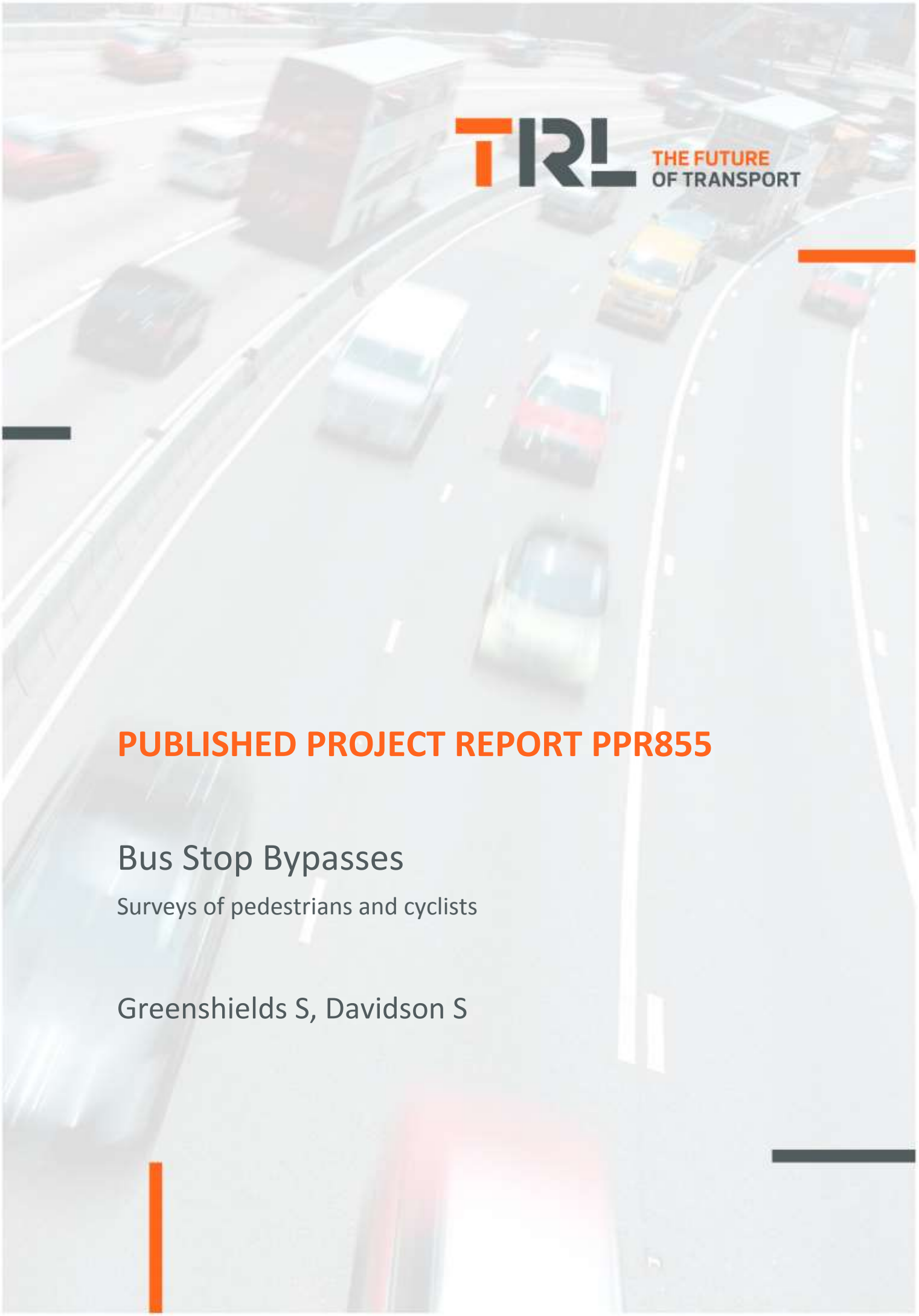

THE FUTURE OF TRANSPORT

PUBLISHED PROJECT REPORT PPR855

Bus Stop Bypasses

Surveys of pedestrians and cyclists

Greenshields S, Davidson S

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Contents

Executive Summary

Bus Stop Bypasses have been introduced over the past few years at sites on London's Cycle Superhighways to facilitate the segregation of cyclists from general traffic. A Bus Stop Bypass routes the cycle track behind a bus stop thus allowing cyclists to avoid the challenges of overtaking stopped buses. This physical layout requires that the path of cyclists and those pedestrians boarding and alighting buses will cross, leading to potentially new interactions between them where pedestrians cross the cycle track. A study was undertaken by TRL to compare the impacts on pedestrian and cyclist behaviour and perceptions of two different crossing types – uncontrolled crossings and zebra crossings. This report describes the findings from user surveys. The findings from video observations, and accompanied visits with disabled people, are reported separately.

Surveys were undertaken of both pedestrians and cyclists at six Bus Stop Bypass sites across London, both in uncontrolled crossing and zebra crossing configurations.

Regarding the impact of introducing the zebra crossings at the study sites, the most significant findings were as follows:

1. More people believe pedestrians have priority at the crossing

Most cyclists (82%) and pedestrians (73%) recognise that pedestrians have priority at the zebra crossing over the cycle track. This represents a significant increase when compared with the uncontrolled crossing – 35% of pedestrians and 30% of cyclists thought pedestrians had priority in the uncontrolled crossing survey.

There were some distinct differences on this measure between sites. The largest increases in perceptions of pedestrian priority were at the two Blackfriars Road sites – from 28% to 80% and 29% to 85% among pedestrians, and from 28% to 90% and 14% to 95% among cyclists). The Whitechapel Road sites had the highest levels of perception of pedestrian priority at uncontrolled crossings among pedestrians – over 40% at both bus stops. Among cyclists, there was a disparity between the two bus stops, with 51% believing pedestrians had priority at the uncontrolled crossing at Whitechapel J but only 23% at Whitechapel A. With a zebra crossing, this disparity remained, with 90% of cyclists believing pedestrians have priority at stop J and 58% at stop A. At Stratford, both bus stops saw increases in perceptions of pedestrian priority among both sets of users – with more moderate increases than at Blackfriars Road.

Doubt about priority appears to decrease following the introduction of the zebra crossings, with the number of both pedestrian and cyclist respondents answering 'I'm not sure' or 'neither', decreasing from over 20% to around 10% among both sets of users.

The introduction of the zebra crossing did not change perceptions of priority on the cycle track (away from the crossing-point), with a clear majority (around 90%) of both pedestrians and cyclists considering that cyclists have priority away from the crossing with both the uncontrolled and zebra crossings.

2. More pedestrians use the crossing

Compared to the uncontrolled crossing arrangement, the zebra crossing encourages more pedestrians to cross the cycle track at the designated crossing – an increase from 36% to 44%. This trend mirrors video observations made on site.

When asked why they crossed where they did, the most-cited reasons for doing so among pedestrians who used the crossing were safety or simply because that is where the crossing is. For those who did not use the crossing, the most popular comments were that they did not notice the crossing or it wasn't convenient for them.

3. There were only small increases in the number of people noticing the crossing

A higher proportion of pedestrians said they noticed the crossing following the introduction of the zebra crossing (64% at the uncontrolled crossing, 75% at the zebra crossing). The proportion of cyclists noticing the crossing remained largely unchanged (80% at the uncontrolled crossing, 82% at the zebra crossing).

The greatest differences between the before and after responses were at Blackfriars Road, where, at both bus stops, more pedestrians noticed the zebra crossings (75%) than had noticed the uncontrolled crossings (47%).

4. Belisha beacons at two of the study sites appear to have made little difference in user perceptions of the crossings

There were no significant differences in using the crossing and in noticing the crossing between sites that did and did not include Belisha beacons. There does not appear to have been a significant effect on pedestrians at any of the sites, with the proportion of pedestrians noticing the crossing actually decreasing in the 'after' scenario at Stratford stop J.

The increase in the proportion of cyclists saying that pedestrians have priority was higher at the two sites with Belisha beacons. However, this effect was not mirrored by disproportionately more cyclists noticing the crossing at the sites with Belisha beacons.

Of the total sample of 1,440 people in the surveys, only two pedestrians and six cyclists mentioned the Belisha beacons in their comments.

5. There were some increases in pedestrians' stated comfort and safety following the introduction of a zebra crossing

A majority of both pedestrians and cyclists felt safe with both types of crossing but pedestrian perceptions of safety increased following the introduction of the zebra crossing. The proportion who reported feeling 'safe' or 'very safe' increased from 58% to 68%. In their general comments about the layout, many pedestrians felt the zebra crossing was a positive development. In particular, comments about confusion in using the crossing significantly decreased in the 'after' sample.

6. Zebra crossings have some impact on the way people cycle through the bus stop area

Overall, there were few differences in responses from cyclists about the way they rode through bus stop bypasses in the 'uncontrolled crossing' and 'zebra crossing' surveys. However, there were some differences between sites, with more cyclists interviewed at Whitechapel and Stratford saying that they changed the way they rode after the introduction of zebra crossings.

1 Introduction

1.1 Objectives of research

TfL is introducing innovative infrastructure for cyclists across the capital to improve safety and encourage increased demand for cycling from a wide demographic of cyclists.

The purpose of this report is to present the findings of on-street surveys of users of the bus stop bypass (BSB) at six locations with two each at Stratford, Whitechapel, and Southwark, where cyclists pass between a bus stop island and the main pedestrian footway via a cycle track. It is intended that research outputs will inform future design guidance and schemes. Research was also undertaken using video recordings and analysis, and accompanied visits with disabled people, and these are reported separately.

This report focusses upon Research Question 3 (of a wider set of research questions) which was to gain an understanding of the views of pedestrians and cyclists who were using the bus stop bypass facilities around the four key themes of:

- how safe and comfortable do they feel?
- how easy is it to use / pass through?
- did they notice the crossing?
- would they prefer an uncontrolled or zebra crossing?

This was investigated by means of an on-street survey of 80 pedestrians and 40 cyclists at each of the six sites, conducted first at an uncontrolled-crossing version of the bus stop bypass, and then repeated after each of the sites was modified by the installation of a zebra crossing – giving a total sample of 1,440. Two of the zebra crossings (Whitechapel stop J and Blackfriars stop SA) were also fitted with Belisha beacons, with two Belisha beacons at Whitechapel stop J, and one Belisha beacon at Blackfriars stop SA, to test whether these could help users recognise or find the crossing.

Two types of BSB layout were explored. The first, found at the Stratford and Whitechapel sites, has a 1-way cycle track that kinks around the back of a bus stop island where the bus shelter and bus stop flag are located. The bus flag and crossing dimensions are aligned with those of a bus, with the flag just ahead of the front doors and the crossing aligned with the rear doors. There are occasions where other buses or impediments may prevent a given bus from aligning with these features. The track is 1.5m wide at Whitechapel, and 1.7m at Stratford. The islands at their widest point are 2.5m wide at Whitechapel. This layout, with a zebra crossing, can be seen in Figure 1.

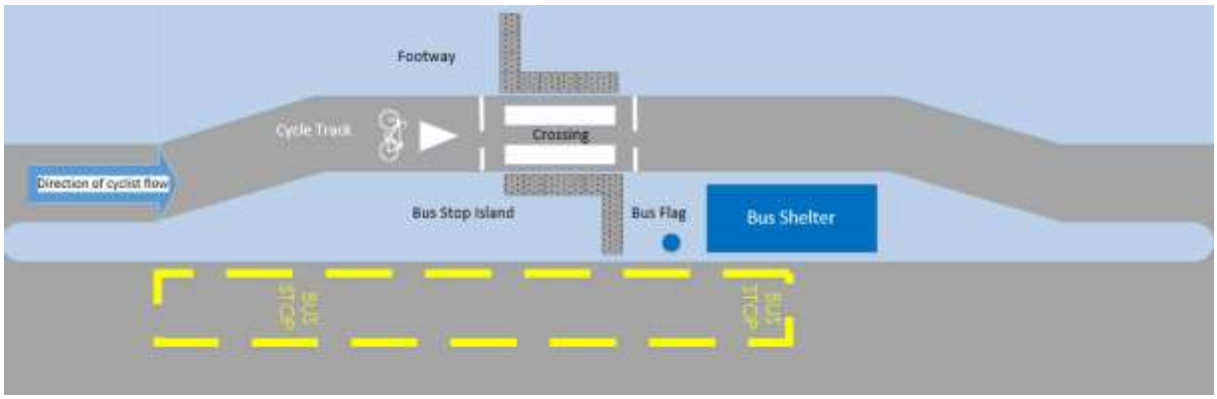

Figure 1 Bus Stop Bypass layout with 1-way cycle track and zebra crossing

The second type of layout (Figure 2), found at the Southwark sites on Blackfriars Road, has a two-way cycle track that does not kink around the back of the bus stop area and is continuously straight. The track is 4m wide, so is more than twice the width of the 1-way cycle tracks, and the islands are 3m wide at the Blackfriars U bus stop, and up to 3.5m wide at Blackfriars SA bus stop, which are also wider than the 1-way cycle track locations trialled. The crossing point at these locations was slightly further away from the bus stop flag, and the islands were slightly wider and far longer. This provided considerably more waiting space for pedestrians.

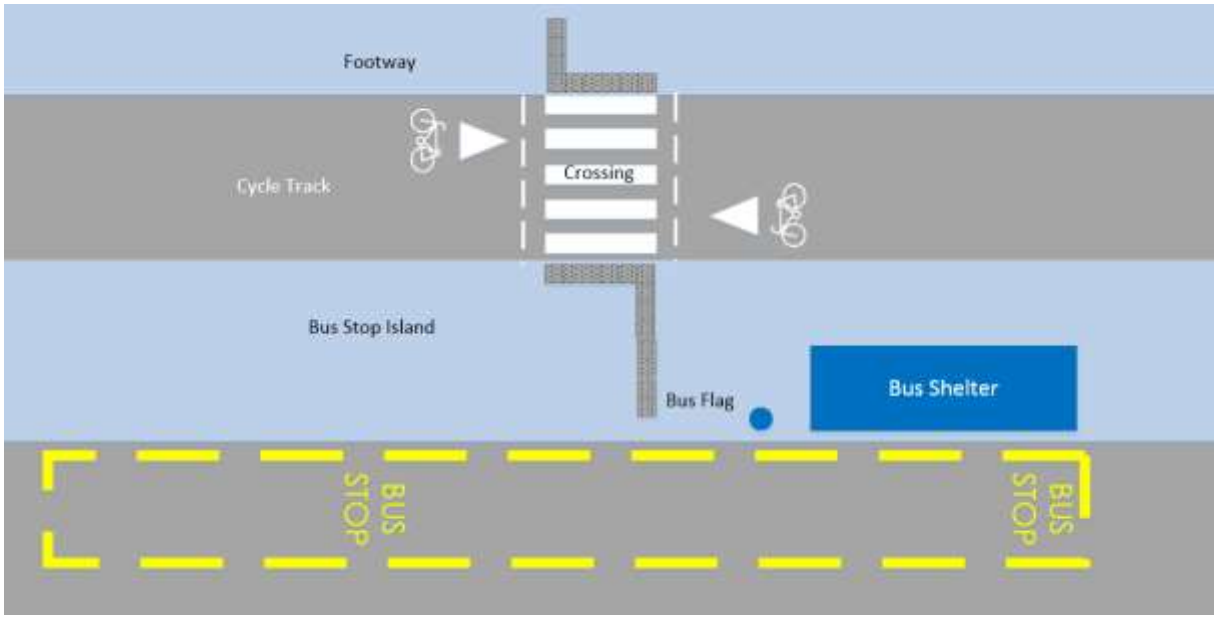

Figure 2 Bus Stop Bypass layout with two-way cycle track and zebra crossing

1.2 Overview of methodology

The study methodology involved conducting on-street surveys at six bus stop bypass sites with an uncontrolled crossing, and then again at the same six sites following modification to include a zebra crossing. This provides a wide range of variation of BSB type and location. Six research sites were chosen by the client for this project, and remained the same for both

the uncontrolled crossing and zebra crossing surveys. Images of the two configurations for the six BSBs are provided in Appendix D.

A particular focus of this overall project was to assess the impacts of the designs on visually and mobility impaired people. As observations of the general population would not provide sufficiently large samples of these groups, the study included accompanied visits to the study sites and semi-structured interviews with participants recruited for the purpose.

A set of research questions was developed on which the data collection and analysis methodology was designed (see Appendix A). Three core research methods were used to answer the research questions:

1. Video analysis of natural (uncontrolled) behaviour by road users
2. A roadside survey of pedestrian and cyclists using the sites; and
3. Accompanied visits with disabled people.

This report only covers the results from the roadside survey of pedestrians and cyclists.

1.3 Experiment design

To obtain detailed feedback from pedestrians and cyclists, it was determined that a roadside survey of passing pedestrians and cyclists was the most suitable method of obtaining the required data. The surveyor stood on the island to capture pedestrians (who were therefore likely to be present to get on or off a bus) and stood to the nearside of the direction of travel to capture cyclists.

Separate surveys were designed for cyclists and pedestrians. The questionnaires were designed to answer the research questions and also included some demographic questions. The target sample was to approach 80 pedestrians and 40 cyclists at each of the six sites; a total sample, across the sites, both in the uncontrolled and zebra crossing configurations, of 1,440 people.

'Cyclist Survey' and 'Pedestrian Survey' signs were placed to alert people to the survey. Cyclists were directed to a layby downstream of the bus stop bypass to enable them to stop safely and avoid obstructing the cycle track.

The instructions to staff, which give more detail of how the pedestrian and cyclist surveys were undertaken, can be found in appendices B and C respectively.

1.4 Sample size

The target sample of 80 pedestrians and 40 cyclists at each site was chosen as it was determined to most likely give a reasonable confidence in the findings based upon the variance of findings expected following previous off-road trials of Bus Stop Bypasses. At sites where the bus stop bypass was 2-way (see Table 1) then the sample of cyclists was split into 20 for each direction. At some sites the target was exceeded slightly.

Note that surveys were considered complete if the core questions about the BSB had been completed. This was relatively common with bus passengers as interviews were often curtailed by the arrival of the respondent's bus. Cyclists were generally less time-constrained therefore more non-core (i.e. demographic) information exists for them.

1.5 Study sites

Six bus stop bypasses were surveyed (Table 1). These were located in Stratford, Whitechapel, and Southwark (Blackfriars Road) (see Figure 3). A typical bypass scene at the time of a survey is shown in Figure 4.

