheduled express services between regional locations within a State or Territory (15%, 3), between different States or Territories (10%, 2) or between metro centres within a State or Territory (5%, 1).

Two mentioned providing school services, two that they provide charter services for schools, and seniors, and one that they run their own tours.

Table 4: Services offered by operators

Service	Number	Percentage
Scheduled Express Services		
Between States/Territories	2	9%
Metro to metro within a State/Territory	1	4%
Regional within a State/Territory	3	13%
Charter Services		
Rail replacement	16	70%
To other operators	18	78%
To other groups (sporting & cultural)	19	83%

Clients served (Q10D)

The types of clients served were also very diverse, with nearly all the listed customer types being served by half or more of the companies that completed the online survey.

Most provided services to schools, community service groups or clubs, tour businesses, rail operators and businesses (all 70% to 91%).

The least common service was for people travelling between towns and cities in one State or Territory (48%). Comparing the answers to the responses to the previous item about types of service which identified under 20% providing services within a State or Territory, it appears that some provide this service on a Charter basis.

Table 5: Types of client for each operator

Service	Number	Percentage
Schools	21	91%
Community service groups or clubs	19	83%
Tour businesses	18	78%
Rail operators for rail replacement services	17	74%
Businesses to take staff to special events	16	70%
Government organisation to take staff to special events	14	61%
People travelling between towns and cities in different States or Territories	14	61%
People travelling within a city	13	57%
People travelling between towns and cities within one State or Territory	11	48%

Route restrictions (Q14)

All were asked how often they have to avoid certain routes because of weight limits on roads or bridges.

This has never (48%) or rarely (22%) been encountered by most (70%) of these operators. However, 30% have met this issue a few times a year (17%) or more often (13%). Figure 2 summarises the replies.

Locations where this had been encountered included one reply indicating that bus length is more the issue than weight:

Our coach is 13.5 meters so there is a lot of roads it can't use

Specific locations nominated were:

O'Reillys National Park

Greenswamp Road Bridge (only upgraded this year) [in] Brisbane

Marulan

Categories of locations that were mentioned were:

Usually on minor roads to tourist spots

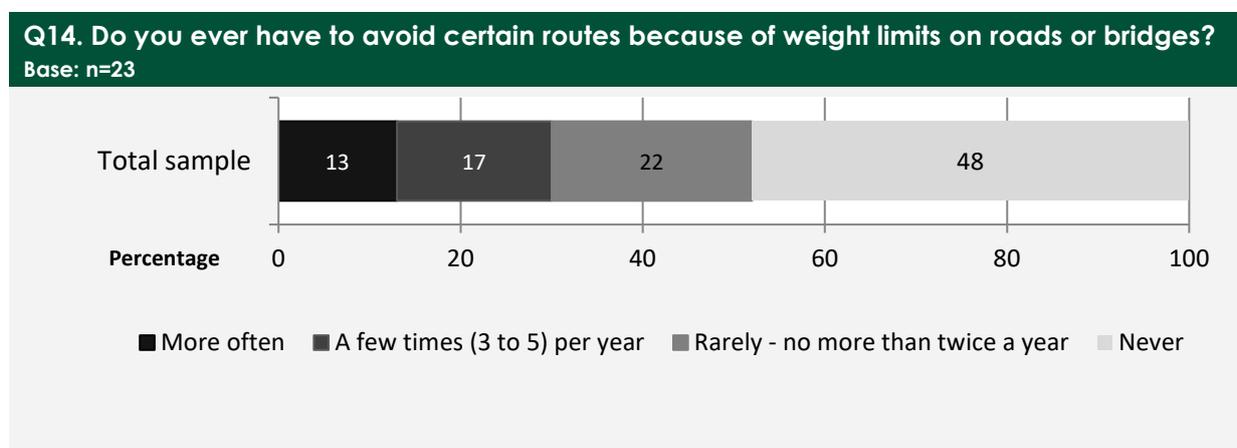
Rural NSW roads with weight restrictions due to bridge mass limits. These roads are usually under 12t limit and are avoided when planning route. An increase in mass would not affect these routes as we use alternative roads and weight limits dictated by the roads operators would not be increased as other factors govern their weight limits.

No specifics but there are routes we could use but they are weight restricted for bridges etc

On some extended tours, run with half (a) tank (of) fuel to keep weights under limits thru NSW an QLD

One simply referred to "Bridge limits", another said it would be a guess, and one that drivers are aware and could be asked. Another elaborated "Too many to list, this occurs in various places around the Hunter Valley and [in] other States."

Figure 2: Road or bridge weight limits restricting routes used



Life of 3-axle buses before disposal (Q36)

Almost half (48%, 11) reported they generally keep their 3-axle buses for over 15 years, and another seven (30%) do so for over ten up to 15 years. Four (17%) of the other five do so for over five up to ten years, and one reported keeping these buses for over 3 up to five years.

This also means that a considerable proportion of the buses being operated by these respondents will be more than 10 years old and some more than 15 years old. Older 3-axle buses tend to be lighter than those acquired more recently. Operators with the older buses might not face restrictions due to increased bus weight until they decide to replace their existing older buses.

5.4. Permits and Approvals

Applying for Access Permits (Q16)

Given the experience reported by those interviewed in depth about applying for access permits, the online questionnaire asked:

Have you found requesting an access permit to operate a route with a 3-axle bus over the current allowed loaded weight limits to be ...

The response options and frequency of replies were as shown below.

While almost half had never needed to make such an application, the other responses indicate that doing so is quite difficult (61%), with four (17%) saying it was not worth trying, six (26%) that there was difficulty in obtaining approval from at least one of the relevant authorities, and four (17%) that it was difficult to provide the required information. No option to indicate that this had been done without difficulty was included as the experience recorded in the depth interviews, indicated this would be rare.

Table 6: Applying for access permits

Service	Number	Percentage
Difficult to provide the required information	4	17%
Difficult to obtain approval from one or more of the relevant authorities	6	26%
Not worth trying	4	17%
Not needed to do this	9	39%

Applying for PBS Approvals (Q34/35/36)

Respondents were asked three questions about applying for Performance Based Standard permits that allow a 3-axle bus to be operated above the standard weight limit.

Almost half (48%, 11) had not done so and were not planning to do so. Another 35% (8) replied either they do not know what this involves (22%, 5) or have not heard of PBS approvals (13%, 3).

One had applied (4%) and three others were planning to do so (13%). The one that had done so indicated the process took two weeks.

The 15 who appeared to be aware of PBS approvals were asked to rate how difficult or easy they expect or had found the process of applying to be.

- ✧ Three expected the process to be much too difficult
- ✧ Three indicated the process would be more difficult than is reasonable
- ✧ Three rated the process as not being too difficult
- ✧ The one who had applied found the process to be quite easy
- ✧ Five said they don't know yet how difficult the process will be

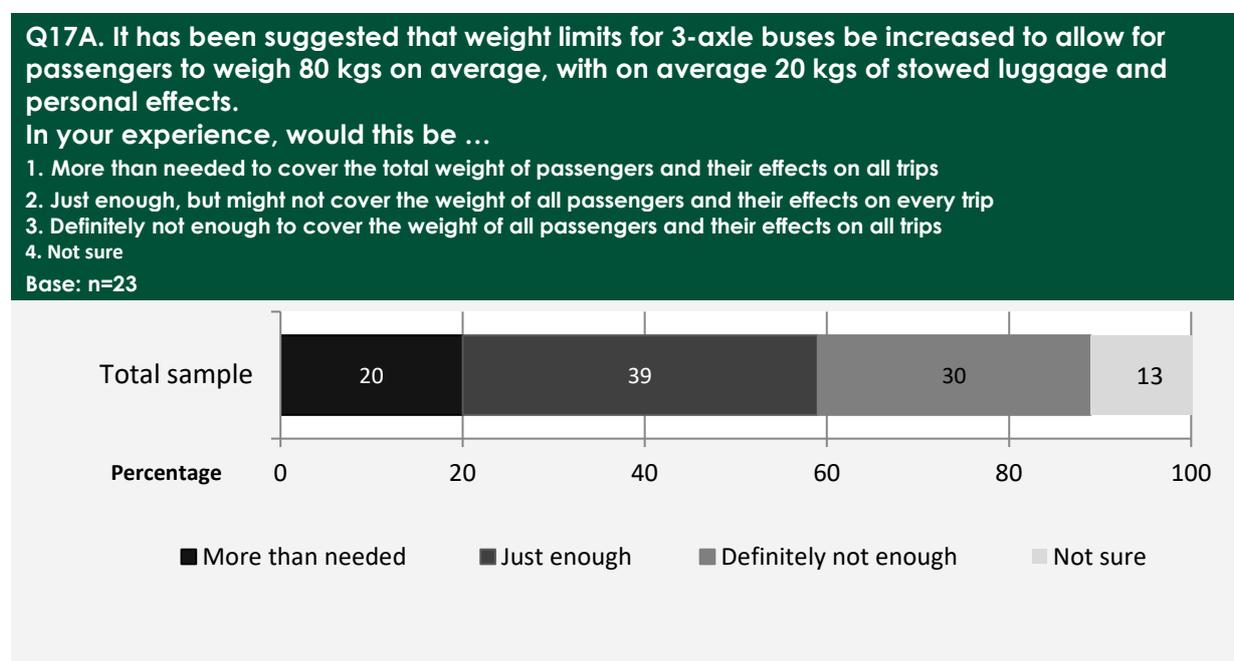
These replies might be based as much on expectations about bureaucratic processes as on any relevant experience relating specifically to the PBS. However, the views align with the reports obtained in the TDIs, indicating that the process is seen as more complex than is desirable. Against this, the one respondent who had applied for a PBS reported completing the process in two weeks, and found it quite easy. The issue might be one of perception rather than real difficulty.

5.5. Weight Limit Increase (Q17A/B)

Asking for a specific desired weight limit was found to be too complex, as this might vary with the exact configuration of the 3-axle bus. Instead, respondents were asked the question shown in Figure 3.

Some believe this definitely that the increase described would not, on its own, be enough (30%, 7), and slightly more that it would be just enough, although it still might not always be sufficient (3%,). A small group was confident it would be enough (17%, 4) and some (13%, 3) were not sure which response to give.

Figure 3: Acceptability of weight limit increase to cover specified passenger and luggage weight



Respondents were then asked what the effects of such a weight increase would be. Their replies can be seen in Figure 4. Only one response was allowed, so the responses indicate the most likely or most important effect.

The most common response was that it would make it easier to avoid being fined for being over the weight limit (57%, 13). A few said they would install more safety equipment (13%, 3) carry more passengers than they do now (4%, 1) or have some other effect (9%, 2).

The two who reported it would have some other effect explained that this would:

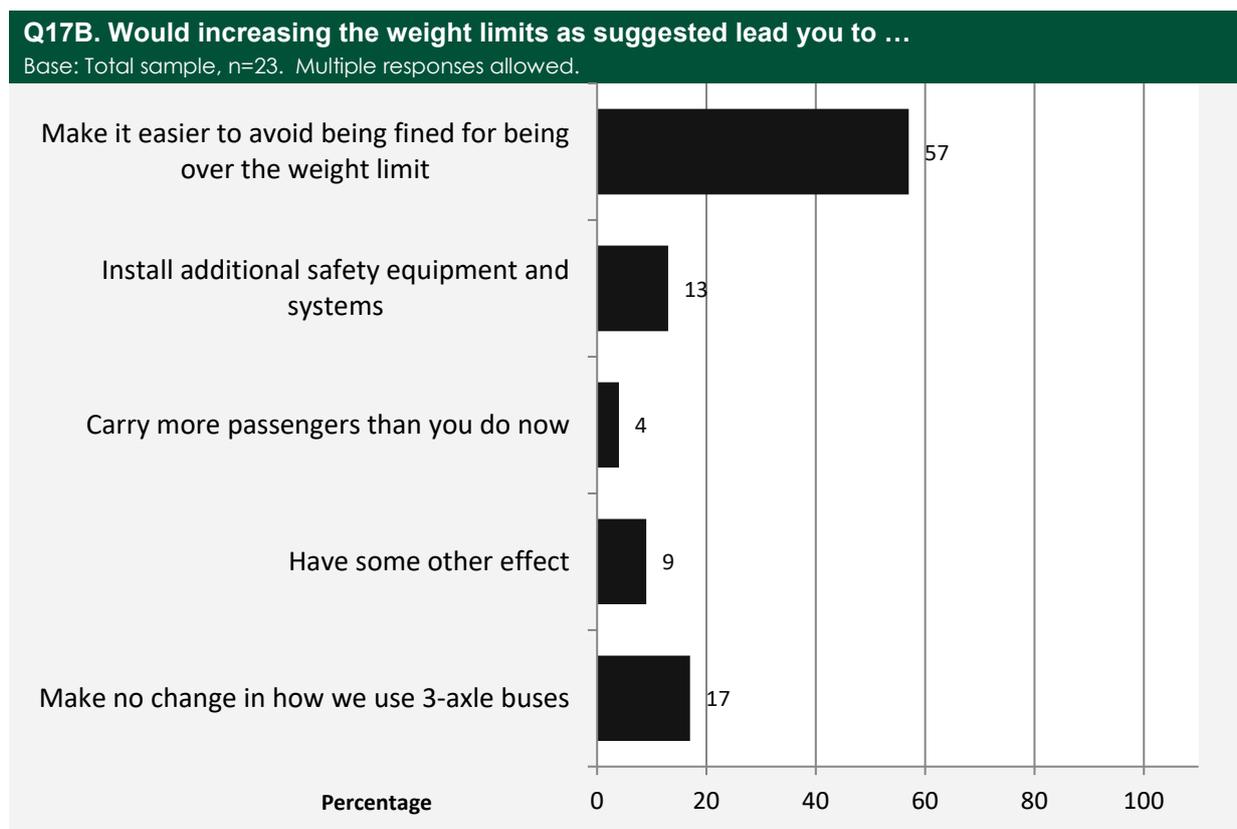
Allow those operators who are currently managing their mass limits be on an even playing field with those operators who don't when it comes to passenger numbers/luggage requirements not exceeding mass limits.

(Allow them to) carry more luggage

Some indicated that it would make no change in how they use 3-axle buses (17%, 4).

Thus, while some would take actions that would increase the running weight of their 3-axle buses, it appears that more than half would simply continue as they currently are, but be relieved that they would no longer be risking a fine for breaching the statutory weight limit.

Figure 4: Effects of suggested weight increase



5.6. Equipment Installed in 3-axle Buses (Q18)

Figure 5 shows that some items are very common in the 3-axle buses operated by these respondents: 100% reported that at least half of their 3-axle buses have seatbelts, and over 85% reported that at least half of their 3-axle buses have air-conditioning (96%), water tanks for drinking water (91%), and toilets (87%).

Technological aids for vehicle safety were also widely reported, including ABS (7%), GPS navigation (61%), ESP (57%), a wheelchair lift and associated glass panelling (52%), telematics (48%) and front or rear cameras (43%).

Fire detection and suppression controls (22%), a scale to measure vehicle weight (17%), ASR (17%) and brake assist (13%) were less common. Driver Fatigue Warning, Automatic Emergency Braking System, and having other equipment required to meet the Anti-

Discrimination Act were each reported by 9% (or 2) as installed in at least half their 3-axle buses.

