



UNIVERSITY OF LEEDS

Buses and the Economy II

The role and value of bus services outside towns and cities – a case study of Shrewsbury

Jeremy Shires, Daniel Johnson, Peter Mackie and
Tony Fowkes
Institute for Transport Studies

June 2014

1. INTRODUCTION

This task focuses on the role of buses outside of the urban service market. It would be wrong to describe most services outside towns and cities as rural even if a high proportion of their mileage is green field. Their economic function is usually to connect for example the county town or the largest market town in the area with another smaller town, passing through villages or small towns on the way. A look at the bus network for any county in England would show a map of services of this kind, often running at 30 or 60 minute intervals, or perhaps two-hourly in more sparsely populated territory. Some of these services are commercial, or commercial Mon-Sat daytime; some are partially or wholly tendered.

To undertake a comprehensive or representative sample survey of the use and value of such services would be a major undertaking outside the scope of this work. We therefore chose to undertake a case study of two routes in Shropshire. Although it is not susceptible to proof, our Steering Group felt these were typical services of that kind.

Section 2 begins this task by describing the case study location in more detail.

This strand of the Buses and Economy II study had two goals:

- To investigate the pattern of usage of these routes and define their economic function more closely. For this purpose an on-bus survey was carried out and is detailed in section 3.
- To investigate the value which the local population in the catchment area of the services place on their existence and availability. This needed to include both users and non-users and therefore a household survey was undertaken. This is detailed in section 4.

2. SURVEY LOCATION

The population of Shropshire is some 300k, of which some 70k live in the county town of Shrewsbury, actually a city. Shrewsbury is well connected in key directions by rail services provided by Arriva Trains Wales, and there is an extensive bus service mostly provided by Arriva Midlands. Shrewsbury has a high (70%) level of “self containment”, ie. people who both live and work in Shrewsbury. The removal of individual bus services would not unduly inconvenience people living in Shrewsbury itself, but those living some distance from, and requiring to access, Shrewsbury would probably be seriously inconvenienced by the loss of a relevant service. An examination was therefore made of bus routes into Shrewsbury.

The Shrewsbury Area Network Map of bus services (see Appendix Figure 1), taken together with knowledge of local rail services, indicated that virtually all the nearby population centres were connected by more than one service. One exception noted was Service 436, which served the well known locations of Much Wenlock and Bridgnorth. Both are towns, with populations of some 3k and 12k respectively. Service 436 is approximately hourly between 06.40 and 16.40 from Bridgnorth, with a final departure at 18.40; with return journeys from Shrewsbury each 60 minutes later. Journey times are mostly 30 mins Shrewsbury to Much Wenlock, and a further 25 minutes on to Bridgnorth. It follows that just 2 buses are required, which represents good economy of operation. The service operates Monday to Saturday only. As with all bus routes mentioned in this report, route maps and timetables are included in the Appendix.

It is important to note that the withdrawal of service 436 would not leave either town isolated by public transport. Much Wenlock has Monday to Saturday services at 09.52, 11.52 and 13.52 to Telford via service 88 with journey time 55 minutes. Bridgnorth has Monday to Saturday services to Telford roughly two-hourly between 06.15 and 19.00 via service 99 with journey time 60 minutes. Although they have traditionally looked toward Shrewsbury, as the county town, the new town of Telford has exerted an increasing pull in recent decades for both Much Wenlock and Bridgnorth. In extremis, therefore, travellers from Much Wenlock or Bridgnorth to Shrewsbury could travel via Telford (which has both a bus and rail service to Shrewsbury). For journeys to the rest of the country, Bridgnorth has service 890, which provides a 45 minute journey to Wolverhampton hourly from 07.40 to 16.50 (with returns 60 min later) on Mondays to Saturdays, and two hourly on Sundays. Notwithstanding all this, the withdrawal of service 436 would be a major blow for many in both Much Wenlock and Bridgnorth. The route therefore appeared to be a good candidate location for our needs.

After various discussions it was decided to look at a separate, but nearby, bus route. This additional route was the 64 service from Shrewsbury via the town of Market Drayton and on (with a name change to the 164) to Stoke on Trent. Market Drayton is a small market town, mid-way between Shrewsbury and Stoke-On-Trent, with a population of 11k in 2011. According to Wikipedia, its largest employer is the Palethorpe's sausage factory. It is currently adequately served with libraries, but bus links are limited. There is no longer a railway.

Market Drayton (MD) currently has bus service links to Shrewsbury (its county town), Stoke, and Telford/Wellington. Services 301 and 302 are frequent circular services within MD. There is just one bus trip per day, and only on 3 days per week, to Stafford, which one would imagine would be a major attractor to people in MD, and what would be a quick route to London and the South. Services 341 & 342 to Wellington are roughly 2-hourly Mon-Sat 08.40-17.45, with one service a day extended to Telford. It is a complicated meandering service, varying by day of week. There are a few one-trip-per day (or week) services, seeming to serve schools and/or market day.

Market Drayton's main bus service, however, is the one we have chosen to study. Service 64 serves Shrewsbury and is joined at MD to service 164 serving Stoke. Both run hourly from around 07.30 to around 18.00 Monday to Saturday, and those trips are understood to be operated commercially. There is a 2-hourly Sunday service 164 to Stoke, apparently tendered and operated by a different operator (Bennetts), who also claim to operate 5 weekday evening services though no times can be found. That is the only Sunday service that we have located involving MD.

3. BUS USER SURVEY

3.1 Introduction

This section of our report documents the bus user survey. The focus of this piece of work was to examine the usage of the chosen routes and what the impacts would be on users if individual bus services were removed.

Questionnaires were designed to examine three main journey purposes of current bus users travelling on the two services in question: (1) Commuting; (2) Education/Training; (3) Retail/Services/Amenities.

The key objectives of the surveys for the research team was to try and understand and quantify, where possible, the following:

- a) Current trip making patterns.
- b) Current levels of bus user satisfaction with current bus performance.
- c) What the implications would be if the current bus services was disrupted in the short term and/or did not exist?
- d) Reasons for visiting locations.
- e) Retail expenditure undertaken at locations.

3.2 Sampling

The original aim of the sampling was to target specific bus users travelling on the Bridgnorth/Much Wenlock and Market Drayton routes, whose journey involved either accessing Shrewsbury or departing from Shrewsbury. The reasoning behind this was that these bus users would have no other public transport option for making exactly the same journey. They would therefore face 3 main choices: (1) Making the same journey by another mode; (2) Not making the journey/rescheduling the journey; or (3) Travelling somewhere else – either by bus or another mode of transport.

By targeting these bus users specifically, we would be able to rule out a potential 4th option of ‘making the same journey by another bus route’ and so be able to gauge the potential social and economic cost of withdrawing bus services; either temporarily or permanently. As a result a number of restrictions were applied with regards to which passengers would be in scope.

1. If travelling from Shrewsbury – they left the bus outside of the city boundaries, e.g. past the A5/A49. This screened out passengers who could travel on a number of other buses inside of Shrewsbury to reach their destinations.
2. If travelling from Shrewsbury – they were not travelling further than Market Drayton or Bridgnorth as there were other bus services operating from Market Drayton & Bridgnorth to other locations.
3. If travelling into Shrewsbury – they had boarded the bus in Market Drayton/Bridgnorth or after and were leaving the bus after entering Shrewsbury, e.g. past the A5/A49.

These restrictions were designed to ensure that respondents in the sample were not travelling within Shrewsbury (e.g. local traffic) and that their main journey location from Market Drayton/Bridgnorth had been Shrewsbury and no other towns (e.g. Hanley, Newcastle under Lyme etc.). In addition no school children (aged 16 or under) were included in the survey.

Taken together these restrictions meant that a number of people travelling on the bus, sometimes a large number, were out of scope and could not take part in the survey.

Altogether there were 3 periods of survey activity. A pilot (Tuesday, 4th March – 1pm till 8pm), the main survey (Thursday 13th March till Saturday 15th March) and a top up survey (Wednesday 26th March – 12 noon till 8pm).

The main survey was scheduled around three key time periods¹:

- (1) Thursday 13th March – 1pm till 8pm – designed to capture peak commuters/education/training & leisure passengers (both day time and evening during the mid-week)
- (2) Friday 14th March – 9am till 4pm – designed to capture mainly day time leisure trips and shoulder peak commuter & education/training passengers

¹ We would like to thank Gordon Frost Business Development Manager at Arriva for his continual cooperation and specifically for granting us permission to board their services,. Also we would like to thank Matt Johnson, Area Transport Planning Commissioner at Shropshire County Council for facilitating access to the tendered services and to the bus station. Lastly, but not least, thanks to the Bus drivers who were, without exception, co-operative and friendly throughout the survey process.

- (3) Saturday 15th March – 12 noon till 8pm – designed to capture leisure passengers (weekend day and evening peak)

The aim was that the different survey periods would allow us to construct a sample representative of a week day and a weekend day (no Sunday services). The survey team travelled on the bus and intercepted passengers as they boarded buses, checking whether they were in scope and what the main journey purpose was before handing them one of three questionnaire forms which cover: (1) Commuting; (2) Education/Training; & (3) Shopping/Leisure/Services/Amenities – providing they agreed to take part in the survey.

The aim was to ensure a full profile of passengers take part in the survey per bus surveyed. For route 64 all the buses during the survey windows were covered giving us 100% total coverage during survey periods, whilst for route 436 half of the buses were surveyed giving us 50% total coverage.

In addition staff were stationed at Shrewsbury bus station for certain periods of the day (to avoid travelling on buses largely occupied with school children) where they distributed questionnaire forms to those in scope accessing and leaving the two services in question.

3.3 Questionnaire Design

All three questionnaires (see Appendix section 6.3) were based around the online questionnaire that had been designed for the 'survey of expenditure' of city and town centres in an earlier phase of the Buses and Economy study. Whilst certain aspects of the questionnaires had to be tailored to the specific routes, there was nonetheless a high level of compatibility with the previous work.

An initial pilot was held on Tuesday 4th March, to allow the questionnaire design to be tested with feedback from respondents and the survey team leading to some minor changes in the wording and ordering of some questions.

The final structure of the questionnaires are summarised below:

General Bus Travel:

- Satisfaction questions related to different aspects of the current bus service.
- Trips made in a week.

Questions about the Bus Journey When Handed the Questionnaire

- Where did the bus journey start and finish?
- How long did the different segments of the overall journey take?
- Ticket type?

Questions Specific to the Journey Purpose

- Employment related questions
 - Type of employment & sector
- Education/training questions
 - Type of course/training
- Retail related questions
 - Reasons for visiting
 - Expenditure as an individual/family

Questions Related to Specific Changes in Bus Services & Implications for Today's Journey

- What would you do if the bus services were not available for a day?
- What would you do if the bus service was withdrawn?

Socio-economic & Travel Availability Questions

- Income, age, gender, household characteristics etc.?
- Availability of car?

3.4 Survey Implementation and Description of the Data

During the surveys a number of issues arose which are worth highlighting as they add context to the overall report and results. The first relates to the composition of the sample size and are discussed in more detail in the paragraph below. The data is heavily influenced by two distinct sets of travellers, students and those who are retired, accounting for around 70% of the sample. By itself this introduces strong bias into the sample given the relationships with other key variables, e.g. car access, income levels and journey purpose. Both these services also have a significant base load of children travelling to and from school, although these were not in scope here (aged 16 and under).

The second issue relates to the overall sample size. The intention had been to collect a much larger sample size (>600) which would have provided us with a robust data set to have conducted detailed segmentation analysis. It quickly became apparent from feedback from the survey team that there was a very limited pool of bus passengers to survey from and that, regardless of how many resources we devoted to the survey, we would not come close to reaching our sample target (our surveyors were already meeting the same people a number of times!). In the end only 44% of the sample target was achieved which has placed considerable restrictions on the sophistication of the analysis that has been possible and the confidence we can place on extrapolating results into the wider bus population.

In total, 265 survey forms were returned across both routes (77 – Bridgnorth & 188 – Market Drayton), although it should be noted that not all the forms were fully completed, hence sample sizes do not always total to 265.

Table 3-1 and *Table 3-2* provide an overview of the data collected, specifically, the general socio-economic characteristics of the data and are based on the non-weighted data set. Both bus routes show a clustering of respondents around the 16-19 & 60+ age group categories, with around 30% and 40% of the respondents respectively. These two groupings are similarly reflected in the distribution of income categories and employment classifications, suggesting that two of the key user groups of the two bus routes are students and the retired. This is also reflected in *Table 3-2* with low levels of car availability and license holders, suggesting that for both routes a substantial section of passengers are reliant to a large degree on the existing bus services.

Table 3-1: Socio-Economic Description of Overall Sample (unweighted) % - Bridgnorth & Market Drayton

Gender	Age (Yrs)								All Ages		
	<u>16-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30-39</u>	<u>40-49</u>	<u>50-59</u>	<u>60+</u>				
Bridgnorth – n=74											
Male	13.5	5.4	1.4	4.1	1.4	4.1	16.2		45.9		
Female	14.9	4.1	2.7	1.4	5.4	6.8	18.9		54.1		
All	28.4	9.5	4.1	5.4	6.8	10.8	35.1		100.0		
Market Drayton – n=179											
Male	12.3	2.2	2.2	2.2	2.8	2.2	12.3		36.3		
Female	16.8	3.9	2.8	5.0	3.9	3.4	27.9		63.7		
All	29.1	6.1	5.0	7.3	6.7	5.6	40.2		100.0		
Income Categories (£s)											
	<u>No work</u>	<u>Too personal</u>	<u>1-4,999</u>	<u>5,000-7,499</u>	<u>7,500-12,499</u>	<u>12,500-14,999</u>	<u>15,000-19,999</u>	<u>20,000-24,999</u>	<u>25,000-29,999</u>	<u>30,000-49,999</u>	<u>50,000+</u>
Bridgnorth (n=64)	34.3	29.7	17.2	4.7	6.3	1.6	3.1	na	3.1	na	na
Market Drayton (n=162)	40.1	32.1	10.5	1.9	4.3	1.9	1.9	1.2	2.5	2.5	1.2
Qualification Categories											
	<u>None</u>		<u>GCSE</u>	<u>A Level</u>	<u>Degree</u>	<u>Professional</u>			<u>Other</u>		
Bridgnorth (n=77)	9.1		46.8	33.8	14.3	9.1			16.9		
Market Drayton (n=188)	16.0		45.7	28.2	14.4	9.0			7.4		
Employment Classification											
	<u>Employed 1-30 hrs</u>	<u>Employed >30 hrs</u>	<u>Homemaker</u>	<u>Student</u>	<u>Not Employ – Looking for Work</u>	<u>Not Employ – Not Looking for Work</u>	<u>Retired</u>	<u>Disabled/ Can't work</u>			
Bridgnorth (n=62)	21.0	16.1	3.2	17.8	3.2	1.6	33.9	3.2			
Market Drayton (n=163)	19.0	12.3	3.7	22.1	4.9	0.6	35.0	2.5			

Table 3-2: Travel Characteristics of the Overall Sample (unweighted) % - Bridgnorth & Market Drayton

<i>Valid UK Driving License</i>	Bridgnorth (n=73)	Yes 46.6	No 53.4							
	Market Drayton (n=179)	43.6	56.4							
<i>Car/Van Availability for Journey to Work</i>	Bridgnorth (n=15)	Yes - Always 26.7	Yes – Almost always 33.3	Yes – But infrequently na	No – I never have access 40.0					
	Market Drayton (n=19)	5.3	15.8	21.1	57.9					
<i>Car/Van Availability for Personal Uses</i>	Bridgnorth (n=69)	Yes - Always 17.4	Yes – Almost always 23.2	Yes – But Infrequently 8.7	No – I never have access 50.7					
	Market Drayton (n=170)	18.8	14.1	13.5	53.5					
<i>Bus Ticket Type</i>	Bridgnorth (n=73)	Concess'y Pass 46.6	Day Saver 19.2	Weekly Saver na	Return 2.7	Family Saver na	4 Weekly Saver 4.1	Single 17.8	Student Saver 9.6	Annual Saver na
	Market Drayton (n=178)	41.0	19.7	1.7	2.2	1.7	14.0	11.2	6.7	1.7

3.5 Results

The next set of tables in this section outline the key analyses of the data collected. It should be noted that a set of weights have been allocated to the data to enable the data to reflect a full week's loading (excluding a Sunday).