Table 1 Bus stop bypass site list

Cycle Superhighway	Bus stop location	Layout
CS2U	Whitechapel J	1-way track / busy location
CS2U	Whitechapel A	1-way track / busy location
CS2X	Stratford M	1-way track / quiet location
CS2X	Stratford J	1-way track / quiet location
CS6(NS)	Blackfriars SA	2-way track / busy location
CS6(NS)	Blackfriars U	2-way track / quiet location

Figure 3 Bus Stop Bypass site map

1.6 Dates of collection

Surveys were undertaken on weekdays, and the dates of these can be found in Table 2 for pedestrians and cyclists respectively. Note that the uncontrolled crossing collection for the Stratford J site was unavoidably delayed due to emergency third party water works.

Table 2 Pedestrian and cyclist survey collection

Site	Uncontrolled crossing	Zebra crossing
Whitechapel J	July and August 2016	March 2017
Whitechapel A	July and August 2016	March 2017
Stratford M	July and August 2016	March 2017
Stratford J	October and November 2016	March 2017
Blackfriars SA	July and August 2016	March 2017
Blackfriars U	July and August 2016	March 2017

Figure 4 Cyclist and Pedestrian surveys being undertaken at the Stratford J Carpenters Road bus stop with an uncontrolled crossing

2 Core questionnaire questions

2.1 Who has priority on the crossing?

Pedestrians were asked “Q3: Regarding this crossing who do you think has priority at this crossing?”, and cyclists were asked the similar “Q1: There is a crossing to the bus stop that you just passed , who do you think has priority at this crossing?”. The findings are indicated in Figure 5 and Figure 7 respectively.

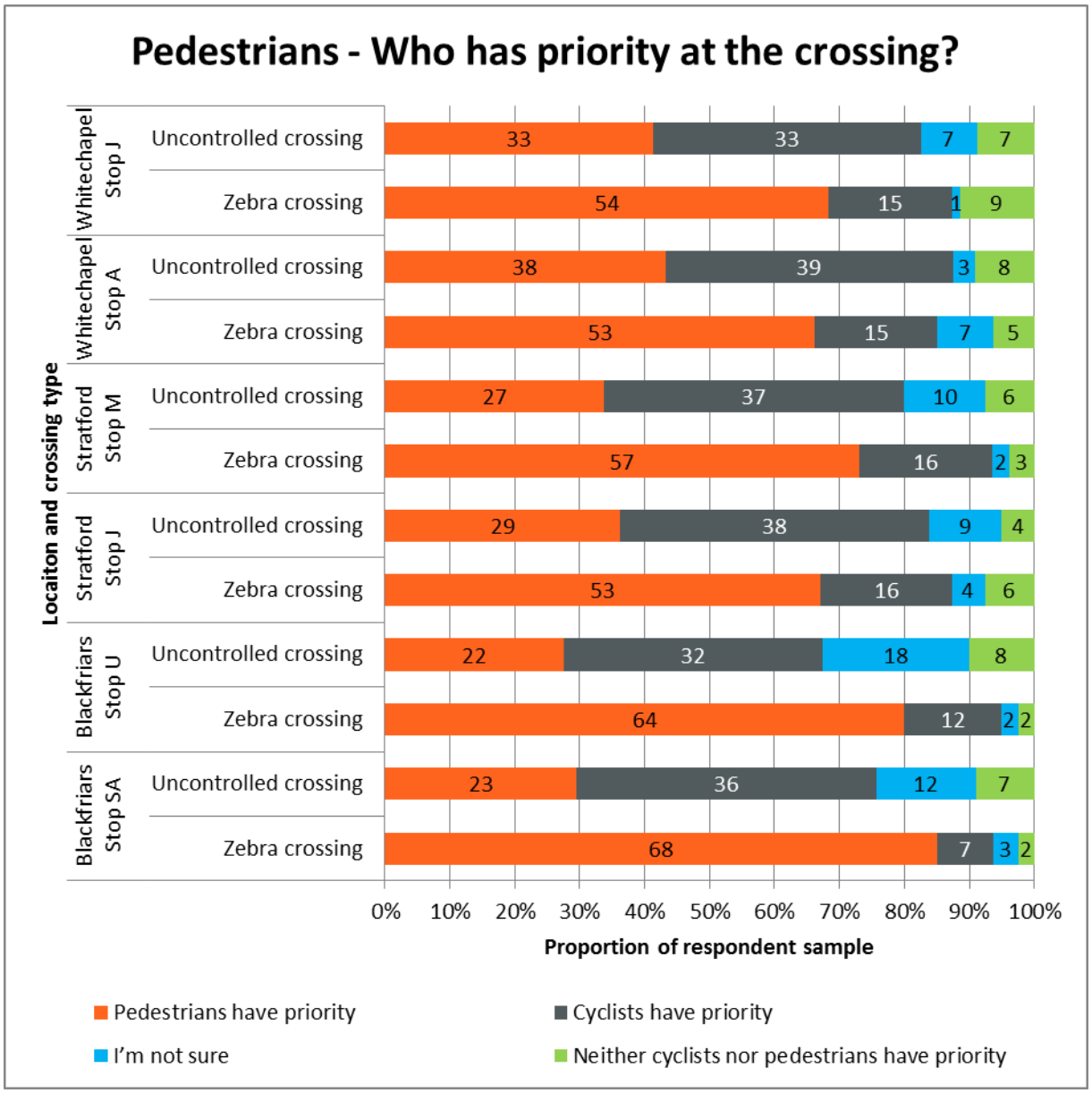

Figure 5 Pedestrian perception of priority at the crossing (uncontrolled crossing Ped N = 486, zebra crossing Ped N = 476)

This data was further split to understand any differences in perception based upon age where this was provided. The existing age bands were amalgamated in to three broad ranges for ease of presentation, and note that under 18s were not surveyed. This indicates wider differences in perception of priority at the uncontrolled crossing based upon age, with

younger pedestrians revealing more confidence in their perception, and older pedestrians being more cautious. Differences based upon respondent age were less perceptible at the zebra crossing. See Figure 6 for more detail.

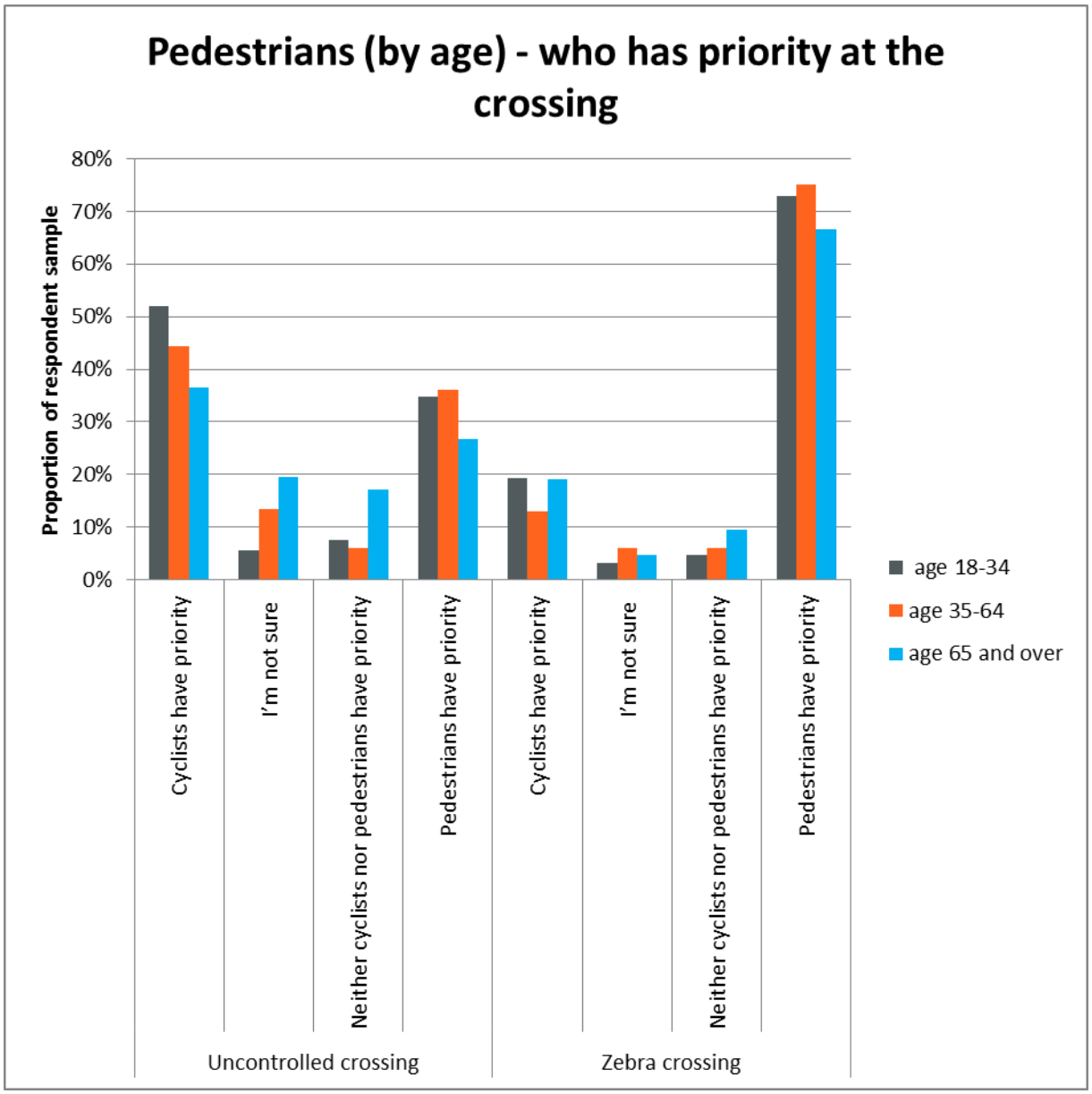

Figure 6 Pedestrian perception of priority at the crossing by age (uncontrolled crossing Ped N = 379, zebra crossing Ped N = 419)

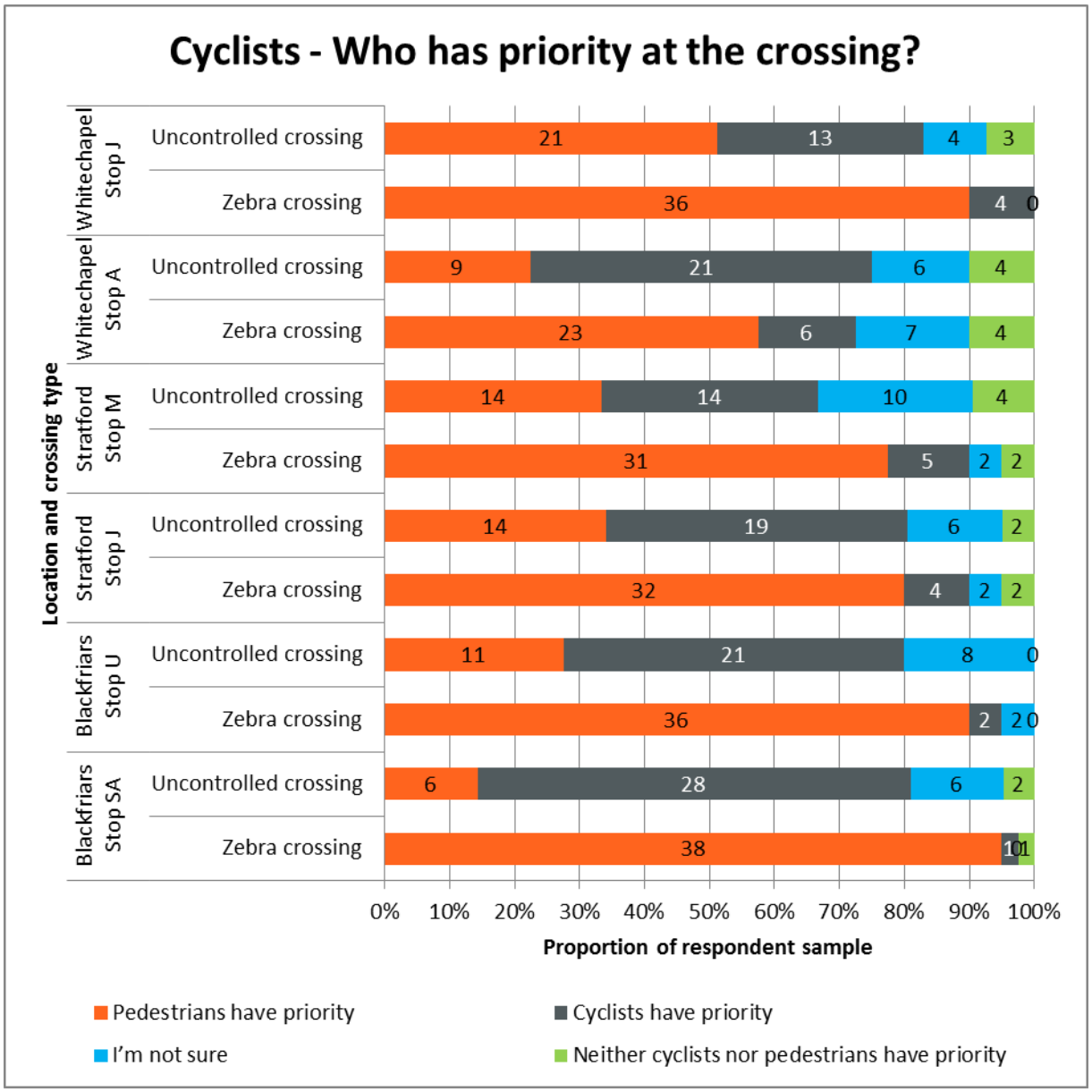

Figure 7 Cyclist perception of priority at the crossing (uncontrolled crossing Cyc N = 246, zebra crossing Cyc N = 240)

Figure 8 compares the *average* responses with the uncontrolled crossing and with the zebra crossing from cyclists and pedestrians.

In the uncontrolled crossing survey a similar proportion of cyclists and pedestrians consider that pedestrians have priority (30% and 35% respectively), with the largest group assuming cyclists have priority. The split however shows there is no clear consensus of understanding, which means that encounters between cyclists and pedestrians with both parties assuming priority will occur frequently.

In the zebra crossing survey the perception is clearly changed with the majority of both pedestrians (73%) and cyclists (82%) assuming that pedestrians have priority.

Pearson's chi-squared tests were performed on the findings. There is very strong evidence of a relationship between the presence of a zebra crossing, and pedestrians' perception of who has priority, and this is matched in the cyclist sample (both $p<0.001$).

The largest changes in perception of priority at the crossing were seen at the Blackfriars Road sites, with changes between the uncontrolled and zebra crossings from 28% to 83%, and 21% to 93% respectively for pedestrians and cyclists.

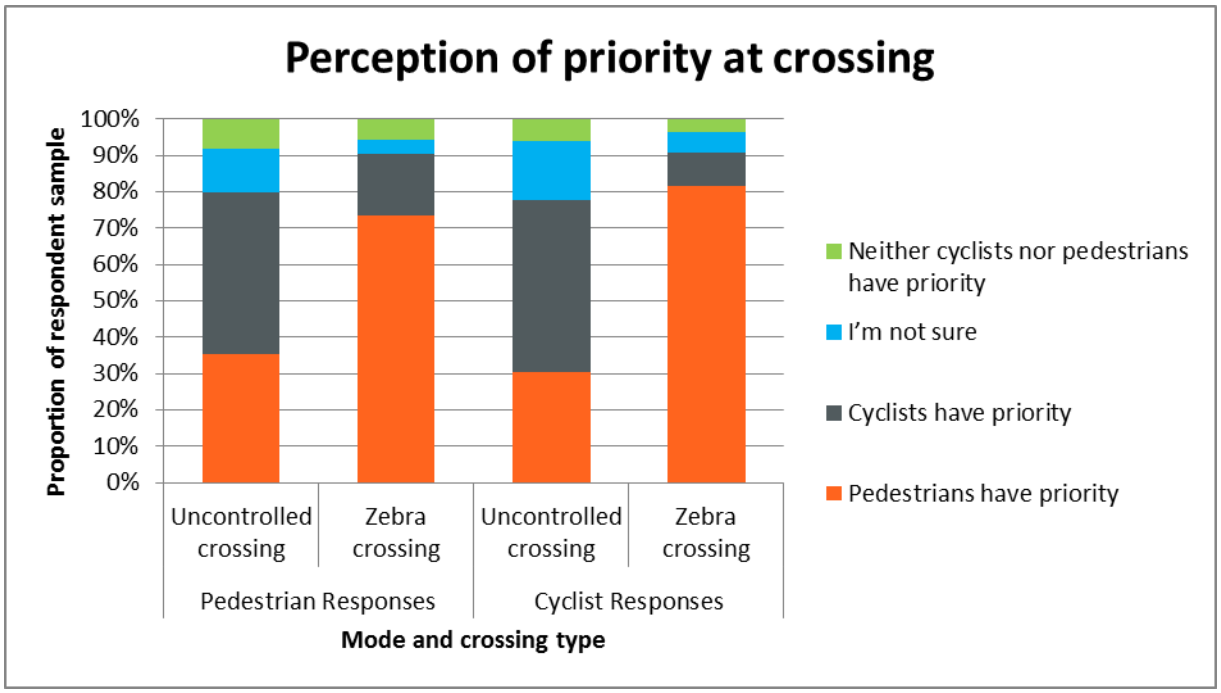

Figure 8 Average of perception of priority at crossing across all sites (uncontrolled crossing Ped N = 486, uncontrolled crossing Cyc N = 246, zebra crossing Ped N = 476, zebra crossing Cyc N = 240)

Cyclists and pedestrians were asked for comments regarding their responses, and these are examined here using a qualitative analysis which groups types of response (Table 3 and Table 4 respectively).

