steer davies gleave

WY Stated Preference Research Final Report

Report
March 2017

West Yorkshire Combined Authority

Our ref: 228827-04
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1 Introduction

Purpose of the study

1.1 Steer Davies Gleave was commissioned to undertake Stated Preference research on behalf of the West Yorkshire Combined Authority (WYCA) to value aspects of the West Yorkshire Bus Strategy. The research focuses on six key 'themes' in the Strategy that relate to improving the quality of bus services across West Yorkshire.

1.2 The research will provide a value per passenger for each theme measured in pence (or minutes for concessionary travellers). These values will inform the economic appraisal for the Bus Strategy.

1.3 WYCA has formed a Steering Group for this study, which includes representatives from Transport for Greater Manchester (TfGM), the Department for Transport, Mark Wardman, the Urban Transport Group and the Passenger Transport Executive for Tyne and Wear (Nexus). The purpose of the Steering Group is to help develop the research methodology and review the results and reporting.

1.4 This study has been informed by a parallel study for TfGM, which used a similar Stated Preference methodology to value key themes in the Bus Strategy for Greater Manchester. This research was extended further to value the detailed attributes within each theme.

This report

1.5 This report presents the results of our main West Yorkshire research, which was conducted in January 2017. The methodology used for this research has been developed over time and tested through conducting a pilot survey in March 2016 and a follow-on pilot survey in November 2016. The results of the pilot surveys are provided in our Interim Report and Second Pilot survey report[1]. The methodology has also been informed by the Greater Manchester themes study, which took place between February and August 2016.

1.6 The structure of this report is as follows:

- Chapter 2 describes the survey methodology.
- Chapter 3 presents our analysis and results.
- Chapter 4 provides a summary and conclusions.

[1] Updated Interim Report, Steer Davies Gleave, June 2016,

Report on second pilot surveys, Steer Davies Gleave, December 2016.

2 Methodology

2.1 This chapter provides a summary of the methodology used for the main West Yorkshire surveys including the survey method and questionnaire.

Survey method

2.2 In the pilot surveys, we tested three different survey methods:

- **Online Panel recruitment**: Respondents were approached through an online panel recruitment company, which incentivises its members to complete surveys.
- **Postcard recruitment**: Postcards were distributed in Leeds and Halifax providing instructions on how to complete the survey online. Respondents were paid a £5 incentive.
- **Face to face:** Interviews were conducted 'face to face' using iPads at Leeds bus station and respondents were paid a £5 incentive[2].

2.3 These methods are tried and tested methods which have been used in the past by Steer Davies Gleave and Field and Fab (the research company) for other studies. These methods were piloted in West Yorkshire and our analysis showed that they were appropriate considering:

- The length of the survey
- The type of survey – the survey included Stated Preference exercises, which randomly showed a certain number of cards to each respondent – therefore the survey needed to be completed online.
- The target market – we wanted to ensure that bus users were captured from across West Yorkshire so included the online panel method and conducted the face to face interviews at Leeds bus station, where buses arrive from across West Yorkshire.
- Representation of the sample - Since the different methods capture different types of respondents, we decided to continue to use multiple survey methods for the main surveys.

2.4 The panel and postcard recruitment methods were also used in the Greater Manchester surveys.

Fare paying passengers

2.5 Analysis of the Greater Manchester surveys[3] showed that for fare paying passengers, the values for each theme did not differ significantly between panel and postcard recruitment.

2.6 Therefore, online panel recruitment was chosen for the majority of the surveys, as this was the most cost effective option (approximately £10 per interview compared to £40 per interview). However, postcard recruitment was still used to 'top up' the main sample and make the sample more representative of bus users across West Yorkshire.

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[2] In the November pilot survey, some respondents commented that they do not use the internet and so could not use an online shopping voucher. This was resolved with an alternative option to receive a paper voucher by post, which could be used at a high-street store.

[3] Main survey methodology note Table 6, Steer Davies Gleave, June 2016

2.7 The target sample size for fare paying passengers was 600 online panel responses and 300 postcard recruitment responses.

Concessionary passengers

2.8 Concessionary passengers were defined as bus users who have a National Concessionary Travel Pass (ENCTS) to travel for free at certain times. This includes people who are disabled or over the age of 65[4]. We decided to use face to face interviews for concessions, based on guidance from the Steering Group that this is the best way to target this group of bus users. In particular, with this definition of concessions where more of the respondents may not have access to a computer or mobile phone. In the Greater Manchester surveys, the definition of concessions was broader and included respondents who could travel at a reduced fare such as students. We also expected to potentially collect some concessionary travellers through postcard recruitment.

2.9 The target sample size for concessionary passengers was 200 responses.

Additional sample criteria

2.10 To complete the survey, all respondents had to be bus users who are aged 16 or over who had used a bus to travel within West Yorkshire in the last month. Any respondents who did not meet these criteria were 'screened out' of the survey. Further details on the number of screenouts is provided in Chapter 3 (Table 3.1).

Schedule

2.11 The West Yorkshire surveys took place between 14th January and 30th January 2017. The following tables provide further details of the survey schedule.

Table 2.1: Main survey schedule

	Online Panel	Postcard	Face to face
Start Date	Monday 16th January	Saturday 14th January	Tuesday 17th January
End Date	Monday 30th January	Monday 23rd January	Thursday 26th January
Days conducted	All days in period.	All excluding Sundays	All excluding Sundays
Time conducted	Various	7am – 7pm	10am – 4pm
Number of staff	Multiple across 3 panel companies	2-4 distributors per day (17,000 postcards)	4 interviewers and 1 supervisor each day.
Location	Across West Yorkshire	Leeds and Halifax – town/city centre.	Leeds Bus Station.
Target respondents	Fare paying	Fare paying and concessionary	Concessionary (some fare payers – see Ch. 3)

Table 2.2: Postcard distribution – number of distributors

	Sat 14th	Tues 17th	Wed 18th	Thurs 19th	Fri 20th	Sat 21st	Mon 23rd
Halifax 7am-1pm	2	2	2	2	-	-	2
Halifax 1pm-7pm	2	2	2	2	-	-	-
Leeds 7am-1pm	-	2	2	2	2	2	-

[4] Or over the women state pension age depending on year of birth.

	Sat 14th	Tues 17th	Wed 18th	Thurs 19th	Fri 20th	Sat 21st	Mon 23rd
Leeds 1pm-7pm	-	-	2	2	2	2	-
Total shifts	**4**	**6**	**8**	**8**	**4**	**4**	**2**

2.12 All fieldwork was managed by Field & Fab, a specialist market research company working as a subcontractor to Steer Davies Gleave. Field & Fab also conducted the two West Yorkshire pilot surveys and the themes and attributes surveys in Greater Manchester.

Themes

2.13 The following table shows the themes which were valued in the main surveys. These themes were also valued in the second pilot surveys in November 2016.

Table 2.3: Themes valued in the main surveys

Theme	Description
Information	Single source for reliable advice and assistance. Audio announcements on every bus and reliable electronic displays at all bus stops providing information about next buses due at the stop.
Ticketing	A simpler range of tickets that are valid on all buses. The same fare for a journey, no matter which bus company runs the service. Payment using contactless bank card or smart card.
Experience on the bus	Modern bus, which is clean with comfortable seats and lower exhaust fumes. Reliable Wi-Fi and phone/tablet charging capability. Driver who is trained to be polite, helpful and drive smoothly.
Personal Safety	CCTV at bus stations and well used stops. CCTV on all buses. Well-lit bus stops and bus stations.
Bus network	Routes planned to meet people's real travel patterns. Bus timetables designed to make it easier to connect with other buses and rail services. Changes to the bus timetable coincide with changes to rail timetables.
Visual appearance	All buses in West Yorkshire have the same appearance. At the same time, can distinguish between different types of service. Single point of contact to give feedback, complain or find lost property.

Questionnaire

2.14 Steer Davies Gleave developed the questionnaire which was used for the main surveys. As mentioned above, this questionnaire had already been piloted twice in West Yorkshire and in a similar format in Greater Manchester. Since the pilot surveys, we have refined and updated the questionnaire based on feedback received from the client, the Steering Group, Field & Fab and the public. Further details of these refinements are provided in our Interim and Second Pilot survey reports[5].

