



New Mersey Crossing - Quantitative Research

Final Report

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Gifford and Partners Limited

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1.1 Overview

1.1.1 MVA were commissioned by Gifford and Partners, working on behalf of Halton Borough Council to look into car driver reaction to a new Mersey crossing and, in particular, how driver behaviour would be affected by tolling.

1.1.2 This report of findings covers research focussed on residents of Halton Borough and on employees at businesses both within the immediate vicinity and a half hour drive time of the Silver Jubilee Bridge.

1.2 Research Objectives

1.2.1 The research aims are to:

- determine driver sensitivity in relation to travel/time cost and see if this is in line with DfT's default values for Economic Assessments;
- provide more specific values of time relative to drivers currently crossing the Mersey; and
- give greater confidence when modelling how drivers will behave under different future scenarios involving increased journey time to avoid a toll.

1.3 Deliverables

1.3.1 The key project deliverables are to:

- provide values of time for key segments of current bridge users;
- inform on the issue of at what threshold will people prefer to travel the extra journey time and distance in order to avoid a toll of £x;
- identify drivers' perceptions of current route choice and main factors influencing this choice.

1.4 This Report

1.4.1 In the following chapters of this draft report of findings, chapter two covers the methodology used in the study. Findings from the Stated Preference exercise are detailed in chapter three. Chapter four reports on respondents' intended future behaviour, chapter five on current route choices and chapter six details the profile of survey respondents.

2.1 Overview

2.1.1 MVA developed a self completion questionnaire for completion by car drivers resident in the borough of Halton and employed at businesses both within the immediate vicinity of the Silver Jubilee Bridge and within a half an hour drive time.

2.2 Sampling

Employee Survey

2.2.1 MVA purchased a database of businesses in key postcode sectors both within the immediate vicinity and within half an hour's drive time of the Silver Jubilee Bridge. A range of businesses which were likely to generate employee business trips were contacted and asked to distribute questionnaires to their employees.

2.2.2 Questionnaires were sent to fifteen businesses within the immediate vicinity of the bridge and fifteen businesses within half an hour's drive time of the bridge. The number of questionnaires was matched to the size of business with an average of twenty questionnaires sent out to each.

2.2.3 Employees were asked to complete the questionnaire and return it direct to MVA in the freepost envelope provided.

2.2.4 In return for their participation in the survey process employers were offered a donation to a charity of their choice or a book or wine voucher.

2.2.5 A copy of the questionnaire can be found in Appendix A.

Employee Survey

2.2.6 The self completion questionnaire was sent to a random sample of households in Halton Borough. Households were selected using the Postcode Address File (PAF) data and the sample selected represented all census output areas in the borough. This ensured a distribution of questionnaires across the borough. A total of 2400 questionnaires were distributed.

2.2.7 A copy of the questionnaire can be found in Appendix B.

2.3 Scope

2.3.1 The questionnaire asked that those who had made a trip over the Silver Jubilee Bridge in a car, van, light goods vehicle or motorcycle, within the last fortnight complete the questionnaire.

2.3.2 Non car drivers were reassured that views of such groups would be collected through other on-going research into the effect of a new bridge.

2.4 Trips across the Silver Jubilee Bridge

2.4.1 The survey asked how many trips had been made, of ten minutes or more, across the Silver Jubilee Bridge in the last fortnight and to note all purposes for which these trips had been made.

2.4.2 Respondents were then asked to focus on the journey whose purpose came first in the list of purposes on the questionnaire. Purposes were listed in the following order:

- business trips with a home origin or destination;



- trips to and from education with a home origin or destination;
- leisure trips with a home origin or destination ;
- personal business trips with a home origin or destination;
- trips with non-home origin and destination; and
- commuting trips.

2.4.3 Purposes were ordered to maximise data from those making journeys on employers' business.

2.4.4 Respondents were then asked to focus on this particular journey throughout the remainder of the questionnaire. The importance of focussing on this journey was reiterated throughout the questionnaire as different journey purposes may elicit different responses.

2.5 Specific Trip Details

2.5.1 Respondents were asked to indicate the origin and destination of their journey on a zonal map (see Appendix C) and say at what time their journey began, how long it took and how many miles they had travelled.

2.6 Reasons for Route Choice

2.6.1 Respondents were asked the reasons for their route choice and whether they would be making a return journey on the same route.

2.7 Initial Reaction to New Bridge

2.7.1 Respondents were asked for their initial reaction to the new bridge in terms of whether they thought it would improve or worsen their journey time and distance travelled or have no effect on their journey and which bridge they would have preferred to use for their journey if both bridges had been open.

2.8 Stated Preference

2.8.1 In the stated preference exercise respondents were presented with three questions, each containing four possible scenarios for future crossings of the Mersey.

2.8.2 Options included either the existing or the new bridge, different levels of toll, differing journey from an increase in journey time, through to same journey time and a reduction in journey time.

2.8.3 The stated preference design was slightly different for the resident and employee surveys (see questionnaires in Appendix A and B). This was in order to widen the value for time for business journeys likely to be completed by respondents in the employee survey.

2.8.4 Toll levels presented were as follows, with higher levels presented to employees a:

- None,
- £1.00 / £1.50
- £1.50 / £2.00



2.8.5 Differences in journey time presented were:

- 5 minutes less;
- Same as now;
- 10 minutes more; and
- 20 minutes more.

2.8.6 Respondents were asked to rate each set of four options as best, second choice, third choice and worst in terms of their preference for each option. They were reminded to focus on the same journey detailed earlier in the questionnaire.

2.9 Future Options

2.9.1 Respondents were presented with a range of future scenarios:

- A new bridge is not built and journey times increase;
- A new bridge is built and tolled; and
- A new bridge is built and both bridges are tolled.

2.9.2 In the scenario of a new bridge not being built respondents were asked what increase in journey time would lead them to consider alternatives.

2.9.3 In the scenario where a new bridge is built respondents were asked which bridge they would prefer to use or, if they preferred an alternative (non-bridge) route.

2.10 Demographic Profile

2.10.1 Demographic details of respondents were collected:

- Mode of transport;
- Gender;
- Age group;
- Income; and
- Postcode.



3.1 Overview

- 3.1.1 A total of 608 completed questionnaires were returned, slightly above the 600 completed responses required for the study.
- 3.1.2 In terms of the stated preference exercise 532 completed responses were obtained. Respondents who did not fully complete or incorrectly completed the exercise were excluded. This is within the range of non-completion expected with self-completion stated preference exercises.
- 3.1.3 Respondents were asked to complete three stated preference exercises, rating a range of option on choice of bridge, level of toll and effect on journey time. The exercise provides information on residents' bridge preferences and time / money trade-offs.

3.2 Introduction to Stated Preference

- 3.2.1 The following provide guidelines when interpreting the results of each SP model reported in this section of the report:
- a negative coefficient for each SP variable (such as toll level or in-vehicle time) reflects respondents' disutility (or disbenefit) of a marginal increase;
 - a negative coefficient for the 'Bridge' variable (i.e. switching from the existing bridge → the new bridge) reflects respondents' disutility of using the new bridge rather than the existing bridge;
 - the reported t-statistic reflects the statistical validity of each coefficient estimate. A t-statistic exceeding 1.96 would imply that the corresponding coefficient is statistically different from zero at the 95% confidence level. It should be noted though, that such differences are indicative only as this threshold assumes that all observations are independent. In fact, not all observations are independent (since each respondent contributed up to 9 observations), so an adjustment factor should apply. Typically, the threshold for significance could be increased by, perhaps, a factor of around $\sqrt[3]{9}$ (cubed root of 9);
 - the reported value, in minutes, for the bridge is calculated as the ratio of the corresponding 'bridge' and 'in-vehicle' time coefficients.

3.3 SP Results

- 3.3.1 **Table 3.1** reports the SP model results for the sample of data so far collected. These results indicate that residents have a value of time of around 9 pence per minute (or £5.40 per hour), on average. The assumption in Gifford's transport model is 7.4 pence per minute for general trips, 8.4 pence per minute for commuting trips and 44 pence per minute for business trips.