Table 3 Cyclist commentary regarding priority at the crossing (Q1)

Priority response	Crossing type	Comment type	Quantity of similar comments
Cyclists have priority	Uncontrolled crossing	Markings unclear	16
		Cyclists should have priority	4
		Unclassified other comments	6
	Zebra crossing	Unclassified other comments	2
I'm not sure	Uncontrolled crossing	Signage unclear	3
		Unclassified other comments	4
	Zebra crossing	Unclassified other comments	4
Neither cyclists nor pedestrians have priority	Uncontrolled crossing	Should have markings	3
		Unclassified other comments	1
	Zebra crossing	Priority only if pedestrian steps out	3
		Lack of beacons suggests pedestrians do not have priority	1
		Unclassified other comments	3
Pedestrians have priority	Uncontrolled crossing	Priority is unclear	3
		Unclassified other comments	4
	Zebra crossing	Because it is a zebra crossing	16
		Confusing or ambiguous	7
		Opinion on carelessness of pedestrians	9
		Unclassified other comments	8

Table 4 Pedestrian commentary regarding priority at the crossing (Q3)

Priority response	Crossing type	Comment type	Quantity of similar comments
Cyclists have priority	Uncontrolled crossing	Cyclists have priority because they will not stop/poor cyclist behaviour	11
		Not marked as a crossing	6
		Unclassified other comments	9
	Zebra crossing	Cyclists have priority because they will not stop/poor cyclist behaviour	8
		Infrastructure is designed for cyclists	5
		Unclassified other comments	4
I'm not sure	Uncontrolled crossing	Crossing is not marked	5
		Pedestrians should have priority	2
		Unclassified other comments	4
	Zebra crossing	Will give way anyway as don't want to collide with a bicycle	2
		Unclassified other comments	2
Neither cyclists nor pedestrians have priority	Uncontrolled crossing	It should have markings	3
		Need to be careful of cyclist behaviour	3
		Unclassified other comments	2
	Zebra crossing	Both pedestrians and cyclists should be aware	4
		Let cyclists go	4
		Unclassified other comments	1
Pedestrians have priority	Uncontrolled crossing	Pedestrian priority but cyclists don't stop	7
		Should be better marked	2
		Unclassified other comments	10
	Zebra crossing	Pedestrian priority but cyclists don't stop	24
		Because it is a zebra crossing	8
		Will still check before crossing	7
		Unclassified other comments	13

In the zebra crossing survey only, cyclists were additionally asked what drew their attention to the crossing. The responses are revealed in Table 5. This strongly suggests that the zebra crossing markings were a key reason for drawing the attention of the cyclist to the crossing.

Table 5 What drew attention of cyclists to zebra crossing (Q2)

Comment type	Blackfriars SA (has Belisha beacon)	Blackfriars U	Stratford J	Stratford M	Whitechapel A	Whitechapel J (has Belisha beacon)	Total quantity of similar comments
Noticed zebra / markings	10	21	5	5	7	13	61
Noticed raised hump	1	1	2	1	6	3	14
Noticed bus stop	0	0	2	1	1	3	7
Noticed lights/Belisha beacon	1	1	0	0	1	3	6
Noticed people crossing	0	1	1	0	0	4	6
Unclassified other comments	7	9	8	5	8	10	47

2.2 Pedestrians' use of the crossing

Pedestrians were asked "Q2: Did you use the crossing?". The split of responses is indicated in Figure 9. Comments offered in response are provided in Table 6. Pedestrians alighting from the bus who were intercepted before the crossing were asked if they would have used the crossing (this may have brought in an element of *participant bias* in the sample). Less than half of respondents stated that they used, or would have used, the crossing, but they proportion increased following the introduction of the zebra crossing (35.8% at the uncontrolled crossing, 44.2% at the zebra crossing). The survey responses are similar to the proportion of pedestrians observed to be using these crossings (38.7% and 49.4% respectively) in the video recordings which are reported separately.

Pearson's chi-squared tests were performed on the findings. There is very strong evidence of a relationship between the presence of a zebra crossing and pedestrians choosing to use the crossing ($p<0.01$), so the different responses can be considered to be statistically significant

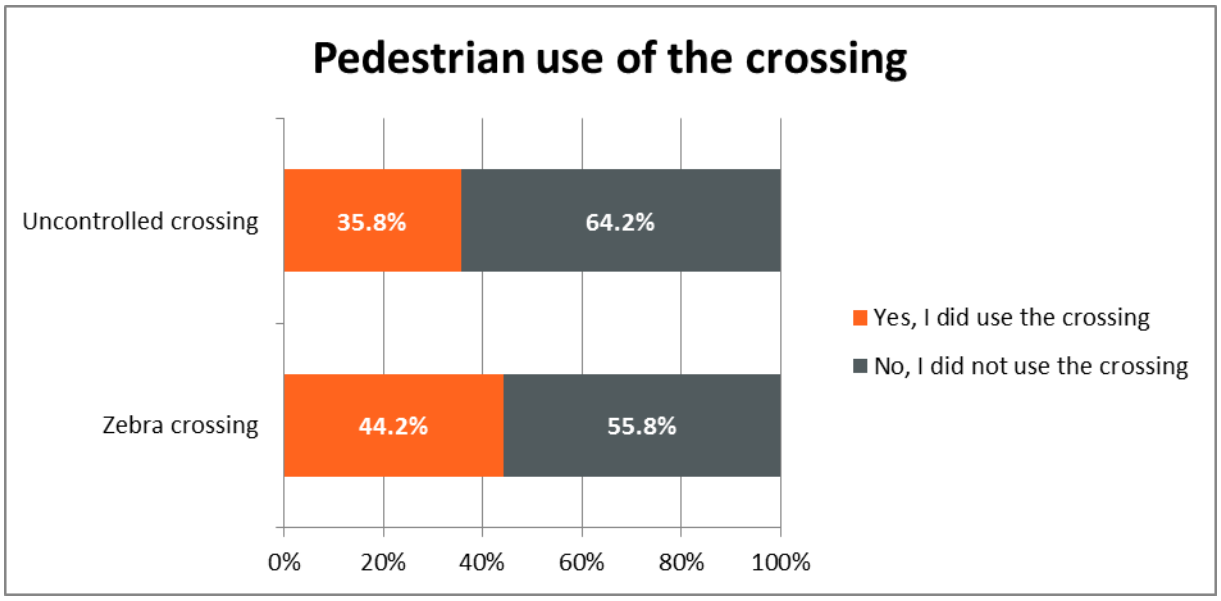

Figure 9 Use of the crossing by respondents (uncontrolled crossing N = 481, zebra crossing N = 471)

Pedestrians were also asked why they did or did not use the crossing (Q2a and Q2b). Their responses are given in Table 6. It should be noted that the number of pedestrians who did not use the crossing because they did not see it has reduced in the zebra crossing survey. Also many pedestrians commented that they crossed elsewhere, which may give some indication of a need to cater for alternative pedestrian movements.

Table 6 Pedestrian comments relating to use or non-use of the crossing

Use of crossing	Crossing type	Comment type	Quantity of similar comments
Yes, I did use the crossing	Uncontrolled crossing	Considered it the safest crossing point	34
		Because it is the crossing point	25
		Conveniently placed	23
		To get to the bus stop	23
		Because of raised element	11
		Unclassified other comments	18
	Zebra crossing	Safety	67
		Conveniently placed	24
		Because it is the crossing point	20
		Wasn't aware it was a crossing	6
		Because of raised element	5
		Unclassified other comments	23
No, I did not use the crossing	Uncontrolled crossing	I crossed elsewhere	113
		Didn't notice the crossing	63
		Crossing is not convenient for me	45
		Looked for bicycles and didn't see them so crossed	21
		Unclassified other comments	35
	Zebra crossing	I crossed elsewhere	89
		Crossing is not convenient for me	52
		Didn't notice the crossing	38
		Looked for bicycles and didn't see them so crossed	32
		Unclassified other comments	24

2.3 Who has priority on the cycle track?

Pedestrians were asked "Q4: There is a track which runs past the bus stop. Who do you think has priority on this track?", and cyclists were asked the similar "Q3: There is a track which you have just come down which runs past the bus stop. Who do you think has priority on this track?". Here the perception of priority is far better matched, with a large proportion (>87% in all samples) of both pedestrians and cyclists considering that cyclists having priority on the cycle track (see Figure 10). The responses between the uncontrolled crossing and zebra crossing surveys were similar. This might be expected given that no changes were made to the cycle track itself away from the crossing, however the results can also be considered as a control, adding weight to the conclusion that the changes in perceived priority reported at the crossing can be attributed to the physical changes and not an external factor.

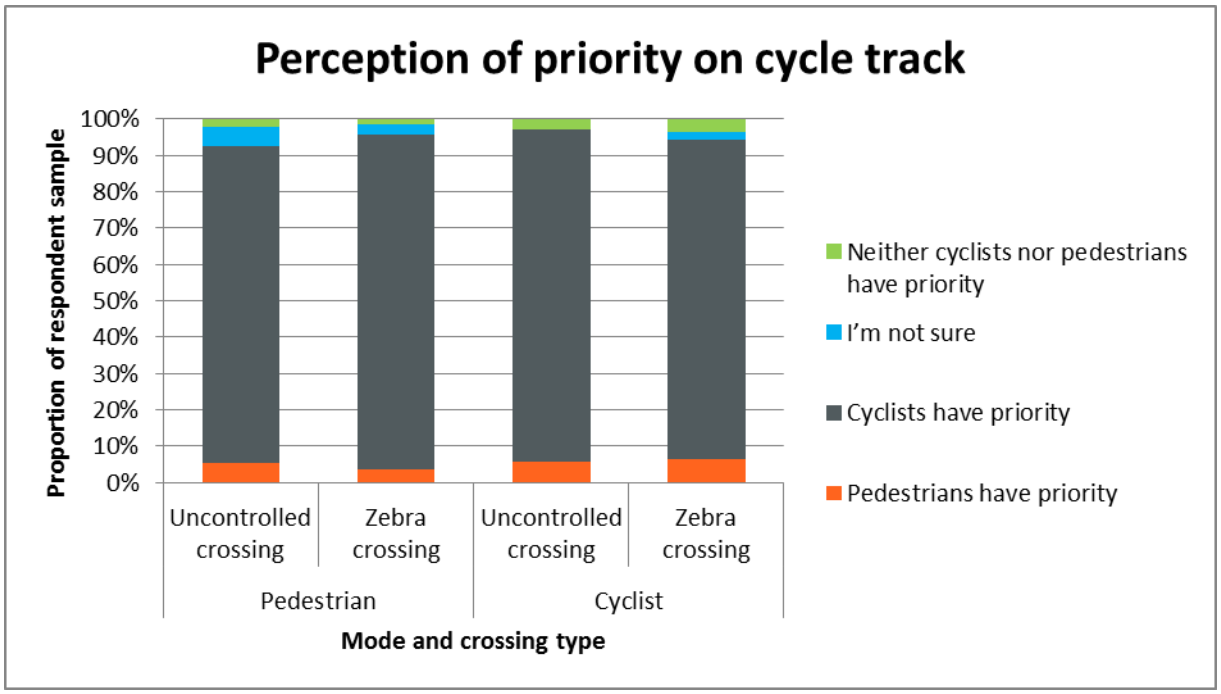

Figure 10 Perception of priority on the cycle track (uncontrolled crossing N Ped = 489, uncontrolled crossing N Cyc = 246, zebra crossing N Ped = 476, zebra crossing N Cyc = 240)

Respondents were asked who they thought had priority on the cycle track itself. Pedestrian and cyclists gave very few comments therefore reliable conclusions cannot be drawn from this data.

2.4 Noticing the crossing

Pedestrians were asked "Q1: When you were walking to or from the bus stop, did you notice this crossing?"; and cyclists were asked the similar "Q2: When you were cycling past the bus stop, did you notice this crossing to the bus stop?". More cyclists noticed the crossing than pedestrians, 81% of cyclists on average (across both the uncontrolled and zebra crossing) compared with 70% of cyclists (see Figure 11).

The zebra crossing does not appear to have greatly increased the average proportion of cyclists noticing the crossing (from 80% to 82%), but has led to an increase in the number of pedestrians noticing it (from 64% to 75%). Pearson's chi-squared tests were performed on the findings. There is very strong evidence of a relationship between the presence of a Zebra crossing, and pedestrians noticing a crossing ($p<0.001$), however there is no evidence of any change in the propensity for cyclists to notice the zebra compared to the uncontrolled crossing ($p=0.5$), with around 80% of cyclists noticing the crossing in either configuration.

Further analysis was undertaken to understand differences between the sites, and it was noted that the crossing was less noticed by both pedestrians and cyclists at the wider crossing sites (Blackfriars) than at the narrower crossing sites (Stratford and Whitechapel). The reasons for this were not explored as part of the questionnaire and are therefore not understood.

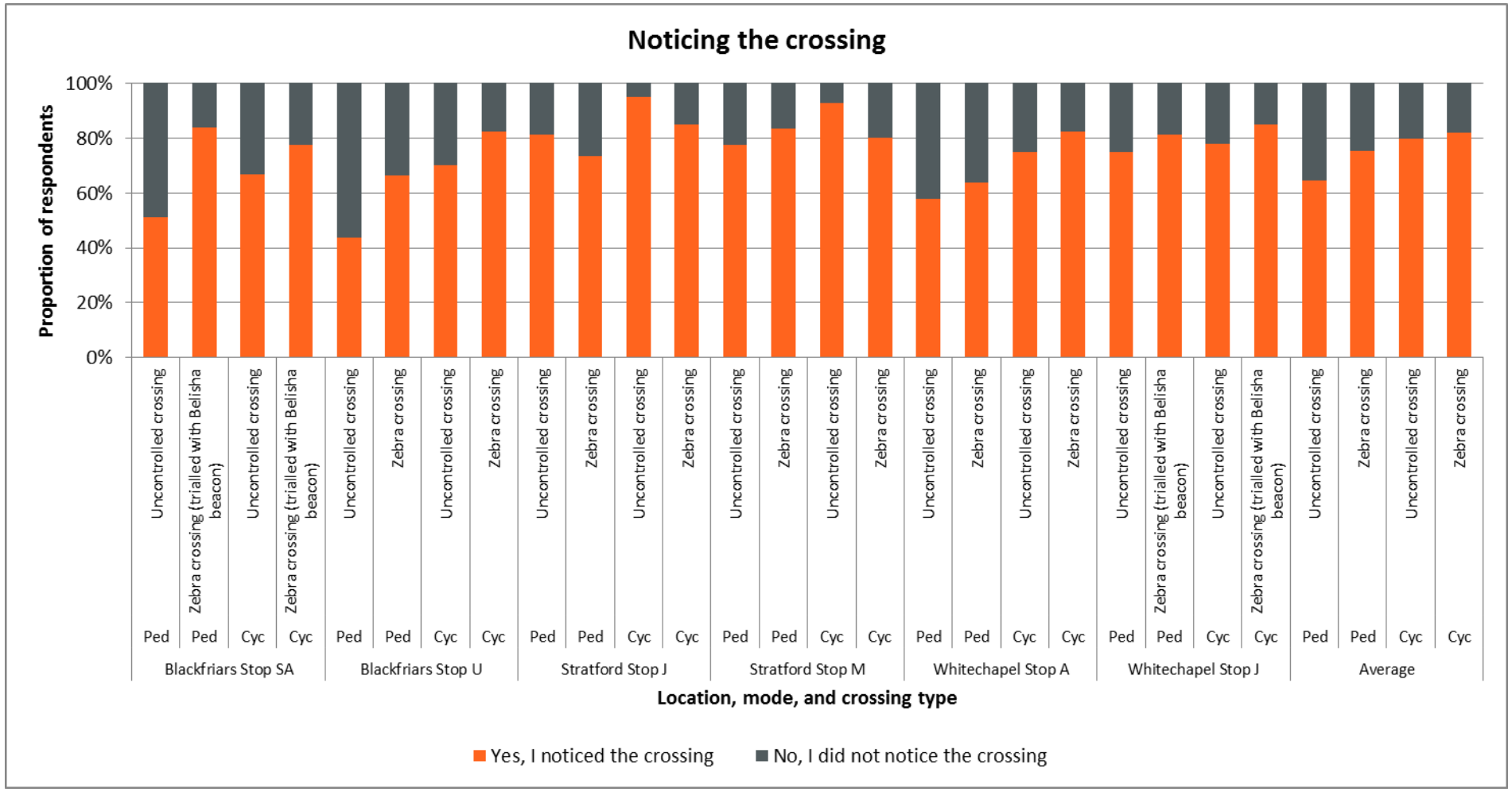

Figure 11 Noticing the crossing (uncontrolled crossing N Ped = 486, uncontrolled crossing N Cyc = 246, zebra crossing N Ped = 478, zebra crossing N Cyc = 240)

2.5 Feelings of safety

Pedestrians were asked "Q5: Thinking about how you just crossed, how safe or unsafe do you feel crossing to or from the bus stop here?", and cyclists were asked the similar "Q6: How safe or unsafe do you feel using this cycle track behind the bus stop?". A majority of both cyclists and pedestrians felt either 'safe' or 'very safe', both with the uncontrolled crossing (75% and 58% respectively) and zebra crossing (74% and 68%), see Figure 12. Pedestrians felt safer with the zebra crossing, but cyclists were largely unchanged.

Pearson's chi-squared tests were performed on the findings. There is very strong evidence of a relationship between the presence of a zebra crossing and pedestrians' perceived safety ($p<0.01$). However there is no evidence of a relationship between the presence of a zebra crossing, and cyclists' perception of safety (p-0.237). Note due to the cyclist 'I'm not sure', and 'Neither safe nor unsafe' samples being small, they were pooled for analysis.