[5] Updated Interim Report, Steer Davies Gleave, June 2016, Report on second pilot surveys, Steer Davies Gleave, December 2016.

2.15 The questionnaire includes two exercises, which are used to determine the Willingness to Pay values for each theme. Examples of these exercises are shown below.

Ranking exercise

2.16 The first exercise is a simple ranking exercise to understand how respondents value the themes relative to each other and relative to a small fare reduction and a large fare reduction (or journey time for concessions). This exercise was designed and tested during the second pilot survey and was replicated in the main surveys. An example of this exercise for fare paying passengers is shown in Figure 2.1.

Figure 2.1: Example of ranking exercise

Please click on the boxes to rank the changes we just asked about for your recent journey for [Journey Purpose], **(where 1 is most important to you).**[6]

Change	Description of Change	Rank 1 – 8 (where 1 is most important)
Information:	Single source for reliable advice and assistance. Audio announcements on every bus and reliable electronic displays at all bus stops providing information about next buses due at the stop.	
Ticketing:	A simpler range of tickets that are valid on all buses. The same fare for a journey, no matter which bus company runs the service. Payment using contactless bank card or smart card.	
Experience on the bus:	Modern bus, which is clean with comfortable seats and lower exhaust fumes. Reliable Wi-Fi and phone/tablet charging capability. Driver who is trained to be polite, helpful and drive smoothly.	
Personal Safety:	CCTV at bus stations and well used stops. CCTV on all buses. Well-lit bus stops and bus stations.	
Bus Network:	Routes planned to meet people's real travel patterns. Bus timetables designed to make it easier to connect with other buses and rail services. Changes to the bus timetable coincide with changes to rail timetables.	
Visual Appearance:	All buses in West Yorkshire have the same appearance. At the same time, can distinguish between different types of service. Single point of contact to give feedback, complain or find lost property.	
Small fare reduction:	Your journey is **Xp cheaper** than now.	
Large fare reduction:	Your journey is **Xp cheaper** than now.	

Stated Preference exercise

2.17 The second exercise is a Stated Preference exercise. In this exercise, respondents are asked to choose between two alternative versions of their last bus journey for a particular journey

[6] it is not possible to give two themes the same rank (e.g. two themes are ranked 1st), each theme must be ranked separately

purpose. In each alternate journey, they are offered some or all the themes and/or a change in fare (or a change in journey time for concessionary respondents).

2.18 In this exercise, the themes are combined in to 'packages'. This is done partly to simplify the exercise, but mainly because the values for some themes individually could be smaller than the sizes of the fare (or travel time) increments used in the exercise, which need to be reasonably large to have an impact on people's decisions.

2.19 Each respondent is offered six journey choices. An example of this exercise for fare paying passengers is shown in Figure 2.2.

Figure 2.2: Example of Stated Preference exercise

In the next screens, we will offer you two alternatives to your recent journey for [Journey Purpose]. For each journey, we will tell you:

- Whether it includes any of the changes described above; and
- How much you would pay for the journey.

When you see, 'As now', it means that this feature of the journey will be the same as you experienced; otherwise, the feature will be changed as described above.

Please select the journey you prefer - Journey A or Journey B.

Click on a change to see a full description of that change.

	Journey A	Journey B
Bus network and appearance:	As now	Bus Network Visual Appearance
Using the buses:	Information Ticketing Experience on the bus Personal Safety	As now
One-way fare for your journey:	£2.60 (70p more expensive)	£1.90 (As now)
Choice	Tick box	Tick box

2.20 The Stated Preference exercise was first designed for the pilot surveys in March 2016 and has undergone various changes since then.

2.21 For fare payers, we originally included fare and journey time and later removed journey time to make this simpler for respondents. We also updated the packages to reflect the latest themes in the Bus Strategy, which were developed over summer 2016.

2.22 For concessions, there have been several changes since March 2016.

- Between March and November, the exercise was updated to reflect the latest themes in the Bus Strategy to increase the range of differences in journey time and to offer journey time reductions as well as increases.
- The November pilot results showed that the concessionary values were too low as concessions were reluctant to accept the journey time increases but the results for reductions were more reasonable.

- To resolve this, we redesigned the exercise so that most of the choices involved reductions in journey time rather than increases and re-piloted just with concessions at the end of November.
- The late November pilot provided results which were implausibly high. We conducted various analysis to understand why and concluded that the journey time changes were not always large enough to 'price off' people's preference for a package. We decided to adjust the design for the main surveys to include some larger journey time differences[7].

2.23 Since the main face to face surveys took place over a reasonably long period (17th-26th January 2017), it was possible to check the results for concessions as the surveys progressed and adjust the design if necessary, though this was not needed.

[7] Report on second pilot surveys, Steer Davies Gleave, December 2016.

3 Analysis

3.1 This chapter provides a summary of our main survey analysis including details of the sample collected, results for each exercise and Willingness to Pay values for each theme. Responses for each question in the survey are also provided in Appendix B.

Sample

3.2 The following table provides a summary of the sample collected. This shows that the surveys exceeded the target sample of 1,100. The panel and face to face methods provided more responses than expected and the postcard recruitment provided fewer responses than expected.

3.3 The number of additional respondents who were not eligible (screenouts) or who started the survey but did not complete it are also included. Although the postcard and face to face methods targeted fare paying and concessions respectively, some other responses were collected in these methods.

Table 3.1: Main survey sample

	Online Panel	Postcard	Face to Face	Total
Target sample	600	300	200	1,100
Target bus user	Fare payers	Fare payers	Concessions	-
Sample collected	**610** fare payers	**241** 189 fare payers 52 concessions	**291** 51 fare payers 240 concessions	**1,142** 850 fare payers 292 concessions
Sample vs. Target Sample	10 surveys over target	59 surveys under target	91 surveys over target	42 surveys over target
Additional respondents who started survey but were not eligible (screenouts)	1307	42	9	1358
Additional respondents who 'dropped out' part way through survey	113	87	Not recorded	200

3.4 The postcard sample was generated from two distributors working for 7 days. 16,850 postcards were distributed during this period (8,500 in Leeds and 8,350 in Halifax) and 1.43% of postcards generated responses. This sample rate is slightly lower than expected but still reasonable considering the length of the survey (approximately 15 minutes to complete) and the £5 incentive offered. An example of the postcard which was distributed is shown in Appendix A.

3.5 The face to face sample was generated from four interviewers and one supervisor working nine days in Leeds Bus Station. The main purpose of the face to face surveys was to interview concessionary respondents so interviewers worked outside peak hours between 10am and 4pm.

Sample Representation

3.6 The following tables describe the sample representation including a split by age, gender, income and journey purpose.

3.7 Age and gender have been compared against National Travel survey data. This data provides an indication of how representative the sample is of the National bus user population, though there will be some variation as West Yorkshire bus usage will differ from bus usage nationally[8].

3.8 In these tables, all age groups are slightly over represented except those aged 17-20. There are more females in the survey sample but there are also more females in the NTS sample.

3.9 Most bus users are in the lower income bands – over 75% of people who responded to this question said that their annual household income is less than £40,000 per year. However, 23% of the sample chose to not provide this data.

Table 3.2: Sample by age

	Survey	NTS
Sample size	1,142	12,257[9]
Aged 16	1%	Not comparable
17 – 20	8%	26%
21 – 29	12%	15%
30 – 39	17%	11%
40 – 49	16%	9%
50 – 59	16%	9%
60 – 69	17%	14%
70 +	13%	17%

Table 3.3: Sample by gender

	Survey	NTS
Sample size	1,142	12,257
Male	40%	44%
Female	60%	56%

Table 3.4: Sample by income

	Survey
Sample size	1,142
Less than £20,000	28%
£20,000 - £39,999	30%
£40,000 - £59,999	12%
£60,000 - £79,999	3%
£80,000 - £99,999	1%
£100,000 or more	1%
Prefer not to say	23%

[8] National Travel Survey NTS 0601 Average number of trips (trip rates) by age, gender and main mode: England, Department for Transport, 2015.

[9] Across all modes including bus.