**Table 3.1 SP Model Results (All Respondents)**

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.1196	-2.9	1 min
In-vehicle Time (minute)	-0.1194	-32.2	9p/min
Toll (pence)	-0.0138	-30.9	

Sample = 532
Number of Observations = 4788
Null log likelihood = -5072
Model log likelihood = -4284
Rho bar squared = 0.15

- 3.3.2 The reported t-statistic for the 'bridge' coefficient is barely statistically significant from zero once an adjustment is made for the clustered nature of observations. The implied value is 1 minute. That is, all other things (such as journey times and costs being equal) respondents overall would slightly prefer to use the existing bridge over the new bridge. This slight preference may be put down to a slight bias towards routes that are familiar, etc when all other things are equal. If, however, a time saving of two minutes or more was perceived in favour of the new bridge, people would, on average, switch to the new bridge. Again, this result seems entirely plausible.
- 3.3.3 The results of models segmented by journey purpose are reported in **Table 3.2**. The model results indicate a value of time of around 8 pence per minute for commuters and leisure travellers. These findings are in line with expectations. Also as expected, travellers on employers' business have a higher value of time. However, the implied 10 pence per minute result is lower than expected for business travellers.

Table 3.2 SP Model Results by Journey Purpose

Purpose	Variable Name	Co-efficient	t stat	Value (ivt mins)
Employers' Business (131 resps)	Existing Bridge → New Bridge	-0.0644	-0.7	
	In-vehicle Time (minute)	-0.1342	-17.4	10 p/min
	Toll (pence)	-0.0131	-15	
	Number of Observations = 1179 Null log likelihood = -1249 Model log likelihood = -1024.9 Rho bar squared = 0.18			
Commuters (77 resps)	Existing Bridge → New Bridge	-0.2028	-1.7	-
	In-vehicle Time (minute)	-0.1472	-13.2	8 p/min
	Toll (pence)	-0.0177	-13.9	
	Number of Observations = 693 Null log likelihood = -734 Model log likelihood = -569 Rho bar squared = 0.22			
Other (324 resps)	Existing Bridge → New Bridge	-0.1286	-2.4	1 min
	In-vehicle Time (minute)	-0.1088	-23.6	8 p/min
	Toll (pence)	-0.0134	-23.2	
	Number of Observations = 2916 Null log likelihood = -3089 Model log likelihood = -2671 Rho bar squared = 0.13			



- 3.3.4 One reason for the lower than expected value of time for business travellers is that, many are also local residents, so had also made recent journeys over the bridge for non-employers' business purposes. Therefore, respondents may have found it difficult to participate in the SP exercise – where they were asked to think only of their employers' business trip – without thinking about the wider implications of different toll levels on their other (non-business) trips where the cost of the journey comes out of their own pocket.
- 3.3.5 To explore whether there seemed to be two distinct groups of 'employers business' travellers, we investigated other models depending upon the business traveller's willingness to pay to use the new bridge at a cost of £1 to save ten minutes on their journey time. The results are reported for employers' business travellers who were/were not willing to pay the £1 toll to save ten minutes in **Tables 3.3a and 3.3b respectively**.

Table 3.3a SP Model Results (Employers' Business with high VoT)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	+0.1924	+1.4	-
In-vehicle Time (minute)	-0.1815	-13.0	19 p/min
Toll (pence)	-0.0096	-7.3	

Sample = 53
Number of Observations = 477
Null log likelihood = -505
Model log likelihood = -361
Rho bar squared = 0.28

Table 3.3b SP Model Results (Employers' Business with low VoT)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.1902	-1.7	-
In-vehicle Time (minute)	-0.1223	-12.1	7 p/min
Toll (pence)	-0.0168	-13.4	

Sample = 77
Number of Observations = 693
Null log likelihood = -734
Model log likelihood = -597
Rho bar squared = 0.18

- 3.3.6 These model results confirm that there are, indeed, two different types of employers' business traveller or, at least, respondent. We consider that the results in Table 3.3a, reflecting the values of travellers on employer's business who are prepared to pay to save time by using the new bridge, are more likely to be representative of business travellers and should be the values used in a modelling context.
- 3.3.7 Analysing the SP responses by trip type (local origin and destination; local origin or destination; and through trips) showed that travellers making through trips had a higher value of time than those making local trips. This was found to be the case for each journey purpose. The results are documented in Appendix D.

4.1 Introduction

4.1.1 The survey asked respondents about their future behaviour in various scenarios including where a new crossing of the Mersey is built or is not built and where there are tolls on one or both bridges.

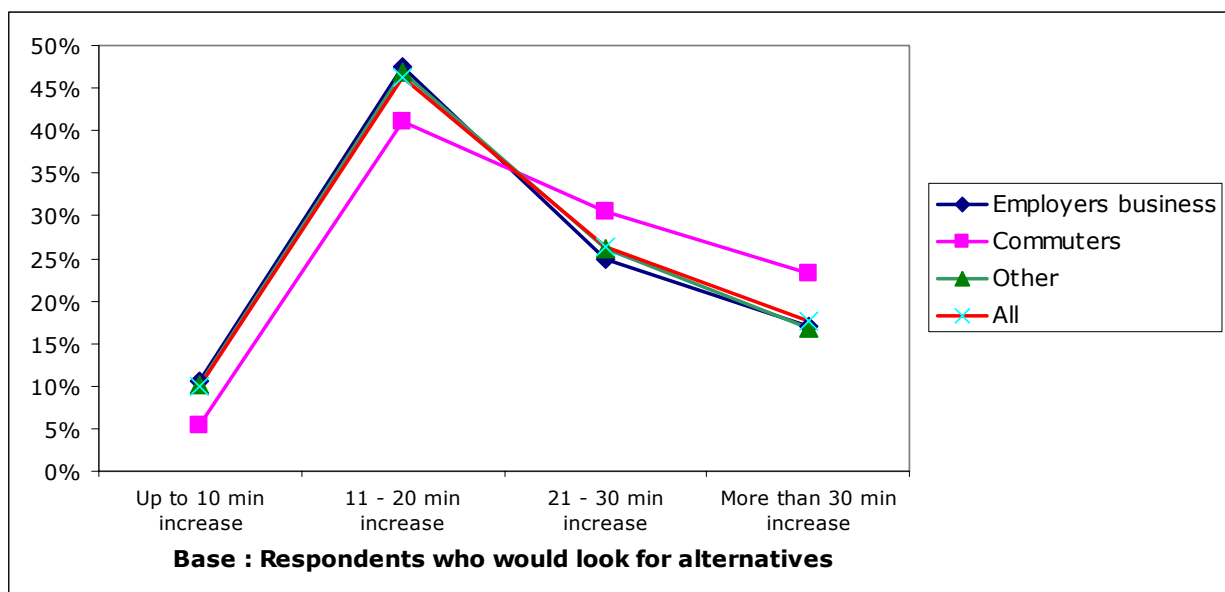
4.2 Response to Increase in Journey Time

4.2.1 Respondents were asked for their reaction to a potential increase in journey time if a new bridge is not built and reaction to tolling on one or both bridges if a new bridge is built.

4.2.2 Respondents were asked what increase in journey time when travelling via the existing bridge would lead them to look for alternatives in terms of route, time of travel or mode of transport. Respondents were also given the option to say that they 'would not change' regardless of increase in journey time.

4.2.3 Three quarters of respondents (75%) would consider alternatives at some level of increase in journey time. **Figure 4.1** shows at what increase in journey time respondents begin to consider alternatives.

Figure 4.1 Increase in Journey Time at Which Alternatives Are Considered



4.2.4 Just ten per cent of respondents would seek alternative routes if their journey time was extended by up to ten minutes. The largest single group of respondents (46%) would consider alternatives if their journey time was extended between eleven and twenty minutes. A little over a quarter would look for an alternative route at an increase in journey time of twenty one to thirty minutes and the remaining eighteen per cent of respondents would not look for alternatives until their journey time increased by more than half an hour.

4.2.5 Commuters were less likely than those travelling for other purposes to consider alternatives at increases in journey time of up to twenty minutes but more likely to consider alternatives if their journey time increased by more than twenty minutes.

4.2.6 Those travelling on non-local journeys were less likely to seek alternatives at delays of up to ten minutes (7%) but more likely to look for alternatives when faced with delays of between eleven and twenty minutes.