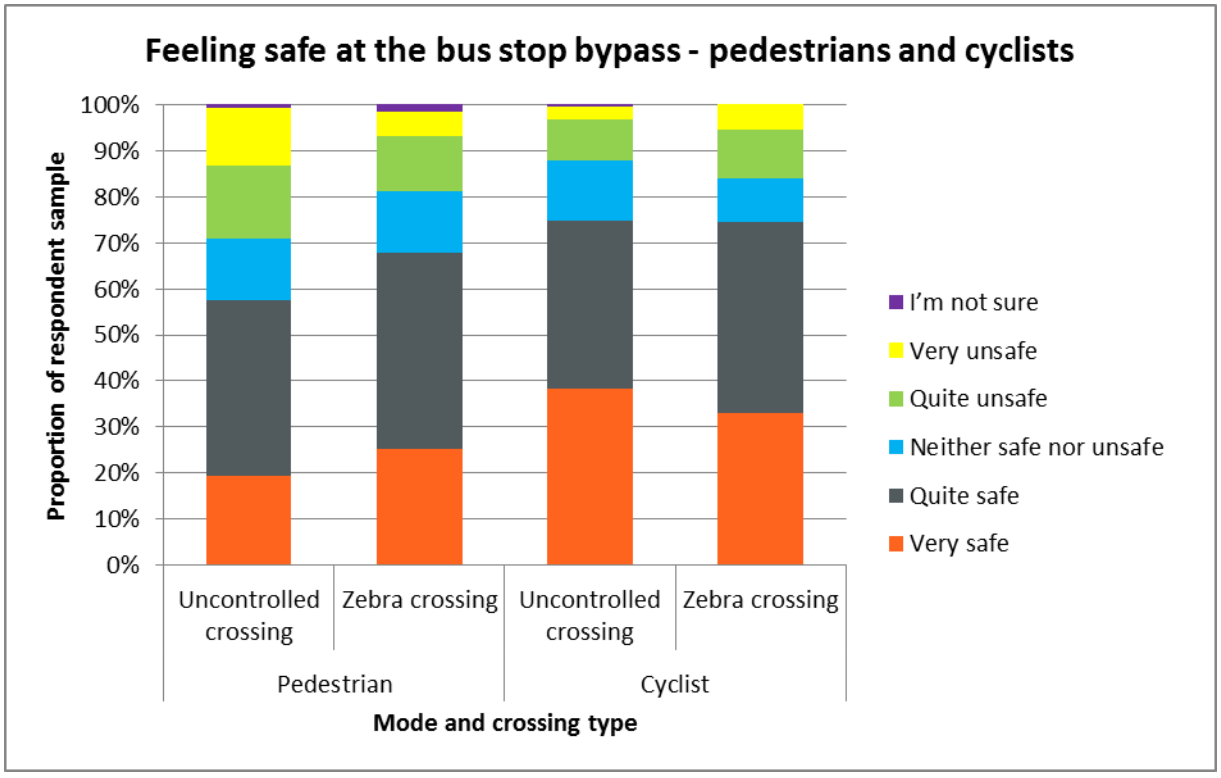

Figure 12 Feelings of safety (uncontrolled crossing N Ped = 488, uncontrolled crossing N Cyc = 245, zebra crossing N Ped = 476, zebra crossing N Cyc = 239)

Further analysis was undertaken on this data. To understand differences by site, responses were weighted (with 'very safe' being given a weight of 5, graduating to 'very unsafe' being given a weight of 1, and 'I'm not sure' being excluded. This indicated that most sites improved with the zebra crossing (or were broadly similar) and the level of variation across sites (measured by the standard deviation) fell from 0.33 with the uncontrolled crossing to 0.21 with the zebra crossing. Sites with the largest changes between the uncontrolled crossing measurement and the zebra crossing measurement (Blackfriars SA, Stratford M, and Whitechapel A) were generally lower in the uncontrolled crossing measurement to begin with. See Figure 13 for more detail.

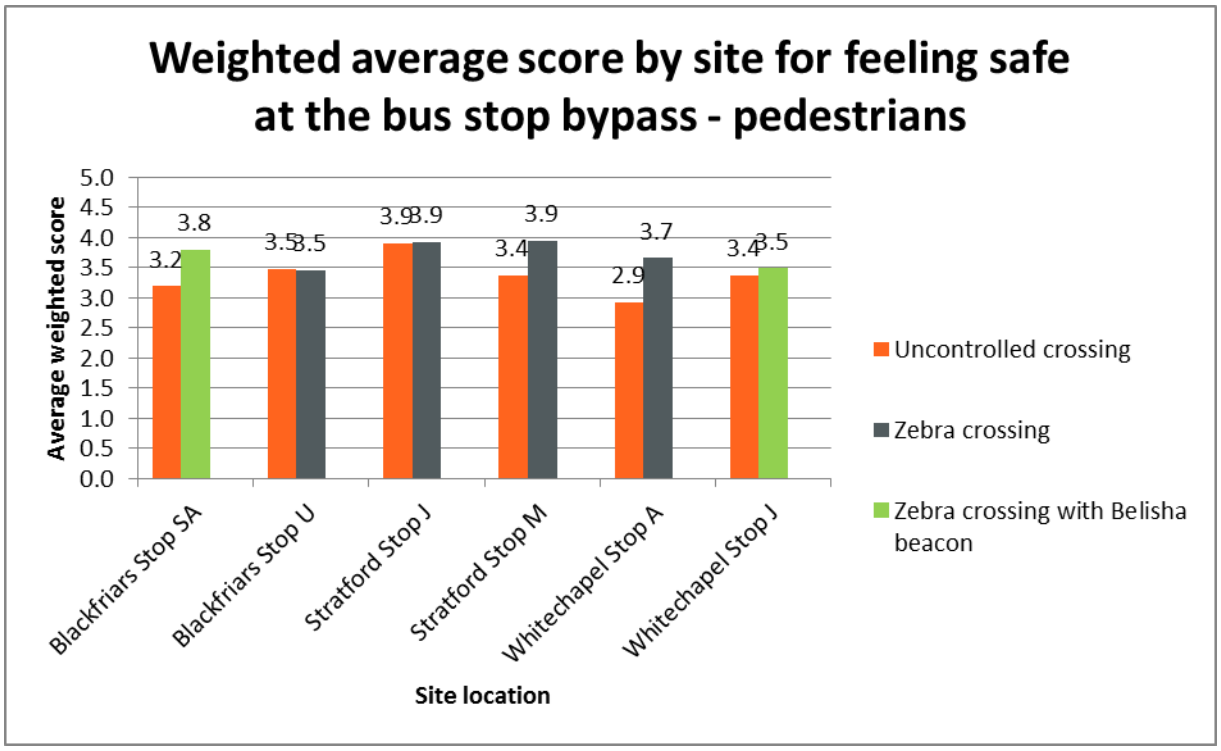

Figure 13 Average weighted score for pedestrian feelings of safety at individual bus stop bypass sites

The same results were not found for cyclists, where the weighted average in feelings of safety remained largely static overall, but at a site level some increasing and other decreasing with the standard deviation in response changing from 0.2 (uncontrolled crossing) to 0.34 (zebra crossing) suggesting greater variability of response across sites for cyclists. See Figure 14 for more detail.

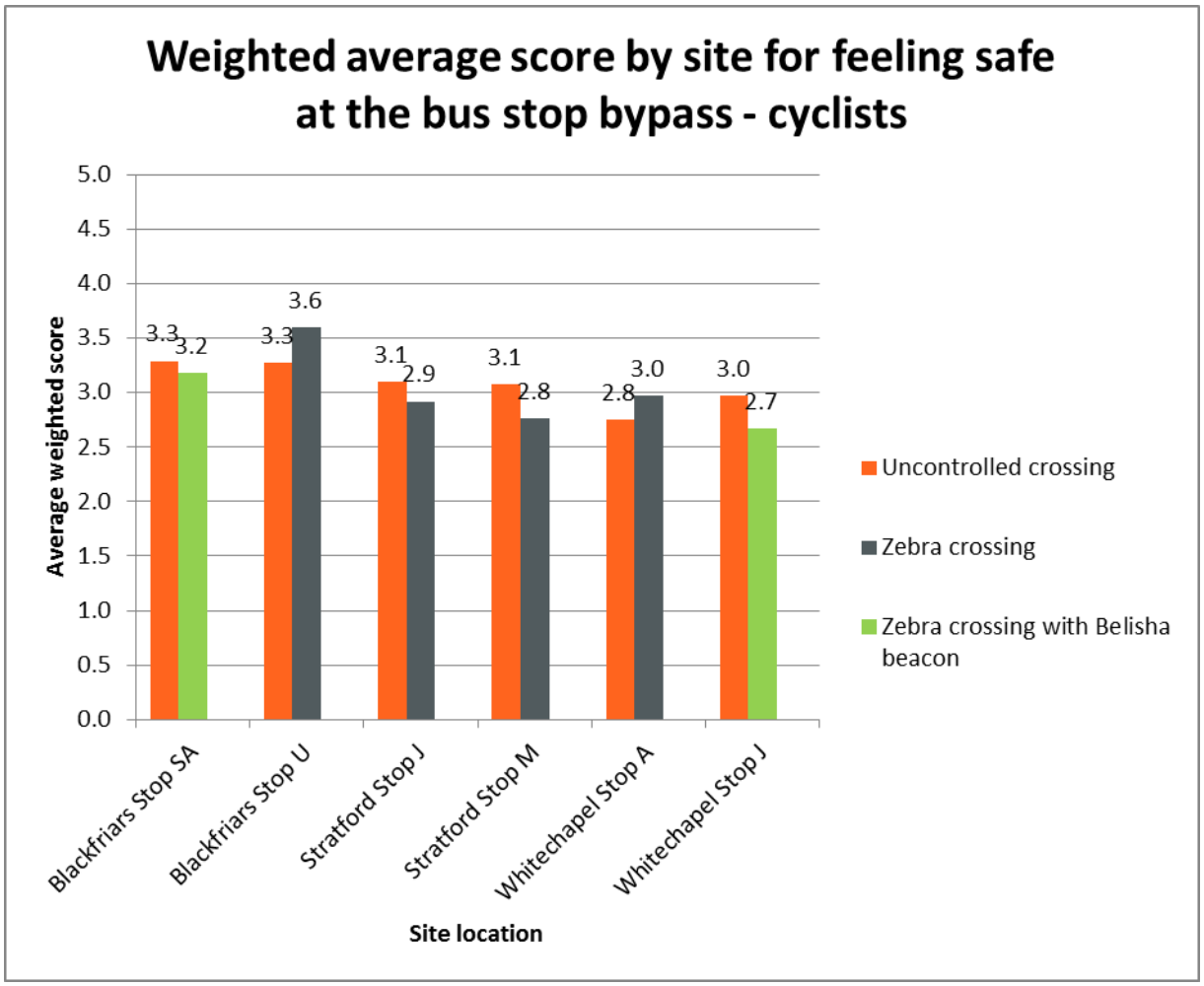

Figure 14 Average weighted score for cyclists' feelings of safety at individual bus stop bypass sites

Further analysis was undertaken to split the sample by age group, using a weighted average score, and using a trend analysis line across the age bands. This revealed no differences between age groups at the zebra crossing, but did show increased feelings of safety at the uncontrolled crossing with increasing age. The data is presented in Figure 15.

The same variations in results were not found with cyclists for feelings of safety based upon age for the uncontrolled and zebra crossings, where feelings of safety at both crossing types remained largely static at any age. Note that the 65-74 age range was excluded as the small number skewed the findings, and there were no cyclists aged 75 and over in the survey. The data is presented in Figure.

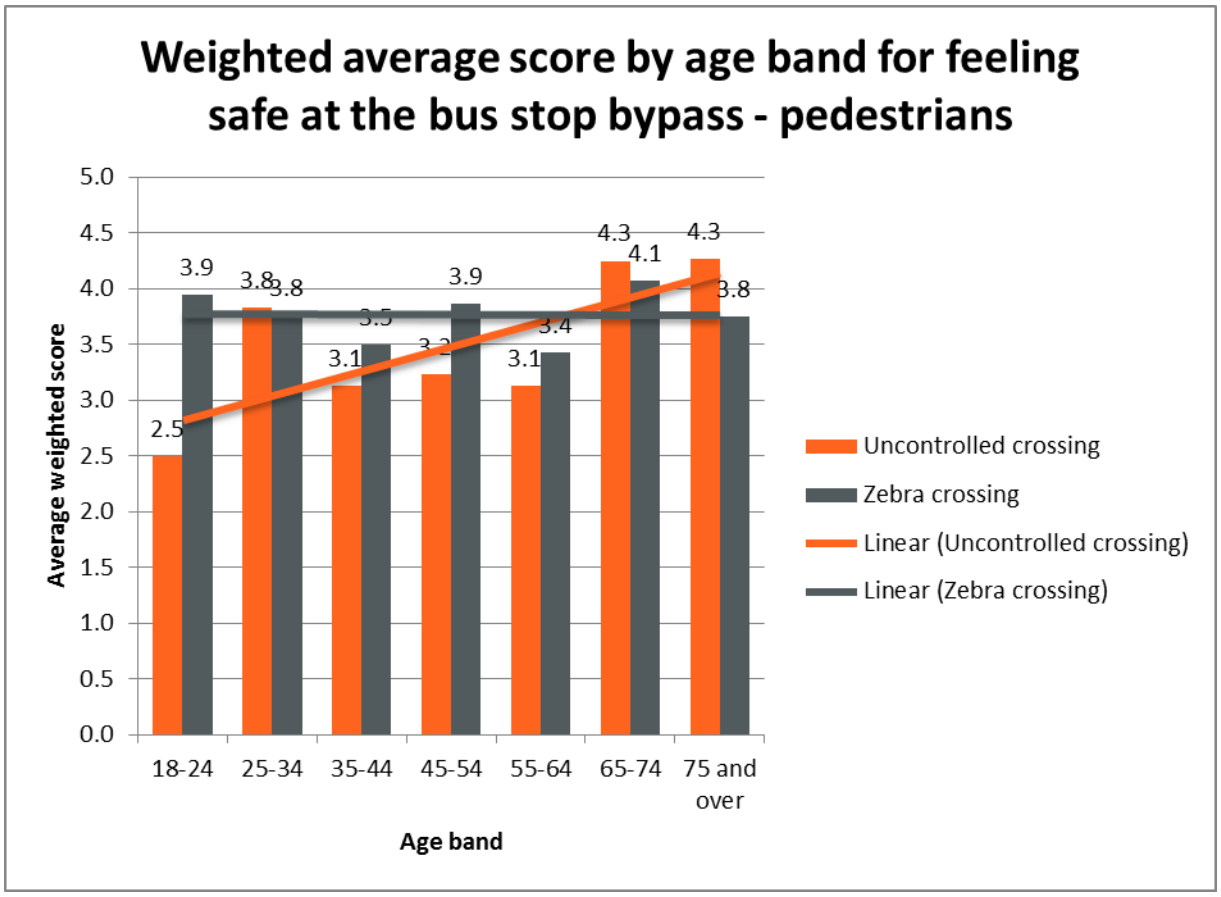

Figure 15 Average weighted score for pedestrian feelings of safety at the bus stop bypass by age group

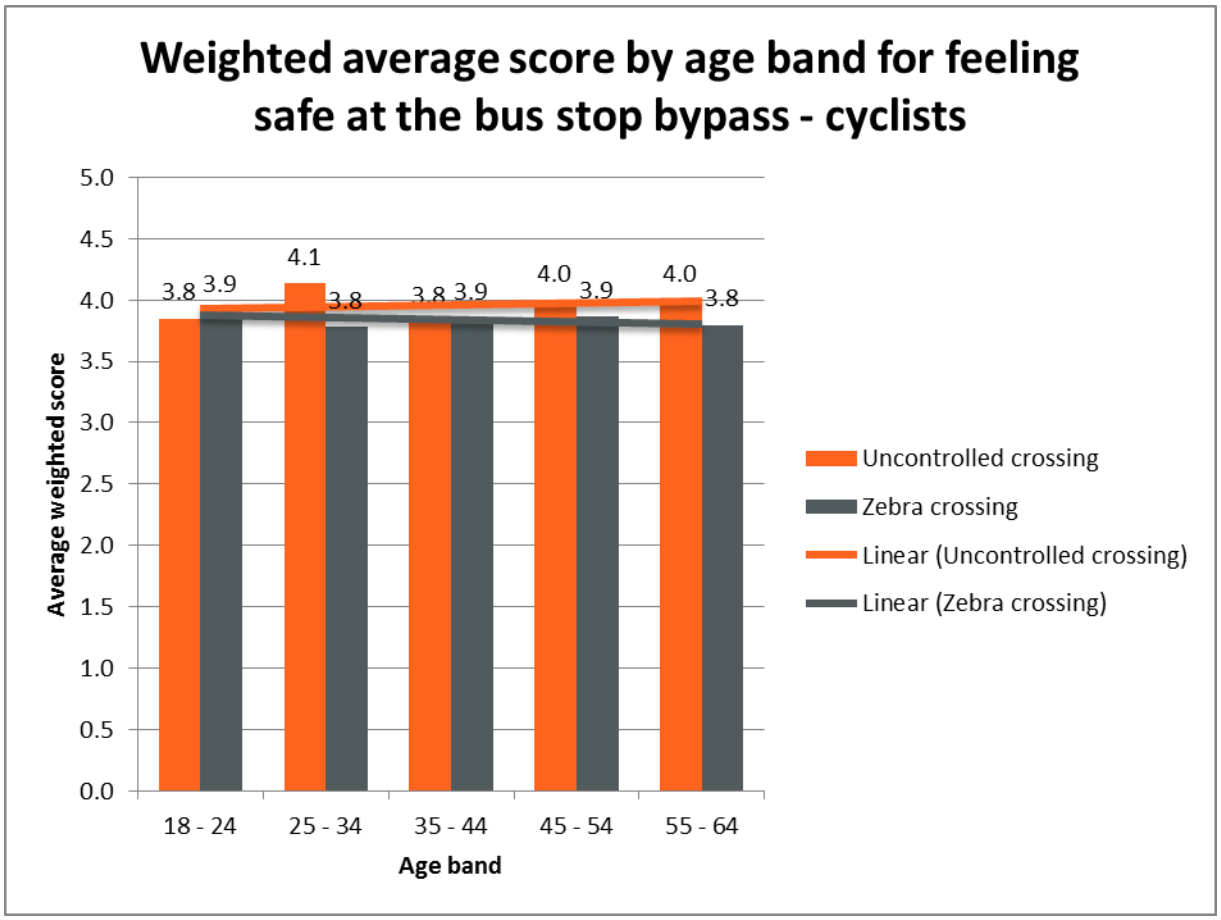

Figure 16 Average weighted score for cyclist feelings of safety at the bus stop bypass by age group

Pedestrians were asked "Q5: Thinking about how you just crossed, how safe or unsafe do you feel crossing to or from the bus stop here?". Figure 17 has weighted the pedestrian responses with 'very unsafe' being 1, and 'very safe' being 5, and removed the 'I'm not sure' responses (comprising only 11 within the uncontrolled crossing and zebra crossing samples). It has also split the sample by crossing type and whether the pedestrian used the crossing or not(see Figure 17). This indicates that average feelings of safety correspond to 'Neither safe nor unsafe', and that overall feelings of safety improved slightly in the zebra crossing survey.