3.10 It was not possible to compare the sample by income directly with NTS data as the categories are different, however the following NTS data table does show that most bus users are in the lower income levels, consistent with our sample data.

Table 3.5: NTS Sample by income

	NTS
Sample size	15,525 (across all modes including bus)
Lowest real income level	31%
Second level	27%
Third level	16%
Fourth level	15%
Highest real income level	11%

3.11 The following table shows the sample by journey purpose. In the survey, respondents are asked to select all the reasons for using the bus in the last month. The survey then chooses one of the journey purposes to focus on for the rest of the survey based on quotas[10], which are set by Steer Davies Gleave to ensure that we have a reasonable sample of respondents for each journey purpose. This means that the journey purpose split is not representative of bus travel in West Yorkshire.

Table 3.6: Sample by journey purpose

	Survey
Sample size	1,142
Leisure/Personal Business	65%
Commuting	28%
Education	5%
Business	2%

Data Cleaning

3.12 The sample was cleaned checking that:

- Data was correctly formatted.
- Passengers who were screened out (aged under 16 or used the bus less than once a month) were excluded.
- Passengers who answered very quickly (less than 24 seconds, 4 seconds per card in the SP exercises), always chose the 'left card' or the 'right card' or who said the proposed changes were 'Very Unclear' and either of the exercises were 'Very Difficult' were screened out.

3.13 After data cleaning, the sample size was reduced, as shown below.

[10] We specified at least 150 commuters and 150 leisure travellers in the Online Panel. The postcard and face to face surveys randomly chose a journey purpose based on those provided – however in all methods, 'Business' (travelling for business but not commuting to work) was not chosen unless it was the only journey purpose specified (as the pilot survey showed there are very few people travelling by bus for this purpose).

Table 3.7: Cleaned sample

	Fare Paying				Concessions			Total
	Panel	Postcard	Face to face	Total	Postcard	Face to face	Total	
Total responses	610	189	51	850	52	242	292	**1,142**
Cleaned responses	578	182	50	810	50	227	277	**1,087**

3.14 For the remainder of this chapter, all the results are based on cleaned data.

Ranking exercise

3.15 In the ranking exercise, respondents were asked to rank the six themes in order of preference. This was modelled as five different choices, where the first choice was choosing the most preferred theme from six options, the second choice was choosing the next most preferred theme from five options and so on…

3.16 The aggregated choices were then modelled using conditional logit, with dummy variables for each theme as the independent variables.

3.17 The following table provides the results for fare paying passengers. In this table, Personal Safety and Ticketing are the two preferred themes followed by Journey Experience and Information. Visual Appearance is the lowest rated theme, and is valued much lower than all other themes. The values are all statistically significant since the z-ratios are over 2.

Table 3.8: Ranking exercise results – fare payers

	Coefficient (pence)	Standardised Coefficient	z-ratio
Personal Safety	39.9	1.00	23.0
Ticketing	39.3	0.98	23.1
Journey Experience	36.7	0.92	23.4
Information	34.9	0.87	23.5
Bus Network	32.5	0.81	23.9
Visual Appearance	20.6	0.52	23.1

3.18 The following table provides the results for concessionary passengers. The results are like those for fare paying passengers with Personal Safety being ranked highest and Journey Experience and Information being ranked higher than Bus Network and Visual Appearance. However, in the concessionary results Ticketing was ranked lowest, which is expected since concessionary passengers have an ENCTS pass to travel for free for most of the day.

Table 3.9: Ranking exercise results – concessionary passengers

	Coefficient (minutes)	Standardised Coefficient	z-ratio
Personal Safety	19.7	1.00	10.0
Information	17.8	0.90	9.9
Journey Experience	17.6	0.89	10.0
Bus Network	14.8	0.75	10.5
Visual Appearance	12.2	0.62	11.1
Ticketing	10.5	0.53	11.5

Stated Preference exercise

3.19 In the Stated Preference exercise, respondents were asked to choose between two journeys which varied in terms of whether the grouped themes were implemented and the fare that they paid. These choices were analysed using a logit model (the grouped themes and the fare are the independent variables). The utility coefficient for each bundle was divided by the utility coefficient for fare to reveal the value of the bundle in terms of £ per passenger.

3.20 The following table provides the results for fare paying passengers. In this table, the z-ratio indicates the strength of the relationship observed in the data. The value is described as 'statistically significant' if the z-ratio is above 2.

Table 3.10: Stated Preference results - fare payers

Package	Themes included	Value (£ per passenger)	z-ratio
Using the buses ('Journey')	Information, Ticketing, Journey Experience, Personal Safety	£0.26	17.1
Bus Network and Appearance ('Network')	Bus Network, Visual Appearance	£0.01	1.2

3.21 The Journey Package has a much higher value than the Network Package. This is expected since the themes in the Journey Package were valued higher in the ranking exercise than those in the Network Package. Also, the Journey Package includes four themes, whereas the Network Package includes two themes.

3.22 The Network Package value is lower than expected and is not statistically significant. This could be due to the Visual Appearance theme which was valued much lower than the other themes in the ranking exercise. The Network theme could also have a low value since most fare paying respondents (76%) only used one bus for their journey so perhaps did not value their bus route and timetable coinciding with other bus services.

3.23 Further investigation was conducted into the low network value for fare paying passengers by removing all cards which had a journey package trade off, leaving only those cases where the network package was traded against fare. This led to a value for the network package of -4.0 pence compared to 1 pence in Table 3.10 (although this was statistically insignificant). This analysis suggests that the low value for the network package was not explained by the journey package having a dominant effect in the Stated Preference exercise.

3.24 Further analysis was carried out to ensure that all the cards in the Stated Preference exercise were seen by a similar number of respondents and that no cards were dominating the results.

3.25 Table 3.13 shows that all cards were seen by between 303 and 337 fare payers and between 88 and 132 concessions. It is also observed that there is trading between the left and right cards (not all respondents are choosing the left or right card). These results are for all passengers including those who were later removed during data cleaning.

Table 3.13: Frequency count analysis

Fare Payers (sample of 850)				Concessions (sample of 292)			
Card	Observations	Left Card	Right Card	Card	Observations	Left Card	Right Card
1	312	42	270	1	132	120	12
2	316	131	185	2	104	50	54
3	320	110	210	3	132	52	80
4	311	97	214	4	93	22	71
5	316	109	207	5	88	64	24
6	321	61	260	6	95	74	21
7	303	198	105	7	118	65	53
8	323	208	115	8	101	33	68
9	331	230	101	9	129	64	65
10	314	47	267	10	102	50	52
11	330	285	45	11	110	44	66
12	303	48	255	12	115	92	23
13	315	224	91	13	110	74	36
14	311	245	66	14	100	25	75
15	337	193	144	15	110	15	95
16	336	68	268	16	111	64	47

3.26 We considered whether there is a packaging effect present (where the value of the two packages is different to the sum of its parts). This was tested by including an interaction term in the calibration to pick up the effect of both packages being present simultaneously. The interaction term was not significant, indicating there was no evidence of the packaging effect.

3.27 The following table provides the results for concessionary passengers. In this table, the values are measured in time rather than money because concessions rarely purchase tickets.

3.28 This shows that concessions also value the Journey Package higher than the Network Package but the difference between the values is less prominent. This could be related to concessionary respondents rating Ticketing as the lowest valued theme in the ranking exercise, even lower Network and Visual Appearance in the Network Package.

Table 3.11: Stated Preference results – concessionary passengers

Package	Themes included	Value (minutes per passenger)	z-ratio
Using the buses ('Journey')	Information, Ticketing, Journey Experience, Personal Safety	7.0	3.01
Bus Network and Appearance ('Network')	Bus Network, Visual Appearance	2.7	1.56

3.29 We considered whether there is a packaging effect present for concessions (where the value of the two packages is different to the sum of its parts). Again, the analysis showed that the packaging effect was insignificant.

3.30 In the survey, respondents were asked to rate their current experience of the factors contributing to each theme. This part of the survey is for information only and is not used in the calculation of the Willingness to Pay values.