One key finding from our work appears to be the importance of the retail/leisure market to the bus market here - 62% of our overall sample were undertaking Shopping/Leisure/Service activities. Clearly bus plays a key role in facilitating these activities.

General Bus Travel & Specific Journey Times

Table 3-3 outlines current satisfaction levels with the two bus services. The results suggest that the Market Drayton route is performing reasonably, with around 70% of passengers rating their performance either satisfactory or very satisfactory. The Bridgnorth route performs less well in three areas, namely, value for money, punctuality and frequency of service. The latter two in particular have high levels of indifference or dissatisfaction (>35%) which probably reflects the limited nature of the bus service (hourly).

Table 3-4 illustrates average trip making (one way trips) for a variety of journey purposes. The overall average trip rates suggest that education, shopping and work trips are of particular importance, with visiting family and friends also significant. Focusing on specific trip makers² reveals, not surprisingly that those making journeys to work/education are the highest frequency users (4 to 5 trips per week). Those making shopping trips, average 2+ trips per week as do those visiting family and friends.

The median times recorded for bus journeys (all purposes) along both bus routes is outlined in *Table 3-5*. The bus journey time for both routes is quite different with Market Drayton 15 minutes longer. Given that both routes have similar scheduled end-to-end journey times this would suggest that the passengers sampled on the Bridgnorth route were boarding/disembarking at more intermediate stops along the route.

Access/egress time to and from bus stops is also longer for Market Drayton which may reflect the fact that Market Drayton is a larger town than Bridgnorth and so passengers have further to travel to access the bus route. It may also reflect the fact that intermediate stops on the Bridgnorth route are closer to respondents' homes.

² Here only the people making trips in a particular trip category are included in the average trip calculation.

Table 3-3 Satisfaction Levels with Current Bus Service for Overall Sample (weighted) % - Bridgnorth & Market Drayton

Attribute:	Route	V.Satisfied	Satisfied	Indifferent	Dissatisfied	V.Dissatisfied	D/Know	N=
Journey Times	Bridgnorth	22.5	52.7	10.6	8.7	4.3	1.2	71
	<i>Market Drayton</i>	<i>31.8</i>	<i>48.8</i>	<i>9.6</i>	<i>6.1</i>	<i>2.9</i>	<i>0.7</i>	<i>184</i>
	Overall:	29.3	49.9	9.9	6.8	3.3	0.8	255
Value for Money	Bridgnorth	25.5	30.6	14.1	12.0	5.2	12.6	67
	<i>Market Drayton</i>	<i>38.9</i>	<i>30.6</i>	<i>15.7</i>	<i>6.8</i>	<i>3.3</i>	<i>4.8</i>	<i>178</i>
	Overall:	35.2	30.6	15.3	8.2	3.8	6.9	245
Availability of Seat to stand	Bridgnorth	30.1	49.1	10.3	6.7	3.9	Na	69
	<i>Market Drayton</i>	<i>36.0</i>	<i>48.0</i>	<i>12.5</i>	<i>2.5</i>	<i>0.9</i>	<i>Na</i>	<i>180</i>
	Overall:	34.4	48.3	11.9	3.7	1.7	Na	249
Punctuality	Bridgnorth	7.9	44.9	21.1	16.1	10.1	Na	68
	<i>Market Drayton</i>	<i>31.7</i>	<i>48.4</i>	<i>12.4</i>	<i>3.6</i>	<i>4.0</i>	<i>Na</i>	<i>187</i>
	Overall:	25.3	47.4	14.7	6.9	5.6	Na	255
Frequency of Services	Bridgnorth	17.4	46.2	15.1	13.8	6.3	1.2	69
	<i>Market Drayton</i>	<i>28.6</i>	<i>44.6</i>	<i>9.6</i>	<i>11.9</i>	<i>4.1</i>	<i>1.1</i>	<i>183</i>
	Overall:	25.6	45.1	11.1	12.4	4.7	1.2	252

Table 3-4: Average Trip Making Levels (weighted) - Bridgnorth & Market Drayton

Trip Purpose	Average Number of One Way Trips in the Last 7 Days (n)									
	Overall Trip Rate			Specific Trip Makers			Overall Trip Rate		Specific Trip Makers	
	<i>Bridgnorth (n=73)</i>	<i>Market Drayton (n=190)</i>	<i>Overall (n=263)</i>	<i>Bridgnorth</i>	<i>Market Drayton</i>	<i>Overall</i>	<i>Concessions (n=106)</i>	<i>Non- Concession (n=144)</i>	<i>Concession</i>	<i>Non- Concession</i>
Getting to or from work	0.82	0.66	0.70	4.33 (n=14)	5.23 (n=24)	4.85 (n=38)	0.23	1.06	2.71 (n=9)	5.65 (n=27)
Getting to from education	1.16	1.43	1.35	4.65 (n=18)	6.23 (n=44)	5.73 (n=62)	0.28	2.17	4.24 (n=7)	6.01 (n=52)
During work (biz meeting)	0.13	0.13	0.13	2.71 (n=4)	2.00 (n=12)	2.14 (n=16)	0.16	0.08	2.42 (n=7)	1.65 (n=7)
To or from shopping trip	0.93	0.79	0.83	2.89 (n=23)	2.17 (n=69)	2.37 (n=92)	1.26	0.55	2.57 (n=52)	2.02 (n=39)
To or from visiting friends & family	0.43	0.52	0.49	2.06 (n=15)	2.19 (n=45)	2.15 (n=60)	0.40	0.59	2.12 (n=20)	2.07 (n=41)
To or from personal business (bank, doctor etc.)	0.13	0.14	0.14	1.48 (n=6)	1.77 (n=15)	1.75 (n=21)	0.12	0.16	1.59 (n=8)	1.77 (n=13)
To or from leisure (swimming pools etc.)	0.18	0.12	0.13	1.93 (n=7)	2.21 (n=10)	2.01 (n=17)	0.22	0.06	2.33 (n=10)	1.44 (n=6)
Visit to the job centre	0.07	0.00	0.02	1.70 (n=3)	0.00 (0)	1.70 (n=3)	0.00	0.02	0.00 (n=0)	1.5 (n=2)
Accompanying child, family member to school etc.	0.00	0.14	0.10	0.00 (n=0)	2.96 (n=9)	2.96 (n=9)	0.06	0.14	3.18 (n=2)	2.52 (n=8)
Other	0.04	0.02	0.03	1.55 (n=2)	1.00 (n=4)	1.32 (n=6)	0.01	0.03	1.00 (n=1)	0.86 (n=5)
Total:	3.89	3.95	3.92	Na	Na	Na	2.74	4.86	Na	Na

Table 3-5 Median Time Spent Making Bus Trips (weighted) - Bridgnorth & Market Drayton

	Routes		
	Bridgnorth	Market Drayton	Overall
Time to bus stop	10.00 (n=63)	14.38 (n=153)	10.00 (n=216)
Time at bus stop	10.00 (n=68)	10.00 (n=161)	10.00 (n=229)
Bus journey time	35.00 (n=66)	50.00 (n=170)	45.00 (n=236)
Time from bus	5.00 (n=61)	10.00 (n=157)	10.00 (n=218)
Total:	60.00	84.38	75.00

Perceived consequences from Bus Service Withdrawal

Table 3-6 relate to the perceptions of possible consequences and impacts that might result from the permanent withdrawal of bus services.

Respondents were able to choose more than one response so the categories do not always add to 100%. The results are split by the main journey purpose and it should be noted that for some categories the sample sizes are very small, making it difficult to attach statistical significance. In addition the three questionnaires offered different possible responses to the same question. To counter this, from a presentational point, the responses have been grouped as closely as possible to try and facilitate a comparison between questionnaire responses.

Looking across the data it is clear that responses do differ according to the main journey purpose and route. The most natural groups to compare are those of commuting and education/training, given the frequency of trips per week and the difficulty to reschedule or cancel. Several points stand out:

- Bus trips are more likely to be replaced by car trips than any other mode.
- Active modes are not seen as a replacement by retail passengers
- For commuters there would appear to be a medium term desire to increase car usage with between 15% of respondents indicating they would want to learn to drive and between 7% looking to purchase a car. 23% said they would start to look for another job.
- For those making education/training journeys by bus the key reactions are a strong emphasis on learning to drive (27%) and the purchase of a car (11%). Also, 24% would look for a new course, 16% would give up their current course and 20% would miss occasional classes.

The results for the retail questionnaire demonstrate a lot more flexibility in respondent's ability to reschedule the activity:

- Around 30% of respondents would not do the planned activity.
- A significant amount (20%) of respondents would travel using another form of transport, although still lower than the other two segments.
- A sizeable amount would continue to travel by bus, either using a different route or accessing a different location.

The responses for this segment may reflect that those respondents' making such trips are largely retired with concessionary passes and poor access to cars. Table 3-7 investigates

this further by examining the break down between concessionary and non-concessionary respondents. It is clear that, for the retail segment, there is a much higher propensity to continue using the bus if you are a concessionary pass user vis a vis a non-concessionary pass holder (31% vs 22%), perhaps reflecting the importance of a concessionary pass. Non-concessionary holders are more likely to switch to taxi or travel by car as a passenger.

We also asked the same question about implications of the temporary unavailability of the bus service on just the survey day. We found that concessionary passengers were much more likely than non-concessionary passengers to continue their activities (72% vs 52%) and use the bus to travel to other locations (27% vs 6%).

Table 3-6: If the Bus Service was No Longer Available What Would You Do? % (weighted)

	Commute (n=42)	Education/Training (n=59)	Retail I (n=162)
Travel by a different bus route	Na	Na	6.3
Travel by bus to another location	Na	Na	19.7
Travel by car as a driver	25.7	9.2	10.4
Travel by car as a passenger	17.8	37.3	9.6
Travel by motorbike	0.0	3.5	0.0
Travel by train	5.0	4.2	4.3
Park and ride	Na	Na	0.8
Travel by taxi	6.9	5.6	6.0
Travel by bicycle	5.0	1.4	0.0
Travel on foot	4.0	0.0	0.0
Other travel	0.0	0.0	1.2
Buy a car	6.9	10.6	Na
Learn to drive	14.9	26.8	Na
Always work from home	0.0	Na	Na
Do all/some of the activities planned online or telephone	Na	Na	2.8
Change to different course/class/training	Na	7.0	Na
Miss occasional course/class/training	Na	19.7	Na
Look for a new course/class/training	Na	23.9	Na
Look for a new job	22.8	Na	Na
Give up work	5.9	Na	Na
Give up current training/education	Na	16.2	Na
Not do the planned activity	Na	Na	29.6
Live away from home during the week	Na	6.3	Na
Move home	4.0	4.9	4.7
Other	13.9	4.2	4.6

Table 3-7: If the Bus Service was No Longer Available What Would You Do? % (weighted) – Concessions vs Non-Concessions

Retail	Concessions (n=82)	Non-Concessions (n=72)
Travel by a different bus route	8.4	4.6
Travel by bus to another location	22.2	17.8
Travel by car as a driver	15.8	1.8
Travel by car as a passenger	7.1	12.9
Travel by motorbike	0.0	0.0
Travel by train	3.5	3.6
Travel by taxi	1.4	11.7
Travel by park and ride	0.0	1.8
Travel by bicycle	0.0	0.0
Travel on foot	0.0	0.0
Other travel	0.0	2.7
Do all/some of the activities planned online or telephone	1.5	4.6
Not do the planned activity	29.0	31.6
Move home	4.5	4.0
Other	6.6	2.9

Retail Activities and Expenditure

This section focuses upon the retail questionnaire and examines what type of activities respondents undertook, what was important in attracting them to that particular shopping location and also what expenditure was undertaken.

Table 3-8 outlines the main activities undertaken by respondents. Shopping for food/groceries is the most popular activity undertaken by respondents (35%) closely followed by eating out/socialising (32%) and shopping for clothes/cosmetics/jewellery (28%). It should be noted that respondents could choose more than one category so the figures do not sum to 100%.

Not surprisingly, having a good range of shops/services/facilities (*Table 3-9*) figures highly on respondents list of reasons why they visited Shrewsbury (36%) along with an opportunity to meet family/friends (35%). The most important reason recorded, however, was that Shrewsbury was convenient to travel to by bus (46%).

Table 3-8: Activities Related to Retail/Services/Amenities - % (weighted)

Expenditure Category	% (n=162)
Shopping for food/groceries	34.8
Shopping for alcohol/tobacco/newspapers/confectionary	7.9
Shopping for clothes/cosmetics/jewellery	27.6
Shopping for pharmaceuticals/toiletries	11.0
Shopping for electrical/household goods	4.5
Shopping for stationary/books/CDs	9.7
Shopping for other items (excluding services)	8.1
Using a service or public amenity, e.g. bank	17.0
Eating out/socialising	31.8
Other leisure/recreation, e.g. cinema, music concert	8.3
Other	21.4

The next three tables (*Table 3-10* to *Table 3-12*) outline a series of average expenditure figures calculated from respondent's own estimations of what they spent individually and as a family on the day they were given the retail questionnaire.

Table 3-10 outlines a series of average expenditure figures, for different categories of good and services, for the overall individual per bus trip. The first measure (including non-spenders) aggregates all the recorded individual expenditure by category in Q8 and then averages it over the number of respondents who have completed that question, e.g. including those who have spent £0. The second measure removes, for each category, those who did not spend anything (non-spenders) and so gives a higher average spend.

Table 3-11 reports a similar exercise as just reported but this time for total expenditure (e.g. aggregation of the individual categories) differentiated by expenditure at different individual and group levels of expenditures, including and excluding non-spenders.

The individual measures aggregate up all individual spending across the different categories (Q8) and then averages it over the number of respondents who have completed that question, e.g. including those who have spent £0. Separate individual measures are calculated for individuals who were shopping in a group and those who were not. They are also calculated for concessionary pass holders and non-concessionary pass holders. The overall individual expenditure is around £20 and £41 including and excluding non-spenders. Individuals who were not shopping as part of a group have the tendency to spend the most vis-a-vis individuals who were shopping in a group. Interestingly individual spending by concessions is higher than for non-concessions. This may reflect that, for concessions, bus is their main transport mode whereas for non-concessions, other modes such as car are used for shopping purposes (especially larger grocery shops).

The family group expenditure measures show average expenditure by the family group per se (family group – as a group) and then what the per capita spend is within the family group (family group – as an individual). In both instances the averages are lower than the individual expenditure (including non-spenders) but higher, for the family group per se.

Table 3-12 outlines the average expenditure for people who stated they would not make the shopping trip if the bus service was withdrawn (temporarily or permanently). In theory this represents lost expenditure that would not be substituted elsewhere, e.g. online or at another shopping location. The average individual expenditure figures for both scenarios are higher than for the overall individual expenditure figure reported in Table 3-11; suggesting that not only do they encompass representative trip making (e.g. are not discretionary trip making where only a small amount is spent) but that they are particularly affecting those respondents who are reliant on the bus for a lot of their shopping needs leading to high average expenditure.