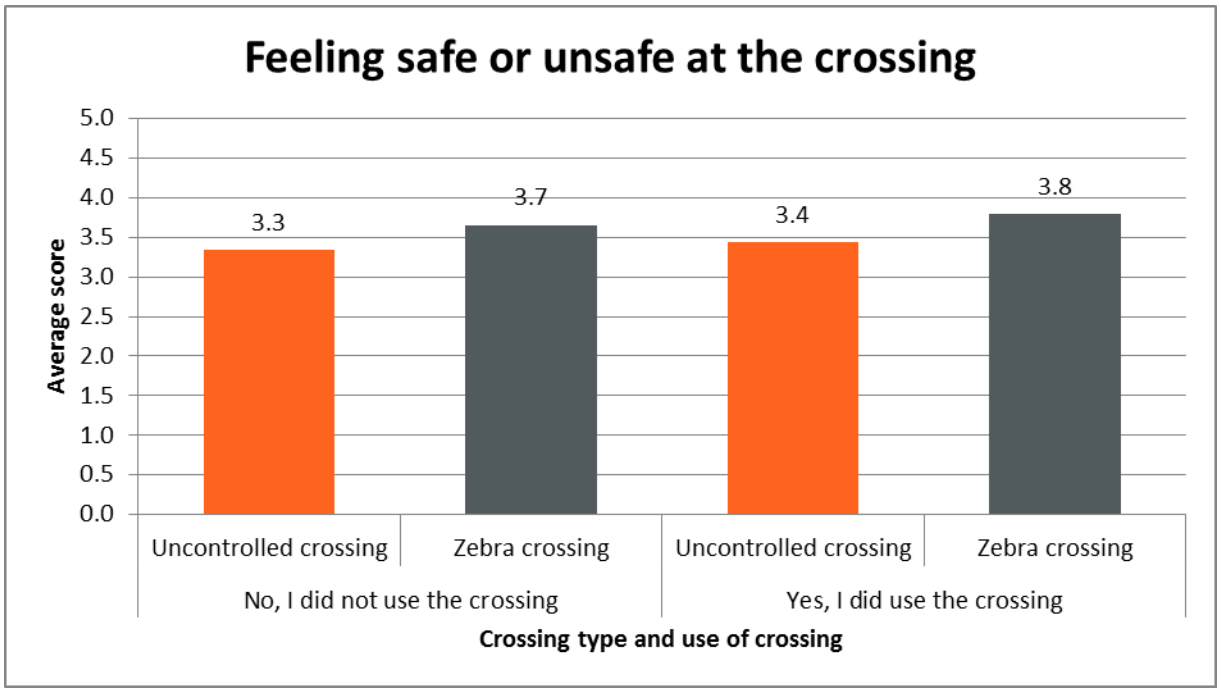

Figure 17 Weighted feeling of safety for pedestrians (uncontrolled crossing N = 476, zebra crossing N = 460)

Pedestrians were asked to comment upon their feelings of safety on the crossing. Responses reveal that they are wary of cyclists and this is largely similar in both the uncontrolled crossing and zebra crossing configurations (see Table 7). Some comments reveal approval of the zebra crossing design over the previous uncontrolled design.

Cyclists were asked to comment upon their feelings of safety on the cycle track by the bus stop, and the responses to this are shown in Table. An overriding theme of those cyclists who commented (regardless of their feelings of personal safety) was the inattentiveness of pedestrians and the potential for this to cause issues.

The quantity of both the pedestrian and cyclist samples are shown in Figure 18, which indicates to some extent the level of feeling in the responses.

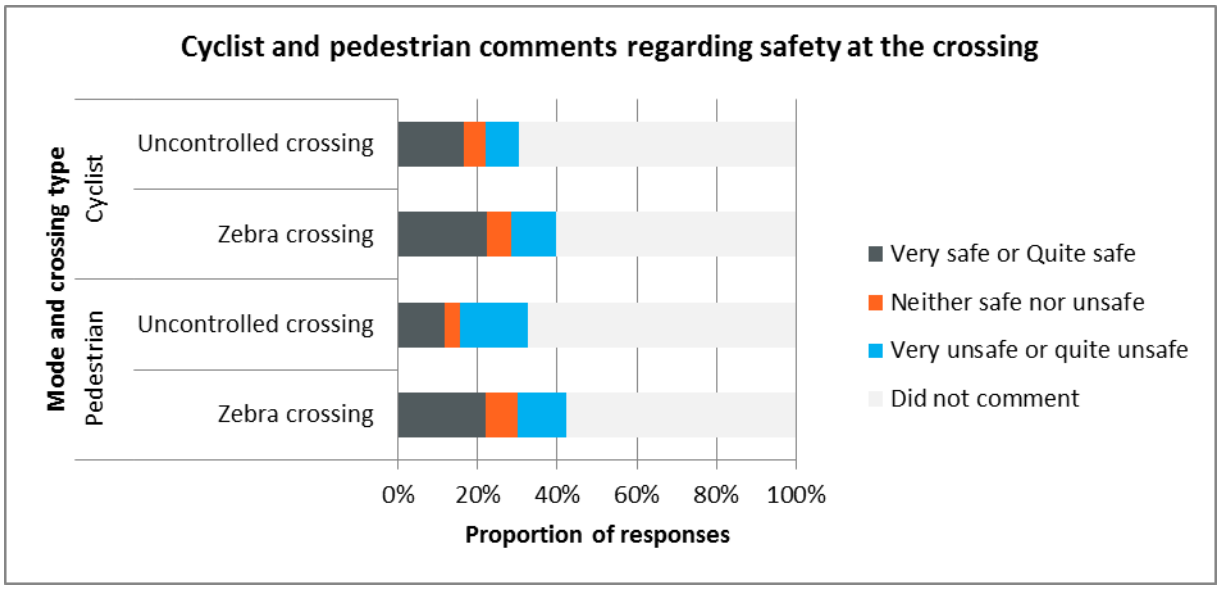

Figure 18 Cyclist and pedestrian comments regarding safety at the crossing

Table 7 Pedestrian comments regarding safety at the crossing (Q5)

Response	Crossing type	Comment type	Quantity of similar comments
Very safe or Quite safe	Uncontrolled crossing	It is fine if you check	43
		Unclassified other comments	14
	Zebra crossing	It is fine if you check	63
		Cyclists are dangerous	12
		It is better because of the new crossing	7
		I crossed at traffic lights	5
		Unclassified other comments	18
Neither safe nor unsafe	Uncontrolled crossing	Depends on cyclist speed and behaviour	11
		Need to check for cyclists	3
		Unclassified other comments	5
	Zebra crossing	Need to check for cyclists	18
		Depends on cyclist speed and behaviour	11
		Feel safe with zebra	2
		Don't like the crossing design	5
		Unclassified other comments	4
Very unsafe or quite unsafe	Uncontrolled crossing	Cyclists are dangerous	36
		Design is confusing	15
		Poor signage	8
		Unclassified other comments	24
	Zebra crossing	Cyclists are dangerous	33
		Design is confusing	5
		Cyclists are difficult to see	4
		Unclassified other comments	16

Table 8 Cyclist comments regarding safety at the bus stop bypass (Q6)

Response	Crossing type	Comment type	Quantity of similar comments
Very safe or Quite safe	Uncontrolled crossing	Danger from behaviour of pedestrians	11
		Safer than using the road	7
		This is not safe for pedestrians	6
		Danger from behaviour of other cyclists	6
		Safe because I take precautions	4
		Unclassified other comments	7
	Zebra crossing	Danger from behaviour of pedestrians	19
		Safer than using the road	9
		Like the design	6
		Safe because I take precautions	5
		Cycle lane confuses drivers	3
		Danger from behaviour of other cyclists	4
		Unclassified other comments	8
Neither safe nor unsafe	Uncontrolled crossing	Danger from behaviour of pedestrians	10
		Unclassified other comments	3
	Zebra crossing	Danger from behaviour of pedestrians	11
		Unclassified other comments	3
Very unsafe or quite unsafe	Uncontrolled crossing	Danger from behaviour of pedestrians	17
		Unclassified other comments	4
	Zebra crossing	Danger from behaviour of pedestrians	22
		Unclassified other comments	5

2.6 Affecting the way cyclists rode

Cyclists were asked "Q4: Did the presence of the bus stop affect the way you rode?". On average over 72% of cyclists (both in the uncontrolled crossing and zebra crossing surveys) stated the presence of the bus stop did affect the way they rode (see Figure 19). Whilst there were differences between sites (with the lowest at the Blackfriars sites which are wider two-way cycle tracks), and the most at Stratford and Whitechapel which are narrower 1-way tracks), on average there was no overall difference between the uncontrolled crossing and zebra crossing surveys.

There were a lot of comments relating to the way cyclists rode and they primarily related to slowing down, and watching for pedestrians. The difference in the effect upon riding of the Blackfriars Road (Southwark) sites, which are wide and straight and appear to have a high pedestrian level of service (i.e. few pedestrians per given area) is noticeable compared to the other sites which are more compact. It should be noted that in the video study the Blackfriars Road sites had the lowest numbers of interactions between pedestrians and cyclists.

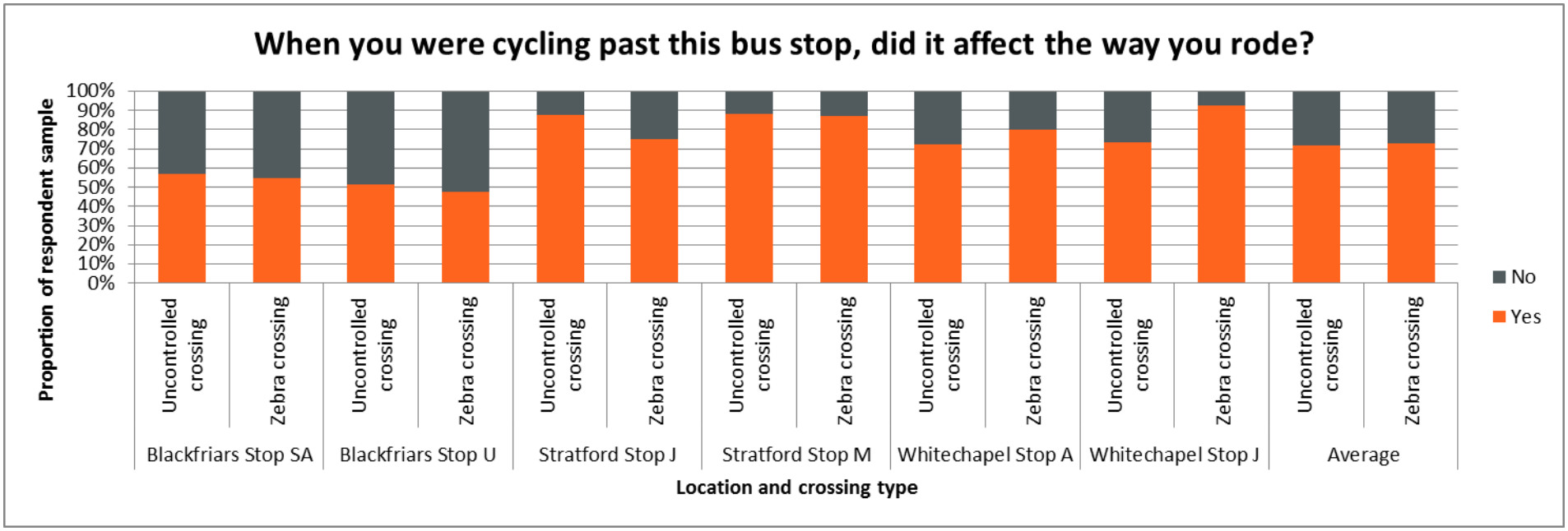

Figure 19 Bus stop affecting the way cyclists rode (uncontrolled crossing Cyc N = 245, zebra crossing Cyc N = 239)

Cyclists were also asked to provide a verbal response to Q4, which has been collated in Table 9 below. Of those cyclists who commented (N = 57) the main comments relate to looking out for pedestrians' welfare. It is notable that a very large proportion of cyclists who responded said they look out for pedestrians with the zebra crossing in place.

Table 9 Cyclist commentary regarding the bus stop affecting the way they rode (Q4)

Crossing type	Response	Comment type	Quantity of similar comments
Uncontrolled crossing	Yes	I slow down	5
		Normally divert to avoid it	2
		Look out/be more careful	2
	No	Unclassified other comment	1
Zebra crossing	Yes	I look out, am more aware of pedestrians	26
		I slow down	8
		Unclassified other comments	4
	No	Would be more careful if people were there pedestrians present	5
		Unclassified other comments	4

2.7 General comments about the bus stop bypass layout

Cyclists and pedestrians were given the opportunity to comment upon the general layout of the bus stop bypass (Pedestrians: Q7: Do you have any other comments about this bus stop?) (Cyclists: Q7. Do you have any other comments about this bus stop layout?), and the results of this are indicated in Table 10 and Table 11 respectively. This indicated that pedestrians feel the zebra crossings are an improvement with a proportional decrease in those commenting that design was confusing or unsafe, that cyclists were too fast, or a general dislike of the layout when comparing the zebra crossing to the uncontrolled crossing. There was a marked reduction in the number of cyclists reporting that pedestrians were inattentive, from 43 comments with the uncontrolled crossing (30%) to 11 with the zebra crossing (8%). Not all pedestrians or cyclists felt the need to comment upon this; of the 480 pedestrians in the uncontrolled crossing survey only 182 commented, with 135 in the zebra crossing survey. Of the 240 cyclists in the uncontrolled crossing survey 145 commented, with 132 in the zebra crossing survey.

In the uncontrolled crossing survey, Stratford J attracted five out of seven of comments regarding the bus shelter (in particular the advertising hoarding) creating a visual barrier between them an pedestrians. This was more mixed with the zebra crossing, with four comments across three sites.

Table 10 Pedestrian general comments about the bus stop bypass layout (Q7)

Crossing type	Comment type	Quantity of similar comments
Uncontrolled crossing	There are elements of the design which I don't like or are confusing or unsafe	47
	Cyclists are dangerous/too fast	42
	Think this is a positive development	41
	Generally dislike layout	31
	Non-related general comment about the bus stop facilities	15
	Unclassified other comments	6
Zebra crossing	Think this is a positive development	42
	There are elements of the design which I don't like or are confusing or unsafe	23
	Cyclists are dangerous/too fast	23
	Generally dislike layout	13
	Non-related general comment about the bus stop facilities	13
	More signage would be a good development	9
	Crossing is better with the markings	2
	Unclassified other comments	10

Table 11 Cyclist general comments about the bus stop bypass layout (Q7)

Crossing type	Comment type	Quantity of similar comments
Uncontrolled crossing	Pedestrian inattentiveness or safety or priority	43
	Positive benefit for cyclists	42
	Traffic lights along the route – *cyclists were concerned that traffic lights along the Blackfriars Road were not synchronised to their speed resulting in long wait times. Note that the traffic lights are entirely independent of the BSB therefore this comment is likely to be irrelevant to this study.*	13
	Vehicles turning across cycle track or parking on it	8
	Bus shelter is a blind spot	7
	Dislike some element of the physical layout	5
	Unclassified other comments	27
Zebra crossing	Positive benefit for cyclists or pedestrians	35
	Dislike some element of the physical layout or maintenance	22
	Signage for pedestrians or cyclists re priority would be useful	19
	Pedestrian inattentiveness/stepping out	11
	Vehicles turning across cycle track or parking on it	6
	Traffic lights along the route	4
	Bus shelter or telephone box is a blind spot	4
	Unclassified other comments	31

2.8 Belisha beacons

Belisha beacons were installed at the Blackfriars SA and Whitechapel J BSB sites in zebra crossing configuration, and this was only mentioned twice by pedestrians (once that they made it safer (Blackfriars SA), the second that they were too high (Whitechapel J)). They were mentioned six times in unprompted comments by cyclists, to the effect that the crossings should have them (2), that they noticed the crossing because of the Belisha beacon (1), that they were too high (1), that it clearly marks the crossing (1), and that whilst they did notice the zebra crossing they did not notice the Belisha beacon (1).

3 Demographics and generalised information

Demographic information was collected from respondents. Note that demographic information was not essential to the core study therefore a sample counted as valid without this information. In many cases participants (particularly pedestrians) had to leave for their bus before the demographic questions were answered.

3.1 Gender

As shown in Figure 20, pedestrians broadly match a common male/female split of the general population and of daytime bus passengers[1], and the uncontrolled crossing and zebra crossing sample sizes for each gender are nearly identical, with males forming around 50% of the pedestrian sample and 75% of the cyclist sample. Cyclists broadly match the proportions found in the video study.

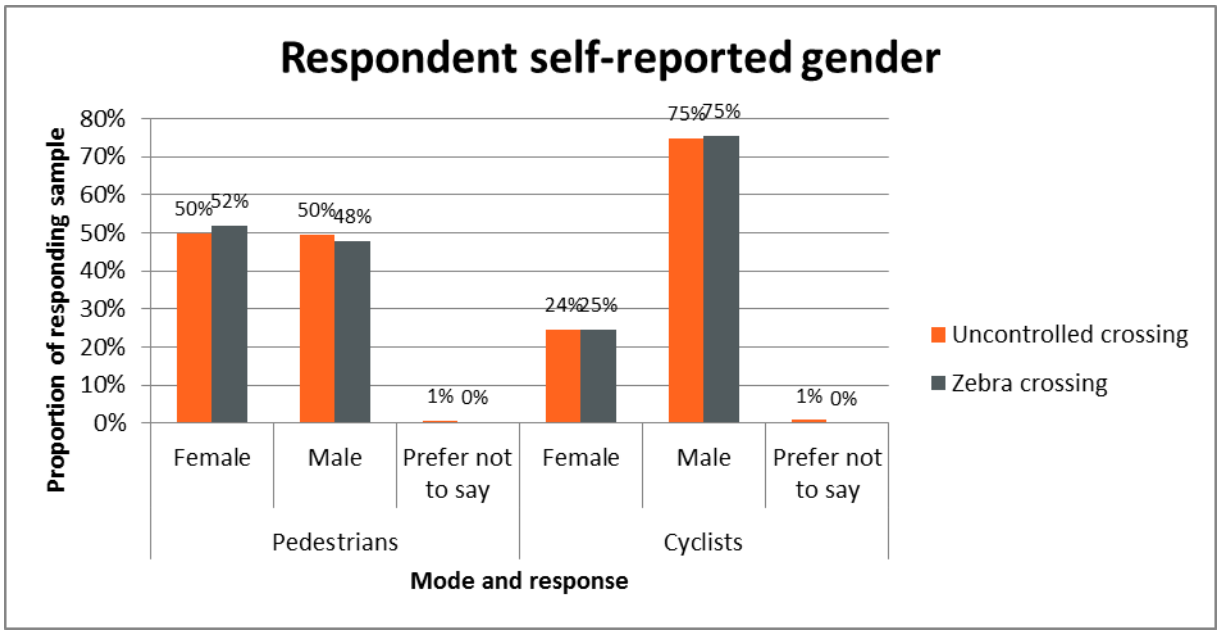

Figure 20 Respondent gender (uncontrolled crossing Ped N = 387, uncontrolled Cyc N = 245, zebra crossing Ped N = 435, zebra crossing Cyc N = 240)

[1] TfL Bus User Survey 2014: http://content.tfl.gov.uk/tfl-bus-users-survey.pdf

3.2 Age

Figure 21 indicates the age of respondents who gave an answer. Both pedestrian and cyclist samples indicate a skewing towards younger age ranges, with this more heavily pronounced in the cyclist sample.