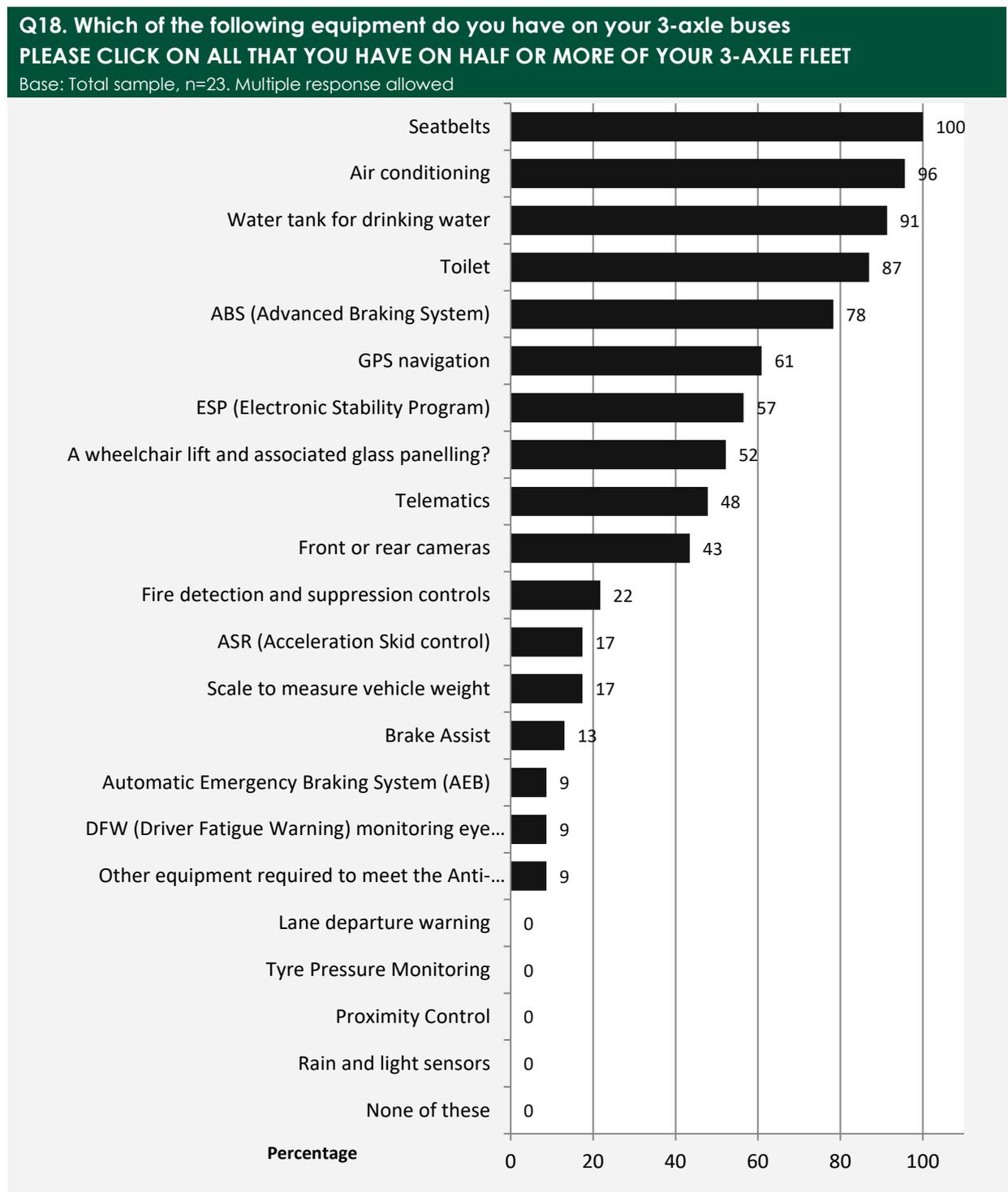
Items that were not reported as reaching this threshold by any of the respondents were Lane departure warning systems, Tyre pressure monitoring, Proximity controls, and Rain and light sensors.

All respondents had at least one of the listed items installed in at least half their 3-axle buses.

These responses provide only a rough indication of the relative prevalence of the listed items, as the item was simplified to reduce the time required to respond. A more comprehensive picture would require asking exactly how many of the respondent's 3-axle buses has each item installed, and then analysing this broken down by the total number of 3-axle buses operated by each respondent.

It had been intended to ask how much weight was added by each item that respondents reported having installed in at least half their 3-axle buses. Pre-testing showed that it would be very difficult for many operators to answer this question. NTC decided to seek data on this from manufacturers.

Figure 5: Equipment installed on 3-axle buses



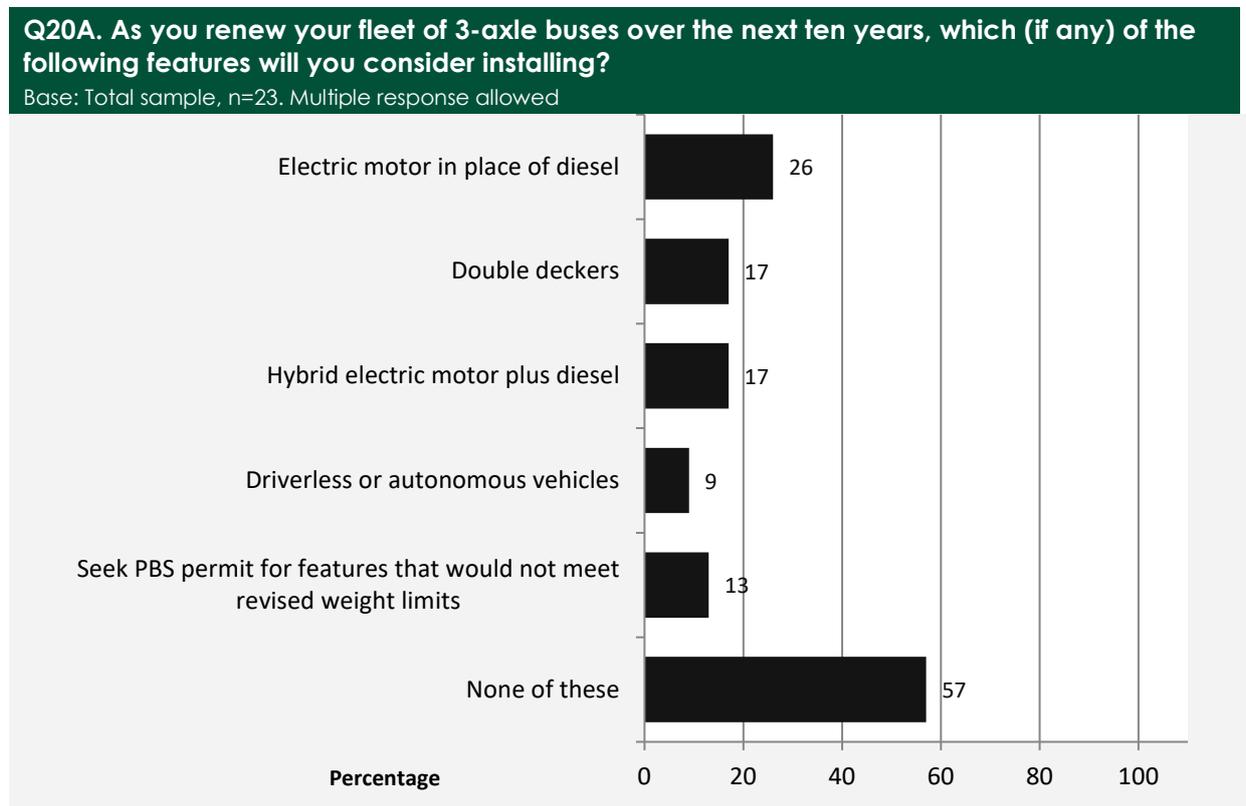
Plans to install specified items (Q20A)

Respondents were then asked which of a list of six possible items or 3-axle bus types they would consider acquiring as they renew their 3-axle bus fleet over the next ten years.

Over half (57%, 1/10) indicated they would not consider any of the options listed (see Figure 6).

Some would consider acquiring buses with an electric motor in place of diesel (26%, 6), or electric motor-diesel hybrid (17%, 4), double decker buses (217, 4), driverless or autonomous vehicles (9%, 2) or would consider seeking a PBS permit for features that would not meet the revised weight limit (13%, 3).

Figure 6: What would be considered when replacing existing 3-axle buses



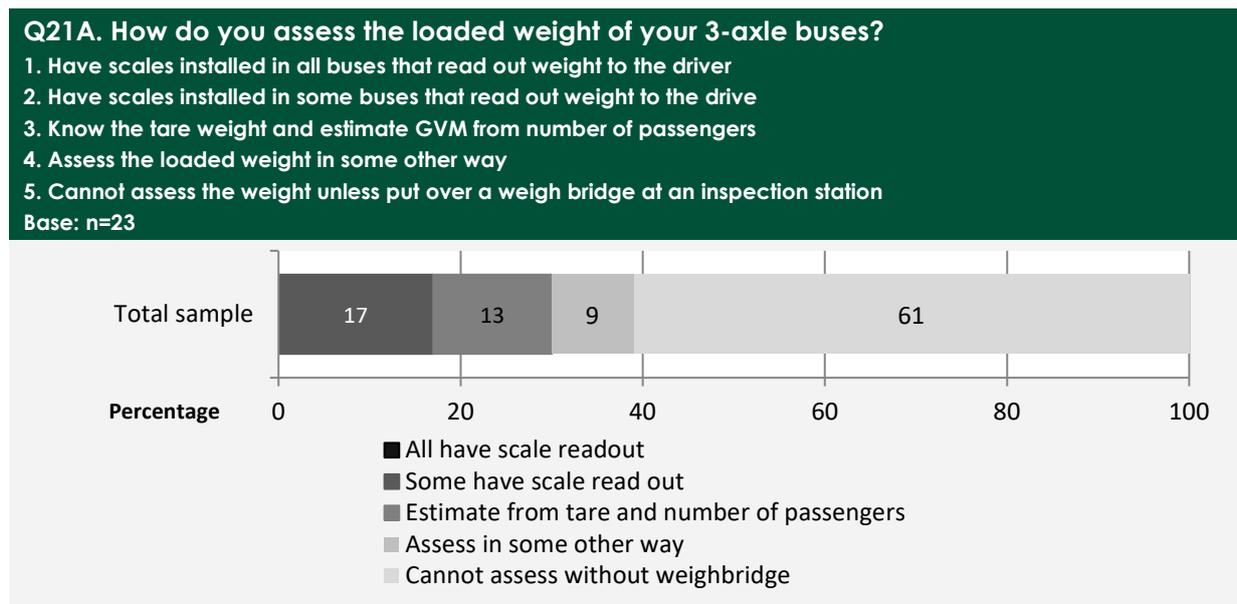
5.7. Length of Average Trip (Q20B)

Over half the respondents reported that their average trip using 3-axle buses was between 201 and 500 kms (57%, 13), with three (13%) reporting 500 kms or more and seven (30%) that the average trip was between 51 and 200 kms. None reported average trips of under 50 kms.

5.8. Assessing the Loaded Weight (Q21A)

Over half reported that they cannot assess the total loaded weight unless put over a weigh bridge at an inspection station (61%, 14). None have scales in all their 3-axle buses, but some (17%, 4) have scales installed in some buses. Others know the tare weight and estimate the GVM from the number of passengers (13%, 3) and two (9%) assesses the loaded weight in some other way.

Figure 7 summarises these replies.

Figure 7: How loaded weight is assessed

5.9. Actions Taken to Avoid Exceeding the Weight Limits (Q21B)

A list of actions that might be taken to avoid being over the weight limit were presented in Q21B and respondents were asked to indicate all the actions they take (if any). The full list can be seen in Figure 8.

The most common response was to say no specific action is taken to avoid being overweight (30%, 6).

Between 22% and 26% reported taking each of the other actions, and 30% reported doing something else, with several taking more than one action. One (4%) who reported taking no action added that none is needed, as the buses will always be within the required limit.

The other actions reported were:

Roster the correct vehicle for the job.

Assess passengers by type, e.g. Adult, student, child etc.

Use wheelchair-equipped coaches on tours with limited passenger numbers due to the wheelchair lift and associated structure reducing carrying capacity from 52 to 40. We schedule a non-accessible coach for tours of over 40 adults. Not good when manufacturer's GVM is 5t over what we can legally carry and we not only have the \$30k cost of installing wheelchair lift but can carry less paying clients as well due to the weight restrictions.

Review TARE plus expected passenger and luggage weight.

Along with assessing luggage requirements, we may be required to pre plan and reduce the passenger numbers on a journey due to their luggage requirements i.e. a 62 seat passenger vehicle can only transport 54 passengers

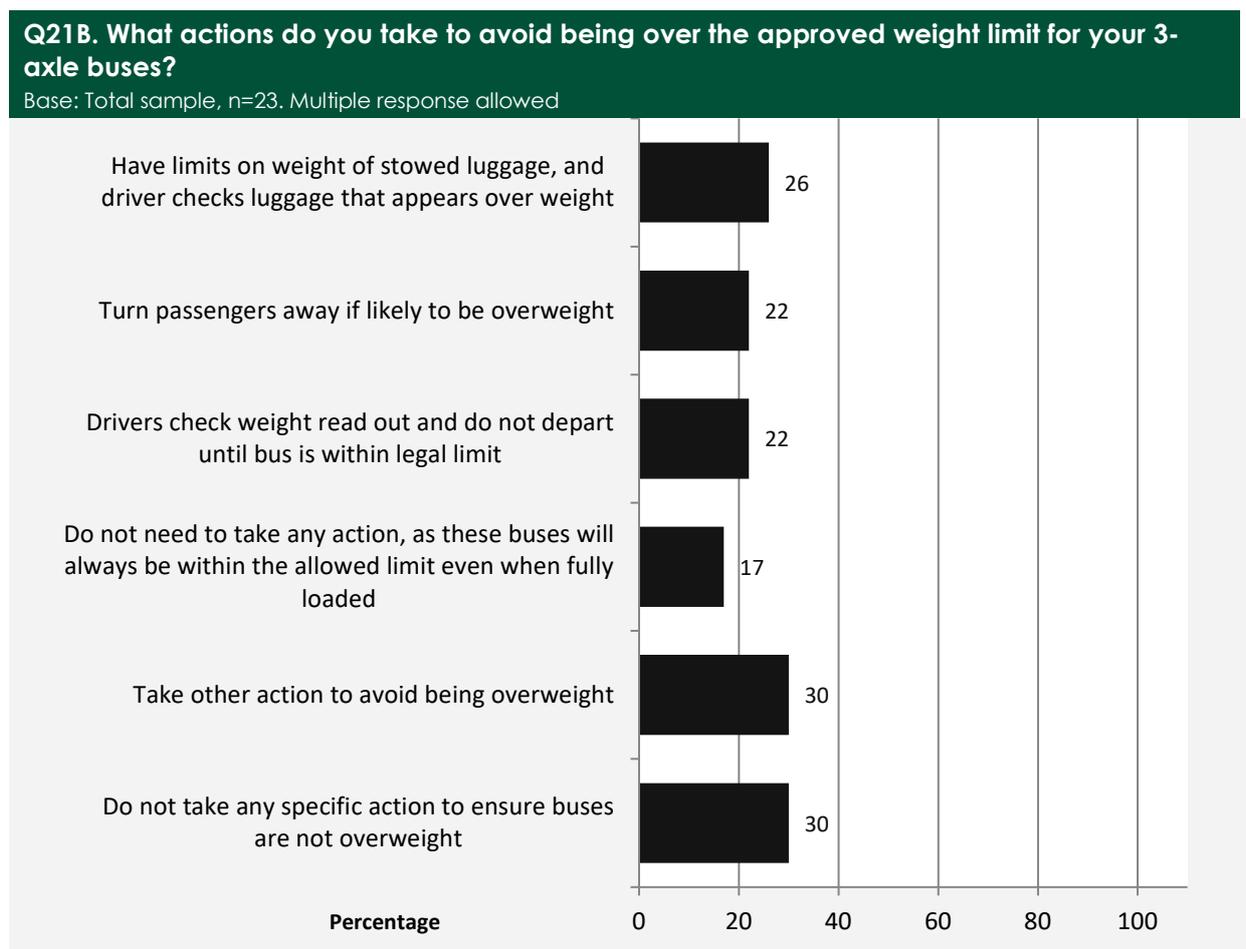
We limit certain types of groups, e.g. Golfers/Skiers, etc.

We have 50 seater coaches that are locked out from selling more than 42 seats. This forces us to turn passengers away and loose revenue and reputation as a result.

It appears that some of these operators risk being overweight, while others take actions that restrict the numbers they carry or involve inconveniencing passengers who have more than a specified weight of luggage and personal effects. While some do not believe they will be overweight even without taking preventive action, most either try to control the weight of their 3-axle buses, or know that they are risking being overweight.

Given that these services are a form of public transport, that one in four of these operators report that they do turn passengers away if likely to be overweight is a serious policy issue. The TDIs indicated that there are practical problems that can prevent an operator taking such action. Note that while the online survey results indicate that some operators take such action, it does not indicate how often this occurs.

Figure 8: Actions taken to avoid being overweight



5.10. Managing Bus Weight

A series of items explored how respondents manage the total loaded weight of their 3-axle buses.