3.31 On average across all factors contributing to the theme, 48% of respondents said that their current experience is Good/Very Good and 55% of respondents said their current experience of the Network Package factors is Good/Very Good. This could in part explain why the Journey Package improvements were valued higher than the Network Package improvements.

3.32 We also used this information to consider whether the current experience of vehicle appearance differed greatly from experience of the other themes; the results showed there was some difference.

3.33 Further detail of these responses is shown in Appendix C.

Willingness to Pay values

3.34 The results of the ranking exercise were used to break down the Willingness to Pay values for the packages, to give values for each individual theme. Further information on this process is provided in Appendix D.

3.35 Since the Network Package value was low, the two themes in the Network Package also have low values. Personal Safety has the highest value for both fare paying and concessionary passengers as expected since this had the highest value in the ranking exercise.

3.36 The total value for implementing all themes is £0.28 for fare payers and 9.7 minutes for concessionary passengers. This translates to 13% and 35% of the average one-way fare and journey time respectively.

Table 3.12: Willingness to Pay values

	Fare paying passenger Value (£)	Concessionary passenger Value (minutes)
Sample size	**810**	**277**
Information	£0.06	1.9
Ticketing	£0.07	1.1
Journey Experience	£0.06	1.9
Personal Safety	£0.07	2.1
Bus Network	<£0.01 (0.9p)	1.5
Visual Appearance	<£0.01 (0.6p)	1.2
Total	**£0.28**	**9.7**
% of Average One-way Fare/Journey time	**13%**	**35%**

3.37 The following sections present results segmented by survey method, operator, boarding point, frequency of use and journey purpose.

Values by survey method

3.38 The Willingness to Pay analysis was repeated to understand whether respondents value the themes differently depending on which survey method was used.

3.39 Values for fare paying postcard respondents were similar to (but slightly higher than) values for panel respondents. Values for face to face respondents were higher.

Table 3.13: Willingness to Pay values by survey method – fare payers

£ per passenger	Panel	Postcard	Face to face	All fare payers
Sample size	**578**	**182**	**50**	**810**
Information	£0.05	£0.07	£0.14	£0.06
Ticketing	£0.06	£0.08	£0.16	£0.07
Journey Experience	£0.06	£0.07	£0.16	£0.06
Personal Safety	£0.06	£0.07	£0.18	£0.07
Bus Network	<£0.01 (0.3p)	£0.02	£0.09	<£0.01 (0.9p)
Visual Appearance	<£0.01 (0.2p)	£0.01	£0.06	<£0.01 (0.6p)
Total	**£0.24**	**£0.32**	**£0.79**	**£0.28**

3.40 We analysed the responses further to check that the differences between the values for face to face respondents are significantly different to the values for other methods. This showed that the face to face results are not significantly different from the postcard results but they are significantly different from the panel results for the Journey package (but not the Network package). This analysis is shown in Appendix E, Tables E1-E2.

3.41 We conducted several tests to understand why the values for face to face fare paying respondents were significantly different to the panel responses. As part of this, we considered differences in age, income, trip purpose and the value of the fare coefficient in the Stated Preference exercise. These tests did not provide anything conclusive to explain the differences.

3.42 After discussing these results and our subsequent analysis with the Steering Group, we decided that there was something anomalous about the face to face interviews, and given their relatively small number we recommend they are removed from the sample.

3.43 Following this decision, we reconsidered whether there is an interaction effect between the two packages (see paragraph 3.26) when face to face fare payers are excluded. This analysis again showed that the effect of having both packages together relative to each individually was insignificant.

3.44 We also considered whether the values for the two remaining survey methods (postcard and panel) were significantly different from each other. This analysis (shown in Appendix E, Table E3) showed that postcard and panel results are not significantly different. This was also observed in the Greater Manchester theme surveys (see paragraph 2.5).

3.45 For concessionary passengers, the face to face values looked reasonable but the values for postcard respondents were arbitrary and the z-ratios were all low indicating that there was no relationship between respondents' choices and what they were shown on the choice cards, and the values should be treated as zero. The results are shown in Table 3.14.

Table 3.14: Willingness to Pay values by survey method – concessionary passengers

Minutes per passenger	Postcard	Face to face	All concessions
Sample size	**50**	**227**	**277**
Information	-3.8	2.3	1.9
Ticketing	-2.7	1.3	1.12
Journey Experience	-4.3	2.2	1.9
Personal Safety	-4.1	2.5	2.1
Bus Network	-11.5	2.3	1.5
Visual Appearance	-9.3	1.9	1.2
Total	**-35.6**	**12.4**	**9.7**

3.46 We conducted seven further tests on the postcard concessionary results:

- Checking the survey design to see if the cards appeared the correct number of times.
- Checking that the responses to each card were logical and that the observed trends in responses were similar for postcard and face to face respondents.
- Ensuring that the postcard concessions were 'true concessions' entitled to an ENCTS pass.
- Ensuring that all responses were unique and there was no attempt to complete multiple postcards to receive multiple incentives.
- Checking that there are no large differences in average journey time or income.[11]
- Comparing how strongly postcard respondents responded to journey time changes compared to all concessionary passengers. This showed that postcard respondents were not responding to changes in journey time, but nor were they responding to the other attributes.

3.47 Based on this analysis, we recommend removing the concessionary postcard responses from the sample and using the face to face results only. This decision is in line with the Steering Group's initial recommendation to target concessionary respondents using face to face interviews (see paragraph 2.8).

3.48 Following this decision, we reconsidered whether there was an interaction effect between the two packages when postcard concessions were excluded (see paragraph 3.29). This analysis again showed that the effect of having both packages together relative to each individually was insignificant.

3.49 For the rest of Chapter 3, all results exclude face to face fare paying respondents and postcard concession respondents.

[11] The results showed that average journey times were similar (29.2 minutes for postcard compared to 32.2 for all concessions). Income was difficult to compare since around 50% of respondents said they preferred not to provide their household income.

Values by operator

3.50 We conducted analysis to understand whether respondents value the attributes differently depending on the operator they used. We segmented respondents who only used Arriva and those who only used First from the rest of the sample, (the rest of the sample included respondents using different operators or multiple operators (e.g. Arriva and Stagecoach).

3.51 The results for fare paying passengers (in Table 3.15) show a slight difference in willingness to pay between passengers who use Arriva only and those who use First only (4p over all themes).

Table 3.15: Willingness to Pay values by operator – fare payers

Pence per passenger	Arriva only	First only	All fare payers
Sample size	**147**	**449**	**760**
Information	£0.06	£0.06	£0.06
Ticketing	£0.07	£0.06	£0.07
Journey Experience	£0.07	£0.06	£0.06
Personal Safety	£0.07	£0.06	£0.07
Bus Network	< £0.01 (0.5p)	£0.00	<£0.01 (0.7p)
Visual Appearance	<£0.00 (0.4p)	£0.00	<£0.01(0.4p)
Total	**£0.28**	**£0.24**	**£0.26**
% of Average One-way Fare	**12%**	**11%**	**12%**

3.52 The results for concessionary passengers (in Table 3.16) show a slight difference in willingness to pay between passengers who use Arriva only and those who use First only (4 minutes over all themes).

Table 3.16: Willingness to Pay values by operator – concessionary passengers

Minutes per passenger	Arriva only	First only	All concessions
Sample size	**118**	**85**	**227**
Information	2.2	2.1	2.3
Ticketing	1.3	1.1	1.3
Journey Experience	2.2	1.9	2.2
Personal Safety	2.5	2.3	2.5
Bus Network	3.3	1.2	2.3
Visual Appearance	2.7	1.0	1.9
Total	**14.1**	**9.7**	**12.4**
% of Average One-way Journey Length	**42%**	**31%**	**37%**

3.53 Further analysis was conducted to understand whether the differences by operator are statistically significant. This showed that for both fare payers and concessions, the differences were not statistically significant, (see Appendix E, Table E4 and Table E5).

Values by boarding point

3.54 Additional analysis was conducted to understand whether respondents value the themes differently depending on where they first boarded the bus. This included:

- Bradford
- Calderdale
- Leeds City Centre
- Rest of Leeds
- Other (including Kirklees and Wakefield)

3.55 The results for fare paying passengers are shown in Table 3.17. In this table, there are some differences by boarding point with the values for passengers boarding in Calderdale being higher overall than other areas. In other areas, the values are similar and themes in the journey package were ranked consistently higher than themes in the Network package.