Table 3-9: Which of the Following Reasons were Important in Reaching Your Decision to Visit this Location -% (weighted)

	Important (n=162)
<i>Good range of shops, services & leisure/recreation facilities</i>	36.1
<i>It has specific shops</i>	29.2
<i>It has longer opening hours</i>	1.0
<i>It is a day out/opportunity to meet family/friends</i>	35.0
<i>It is the closest location</i>	16.0
<i>It is the only location I could travel to</i>	8.0
<i>It is the least expensive location to travel to</i>	2.4
<i>It is convenient to travel to by bus</i>	46.0
<i>I chose it because of poor weather</i>	0.5
<i>I could do shopping and access other services & leisure/recreation facilities at the same time</i>	14.1
<i>It has child care facilities</i>	0.6

Table 3-10: Average Overall Individual Expenditure for Different Categories of Expenditure (£ per Trip)

<i>Expenditure Category</i>	<i>Average Expenditure (including non-spenders)</i>	<i>Average Expenditure (excluding non-spenders)</i>	<i>N³</i>
Shopping for food/groceries	3.76	16.92	162 (36)
Shopping for alcohol/tobacco/newspapers/confectionary	0.75	40.50	162 (3)
Shopping for clothes/cosmetics/jewellery	6.52	44.01	162 (24)
Shopping for pharmaceuticals/toiletries	0.91	11.34	162 (13)
Shopping for electrical/household goods	0.64	12.96	162 (8)
Stationery/books/CD/DVDs/leisure goods	0.47	9.52	162 (8)
Shopping for other items	0.97	26.19	162 (6)
Using a service or public amenity, e.g. bank, post office, hairdresser etc.	1.44	23.33	162 (10)
Eating out/socialising	2.83	13.89	162 (33)
Other leisure/recreation, e.g. cinema, music concert etc.	0.64	14.81	162 (7)
Other	0.57	13.19	162 (7)
Total Spend	19.50	Na	162 (7)

Table 3-11: Average Individual and Group Expenditure (£ per Trip)

	<i>Average Expenditure (including non-spenders)</i>	<i>Average Expenditure (excluding non-spenders)</i>	<i>N¹</i>
Individual – Not in a Group ⁴	24.25	45.10	109 (59)
Individual – In a Group ⁵	9.60	26.76	52 (19)
Family group – As a group ⁶	19.05	68.57	52 (15)
Family group – As an Individual ⁷	5.13	18.46	52 (15)
Overall – Per Individual ⁸	19.50	40.67	162 (78)
Overall – Per Individual Concession	22.97	45.76	82 (41)
Overall – Per Individual Non-Concession	16.48	35.63	72 (33)

³ The first N refers to the sample including non-spenders and the N in brackets refers to the sample excluding the non-spenders.

⁴ Defined as a respondent who was not shopping in a group. The non-spend figure excludes those who did not make any expenditure at all.

⁵ Defined as a respondent who was shopping in a group. The non-spend figure excludes those who did not make any individual expenditure.

⁶ This treats N as groups per se, e.g. a group equals 1 respondent regardless of group size.

⁷ This reports expenditure per group individual, e.g. group expenditure/number of individuals in the group.

⁸ This reports all individual expenditure regardless of whether that person is in a group or not.

Table 3-12: Average Overall Individual Expenditure for People Who Would Not Make A Shopping Trip (£ per Trip)

	Average Expenditure (including non- spenders)	Average Expenditure (excluding non- spenders)	N ¹
Overall – Per Individual – 1 day	25.60	51.92	54 (26)
Overall – Per Individual - Permanent	28.01	53.69	69 (36)

To arrive at an estimate of the expenditure in Shrewsbury which is attributed to these services a number of steps and assumptions were made .

1. Appendix section 6.2 details the procedure used to estimate weekly in-scope loadings for these two routes. We found that this numbers 398 return passengers for the Bridgnorth<->Shrewsbury route (436) and 531 return passengers on the Market Drayton route (64).
2. We assume that the mix of passengers in our sample is representative of the overall population of passengers on these services, ie 162 of our sample of 263 (62%) were engaged in retail/service activities. This would correspond to 576 passengers per week, or 29,950 passengers per year.
3. Given the expenditures above reported in *Table 3-12* (£28) and the percentage of those retail passengers who would not shop at all, (29.6%) from *Table 3-6*, we multiply the total passenger estimate by the proportion who would not shop and by their average expenditure. This gave us an estimate of £248,000 loss of net expenditure per year from the in-scope passengers which can be attributed (exclusively) to the 2 bus routes. A further 19.7% would travel to another location (assumed to be outside Shrewsbury), and 2.8% said they would spend on line. Taken together with the net loss of £248,000 would amount to £437,000 lost to the Shrewsbury area economy were these 2 services lost.

It is worth noting there will be many other passengers travelling and spending on these services who were not deemed to be in scope as they had other bus service options for accessing Shrewsbury.

3.6 Conclusions and Key Findings

A number of key conclusions can be outlined from the analysis of the bus user survey data, however before outlining these, it is worth highlighting again the limitations placed on the analysis.

The target sample of 600+ respondents was not achieved, due to the limited number of passengers using the bus services surveyed. This has limited the level and sophistication of analysis that could be undertaken and has been further compounded by the dominance of students and the retired in the sample (around 70%). Contextual evidence suggests that there are no major employers in Shrewsbury other than public sector organisations and that these are staffed by employees who live in Shrewsbury itself. Shrewsbury is also viewed as a desirable place to live and as such attracts residents who commute to centres of employment in the West Midlands, e.g. Wolverhampton, Birmingham etc... using mainly car or rail.

A large proportion of the trips recorded were non work or education related - 62% of our overall sample were undertaking Shopping/Leisure/Service activities. Clearly bus plays a key role in facilitating these activities.

These services appear to be heavily reliant on concessionary passengers who numbered over half of our sample. Our observations also suggest that school children also contribute a significant base load of patronage on both routes. This also represents an important role for bus in the local community that was outside the scope of our analysis.

It is therefore useful to set the results provided in this report against the background factors just reported. The key findings come under two headings and are reported below:

(1) Perceived consequences from withdrawal of Bus Services

These results are framed around the permanent withdrawal of the respondent's respective bus service. Several points stand out:

- Bus trips are more likely to be replaced by car trips than any other mode.
- For commuters there would appear to be a medium term desire to increase car usage with between 15% of respondents indicating they would want to learn to drive and between 7% looking to purchase a car. 23% said they would start to look for another job.
- For those making education/training journeys by bus the key reactions are a strong emphasis on learning to drive (27%) and the purchase of a car (11%). Also, 24% would look for a new course, 16% would give up their current course and 20% would miss occasional classes.

The results for the retail questionnaire demonstrate a lot more flexibility in respondent's ability to reschedule their activity:

- Around 30% of respondents would not do the planned activity.
- A sizeable amount would continue to travel by bus, either using a different route or accessing a different location.
- There is a much higher propensity to continue using the bus if you are a concessionary pass user vis a vis a non-concessionary pass holder (31% vs 22%),

- We also asked the same question about implications of the temporary unavailability of the bus service. We found that concessionary passengers were much more likely than non-concessionary passengers to continue their activities (72% vs 52%) and use the bus to travel to other locations (27% vs 6%).

(2) Retail Expenditure

The retail questionnaire asked respondents to record their expenditures for the trip they were making and to differentiate any expenditure between that carried out as an individual and that carried out as part of a group (e.g. family or friends). A number of average expenditure figures were calculated across different levels (e.g. individual expenditure, group expenditure and categories of goods/services expenditure) and are reported in Table 3-10, Table 3-11 and Table 3-12. The key findings from these were:

- The top three categories of spend were
 - i. Clothes/Cosmetics/Jewellery
 - ii. Eating out/Socialising
 - iii. Food/Groceries
- The average individual bus user is spending around £20 per bus trip.
- Individuals tend to spend, on average, more when not shopping as part of a group.
- A concessionary individual will spend 18% more than the average individual bus user per bus trip & 39% more than the average non-concessionary bus user per bus trip. This suggests that, for concessions, bus is their main mode of transport and that they are heavily reliant on it for the majority of their retail trips. This does not suggest that concessionary passengers are using the bus as an end in itself but as a means to accessing services/retail activities which contribute to the vitality of the local economy.
- It is likely that with nearly 30% of retail respondents indicating they would not make a shopping trip if the bus service was withdrawn permanently, that there would be a notable impact on the retail economy of Shrewsbury.
- We estimated £437,000 worth of expenditure per year for the Shrewsbury area attributable to the in-scope passengers on the 2 bus routes.

4. HOUSEHOLD SURVEY

4.1 Introduction

Motivation for Study

The core aim of this strand of work was to establish option values for a case study of rural bus users. Briefly, an option value can be defined as an amount of money someone would be willing to pay for a facility or service to exist, even if they had no specific plans to make use of that service themselves. In relation to rural buses, such values might reflect the standby value to a car commuter in case the car is not available on odd days; the benefit to family and friends of having a means of accessing facilities and visiting oneself; the reduction in car congestion and pollution by others using the bus instead of car; or the gain in general wellbeing of an area by having transport facilities.

The topic of Public Transport option values is bedevilled by a shortage of empirical evidence. However, the UK Department for Transport has now decided that such values can be included in appraisals in principle, and have published official values on its WebTAG online guidance site (DfT, 2014). That advice has influenced the official advice in several other countries. The context is one where the availability of public money for subsidies to public services is decreasing, and it is therefore necessary to establish the costs to society of losing accessibility from small outlying settlements to the 'county town', in this case the city of Shrewsbury.

Central to the justification of measuring option values separate to other components is the near impossibility of spotting rare extremely high values of Consumer Surplus (CS) in Willingness To Pay (WTP) surveys. Consumer Surplus is how much extra an individual would be prepared to pay (if the fares were raised) before they refrained from using the service on cost grounds. No Revealed Preference experiment could contain the desired trade-offs required to ascertain these values. Stated Preference (SP) surveys are unsuitable for the purpose for two reasons. Firstly, it would impose a distortion on the survey design to give a range of trade-offs capable of accurately estimating such high WTP values on just that survey day – it being much more likely that the respondent would answer for a normal day, when the all presented alternatives were actually available. More likely still, the respondent will choose not to respond to that question, believing the survey to be aimed at regular public transport travellers. Furthermore, the respondents might anyway be excluded from the analysis if it were realised by the analyst that the non-chosen mode was not available that day.

In experiments of this kind particular attention needs to be paid both to the appropriate 'Payment Mechanism' and the 'non-transport alternative'. In England, the obvious Payment Mechanism is the Council Tax, which is a local tax allowing Local Authorities to top up their allowance from central government to support local services. Although well known to most respondents, there are various discounts and exemptions that we have needed to stress do not apply to the Council Tax changes we present. The perceived need for the inclusion of a non-transport alternative is to both distract from the main purpose of the survey, and to help calibrate our survey findings against existing survey values for that non-transport alternative.

Option Values and Total Economic Value

A transport service clearly has values for its users, or else they would not continue to use it. If a fare is charged, a lower limit of the value of that service is the revenue obtained. For an individual user, we may think of the fares paid over a period of time as being this lower bound for that individual. On top of that, there is also what economists refer to as Consumer Surplus (CS). For that individual, this is how much extra that individual would be prepared to pay (if the fares were raised) before they refrained from using the service on cost grounds. These two components of value to users (ie current spend and consumer surplus) are routinely taken into account in transport planning, and may be referred to as the Direct Use Value.

From time to time, it has been suggested that the Direct Use Value may understate the value of the transport service to the community. For example, non-users might value the existence of the service as a fall back. The community might feel that the area will be more prosperous the better the transport links, with higher house prices and greater prospects for future generations. Some may derive benefit from being visited that does not form part of the CS of the visitor (and so cannot be spotted in standard surveys). Others might value the reduction in car traffic, and its accompanying nuisances, that continuation of a public transport service implies.

An article by Weisbrod (1964) was a leading early example of thinking about these matters, ie of “individual-consumption goods” having additional value from “collective-consumption”. Krutilla (1967) is credited with introducing the concept of “Non-Use” values. However, subsequent arguments led to the belief by many that this additional value was very small, being made up either of intrinsically small amounts or amounts that were already counted in the Consumer Surplus term. Although we have defined that term as relating solely to current users, it is important to realise that today’s non-user may be tomorrow’s user, so that having captured the ratio of CS to revenue for users at a point in time, application of that ratio to revenue from a given future time period will capture the CS from everyone. Even some rare one-off users, possibly forced to use the service due to car non-availability, will be captured – together with their (presumably high) CS.

Probably for the reason just stated, there were few studies that tried to quantify any missed benefits of transport services. A literature review carried out in 2003 found just 3, all of which attempted to find an aggregate measure of this additional value.

Option values relate to an individual, who currently is not buying the good/service but might do so in the future if it suits them.

Bristow et al. (1991) were the first in developing a methodology in order to obtain option and non-use values. The authors analysed the impact of the withdrawal of bus services in two areas of Leeds. Crocket (1992) investigated the case of the withdrawal of a Settle-Carlisle rail service. Humphreys and Fowkes (2006) were the first in disaggregating and estimating empirically the components of the total economic value, looking at the Edinburgh-North Berwick rail line. The novelty was the use of a choice experiment in addition to the already used contingent valuation method. Geurs et al. (2006) used choice experiments in their analysis of two rail services in low and high density areas in Netherlands with the context of changes in frequency and withdrawal of the service.

Geurs et al (2006) discuss the concept of Total Economic Value;

“The literature on CBA provides categorizations of benefit categories consistent with welfare economics (e.g. Boardman et al., 2001; Bateman et al., 2002). ... WTP is the standard measure to secure benefits in monetary terms (or, alternatively, the willingness to accept compensation to forgo the same). The concept of ‘total economic value’ is used as the sum of all relevant WTP values for an individual of any change in well-being due to a policy or project (Boardman et al., 2001). Total economic value can first be broken down into terms of ‘use value’ and ‘non-use value’. Use value relates to the actual use of a good or service in question (here, public transport), planned use (a trip planned in the future) or possible use. Actual use and planned use are fairly obvious concepts, but possible use could also be important. People may be willing to pay to maintain a good in order to preserve the option of using it in the future. Option value thus becomes a form of use value (Bateman et al., 2002). Non-use values represent a category of benefits not attributable to the actual use or consumption of a good or service. The types of non-use value can be classified in several ways, e.g. existence values, altruistic values and indirect benefits, and can vary. Note that the categorization of option values in the literature on economics is somewhat confusing. In environmental and resource economics, option values are often categorized as a non-use benefit category.”

Unlike some other authors (eg Humphreys and Fowkes, 2006) Geurs et al count option Use (with its associated value) as a “Use” value. Geurs et al class “Altruism” and “Indirect User Benefits” values as “Non-use” values.

Other, related, matters that deserve greater consideration include the definition of current users, ie. used service within the last week, month, year, ever? Notice should also be taken of the success/failure of particular aspects of previous studies, rather than the elegance with which terms were defined.

Humphreys and Fowkes (2006) were the first to attempt a disaggregate estimation of Total Economic Value. They attempted to put numeric values on components of TEV, using the North Berwick to Edinburgh railway line as their case study. Key to their methodology was a Stated Preference experiment, in which respondents were asked to choose A, B, or neither, where A & B were alternatives described by a number of attributes acting as partial proxies for elements of Total Economic Value.

The unhappy experience of Humphreys and Fowkes suggests strongly that our proposed Stated Preference survey should not (in itself) attempt a full disaggregation of all the (above) elements of TEV. Such disaggregation can be better done by a separate direct elicitation exercise where respondents are effectively asked to place relative values on various elements of what we shall here term ‘option and non-use Value’.

4.2 Survey Design and Method

Interception Method

A major consideration was the choice of method of interception of respondents. One possibility would have been to interview current bus users, but that method was rejected primarily because it is a key requirement of the work to discover the option values of both

current Users and Non-users of the service in question. Secondary considerations were that the current bus service operator might have objections, and current users might fear that the results might be used to plan a fares increase. A second possibility would have been to write to all households in the target locale with an introductory letter and a FREEPOST self-completion mailback questionnaire. This method was rejected due to the complexity of the survey techniques, particularly the Stated Preference experiment, which experience indicated would lead to a low response rate that was biased towards the more educated recipients.

The preferred interception method was randomised household face-to-face surveying. A Quota Survey approach was used, to ensure we had enough respondents in each identified category of users, areas and economic activity. However, we did not need to re-shape our random approach as the quotas fell naturally into place. This approach is relatively expensive, but we found a company, Research Now, that was willing and able to carry out the survey within budget.

In the beginning interviewers started in the centre of each of our 3 settlement areas (Much Wenlock, Market Drayton and Bridgnorth) and worked outwards in a random direction. Following that, within the chosen boundaries for each location as shown in Figure 4a, Figure 5a and Figure 6a in the Appendix, the starting point for each surveyor on each day was chosen randomly. From each day's start location, interviewers would work along different routes. If they achieved an interview at a property they would move four doors along before trying another household. If they didn't get an answer they would go to the next door and so on.

Clearly this chosen method relies on households being present and is subject to bias if households which are not in or do not take part are not a random sample of the population. The worry is that current (bus or public service) users might be more inclined to answer or economically inactive (particularly retired) may be more inclined to answer, both as they are more likely to be in and have more time to answer surveys. We tried to mitigate against these potential biases by recording the user status and the economic status of the household so that, with separate values estimated for each of these sub-groups (in each area), we could re-profile our estimates using census data to be more representative of the areas.

Attributes

For the Stated Preference experiment, we needed to define the variables that will describe the alternatives presented to respondents. It is the custom to refer to those variables as "attributes".