Actions to limit loaded weight (Q23C)

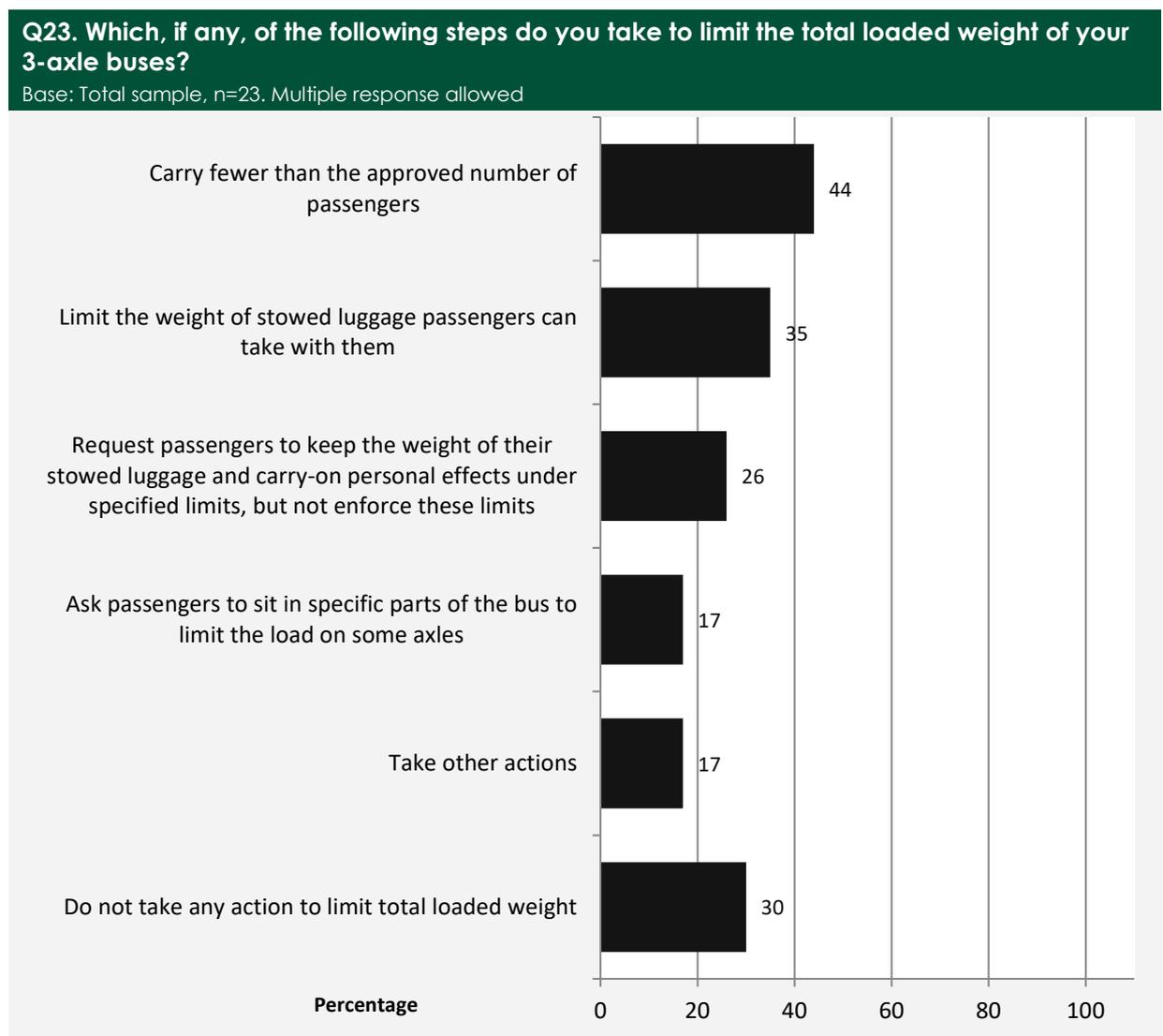
Respondents were also asked what steps (from a list) they take to limit the total loaded weight of their 3-axle buses. The listed actions are shown in Figure 9.

While some respondents (30%, 7) confirmed that they take no action to limit the total loaded weight, 70% (16) take at least one step, including 35% (8) that take more than one step.

The most common step reported was to carry fewer than the approved number of passengers (44%, 10), followed by limiting the weight of stowed luggage that passengers can take with them (35%, 8), or requesting passengers to keep the weight of their stowed luggage and carry-on personal effects under a specified limit (26%, 6).

Some ask passengers to sit in specific parts of the bus to limit the load on some axles (17%, 4) and a few (17%, 4) reported taking other steps to limit the total loaded weight.

Figure 9: Actions taken to limit loaded weight



Fully Loaded Trips and Overweight Trips (Q23A/B)

The estimated percentage of trips with 3-axle buses that are fully loaded varied widely from under 10% to 90% or more. Over half the respondents estimated that 50% or more of trips

would be fully loaded (56%, 13), two (9%) were unable to say, and 35% reported that under 50% of trips were fully loaded.

When asked what percentage of the trips taken by their 3-axle buses would be over the allowed limits, 22% (5) were unable (or perhaps unwilling) to say. One (4%) reported 60% to under 70%, one 50% to under 60%, one 40% to under 50%, two (9%) reported 10% to under 20%, and 57% (13) said it would be under 10%.

This suggests that these 3-axle bus operators believe they are mostly able to ensure that their 3-axle buses are not overweight, but that this is in part because the vehicles are not fully loaded, and partly due to a range of actions taken to limit the total loaded weight of the vehicles. It appears that these operators are mostly trying to stay under the limits, believe they are mostly successful, but that many do at times have 3-axle buses that will be over the limits.

Effects of being over the limits (Q24, Q25, Q26, Q27, Q32)

Although one of those in the TDI sample reported closing a route due to not being able to operate it profitably while ensuring the buses were under the limits, none of the online survey sample reported having done this (Q24).

Six (26%) reported (Q26) that they had been issued with infringement notices imposing fines for being over the allowed weight limit in the past year, two having experienced this once, two twice, one three to five times and one five to nine times. The reported causes were interesting:

Four of the six reported that the passengers were well above the assumed 65kg.

Four indicated that the tare weight of the bus was too close to the limit

Two reported that passenger luggage and effects were well above the assumed 15 kg allowed in the weight limit. One elaborated that *...Every passenger bought boxes of wine in South Australia. (The) coach was 1,000 kg over. (The) wine filled up half the (luggage) bin.*

One reported there was some other reason but did not explain

Four of the six respondents who reported that they had been fined had challenged fines imposed, all in NSW. The hearings involved a half day (three) or full day (one) to attend court. One reported that on each occasion when the fine was challenged, the court found in the operator's favour, and no fine was imposed. The other three reported that this had happened at least once.

Despite most of these operators indicating that they are mostly managing to avoid having 3-axle buses doing trips that are over the allowed weight limits, these operators reported a wide range of adverse effects from the current limits (see Figure 10). Most (87%, 20) reported at least one adverse effect, with almost half (48%) reporting more than one adverse effect.

The effects most widely reported were being unable to purchase coaches they would like to operate (44%, 10) and being unable to install safety features they would like to install (also 44%, 10).

Some reported being unable to offer services and features that customers want (35%, 8) being prevented from offering better customer service (30%, 7), losing business due to efforts

to avoid being overweight (22%, 5), and that the customer experience is adversely affected (26%, 6).

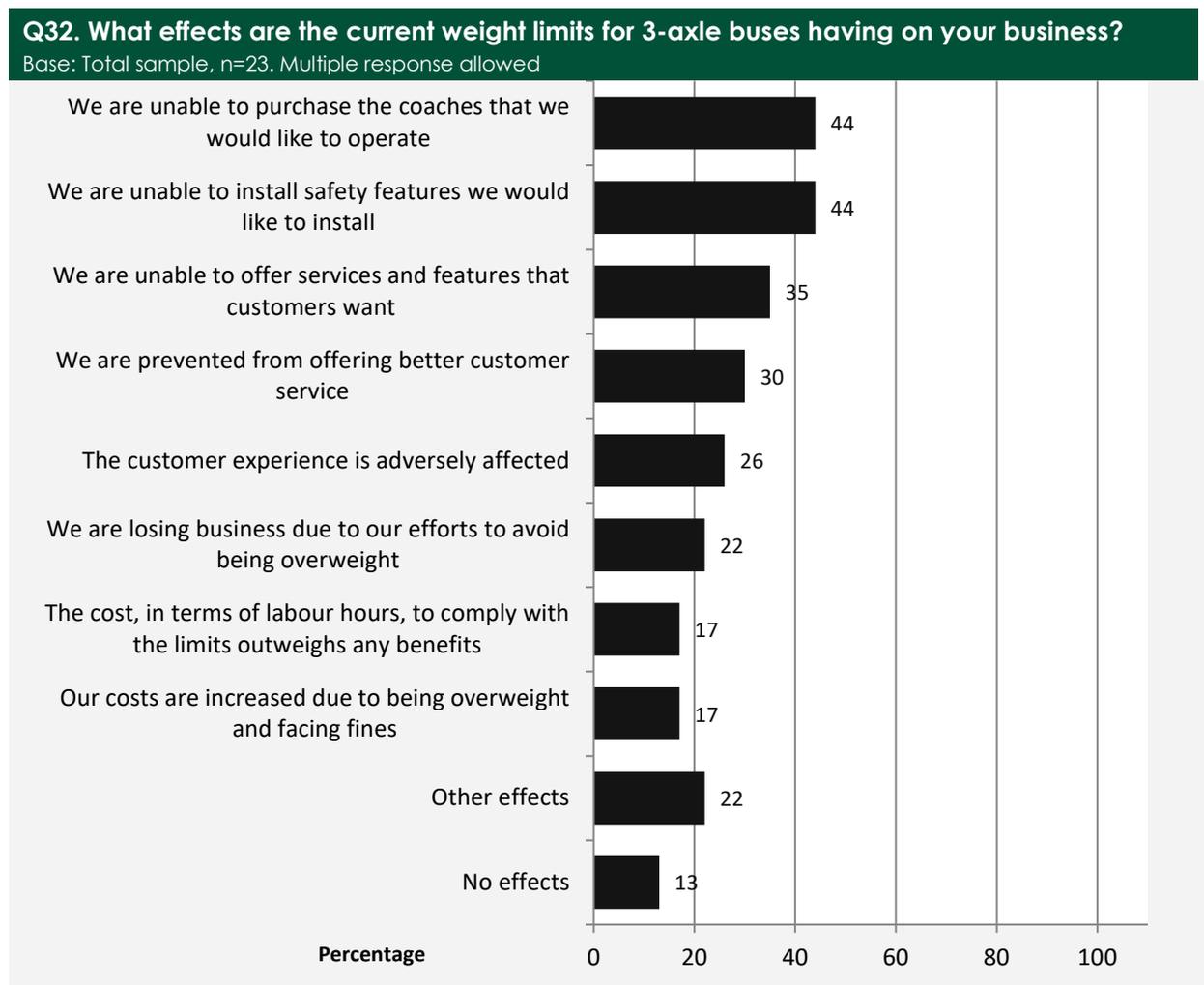
Four (17%) reported that the cost (labour hours) of complying outweigh any benefits and four (17%) that costs are increased due to being overweight and facing fines.

One (5%) indicated other effects, describing these as follows:

Operators using non-compliant vehicles operate at reduced costs therefore quote lower prices keeping rates down

Three (15%) reported that there are no effects.

Figure 10: Actions taken to limit loaded weight



5.11. Providing Further Data (Q12/13, Q38)

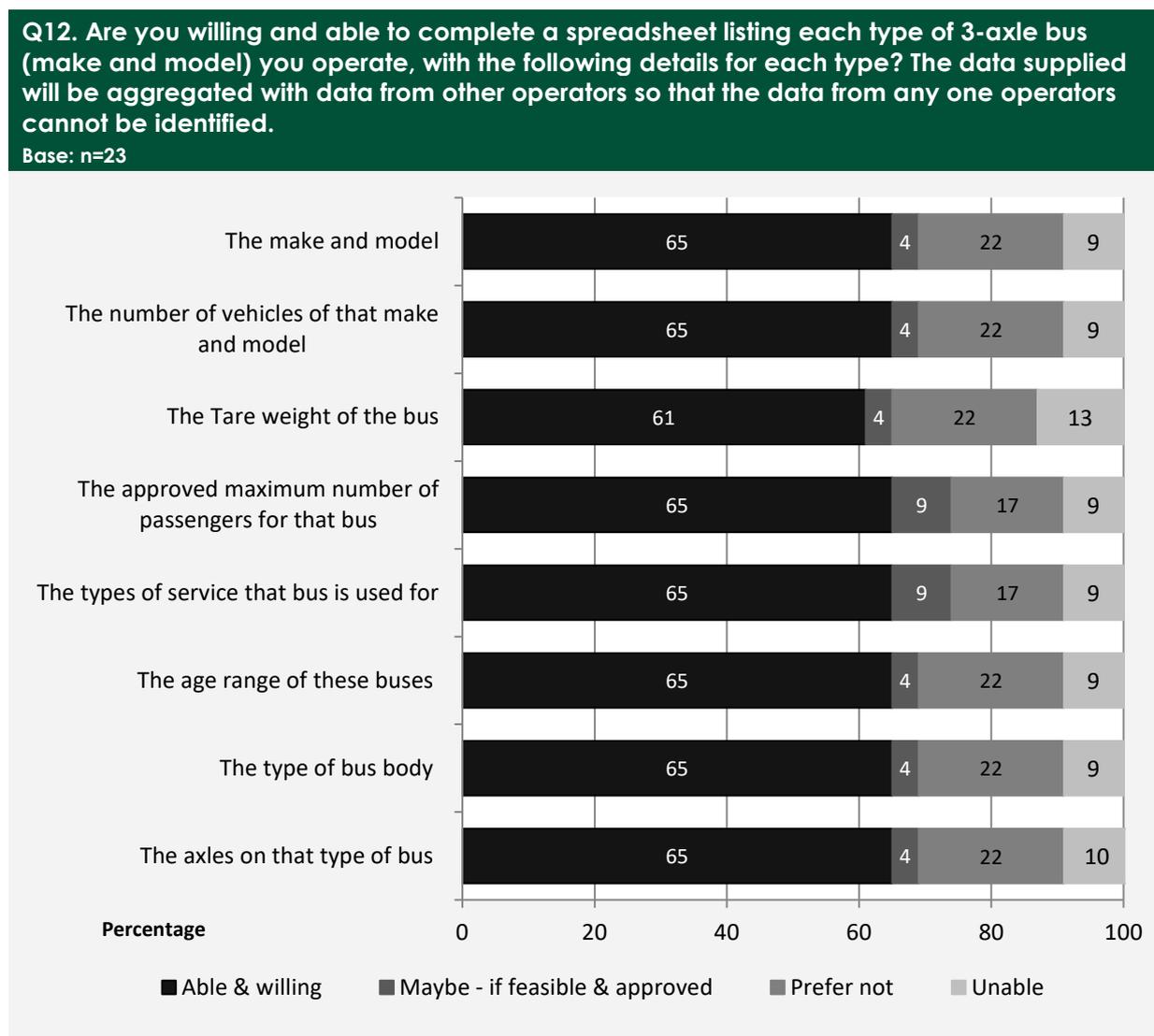
This survey is in effect a pilot study of what can be learned using the chosen data collection method (the online questionnaire) and procedures for recruiting respondents. It was clear in the TDIs that attempting to obtain detailed data about the 3-axle buses and the trips taken could not reasonably be included in the questionnaire.

Given the NTC's desire for such information, respondents were asked what data they would be willing and able to supply using a downloaded spreadsheet from a list of data items about the buses and for a possible sample of trips taken.

As shown in Figure 11, 55% to 60% of this sample would be willing and able to provide each of the data items listed about their 3-axle buses. A few (10% to 15%) would be unable to provide the data, and 20% to 25% would be unwilling to provide the data.

For some items, the data should be obtainable from registration authorities, but obtaining the data in useful form within a reasonable time period might prove difficult. A survey that obtains a larger and more representative sample of 3-axle bus operators might be a viable way to estimate each of the listed data items. Over half were willing and able to provide all the information covered (57%, 13) and another two could provide all items except the tare weight of the bus.