Table 3.17: Willingness to Pay values by boarding point – fare payers

	Bradford	Calderdale	Leeds City Centre	Rest of Leeds	Other	All fare payers
Sample size	**129**	**111**	**147**	**207**	**166**	**760**
Information	£0.05	£0.09	£0.06	£0.05	£0.06	£0.06
Ticketing	£0.06	£0.09	£0.07	£0.06	£0.07	£0.07
Journey Experience	£0.06	£0.10	£0.06	£0.06	£0.06	£0.06
Personal Safety	£0.06	£0.10	£0.07	£0.06	£0.06	£0.07
Bus Network	£0.02	£0.01	-£0.00	-£0.00	£0.01	<£0.01 (0.7p)
Visual Appearance	£0.01	£0.01	-£0.00	-£0.00	£0.01	<£0.01(0.4p)
Total	**£0.26**	**£0.39**	**£0.27**	**£0.22**	**£0.26**	**£0.26**
% of Average One-way Fare	**11%**	**21%**	**12%**	**10%**	**11%**	**12%**

3.56 For concessionary passengers, there were insufficient respondents to segment by all areas and therefore we just segmented between respondents who first boarded the bus in Leeds and respondents who boarded elsewhere.

3.57 The results (in **Error! Not a valid bookmark self-reference.**) show that passengers outside Leeds have a higher Willingness to Pay than passengers who boarded in Leeds, particularly for Network package themes.

3.58 There are many possible reasons for these differences. For example, the quality of the services in the area, the availability of other transport modes and the age and income profile of passengers using the bus services.

Table 3.18: Willingness to Pay values by boarding point – concessionary passengers

	Leeds	Other	All concessions
Sample size	**152**	**75**	**227**
Information	2.1	2.8	2.3
Ticketing	1.2	1.6	1.3

	Leeds	Other	All concessions
Journey Experience	2.0	2.7	2.2
Personal Safety	2.4	3.1	2.5
Bus Network	1.7	4.5	2.3
Visual Appearance	1.4	3.7	1.9
Total	**10.7**	**18.5**	**12.4**
% of Average One-way Journey Time	**36%**	**48%**	**37%**

Values for frequent/infrequent users

3.59 To understand whether the low values for the Network Package were related to familiarity with the Bus Network, we repeated the Willingness to Pay analysis segmenting the results in to frequent and infrequent bus users. A bus user was defined as 'frequent' if they used the bus at least once a week.

3.60 The results showed that for fare paying passengers, frequent users (who represent approximately two thirds of the sample) value all themes higher than infrequent users. Further analysis showed that the Journey package differences are significantly different but the Network package differences are not (see Appendix E, Table E6).

3.61 For concessionary travellers, the sample sizes were too small to segment by frequency of use.

Table 3.19: Willingness to Pay values by frequency – fare paying passengers

£ per passenger	Frequent users (at least once a week)	Infrequent users (less than once a week)	All fare payers
Sample size	**502**	**258**	**760**
Information	£0.06	£0.05	£0.06
Ticketing	£0.07	£0.06	£0.07
Journey Experience	£0.07	£0.05	£0.06
Personal Safety	£0.07	£0.06	£0.07
Bus Network	£0.01	<£0.01 (0.2p)	<£0.01 (0.7p)
Visual Appearance	<£0.01(0.6p)	<£0.01 (0.1p)	<£0.01(0.4p)
Total	**£0.29**	**£0.21**	**£0.26**

Values by journey purpose

3.62 The Willingness to Pay analysis was repeated to provide values for bus users travelling for different Journey Purposes. This analysis was only conducted for fare paying passengers since concessions were almost all leisure travellers (217 out of 277 respondents) and therefore there were insufficient non-leisure travellers to obtain a separate value for them.

3.63 For fare payers, there were very few respondents travelling for Education or Business (approximately 8%) so these respondents were combined with Commuters into a Non-Leisure category. A separate value was then calculated for Leisure travellers.

3.64 The results in Table 3.20 show that the values for Leisure/Personal Business travellers are slightly higher than the values for Non-Leisure travellers. Further analysis showed that the differences observed are not significantly different (see Appendix E, Table E7). We conclude that Leisure and Non-Leisure travellers value the themes similarly.

Table 3.20: Willingness to Pay values by journey purpose - fare payers

£ per passenger	Leisure/Personal Business	Non-Leisure (Commuting/Education/Business)	All fare payers
Sample size	**414**	**346**	**760**
Information	£0.06	£0.05	£0.06
Ticketing	£0.07	£0.06	£0.07
Journey Experience	£0.06	£0.06	£0.06
Personal Safety	£0.07	£0.06	£0.07
Bus Network	<£0.01 (0.5p)	<£0.01 (0.9p)	<£0.01 (0.7p)
Visual Appearance	<£0.01 (0.3p)	<£0.01 (0.6p)	<£0.01(0.4p)
Total	£0.27	£0.25	£0.26

Application of results

3.65 Willingness to Pay values have been provided based on surveys conducted in January 2017 and therefore the values are in January 2017 prices. These values should be converted to an appropriate price base consistent with the economic appraisal.

3.66 The values shown are per passenger per trip and should be multiplied by the number of existing bus journeys. The values obtained in this report are relative to each passenger's experience of the services that they use. Further information about how respondents value their current services is provided in Appendix C.

Applying concessionary results

3.67 The results for concessionary passengers are expressed in minutes per passenger per trip and should be converted into monetary values for use in an economic appraisal. This conversion should be carried out using an appropriate Value of Time (measured in £ per hour).

4 Summary and conclusions

4.1 This report has provided a summary of the main West Yorkshire surveys, which were conducted in January 2017 to understand how passengers value the key themes of the West Yorkshire Bus Strategy.

4.2 The survey collected views from 1,142 bus users across West Yorkshire including 850 fare paying passengers and 292 concessionary passengers. Concessions are defined as respondents who have a National Concessionary Travel Pass to travel for free at certain times of day.

4.3 The surveys showed that the sample was reasonably representative of bus users in West Yorkshire in terms of age, gender and income. The journey purposes collected were also sufficient to obtain Willingness to Pay values by Journey Purpose for fare paying passengers.

4.4 The ranking exercise showed that the four themes in the Journey Package (Information, Ticketing, Journey Experience and Personal Safety) are most valued for fare paying passengers with Personal Safety being valued most highly. Concessionary passengers also value these themes except Ticketing, which is reasonable since concessionary travellers have a pass to travel for free for most of the day so may not benefit from a simplified ticketing structure.

4.5 Bus Network and Visual Appearance were ranked relatively low by all respondents in the ranking exercise and this was also reflected in the Stated Preference exercise where the Network Package (which includes these two themes) was valued much lower than the Journey Package (which combines the four other themes).

4.6 The Willingness to Pay values for each theme were derived from the values for the packages using the relative value of each theme from the ranking exercise.

4.7 The surveys were conducted using three different survey methodologies: online panel, postcard recruitment and face to face, and Willingness to Pay values were provided by survey method. In this analysis, we observed that the face to face fare payer values were unreasonably high and recommended that they are removed from the sample.

4.8 For concessions, we observed that the postcard values were statistically insignificant and inconsistent with the rest of the data and recommended that the postcard responses are removed from the concessionary sample.

4.9 Willingness to Pay results were segmented by operator, which showed some differences between respondents only using Arriva and respondents only using First services. However, these differences were not statistically significant.

4.10 Willingness to Pay values were also segmented by frequency of use. This showed that frequent fare payers valued the Journey package more highly than infrequent fare payers.

4.11 The Willingness to Pay results were segmented by journey purpose. For fare payers, this considered Leisure and Non-Leisure travellers separately. However, the differences between these groups were not statistically significant. For concessions, most respondents were Leisure travellers and there were insufficient Non-Leisure travellers to consider them separately.

4.12 The recommended values are shown in the following table. Fare paying passengers exclude face to face respondents and concessionary passengers exclude postcard respondents.