Each attribute included in the SP experiment is described by a limited number of "levels". Limitations arise due to the undesirability of overloading each respondent by giving them too much to do. The "size" of the SP experiment, and hence the time and effort taken to complete it, increases (multiplicatively) with the number of attributes and the number of levels used for each attribute. By leaving the disaggregation to separate questions we help ensure that the SP experiment is manageable for respondents.

Traditionally in this work it has been found most effective, despite the obvious limitations, to include various levels of local Council Tax changes, so as to obtain option values in monetary terms (by dividing estimated coefficients for other attributes by the coefficient of a £ of Council Tax). It is not required to limit the number of levels of Council Tax used, since it

is not necessary, or indeed desirable, to have zero correlation between the cost variable (here, Council Tax) and the other attributes (since we will be taking a ratio, and that is what the maths says). The limitations of using Council Tax as our Cost variable are obvious. Firstly, not all households have to pay Council Tax. Secondly, single person households only pay 75% of the assessed rate. Thirdly, the current amount of Council Tax paid is well understood to vary with household value (band), so there may be confusion as to how much other households will be paying. However, there really is no alternative to using the Council Tax, and past results from using it have been encouraging. By using a face-to-face interview, and stressing that the stated amounts WOULD have to be paid/received by that household (even if currently exempt or paying 75%), it was anticipated that the difficulty could be minimised.

Ideas for the survey instrument envisaged trade-offs involving not just changes in Council Tax but also the curtailment of other local facilities such as libraries, post offices, and refuse collections. It was not thought wise to include anything medical (GP, Dentist, A&E, etc). While libraries are funded locally, post offices are not. We were consequently advised to exclude post offices from further consideration. Refuse collections are funded locally, but investigations revealed that most, if not all, our respondents would be currently on fortnightly collections. As we did not consider that further reduction in service level was plausible, we excluded refuse collections from further consideration. This left us with just library provision as our non-transport alternative.

Much Wenlock currently has a library that is open on Tuesdays and Thursdays, as well as Saturday mornings. Bridgnorth Library is open Monday to Saturdays, with the exception of Thursday, but with late opening on Mondays (to 7.30, with 5.00 on other days). There is one library in Market Drayton, open till either 17.00 or 18.00 daily except Thursdays and Sundays. There are other libraries not too far away, including one in Loggerheads, which is officially counted as part of Market Drayton. It is on the 164 bus route, with 10 minute journey time, hourly. It is thought that the users of either could easily access the other. Hence the retention of either would be unlikely to be valued highly.

Since the bus service on both of our chosen routes is currently hourly (Mon-Sat peak and inter-peak), five levels of bus service were defined: (i) loss of service without a Demand Responsive replacement; (ii) loss of service with a Demand Responsive (book ahead)replacement; (iii) a two-hourly service; (iv) the current level of service, ie hourly; and (v) a service every 30 minutes. Five levels was thought suitable for this 'attribute' of the choices to be offered in the experiment, as it is manageable, includes the important aspect of a possible Demand Responsive replacement, and allows some possibility for determining non-linear effects. Adding the option of introducing evening and Sunday services would have overcomplicated the experiment, particularly given that the different localities surveyed had different current service levels in the evenings and on Sundays.

Other attributes considered were changes to the availability and opening hours of other local facilities. As discussed above, we decided to restrict consideration to library services. The size of the experiment increases quickly with the numbers of attribute levels included. Since the current position regarding library services varies over the three survey locations, after much thought it was decided to only consider the following two levels for this attribute: (i) current service level; and (ii) service discontinued.

In summary the finalised SP attributes included:

- (i) The five levels of bus service
- (ii) The two levels of service at the local Library
- (ii) The associated change in the Council Tax payable by that household.

Survey Design

After considering various 'shapes' of SP experiment, including a list of Binary Choices, it was decided to favour a series of 'screens' with several columns. Column 1 would have all non-cost attributes set at their 'As Now' levels whilst the Council Tax would be higher than presently, so that households would need to pay more to keep the present levels of bus and library services. The remaining columns would offer changed levels of Bus and Library provision, for various levels of Council Tax (expressed as a difference to the current level).

As we have 5 levels of Bus Service and 2 levels of Library Service, a Full Factorial Design would require 10 Binary Choices. This would ensure orthogonality between all the levels of both attributes in the design, which should help minimise the correlation between their parameter estimates, though for this sort of modelling these will not be zero. We considered using a Fractional Factorial Design, but that would have prevented interaction effects from being estimated. Since the value of a local library might have been affected by the presence or absence of a local bus service, we wanted to preserve the possibility of estimating such interaction effects. Also, we did not see a need for the reduction in required Binary Choices that would have been thereby permitted. In fact, in order to put a larger range of Council Tax variations before our respondents, thereby generating a richer range of trade-offs in the experiment, we decided to repeat the Full Factorial Design twice over, giving us 20 Binary Choices.

These 20 Binary Choices cover the required combinations of the non-cost attributes (Bus and Library Services), with appropriate levels of Council Tax change being then chosen to give a good range of Willingness To Pay trade-offs. Two of the 20 have 'As Now' for both bus and library services, and these are covered by the first column in our design. This leaves us with 18 Binary Choices to assign. From past experience, we believed that respondents could manage a 'screen' with 4 columns. With the first column fixed on each screen, as described above, each screen can handle 3 Binary Choices. Hence, to cover the remaining 18 Binary Choices we needed six screens. We believed that that number would be manageable. We knew that having more screens, for example 9 which would have allowed us to duplicate the Full Factorial Design 3 times, would have given us a much richer range of trade-offs, but we thought that might overload respondents. Humphreys and Fowkes had a poor response to their SP question, and our priority was to avoid that.

Once the 6 screens had their non-cost attribute levels decided, Council Tax Change levels were determined as follows. Two screens were given low changes, two medium changes, and two large changes. This allowed us to capture a large range of Willingness to Pay values. Care was taken that the non-cost attribute levels were spread over all 3 of these changes. The presented Council Tax changes took account of these three initial values, but adjusted for the change in non-cost attribute levels. Basically, each of the 3 initial values just set a scale for the differences in Council Tax change offered across the 4 columns of each

screen. Finally, the presented Council Tax cheaper were adjusted additively to ensure that at least one of the presented levels was 'As Now'.

Payment Ladder

There is a particular problem involving Stated Preference experiments with many attributes, called the 'Package Effect'. Ideally, we would like to disaggregate the attribute valuations estimated from our experiments, but it has often been found that the individual SP WTP valuations cannot be summed. Suppose you were caught in the rain without a coat or an umbrella. We could establish how much you would pay there-and-then to borrow a coat or to borrow an umbrella, but the amount you would pay to borrow both on that day would not be the sum of the two individual valuations – each does the job on its own. Here we are asking about 2 public service attributes, bus services and library provision. For that reason it is often sensible to keep the experiment fairly simple and to include a separate means of finding an overall value. The latter is usually done by including a 'Payment Ladder' question. That takes the form of "To obtain the combination of X, Y and Z, what is the most (on this 'ladder' of amounts) that your household would be willing to pay'.

We included such a Payment Ladder question, with a view to scaling down the SP results. Our Payment Ladder question asked for "the maximum increase in Council Tax that you are certain that your household would be willing to pay for each" (of Local Bus Services and Local Library Services). This method is a direct elicitation of households' willingness to pay for services. This direct approach to estimating WTP is not generally recommended but it does however provide another potential source of information on household's valuation of their local services. We found the values from this method were not at all consistent between areas, user groups and economic status so were discarded. In short, there were probably too few observations, ie one per household, to yield a robust estimate which could be used to compare to our SP values.

Disaggregation of Total Economic Value

It was decided that we should not follow Humphreys and Fowkes in attempting to value all the individual elements of TEV in the SP experiment. Instead, as mentioned earlier, we asked a question relating to the elements of TEV that cannot satisfactorily be determined from an SP experiment.

The question asked was "Please distribute 100 points over the following items, based on how significant they were when choosing your options in the previous question", with the options shown overleaf

This indirect approach to estimating the components of TEV by weighting is not ideal but does mitigate against the potential biases from the package effect, ie of treating each of these components as an attribute in an SP experiment.

	The 436/64 bus service (/100)	Local library service (/100)
Your current use of the service		
Your possible future use of the service		
Concern for future generations		
Benefit to your family and friends		
Benefit to others in the community (i.e elderly)		
Concerns about the environment		
Concerns about road congestion		
Insurance in case your car is unavailable		
Total	100	100

4.3 Methodology

The key objectives of the SP exercise were to estimate option and non-use values for the three study routes for users and non-users, as well as estimate respondents' WTP for different levels of Bus service and library provision.

The model is specified as follows:

$$U(i,j) = \alpha_c * Cost_j + \alpha_{NoService} * NoService_j + \alpha_{DRService} * DRService_j + \alpha_{TwoHourService} * TwoHourService_j + \alpha_{NoLibrary} * NoLibrary_j \quad (1)$$

where:

$U(i,j)$ is the utility of respondent i from choice alternative j ;

$Cost$ is Council Tax change (pounds per year) associated with alternative j ;

$NoService$ is a dummy variable representing no bus service;

$DRService$ is a dummy variable representing a Demand Responsive replacement service

$TwoHourService$ is a dummy variable representing a two hourly bus service;

$NoLibrary$ is a dummy variable representing no local library.

After careful consideration we realised that in order to re-profile our model values to get a representative value for the catchment population we had to segment our model to recover separate values of services for users and non-users. Additionally we introduced a segmentation on the cost coefficient so that valuations can be further split by economically active (a large proportion of whom will be pensioners) and economically inactive households – the intuition behind this is that economically inactive households may have greater sensitivity to cost changes than economically active households; but they may also have greater levels of reliance on current and future bus services so it is difficult a priori to anticipate the direction of this interaction.

The final model looked like this, and was estimated separately for the three routes:

$$U(i,j) = (\alpha_c + \alpha_{cEA} * EA_i) * Cost_j + (\alpha_{NoService} + \alpha_{NoServiceUser} * User_i) * NoService_j + (\alpha_{DRService} + \alpha_{DRServiceUser} * User_i) * DRService_j + (\alpha_{TwoHourService} + \alpha_{TwoHourServiceUser} * User_i) * TwoHourService_j + \alpha_{NoLibrary} * NoLibrary_j \quad (2)$$

Where EA_i is a dummy variable capturing whether the survey household contains at least one economically active member, (where economically active is defined as being an employee or full-time student). $User$ is a dummy to represent whether at least one member of the household has used the bus in the last month. EA and $User$ are also used as superscripts for the additional parameters associated with these interactions.

Given we present 4 options on each of the 6 screens offered to respondents, we exploded the number of comparisons by looking at binary pairings, ie comparing pairs of options between the 4 presented gives 6 binomial comparisons per screen.

Models were estimated using BIOGEME¹⁰ as standard fixed coefficients Multinomial Logit models (MNL). From the resultant coefficient estimates, WTP values for changes in particular attributes can be derived by taking ratios of the coefficient on the attribute with the cost coefficient, eg the value of the bus service can be derived from dividing the coefficient on *NoService* by the coefficient on *Cost*. The standard errors of our estimates were adjusted for being based on repeat observations from individuals (ie panel data).

We present 3 models in total – for each of the three study routes.

We experimented with various other variables and model forms. Results when including the 30 minute frequency were unsatisfactory, as this service dummy failed the 1-tailed t-test so was dropped from the presented results. Given they share the same bus route, consideration was given to merging Much Wenlock and Bridgnorth, but it was clear from the model results that there are significant differences between the needs and or preferences regarding bus services between the two areas – Much Wenlock is more isolated as there is only one bus service to Shrewsbury/Bridgnorth whereas Bridgnorth provides options to Wolverhampton and Telford.

¹⁰ Open source freeware designed for the estimation of discrete choice models, biogeme.epfl.ch

4.4 Results

Discrete Choice Modelling Results

Table 4-1: presents the estimated coefficients and t-statistics¹ for the different attributes examined over the 3 individual areas. These values were taken from models estimated over all respondents, then separately for bus users and non-users.

We only present models based on the ‘traders’ we have in our models. These are respondents who sometimes chose options other than the cheapest one offered each time. We found that in total there were 21 individuals who always chose the cheapest option in each binary choice across at least 4 of the 6 screens leaving us with 180 ‘traders’ from our sample of 201. 16 of these non-traders were from Market Drayton.

Table 4-1: Model coefficients and t statistics

Model	M1: Market Drayton		M2: Much Wenlock		M3: Bridgnorth	
Individuals / Observations	64/1152		40/720		76/1368	
Rho-square:	0.256		0.321		0.351	
Adjusted rho-square:	0.243		0.301		0.341	
Initial Log Likelihood	-798.51		-499.07		-948.23	
Log Likelihood (model)	-594.08		-338.65		-615.00	
Attributes:	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
TwoHourService	-0.182	-0.65	-0.0768	-0.2	-0.158	-0.67
DRService	-0.585	-2.53	-1.24	-2.72	-0.999	-3.52
NoService	-2.01	-5.35	-2.57	-4.79	-3.32	-6.37
Cost	-0.0124	-4.9	-0.0112	-3.41	-0.0207	-7.08
Cost * EA	0.0002	0.07	-0.0038	-1.00	0.0022	0.81
NoLibrary	-0.544	-2.18	-1.33	-5.04	-1.8	-7.00
TwoHourService * User	0.279	0.6	-0.613	-0.93	-0.34	-0.66
DRService	0.168	0.52	-0.505	-0.66	-0.868	-1.5
NoService	-1.05	-2.05	-1.45	-1.43	-1.02	-1.73

All models report coefficients of the expected sign (with the exception of the two hour service/user interaction in Market Drayton, which is insignificantly different from zero anyway). Increases in Cost (ie Council Tax, expressed here in units of £ per year) have a significant (indicated by a t-statistic absolute value of 1.96 or more) negative impact on utility and the choice probability. There are negative signs on all the 'base' (ie the non-interacted) bus attributes indicating a preference for the current hourly service over reduced levels of service. These base values represent the sensitivities of economically inactive bus users. The interactions allow us to derive sensitivities for the other groups. The largest coefficient is on NoService, the complete removal of the existing bus service. The 2 hourly service level coefficients are not significantly different from zero, suggesting a halving of the service level is not highly valued. A replacement Demand Responsive Service (defined to the respondent as pre-booked taxi replacement available at same fare) was consistently found to be less preferable than the existing service across all routes and user types.

All models show closure of the local library were also associated with significant decreases in utility and lower probabilities of choosing an option.

Valuation of Bus Services

The valuation of rural bus services is the key aim of this Task. Based on the models presented in Table 4-1 we derive the monetary valuations of the various public service levels. This is done by dividing the service level coefficient of interest, eg NoService, by the appropriate Cost coefficient (which needs to include the interaction with the economically active to derive valuations for this group). The derived figures are shown in Table 4-2.

We have to adjust for the omission of non-traders from our estimation - These respondents are either not engaging in the SP exercise or have lower willingness to pay values for Bus services that we were able to accommodate in our survey design. These 21 were dropped from the estimation, leaving us with 180 'traders' who were willing to trade increases in council tax for better services. We assumed that these individuals had a zero WTP value for Bus services and re-scaled our results to adjust for these individuals. These values are reported in the second row of Table 4-2 for each area. Because Market Drayton had a larger proportion of non-traders, these valuations will be scaled down more than elsewhere.

The average willingness to pay value from the payment ladder question across the entire survey population was £82.99. We do not disaggregate this value any further as it is only based on one observation per household. It does however provide a lower bound to compare our SP values to.

Table 4-2: WTP to maintain current bus service (£ per year)

Area	User Group/Method	Economically Active Users	Economically Active Non Users	Economically Inactive Users	Economically Inactive Non Users	Average
Market Drayton	Stated Preference (traders, N=64)	251	165	247	162	194
	Adjusted for non-traders (N=80)	200	132	197	130	155
Much Wenlock	Stated Preference (traders, N=40)	269	172	359	229	226
	Adjusted for non-traders (N=42)	256	164	342	219	207
Bridgnorth	Stated Preference (traders, N=76)	234	179	210	160	177
	Adjusted for non-traders (N=79)	225	172	202	154	176
All routes (population weighted)	Adjusted for non-traders	214	150	209	146	165

Table 4-2 shows the average WTP for maintaining current levels of bus service was £165 per household per year. It is clear from the resulting monetary values in Table 4-2, that respondents who use the service hold a very strong valuation of the existing service. Values for users are on average 43% higher - over 50% higher than for non-users over for Market Drayton and Much Wenlock, and over 30% higher in Bridgnorth. The lower values for non-users are not at all surprising as this group should hold no (or low) current use valuation, in addition they may not be aware of the quality of the existing service.