Figure 11: Providing data about the operator's 3-axle bus fleet



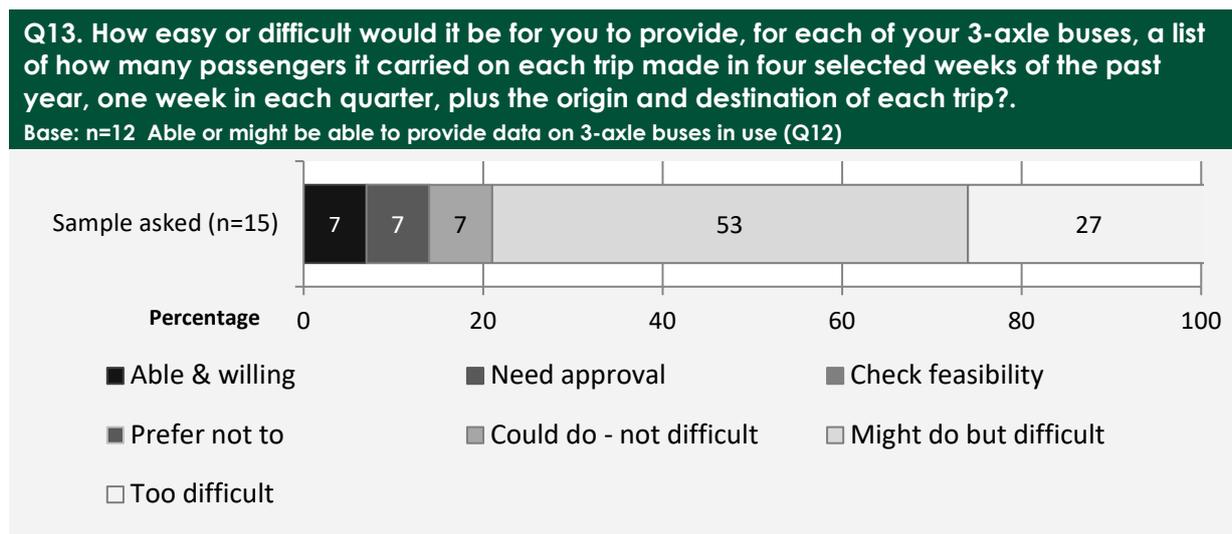
The NTC was also interested in obtaining data about the trips being made. The TDIs indicated that this would be relatively easy to obtain for those operators who largely run express

services on a fixed timetable, depending somewhat on the ease of extracting passenger numbers from accounting records.

Q13 explored in more detail an approach that might be feasible for many operators without excessive labour. The question was asked only of those who indicated that they were able and willing or might be able to provide data about their bus fleet.

From the replies (see Figure 12) it appears that obtaining the detailed data about trips taken (tare weight, origin, destination and passenger numbers) even for four selected weeks would be unlikely for most operators.

Figure 12: Providing data about the operator's 3-axle bus fleet trips



All respondents were asked to download and complete as much of a spreadsheet as they could that sought data about their 3-axle buses, and about a sample of trips. Six indicated they had downloaded the spreadsheets and would complete and submit it, and five that they would do so. However, to date only two spreadsheets have been received, and only one of these provided data about a sample of trips.

Obtaining the data sought by this means appears to be very challenging and to require much more detailed personal contact and follow up.

5.12. Spreadsheet Data

Only two spreadsheets have been received to date. One company (with only two buses) provided data on the two vehicles plus data on a sample of 39 trips. The other (with 20 buses) provided data on the buses with comments about which ones they have to take care to avoid being overweight, and highlighted three others that have been issued with infringement notices.

Clearly, obtaining the level of detailed data sought about the 3-axle bus fleet and about actual trips has not been achieved for a sufficient sample to allow firm conclusions to be drawn unless a more effective methodology for encouraging responses is adopted.

For larger companies, providing data on all trips over four selected weeks also appears likely to be too time consuming.

With telephone follow-up it might be possible to obtain data on the 3-axle buses in use from a larger sample. Obtaining data on a sample of trips might require reducing the amount of work involved in providing the data. This could be done by:

- ✧ Reducing the number of days for which data are sought, or
- ✧ Providing those with a larger number of buses with a rule for selecting a smaller sample from their fleet while still covering four weeks of operations

The data available are too limited to enable us to draw firm conclusions beyond the two companies that responded to this invitation. However, even this data is potentially instructive.

The larger company reported that two of their 20 3-axle buses have had many overweight fines, and another one was grounded overnight (at 1.30am) at Marulan. It was weighed at 21.7 tonnes, with an approved operating GVM of 20.5 tonnes. Given its maximum passenger capacity of 54, the average weight loaded per passenger (body weight plus luggage) must have been at least 100 kgs.

The other two vehicles that had been fined weigh 15.4 and 14.9 tonnes tare and can both take up to 64 passengers. To exceed the weight limit of 20.5 tonnes indicated for both buses, if fully loaded the average passenger weight would have to be at least 80 kgs (for the heavier bus) and 88 kgs for the lighter bus. Since both had been fined on multiple occasions, it appears that the weight carried per passengers has exceeded this level on multiple occasions.

This operator also indicated that care was needed with another five of the 20 buses that are described as "heavy".

The other operator reported having two 3-axle buses, one weighing 14.7 tonnes, the other weighing 16.2 Tonnes. The indicated weight limits (25.0 and 24.5 tonnes) appear higher than would be allowed, and might be the GVM that the manufacturer considered safe.

Assume that these buses had approval to run at 22.0 tonnes, and that we allow 95 kgs per passenger for the body weight plus luggage. The lighter vehicle would have to take more than 75 passengers to exceed the 22 tonne limit, and it has an approved passenger number limit of 50, so this is unlikely to ever exceed this limit. With this allowance for weight per passenger, it will not weigh more than 19.5 tonnes fully loaded. It could exceed the base limit of 20.5 tonnes if the total weight per passenger (body weight plus luggage) exceeded 116 kgs and it was carrying the maximum of 50 passengers.

The heavier bus (weighing 16.2 tonnes) would exceed the limit of 20.5 tonnes if fully loaded (50 passengers) and the average weight per passenger (body weight plus luggage) was over 86 kgs. To exceed 22.0 tonnes, the average total weight per passenger would have to exceed 116 kgs. This would be possible with a fully booked tour that involved camping out, but is probably unlikely with other types of service. Carrying 50 passengers on a camping tour might also be unlikely.

From the trip records submitted by this operator, only four trips out of a total of 39 reported trips carried the maximum of 50 passengers. All 39 of the reported trips were either tours or other charters.

No firm conclusions can be drawn from these examples about how often 3-axle buses travel over their approved weight limit. It would be quite possible for the operator with lighter vehicles to exceed the allowed weight limits if for example taking a full load on a tour with camping equipment and food in addition to the passengers and their luggage. However, this scenario might be rather unlikely to occur.

The larger operator has exceeded the limit with three of the company's 20 buses, and is exercising care to avoid being overweight with another five.

Thus it appears that for at least some operators with heavier vehicles, exceeding the current weight limits is an issue that they have to manage around.

6. Results of the Passenger Survey

This section reports results from interviews with 171 passengers taking a bus from the Sydney Bus Terminal in Railway Square and 106 passengers departing from the bus terminal at Southern Cross Station in Melbourne.

6.1. Destination

At both locations, interviews were done in the mornings when the largest number of buses were scheduled to leave. As most of the Sydney buses were Express buses to Canberra, with a stop at Sydney Airport, the bulk of those interviewed in Sydney were travelling from Sydney to Canberra. A few were travelling on another route to points on the South Coast, and one was using the bus to go to Sydney Airport.

The Melbourne sample was largely drawn from passengers travelling on Express routes to various towns in Victoria, with some (17%) travelling to interstate locations. A few (3%) travelling to the Tullamarine domestic and international airport were interviewed.

Thus the results from this sample are largely applicable to passengers who decided to use an Express bus to make a trip that otherwise takes typically less than four hours by car, and (for the Sydney sample) that can be taken by a quite short plane trip. However, the NSW bus trip is much cheaper than flying (which is not necessarily true for longer, interstate Express journeys). A substantial sub-group of the Melbourne sample were taking buses that had been chartered to replace rail services that were unable to run on that day, often due to track work.

6.2. Reasons for Travelling

The main reason given for taking the trip was most often meeting family or friends (43% and 45%).

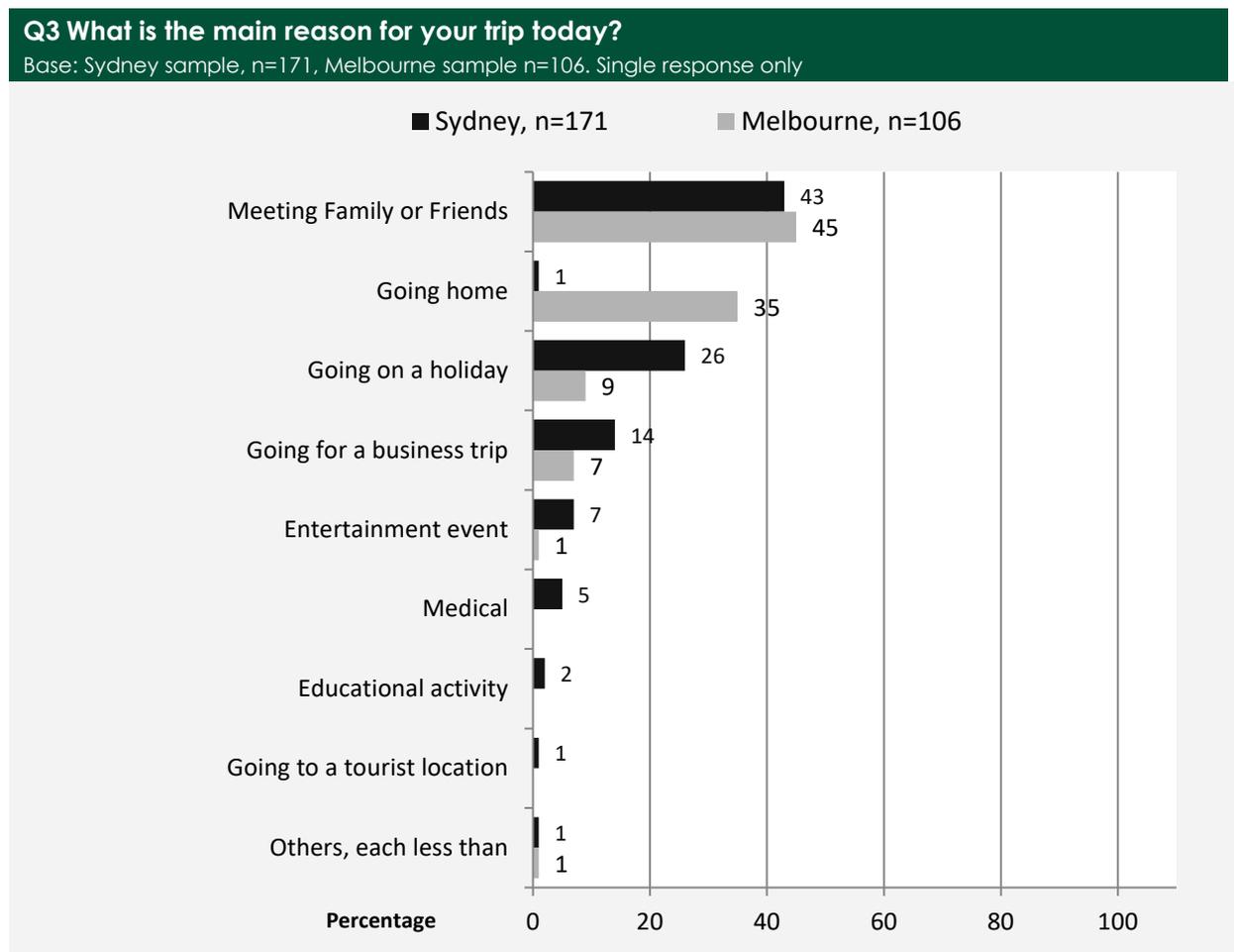
Those in Melbourne often volunteered that they were going home or returning home, while only one respondent (1%) in the Sydney sample said they were returning home from a holiday (also coded as "Holiday").

The Sydney sample was more likely to mention they were going on a holiday (26%, compared to 9% in Melbourne).

In both locations, some were taking a business trip (14% Sydney, 7% Melbourne), or volunteered that they were attending an entertainment event (7% Sydney, but only 1% in Melbourne).

A few in Sydney (and none in Melbourne) cited educational activities (2%) or going to a tourist location (1%) and only one gave another reason (under 1%).

It appears that the types of journey offered and hence the reasons for taking that journey were rather different. This might reflect the differences in reasons for travelling largely to a single destination from Sydney (to Canberra) but to multiple regional destinations in the Melbourne sample.

Figure 13: Actions taken to limit loaded weight

6.3. Reasons for Travelling by Bus

The replies to this question by those interviewed in Sydney were very different from those interviewed in Melbourne.

In the Sydney sample:

- ✧ Cost was the reason most often given (43%), followed by dislike of driving or lack of a licence or vehicle (21%), and convenience (20%)
- ✧ Comfort (15%) was the other reason given by over 10%
- ✧ A few stated that using the bus was faster or quicker than alternatives (9%) or volunteered that the bus was more relaxed or easier (7%, including a few who mentioned being able to engage in activities such as reading or using their tablet device,)
- ✧ For some the bus was the only available option (6%), or due to making travel plans at the last minute (5%)
- ✧ Small numbers considered the bus was safer than using other modes (4%), and 3 (2%) gave other replies.

These results are consistent with the views expressed in the TDIs by operators, that being cheaper than other modes, and for some journeys saving time are important motivations for choosing to travel by bus.

In the Melbourne sample:

- ✧ Over half replied that there was no other option available (52%) and another 13% that there were no trains available (which implies that they either could not or would not do the trip by driving or being driven)
- ✧ Being more convenient (14%) and comfort (7%) followed, with being cheaper at a similar level (8%) much lower than the Sydney sample (43%)

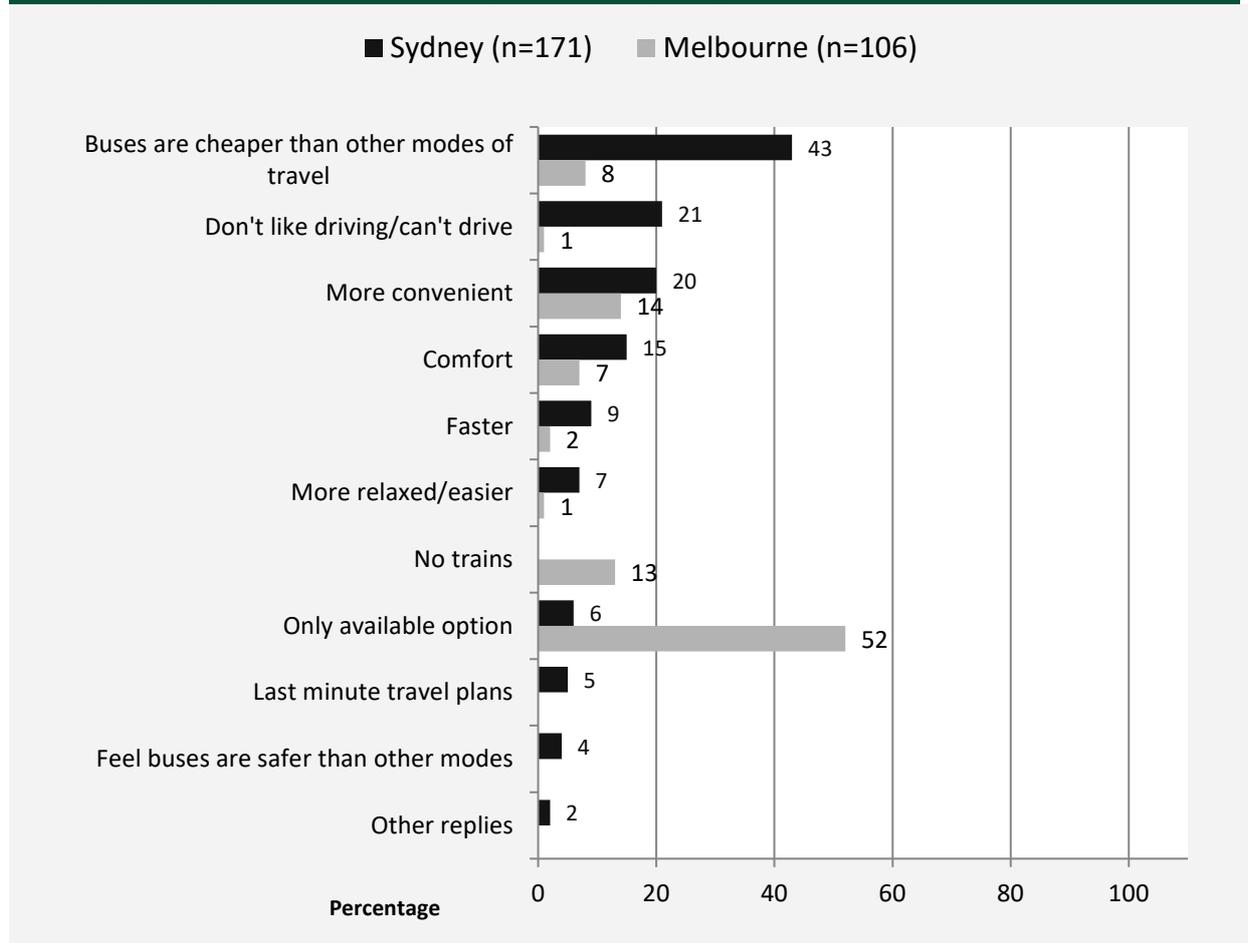
It again appears that the nature of the trips originating at each location has shaped the replies. Many services departing from the Southern Cross bus terminal were substitutes for cancelled rail services, while there were very few if any such services included in the Sydney sample. It seems likely that many of those in the Melbourne sample who replied that there was no alternative service were in fact using rail substitute bus services. While some of these might have been to metropolitan destinations, most would have been to towns outside Melbourne.