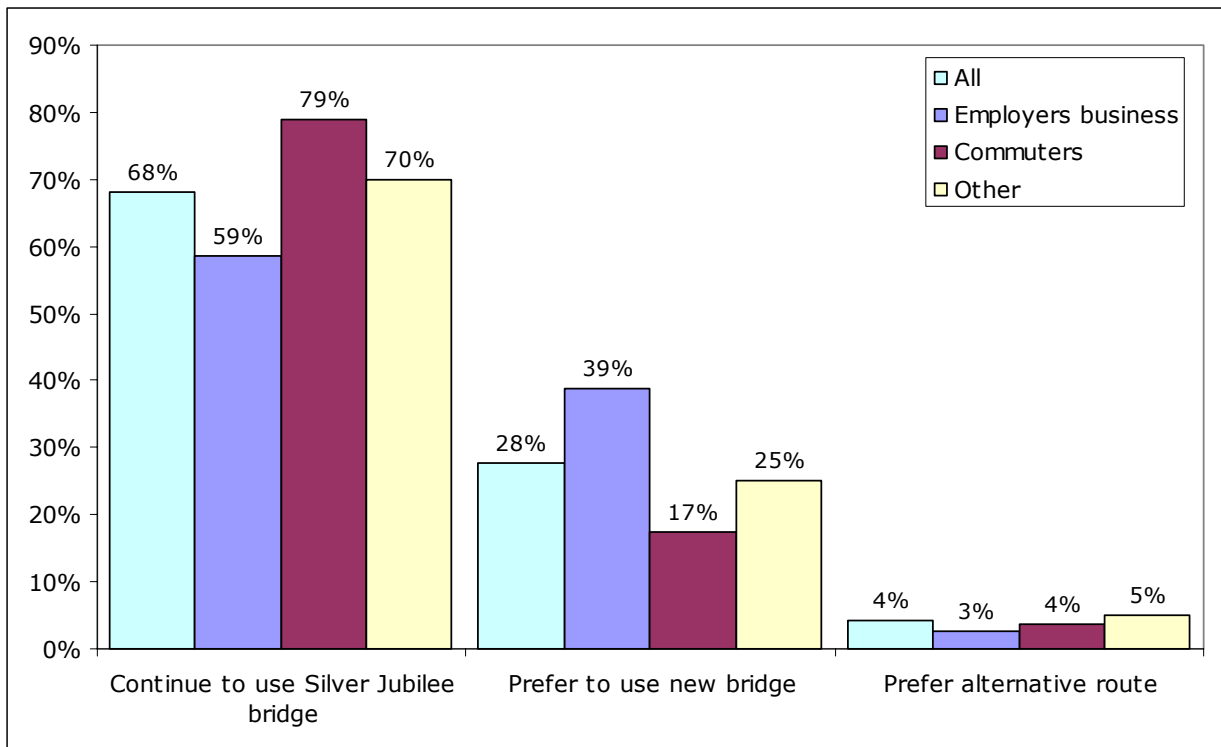
4.2.7 A quarter of respondents (25%) would not consider alternatives regardless of an increase in journey time. Commuters and those travelling on local journeys (27%), and those travelling on business (26%) were most likely not to consider alternatives. Those on non-local journeys (16%) were least likely not to look for alternatives.

4.3 Response to Toll on New Bridge

4.3.1 Respondents were asked what they would do if a new bridge was built, offering a ten minute saving in journey time and being tolled. Would they use the new bridge, continue to use the Silver Jubilee Bridge or look for alternative routes. Those that specified alternative routes were asked to detail these routes.

4.3.2 With the new bridge tolled and offering a ten minute saving on journey time the majority of respondents (68%) opted to continue to use the Silver Jubilee Bridge. A little over a quarter (28%) opted for the new bridge and four per cent would look to an alternative route.

Figure 4.2 Journey Preferences if New Bridge Available, Tolled with 10 Minute Time Saving



4.3.3 **Figure 4.2** shows residents’ route preferences when a new bridge is available and tolled.

4.3.4 Those making non-local business journeys would prefer to use a new tolled route and save ten minutes (53%), compared to 47% who would continue to use the Silver Jubilee Bridge. Those making non-local journeys across all journey purposes express less of a preference for the existing bridge (56%) than other respondents and a corresponding higher preference for a new tolled bridge offering a ten minute time saving (39%).

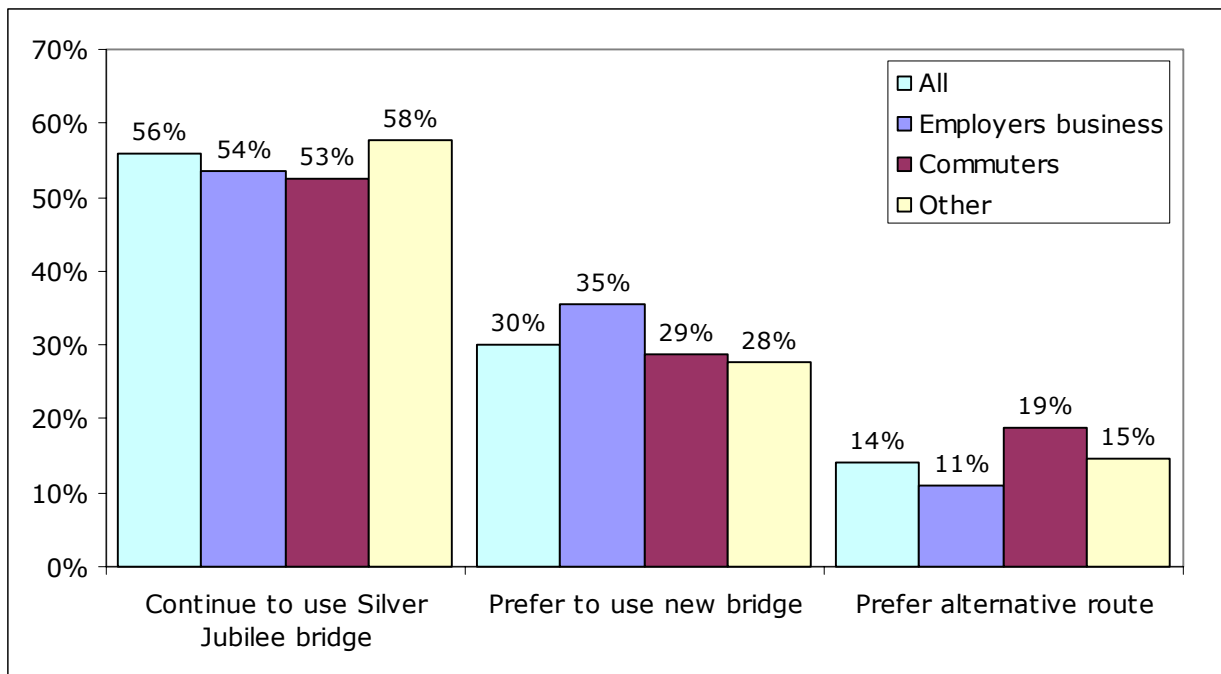


- 4.3.5 Commuters (79%) and those making local journeys (73%) were more likely than other respondents to continue using the Silver Jubilee Bridge if there was a new tolled bridge available that offered a ten minute time saving.
- 4.3.6 None of the respondents travelling on non-local business journeys would look for alternative routes and just two per cent of female respondents would look for alternatives if a new tolled bridge was available. Commuters making non-local journeys (18%) were most likely to look for alternative routes.
- 4.3.7 The main alternative preferred to either bridge is via Warrington (56%). Other alternative routes mentioned are untolled routes (22%), motorways (19%) and Mersey Tunnels (11%). A route through Warrington is particularly preferred by those making business and non-local journeys whilst those making local journeys express a preference for an 'untolled route' and those whose journey either begins or ends in the vicinity of the existing bridge prefer an alternative motorway route.

4.4 Response to Toll on Both Bridges

4.4.1 In reaction to a scenario of both bridges being tolled and both offering a five minute saving on journey time there is a slight increase in those who would use the new bridge (30%) but over half of respondents (56%) would still prefer to use the Silver Jubilee Bridge and there is more than a threefold increase in those who would choose an alternative route (14%). **Figure 4.3** shows respondent preferences when offered two tolled bridges, each offering a five minute time saving.

Figure 4.3 Journey Preferences if New Bridge Available and Both Bridges Tolled with 5 Minute Time Saving



- 4.4.2 In this scenario those on leisure or personal business trips (58%), over three fifths of females (62%) and those making local journeys (61%) are more likely than other respondents to continue to use the Silver Jubilee Bridge.
- 4.4.3 Those travelling on business (35%) or making non-local journeys (42%) are most likely to use a new bridge.