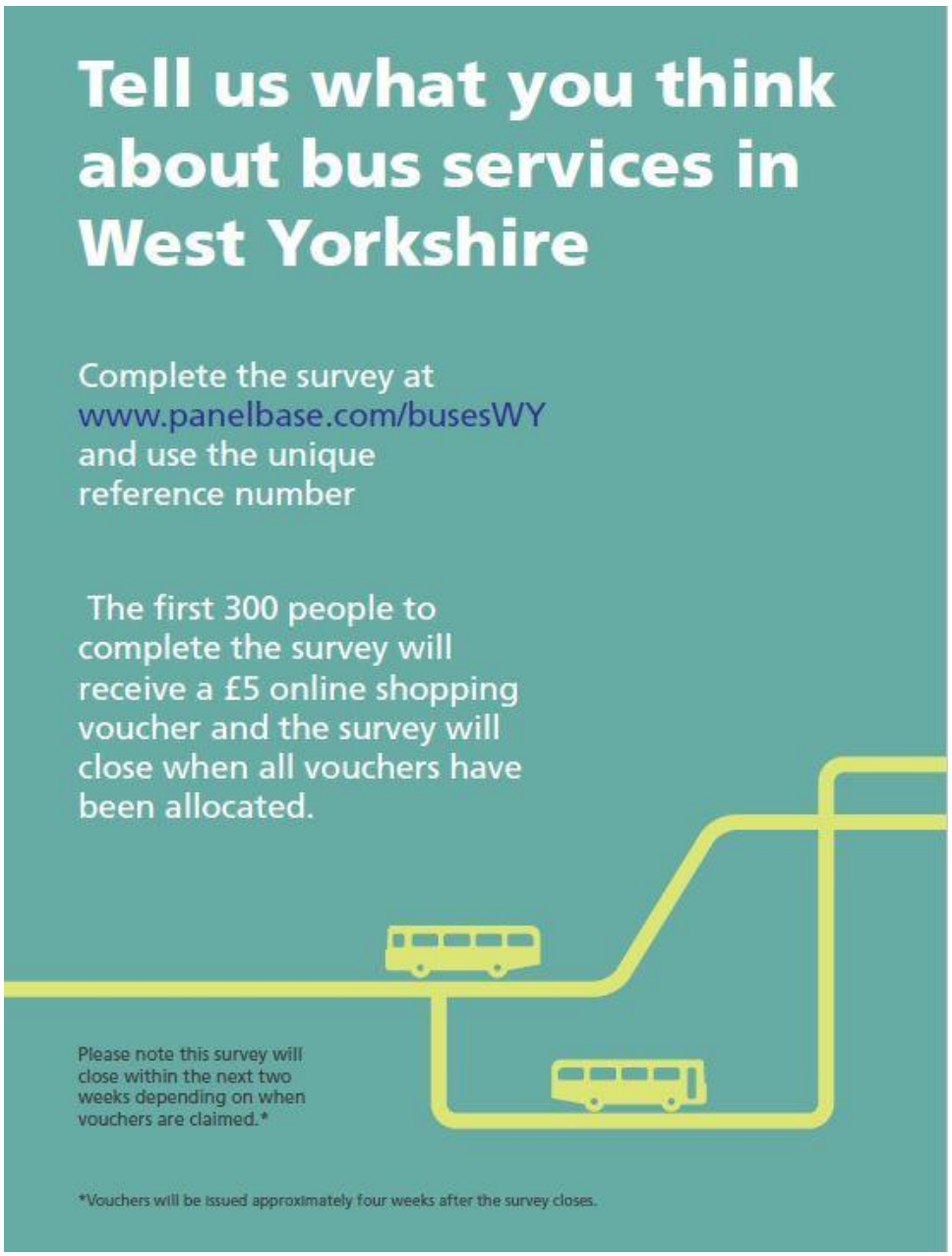
4.13 Concessionary values are measured in minutes per passenger and would need to be converted into monetary terms using an appropriate value of time.

Table 4.1: Recommended Willingness to Pay values

	Fare Paying Passengers (£ per passenger)	Concessionary Passengers (minutes per passenger)
Sample size (cleaned)	**760**	**227**
Information	£0.06	2.3
Ticketing	£0.07	1.3
Journey Experience	£0.06	2.2
Personal Safety	£0.07	2.5
Bus Network	<£0.01 (0.7p)	2.3
Visual Appearance	<£0.01(0.4p)	1.9
Total	**£0.26**	**12.4**

A Postcard used in the main survey

A.1 This appendix provides an example of the postcard which was distributed to members of the public in Leeds City Centre and Halifax Town Centre. Each postcard included a unique reference number, which was entered at the start of the survey.



B Survey responses by question

B.1 This appendix provides the responses by question. This information should provide useful feedback on bus services in West Yorkshire as well as providing further information about the sample collected in the main surveys.

B.2 These tables are based on a sample of 1,142 bus users, which is the total sample for the survey before any data cleaning. This appendix does not include the responses to the ranking or Stated Preference exercises, which have been analysed separately in Chapter 3.

B.3 It also does not include the long text responses, e.g. service numbers or additional comments at the end of the survey. These responses can be provided separately, if required.

Postcard only questions

Where did you get your postcard?	Responses
Leeds	49%
Halifax	51%

Device used	Responses
Computer	38%
Mobile phone	52%
Another mobile device – e.g. a tablet	10%

Section A: Screening

B.4 This section screened out people who were under the age of 16 or who have not used a bus in West Yorkshire in the last month.

Q1. Which age group do you fall into?	Responses
Aged 16	1%
17 – 20	8%
21 – 29	12%
30 – 39	17%
40 – 49	16%
50 – 59	16%
60 – 69	17%
70 +	13%

Q2. When was the last time you made a bus journey that began and ended in West Yorkshire?	Responses
In the last week	75%
In the last fortnight	13%
In the last month	12%

Section B: Your bus travel

Q3. How often do you use bus services in West Yorkshire?	Responses
More than 5 times a week	22%
3-5 times per week	26%
1-2 times per week	25%
2-3 times per month	15%
Once a month	6%
Less than once a month	6%

Q4. What was the purpose of those journeys? Please select all that apply.	Responses
Travel to/from work (commuting)	32%
Travel to/from school or college	9%
Travel for employer's business (e.g. to a meeting but not commuting to work)	6%
Travel for leisure or personal business (e.g. doctor's, bank appointment)	75%

B.5 Note that the responses to Q4 sum to more than 100% because it is possible to select more than one response.

Section C: Your last bus journey for [Journey Purpose]

Q5. Please think about the last time you made a local bus journey for [Journey Purpose]. Where did you first get on the bus? Please select one of the following districts in West Yorkshire or select 'I don't know'.	Responses
Bradford	15%
Calderdale	13%
Kirklees	9%
Leeds City Centre	16%
Rest of Leeds	35%
Wakefield	11%
I don't know	2%

Q6. Did you get on the bus at a bus stop or a bus station/interchange point? *An interchange point is a stop where you can change to another bus or train.*	Responses
Bus stop	82%
Bus station/interchange point	18%

Q7. How many buses did you use to get to your destination?	Responses
1	73%
2	25%
3	2%
4 or more	0%

Q8. Where did you get off the bus? Please select one of the following districts in West Yorkshire or select 'I don't know'	Responses
Bradford	12%
Calderdale	12%
Kirklees	6%
Leeds City Centre	40%
Rest of Leeds	21%
Wakefield	7%
I don't know	2%

Q9. Which bus company/companies did you use for your last journey for [Journey Purpose]? Select all companies used or 'I don't know'	Responses
Arriva	31%
First	59%
Stagecoach	1%
Yorkshire Tiger	6%
Transdev (Harrogate, Keighley, Yorkshire Coastliner)	4%
Other	1%
I don't know	4%

B.6 Note that the responses to Q9 sum to more than 100% because it is possible to select more than one response. In Q10 respondents were asked to provide their bus service number. The results for this question can be provided separately if required.