It seems likely that being cheaper than other modes might have been more often nominated by the Melbourne sample if we had asked those in Melbourne whether the bus service was a substitute for rail, and excluded those using the bus as a rail substitute. Not wishing to drive or being unable to drive might have been more frequent if those who were using a bus as a substitute for a cancelled rail service were asked why they had decided to travel by rail or a rail substitute.

Figure 14: Reasons for travelling by bus

Q4C. What are the reasons you decided to take a bus for your journey?

Base: Sydney sample, n=171, Melbourne sample n=106. Multiple response allowed



6.4. Actions if Unable to Take Bus

All passengers were asked what they would have done if not able to take this bus today to get to their destination. If they indicated they would take some other mode of transport they were then asked what other mode they would take.

As shown in Figure 15 the pattern of replies was quite different.

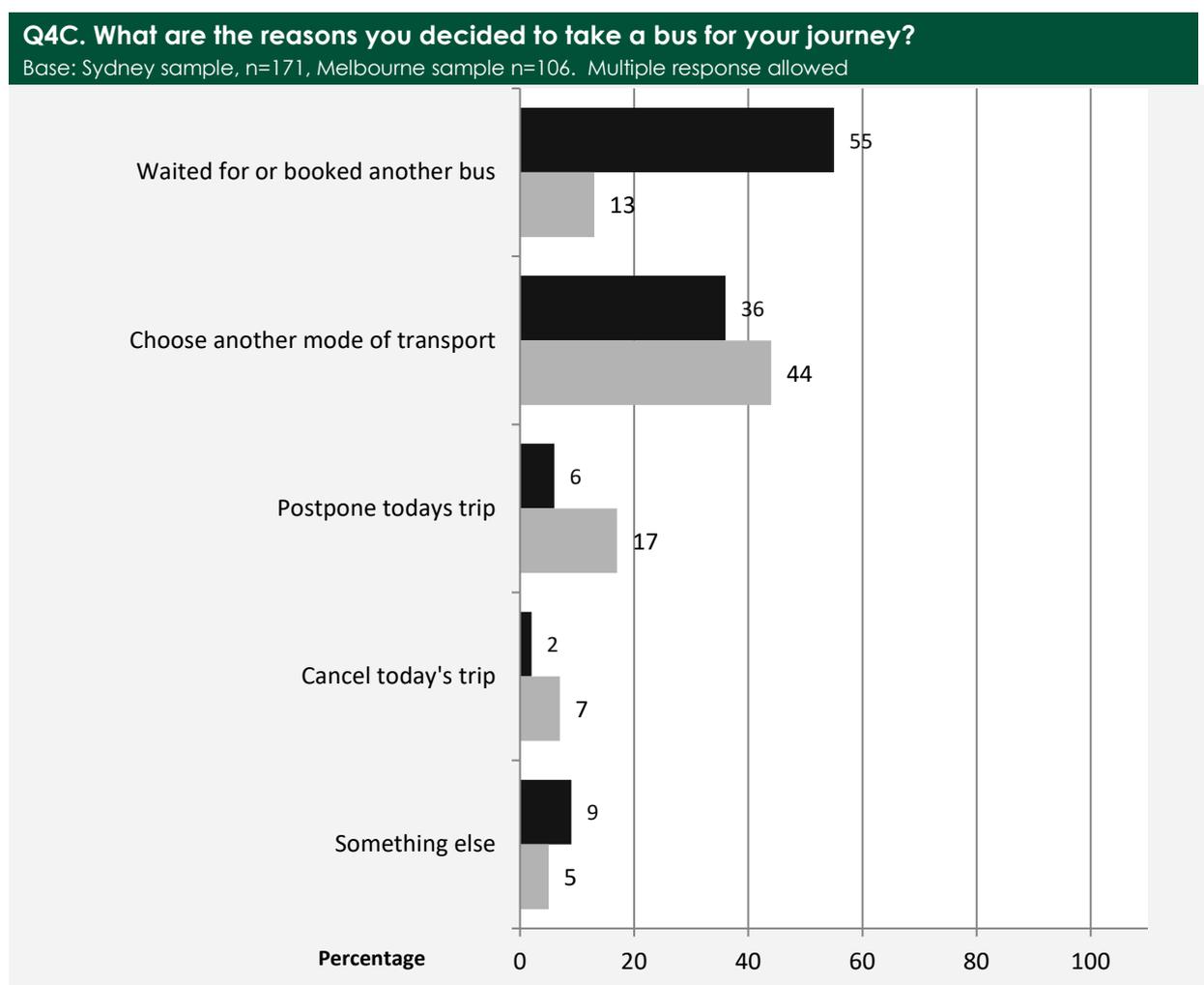
In the Sydney sample:

- ✧ The most common reply was that they would wait for or book another bus (55%).
- ✧ Over one in three (36%) would choose another mode of transport.
- ✧ Some (8%) would postpone the trip to another day (6%) or cancel the trip (2%).

In the Melbourne sample, the passengers were most likely to reply that they would choose another mode of transport (44%), with some indicating they would postpone the trip to another day (17%) or cancel the trip (7%) or would wait for or book another bus (13%).

In both samples, it appears many read the question as asking what would be done if the specific service was cancelled, rather than what they would do if buses were not available for the journey.

Figure 15: Reasons for travelling by bus

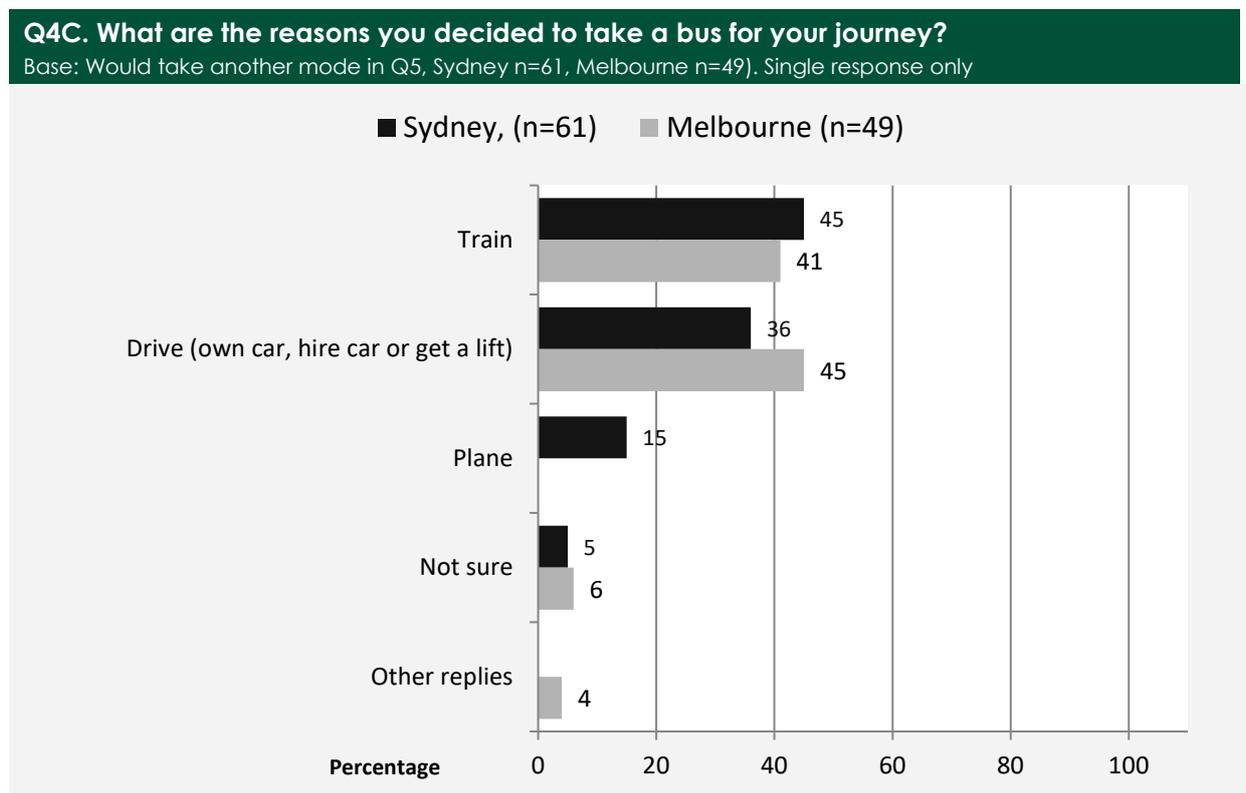


In the Sydney sample, those who indicated they would take another transport mode were most likely to say they would take a train (45%) or would drive their own or a hired car, or volunteered (36%) that they would seek a lift from a friend or relative (see Figure 16). Some (15%) would take a plane, and the others were not sure (5%).

In the Melbourne sample taking a train and driving (in their own car, hire car or getting a lift) were equally common (45%). None would take a plane, and a few were not sure (6%) or gave other replies (4%). Many of those who would drive said they would call a relative or friend for a lift (18% of the Melbourne sample, 41% of those who would switch to driving).

In both samples, the bulk of the alternatives that would be taken were either to travel by train or to drive or be driven. The high proportion in Melbourne who would call on a relative or friend to drive them perhaps reflects the high proportion who were going home, and presumably did not have a car with them.

Figure 16: Other Transport Mode Chosen



6.5. Personal and Luggage Weight

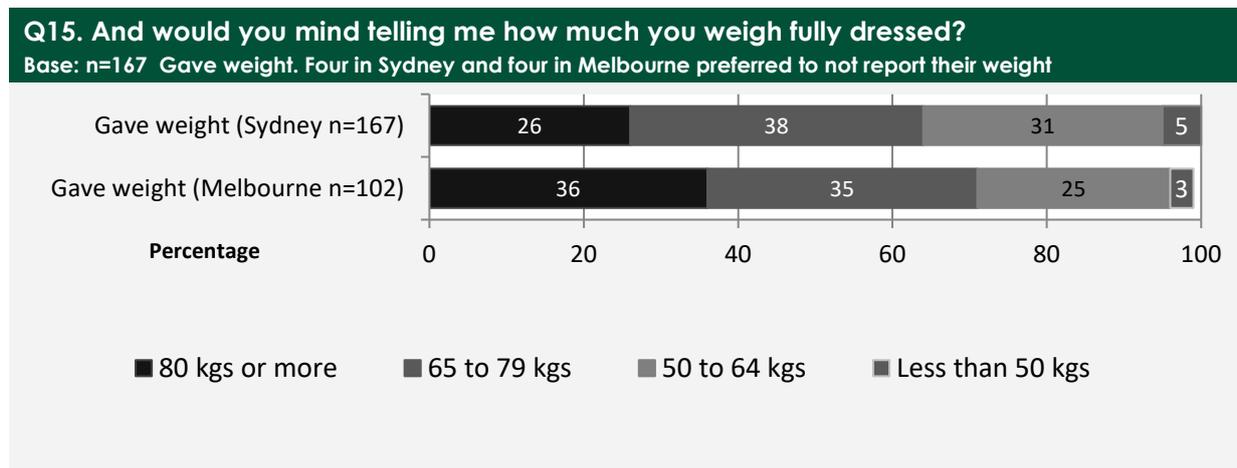
When asked to state how much they weigh fully dressed, only 2% in Sydney and 4% in Melbourne declined to reply.

Those in the Sydney sample who did reply (n=167) were more likely to report weighing 65 to 79 kgs (38%) than 50 to 64 kgs (31%), or 80 kgs or more (26%), with a few (5%) saying they weighed under 50 kgs (See Figure 17).

The proportion of passengers reporting they weigh 80 kgs or more was higher in the Melbourne sample (36% compared to 26% in the Sydney sample), with fewer in the Melbourne sample reporting they weigh under 65 kgs (29% compared to 36%).

Based on these replies, it appears that the median weight of passengers in the Sydney sample would be around 72 kgs. If those weighing under 50 kgs average around 45 kgs, and those weighing over 80 kgs average around 95 kgs, then the estimated average weight of the Sydney sample was 72 kgs. The median weight in the Melbourne sample was around 75 kgs, and on the same assumptions, the estimated average weight was around 76 kgs.

Figure 17: Passenger weight fully dressed



Among the 167 Sydney respondents who gave their own weight (see Figure 18) 43 (26%) said they had no checked-in luggage and seven (4%) that they had no hand baggage. The checked-in luggage was most often estimated to weigh under 10 kgs (37% of those reporting their own body weight) or 10 to under 20 kgs (24%), or 20 to under 23 kgs (9%) with very few reporting they had checked-in 23 to 29 kgs (3%) or 30 kgs or more (2%).

In the Melbourne sample, 38% of those who reported their own body weight said they had no check-in luggage. The checked-in luggage was estimated to weight less than 10 kgs by 23%, 10 to under 20 kgs by 31%, with few reporting checked-in luggage that weighted 20 kgs or more (8%).

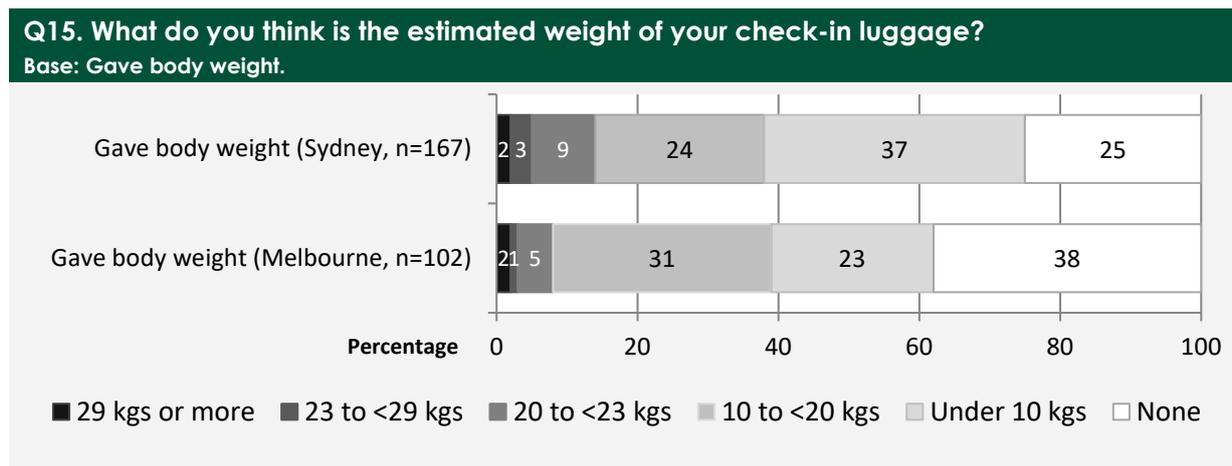
Figure 18: Weight of checked luggage

Figure 19 shows that while most of the Sydney sample were carrying some hand baggage aboard (96%), this was mostly estimated to weigh less than 5 kgs (72%) or five to under 10 kgs (24%). None of the passengers estimated their carry-on baggage weight as more than 10 kgs.