In terms of routes, we find values were generally larger for Much Wenlock compared to other settlements, particularly for the economically inactive, where use values are over 70% higher than for Bridgnorth and 45% higher than Market Drayton. This underlines the dependence (and potential isolation) of these households on the local (436) bus service, compared to the other settlements which have other bus services linking to elsewhere. Overall, values are slightly higher for economically active than inactive households.

Table 4-3 uses the coefficients from the models reported in Table 4-1: for the other levels of service offered to respondents to derive willingness to accept (WTA) values for these services, ie how much individuals would be willing to accept in council tax reductions in exchange for a worsening of their current levels of service to either a 2 hourly service or a demand responsive service. Again we adjust the values directly derived from the SP to firstly account for non-traders. These values tell us that for example, economically active bus users in Much Wenlock would on average want compensation of £43.88 per year for a 2 hourly service and £111.02 for a demand responsive service. WTA values for users are higher overall than for non-users for both service changes. Values for the economically active are lower in Much Wenlock than for the inactive, but similar across these groups in the other areas.

Table 4-3: WTA other levels of Bus service (£ per year)

Area	User Group/Method	Economically Active Users	Economically Active Non Users	Economically Inactive Users	Economically Inactive Non Users
Market Drayton	2 hourly service	11.92*	11.92	11.74*	11.74
	Demand responsive service	27.32	38.32	26.90	37.74
Much Wenlock	2 hourly service	43.88	4.89	58.66	6.53
	Demand responsive service	111.02	78.89	148.38	105.44
Bridgnorth	2 hourly service	25.87	8.21	23.14	7.34
	Demand responsive service	96.98	51.89	86.77	46.43

*The value of the interaction of users and the 2hourly service in Market Drayton was positive but insignificant so was dropped, yielding the same values for users and non users in this area.

Valuation of Library Services

The valuation of local library provision is a useful comparison with the public transport aspects of the model to try and establish the relative importance of different public services. There is considerable variation in valuations derived from the models as shown in Table 4-4 with a range between £35 in Market Drayton and £113 for Economically Active in Much Wenlock.

Table 4-4: WTP for Library services (£ per year)

Area	Economically Active	Economically Inactive
Market Drayton	35.10	35.64
Much Wenlock	113.10	84.61
Bridgnorth	83.65	93.50

Table 4-6 applies the weightings for each category/user type/area shown in Table 4-5 to the re-scaled WTP values reported in Table 4-2, to give a value for each category of economic value. Note that if the specified concerns of the categories were met in some other way (than providing a bus service) then the economic value of the bus service would fall by that amount.

Table 4-6: Disaggregated Economic Values (£ per year)

		Market Drayton				Much Wenlock				Bridgnorth			
		Active		Inactive		Active		Inactive		Active		Inactive	
		User	Non	User	Non	User	Non	User	Non	User	Non	User	Non
Actual	Current use	34.0	9.6	33.5	9.5	46.5	15.8	62.2	21.1	65.2	16.0	58.3	14.3
	Possible future use	33.6	12.7	33.1	12.5	51.1	27.4	68.4	36.7	48.3	25.4	43.2	22.7
Option	Insurance in case car unavailable	11.1	11.4	10.9	11.2	2.3	8.7	3.1	11.6	6.0	13.4	5.3	12.0
	Concern for future generation	28.6	22.9	28.2	22.6	31.4	19.0	42.0	25.4	29.8	24.6	26.7	22.0
Non Use	Benefit to your family and friends	30.4	23.2	30.0	22.8	51.1	19.5	68.4	26.1	30.0	26.3	26.8	23.5
	Benefit to others	32.9	30.6	32.4	30.2	58.1	52.7	77.7	70.5	30.0	40.1	26.8	35.9
Double counted	Concerns: environment	15.0	9.6	14.8	9.5	11.6	10.8	15.5	14.5	12.2	11.0	10.9	9.8
	Concerns: road congestion	14.7	11.6	14.5	11.5	3.5	9.5	4.7	12.7	4.0	15.7	3.6	14.1

Table 4-7 aggregates together the values reported in for the relevant categories in Table 4-6 comprising option and non-Use values.

Table 4-7: Option and Non-Use Values (£ per household per year)

Area	Market Drayton				Much Wenlock				Bridgnorth			
	Active		Inactive		Active		Inactive		Active		Inactive	
	User	Non	User	Non	User	Non	User	Non	User	Non	User	Non
Option Value	44.7	24.1	44.1	23.7	53.5	36.1	71.5	48.3	54.3	38.8	48.6	34.7
Non-Use Value	92.0	76.7	90.6	75.6	140.7	91.2	188.0	122.0	89.7	91.0	80.2	81.4
Total	136.7	100.8	134.7	99.3	194.1	127.4	259.5	170.2	144.0	129.7	128.8	116.1

Values in Table 4-7 range from £99.3 per year for economically inactive non users in Market Drayton to £259.5 for inactive users in Much Wenlock. By way of comparison with other similar UK studies' combined option and non-use values, Bristow et al. (1991) obtained an average value of £58 year for bus services in 1991 prices, which represents £148 per in 2010 prices (source: Corso, 2012). Crockett (1992), studying Settle, obtained an average value of £36 per year in 1992 prices per year, uplifted to £85 in 2010 prices. Given the further uplift required to 2014 prices, the reported values here are broadly comparable to these other studies.

Valuing the Services over the local population

Using 2011 census figures (from Nomisweb) at the lower level super-output area for Market Drayton and at the output level area for Much Wenlock and Bridgnorth we were able to collect household level data from the for the survey catchment areas. Using the mapping tool from Nomis we selected these areas carefully, and a comparison between the survey areas and the output areas are shown in the Appendix for each settlement: Figure 4a&b, Figure 5a&b and Figure 6a&b

Following this selection exercise, we identified in scope (ie within our pre-defined catchment areas) census output areas in Market Drayton, Bridgnorth and Much Wenlock, shown in the Appendix in Table 6-5. This suggested a total number of 5,144 in scope households in Market Drayton and 697 in Much Wenlock and 3,798 in Bridgnorth.

In order to calculate an aggregate economic surplus value for the option value and non-use value for our case study areas, we looked at the levels of economic activity in the census. We found levels were consistently around 70% in the 3 areas. This gave us a relative weighting between our economically active and inactive valuations. We also record different valuations for users and non users – there is no way to corroborate the proportion of users we observe in our sample so we assume that the relativities between users and non users for each area observed in our sample can be extrapolated over the 3 areas' populations.

Using these active/inactive and use/non use weightings allowed us to calculate average values for each area as shown in Table 4-8. The weighted average value of additional economic surplus per household from option and non-use values is £122.29 per year. This represents 74% of the non-fare related TEV elements, ie the amount that people are willing to pay to maintain their current level of service above what they currently pay in fares, which was around £165 per household per year as reported in Table 4-2.

We then multiplied this per household value by the number of households in our three areas, which summed to £1,178,757, as shown in Table 4-8. This represents the aggregation of the option and non-use values across households in our 3 survey areas. Given these are the largest catchment areas for exclusive arms of the 436 and 64 routes linking to Shrewsbury, these are additional values which can be attributed to these routes over and above what would be captured through user benefits and operating profits/subsidies. The corresponding aggregate WTP value (ie including current use, double counted non-use) is £1,594,142.

Table 4-8: Additional Economic Value (Option and Non-use) of Local Bus Services

Area	EA "Households"	User proportion	Weighted Value(£)	Households	Total Option and Non Use Value(£)	Total WTP
Market						
Drayton	0.7	0.35	112.85	5,144	580,489	797,320
Much						
Wenlock	0.7	0.26	160.17	697	111,639	150,022
Bridgnorth	0.7	0.18	128.13	3,798	486,629	646,799
Total/Average			£122.29	9639	£1,178,757	1,594,142

As a sensitivity to this, we estimated the confidence intervals for the WTP estimates for each area. Based on this we find the range that these average values could fall between within a 95% degree of confidence is +/- 19%. This gives an upper level to the weighted average option and non-use value of £145 and a lower level of £99.5. Based on these values, we derive a lower bound to the aggregate option and non-use estimate in Table 4-8 of around £959,000 and an upper bound of £1.40M.

4.5 Summary

This part of Task 6 aims to estimate values of option and non use values for households in Market Drayton, Much Wenlock and Bridgnorth which are in the catchment areas for the local bus services, the 64 and 436. These areas were chosen as they did not have any other bus links to Shrewsbury, the nearest large town. This is a case study, but these may be typical of many rural areas which are to some degree reliant on their local bus services. Without these services, there is a danger these areas may become more isolated. The values we estimate in this exercise may be included in an appraisal of the economic value of such services *additional* to user benefits already typically captured. However it is important to recognise that the estimated values are case study specific and should not be interpreted as being nationally representative.

The corridors served by the two routes are modelled separately. The model coefficients are of expected sign and generally significant with the relativities between the options being sensible. The largest implicit valuation is on total loss of bus service with much lower and not always significant valuation of a cut to a two-hourly service frequency. The demand responsive book ahead service was less preferable than the existing scheduled service. Users of the bus service had 43% higher willingness to pay to retain the current bus service than non-users. Loss of local library service was also valued adversely and significantly so. Values were on average very similar for economically active and inactive, with some variation by route.

We find on average that the option value and particularly non-use value elements of the economic value of bus services held by households represent a large proportion of the overall economic value. Users, unsurprisingly have consistently larger valuations than non-users, although it is this non-use value which is the largest. In our sample these elements are on average valued at £122 per household per year.

This value may appear high, but it should be considered these are values *per household*, and encapsulate various aspects of bus service dependency, particularly of school age children and of concessionary passengers. These groups may have few travel options, particularly for travel to Shrewsbury, if services were no longer available.

We used census data to calculate an aggregate figure over our case study areas which represents the additional amounts households would be willing to pay to maintain current levels of service which are not currently captured in standard appraisal– this summed to £1.18M.

There are a number of shortcomings to our approach. We have a degree of non-trading (typical in SP experiments) which may be from people not engaging with the experiment, making some kind of statement or just having low willingness to pay for their bus services. We have no way of knowing why, but assume these individuals have zero willingness to pay.

We have not taken into account the distance people are from bus stops – there will be an attenuation of value of a service the further households are from it. If current users are over-represented in our sample, this may have also inflated our estimates.

201 observations may appear to be a small sample size, especially when broken down over 3 areas. However, SP is designed for small sample sizes given the repeated nature of the tasks offered to each respondent, so is well suited to this task. Our survey is larger than other comparative works in this field. However, our approach is subject to bias from non-

respondents—both absent and refusals-- who may not be a random sample of the population. We have tried to mitigate against this selecting households as randomly as we could and by estimating separate WTP values for each area, each user group and each economically active/inactive group. The payment ladder question yielded a lower aggregate figure than the SP but was not as reliable, based on 1 observation per household – we probably needed more responses for a robust figure as it varied erratically by area/economic status/user status.

5. REFERENCES

Bristow, A.L., Hopkinson, P.G., Nash, C.A., Wardman, M., 1991. Evaluation of the Use and Non-use Benefits of Public Transport Report no.2: Application of the Method. ITS Working Paper 310, ITS Leeds.

Corso, M. (2012), Option and non-use values of evening and weekend bus services, MSc Thesis, Institute for Transport Studies, University of Leeds, Leeds.

Crockett, D., (1992), Should Non-Use Benefits be included in Social Cost Benefit Analysis, MA Thesis, Institute for Transport Studies, University of Leeds, Leeds.

Department for Transport (2014), Transport Analysis Guidance, www.gov.uk/transport-analysis-guidance-webtag

Geurs, K.T., Haaijer, R., van Wee, B., (2006), Option value of public transport: methodology for measurement and case study for regional rail links in the Netherlands, *Transport Reviews* 26(5), 613–643.

Humphreys, M. & Fowkes, A. S., 2006. The Significance of Indirect Use And Non-Use Values in Transport Appraisal. *International Journal of Transport Economics*, **XXXIII**(1).

Kuttrilla, J. V., 1967. Conservation Reconsidered. *The American Economic Review*, **57**(4), pp. 777-786.

Laird, J., Geurs, K., Nash, C., 2009. Option and non-use values and rail project appraisal, *Transport Policy* 16, 173–182.

Johnson, D. H., Nash, C., & Jackson, J. (2013), The Wider Value of Rural Rail Provision, *Transport Policy*, Vol 29, Daniel Johnson a,n,

Wiesbrod, B.A., (1964), Resource Allocation with Probabilistic Individual Preferences, *American Economic Review*, 59 (May): 546-552.