- 4.4.4 Commuters and those making non-local journeys (19%) expressed the strongest preference for seeking an alternative route if both bridges were tolled whilst those travelling on business (11%) are least likely to seek an alternative route.
- 4.4.5 If both bridges are tolled those respondents who would look for an alternative route would travel via Warrington (47%) or any untolled route (31%). Twenty two per cent of respondents said they would have no preference between bridges and seventeen per cent would take a motorway route.
- 4.4.6 Those making local journeys and expressing a preference for an alternative route were divided between Warrington (39%) and any 'untolled' route as their alternative route (36%) with a third of this group prepared to use either bridge.



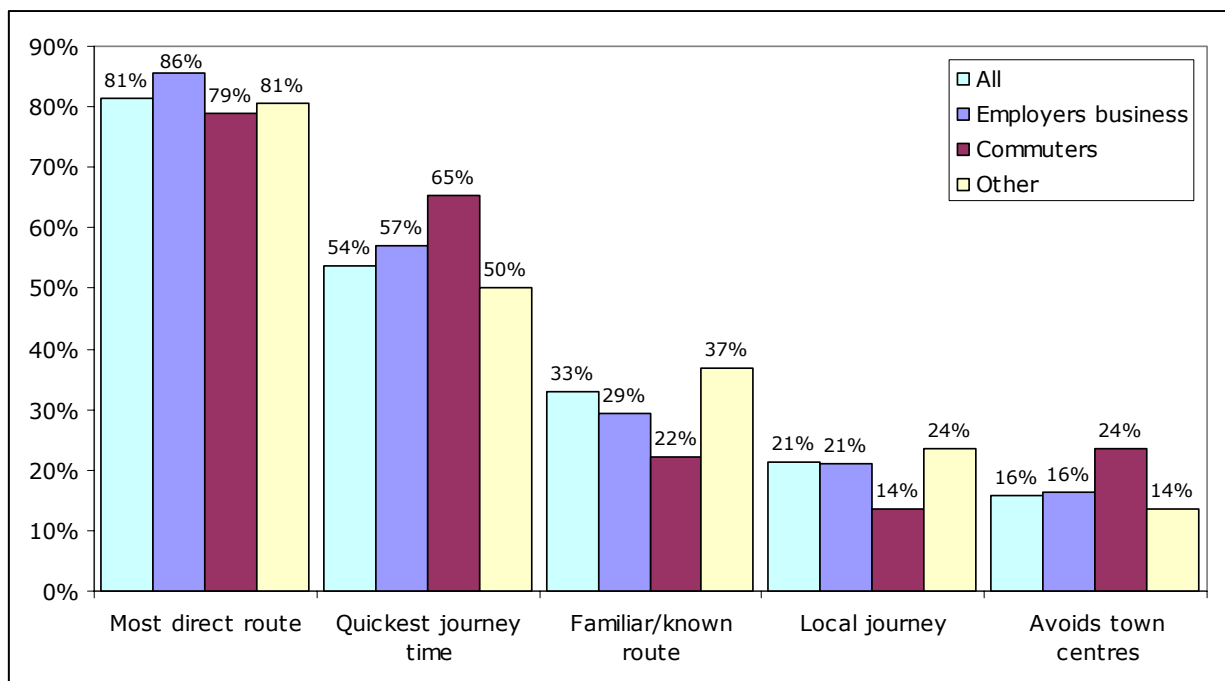
5.1 Overview

5.1.1 Respondents were asked about how they made their current choice of route in terms of the reasons for route choice, their preferences for a return journey (if made) how they felt a new bridge might affect their journey time and distance and which bridge they would have preferred on their trip if both a new bridge and the Silver Jubilee Bridge had been open and offering similar journey times.

5.2 Reason for Current Route Choice

5.2.1 Respondents were asked to indicate from a list of options all reasons that were applicable to them for using the Silver Jubilee Bridge rather than travelling via Warrington or via one of the Mersey Tunnels. **Figure 5.1** shows the reasons given by respondents for using the Silver Jubilee Bridge. Figures do not total 100 because multiple responses are given.

Figure 5.1 Reasons for Using Silver Jubilee Bridge



5.2.2 The largest group of respondents (81%) choose to travel over the Silver Jubilee Bridge because it is the most direct route to where they are going. Over half (54%) mention that this route offers the quickest journey time, a third (33%) say it is a familiar or known route and just over a fifth (21%) use the bridge because they are making a local journey. Sixteen per cent say they use the route over the bridge because it avoids town centres.

5.2.3 Those travelling on business journeys (86%) were most likely to say the bridge offered the most direct route whilst those on non-local journeys were least likely to say this (68%). Commuters (65%) were most likely to say the bridge offered them the fastest journey time. Two fifths (40%) of those making local journeys said this was why they used the bridge.

5.3 Journey

5.3.1 Respondents were asked if they had made a return journey on the same day and same route, a return journey on the same route but on a different day, a return journey on a different route or a one way journey.



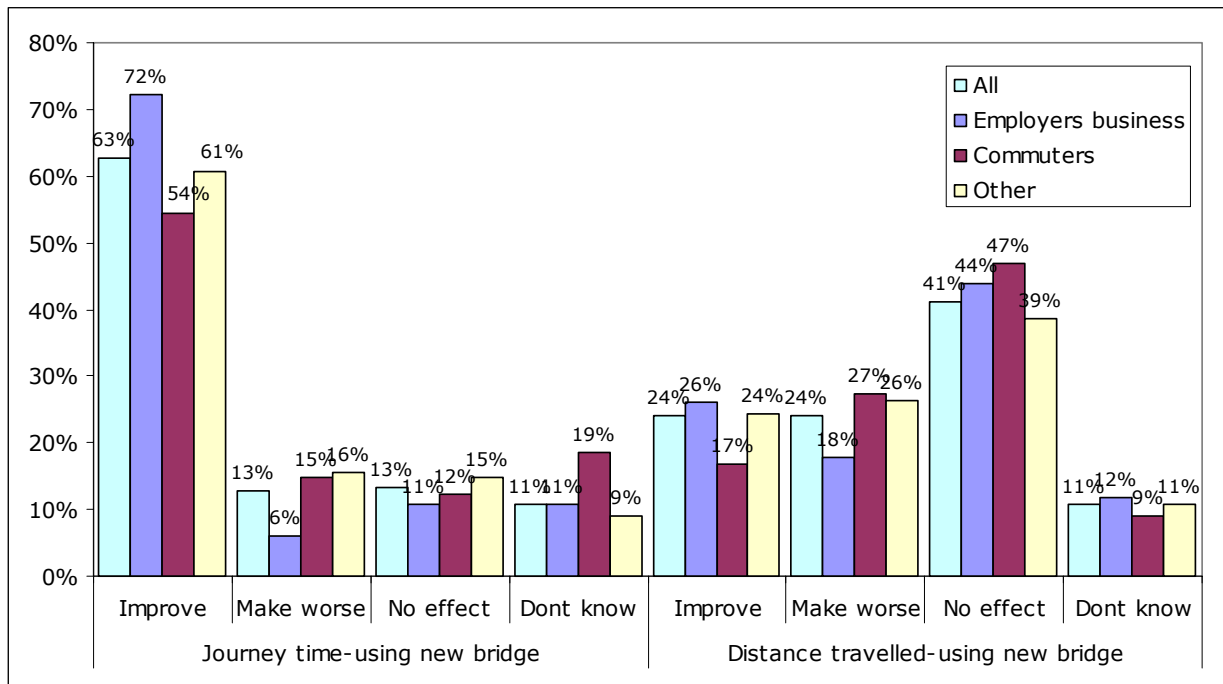
5.3.2 The majority of respondents (89%) made a return journey on the same day, using the same route as their outward journey. Five per cent took a different route for the other leg of their journey. Four per cent travelled the same route but on a different day and one per cent made a one way journey.

5.4 Initial Reaction to New Bridge

5.4.1 Respondents were given some information about possible future plans for the Silver Jubilee Bridge and the new bridge. They were told it was likely the Silver Jubilee Bridge would be reduced to two lanes and be open only to pedestrians, cyclists and local traffic, that is, traffic approaching from the local road network. They were also informed that the new bridge would be located to the east of the Silver Jubilee Bridge and the position of the access routes to the new bridge.

5.4.2 Respondents were asked how they thought the new bridge would affect their recent journey in terms of journey time and distance travelled. **Figure 5.2** shows respondents view on how the new bridge would effect their journey time and distance.