More of the Melbourne sample that had reported their own body weight had no hand luggage (22%). While some reported having hand luggage weighing under 5 kgs (24%), more reported having hand luggage weighing five to under 10 kgs (44%), with around 10% saying they had hand luggage weighing 10 kgs or more.

To estimate the total weight per passenger, it was assumed that:

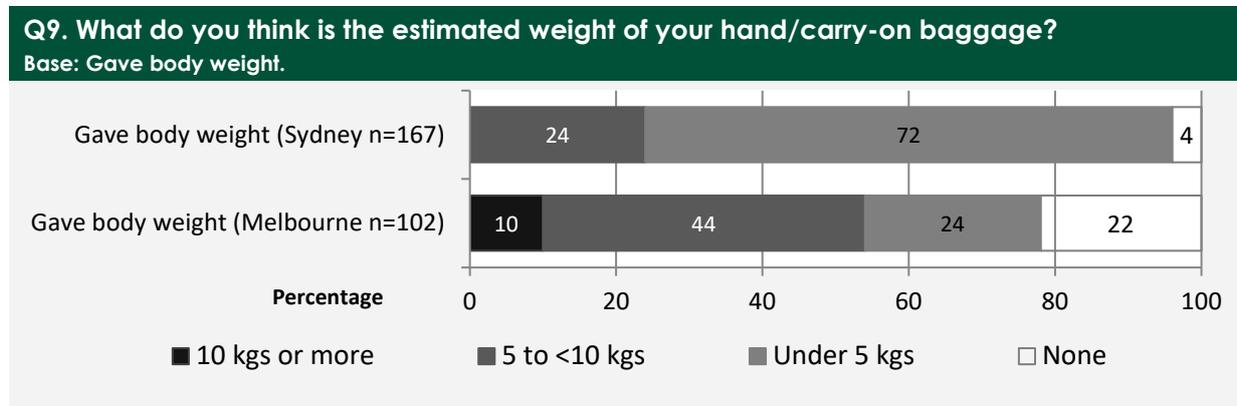
- ✧ Checked-in luggage weighing less than 10 kgs averaged 5 kgs
- ✧ Checked-in luggage weighing 10 to under 20 kgs averaged 15 kgs
- ✧ Checked-in luggage weighing 20 to under 23 kgs averaged 21 kgs
- ✧ Checked in luggage weighing 23 kgs to 29 kgs averaged 26 kgs
- ✧ Checked-in luggage weighing more than 29 kgs averaged 35 kgs
- ✧ Hand luggage weighing under 5 kgs averaged 2.5 kgs
- ✧ Hand luggage weighing 5 kgs to under 10 kgs averaged 7.5 kgs
- ✧ Hand luggage weighing 10 kgs to under 15 kgs averaged 12.5 kgs

Based on these assumptions the average total weight of those passengers providing weight estimates was 84 kgs in the Sydney sample, and 89 kgs in the Melbourne sample.

This is probably less than would be found on longer Express trips, when more passengers would have checked in luggage, and (assuming they would be staying away for longer) that their checked in luggage would be heavier. Charter trips might be rather lower (if only involving a day tour or event) or much higher (if involving a multi-night tour, and carrying food or camping equipment).

From these small samples, allowing an average body weight of 80 kgs and allowing 15 kgs for total luggage weight appears reasonable. However, these were relatively short trips with passengers mostly not being away from home overnight. Longer journeys with more passengers who have been away from home for some days will on occasions result in a bus carrying a load with the average total weight loaded per passenger being more than 95 kgs.

Figure 19: Passenger weight fully dressed



Note: No Sydney respondent estimated that their hand baggage weighed 10 kgs or more

6.6. Awareness of weight limits

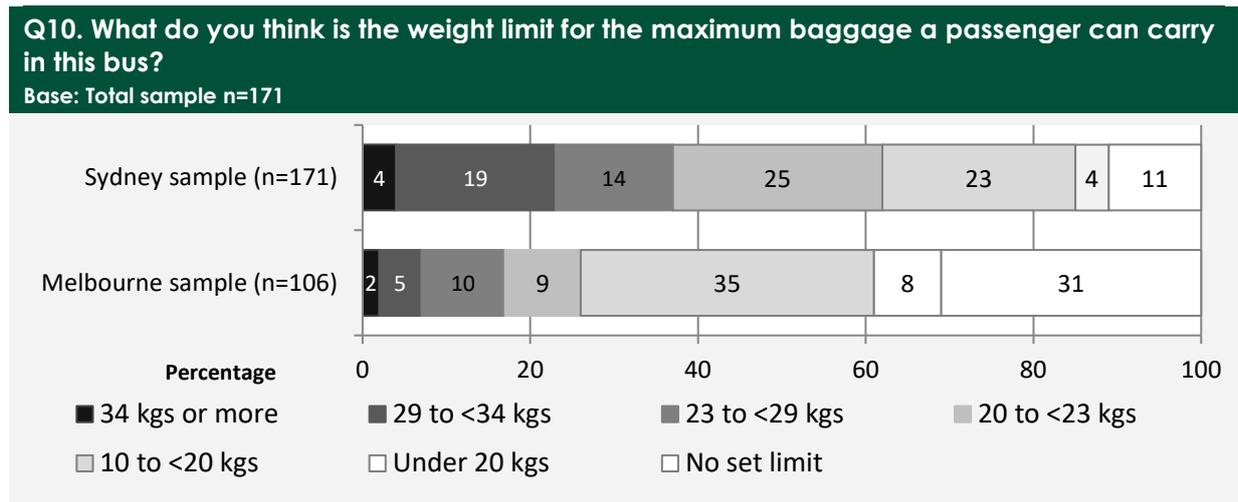
Passengers had varied opinions about the weight of luggage they can carry with them and this was rather different in the Sydney and Melbourne samples.

In the Sydney sample, estimates ranged from 11% who believed there was no set limit to 4% who believed the limit would be 34 kgs or more.

In the Melbourne sample, substantially more believed there was no set limit (31%). While this view was more common among those who indicated they were using a bus because there was no train available (42% compared to 29% of other respondents), these accounted for only 18% of those believing there was no set limit. However, others using the bus as a rail substitute who did not mention this as a reason for taking a bus might have given other replies when asked their reason for taking a bus on this trip.

If those believing there is no set limit are removed, then Melbourne respondents were more likely to believe the limit would be 29 kgs or more (63% compared to 28%) and less likely to believe it would be under 20 kgs (10% compared to 24%). There is no obvious explanation for this difference, but the results suggest that if weight limits for luggage are needed to ensure buses remain within the acceptable total loaded weight limit, that this needs to be much more actively communicated to prospective passengers.

Figure 20: Weight of checked luggage

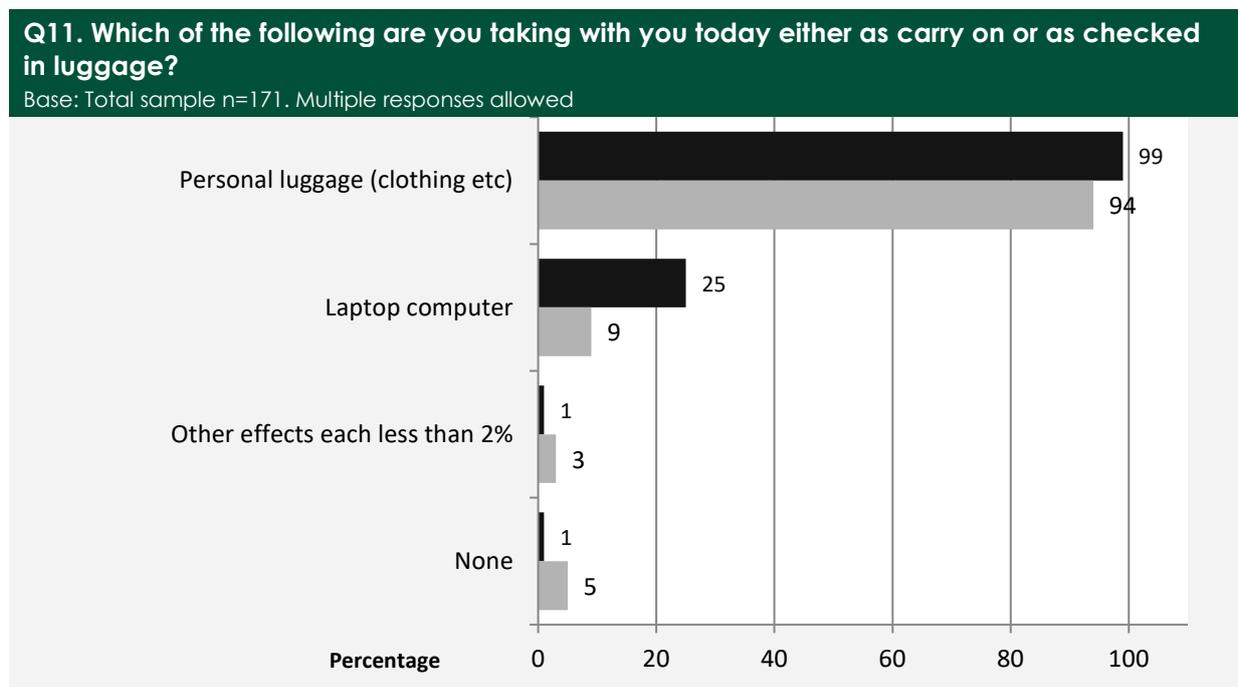


6.7. Items carried

Apart from personal luggage such as clothing (see Figure 21), the only other effects carried by more than 1% of these respondents were a laptop computer (25% of Sydney respondents, but only 9% of Melbourne respondents).

These responses are quite consistent with the limited range of reported weights of hand baggage. Less than 10% of Sydney respondents and none of the Melbourne respondents reported carrying any sporting equipment. In the Sydney sample, one had a wheelchair, one a musical instrument, and none had anything else weighing more than five kgs. In the Melbourne sample, one had a wheelchair, and 2 had a musical instrument.

Figure 21: Other Transport Mode Chosen

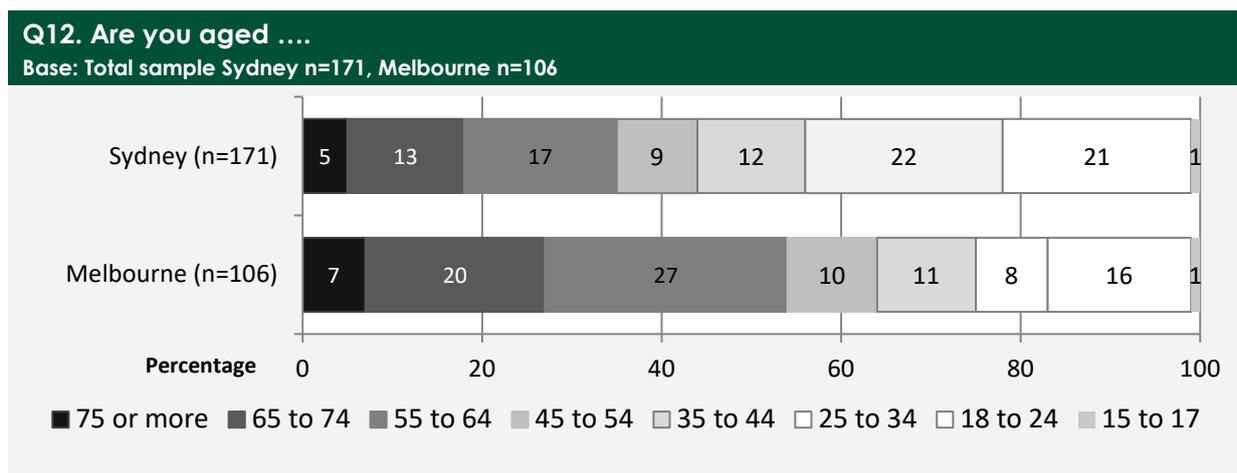


6.8. Personal Characteristics

Over half the passengers were female (59% in Sydney and 66% in Melbourne).

Ages varied from 15 to 17 up to 75 or older (see Figure 22), with the median age being around in the Sydney sample, and 56 in the Melbourne sample. The most common age ranges in the Sydney sample were 18 to 24 (21%) and 25 to 34 (22%), which is consistent with the suggestion younger people are particularly likely to take express buses at least in part because they are cheaper than alternatives. However, the Melbourne sample was rather older: the most common age ranges were 55 to 64 (27%) and 65 to 73 (20%) although there were 16% in the narrower aged 15 to 17 age range.

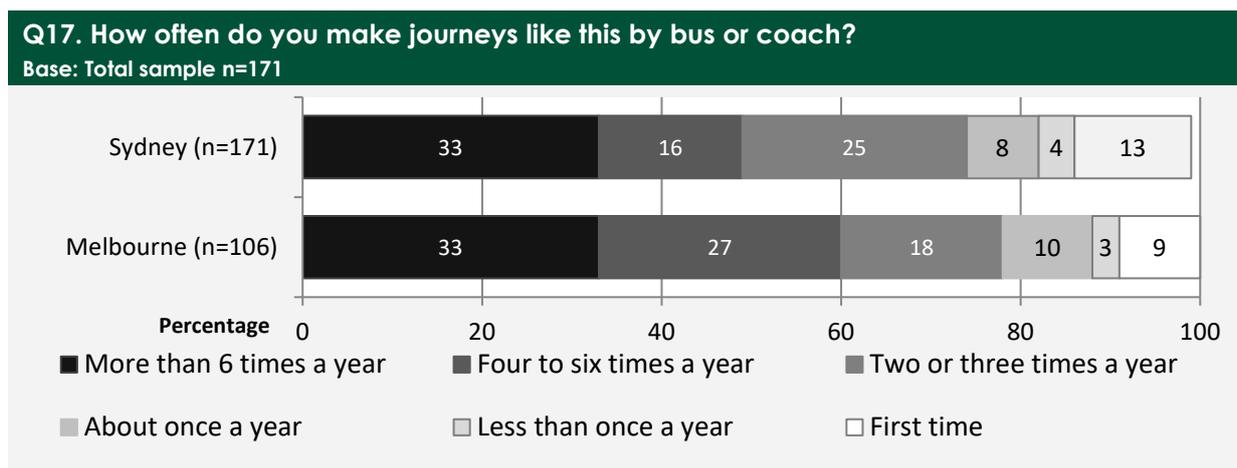
Figure 22: Age distribution



The frequency of travelling by bus or coach (see Figure 23) was also highly varied, ranging from those making such a trip for the first time (Sydney 13%, Melbourne 9%) to those who do so more than six times a year (Sydney and Melbourne both 33%).

Note that more frequent travellers will be over-represented in any sample of people making a trip on a particular day, as more frequent travellers are more likely to be aboard on any one trip.

Figure 23: Frequency of bus or coach travel



Even when shown images of 2-axle and 3-axle buses, 28% of the Sydney sample and 58% of the Melbourne sample said they did not know whether buses they use were 2-axle or 3-axle buses.

7. Conclusions

This review of available literature, Telephone Depth Interviews, and online and in-situ surveys, provides some insight into the issues affecting the operation of 3-axle passenger buses, and the role of existing weight limits in this.

However, the study must be viewed as exploratory and as piloting what might be achieved with some change in methodology for obtaining quantitative data.