Q11. On your last journey for [Journey Purpose], approximately how much time did you spend on the bus? If you used more than one bus, please give the total time, but don't include any time spent waiting or changing buses.	Responses
5-10 minutes	3%
10-20 minutes	22%
20-30 minutes	28%
30-60 minutes	36%
60 minutes or over	10%

Q12. Please select the option which best describes the crowding when you boarded the bus?	Responses
There were plenty of seats	48%
There were some seats available	44%
The bus was busy - some people had to stand	6%
The bus was very crowded	3%

Q13. What type of ticket did you use for this journey?	Responses
One-way	21%
Return	17%
Day	20%
Weekly	9%
Weekend	0%
Monthly	4%
Annual	3%
A pass to travel for free	26%

B.7 The cost of the ticket was first estimated by respondents in Q14 and a one-way fare was calculated based on this (considering the number of trips made for each ticket type). In Q15, respondents were shown the one-way fare and asked if they would like to adjust this (around 50% chose to adjust this). The adjusted one-way fare is shown in Q16 below.

Q16. One-way fare for your journey	Responses (fare payers only)
£0.40-£1.00	7%
£1.00-£1.50	30%
£1.50-£2.00	23%
£2.00-£2.50	20%
£2.50-£3.00	8%
£3.00-£3.50	7%
£3.50-£5.00	3%
£5 or over	1%

Section D: Current experience and introducing the themes

B.8 This section provides information about how respondents perceive their current experience for the aspects in each theme. This is for information only and is not included in the calculation of Willingness to Pay values for each theme.

B.9 Please rate the information available to you on your last bus journey for [Journey Purpose].

Q17.	Very Good	Good	Average	Poor	Very Poor	I don't know	Not available
Information available to plan my journey in advance.	20%	46%	22%	3%	1%	5%	2%
Electronic screens at the bus stop showing the next buses due at the stop.	20%	33%	13%	5%	3%	1%	25%

B.10 Here are some changes to information that could be introduced:

- A single source where customers can obtain reliable advice on any bus related matter (online, on mobile apps, on the telephone and on paper).
- Audio announcements on every bus providing information about the journey (e.g. route and delays).
- Reliable electronic displays at all bus stops providing information about the next buses due at the stop.

Q18. How important do you think it is to introduce these changes?	Responses
Very Important	44%
Important	38%
Moderately important	15%
Not important	2%
They would make it worse	0%

B.11 Please think about the tickets available to you for your last bus journey for [Journey Purpose] and rate your experience of the following:

Q19.	Very Good	Good	Average	Poor	Very Poor	I don't know	Not available
Your understanding of the range of tickets available for your journey	14%	35%	22%	8%	3%	18%	[do not allow this option]
Ability to pay the same fare for your journey no matter which bus company runs the service	11%	22%	12%	8%	6%	23%	17%
Ability to pay using contactless bank card or pre-paid travel card.	11%	18%	11%	4%	4%	38%	14%

B.12 Here are some changes to ticketing that could be introduced:

- A simpler range of tickets that are valid on all buses.
- The same bus fare for a journey, no matter which bus company runs the service.
- Payment using contactless bank card or a pre-paid travelcard (smartcard)

Q20. How important do you think it is to introduce these changes?	Responses
Very Important	36%
Important	40%
Moderately important	17%
Not important	6%
They would make it worse	0%

B.13 Please think about the tickets available to you for your last bus journey for [Journey Purpose] and rate your experience of the following:

Q21.	Very Good	Good	Average	Poor	Very Poor	I don't know	Not available
The quality of the vehicle	17%	46%	30%	5%	1%	1%	[do not allow this option]
Exhaust fumes from the bus	15%	30%	26%	6%	2%	22%	[do not allow this option]
Cleanliness of the bus	19%	40%	30%	8%	3%	0%	[do not allow this option]
Seat comfort	13%	45%	33%	7%	2%	0%	[do not allow this option]
Availability of Wi-Fi	6%	12%	12%	5%	6%	36%	24%
Availability of phone/tablet charging	6%	10%	7%	6%	8%	31%	32%
Politeness and friendliness of driver	23%	42%	27%	5%	3%	0%	[do not allow this option]
Smoothness of bus ride	16%	43%	32%	7%	2%	0%	[do not allow this option]

B.14 Here are some changes to your bus experience that could be introduced:

- A modern bus with comfortable seats.
- A bus with lower exhaust fumes.
- A clean and litter free bus.
- Free, reliable Wi-Fi and phone/tablet charging capability on the bus.
- A bus driver who is better trained to be polite, helpful and drive smoothly.

Q22. How important do you think it is to introduce these changes?	Responses
Very Important	50%
Important	36%
Moderately important	13%
Not important	1%
They would make it worse	0%

B.15 Please think about your personal safety on your last bus journey for [Journey Purpose] and rate the following aspects of the service.

Q23.	Very Good	Good	Average	Poor	Very Poor	I don't know	Not available
CCTV at bus stations and stops you used	16%	25%	13%	7%	2%	23%	14%
CCTV on board the bus you used	19%	34%	12%	2%	1%	30%	2%
Lighting where you boarded the bus.	24%	40%	22%	5%	2%	4%	2%

B.16 Here are some changes to personal safety that could be introduced:

- CCTV at bus stations and well used stops.
- CCTV on all buses.
- Well-lit bus stops and bus stations.

Q24 How important do you think it is to introduce these changes?	Responses
Very Important	57%
Important	33%
Moderately important	9%
Not important	1%
They would make it worse	0%

B.17 Please rate the bus routes and connections on your last bus journey for [Journey Purpose].

Q25.	Very Good	Good	Average	Poor	Very Poor	I don't know	Not available
A direct bus route for where you want to go.	30%	44%	18%	6%	3%	[do not allow this option]	[do not allow this option]
Ability to connect with other bus services.	20%	42%	19%	3%	2%	5%	9%
Ability to connect with rail services.	13%	32%	23%	7%	3%	11%	12%

B.18 Here are some changes to the bus network that could be introduced:

- Routes planned to meet people's real travel patterns.
- Bus timetables are designed to make it easier to connect with other buses and rail services.
- Any changes to bus timetables will happen at the same time as changes to rail timetables.

Q26. How important do you think it is to introduce these changes?	Responses
Very Important	37%
Important	48%
Moderately important	14%
Not important	1%
They would make it worse	0%

B.19 Please think about the visual appearance of the buses and rate the following aspects of the service.

Q27.	Very Good	Good	Average	Poor	Very Poor	I don't know	Not available
Clear information about who is responsible for the buses	13%	36%	26%	9%	5%	11%	0%
Ease of distinguishing between different types of service (e.g. school, non-school services)	19%	44%	25%	5%	1%	4%	1%
Ease of contacting the bus company if I lose something or have a complaint.	11%	31%	23%	9%	4%	21%	1%

B.20 Here are some changes to visual appearance that could be introduced:

- All buses in West Yorkshire have the same appearance (e.g. the same name, colour and logo).
- At the same time, it is possible to distinguish between different types of service (e.g. express, rural and school services).
- There is a single point of contact to give feedback, find lost property or complain when things go wrong.

Q28. How important do you think it is to introduce these changes?	Responses
Very Important	25%
Important	45%
Moderately important	21%
Not important	8%
They would make it worse	1%

Section E: Exercises

B.21 The results of the exercises are reported in Chapter 3. The exercises are shown in questions 29 and 31.

Q30. Were the descriptions of the changes clear to you?	Ranking Exercise	Stated Preference Exercise
Very clear	62%	55%
Fairly clear	36%	38%
Fairly unclear	2%	5%
Very unclear	0%	1%

Q32. How easy or difficult did you find this exercise?	Ranking Exercise	Stated Preference Exercise
Very easy	62%	53%
Fairly easy	32%	36%
Neither easy nor difficult	5%	8%
Fairly difficult	1%	3%
Very difficult	0%	1%

Section F: About you

Q33. Are you…	Responses
Male	40%
Female	60%
Prefer not to say	<1%

Q34. How many cars or vans do you have in your household? (Please include company cars)	Responses
0	39%
1	45%
2	14%
More than 2	3%

Q35. Are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months?	Responses
Yes	9%
No	89%
Prefer not to say	2%

Q36. Please indicate your employment status	Responses
Working full time	36%
Working part time	15%
In education	8%
Looking after home/family	5%
Unemployed	4%
Retired	26%
Unable to work	3%
Other/Prefer not to say	2%

Q36. Please indicate your employment status Q37. Which category corresponds to your annual HOUSEHOLD income? (before tax)	Responses Responses
Less than £20,000	28%
£20,000 - £39,999	30%
£40,000 - £59,999	12%
£60,000 - £79,999	3%
£80,000 - £99,999	1%
£100,000 or more	1%
Prefer not to say	23%

C Current experience

C.1 This table shows how respondents valued their current experience for each aspect of each theme. This also shows the average across all aspects within a theme. However, this assumes that all aspects of a theme are considered equally, when some aspects of a theme will be valued higher than others.