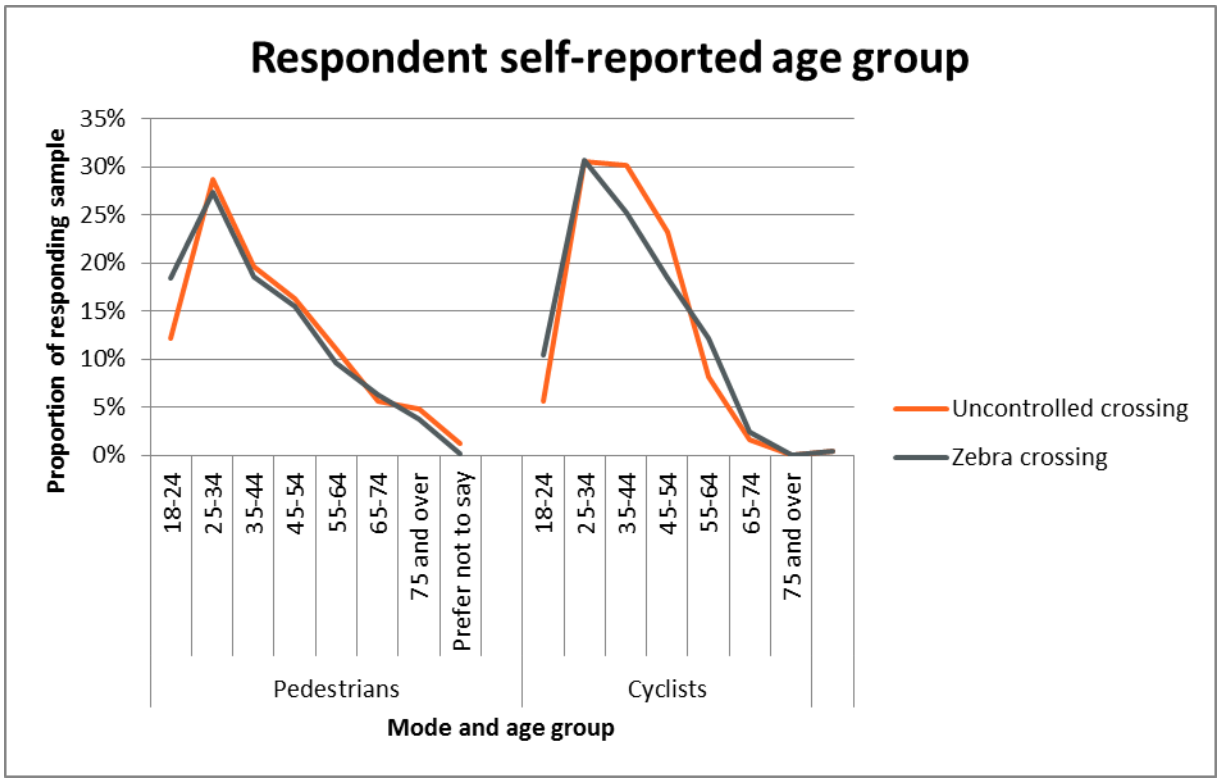

Figure 21 Respondent age (uncontrolled crossing Ped N = 386, uncontrolled crossing Cyc N = 245, zebra crossing Ped N = 424, zebra crossing Cyc N = 238)

3.3 Ethnic group

Previous measurements of London cyclists[2] suggest that the majority of cyclists are white (86%), with other ethnicities forming a smaller percentage. Figure 22 indicates a slightly broader respondent set, with white cyclists forming 76% of the whole sample, and 45% of the pedestrian sample. This may be representative of the locations of the surveys. The uncontrolled crossing and zebra crossing surveys had broadly similar ethnic group respondents.

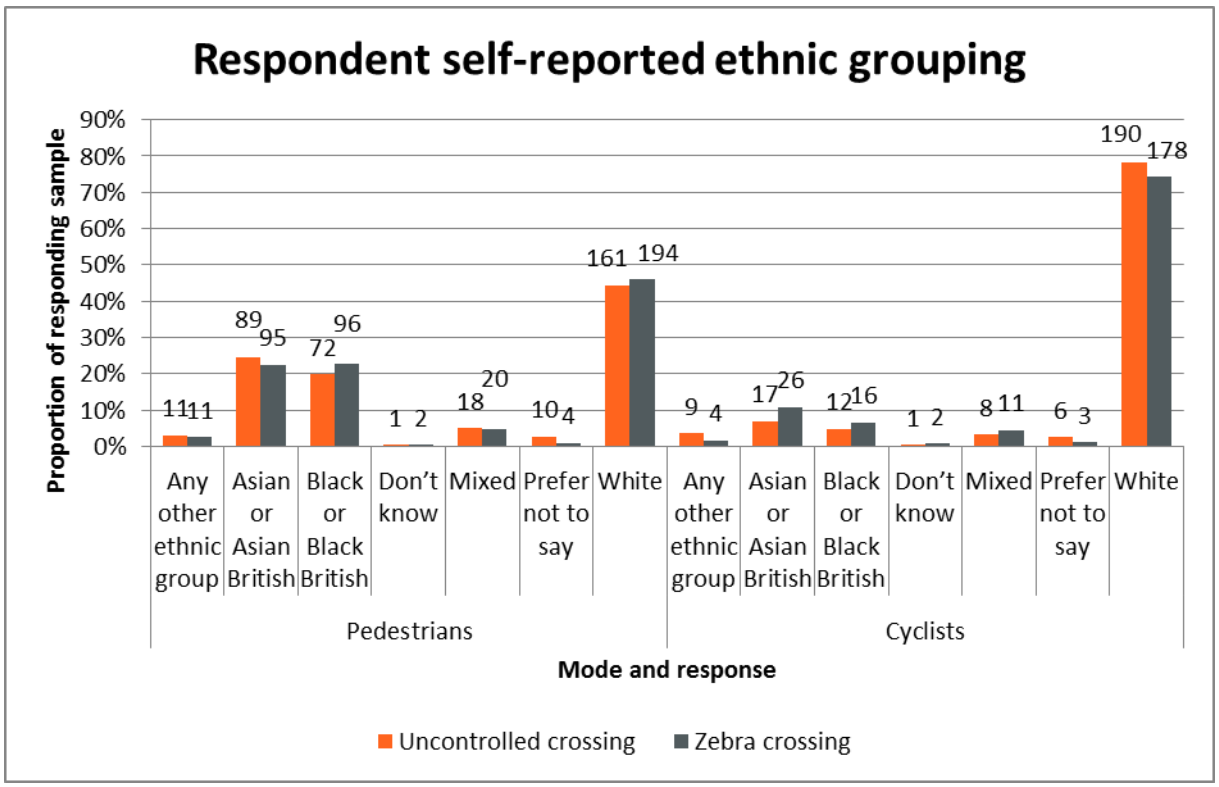

Figure 22 Respondent ethnic grouping (uncontrolled crossing Ped N = 362, uncontrolled crossing Cyc N = 190, zebra crossing Ped N = 422, zebra crossing Cyc N = 178)

[2] Steer Davies Gleave, Cycle Monitoring Surveys: 2014 Results Summary

3.4 Disability

Respondents were asked if they considered themselves as having a disability (see Figure 23). The uncontrolled crossing and zebra crossing survey responses were broadly similar, with a higher proportion of pedestrians considering themselves to have a disability, as described in the Equality Act 2010, compared to cyclists. Overall around 91% of pedestrian respondents and 96% of cyclist respondents reported that they did not have a disability. The pedestrian sample closely resembles the 11% of Londoners who say they are disabled[3].

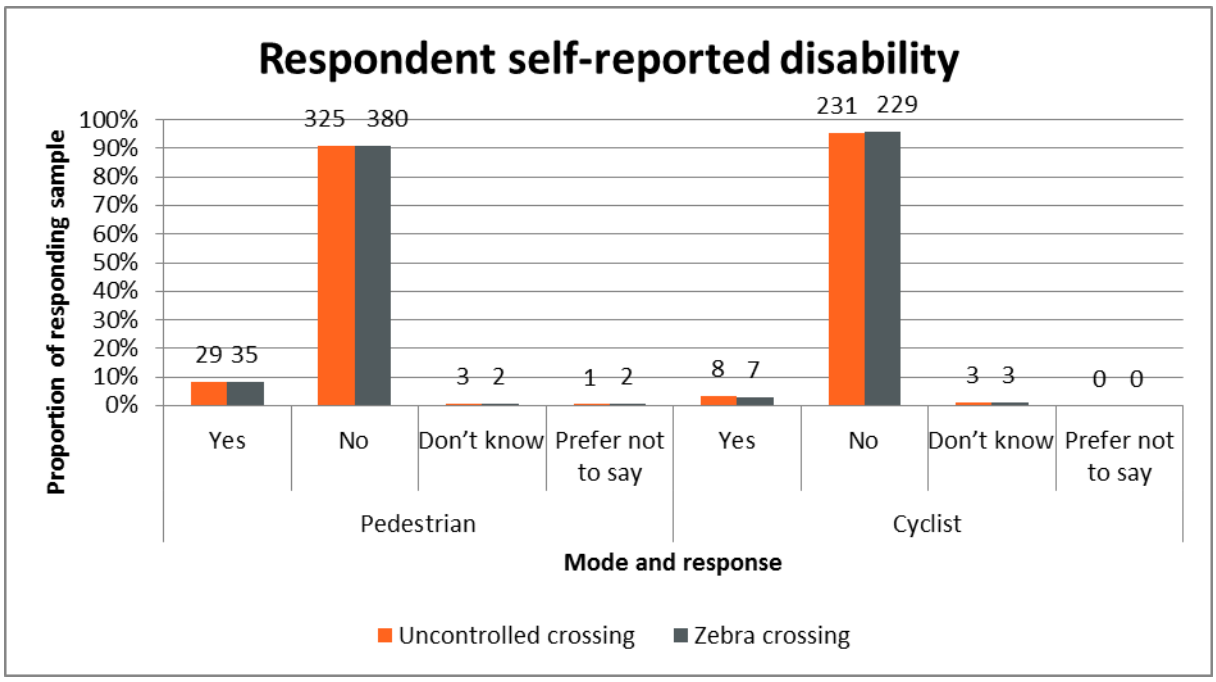

Figure 23 Respondent disability (uncontrolled crossing Ped N = 358, uncontrolled crossing Cyc N = 242, zebra crossing Ped N = 419, zebra crossing Cyc N = 239)

Of the total sample of 969 respondents in the uncontrolled crossing and zebra crossing surveys, 62 (6.4%) self-reported a disability. Occasionally these individuals would report more than one (see Table 12 for a split of reported disabilities – not a count of individual people), and overall there was no significant change in the number of individual people stating they had a disability between the uncontrolled crossings and zebra crossings. Furthermore of the 27 uncontrolled crossing respondents in this group, 3 respondents stated that they occasionally use a wheelchair to travel around London, with the 35 zebra crossing respondents also having 3 wheelchair users. The figures reveal that around 0.6% of respondents were wheelchair users which this is less than the approximately 2% of the general UK population reported by the Papworth Trust[4]. The proportion of wheelchair users of London buses is not known therefore the representativeness of the sample is also unknown. A separate element of this research, in a separate report, specifically addressed the needs of disability groups most likely affected by bus stop bypasses.

[3] TfL, 2012, *Understanding the travel needs of London's diverse communities – Disabled People*.

[4] Papworth Trust, 2016: *Disability in the United Kingdom 2016 Facts and figures*

Table 12 Disability types reported by respondents

Disability type from TfL list	Uncontrolled crossing responses	Zebra crossing responses
Hearing impairment	3	2
Visual impairment	4	3
Speech impairment	0	0
Mobility impairment	13	13
Physical co-ordination difficulties	1	3
Reduced physical capacity	2	14
Severe disfigurement	0	0
Learning difficulties (e.g. dyslexic)	2	4
Mental ill health	4	2
Progressive conditions	2	2
Other (please specify)	3	3

Reasons were not always given for those responding with “Other”, however when provided they included rheumatism, epilepsy, heart attack and diabetes.

3.5 Reason for travel

Participants were asked why they were taking their journey (Figure 24). Around 75% of cyclist respondents and 46% of pedestrian respondents were predominately travelling to or from work.

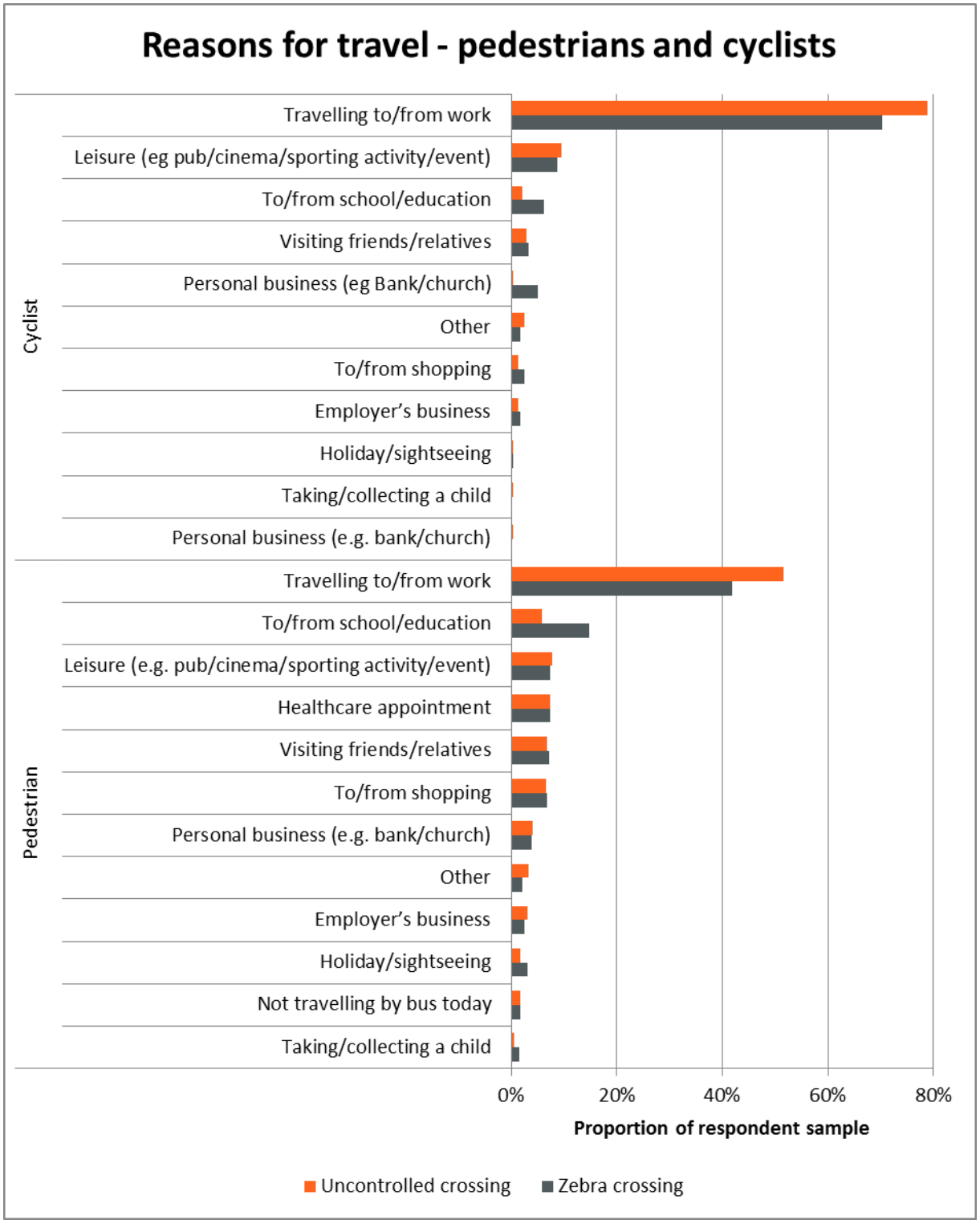

Figure 24 Journey purpose (uncontrolled crossing Ped N = 366, uncontrolled crossing Cyc N = 242, zebra crossing Ped N = 418, zebra crossing Cyc N = 239)

Cyclist respondents were asked “Q5: How often do you usually cycle past this bus stop?” (see Figure 25), and around 78% of cyclists reported doing so more than once per week. The frequency of use changed slightly between the uncontrolled crossings and the installation of the zebra crossings, which may reflect (for those responding “This is the first time”) that more of the population will have had time to experience passing the study bus stop by the time the zebra crossing study was undertaken. More people appear to be using it less frequently in the zebra crossing survey than in the uncontrolled crossing survey but the reasons for this are not understood.

