APPENDIX 1

Tweenaway Cross



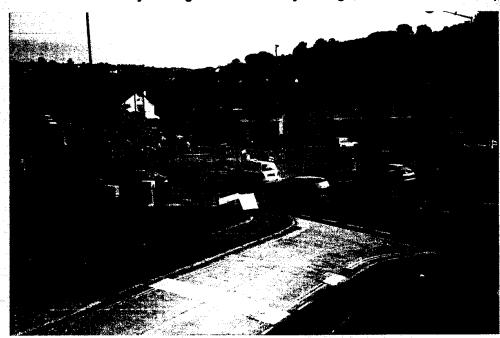
Paignton, Torbay
Junction Improvement Scheme
June/July 2004

The objective of this consultation leaflet is to obtain comments from:

- Organisations representing local people
- Organisations representing local business
- Members of the Public
- Other interested parties



Exhibition 1st - 3rd July at Paignton Community College, Waterleat Road Campus



Have Your Say - Please Complete the Questionnaire Enclosed

Leaflet Produced by Parsons Brinckerhoff Ltd
On behalf of Torbay Council



The Problem

INTRODUCTION

Tweenaway Cross is a key junction along the ring road in Torbay and is recognised in the Torbay Local Plan as one of two major junctions (including Windy Corner), which restricts traffic flow along the Western Corridor.

A study has been undertaken to review the existing traffic movements and demands imposed on the junction. Several improvement schemes, taking into account all road users, have been developed. These provide additional capacity at the junction to accommodate predicted traffic growth including traffic from the proposed developments to the south of the junction at Long Road South and Yalberton Road.

We want to take account of the opinions of the public who have an interest in finalising the improvement strategy for Tweenaway Cross. This leaflet provides information on the options considered and suggests a preferred strategy for improvements to the junction.

An exhibition is scheduled for the 1 - 3 July at Paignton Community College, where representatives from Torbay Council and Parsons Brinckerhoff will be available to discuss possible improvement options and receive comments.

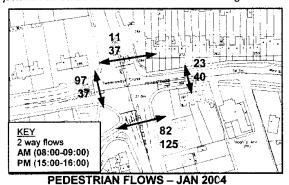
EXISTING PROBLEM

The existing problem can be split into 3 key areas: pedestrians, accidents and congestion.

Pedestrians

Pedestrian activity at the junction is high and the majority of this can be attributed to pupils at Paignton Community College.

The diagram below indicates the pedestrian movements recorded across the junction in January 2004 for the peak hours. This shows a high demand on most arms of the junction as students walk to and from the college.



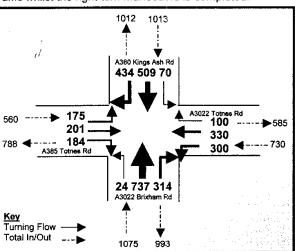
Accidents

An accident analysis shows that there are on average 3 Personal Injury Accidents in the vicinity of the junction a year, of which 1 a year involves a pedestrian. Although this is broadly typical for a junction of this type, there is a need to reduce the amount of accidents that occur to meet Government targets.

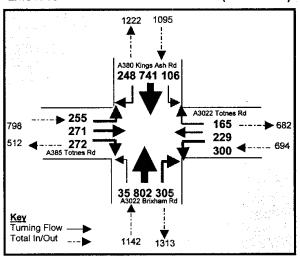
Congestion

Congestion is currently experienced at the junction in peak periods and throughout the summer months.

A full junction traffic count was undertaken in October 2001, which indicated the main movements at the junction to be between Kings Ash Hill and Brixham Road. The turning movements at the junction are shown in the diagrams below, and show relatively high right turn movements off the main road, which could result in blocking back of the main road traffic whilst the right turn manoeuvre is completed.



EXISTING TRAFFIC FLOWS - AM PEAK (08:00-09:00)



EXISTING TRAFFIC FLOWS - PM PEAK (17:00-18:00)

Traffic approaching the junction is restricted by the capacity of the approach roads and adjacent junctions. Any junction improvement should be in line with the capacity of the local road network.

The high pedestrian and traffic flows in the peak periods conflict with each other and add to the congestion already experienced at the junction.

The Problem

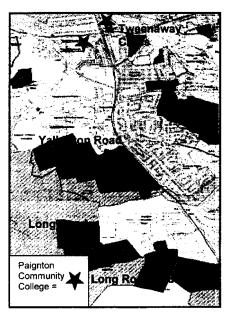
FUTURE PROBLEM

Future Development

The Revised Deposit Version of the Torbay Local Plan identifies a large amount of employment development allocated along the Western Corridor, to the south of Tweenaway Cross.

The approximate size of the allocated developments highlighted in the map below are as follows:

- Yalberton Road 17 Hectares
- Long Road 6 Hectares
- Long Road South 12 Hectares



As the junction is already congested, any increase in traffic will further exacerbate the existing situation.

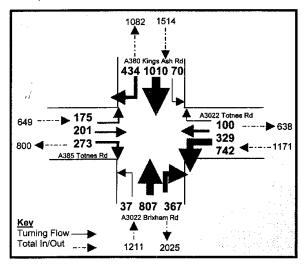
Developers will have to provide improvements to junctions and possible links on Brixham Road in the vicinity of their developments for all road users (pedestrians, cyclists, buses and cars).