6. APPENDIX

6.1 Routes and Timetable information

Figure 1: Shrewsbury Bus Routes map

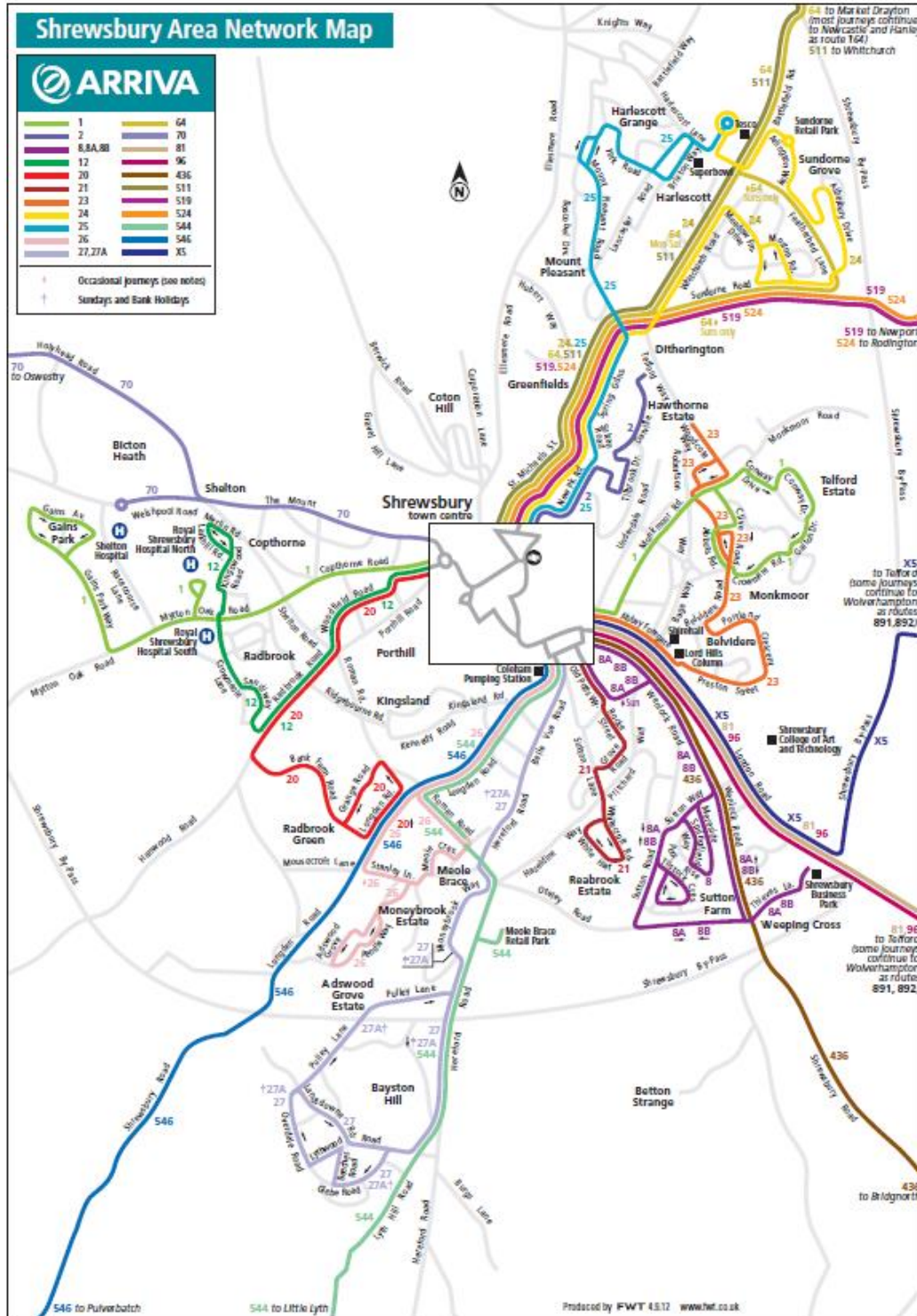


Figure 2: 64/164 Route map



Figure 3: 436 Route map

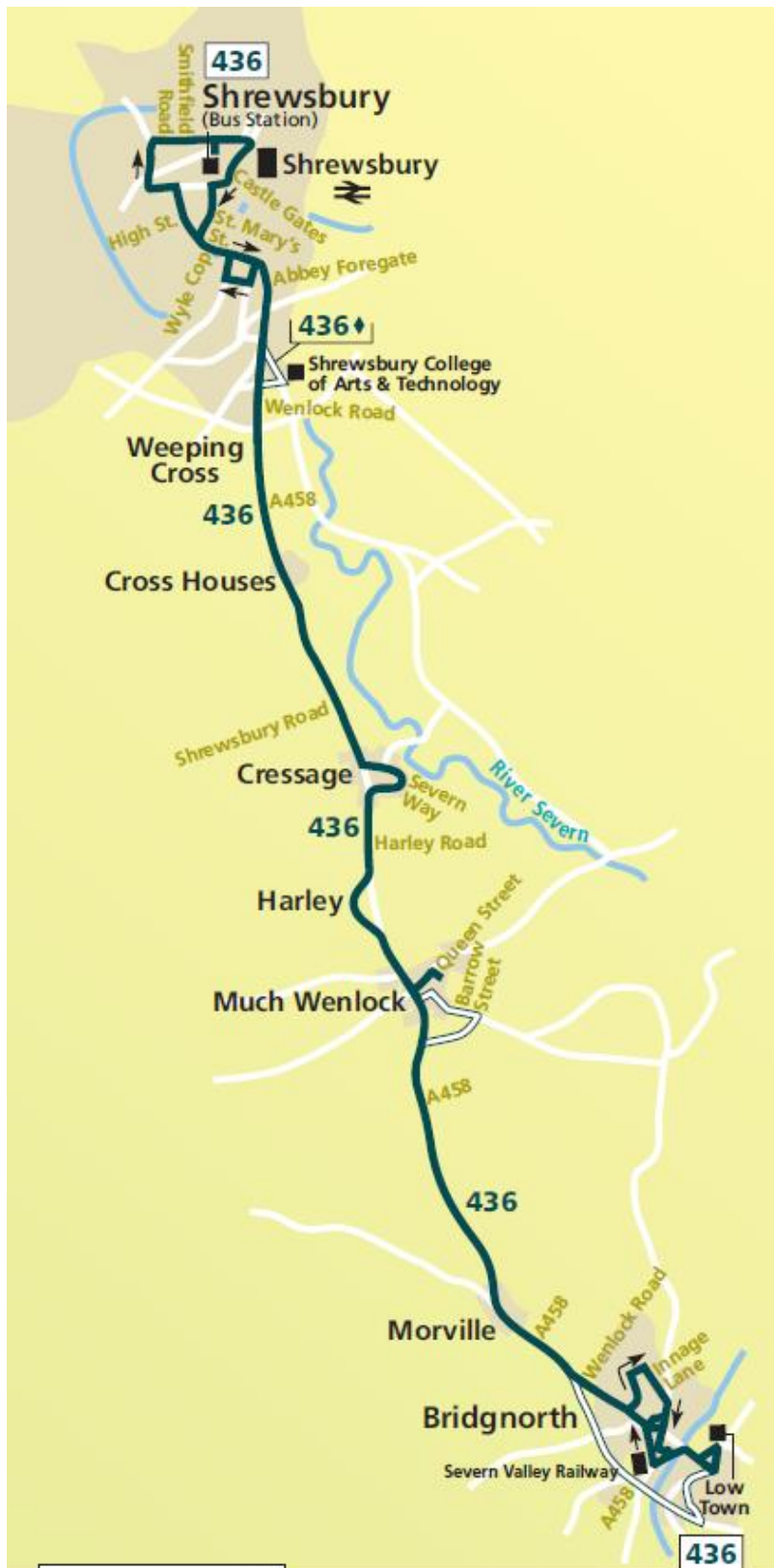


Table 6-1: Service arrival and departure times**Bridgnorth - Shrewsbury (436)**

Shrewsbury	640	720	840	937	1040	1137	1240	1337	1440	1540	1640	1840
Bridgnorth	735	825	935	1035	1135	1235	1335	1435	1535	1635	1735	1935

Shrewsbury - Bridgnorth (436)

Shrewsbury,	740	840	940	1040	1140	1240	1340	1440	1540	1640	1740	1940
Bridgnorth,	835	935	1038	1135	1238	1335	1438	1535	1638	1745	1835	2035

Shrewsbury - Market Drayton (64)

Shrewsbury,	650	815	915	1015	1115	1215	1315	1415	1515	1615	1715	1815
Market Drytn	738	908	1008	1108	1208	1308	1408	1508	1608	1708	1808	1908

Market Drayton - Shrewsbury (64)

Market Drytn	657	725	742	912	1012	1112	1212	1312	1412	1512	1612	1712	1822	1902
Shrewsbury	750	835	835	1005	1105	1205	1305	1405	1505	1605	1705	1805	1915	2020

6.2 Estimation of passenger loadings and weightings

Surveying was carried out in 3 sessions, 2nd April (Session A), 13th-15th March (Session B) and a final top-up visit on 4th April, (Session C).

In order to aggregate up our survey results we needed to estimate numbers of passengers in scope over the course of a week.

The following tables show the coverage of the services on these days.

Shrewsbury to Bridgnorth		740	840	940	1040	1140	1240	1340	1440	1540	1640	1740	1940
2nd April	Wed			x		x							
13th March	Thu						x		x				
14th March	Fri	x		x									
15th March	Sat	x											
4th April	Tues					x		x					

Bridgnorth to Shrewsbury		640	720	830	930	1033	1130	1233	1330	1433	1530	1633	1830
2nd April	Wed					x		x					
13th March	Thu								x		x		
14th March	Fri			x		x							
15th March	Sat	x											
4th April	Tues							x		x			

Shrewsbury to Market Drayton		Arr 613	Arr 650	Arr 815	Arr 915	Arr 1015	Arr 1115	Arr 1215	Arr 1315	Arr 1415	Arr 1515	Arr 1615	Arr 1715	Arr 1815
2nd April	Wed					x	x	x	x					
13th March	Thu								x	x	x	x		
14th March	Fri				x		x							
15th March	Sat			x	x	x								
4th April	Tues													

Market Drayton to Shrewsbury		657	725	742	912	1012	1112	1212	1312	1412	1512	1612	1712
2nd April	Wed						x	x	x	x			
13th March	Thu									x	x	x	x
14th March	Fri		x			x			x				
15th March	Sat				x	x	x						
4th April	Tues									x		x	

1822,1902,1932 not boarded

For each of these services we recorded the numbers of respondents, refusals and the total number of boardings as shown in .

Table 6-2: Respondents, refusals and boardings

Area	Out scope	no.refused	envelopes	Resp A	Resp B	Resp C
S_MD		30		20	30	10
S_Brid	13	18	20	2	26	14
Brid_shrews	3	15	15	0	25	3
Shrew_md	49	68	16	22	51	37
Market D<>Shrews	22	71	65	7	51	19

We surveyed on 5 of the 6 operating days. In order to fill in the gap left by the Monday we reweighted our sample to give 50% more weighting to the surveys conducted on the Tuesday and Wednesday (A and C). This re-profiled our sample to be representative of a week's operation.

In order to estimate the total number of passengers in scope running on the services a number of further adjustments and assumptions were made.

We allocated each weekday and Saturday service to a number of categories shown in Table 6-3, and then calculated the average number of in scope passengers in each service category for each service over both directions. We then imputed the numbers of in scope passengers over the course of the week by multiplying the average load for each service category by the number of those service types running over the week. Our obtained sample was then scaled up by the difference between the returned sample and the estimated total number of in scope passengers over the week.

Services featuring almost exclusively school children were not considered.

Based on these tables and the %age of those passengers who were approached but refused or were deemed to be out of scope, we were able to estimate the numbers of (return) in-scope passengers per week at 398 for Bridgnorth<>Shrewsbury and 531 for Market Drayton<> Shrewsbury. It goes without saying these figures are approximate but based on the best information we had at our disposal.

Table 6-3: Service Type Categories and average loadings Bridgnorth<>Shrewsbury

Weekday Services	Average loading 436-Shrewsbury	Services per week	Average loading 436-Bridgnorth	Services per week	Est. Return Passengers	Est. In scope
Weekday peak	19	5				
Weekday early morning/late evening	2	10	2	5		
Concessionary Peak	26	5	17	5		
Inter-peak	5	35	9	30		
Saturday Morning	9	3	2	4		
Saturday Afternoon	2	5	9	5		
Saturday Early Morning/Late Evening	2	5	2	3		
Estimated Passengers Per week	457	73	424	72	441	398

Table 6-4: Service Type Categories and average loadings Market Drayton<>Shrewsbury

Weekday Services	Average loading 64-Shrewsbury	No.Services per week	Average loading 64 – Market Drayton	No.Services per week	Est. Return Passengers	Est. In scope
Weekday peak	13	5	11			
Weekday early morning/late evening	2	20	2			
Concessionary Peak	20	5	22			
Inter-peak	9	35	7			
Saturday Morning	23	3	6			
Saturday Afternoon	9	6	6			
Saturday Early Morning/Late Evening	4	6	2			
Estimated Passengers Per week	669	85	594	78	632	531

6.3 Questionnaires

BUS TRAVEL SURVEY – University of Leeds - Commuting

Dear Customer,

Thank you for agreeing to answer this questionnaire about your bus journey today. This survey is being undertaken by the Institute for Transport Studies at the University of Leeds, on behalf of the Department for Transport and Greener Journeys, to examine the use of buses in and around Shrewsbury. The information you provide will be treated as strictly confidential.

Please return your completed questionnaire to one of our survey team. If you need a pen please ask.

Thank you for your assistance.

Part 1 – Some questions about your general bus travel

Q1 Thinking about this bus service, how satisfied are you with the following?

Please tick a category from each row.

	Very satisfied	Satisfied	Neither satisfied or dissatisfied	Dissatisfied	Very dissatisfied	Don't know/ Not relevant
Journey times	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value for money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of seating /space to stand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Punctuality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frequency of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2 How many trips have you made on this bus service in the last 7 days (excluding today) for the following reasons? PLEASE RECORD A RETURN JOURNEY AS 2 TRIPS AND A ONE-WAY JOURNEY AS 1 TRIP

Reasons:	Number of Trips in the Last 7 Days:
<i>Getting to or from work</i>	
<i>Getting to or from education/training</i>	
<i>During work (travelling to a business meeting)</i>	
<i>To or from shopping</i>	
<i>To or from visiting friends and family</i>	
<i>To or from personal business (bank, doctor etc...)</i>	
<i>To or from leisure (to access swimming pools, parks, restaurants etc...)</i>	
<i>Accompanying child, family member, friend, etc. to school, on shopping trip, to doctor, etc.</i>	
<i>Other</i>	

Part 2 – Questions about your journey today

Q3 For the journey you are currently making, please tell us:

Where your journey started (e.g. work or home location)? Postcode (if known) ____ or Street ____

The bus stop where you boarded this bus? Street/location _____

The bus stop where you will get off this bus? Street/location _____

Where your journey will finish (e.g. work or home location)? Postcode (if known) _____ or Street _____

Q4 For the journey you are currently making, please give us your best estimate of the time taken for the following parts of your journey:

Time to get from where you started this journey to the bus stop where you boarded this bus _____ mins?

Time you spent waiting for the bus at this bus stop _____ mins?

Time you will have spent on this bus _____ mins?

Time taken from leaving this bus to arriving at your destination _____ mins?

Q5 Does your current journey involve taking more than 1 bus? Please tick one option.

...No- only this bus

...Yes – I use 2 buses

...Yes – I use 3 or more buses

Q6 What ticket are you travelling with on this bus journey? Please tick one option.

...Concessionary Pass

...Return Ticket

...Single Ticket

...Day Saver Ticket

...Family Saver Ticket

...Student Saver Ticket

...Weekly Saver Ticket

...4 Weekly Saver Ticket

...Annual Saver Ticket

Part 3 About your job

Q7 Which of the following categories best describes your employment status? Please tick one option.

...Self-employed, working 1-30 hours per week

...Self-employed, working 30+ hours per week

...Employed, working 1-30 hours per week

...Employed, working 30+ hours per week

Q8 Which of the following categories best describes your occupation? Please tick one option.

...Manager or senior official (e.g. office manager, MD)

...Professional (e.g. doctor)

...Technical (e.g. nurse, police officer, journalist)

...Administrative or secretarial

...Process & plant operator (e.g. machinist, driver)

...Skilled trade (e.g. bricklayer)

...Sales or customer service (e.g. sales assistant)

...Personal services

...Elementary occupation (e.g. labourer, waiter, porter)

...Other

Q9 What is the main activity of your employer/company? Please tick one option

...Business activities, financial services, or real estate

...Retail, hotels,

...Public administration, defence, education, health & social work

...Manufacturing

...Agriculture, fishing, forestry, mining or quarrying

...Construction

...Supply of electricity, gas or water, transport, storage or communication.

...Other _____

Part 4 Changes in bus services & implications for your journey to work

Q10 If this bus service wasn't available for a day (and you had advance notice) what would you do?

Please tick all that apply

- ...Not travel and work from home ...Travel by train ...Travel by taxi
...Travel by car as a driver ...Travel by car as a passenger ...Travel by bike
...Travel by motorbike/scooter ...Travel on foot ...Take a day's leave
...Travel by another bus route ...Use a Park and Ride facility
...Other _____

Q11 If this bus service was no longer available what would you do? *Please tick all that apply*

- ...Always work from home ...Travel by train ...Travel by taxi
...Travel by car as a driver ...Travel by car as a passenger ...Travel by bike
...Travel by motorbike/scooter ...Travel on foot ...Buy a car
...Learn to drive ...Give up work ...Look for another job
...Move home ...Other _____

Q12 Have you ever been offered a job which you have had to turn down as the bus service was too inadequate for you to use? *Please tick one option*

- ...No ...Yes – in the last year ...Yes – more than 1 yr ago

Q13 Do you think that improvements to this bus service would give you access to a better job? *(please tick all that apply)*

- ...No - an improved bus service would not change my access to a better job
...Yes – if the bus was faster/more direct
...Yes – if the bus was more frequent
...Yes – if the bus was cheaper
...Yes – if the bus was more punctual
...Yes – if it was safer to travel early morning/late night

Part 5 About you

Q14 Are you male or female? *(please tick one option)*

- ...Male ...Female

Q15 Which category below includes your age? *(please tick one option)*

- ...16-19 yrs
...20-24 yrs
...25-29 yrs
...30-39 yrs
...40-49 yrs
...50-59 yrs

...60 yrs or older

Q16 Which of the following educational qualifications do you have? (please tick all that apply)

- ...None
- ...School - GCSEs/O levels or equivalent
- ...School/College – A levels or equivalent
- ...Degree level or equivalent.
- ...Professional (e.g. accountancy, teaching)
- ...Other

Q17 Do you hold a valid driving licence? (please tick one option)

- ...Yes
- ...No

Q18 Have you a car or van available for YOUR journey to work? (please tick one option)

- ...No – I never have access to a car/van
- ...Yes – I almost always have access to a car/van
- ...Yes – always
- ...Yes – but only infrequently

Q18 Have you a car/van available for YOUR personal use (e.g. shopping trips, journey to work etc.)? (please tick one option)

- ...No – I never have access to the car/van
- ...Yes – I almost always have access to a car/van
- ...Yes – always
- ...Yes – but only infrequently

Q19 How many people are in your household according to age? Please complete for each box

Age Categories	No. of People in Household
0 to 4 yrs	
5 to 16 yrs	
17 to 59 yrs	
60 yrs or older	

Q20 How much do you earn from PAID WORK before tax is taken? [excluding all income from savings, pensions etc.] (please tick one option)

- ...Sorry – this information is too personal to me
- ...Nothing – I don't do paid work
- ...£1-£4,999
- ...£5,000 to £7,499
- ...£7,500 to £12,499
- ...£12,500 to £14,999
- ...£15,000 to £19,999
- ...£20,000 to £24,999
- ...£25,000 to £29,999
- ...£30,000 to £49,999
- ...£50,000 or more

BUS TRAVEL SURVEY – University of Leeds – Education/Training

Dear Customer,

Thank you for agreeing to answer this questionnaire about your bus journey today. This survey is being undertaken by the Institute for Transport Studies at the University of Leeds, on behalf of the Department for Transport and Greener Journeys, to examine the use of buses in and around Shrewsbury. The information you provide will be treated as strictly confidential.