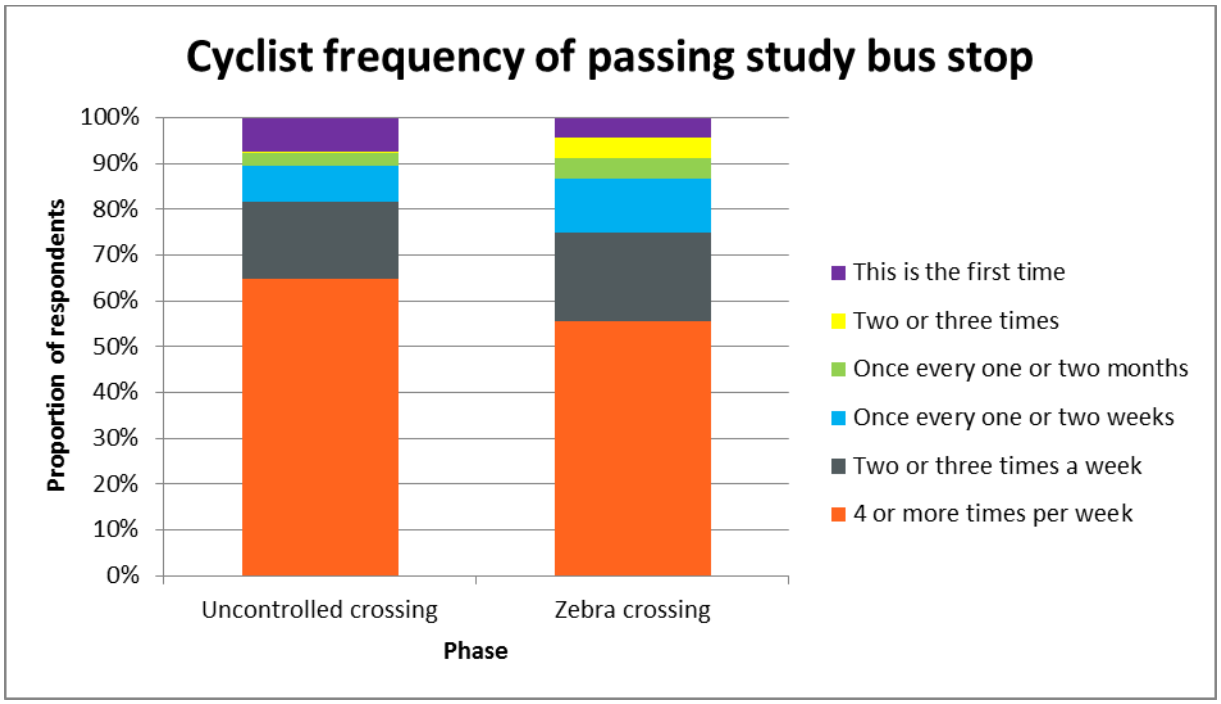

Figure 25 Frequency of cyclists passing the study bus stop (uncontrolled crossing Cyc N = 245, zebra crossing Cyc N = 239)

Cyclists were also asked to comment upon their response to Q5, however the comments were few and largely unrevealing. Note that because the sample is entirely from cyclists on the cycle track by the bus stop bypasses, it does not capture the thoughts of those cyclists who might avoid the cycle track.

Pedestrian respondents were asked “Q6: In the last year, how often have you used this bus stop?” (see Figure 26), with around 54% of pedestrians reporting that they used the bus stop more than once per week. The findings indicate a stable frequency of use in both the uncontrolled crossing and zebra crossing surveys.

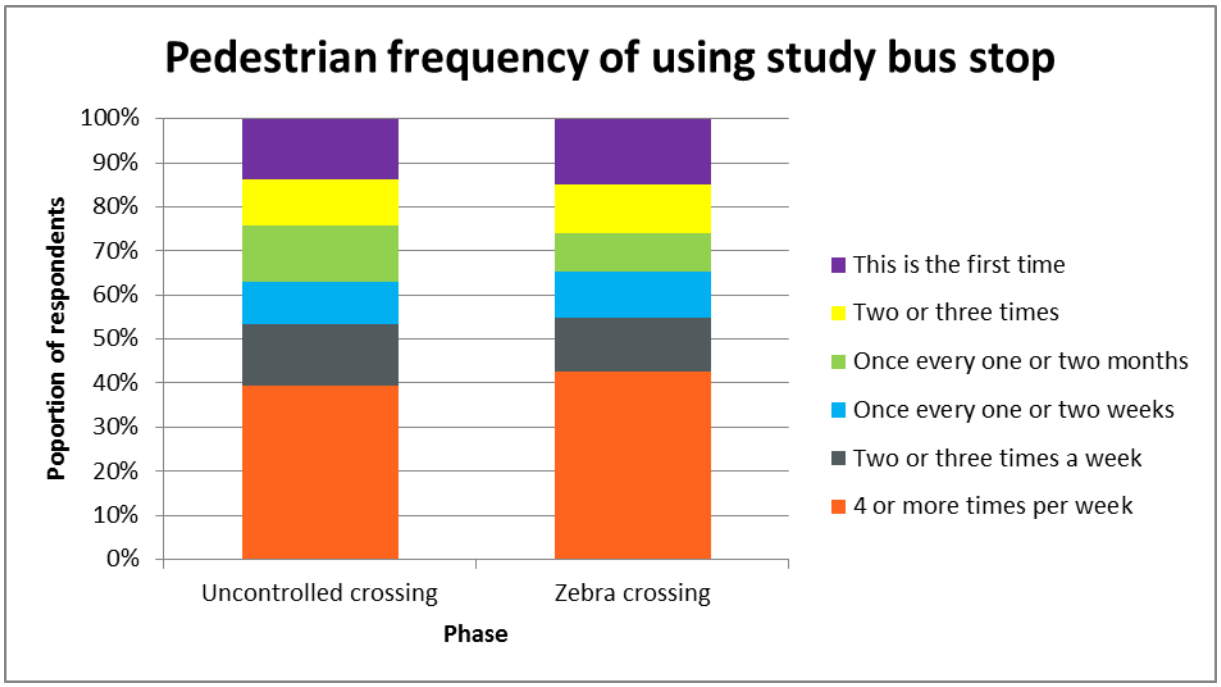

Figure 26 Frequency of pedestrians using the bus stop (uncontrolled crossing Ped N = 482, zebra crossing Ped N = 468)

3.6 Pedestrian use of buses per week

To gain an understanding of the level of bus use, and therefore the general understanding that respondents have of using buses, pedestrian respondents were asked "Q10. How many trips do you usually make by bus in an average week?". The responses (shown in Figure 27) reveal that in both the uncontrolled crossing and zebra crossing surveys the majority of respondents were regular bus users, with around 91% of pedestrian respondents reporting using a bus more than once per week.

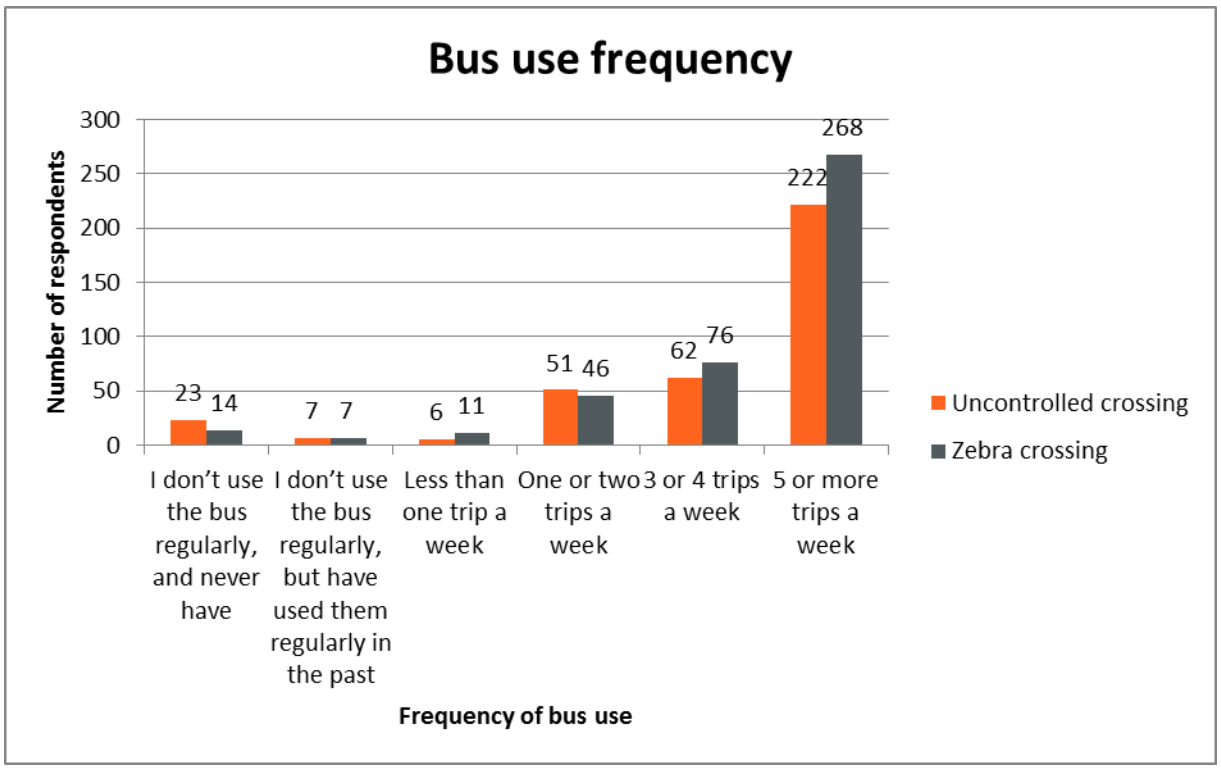

Figure 27 Pedestrian use of buses per week (uncontrolled crossing N = 222, zebra crossing N = 268)

3.7 Pedestrian activity at the time of the survey

Pedestrian respondents' activity at the time of the survey was recorded by the enumerator, with the results shown in Figure 28. The results reflect the relative challenge of engaging pedestrians alighting from the bus when compared with. the captive audience of those waiting for buses.

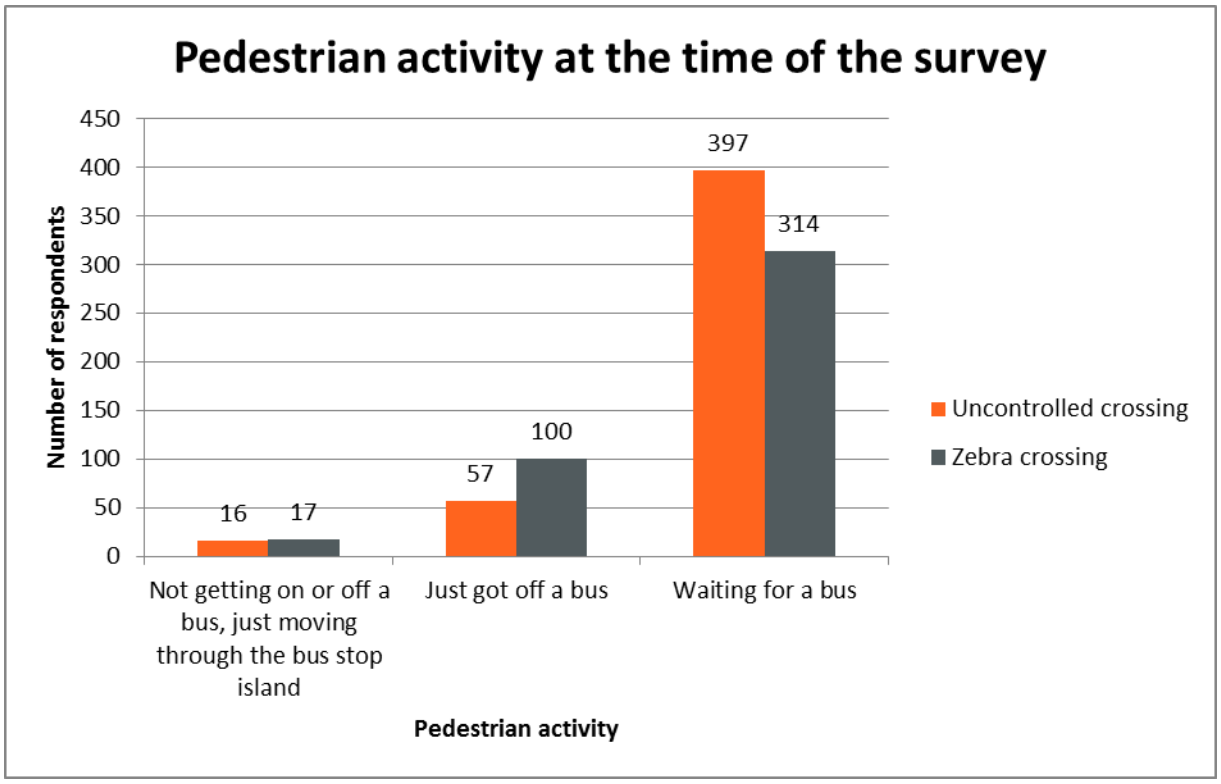

Figure 28 Pedestrian activity at the time of the survey (uncontrolled crossing N = 470, zebra crossing N = 431)

3.8 Pedestrian walking aids

Pedestrian respondents' walking aids at the time of the survey were recorded by the enumerator, with 20 in the uncontrolled crossing survey and 18 in the zebra crossing survey (see Table 13). This excludes respondents with no walking aids.

Table 13 Pedestrian walking aids

Walking aid type	Uncontrolled crossing	Zebra crossing
Crutches	1	0
One walking stick	15	11
Two walking sticks	1	0
Pram/pushchair	1	6
Walking frame	1	0
Wheelchair	1	1

3.9 Pedestrian encumberment

Any pedestrian respondents' with an encumberment at the time of the survey was recorded by the enumerator, this being on average around 18% of respondents. The results are shown in Figure 29. Those with wheeled items comprise on average 5% of the sample. The figure excludes those with no encumberment.

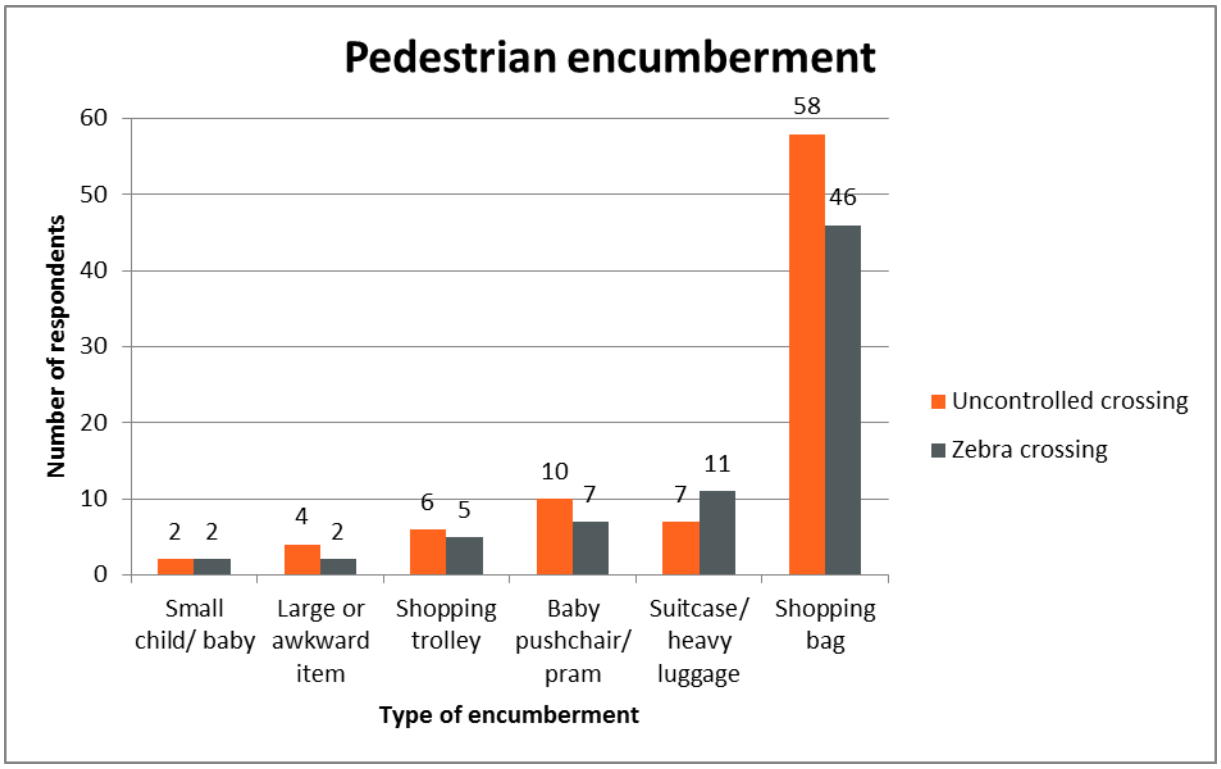

Figure 29 Pedestrian encumberment (uncontrolled crossing N = 462, zebra crossing N = 425)

3.10 Pedestrians accompanied by others

Pedestrian respondents' who were accompanied by others at the time of the survey was recorded by the enumerator, with the results shown in Table 14. The majority of respondents were travelling alone.

Table 14 People accompanying pedestrian respondents (uncontrolled crossing N = 464, zebra crossing N = 423)

Accompanying the respondent	Uncontrolled crossing	Zebra crossing
Older person	1	2
Children 12-16 years	2	2
Baby	4	1
Person with mental/ physical impairment	2	3
Children 5-11 years	5	3
Toddler/ pre-school	9	4

Other adult	18	24

3.11 Cycle trips per week

Cyclist respondents were asked "Q10. How many trips do you usually make by bicycle in an average week?", and responses are shown in Figure 30. This indicates that the majority (99%) of cyclist respondents are very regular cyclists with more than one trip per week which gives confidence to the findings of this study.