The key arguments made by respondents for a review of the weight limits are:

- ✧ Widely recognised increases in both the tare weight of vehicles and the loads carried result in operators having to take a range of actions to limit the total loaded weight of their 3-axle buses
- ✧ The increases in tare weight are, as previous reports have pointed out, due to installation of additional equipment to meet:
 - Rising safety standards
 - Anti-Discrimination Act requirements
 - Customer convenience and comfort requirements
- ✧ Increases in load weight are due to:
 - Increased average body weight of passengers
 - Increased weight of passenger luggage and carry-on effects
- ✧ Operators also argued that:
 - With the installation of modern safety equipment and improved suspensions, buses weighing up to the safe limits set by manufacturers do not do more, and possibly do less damage, to pavement than older buses without such equipment
 - The improvements to the vehicles result in the heavier modern vehicles being as safe or safer in terms of stopping distances and manoeuvrability than older, lighter vehicles
 - The weight limits for buses are well below those allowed for heavy freight vehicles, which respondents believe will make a larger contribution to pavement damage

Additional points that emerged include:

- ✧ While some operators set limits on the weight of luggage and personal effects that a passenger can bring onto the bus, it can be difficult to enforce these limits effectively and doing so can adversely affect some passengers (e.g., those travelling from overseas, those carrying equipment for sporting holidays)
- ✧ The gap between the increased tare weight and the current regulated weight limits results in operators taking a range of actions to limit the total weight of their loaded 3-axle buses

- ✧ Reducing the number of passengers to ensure weight limits are not exceeded can result in either...
 - Fare increases to maintain margins from a smaller number of passengers, or
 - The buses operating on reduced margins and becoming less competitive with 2-axle buses
- ✧ The increase in tare weight and loads can result in exceeding the regulated weight limits for 3-axle buses
- ✧ Some operators report having been issued with infringement notices and penalties
- ✧ Some of those who have been issued with infringement notices have challenged these successfully in court by arguing that the infringing load was in fact not unsafe
- ✧ Most (but not all) of those reporting they had received infringement notices received these in NSW; one reported being fined in South Australia (twice) and the Northern Territory (once)
- ✧ Most of the operators interviewed or completing the online questionnaire identified a range of adverse consequences from the current weight limits for both operators and passengers
- ✧ A least one reported terminating a route that could not be operated profitably while staying under the current weight limit
- ✧ Another reported disposing of all 3-axle buses and switching to 2-axle buses for charter operations to take advantage of the greater load that can be carried on 2-axle buses since the weight limit for these buses was last raised
- ✧ Two operators who previously ran 3-axle buses had disposed of these for commercial reasons unconnected with the weight limit and the rising weight of 3-axle buses
- ✧ Thus, while the reduced operating margins for more modern 3-axle buses given the current weight limit might be a factor in reducing use of these vehicles, other commercial pressures connected to higher capital and operating costs and changes in the market for these larger-capacity vehicles also contribute to the decision to dispose of them

While we cannot draw firm conclusions about how prevalent these issues are among those operating 3-axle buses (or that might operate them if the weight limit was raised), it is clear that there are operators and passengers who are adversely affected. There is also potential for loss of bus services or reductions in capacity if the 3-axle weight limits are not increased.

Any increase in the weight limits must allow for the added weight of seatbelts, air conditioning, ABS braking systems, toilets and possibly for wheelchair lifts and associated changes to the bus chassis, and allow a margin for further increases as additional safety gear becomes more prevalent.

An increased limit also needs to allow for the increased weight of passengers, and possibly of passenger luggage and effects. A total of at least 95 to 100 kgs per passenger (80 kgs body weight and at least 15 kgs and perhaps up to 20 kgs for luggage and personal effects), could be justified.

However, the sample of 171 passengers interviewed at the Railway Square bus terminal in Sydney were estimated to weigh 72 kgs on average and those interviewed at the Southern Cross Station bus terminal in Melbourne to weigh 76 kgs on average. Many did not have any checked in luggage (although this might be due to most taking the relatively short trips, to Canberra for nearly all the Sydney sample and to regional towns in Victoria for most of the Melbourne sample). Taking into account the reported weight of checked-in luggage and what was taken on-board into the bus cabin, the average total weight per passenger for these respondents was estimated to be around 84 kgs in the Sydney sample and 89 kgs in the Melbourne sample.

It is likely that on other types of bus trip, the average weight per passenger will be higher, especially on longer trips and multi-night charters, when all will have checked-in luggage. However, it appears that allowing an average body weight of 80 kgs and 15 or 20 kgs for average total luggage will ensure that few buses will travel over an increased limit.

Better evidence would be obtained by collecting observations of the actual total weight for a diverse sample of buses making different types of trip, using on-board scales included in many newer vehicles and a recording the number of passengers carried when the weight read out was recorded.

The operators who took part in the study almost all believe that the risk of adverse consequences for safety or pavement damage is low. Most believed that an increase in the limit is justified and will reduce a range of adverse consequences for operators and passengers.

One of the key methodological issues with the current study is that those who completed the online survey might be skewed to over-represent those companies that operate 3-axle buses that strongly favour an increase in the regulated weight limits. The small sample that completed the online survey (23), given the relatively large number of potential respondents who logged in and then did not continue with the survey (194) suggests that either:

- ✧ Most companies now do not operate these vehicles and so their managers decided the survey was not relevant for them or were screened out, or
- ✧ We were mostly able to attract those with concerns about the weight limit to complete the survey.

Even if the survey sample is skewed toward those operators of 3-axle buses that are more likely to seek a weight limit increase, it is clear from the results that a number of operators find the current limit generates a range of difficulties for their operations, including for some:

- ✧ Placing limits on the numbers they carry, and/or
- ✧ Enforcing limits on the weight of luggage that passengers can have with them on a trip, and possibly turning passengers away

Only one operator reported having cancelled a route due to the weight limit making that route unprofitable. However, as operators replace older 3-axle buses they will have to decide whether to acquire modern, safer but heavier 3-axle buses, or to replace older 3-axle buses with 2-axle buses. Keeping the current the 3-axle weight limits will be likely to tip this decision toward acquiring 2-axle buses. It is also possible that, if operators adopt newer 3-axle buses, this will further restrict the routes they can profitably operate unless there is a weight increase.

8. Appendix 1. The Interview Guide

- NTC is reviewing the weight limit for three axle buses.
 - Have you any comments on the review?
 - What risks are there if the limit is increased? For operators? For the industry? For the community? PROBED FOR SAFETY AND PAVEMENT DAMAGE
- Currently, we understand that three axle passenger buses are not authorised to carry freight. Some might travel well under the weight limit, especially if it is raised.
 - What are the pros and cons of carrying freight for the 3 axle buses that you operate?
 - On balance how interested are you in carrying freight to supplement ticket sales?
- About the 3-axle buses you operate (PROBE FOR ANY PROBLEMS IN PROVIDING THE REQUESTED DATA, AND FOR THE FORM THAT THE DATA CAN BE PROVIDED IN TO CLARIFY WILLINGNESS, AMOUNT OF WORK/BURDEN INVOLVED, AND DATA FORMATS]:
 - How many are there?
 - What types of service do you use them for?
 - Can you give me a list with:
 - The tare weight of each bus
 - The approved maximum number of passengers for each bus,
 - Can you give me a list of the routes they use?
 - How easily can you add to that list of the 3-axle bus routes you use
 - The origin and destination of each route
 - The number of 3 axle buses you have on each route
 - The number of trips made on each route, say over a typical week or some other specific period
 - Data on the passenger numbers per trip
That might be over a typical week, or for some other specific period
 - Are there approved routes you have to avoid due to weight limits on bridges or roads?
 - Have you ever requested access permits? IF YES How easy or difficult was the process? What were the difficulties, if any?
- What can you tell me about:
 - We know that the weight of adults is increasing. How does the weight of your passengers compare to the general population – lighter, about the same, heavier, you don't know?
 - The weight of passenger effects and luggage?
 - Weight added to the buses due to additional equipment like air conditioning or wheelchair lifts?
 - What passengers can have stowed in luggage compartments, and what passengers can bring on board?
 - The demographics of people who are passengers on your 3 axle buses – the mix of males and females, the mix of ages
 - The impact on the public if there was a reduction in services?
 - The impact on the public if there was an increase in services?
 - How often do your of 3 axle buses currently run overweight? [PROBES]
 - What, if anything, are you doing to reduce the chance of running overweight?
PROBE FOR REDUCING PASSENGER NUMBERS, SHIFTING LOAD BALANCE, LIMITS ON LUGGAGE WEIGHTS, ANYTHING ELSE?

- What impact that is having on industry and passengers?
 - What cost impact does that have on operators like you?
 - [IF BUSES ARE RUNNING OVERWEIGHT] What are the consequences for your business/organisation of buses currently running overweight?
 - IF FINES NOT MENTIONED Have you had to pay fines?
 - [IF BUSES ARE OVERLOADED AND BEING FINED] How much, how often and where are these fines most commonly occurring?
 - What were you carrying on the buses that were fined for being over the weight limits?
 - What have you done as a result of being fined?
 - What information do you have about the weight of different types of equipment that is now being fitted on your 3-axle buses?
 - Explore the impact of compliance with the Disability Discrimination Act
 - IF IN OR OPERATES IN NSW/VIC:
 - The impacts of the weight increase for 3 axle buses in NSW?
 - The effects of the requirements for new brake systems to be allowed to run at the higher weights?
- Have you applied for a PBS (Performance Based Standard) approval for any of your 3-axle buses? What prompted you to apply? What difficulties were there, if any, with the process?
- Are you planning to buy more 3-axle buses?
- IF YES: What types are you looking at – Double Decks, Articulated, Low floor etc
- Where are your bus bodies finished off – in Australia or before the buses are imported?
- Who does this finishing work? Can you send me contact details? We might need to talk to them about the weight of added equipment.
- How long do you keep 3-axle buses in service?
- How do you dispose of them?
- IF SELL THEM TO OTHER OPERATORS: Who do you sell them through? Can you send me contact details for them? They might be able to give us contact details for some of the smaller operators who use second hand vehicles.
- Taverner will be conducting an online survey of operators.
 - What would be the best way to invite operators like you?
 - If you had not talked to me today in such detail, would you be willing to do an online questionnaire
 - What could be mentioned in the invitation that would encourage you to do such a survey?
 - Would you be able and willing to upload a file with a list of the routes used by your 3 axle buses, with data on times of day, trips per day, and passenger numbers, if asked to do that in the online survey?

9. Appendix 2. The Online Operator Questionnaire

***INTRO SCREEN

Thank you for taking part in this online survey - it should take 10 to 15 minutes for you to complete.

Please read each question and follow the instructions to record your replies. Some questions may also ask you to type in a comment. This survey is best viewed in full screen.

Please read the instructions and our privacy policy below before continuing.

Instructions

For each question you will be required to click one or more boxes or type in your answer in the box provided.

Please do not use the browser's **FORWARD** and **BACK** buttons at any stage, instead use the **NEXT** button within the survey to move through.

Who are we/Privacy Policy

Taverner Research, an independent market research company abides by the Code of Professional Behaviour of the Australian Market & Social Research Society (AMSRS). If you have any questions, please email survey@taverner.com.au. You can also check that Taverner is an accredited research agency shown on the list of accredited companies on the Market and Social Research Society website at <http://www.amsrs.com.au/directory-all/listing/?range=T&pageNo=0>. (Our apologies if this link is a bit slow to load).

To view our Privacy Policy, please click <http://www.taverner.com.au/surveys/pol.htm>

Thank you in advance for taking part.

Please click 'Continue' at the bottom of the screen to continue.

The aim of this survey is to provide the National Transport Commission (NTC) with data that it needs to better understand how 3-axle buses contribute to the transport task across Australia. The data will be used to inform the Commission's assessment of the appropriateness of the gross mass limit for 3-axle buses..

Your responses to this survey will go to Taverner Research, an independent market and social research company.

Reports of results to NTC will not identify any individual respondent or company.

The data collected from this survey will help the NTC develop options to address any issues raised. We will be seeking public, industry and government feedback on these options before proposing changes to road and transport ministers.

Please answer all items as fully and openly as you can.

Please click NEXT below to continue.

Q1. In your opinion is a review and adjustment of the national weight limits for 3-axle buses...

1. Not really needed
2. Worth doing, but not an urgent priority
3. Urgently required

Q2. Your reasons for saying that are ...PLEASE TYPE IN THE BOX BELOW

Q3. In your opinion, will increasing the weight limit for 3-axle buses without exceeding the manufacturer's indicated maximum safe GVM....

CLICK ON ALL RESPONSES THAT APPLY

1. Risk increased damage to road surfaces
2. Increase the risk of accidents or injury to other road users
3. Increase other risks
4. Involve no added risks

IF 1-3 IN Q3 GO TO Q5.

IF 4 IN Q3, GO TO Q7

Q5. How serious would these increased risks be?

1. Negligible
2. Minor
3. Moderately serious
4. Serious
5. Very serious

Q6. How might these risks be reduced or removed?

PLEASE TYPE YOU ANSWER IN THE BOX BELOW

Q7. How many 3-axle buses does your company operate?

TYPE NUMBER IN BOX BELOW

|_|_|_|

IF NONE IN Q7 GO TO Q99END

Q8. Which of the following States and Territories do you operate 3-axle buses in?

MULTI RESPONSE

1. NSW
2. Victoria
3. Queensland
4. South Australia
5. Western Australia
6. Tasmania
7. ACT
8. Northern Territory

Q9. What types of service do you use 3-axle buses for?

PLEASE CLICK ON ALL SERVICE TYPES THAT YOU OFFER USING 3-AXLE BUSES.

1. Scheduled express services between destinations in one State or Territory (mainly metro to metro)
2. Scheduled express services between destinations in one State or Territory (mainly regional)
3. Scheduled express services between destinations in different States or Territories (mainly metro to metro)
4. Scheduled express services between destinations in different States or Territories (mainly regional)
5. Charter buses for rail replacement services
6. Charter our buses to other operators (e.g. tour providers and operators etc.)
7. Charter our buses to other groups (e.g. sporting/cultural groups)
8. Other services (SPECIFY)

Q10. Which of the groups listed below are among your clients for services provided by 3-axle buses? PLEASE CLICK ON ALL THAT APPLY

1. People travelling within a city
2. Rail operators for rail replacement services
3. People travelling between towns and cities within one State or Territory
4. People travelling between towns and cities in different States or Territories
5. Tour businesses
6. Schools
7. Community service groups or clubs
8. Businesses to take staff to special events
9. Government organisation to take staff to special events
11. Other types of client (SPECIFY)

Q11. Are you willing and able to complete a spreadsheet listing each type of 3-axle bus (make and model) you operate, with the following details for each type? The data supplied will be aggregated with data from other operators so that the data from any one operators cannot be identified.

PLEASE CLICK ON ONE ANSWER FOR EACH OF THE DETAILS LISTED BELOW.

DETAILS SOUGHT

1. The make and model
2. The number of vehicles of that make and model
3. The Tare weight of the bus
4. The approved maximum number of passengers for that bus
5. The types of service that bus is used for
6. The age range of these buses (up to 3 year, 4-5 years, 6-10 years, 10-15 years, over 15 years)
7. The type of bus body (Low floor, High floor, Double deck, Articulated)
8. The types run on that type of bus (single on all axles, Super single on tag axle, Dual on any axle)

ANSWER OPTIONS FOR EACH INFORMATION CATEGORY

1. Able and willing to do this
2. Maybe - need to check feasibility and gain approval
3. Prefer not to provide any of these details
4. Unable to provide any of these details

IF 3 OR 4 IN Q11.1 OR Q11.2 OR Q11.3 GO TO Q13

Q12. How easy or difficult would it be for you to provide, for each of your 3-axle buses, a list of how many passengers it carried on each trip made in four selected weeks of the past year, one week in each quarter, plus the origin and destination of each trip?

1. Would not be able to do this – too difficult and time consuming
2. Might be able to do this, but it would be difficult
3. Would be able to do this without too much difficulty
4. Could do this but would prefer not to
5. Have to check on feasibility
6. Have to get approval
7. Able and willing to do this without difficulty

Q13. Do you ever have to avoid certain routes because of weight limits on roads or bridges?

1. Never
2. Rarely – no more than twice a year
3. A few times (3 to 5) per year
4. More often

IF 1 IN Q13 GO TO Q15.

Q14. Please type any details you can about where this has happened into the box below.

Q15. Have you found requesting an access permit to operate a route with a 3-axle bus over the current allowed loaded weight limits to be ...

1. Difficult to provide the required information
2. Difficult to obtain approval from one or more of the relevant authorities
3. Not worth trying
4. Not needed to do this

Q16A. It has been suggested that weight limits for 3-axle buses be increased to allow for passengers to weigh 80 kgs on average, with on average 20 kgs of stowed luggage and personal effects.

In your experience, would this be ...

1. More than needed to cover the total weight of passengers and their effects on all trips
2. Just enough, but might not cover the weight of all passengers and their effects on every trip
3. Definitely not enough to cover the weight of all passengers and their effects on all trips
4. Not sure

Q16B. Would increasing the weight limits as suggested lead you to ...

1. Buy bigger or heavier buses
2. Carry more passengers than you do now
3. Install additional safety equipment and systems
4. Make it easier to avoid being fined for being over the weight limit
5. Have some other effect
6. Make no change in how we use 3-axle buses

IF 5 IN Q16B SHOW Q16C. OTHERS GO TO Q17

Q16C. Please list these other effects in the box below.