Please return your completed questionnaire to one of our survey team. If you need a pen please ask.

Thank you for your assistance.

Part 1 – Some questions about your general bus travel

Q1 Thinking about this bus service, how satisfied are you with the following?

Please tick a category from each row.

	Very satisfied	Satisfied	Neither satisfied or dissatisfied	Dissatisfied	Very dissatisfied	Don't know/Not relevant
Journey times	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value for money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of seating/space to stand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Punctuality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frequency of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2 How many trips have you made on this bus service in the last 7 days (excluding today) for the following reasons? PLEASE RECORD A RETURN JOURNEY AS 2 TRIPS AND A ONE-WAY JOURNEY AS 1 TRIP.

Reasons:	Number of Trips in the Last 7 Days:
<i>Getting to or from work</i>	
<i>Getting to or from education/training</i>	
<i>During work (travelling to a business meeting)</i>	
<i>To or from shopping</i>	
<i>To or from visiting friends and family</i>	
<i>To or from personal business (bank, doctor etc...)</i>	
<i>To or from leisure (to access swimming pools, parks, restaurants etc...)</i>	
<i>Accompanying child, family member, friend, etc. to school, on shopping trip, to doctor, etc.</i>	
<i>Other</i>	

Part 2 – Questions about your journey today

Q3 For the journey you are currently making, please tell us:

Where your journey started (e.g. college/home location)? Street/Postcode/Institution _____

The bus stop where you boarded this bus? Street/location _____

The bus stop where you will get off this bus? Street/location _____

Where your journey will finish (e.g. college/home location)? Street/Postcode/Institution _____

Q4 For the journey you are currently making, please give us your best estimate of the time taken for the following parts of your journey:

Time to get from where you started this journey to the bus stop where you boarded this bus _____ mins?

Time you spent waiting for the bus at this bus stop _____ mins?

Time you will have spent on this bus _____ mins?

Time taken from leaving this bus to arriving at your destination _____ mins?

Q5 Does your current journey involve taking more than 1 bus? Please tick one option.

No – only this bus Yes – I use 2 buses Yes – I use 3 or more buses

Q6 What ticket are you travelling with on this bus journey? Please tick one option.

...Concessionary Pass ...Return Ticket ...Single Ticket
 ...Day Saver Ticket ...Family Saver Ticket ...Student Saver Ticket
 ...Weekly Saver Ticket ...4 Weekly Saver Ticket ...Annual Saver Ticket

Q7 What Sort of Education or Training are you Taking Part in? Please tick one option.

...On the job training ...A school based course
 ...A Further Education college course ...A university-based course
 ...Distance learning/Open University ...Adult education or evening class
 ...Other _____

Part 3 Changes in bus services & implications for your education/training

Q8 If this bus service wasn't available for a day (and you had advance notice) what would you do? Please tick all that apply

...Miss the course/class/training session ...Reschedule the course/class/training session
 ...Travel by train ...Travel by taxi
 ...Travel by car as a driver ...Travel by car as a passenger
 ...Travel by motorbike/scooter ...Travel on foot
 ...Travel by another bus route ...Travel by bicycle
 ...Use a Park and Ride facility
 ...Other _____

Q9 If this bus service was no longer available what would you do? Please tick all that apply

...Miss occasional course/class/training session ...Change to different course/class/training session
 ... Look for a new course/class/training session ...Give up current training/education
 ...Travel by train ...Travel by taxi
 ...Travel by car as a driver ...Travel by car as a passenger
 ...Travel by motorbike/scooter ...Buy a car

- ...Live away from home during the week
 - ...Move home
 - ...Travel on foot
-

- ...Travel by bicycle
- ...Learn to drive
- ...Other

Q10 Do you think that improvements to this bus service would give you access to better education/training? (please tick all that apply)

- ...No – an improved bus service would not change my access to better education/training
- ...Yes – if the bus was faster/more direct
- ...Yes – if the bus was more frequent
- ...Yes – if the bus was cheaper
- ...Yes – if the bus was more punctual
- ...Yes – if it was safer to travel early morning/late night

Part 5 About you

Q11 Are you male or female? (please tick one option)

- ...Male
- ...Female

Q12 Which category below includes your age? (please tick one option)

- ...16-19 yrs
- ...20-24 yrs
- ...25-29 yrs
- ...30-39 yrs
- ...40-49 yrs
- ...50-59 yrs
- ...60 yrs or older

Q13 Which of the following educational qualifications do you have? (please tick all that apply)

- ...None
- ...School - GCSEs/O levels or equivalent
- ...School/College – A levels or equivalent
- ...Degree level or equivalent
- ...Professional (e.g. accountancy, teaching)
- ...Other

Q14 Do you hold a valid driving licence? Please tick one option

- ...Yes
- ...No

Q15 Have you a car or van available for YOUR personal use (e.g. shopping trips, journey to work etc.)?

Please tick one option

- ...No – I never have access to a car/van
- ...Yes – I almost always have access to a car/van

- ...Yes – always
- ...Yes – but only infrequently

Q16 Which of the following categories best describes your employment status? Please tick one option.

- ...Employed, working 1-30 hours per week
- ...Employed, working 30+ hours per week
- ...Retired/Permanently sick
- ...Disabled/not able to work
- ...Not employed, looking for work
- ...Not employed, NOT looking for work
- ...Student
- ...Homemaker

Q17 How many people are in your household according to age? Please complete for each box

Age Categories	No. of People in Household
0 to 4 yrs	
5 to 16 yrs	
17 to 59 yrs	
60 yrs or older	

Q18 How much do you earn from PAID WORK before tax is taken? [excluding all income from savings, pensions etc.] (please tick one option)

- ...Sorry – this information is too personal to me
- ...Nothing – I don't do paid work
- ...£1-£4,999
- ...£5,000 to £7,499
- ...£7,500 to £12,499
- ...£12,500 to £14,999
- ...£15,000 to £19,999
- ...£20,000 to £24,999
- ...£25,000 to £29,999
- ...£30,000 to £49,999
- ...£50,000 or more

BUS TRAVEL SURVEY – University of Leeds – Retail/Services/Amenities

Dear Customer,

Thank you for agreeing to answer this questionnaire about your bus journey today. This survey is being undertaken by the Institute for Transport Studies at the University of Leeds, on behalf of the Department for Transport and Greener Journeys, to examine the use of buses in and around Shrewsbury. The information you provide will be treated as strictly confidential.

Please return your completed questionnaire to one of our survey team. If you need a pen please ask.

Thank you for your assistance.

Part 1 – Some questions about your general bus travel

Q1 Thinking about this bus service how satisfied are you with the following?

Please tick a category from each row.

	Very satisfied	Satisfied	Neither satisfied or dissatisfied	Dissatisfied	Very dissatisfied	Don't know/Not relevant
Journey times	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value for money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of seating/space to stand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Punctuality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frequency of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2 How many trips have you made on this bus service in the last 7 days (excluding today) for the following reasons? PLEASE RECORD A RETURN JOURNEY AS 2 TRIPS AND A ONE-WAY JOURNEY AS 1 TRIP

Reasons:	Number of Trips in the Last 7 Days:
<i>Getting to or from work</i>	
<i>Getting to or from education/training</i>	
<i>During work (travelling to a business meeting)</i>	
<i>To or from shopping</i>	
<i>To or from visiting friends and family</i>	
<i>To or from personal business (bank, doctor etc...)</i>	
<i>To or from leisure (to access swimming pools, parks, restaurants etc...)</i>	
<i>Getting to or from Job Centre</i>	
<i>Accompanying child, family member, friend, etc. to school, on shopping trip, to doctor, etc.</i>	
<i>Other</i>	

Part 2 – Questions about your journey today

Q3 For the journey you are currently making, please tell us:

Where your journey started? Street/Postcode/location _____

The bus stop where you boarded this bus? Street/location _____

The bus stop where you will get off this bus? Street/location _____

Where your journey will finish? Street/Postcode/location _____

Q4 For the journey you are currently making, please give us your best estimate of the time taken for the following parts of your journey:

Time to get from where you started this journey to the bus stop where you boarded this bus ___ mins?

Time you spent waiting for the bus at this bus stop _____ mins?

Time you will have spent on this bus _____ mins?

Time taken from leaving this bus to arriving at your destination _____ mins?

Q5 Does your current journey involve taking more than 1 bus? Please tick one option.

...No – only this bus

...Yes – I use 2 buses

...Yes – I use 3 or more buses

Q6 What ticket are you travelling with on this bus journey? Please tick one option.

...Concessionary Pass

...Return Ticket

...Single Ticket

...Day Saver Ticket

...Family Saver Ticket

...Student Saver Ticket

...Weekly Saver Ticket

...4 Weekly Saver Ticket

...Annual Saver Ticket

Part 3 Activities undertaken

This section relates to the activities you have or will have undertaken today after reaching your desired location by bus.

Q7 Can you please indicate what you did when you reached your desired location today? Please tick all that apply. Then indicate what the main activity was? Please tick one.

Activities Done

Main Activity

...Shopping for food/groceries

...Shopping for alcohol/tobacco/newspapers/confectionery

...Shopping for clothes/cosmetics/jewellery

...Shopping for pharmaceuticals/toiletries

...Shopping for electrical/household goods

...Shopping for stationery/books/CDs/DVDs/leisure goods

...Shopping for other items (excluding services such as travel agents, recreation, leisure & socialising)

...Using a service or public amenity, e.g. bank, post office, hairdresser, library, hospital

...Eating out/socialising

...Other leisure/recreation, e.g. cinema, music concert etc

...Other (please specify) _____

Q8 How much (approximately) will/did you spend individually and as a family group (if applicable).

Please – include your individual spend in your family group spend at your desired location today ?

	<i>Individual</i>	<i>Family</i>
<i>Shopping for food/groceries/alcohol/tobacco</i>	£_____	£_____
<i>Shopping for alcohol/tobacco/newspapers/confectionary</i>	£_____	£_____
<i>Shopping for clothes/cosmetics/jewellery</i>	£_____	£_____
<i>Shopping for pharmaceuticals/toiletries</i>	£_____	£_____
<i>Shopping for electrical/household goods</i>	£_____	£_____
<i>Shopping for stationery/books/CDs/DVDs/leisure goods</i>	£_____	£_____
<i>Shopping for other items (excluding services such as travel agents)</i>	£_____	£_____
<i>Using a service or public amenity, e.g. bank, hairdresser, library</i>	£_____	£_____
<i>Eating out/socialising.</i>	£_____	£_____
<i>Other leisure/recreation, e.g. cinema, music concert etc.</i>	£_____	£_____
<i>Other (please specify) _____</i>	£_____	£_____

I didn't/won't spend anything?...O

Q9 If you travelled to the location as a family group how many people were in the group?

*Children aged 17 years or less*_____ *Adults (including yourself)* _____

Q10 Can you please indicate which of the following reasons were IMPORTANT in reaching your decision to visit this location? Please tick all that apply. Then indicate what the most important reason was. Please tick one only.

<i>Important</i>	<i>Most Important</i>
<input type="checkbox"/> ...It has a good range of shops, services & leisure/recreation facilities	<input type="radio"/>
<input type="checkbox"/> ...It has specific shops, services & leisure/recreation facilities that I was interested in	<input type="radio"/>
<input type="checkbox"/> ...It has longer opening hours	<input type="radio"/>
<input type="checkbox"/> ...It is a day out/opportunity to meet family/friends	<input type="radio"/>
<input type="checkbox"/> ...It is the closest location to me	<input type="radio"/>
<input type="checkbox"/> ...It is the only location that I could travel to	<input type="radio"/>
<input type="checkbox"/> ...It is the least expensive location to travel to	<input type="radio"/>
<input type="checkbox"/> ...It is convenient to travel to by bus	<input type="radio"/>
<input type="checkbox"/> ...I chose it because of poor weather	<input type="radio"/>
<input type="checkbox"/> ...I could do shopping and access other services & leisure facilities at the same time	<input type="radio"/>
<input type="checkbox"/> ...It has child care facilities	<input type="radio"/>

Part 4 Changes in bus services & implications for your journey today

Q11 If this bus service wasn't available for today what would you have done? Please tick all that apply

- ...Travel by another form of transport to the same location
- ...Travel by a different bus route
- ...Travel by another form of transport to another location
- ...Travel by bus to another location
- ...Do all/some of the activities I had planned online or via the telephone
- ...Not do the planned activities
- ...Other _____

Q11a If you would have chosen to travel by another form of transport in Qn 11 which mode would you have chosen? Please tick one from below.

- ...Car/van as a driver
- ...Motorbike/scooter
- ...Bicycle
- ...Walk
- ...Car/van as a passenger
- ...Train
- ...Taxi
- ...Other
- ...Use a Park and Ride facility

Q12 If this bus service was no longer available what would you do for journeys like today's?
Please tick all that apply

- ...Travel by another form of transport to the same location
- ...Travel by a different bus route
- ...Travel by another form of transport to another location
- ...Travel by bus to another location
- ...Do all/some of the activities I had planned online or via the telephone
- ...Not do the planned activities
- ...Move home
- ...Other _____

Q12a If you would have chosen to travel by another form of transport in Qn 12 which mode would you have chosen? Please tick all that apply.

- ...Car/van as a driver
- ...Motorbike/scooter
- ...Bicycle
- ...Walk
- ...Car/van as a passenger
- ...Train
- ...Taxi
- ...Other
- ...Use a Park and Ride facility

Part 5 About you

Q13 Are you male or female? Please tick one option

- ...Male
- ...Female

Q14 Which category below includes your age? Please tick one option

- ...16-19 yrs ...25-29 yrs ...40-49 yrs ...60 yrs or older
...20-24 yrs ...30-39 yrs ...50-59 yrs

Q15 Which of the following educational qualifications do you have? Please tick all that apply

- ...None ...Degree level or equivalent
...School - GCSEs/O levels or equivalent ...Professional (e.g. accountancy)
...School/College – A levels of equivalent ...Other

Q16 Do you hold a valid driving licence? Please tick one option

- ...Yes ...No

Q17 Have you a car or van available for YOUR personal use (e.g. shopping trips, journey to work etc.)?

(Please tick one option)

- ...No – I never have access to a car/van ... Yes – always
... Yes – I almost always have access to a car/van ... Yes – but only infrequently

Q18 How many people are in your household according to age? Please complete for each box

Age Categories	No. of People in Household
0 to 4 yrs	
5 to 16 yrs	
17 to 59 yrs	
60 yrs or older	

Q19 Which of the following categories best describes your employment status? Please tick one option.

- ...Employed, working 1-30 hours per week ...Employed, working 30+ hours per week
...Retired/Permanently sick ...Disabled/not able to work
...Not employed, looking for work ...Not employed, NOT looking for work
...Student ...Homemaker

Q20 How much do you earn from PAID WORK before tax is taken? [excluding all income from savings, pensions etc.] (please tick one option)

- ...Sorry – this information is too personal to me ...Nothing – I don't do paid work
...£1-£4,999 ...£12,500 to £14,999 ...£25,000 to £29,999
...£5,000 to £7,499 ...£15,000 to £19,999 ...£30,000 to £49,999
...£7,500 to £12,499 ...£20,000 to £24,999 ...£50,000 or more

ⁱ These are a measure of precision of parameter estimates – an absolute value of 1.96 or greater suggests that these values are significantly different to zero with a 95% degree of confidence.

Passengers on 2 bus routes will be surveyed over a three day period (Thursday 13th March to Saturday 15th March). The two bus routes in question are outlined below. Both are operated by Arriva Buses on an hourly service pattern.