Table C.1: Current experience

Sample = 1,142	Theme	% of respondents who said current experience is Good or Very Good
Information available to plan my journey in advance.	Information	66%
Electronic screens at the bus stop showing the next buses due at the stop.	Information	53%
Information average		**60%**
Your understanding of the range of tickets available for your journey.	Ticketing	49%
Ability to pay the same fare for your journey no matter which bus company runs the service.	Ticketing	33%
Ability to pay using contactless bank card or pre-paid travel card.	Ticketing	29%
Ticketing average		**37%**
The quality of the vehicle	Journey Experience	63%
Exhaust fumes from the bus	Journey Experience	45%
Cleanliness of the bus	Journey Experience	59%
Seat comfort	Journey Experience	58%
Availability of Wi-Fi	Journey Experience	18%
Availability of phone/tablet charging	Journey Experience	16%
Politeness and friendliness of driver	Journey Experience	65%
Smoothness of bus ride	Journey Experience	59%
Journey Experience average		**48%**
CCTV at bus stations and stops you used	Personal Safety	41%
CCTV on board the bus you used	Personal Safety	54%
Lighting where you boarded the bus.	Personal Safety	64%
Personal Safety average		**53%**

Sample = 1,142	Theme	% of respondents who said current experience is Good or Very Good
A direct bus route for where you want to go	Network	74%
Ability to connect with other bus services	Network	62%
Ability to connect with rail services	Network	45%
Network average		**60%**
Clear information about who is responsible for the buses	Visual Appearance	48%
Ease of distinguishing between different types of service (e.g. school, non-school services)	Visual Appearance	63%
Ease of contacting the bus company if I lose something or have a complaint.	Visual Appearance	42%
Visual Appearance average		**51%**

D Methodology for calculating Willingness to Pay values

D.1 This appendix summarises the approach for segmenting the values for the packages of themes in the Stated Preference exercise to calculate Willingness to Pay values for each theme.

D.2 This segments the values for the packages based on the relative weights of each theme coefficient from the ranking exercise (depending on the package that the theme belongs to). This method is shown below based on the fare payer results (in Table 3.8 and Table 3.10).

Table C1: Stated Preference results – fare paying passengers

Package	Themes included	Value (£ per passenger)	z-ratio
Using the buses ('Journey')	Information, Ticketing, Journey Experience, Personal Safety	£0.26	17.1
Bus Network and Appearance ('Network')	Bus Network, Visual Appearance	£0.01	1.2

Table C2: Ranking exercise results – fare paying passengers

Theme	Package	Coefficient (£)	Weight per package
Information	Journey Package	£0.35	23%
Ticketing	Journey Package	£0.39	26%
Journey Experience	Journey Package	£0.37	24%
Personal Safety	Journey Package	£0.40	26%
	Total Journey Package from SP	£0.26	100%
Bus Network	Network Package	£0.33	61%
Visual Appearance	Network Package	£0.21	39%
	Total Network Package from SP	£0.01	100%

D.3 The weight per package for each theme in Table C2 is multiplied by the value in Table C1 to give the willingness to pay values in £ (or minutes for concessions).

D.4 The stated preference aspect of the analysis determines the overall values for each theme but the ranking exercise impacts on the relative differences between the themes.

D.5 When the results were segmented (in Chapter 3, Table 3.13 - Table 3.20) it was observed that if the Stated Preference exercise results differed between the segments, this had more of an effect on the Willingness to Pay values for each theme than if the order that the themes were ranked (from the ranking exercise) differed between the segments.

E Detailed Stated Preference results

E.1 This appendix provides more detailed results from the Stated Preference exercise segmented by survey method, operator, frequency of use and journey purpose.[12]

E.2 This includes information about whether the differences between the segmented values are significant. This was calculated by measuring the 'z-ratio of the difference' (difference in coefficient values divided by the standard error of the difference[13]) for each package. If the z-ratio of the difference is greater than 1.96 (or, roundly, 2.0), then the values are significantly different.

E.3 Table E1-E3 provide the results segmented by survey method (see Table 3.13). These tables show that there is no statistically significant difference between face to face and postcard values. For face to face vs. panel, there are differences in the Journey package but not the Network package. For panel and postcard, there are no significant differences between them.

Table E.1: Willingness to Pay by methodology – fare payers (Face to Face v Postcard)

Package		Coefficient	z-ratio	z-ratio on the difference	Significantly different?
Network Package	Face to face	15.0	1.3	1.0	No
	Postcard	3.5	1.1		
Journey Package	Face to face	64.4	3.5	1.9	No
	Postcard	28.9	8.1		

Table E.2: Willingness to Pay by methodology – fare payers (Face to Face v Panel)

Package		Coefficient	z-ratio	z-ratio on the difference	Significantly different?
Network Package	Face to face	15.0	1.3	1.2	No
	Panel	0.4	0.3		
Journey Package	Face to face	64.4	3.5	2.2	Yes
	Panel	24.0	14.7		

Table E.3: Willingness to Pay by methodology – fare payers (Panel v Postcard)

Package		Coefficient	z-ratio	z-ratio on the difference	Significantly different?
Network Package	Panel	0.4	0.3	0.9	No
	Postcard	3.5	1.1		
Journey Package	Panel	24.0	14.7	1.2	No
	Postcard	28.9	8.1		

[12] We did not look at statistical significant differences between boarding points as there were many different boarding points and the comparison between these would have been difficult to represent.

[13] The standard error of the difference is calculated (approximately) by taking the square root of the sum of standard errors squared of the two coefficients.

E.4 To be consistent with Chapter 3, the following results exclude face to face fare payers and postcard concessions.

E.5 Table E4 and Table E5 provides the results segmented by operator (see Table 3.15 and Table 3.16). These tables show that there is no significant difference between Arriva only and First only for fare paying and concessionary passengers.

Table E4 Willingness to Pay by operator – fare payers

Package		Coefficient	z-ratio	z-ratio on the difference	Significantly different?
Network Package	Arriva	-0.2	0.4	0.4	No
	First	0.9	-0.1		
Journey Package	Arriva	24.6	9.0	0.8	No
	First	27.5	12.1		

Table E5 Willingness to Pay by operator – concessionary passengers

Package		Coefficient	z-ratio	z-ratio on the difference	Significantly different?
Network Package	Arriva	2.3	2.3	1.1	No
	First	6.0	1.0		
Journey Package	Arriva	7.4	2.2	0.2	No
	First	8.1	2.3		

E.6 Table E6 provides results segmented by frequency of use (where frequent users are passengers who use the bus at least once a week, see Table 3.19). This shows that the differences by frequency of use are significant for the Journey Package but are not significant for the Network Package.

Table E6 Willingness to Pay by frequency – fare payers

Package		Coefficient	z-ratio	z-ratio on the difference	Significantly different?
Network Package	Frequent	0.3	1.0	0.5	No
	Infrequent	1.6	0.2		
Journey Package	Frequent	21.0	14.4	2.1	Yes
	Infrequent	27.3	8.8		

E.7 Table E7 provides results segmented by journey purpose (see Table 3.20). This shows that the differences by journey purpose are not significantly different.

Table E7 Willingness to Pay by journey purpose – fare payers

Package		Coefficient	z-ratio	z-ratio on the difference	Significantly different?
Network Package	Leisure	0.8	0.5	0.3	No
	Non-Leisure	1.4	0.8		
Journey Package	Leisure	26.6	12.8	-1.2	No
	Non-Leisure	23.2	10.6		

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