Figure 5.2 Effect of New Bridge on Journey Time and Distance



Effect on Journey Time

5.4.3 Almost half of respondents (49%) thought that their journey time would improve if they used the new bridge. Those respondents travelling on business (61%), male respondents (54%) and those making non-local journeys (52%) were most likely to think there would be a time saving in using the new bridge. Those travelling for other than business purposes or making local journeys were least likely to think there would be a time saving if they used the new bridge.

5.4.4 Fifteen per cent of respondents thought their journey time might be made worse by the new bridge, with almost a quarter of those making leisure or personal business journeys (24%) thinking journey time would worsen if they used the new bridge.



5.4.5 Eighteen per cent of respondents thought the new bridge would have no effect on their journey time and the same proportion of respondents did not know how the new bridge would affect their journey time. Those making leisure or personal business journeys (26%) were most likely to think the new bridge would have no effect on their journey time.

Effect on Distance Travelled

5.4.6 Just over two fifths (41%) of respondents thought the new bridge would have no effect on distance travelled. A little under a quarter (24%) thought the new bridge would improve the distance they travelled but the same proportion of respondents thought the new bridge would worsen the distance they travelled. Eleven per cent did not know what effect the new bridge would have on the distance they travelled.

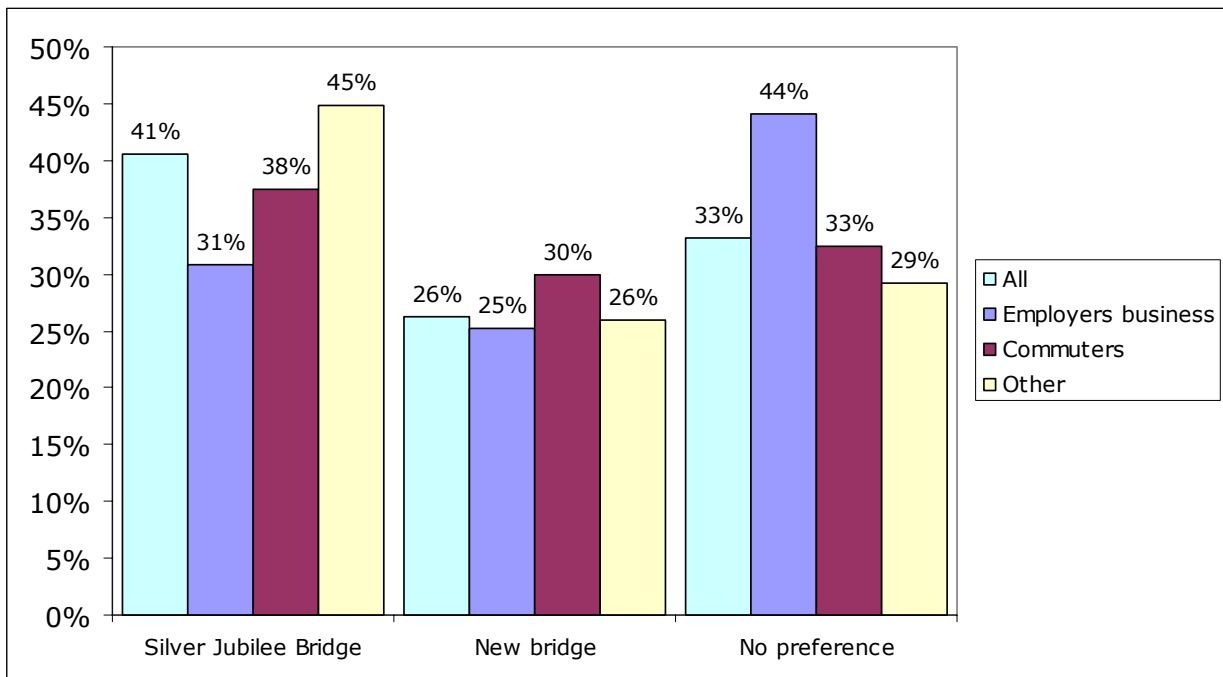
5.4.7 Business travellers were most likely to think the distance they travelled would improve with the new bridge (26%) and least likely to think it would worsen (18%) whilst commuters were least likely to expect improvement in the distance travelled (17%) and most likely to expect it to worsen (27%) or have no effect (47%).

5.4.8 Those making local journeys (28%) were most likely to think that the distance they travelled would improve with a new bridge whilst those on non-local journeys (32%) were most likely to think their distance travelled would worsen.

5.5 Bridge Preference

5.5.1 Respondents were asked to envisage a scenario of both the Silver Jubilee Bridge and a new bridge being available to them for their recent journey and both bridges having the same journey time. In this scenario a little over two fifths (41%) of respondents would prefer to use the Silver Jubilee Bridge, a little over a third (33%) expressed no preference and a little over a quarter of respondents (26%) expressed a preference for the new bridge. **Figure 5.3** shows respondent preferences.

Figure 5.3 Bridge Preferences





- 5.5.2 Leisure travellers (45%) were most likely to express a preference for the Silver Jubilee Bridge whilst those travelling on business (31%) were least likely to prefer the existing bridge and most likely to say they had no preference for either bridge (44%). In this scenario, with no cost implications, commuters (30%) were more likely than those travelling for other purposes to prefer the new bridge.
- 5.5.3 Respondents making local journeys expressed a much stronger preference for the Silver Jubilee Bridge (45%). Those making non-local journeys (34%) were most likely to express a preference for a new bridge. Those with either a local origin or destination were most likely to have no preference between bridges (37%).



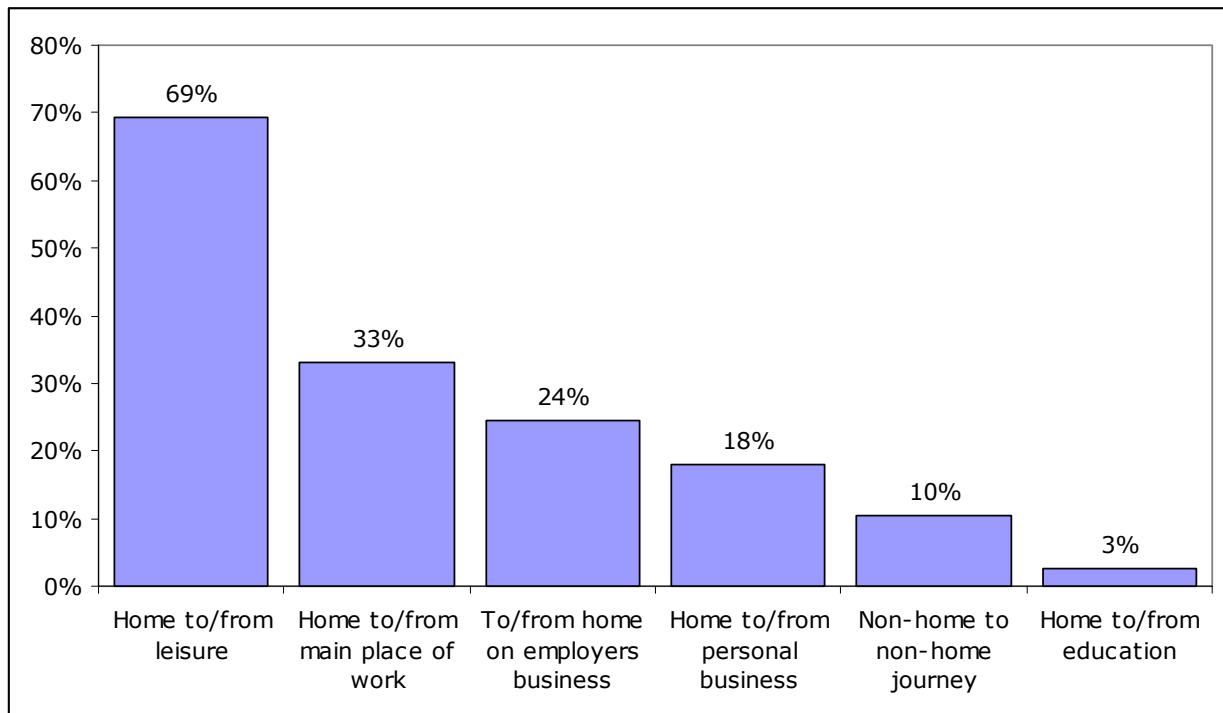
6.1 Overview

6.1.1 A total of 608 questionnaires were returned.

6.2 All Journey Purposes

6.2.1 Respondents were asked to indicate all journey purposes for which they had used the Silver Jubilee Bridge in the last two weeks. **Figure 6.1** shows the range of journeys made across the bridge during the period. This does not indicate the total number of trips but the number of respondents making one or more trips with this purpose. Figures will not total 100 because multiple responses were given.