(1) Bus Route 436 – Shrewsbury – Much Wenlock – Bridgnorth.

(2) Bus Route 64 – Shrewsbury – Market Drayton

Three survey staff will be utilised during the time period with two assigned to cover route 64 (which we understand has the larger passenger loadings of the two) and one to cover route 436. This will allow us to cover all the services for route 64 during the time windows of the survey and half the services for route 436.

The survey windows during the survey period will be as follows:

(4) Thursday 13th March – 1pm till 8pm – designed to capture peak commuters/education/training & leisure passengers (both day time and evening during the mid-week)

(5) Friday 14th March – 9am till 4pm – designed to capture mainly day time leisure trips and shoulder peak commuter & education/training passengers

(6) Saturday 15th March – 12 noon till 8pm – designed to capture leisure passengers (weekend day and evening peak)

Together these 3 periods will allow us to construct a sample representative of a week day and a weekend day (no Sunday services). We will also consult with the operator who have passenger loadings throughout the week to construct a sample representative of the operating week along these routes.

All passengers travelling between Shrewsbury and Much Wenlock or Bridgnorth or Market Drayton are in scope to receive a questionnaire. The survey team will be travelling on the bus and will intercept passengers as they board the locations mentioned above and will check they are in scope and what the main journey purpose is before handing them one of three questionnaire forms which cover: (1) Commuting; (2) Education/Training; & (3) Shopping/Leisure/Services/Amenities.

The passenger will be asked to complete the questionnaire during the bus journey and return to the survey team as they depart the bus. Freepost envelopes will also be available should they be required.

With regard to sampling strategy, everyone on the bus who is in scope will receive a questionnaire if they agree to take part in the survey. This should ensure a full profile of passengers take part in the survey per bus surveyed. For route 64 we are surveying all the buses during the survey windows giving us 100% total coverage, whilst for route 436 half of the buses will be surveyed giving us 50% total coverage.

Figure 4 a and b: Survey catchment areas and corresponding Census output areas: Much Wenlock

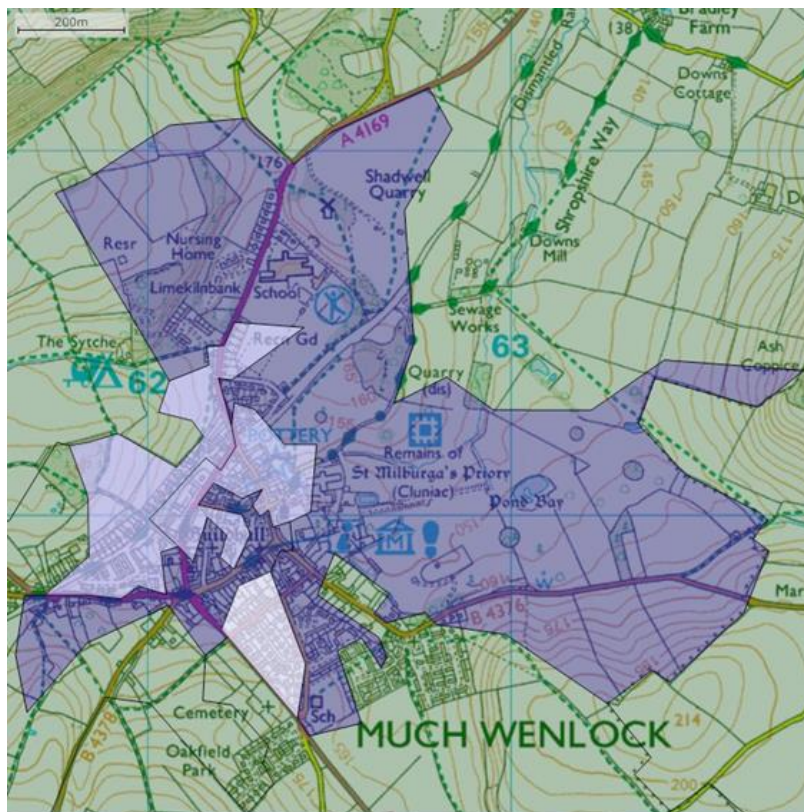
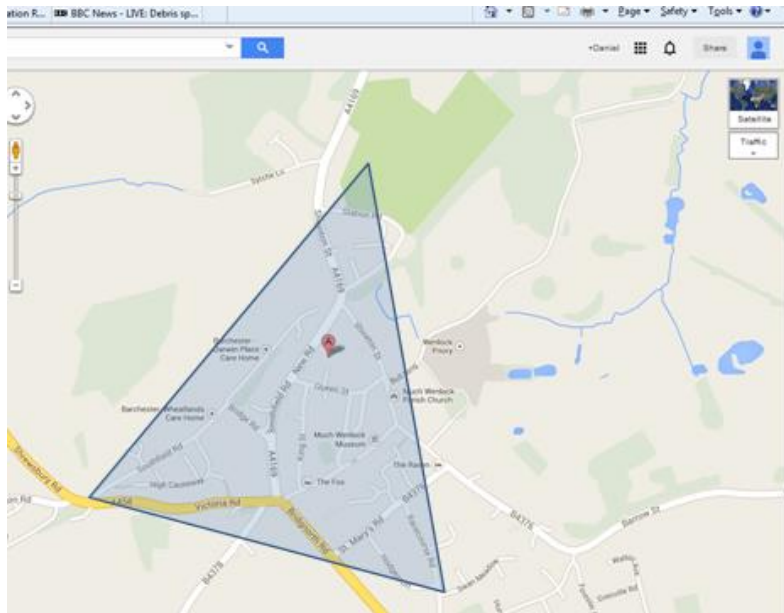


Figure 5 a and b: Survey catchment areas and corresponding Census output areas: Bridgnorth

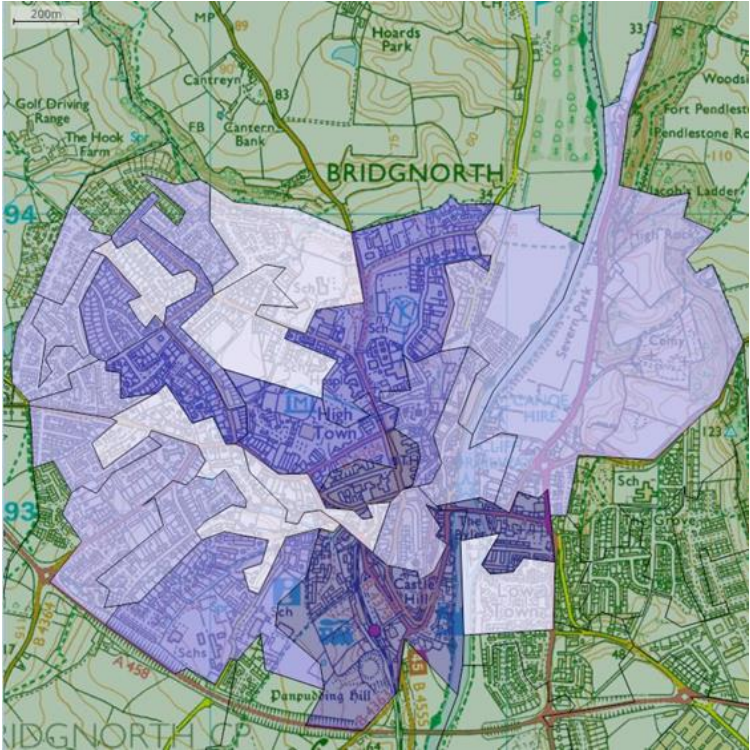
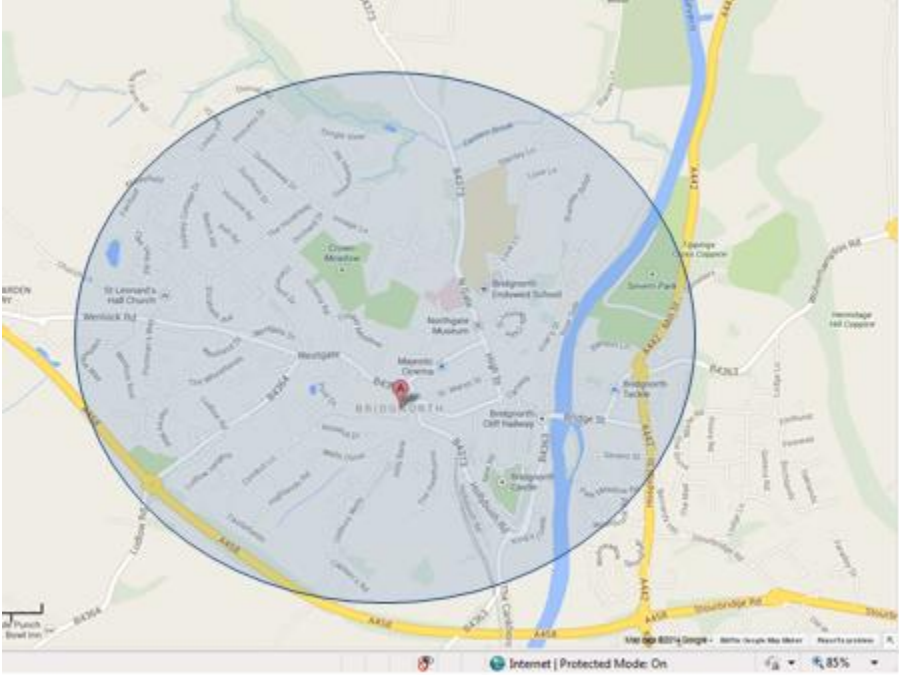


Figure 6a and b: Survey catchment areas and corresponding Census output areas: Market Drayton

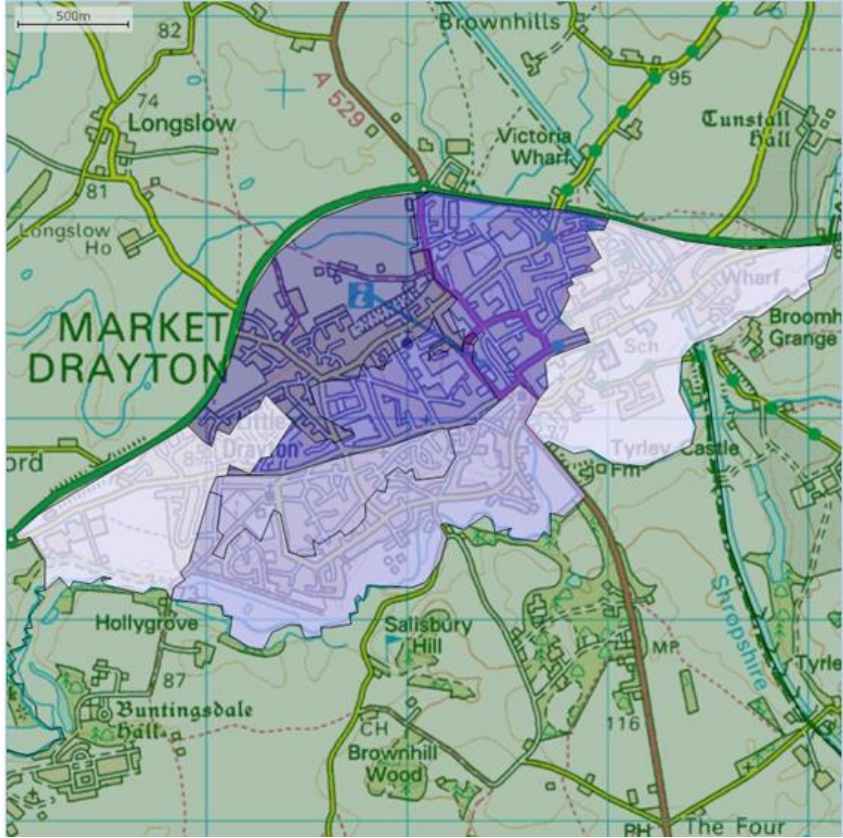
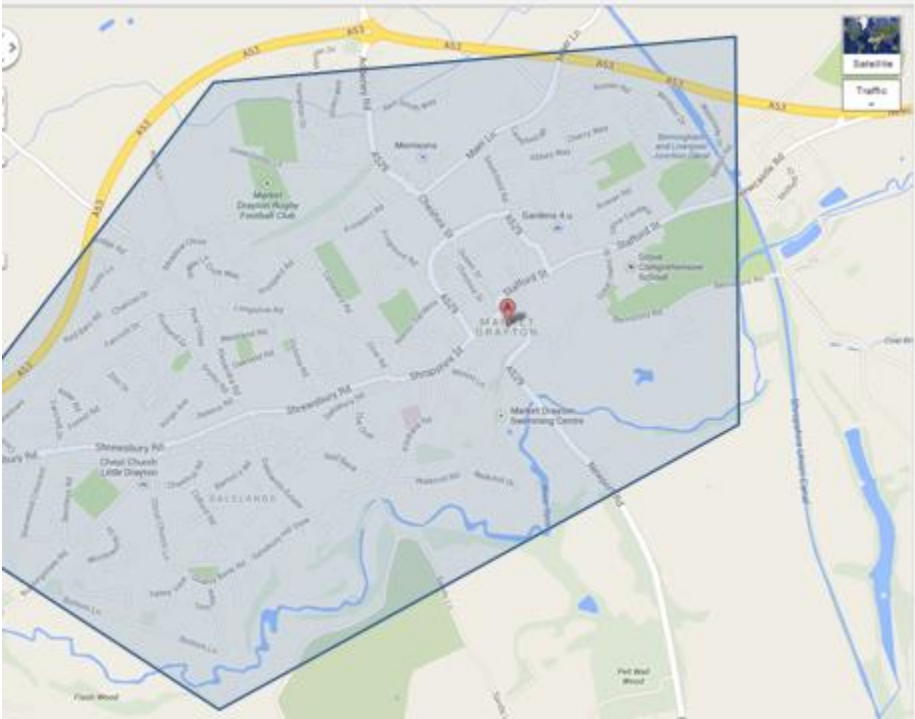


Table 6-5: Selected Census Output areas and Household counts

Settlement	Census Output area	Type	No.Households
Market Drayton	Shropshire 005A	Lower LevelSO Area	835
Market Drayton	Shropshire 005B	Lower LevelSO Area	615
Market Drayton	Shropshire 005C	Lower LevelSO Area	984
Market Drayton	Shropshire 005D	Lower LevelSO Area	841
Market Drayton	Shropshire 005E	Lower LevelSO Area	534
Market Drayton	Shropshire 005F	Lower LevelSO Area	683
Market Drayton	Shropshire 005G	Lower LevelSO Area	652
Total Market Drayton			5144
Much Wenlock	E00146940	Super Output Area	158
Much Wenlock	E00146941	Super Output Area	160
Much Wenlock	E00146943	Super Output Area	128
Much Wenlock	E00146944	Super Output Area	133
Much Wenlock	E00146946	Super Output Area	118
Bridgnorth	E00146833	Super Output Area	129
Bridgnorth	E00146834	Super Output Area	110
Bridgnorth	E00146835	Super Output Area	173
Bridgnorth	E00146836	Super Output Area	119
Bridgnorth	E00146837	Super Output Area	133
Bridgnorth	E00146838	Super Output Area	126
Bridgnorth	E00146839	Super Output Area	127
Bridgnorth	E00146840	Super Output Area	140
Bridgnorth	E00146842	Super Output Area	141
Bridgnorth	E00146843	Super Output Area	130
Bridgnorth	E00146844	Super Output Area	152
Bridgnorth	E00146845	Super Output Area	122
Bridgnorth	E00146846	Super Output Area	171
Bridgnorth	E00146847	Super Output Area	174
Bridgnorth	E00146848	Super Output Area	111
Bridgnorth	E00146849	Super Output Area	131
Bridgnorth	E00146850	Super Output Area	121
Bridgnorth	E00146851	Super Output Area	155
Bridgnorth	E00146852	Super Output Area	133
Bridgnorth	E00146863	Super Output Area	137
Bridgnorth	E00146864	Super Output Area	130
Bridgnorth	E00146865	Super Output Area	155
Bridgnorth	E00146866	Super Output Area	127
Bridgnorth	E00146867	Super Output Area	128
Bridgnorth	E00146869	Super Output Area	138
Bridgnorth	E00146870	Super Output Area	118
Bridgnorth	E00146871	Super Output Area	132
Bridgnorth	E00146872	Super Output Area	135
Total Much Wenlock/Bridgnorth			4495