Q17. Which of the following equipment do you have on your 3-axle buses?

PLEASE CLICK ON ALL THAT YOU HAVE ON HALF OR MORE OF YOUR 3-AXLE FLEET.

1. A wheelchair lift and associated glass panelling?
2. Air conditioning
3. ABS (Advanced Braking System)
4. ESP (Electronic Stability Program)
5. Automatic Emergency Braking System (AEB)
6. Lane departure warning
7. Front or rear cameras
8. Telematics
9. DFW (Driver Fatigue Warning) monitoring eye movements
10. ASR (Acceleration Skid control)
11. Tyre Pressure Monitoring
12. Proximity Control
13. Rain and light sensors
14. GPS navigation
15. Brake Assist
16. Fire detection and suppression controls
17. Scale to measure vehicle weight
18. Other equipment required to meet the Anti-Discrimination Act
19. Seatbelts
20. Toilet
21. Water tank for drinking water
22. None of these

**Q18 ABOUT THE WIEGHT OF ADDED EQUIPMENT WAS FOUND TO BE TOO DIFFICULT AND WAS THUS DROPPED AFTER OBTAINING THE FIRST FEW COMPLETED RESPONSES.

Q19A. As you renew your fleet of 3-axle buses over the next ten years, which (if any) of the following features will you consider installing?

1. Electric motor in place of diesel
2. Hybrid electric motor plus diesel
3. Driverless or autonomous vehicles
4. Double deckers
5. Articulated buses
6. Seek PBS permit for features that would not meet revised weight limits
7. None of these

Q19B. What is the average distance travelled by your 3-axle buses on a single trip?

1. Under 20km
2. 21 to 50km
3. 51 to 200km
4. 201 to 500 km
5. Over 500km
6. Unsure

Q20A. How do you assess the loaded weight of your 3-axle buses?

1. Have scales installed in all buses that read out weight to the driver
2. Have scales installed in some buses that read out weight to the driver
3. Know the tare weight and estimate GVM from number of passengers
4. Assess the loaded weight in some other way
5. Cannot assess the weight unless put over a weigh bridge at an inspection station

Q20B. What actions do you take to avoid being over the approved weight limit for your 3-axle buses?

1. Seek approval for increased weight limit on some routes or for some trips
2. Drivers check weight read out and do not depart until bus is within legal limit
3. Have limits on weight of stowed luggage, and driver checks luggage that appears over weight
4. Turn passengers away if likely to be overweight
5. Take other action to avoid being overweight
6. Do not take any specific action to ensure buses are not overweight
7. Do not need to take any action, as these buses will always be within the allowed limit even when fully loaded

IF 5 IN Q20B SHOW Q21. OTHER GO TO Q22

Q21. Please type the details of the other actions you take in the box below.

Q22. Which, if any, of the following steps do you take to limit the total loaded weight of your 3-axle buses?

MULTI RESPONSE

1. Carry fewer than the approved number of passengers
2. Limit the weight of stowed luggage passengers can take with them
3. Request passengers to keep the weight of their stowed luggage and carry-on personal effects under specified limits, but not enforce these limits
4. Ask passengers to sit in specific parts of the bus to limit the load on some axles
6. Take other actions
7. Do not take any action to limit total loaded weight

Q23A. Roughly what percentage of your 3-axle but trips would be fully loaded?

1. Under 10%
2. 10% to under 20%
3. 20% to under 30%
4. 30%to under 40%
5. 40% to under 50%
6. 50% to under60%
7. 60% to under70%
8. 70% to under80%
9. 80% to under90%
10. 90% or more
11. Unable to say

Q23B. In what percentage of your trips do you suspect that your 3-axle buses would be over their approved weight limit?

1. Under 10%
2. 10% to under 20%
3. 20% to under 30%
4. 30%to under 40%
5. 40% to under 50%
6. 50% to under60%
7. 60% to under70%
8. 70% to under80%
9. 80% to under90%
10. 90% or more
11. Unable to say

Q24. Have you had to close down any routes because the service cannot be operated without loss if kept within currently allowed weight limits?

1. No
2. One or two services
3. 3 or 4 services
4. 5 or more services

IF 1 IN Q24 GO TO Q26

Q25. What effect has this reduction of services had on the people who were using those services?

MULTI RESPONSE

1. Some are unable to make those trips
2. Some passengers continue to make those trips but by using more expensive or less convenient forms of transport
3. I don't know what effects that has had on passengers

Q26. In the past year, how often have your 3-axle buses been issued with infringement notices imposing fines for being over the allowed weight limit?

1. Never
2. Once
3. Twice
4. Three to five times
5. Five to nine times
6. Ten to nineteen times
7. Twenty or more times

IF 1 IN Q26 GO TO Q28

Q27. What caused you to be overweight on those occasions?

MULTIPLE RESPONSE

1. Passengers were well above the assumed 65 kgs average weight
2. Passenger luggage and effects weighed well over 15 kgs on average
3. The tare weight of the bus was too close to the limit due to additional equipment
4. Some other reason
5. Not sure

IF 4 IN Q27 SHOW Q28. OTHERS GO TO Q29.

Q28. What were those other reasons?

PLEASE TYPE IN YOUR ANSWER IN THE BOX BELOW

IF 1 IN Q26 GO TO Q32

Q29. How often, if ever, have you challenged an infringement notice for being overweight in Court?

1. Never
2. Once
3. Two or three times
4. Four or five times
5. More than five times

IF 1 IN Q29 GO TO Q32

Q30A. In which States or Territories have you taken cases to court?

1. NSW
2. Vic
3. Qld
4. SA
5. WA
6. Tasmania
7. ACT
8. NT

Q30B. How long did the court hearings take?

1. Half a day or less
2. A full day
3. More than a full day
4. Unsure

Q31. What were the results?

1. The court always confirmed the penalty and we had to pay
2. At least once, the court found in our favour and we did not have to pay
3. The court always found in our favour and we did not have to pay
4. Can't recall/don't know the outcome

Q32. What effects are the current weight limits for 3-axle buses having on your business?

PLEASE TICK ALL THAT APPLY

1. Our costs are increased due to being overweight and facing fines
2. We are losing business due to our efforts to avoid being overweight
3. We are unable to purchase the coaches that we would like to operate
4. We are unable to offer services and features that customers want
5. We are unable to install safety features we would like to install
6. The cost, in terms of labour hours, to comply with the limits outweighs any benefits
7. We are prevented from offering better customer service
8. The customer experience is adversely affected
9. Other effects

IF 9 IN Q32 SHOW Q33. OTHERS GO TO Q34.

Q33. What are the other effects?

PLEASE TYPE IN YOUR REPLY BELOW

Q34. Have you applied for a Performance Based Standard (PBS) approval to operate one or more of your 3-axle buses above the current national weight limit?

1. Yes
2. Planning to do so, have not done so yet
3. No
4. Do not know what this involves
5. Have not heard of PBS approvals

IF 4 OR 5 IN Q34 GO TO Q36

IF 1 IN Q34 SHOW Q35A

Q35A. How long did it take from the initial application to obtaining final approval? Please type in the number of months, or weeks or days below.

|_|_| months |_| weeks |_|_| days

IF 1 TO 3 IN Q34 SHOW Q35B

Q35B. From what you know about the PBS application process, do you consider it ...

1. Quite easy
2. Not too difficult
3. More difficult than is reasonable
4. Much too difficult
5. Don't know yet how difficult it will be

Q36. How long do you usually keep using your 3-axle buses before you retire them?

1. Up to 3 years
2. Over 3 up to five years
3. Over five up to 10 years
4. Over 10 up to 15 years
5. Over 15 years

IF 1 OR 2 IN ANY OF Q11.1 TO Q11.8 ASK Q38. OTHERS GO TO Q99END

Q38. Earlier you indicated that you would be willing to provide some data about each of your 3-axle buses.

To do this, please go to:

<LINK>

and download the spreadsheet there.

Please follow the instructions in the spreadsheet and email it to michaelt@taverner.com.au with the subject "Project 5366 3 Axle Bus Data" when completed.

Have you ...

1. Downloaded the spreadsheet and will complete and submit it by the requested due date
2. Downloaded the spreadsheet and but will complete and submit it after the requested due date
3. Will download the spreadsheet later
4. Will provide the requested data but in your own format
5. Decided to not download the spreadsheet

Q99END

Taverner and the NTC thank you very much for your time and contribution to this important industry survey.

Please click on the SUBMIT button below to submit your replies to this questionnaire.

10. Appendix 3. The Passenger Questionnaire

Face-to-Face Survey (Tablet)

Final v04

Hi, my name is <...> from Taverner Research. I'm conducting a quick survey for National Transport Commission about coaches that provide passenger services across Australia. It will take less than 5 minutes.

IF NECESSARY SAY: I am from Taverner Research, an independent market research company accredited with AMSRO. The survey is being done for the National Transport Commission, as part of a review of regulations governing the operation of long-distance buses and coaches.

The information you provide will remain completely confidential. I will not be asking you to tell me anything that can identify you.

LOCATION

Q1: To start, do you live in ...

READ OUT

1. Sydney
2. Other NSW
3. Canberra
4. Other ACT
5. Melbourne
6. Other VIC
7. Brisbane
8. Gold Coast
9. Other QLD
10. Tasmania
11. Adelaide
12. Other SA
13. Perth
14. Other WA
15. Or Outside Australia (please specify the country) _____ GO TO Q2

Q1a: What is your residential postcode? _____

INTERVIEWER NOTE: IF DO NOT KNOW POSTCODE THEN NOTE DOWN SUBURB

PROGRAMMER NOTE: ALLOW DIGITS AS WELL AS TEXT

Q2. Where are you going today?

1. Taking a rail replacement bus
2. Airport – Budget Domestic
3. Airport – Full price domestic
4. Airport - International
5. Adelaide
6. Barham
7. Bathurst or Orange
8. Bendigo
9. Brisbane
10. Campbelltown
11. Canberra
12. Deniliquin
13. Donald
14. Dubbo
15. Eden
16. Liverpool
17. Melbourne
18. Newcastle
19. North Coast of NSW
20. Queensland, past Brisbane
21. Somewhere else SPECIFY

—

Q3: What is the reason for your trip today?

1. Going for a business trip
2. Meeting Family or Friends
3. Going to an organised sporting activity
4. Going on a holiday
5. Going to a tourist location
6. Other Specify _____

Q4. What is the reason for you to take this bus for your journey?

(DO NOT READ OUT)

1. Buses are cheaper than other modes of travel
 2. Comfort
 3. Last minute travel plans
 4. No other option available (Tickets for other mode sold out)
 5. Feel buses are more secure than other modes
 6. Only available option
 7. Other, Please specify
-
-

Q5. What would you have done today if you were not able to take this bus?

(DO NOT READ OUT) SINGLE RESPONSE

1. Waited here or booked another bus
 2. Postponed the trip to another day
 3. Chosen another mode of transport
 4. Cancelled today's trip
 5. Something else RECORD BELOW
- GO TO Q6
-
-

IF CODE 3 Q5 ASK Q6. ALL OTHERS SKIP TO Q7

Q6. What other mode would that have been?

(READ OUT IF REQUIRED)

1. Hire or Own Car
2. Shared car
3. Train
4. Plane
5. Not sure



Q7. Are you carrying any check-in or carry-on (hand) baggage with you on your trip?

1. Yes GO TO Q8
2. No GO TO Q10

Q8. What do you think is the estimated weight of your check-in luggage?

INTERVIEWER NOTE: Stress it is luggage that they are stowing in the luggage compartment.

1. Not carrying check-in luggage
2. Less than 10 kilos
3. 10 to under 20 kilos
4. 20 to under 23 kilos
5. 24 to under 29 kilos
6. 30+ kilos

Q9. What do you think is the estimated weight of your hand/carry-on luggage?

1. Not carrying any hand luggage
2. Under 5 kilos
3. 5 to under 10 kilos
4. 10 to under 15 kilos
5. 15 kilos or more

Q10. What do you think is the weight limit for the maximum baggage a passenger can carry in this bus?

INTERVIEWER NOTE: IF ASKED PROMPT CHECK IN BAGGAGE AND HAND LUGGAGE

1. Less than 10 kilos
2. 10 to under 20 kilos
3. 20 to under 23 kilos
4. 24 to under 29 kilos
5. 30 to under 34 kilos
6. 35 + kilos
7. No set limit

Q11. Which of the following are you taking with you today either as carry on or as checked in luggage?

READ OUT 1 TO 9. MULTIPLE RESPONSE

1. Personal luggage (clothing, etc.)
2. Sporting equipment (golf clubs, surfboard, body board, skis, etc.)
3. Trade goods
4. Bicycle
5. Wheelchair
6. Musical instrument
7. Laptop computer
8. Any other items weighing more than 5 kgs
SPECIFY
9. None of these



Q12. Are you aged

READ OUT 1-8. STOP WHEN ONE IS ENDORSED

1. 15 to 17
2. 18 to 24
3. 25 to 34
4. 35 to 44
5. 45 to 54
6. 55 to 64
7. 65 to 74
8. 75 or older
9. (DECLINED)

Q13. Record Gender

1. Male
2. Female

Q14. Are you a tourist visiting Australia from overseas?

1. Yes
2. No

Q15. And would you mind telling me how much you weigh fully dressed?

READ OUT 1-3

1. Less than 50 kilos
2. 51-64 kilos
3. 65 to under 80 kilos
4. 80 kilos or more
5. (Prefers to not say)

Q17. How often do you make journeys like this by bus or coach?

1. This is my first time
2. Less than once a year
3. About once a year
4. Two or three times a year
5. Four to six times a year
6. More than six times a year



Q18. How often do you make these journeys on a 3 axle coach?

1. This is my first time
2. Less than once a year
3. About once a year
4. Two or three times a year
5. Four to six times a year
6. More than six times a year
7. Don't know whether buses are 2 or 3 axle

Q19. Is there anything else which you would like to tell me about using a bus service rather than other forms of transport?

1. None
 2. Yes RECORD ANSWER
-

Q21. What is the departure time of your bus?

|_|_|:|_|_| am / pm

Q20. Thank you for your time today.

DO NOT INCLUDE STANDARD VALIDATION QUESTIONS – WE HAVE PROMISED THEY DO NOT HAVE TO IDENTIFY THEMSELVES, IN THE HOPE THAT MORE RESPONDENTS WILL BE WILLING TO REPORT THEIR WEIGHT.

RECORDED AUTOMATICALLY:

Time:

Date:

11. Appendix 4 – Improving the Online Survey

As noted in the main report, the study, and especially the online survey, must be regarded as a pilot study that has found what can occur, but does not provide a basis for drawing confident conclusions about how often events such as operating when overweight occur.

A more definitive quantitative study would require:

- ✧ A sample frame that enables direct telephone contact with a representative sample of businesses operating 3-axle bus services
- ✧ Direct contact by the research company with potential respondents, preferably involving telephone contact to recruit respondents and telephone follow-up to encourage completion of the survey questionnaire; note that this would require further time to implement
- ✧ Modifying the questionnaire to:
 - Test with all companies contacted whether they currently operate 3-axle buses (current users), whether they have previously done so but disposed of those buses (lapsed users), and whether they have never done so but would be open to acquiring and using 3-axle buses if business conditions changed (potential users)
 - For lapsed 3-axle users, seek their reasons for no longer using 3-axle buses
 - For non-users, probe their reasons for currently not using these buses, and what would have to change for them to do so
 - Include a response option in the current Q16 to indicate that applying for an access permit had been easy, with no real problems
 - Modifying Q17A by adding the words in italics, so it reads:
It has been suggested that weight limits for 3-axle buses be increased to allow for *the weight of additional equipment including seatbelts, air conditioning, ABS and other modern safety equipment, toilets and other features to meet passenger requirements*, and for passengers to weigh 80 kgs on average, with an average 20 kgs of stowed luggage and personal effects. In your experience, would this be ...
 - Allowing multiple responses in the current Q17B
 - Adding an option for "No effects" to Q32
 - Perhaps asking Q23A (proportion of trips that are fully loaded) and Q23B (proportion of trips that are overweight) for each of a number of different types of service, and particularly for "route services" (fixed timetable and route) and "charter services" (where timetables and routes depend on the requirements of the client or the tour). While this could increase the number of items substantially and might add to the difficulty of giving a definite response, it would clearly be useful to distinguish at least these two types of service.