Figure 6.1 All Journey Purposes



6.2.2 The majority of respondents (69%) had made leisure trips over the Silver Jubilee Bridge in the last two weeks. A third of respondents (33%) had made trips between their home and main place of work that involved crossing the Silver Jubilee Bridge. Almost a quarter (24%) had made trips over the bridge on employers business and ten per cent had made non-home based trips.

6.3 Specific Journey Purpose

6.3.1 Respondents were asked to focus on one specific journey purpose and were thus allocated into journey purpose segments, with priority given to employers business, commuters, and then all other journey purposes. **Table 6.1** below shows the number of respondents in each journey purpose segment.

Table 6.1 Respondents by Journey Purpose Segment

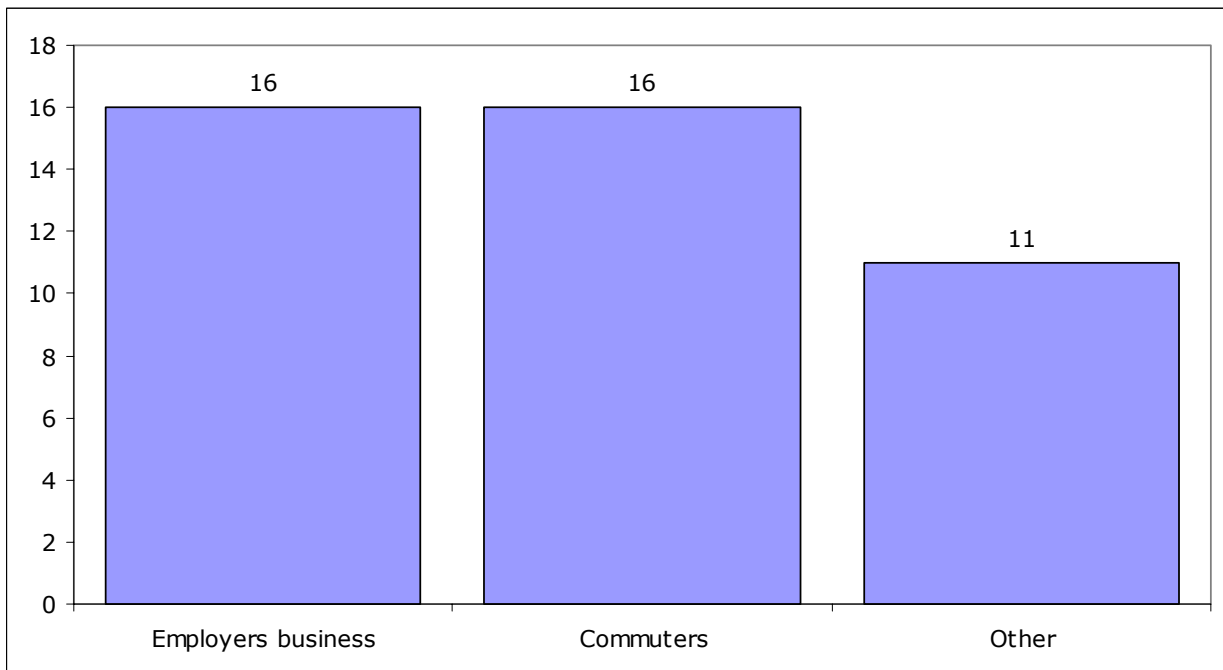
Respondents	508
Employers business	148
Commuters	81
Other	379



6.4 Journey Frequency

- 6.4.1 Across all journey purposes and journey sectors the average number of journeys made in the last two weeks was thirteen (a return trip is equal to 2 journeys). The minimum number of journeys was a single one way trip and the maximum was 60 journeys.
- 6.4.2 Commuters and business travellers (16) make a higher average number of journeys whilst those travelling for other purposes make fewer journeys on average (11). **Figure 6.2** shows the average number of journeys made by Journey Purpose Segment.
- 6.4.3 Those making a journey with either origin or destination or both in the vicinity of the bridge made a higher average number of journeys across the bridge (13) than those making non-local journeys (10).

Figure 6.2 Average Number of Journeys across Bridge in two weeks By Journey Purpose Segment



6.5 Vehicles

- 6.5.1 The great majority of respondents (94%) were car drivers, two per cent drove vans with four per cent driving other vehicles such as light vans and motorcycles. **Table 6.2** shows the vehicles driven by respondents.

Table 6.2 Vehicle Driven by Respondents

Respondents	106
Car	94%
Van	2%
Other	4%



6.6 Gender and Age Profile

6.6.1 Over three fifths of respondents (64%) were male and thirty six per cent were female. Responses were achieved across a range of ages, although the response rate for those aged between 17 and 23 years and 60 to 64 years is lower. **Table 6.3** shows the gender and age profile of respondents.

Table 6.3 Gender and Age Profile

Respondents	104
Male	64%
Female	36%
Total	100%
Respondents	106
17-23	4%
24-34	17%
35-44	26%
45-54	25%
55-59	11%
60-64	5%
65+	12%
Total	100%

6.7 Income Profile

6.7.1 A little under a third of respondents (32%) have household incomes in the range £17,500 to £34,999 and a fifth (20%) have incomes between £35,000 and £49,999. Ten per cent of respondents have household incomes between £50,000 and £74,999. **Table 6.4** shows the income profile of respondents.

Table 6.4 Income Profile

Respondents	536
Under £6,500	8%
£6,501-£11,499	11%
£11,500-£17,499	17%
£17,500-£34,999	32%
£35,000-£49,999	20%
£50,000-£74,999	10%
More than £75,000	2%
Total	100%

Appendix A
Employee's Questionnaire

Q17. If there was a toll of £1 on both bridges and both offered a five minute door-to-door time saving compared with now, which route would you choose?

Continue to travel via Silver Jubilee bridge ₁ Prefer to use new bridge ₂

Prefer alternative route ₃

What alternative route would you prefer? (Please specify below)

Section F - About You

Q18. What type of vehicle do you drive the majority of the time?

Car ₁ Light Goods Vehicle ₃ Motorbike ₅

Van ₂ Heavy Goods Vehicle ₄ Other ₆

Q19. Are you?

Male ₁ Female ₂

Q20. Which age group are you in?

17 - 23 years ₁ 35 - 44 years ₃ 55 - 59 years ₅ 65 or older ₇

24 - 34 years ₂ 45 - 54 years ₄ 60 - 64 years ₆

Q21. What is your total household income (before tax)?

Under £6,500 ₁ £17,500 - £34,999 ₄ More than £75,000 ₇

£6,501 - £11,499 ₂ £35,000 - £49,999 ₅

£11,500 - £17,499 ₃ £50,000 - £74,999 ₆

Q22. If you wish to be entered into the prize draw to win £300, please fill in your name, address and postcode. This information will remain confidential and will only be used for the purposes of the prize draw. It will not be used for sending you unsolicited mail.



Thank you very much for completing this survey.
Please return it, in the **FREEPOST** envelope provided or to
MVA Ltd, FREEPOST, Victoria Way, Woking GU21 6BR,
by **Friday 8 October 2004.**



New Mersey Crossing



There is a proposal to build a second crossing of the Mersey, to help relieve congestion on the Silver Jubilee Bridge. The New Mersey Crossing Group is consulting widely with local residents and businesses on the new bridge. We would like to know how a new bridge may affect journeys currently made across the Silver Jubilee Bridge.

Your employer has agreed to distribute this survey to you. If you have made a car journey across the Silver Jubilee Bridge in the last two weeks, please would you take time to complete this survey, it will take around 15 minutes. Your answers will be treated in strictest confidence and will only be used for analysis purposes. All responses received by **8 October 2004** will be entered into a prize draw for £300.