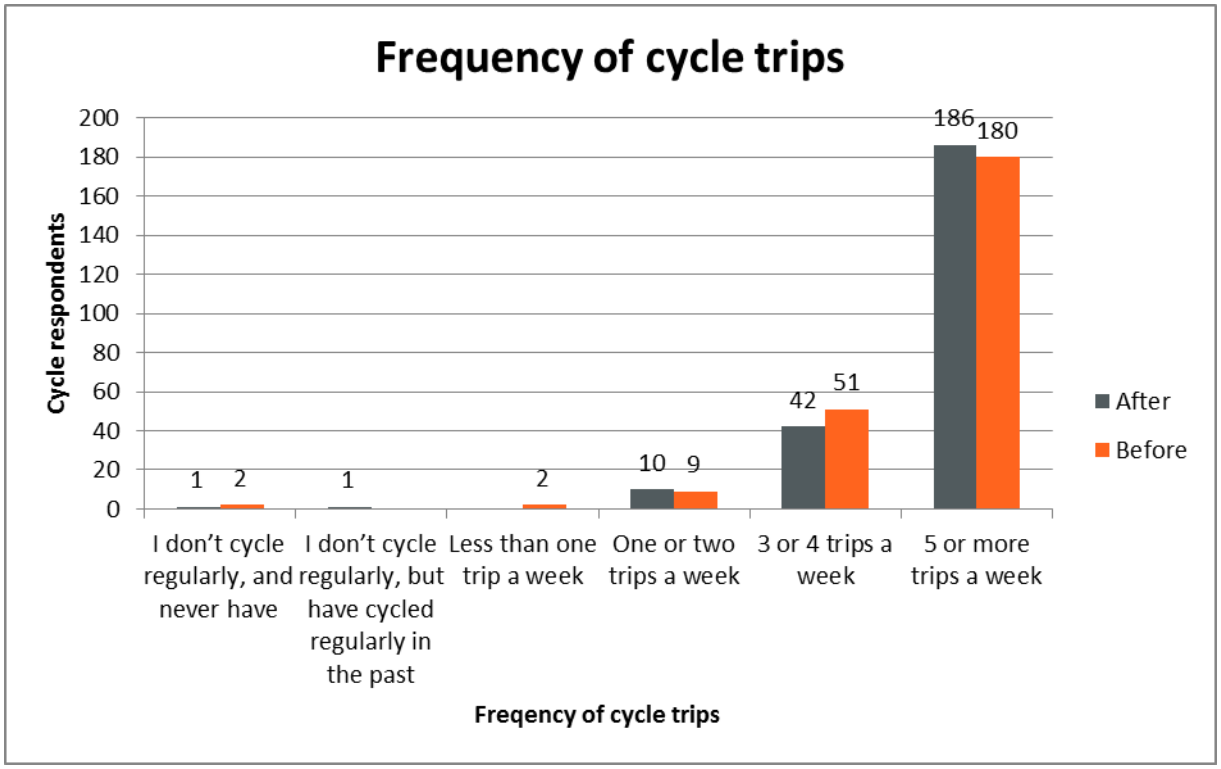

Figure 30 Frequency of cycle trips (uncontrolled crossing N = 244, zebra crossing N = 240)

3.12 Cycle journey purpose

Cyclist respondents were asked "Q11. Thinking about the journey you made by bicycle today, what is your MAIN reason for making this journey?". The responses are shown in Table 15.

Table 15 Purpose of cycling journey

	Uncontrolled crossing	Zebra crossing
Taking/collecting a child	1	
Holiday/sightseeing	1	1
Personal business (e.g. bank/church)	2	12
Employer's business	3	4
To/from shopping	3	6
To/from school/education	5	15
Other	6	4
Visiting friends/relatives	7	8
Leisure (e.g. pub/cinema/sporting activity/event)	23	21
Travelling to/from work	191	168
Total	242	239

3.13 Cyclist direction of travel

Cyclist respondents' direction of travel was also measured. All cyclists responding at the 1-way sites (Stratford and Whitechapel) were travelling in the correct direction for the track. At the Blackfriars Road sites which allow travel in both directions a roughly even split was sought and obtained.

Appendix A Research Question

Facility type /Workstream	ID	Research Question	Contextual issues to consider or 'observation only' issues	Data source	Methodology	Sample	Expected outcome
Bus Stop Bypass	RQ3	For a) cyclists and b) pedestrians (whether or not they are accessing a bus) passing through the bus stop area: - how safe and comfortable do they feel? - how easy is it to use / pass through? - did they notice the crossing? - would they prefer an uncontrolled or zebra crossing? Compare details with CS2x questionnaire – to be provided by Katherine Blair		Questionnaire /survey	Will stop pedestrians and cyclists at the site and use pictures on a clipboard to ask limited questions.	Survey a minimum of 80 pedestrians (40 using the bus, and 40 passing along through the area) and 40 cyclists at each site.	An understanding of the views of pedestrians and cyclists towards the bus stop bypass.

Appendix B Bus Stop Bypass Pedestrian Survey

Instructions for staff:

- Ensure that the correct form is used, with images which match the site.
- Complete a minimum of 80 pedestrian surveys at this site.
- To complete a survey, approach pedestrians who have either;
    - crossed the cycle track from the footway in order to wait for a bus
    - crossed the cycle track from the island, having disembarked from a bus
    - crossed the cycle track from either direction without using a bus (i.e. they crossed to walk along the island or to cross the carriageway)
- Aim for a representative sample of each of these three types of pedestrian. You may have to move between the island and the footway in order to do this. When standing on the island, remember not to block the path of pedestrians getting on or off the bus
- Before completing a survey, ensure that participants are aged 18 or over, and that they give full informed consent to participate.
- Complete one form for each participant.
- Read out the questions to the participant, writing the answers they give in the space provided.
- Use the pictures on the form and/or point to relevant parts of the bus stop bypass area to explain specific features of the bus stop bypass which are in question.
- Remember to thank the respondent after the survey.

Information for participant (to be read by surveyor):

The survey shouldn't take more than 5 minutes. There are a maximum of six short multiple choice questions and two more open questions to answer. There will then be some questions about you to answer at the end. To start with, I will read out the question; please then indicate your answer, thinking about this bus stop and your experience using it as a pedestrian.

If you would like me to repeat the question or if you have any questions at any time, please just ask.

The survey will take a few minutes to complete. The information you provide will be completely anonymous, and will be used to provide feedback on the design of bus stops like this to Transport for London.

You are free to stop taking part in the survey at any time. Before we begin, can I ask you to please confirm that you are:

a) Over the age of 18?

b) Happy to proceed with this survey?

Bus Stop Bypass Pedestrian Survey

Site …… Interviewer…….Date……

☐ **Over 18**

☐ **Consent obtained to proceed**

This survey is being conducted on behalf of Transport for London and is about the Bus Stop Bypass which has been installed at this site.

Q1: When you were walking to or from the bus stop, did you notice this crossing?
(SHOW IMAGE OF CROSSING AT THE SITE/OR POINT TO IT)
☐ Yes, I noticed the crossing
☐ No, I did not notice the crossing

Q2: Did you use the crossing?
☐ Yes, I did use the crossing
☐ No, I did not use the crossing

Q2a: If YES, why did you use it? (free text)

Q2b: If NO, why didn't you use it? (free text)

Q3: Regarding this crossing…: (SHOW IMAGE OF CROSSING OR POINT TO IT AGAIN)**…who do you think has priority at this crossing?**
☐ Neither cyclists nor pedestrians have priority
☐ Cyclists have priority
☐ Pedestrians have priority
☐ I'm not sure

Q3a comments:

Q4: There is a track which runs past the bus stop which looks like this… (SHOW IMAGE OF CYCLE TRACK OR POINT TO IT)…**Who do you think has priority on this track?**

- ☐ Neither cyclists nor pedestrians have priority
- ☐ Cyclists have priority
- ☐ Pedestrians have priority
- ☐ I'm not sure

Q4a comments:

Q5: Thinking about how you just crossed, how safe or unsafe do you feel crossing to or from the bus stop here?

- ☐ Very safe
- ☐ Quite safe
- ☐ Neither safe nor unsafe
- ☐ Quite unsafe
- ☐ Very unsafe
- ☐ I'm not sure

Q5a comments:

Q6: In the last year, how often have you used this bus stop?

- ☐ This is the first time
- ☐ Two or three times
- ☐ Once every one or two months
- ☐ Once every one or two weeks
- ☐ Two or three times a week
- ☐ 4 or more times per week

Q6a comments:

Q7: Do you have any other comments about this bus stop?

Self-completion demographic questions

THE FOLLOWING QUESTIONS SHOULD BE SELF-COMPLETED BY PARTICIPANTS, AS FAR AS POSSIBLE.

Q8. Please state your age:

☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65-74 ☐ 75 or over
☐ Prefer not to say

Q9. Please state your gender:

☐ Male ☐ Female
☐ Prefer not to say

Q10. How many trips do you usually make by bus in an average week? (For example, a journey from home to the shops and back home would count as one trip.)

☐ I don't use the bus regularly, and never have
☐ I don't use the bus regularly, but have used them regularly in the past
☐ Less than one trip a week
☐ One or two trips a week
☐ 3 or 4 trips a week
☐ 5 or more trips a week

Q11. IF YOU ARE TRAVELLING BY BUS TODAY: Thinking about the journey you made (or will make) today by bus, what is your MAIN reason for making this journey? (Please tick one)

☐ Travelling to/from work
☐ To/from school/education
☐ Visiting friends/relatives
☐ Employer's business
☐ Leisure (e.g. pub/cinema/sporting activity/event)
☐ Holiday/sightseeing
☐ To/from shopping
☐ Taking/collecting a child
☐ Personal business (e.g. bank/church)
☐ Healthcare appointment
☐ Other
☐ Not travelling by bus today

Q12. To which of these ethnic groups do you consider you belong?

☐ White
☐ Mixed
☐ Asian or Asian British
☐ Black or Black British
☐ Any other ethnic group
☐ Prefer not to say
☐ Don't know

A disabled person is defined under the Equality Act 2010 as someone with a 'physical or mental impairment which has a substantial and long term adverse effect on that person's ability to carry out normal day-to-day activities.'

Q13. Do you consider yourself to be disabled under the Equality Act 2010?

☐ Yes
☐ No
☐ Don't know
☐ Prefer not to say

Q13a. If you answered YES, please mark all that apply below:

☐ Hearing impairment
☐ Visual impairment
☐ Speech impairment
☐ Mobility impairment
☐ Physical co-ordination difficulties
☐ Reduced physical capacity
☐ Severe disfigurement
☐ Learning difficulties (e.g. dyslexic)
☐ Mental ill health
☐ Progressive conditions
☐ Other (please specify)

Q13b. If you answered YES, do you ever use a wheelchair when travelling around London?

☐ Yes
☐ No

Researcher observations

Q14. At the time of the survey, the participant pedestrian was:

☐ Waiting for a bus

☐ Just got off a bus

☐ Not getting on or off a bus, just moving through the bus stop island

Q15. Was the respondent using any of the following?

☐ Walking frame
☐ One walking stick
☐ Two walking sticks
☐ Wheelchair
☐ Mobility scooter
☐ Guide dog
☐ White stick/cane
☐ Crutches
☐ Pram/pushchair
☐ None

Q16. Was the respondent encumbered with/using any of the following?

☐ Shopping bag
☐ Shopping trolley
☐ Small child/ baby
☐ Suitcase/ heavy luggage
☐ Large or awkward item
☐ Baby pushchair/ pram
☐ None

Q17. Was the respondent accompanied by any of the following?

☐ Baby
☐ Toddler/ pre-school
☐ Children 5-11 years
☐ Children 12-16 years
☐ Elderly person
☐ Person with mental/ physical impairment
☐ None
☐ Other adult (Specify number of other adults and write in box below)

Appendix C Bus Stop Bypass Cyclist Survey

Instructions for staff:

- Ensure that the correct form is used, with images which match the site.
- Complete a minimum of 40 cyclist surveys at this site.
- To complete a survey, approach cyclists who are using the bus stop bypass (i.e. cycling in the cycle track), and approach them downstream of the bus stop at a previously assessed location that will guard your and their safety. Ensure you are clearly visible to them when attracting their attention, but do not step into the path of an upcoming cyclist; allow plenty of space and time for the cyclist to come to a controlled stop. Ensure that you are stopping cyclists at a location that does not cause obstruction to other road users.
- If the BSB cycle track is two-way, try to get a split of cyclists travelling in each direction.
- Before completing a survey, ensure that participants are aged 18 or over, and that they give full informed consent to participate.
- Complete one form for each participant.
- Read out the questions to the participant, writing the answers they give in the space provided.
- Use the pictures on the form and/or point to relevant parts of the bus stop bypass area to explain specific features of the bus stop bypass which are in question
- Remember to thank the participant after the survey.

Information for participant (to be read by surveyor):

There are six short multiple-choice questions and one open question to answer. There will then be some questions about you to answer at the end. To start with, I will read out the questions; please then indicate your answer, thinking about the Bus Stop you have just passed and your experience using it as a cyclist.

If you would like me to repeat the question or if you have any questions at any time, please just ask.

The survey will take a few minutes to complete. The information you provide will be completely anonymous, and will be used to provide feedback on the design of bus stops like these to Transport for London.

You are free to stop taking part in the survey at any time. Before we begin, can I ask you to please confirm that you are:

a) Over the age of 18?

b) Happy to proceed with this survey?

Bus Stop Bypass Cyclist Survey

Site …… Interviewer……Date……

☐ **Over 18**

☐ **Consent obtained to proceed**

This survey is being conducted on behalf of Transport for London and is about the Bus Stop Bypass which has been installed at this site.

Q1: There is a crossing to the bus stop that you just passed which looks like this: SHOW IMAGE OF CROSSING AT THE SITE. **Who do you think has priority at this crossing?**

☐ Neither cyclists nor pedestrians have priority
☐ Cyclists have priority
☐ Pedestrians have priority
☐ I'm not sure

Q1a comments:

Q2: When you were cycling past the bus stop, did you notice this crossing to the bus stop?

☐ Yes, I noticed the crossing
☐ No, I did not notice the crossing

Q3: There is a track which you have just come down which runs past the bus stop which looks like this: SHOW IMAGE OF CYCLE TRACK OR POINT…**Who do you think has priority on this track?**

☐ Neither cyclists nor pedestrians have priority
☐ Cyclists have priority
☐ Pedestrians have priority
☐ I'm not sure

Q3a comments:

Q4: Did the presence of the bus stop affect the way you rode?

☐ Yes
☐ No

Q4a comments:

Q5: In the last year, how often have you cycled past this bus stop?

- ☐ This is the first time
- ☐ Two or three times
- ☐ Once every one or two months
- ☐ Once every one or two weeks
- ☐ Two or three times a week
- ☐ 4 or more times per week

Q5a comments:

Q6: How safe or unsafe do you feel using this cycle track behind the bus stop?

- ☐ Very safe
- ☐ Quite safe
- ☐ Neither safe nor unsafe
- ☐ Quite unsafe
- ☐ Very unsafe
- ☐ I'm not sure

Q6a comments:

Q7: Do you have any other comments about this bus stop layout?

Self-completion demographic questions

THE FOLLOWING QUESTIONS SHOULD BE SELF-COMPLETED BY PARTICIPANTS, AS FAR AS POSSIBLE.

Q8. Please state your age:

☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65-74 ☐ 75 or over

☐ Prefer not to say

Q9. Please state your gender:

☐ Male ☐ Female

☐ Prefer not to say

Q10. How many trips do you usually make by bicycle in an <u>average</u> week? (For example, a journey from home to the shops <u>and back home</u>, would count as one trip.)

☐ I don't cycle regularly, and never have

☐ I don't cycle regularly, but have cycled regularly in the past

☐ Less than one trip a week

☐ One or two trips a week

☐ 3 or 4 trips a week

☐ 5 or more trips a week

Q11. Thinking about the journey you made by bicycle today, what is your MAIN reason for making this journey? (Please tick ONE)

☐ Travelling to/from work

☐ To/from school/education

☐ Visiting friends/relatives

☐ Employer's business

☐ Leisure (e.g. pub/cinema/sporting activity/event)

☐ Holiday/sightseeing

☐ To/from shopping

☐ Taking/collecting a child

☐ Personal business (e.g. bank/church)

☐ Healthcare appointment

☐ Other

Q12. To which of these ethnic groups do you consider you belong?

☐ White

☐ Mixed

☐ Asian or Asian British

☐ Black or Black British

☐ Any other ethnic group

☐ Prefer not to say
☐ Don't know

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Q13. Do you consider yourself to be disabled under the Equality Act 2010?
☐ Yes
☐ No
☐ Don't know
☐ Prefer not to say

Q13a. If you answered YES, please mark all that apply below:
☐ Hearing impairment
☐ Visual impairment
☐ Speech impairment
☐ Mobility impairment
☐ Physical co-ordination difficulties
☐ Reduced physical capacity
☐ Severe disfigurement
☐ Learning difficulties (e.g. dyslexic)
☐ Mental ill health
☐ Progressive conditions
☐ Other (please specify)

Q14. If you answered YES, do you ever use a wheelchair when travelling around London?
☐ Yes
☐ No

Researcher observations

Q15. At the time of the survey, the participant cyclist was:

Cycling in the cycle track:

☐ With the flow of vehicular traffic in adjacent lane
☐ Against the flow of vehicular traffic in adjacent lane

Appendix D Bus Stop Bypass study sites in uncontrolled crossing and zebra crossing configurations

The photographs below indicate (from video cameras) the uncontrolled crossing and zebra crossing configurations at each of the six BSB study sites.

Whitechapel J Uncontrolled

Whitechapel J Zebra

Whitechapel A Uncontrolled

Whitechapel A Zebra

Stratford J Uncontrolled

Stratford J Zebra

Stratford M Uncontrolled 	Stratford M Zebra 
Blackfriars SA Uncontrolled 	Blackfriars SA Zebra 
Blackfriars U Uncontrolled 	Blackfriars U Zebra 

Bus Stop Bypasses

Bus Stop Bypasses have been introduced over the past few years at sites on London's Cycle Superhighways to facilitate the segregation of cyclists from general traffic. A Bus Stop Bypass routes the cycle track behind a bus stop thus allowing cyclists to avoid the challenges of overtaking stopped buses. This physical layout requires that the path of cyclists and those pedestrians boarding and alighting buses will cross, leading to potentially new interactions between them where pedestrians cross the cycle track. A study was undertaken by TRL to compare the impacts on pedestrian and cyclist behaviour and perceptions of two different crossing types – uncontrolled crossings and zebra crossings. This report describes the findings from user surveys. The findings from video observations, and accompanied visits with disabled people, are reported separately.

Surveys were undertaken of both pedestrians and cyclists at six Bus Stop Bypass sites across London, both in uncontrolled crossing and zebra crossing configurations.

Regarding the impact of introducing the zebra crossings at the study sites, the most significant findings were as follows:

1. More people believe pedestrians have priority at the crossing

2. More pedestrians use the crossing

3. There were only small increases in the number of people noticing the crossing

4. Belisha beacons at two of the study sites appear to have made little difference in user perceptions of the crossings

5. There were some increases in pedestrians' stated comfort and safety following the introduction of a zebra crossing

6. Zebra crossings have some impact on the way people cycle through the bus stop area

TRL
Crowthorne House, Nine Mile Ride,
Wokingham, Berkshire, RG40 3GA,
United Kingdom
T: +44 (0) 1344 773131
F: +44 (0) 1344 770356
E: enquiries@trl.co.uk
W: www.trl.co.uk

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