Section A - Car Journeys Over The Silver Jubilee Bridge

Q1. How many times have you driven across the Silver Jubilee Bridge in the last two weeks? (A return trip = 2)

Q2. For which journey purpose have you made a car trip over the Silver Jubilee Bridge, with a journey time of 10 minutes or more, in the last two weeks. (Please tick all that apply)

To/from home on Employers Business ₁

Home to/from education ₂

Home to/from leisure (visiting, shopping, cinema etc.) ₃

Home to/from personal business (doctor, bank etc.) ₄

Non-home to Non-home journey ₅

Home to/from main place of work ₆

Other (please specify) ₇

We would like you to focus on one particular occasion when you drove over the Silver Jubilee Bridge in the last two weeks. Please answer the following questions relating to the first journey purpose you ticked in the question above. So if you ticked box 1 and box 3 above tell us about the business journey you made, if you ticked box 3 and boxes 4 and 5 above tell us about the leisure journey you made. If it was a return trip, please tell us about your outward journey.

Section B - A Specific Journey

Q3. Please look at Map 1 on the enclosed sheet and tell us in which zone your journey began.

Q4. Please look again at Map 1 and tell us in which zone your journey ended.

Q5. What time did your journey begin? (Please use 24 hour clock)

Q6. How long did the journey take door-to-door?

Q7. How many miles did you travel on this journey (approximately)?

Less than 3 miles ₁ 6 - 10 miles ₃ Over twenty miles ₅

3 -5 miles ₂ 11 - 20 miles ₄

Q8. Why did you choose to use the bridge rather than go via Warrington or use one of the tunnels?
(Please tick all reasons that apply)

- Quickest journey time ₁ Avoids motorways ₅
 Least congested route ₂ Avoids town centres ₆
 Most direct route ₃ Local journey ₇
 Familiar / known route ₄
 Other (please specify) ₈

Q9. Did you make a return journey on the same route?

- Yes, same day ₁ Yes, not the same day ₂ No, one way journey ₃ No, used different route ₄

Section C - The New Crossing

It is anticipated that the Silver Jubilee Bridge will be reduced to two lanes and be open only to pedestrians, cyclists and local traffic, that is traffic will only be able to approach the bridge from the local road network. The new bridge will be to the east of the Silver Jubilee Bridge. It will be accessed from the Central Expressway in Runcorn and from the Speke Road and the Eastern by-pass in Widnes (see map 2 on enclosed sheet).

Q10. How do you think using the new bridge would affect your recent trip in terms of ...

- | | Improve | Make Worse | No effect | Don't know |
|--------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Journey Time | <input type="radio"/> ₁ | <input type="radio"/> ₂ | <input type="radio"/> ₃ | <input type="radio"/> ₄ |
| Distance travelled | <input type="radio"/> ₁ | <input type="radio"/> ₂ | <input type="radio"/> ₃ | <input type="radio"/> ₄ |

Q11. If both bridges had been open, and overall journey times were likely to be the same whichever bridge you used, which would you have preferred to have used for your recent trip?

- Silver Jubilee bridge ₁ New bridge ₂ No preference ₃

Section D - Your Preferences

We would like you to imagine that you had to make the same journey, that is the same start and finish, purpose of journey and time of travel, but at some time in the future. Please also imagine that the new bridge had been built, journey times had increased due to worsening congestion levels and there may be tolls on either bridge to reduce congestion at certain times of day.

Please look at questions **Q12 to Q14**. Each question consists of four options, **A, B, C,** and **D** that describe a journey in terms of:

- route - that is the bridge used;
- toll - the cost of crossing the bridge at that time of day; and
- journey time relative to the actual door-to-door journey time.

For each question in turn, please rank the FOUR options A, B, C, D in order of preference from BEST to WORST.

Q12. Please rank these four options (A, B, C and D) in order of preference

Option A	Option B	Option C	Option D
New Bridge	Existing Bridge	New Bridge	Existing Bridge
Toll : None	Toll : £1.50	Toll : £1.00	Toll : None
Journey Time: Same as now	Journey Time: Same as now	Journey Time: 5 minutes less	Journey Time: 20 minutes more

Best 2nd 3rd Worst

Q13. Please rank these four options (A, B, C and D) in order of preference

Option A	Option B	Option C	Option D
New Bridge	Existing Bridge	Existing Bridge	New Bridge
Toll : None	Toll : £1.00	Toll : None	Toll : £1.00
Journey Time: 10 minutes more	Journey Time: Same as now	Journey Time: 5 minutes less	Journey Time: 5 minutes less

Best 2nd 3rd Worst

Q14. Please rank these four options (A, B, C and D) in order of preference

Option A	Option B	Option C	Option D
New Bridge	Existing Bridge	New Bridge	New Bridge
Toll : £1.50	Toll : £1.50	Toll : £1.00	Toll : None
Journey Time: 5 minutes less	Journey Time: 10 minutes more	Journey Time: 10 minutes more	Journey Time: 20 minutes more

Best 2nd 3rd Worst

Section E - Future Options for Crossing The Mersey

The following scenarios relate to different future options for crossings of the Mersey. Please read each scenario and tell us how they would affect your journey planning (please think in terms of the trip you have already told us about in this survey).

Q15. If the bridge is not constructed, delays on the existing bridge may increase, both during peak times and increasingly at other times. What increase in your journey time would lead you to consider alternative routes, time of travel or change of mode (e.g. switch to bus, train or cycle)?

- 1 to 5 minute increase ₁ 21 - 25 minute increase ₅
 6 - 10 minute increase ₂ 26 - 30 minute increase ₆
 11 - 15 minute increase ₃ More than half an hour increase ₇
 16 - 20 minute increase ₄ Would not change ₈

Q16. If there was a toll of £1 on the new bridge (but not on the Silver Jubilee bridge) and a saving of ten minutes door-to-door if you went via the new bridge which route would you choose?

- Continue to travel via Silver Jubilee bridge ₁ Prefer to use new bridge ₂

Prefer alternative route ₃

What alternative route would you prefer? (Please specify below)

Appendix B
Resident's Questionnaire

Q17. If there was a toll of £1 on both bridges and both offered a five minute door-to-door time saving compared with now, which route would you choose?

Continue to travel via Silver Jubilee bridge ₁ Prefer to use new bridge ₂

Prefer alternative route ₃

What alternative route would you prefer? (Please specify below)

Section F - About You

Q18. What type of vehicle do you drive the majority of the time?

Car ₁ Light Goods Vehicle ₃ Motorbike ₅

Van ₂ Heavy Goods Vehicle ₄ Other ₆

Q19. Are you?

Male ₁ Female ₂

Q20. Which age group are you in?

17 - 23 years ₁ 35 - 44 years ₃ 55 - 59 years ₅ 65 or older

24 - 34 years ₂ 45 - 54 years ₄ 60 - 64 years ₆

Q21. What is your total household income (before tax)?

Under £6,500 ₁ £17,500 - £34,999 ₄ More than £75,000 ₇

£6,501 - £11,499 ₂ £35,000 - £49,999 ₅

£11,500 - £17,499 ₃ £50,000 - £74,999 ₆

Q22. If you wish to be entered into the prize draw to win £300, please fill in your name, address and postcode. This information will remain confidential and will only be used for the purposes of the prize draw. It will not be used for sending you unsolicited mail.



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by **Monday 13 September 2004.**



New Mersey Crossing



There is a proposal to build a second crossing of the Mersey, to help relieve congestion on the Silver Jubilee Bridge. The New Mersey Crossing Group is consulting widely with local residents and businesses on the new bridge. We would like to know how a new bridge may affect journeys currently made across the Silver Jubilee Bridge.

If you have made a car journey across the Silver Jubilee Bridge in the last two weeks, please would you take time to complete this survey, it will take around 15 minutes. Your answers will be treated in strictest confidence and will only be used for analysis purposes. All responses received by **Monday 13 September 2004** will be entered into a prize draw for £300. (Non car drivers will be included in other parts of this wide ranging consultation exercise).

Section A - Car Journeys Over The Silver Jubilee Bridge

Q1. How many times have you driven across the Silver Jubilee Bridge in the last two weeks? (A return trip = 2)

Q2. For which journey purpose have you made a car trip over the Silver Jubilee Bridge, with a journey time of 10 minutes or more, in the last two weeks. (Please tick all that apply)

To/from home on Employers Business ₁

Home to/from education ₂

Home to/from leisure (visiting, shopping, cinema etc.) ₃

Home to/from personal business (doctor, bank etc.) ₄

Non-home to Non-home journey ₅

Home to/from main place of work ₆

Other (please specify) ₇

We would like you to focus on one particular occasion when you drove over the Silver Jubilee Bridge in the last two weeks. Please answer the following questions relating to the first journey purpose you ticked in the question above. So if you ticked box 1 and box 3 above tell us about the business journey you made, if you ticked box 3 and boxes 4 and 5 above tell us about the leisure journey you made. If it was a return trip, please tell us about your outward journey.

Section B - A Specific Journey

Q3. Please look at Map 1 on the enclosed sheet and tell us in which zone your journey began.

Q4. Please look again at Map 1 and tell us in which zone your journey ended.

Q5. What time did your journey begin? (Please use 24 hour clock)

Q6. How long did the journey take door-to-door?

Q7. How many miles did you travel on this journey (approximately)?

Less than 3 miles ₁ 6 - 10 miles ₃ Over twenty miles ₅

3 - 5 miles ₂ 11 - 20 miles ₄

Q8. Why did you choose to use the bridge rather than go via Warrington or use one of the tunnels?
(Please tick all reasons that apply)

- Quickest journey time ₁ Avoids motorways ₅
 Least congested route ₂ Avoids town centres ₆
 Most direct route ₃ Local journey ₇
 Familiar / known route ₄
 Other (please specify) ₈

Q9. Did you make a return journey on the same route?

- Yes, same day ₁ Yes, not the same day ₂ No, one way journey ₃ No, used different route ₄

Section C - The New Crossing

It is anticipated that the Silver Jubilee Bridge will be reduced to two lanes and be open only to pedestrians, cyclists and local traffic, that is traffic will only be able to approach the bridge from the local road network. The new bridge will be to the east of the Silver Jubilee Bridge. It will be accessed from the Central Expressway in Runcorn and from the Speke Road and the Eastern by-pass in Widnes (see map 2 on enclosed sheet).

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- | | Improve | Make Worse | No effect | Don't know |
|--------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Journey Time | <input type="radio"/> ₁ | <input type="radio"/> ₂ | <input type="radio"/> ₃ | <input type="radio"/> ₄ |
| Distance travelled | <input type="radio"/> ₁ | <input type="radio"/> ₂ | <input type="radio"/> ₃ | <input type="radio"/> ₄ |

Q11. If both bridges had been open, and overall journey times were likely to be the same whichever bridge you used, which would you have preferred to have used for your recent trip?

- Silver Jubilee bridge ₁ New bridge ₂ No preference ₃

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Please look at questions **Q12 to Q14**. Each question consists of four options, **A, B, C,** and **D** that describe a journey in terms of:

- route - that is the bridge used;
- toll - the cost of crossing the bridge at that time of day; and
- journey time relative to the actual door-to-door journey time.

For each question in turn, please rank the **FOUR** options **A, B, C, D** in order of preference from **BEST** to **WORST**.

Q12. Please rank these four options (A, B, C and D) in order of preference

Option A	Option B	Option C	Option D
New Bridge	Existing Bridge	New Bridge	Existing Bridge
Toll : None	Toll : £1.50	Toll : £1.00	Toll : None
Journey Time: Same as now	Journey Time: Same as now	Journey Time: 5 minutes less	Journey Time: 20 minutes more

Best 2nd 3rd Worst

Q13. Please rank these four options (A, B, C and D) in order of preference

Option A	Option B	Option C	Option D
New Bridge	Existing Bridge	Existing Bridge	New Bridge
Toll : None	Toll : £1.00	Toll : None	Toll : £1.00
Journey Time: 10 minutes more	Journey Time: Same as now	Journey Time: 5 minutes less	Journey Time: 5 minutes less

Best 2nd 3rd Worst

Q14. Please rank these four options (A, B, C and D) in order of preference

Option A	Option B	Option C	Option D
New Bridge	Existing Bridge	New Bridge	New Bridge
Toll : £1.50	Toll : £1.50	Toll : £1.00	Toll : None
Journey Time: Same as now	Journey Time: 10 minutes more	Journey Time: 10 minutes more	Journey Time: 20 minutes more

Best 2nd 3rd Worst

Section E - Future Options for Crossing The Mersey

The following scenarios relate to different future options for crossings of the Mersey. Please read each scenario and tell us how they would affect your journey planning (please think in terms of the trip you have already told us about in this survey).

Q15. If the bridge is not constructed, delays on the existing bridge may increase, both during peak times and increasingly at other times. What increase in your journey time would lead you to consider alternative routes, time of travel or change of mode (e.g. switch to bus, train or cycle)?

- 1 to 5 minute increase ₁ 21 - 25 minute increase ₅
 6 - 10 minute increase ₂ 26 - 30 minute increase ₆
 11 - 15 minute increase ₃ More than half an hour increase ₇
 16 - 20 minute increase ₄ Would not change ₈

Q16. If there was a toll of £1 on the new bridge (but not on the Silver Jubilee bridge) and a saving of ten minutes door-to-door if you went via the new bridge which route would you choose?

- Continue to travel via Silver Jubilee bridge ₁ Prefer to use new bridge ₂

Prefer alternative route ₃

What alternative route would you prefer? (Please specify below)

Appendix C
Zonal Map

Appendix C



Appendix D

SP Models Segmented by Journey Type

Appendix D

Introduction

This appendix provides details of SP models by journey purpose and journey type (local origin and destination; local origin or destination; and through trips).

Table D.1 SP Model Results (Employers' Business – local O & D)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	+0.0717	+0.5	-
In-vehicle Time (minute)	-0.1263	-10.1	10 p/min
Toll (pence)	-0.0126	-8.4	

Sample = 47
 Number of Observations = 423
 Null log likelihood = -448
 Model log likelihood = -371
 Rho bar squared = 0.17

Table D.2 SP Model Results (Employers' Business – local O or D)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.1923	-1.6	-
In-vehicle Time (minute)	-0.1417	-12.5	10 p/min
Toll (pence)	-0.0149	-11.2	

Sample = 65
 Number of Observations = 585
 Null log likelihood = -620
 Model log likelihood = -502
 Rho bar squared = 0.19

Table D.3 SP Model Results (Employers' Business – through trips)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.0968	-0.4	-
In-vehicle Time (minute)	-0.1434	-6.9	13 p/min
Toll (pence)	-0.0110	-5.6	

Sample = 19
 Number of Observations = 171
 Null log likelihood = -181
 Model log likelihood = -147
 Rho bar squared = 0.18

Table D.4 SP Model Results (Commuters – local O & D)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.2064	-1.0	-
In-vehicle Time (minute)	-0.1270	-7.1	8 p/min
Toll (pence)	-0.0151	-6.8	

Sample = 25
 Number of Observations = 225
 Null log likelihood = -238
 Model log likelihood = -200
 Rho bar squared = 0.16

Table D.5 SP Model Results (Commuters – local O or D)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.2290	-1.3	-
In-vehicle Time (minute)	-0.1576	-9.8	8 p/min
Toll (pence)	-0.0207	-11.0	

Sample = 42
 Number of Observations = 378
 Null log likelihood = -400
 Model log likelihood = -290
 Rho bar squared = 0.27

Table D.6 SP Model Results (Commuters – through trips)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.2890	-0.8	-
In-vehicle Time (minute)	-0.1846	-5.2	12 p/min
Toll (pence)	-0.0160	-4.7	

Sample = 10
 Number of Observations = 90
 Null log likelihood = -95
 Model log likelihood = -71
 Rho bar squared = 0.25

Table D.7 SP Model Results (Others – local O & D)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.2076	-2.4	-
In-vehicle Time (minute)	-0.1081	-14.6	7 p/min
Toll (pence)	-0.0147	-15.4	

Sample = 129
Number of Observations = 1161
Null log likelihood = -1230
Model log likelihood = -1061
Rho bar squared = 0.14

Table D.8 SP Model Results (Others – local O or D)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.1500	-2.0	-
In-vehicle Time (minute)	-0.1163	-17.8	8 p/min
Toll (pence)	-0.0146	-17.5	

Sample = 169
Number of Observations = 1521
Null log likelihood = -1611
Model log likelihood = -1369
Rho bar squared = 0.15

Table D.9 SP Model Results (Others – through trips)

Variable Name	Coefficient	t stat	Value (ivt mins)
Existing Bridge → New Bridge	-0.1372	-0.8	-
In-vehicle Time (minute)	-0.1008	-6.3	15 p/min
Toll (pence)	-0.0066	-4.3	

Sample = 26
Number of Observations = 234
Null log likelihood = -248
Model log likelihood = -220
Rho bar squared = 0.11



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