An assessment of the impact of this development on the road network has been undertaken for the future year of 2011. This indicates that 75% of all traffic from these developments will pass through Tweenaway Cross junction, as it forms a key route to and from the north, east and west of Torbay.

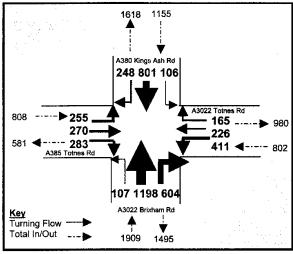
These assessments also assume a high level of mode split, i.e. people converting to other modes of transport, such as buses, car share, walking, etc to undertake their journey.

Future Traffic

Comparison of the current and forecasted traffic flows, indicates that traffic is predicted to increase, on average, by a third at Tweenaway Cross Junction. The main increase occurs on Brixham Road where flows increase by around half in the peak hours due to the planned development.



2011 TRAFFIC FLOWS - AM PEAK (08:00-09:00)



2011 TRAFFIC FLOWS - PM PEAK (17:00-18:00)

The additional traffic on the network from the developments results in Kings Ash Road operating over its predicted capacity in the peak periods.

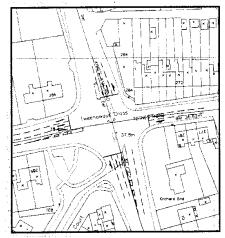
To accommodate the predicted level of traffic at the junction in 2011, an improvement to the existing layout of Tweenaway Cross junction is required.

Without an improvement, the operation of the junction would deteriorate further and this may prohibit future development.

Junction Improvement Options

Improvement Options

The following options have been considered for improvements to Tweenaway Cross, in terms of the level of capacity provided, pedestrian improvement options, benefits for all users of the junction and cost. All costs given in this section are estimates and could be subject to change.



Option 1: Do Nothing

This option means doing nothing at the junction and any congestion currently experienced at the junction will be amplified due to the additional development traffic.

Degree of Saturation: 120% Cost: £0

ADVANTAGES

No cost involved involves no land take

DISADVANTAGES

Severe congestion in peak periods No improvement for pedestrians Will probably prohibit development

Option 2: Local Plan Inquiry Scheme

This option involves minor widening of the junction approaches.

Cost: £1.5m Degree of Saturation: 107%

ADVANTAGES

Relatively inexpensive

Minimum land-take

Accommodates almost all of the Local Plan development until 2011

In balance with capacity of local road network

DISADVANTAGES

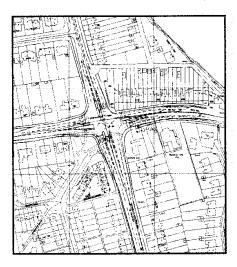
No improvement for pedestrians, buses and cyclists

Does not provide for traffic growth

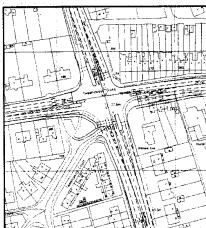
after 2011

Still some congestion in peak

periods.



NB: This is suggested option of improvements for vehicles.



Option 3: Large Signalised Junction

Major widening of the junction.

Degree of Saturation: 90% Cost: £3.1m

ADVANTAGES

Adequate capacity in 2011 and

beyond

Bus priority can be incorporated

Large land take, approximately 102 properties affected and may make

scheme undeliverable

DISADVANTAGES

No improvement for pedestrians

Junction Improvement Options

Option 4: Signalised Roundabout

This option takes the form of a large signalised square type roundabout.

Degree of Saturation: 76% Cost: £5.1m

ADVANTAGES

Increased vehicular capacity compared to Option 3

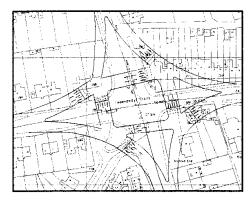
Pedestrians cross through centre of junction

Bus priority can be incorporated

DISADVANTAGES

Cost of land purchase and with 58 properties affected may make scheme undeliverable

Crossing procedure for pedestrians is complicated



Waterleat Road Borough Road Tweenaway Cross

Option 5: Diversion via Side Roads

This option involves diverting some turning movements around the junction onto adjacent side roads; minor improvements will be required to the side roads to allow this.

Cost: £0.5m Degree of Saturation: 105%

ADVANTAGES

Easier for pedestrians to cross junction

Inexpensive

Takes some traffic away from junction removing need to widen approaches

DISADVANTAGES

Nearby roads unsuitable for increased traffic

Adverse impact on safety for the nearby schools and on residential amenity

inappropriate Potentially between these roads and the main road junction improvements

Option 6: Flyover

Building of a flyover for traffic separating the north/south straight ahead traffic.

Degree of Saturation: 81% Cost: £10m

ADVANTAGES

Increased vehicular capacity post 2011

Bus priority can be incorporated

Road safety advantage in removing vehicular conflicts

Easier for pedestrians to negotiate

DISADVANTAGES

Expensive

Significant construction disruption

Amenity problem for over 100 properties





Option 7: Displaced Right Turn

This option involves taking the right turn movements away from the junction, displacing them further back from the junction to create extra capacity.

Cost: £4m Degree of Saturation: 91%



Increased vehicular capacity post 2011

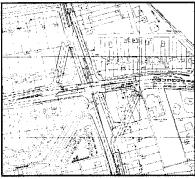
Bus priority can be incorporated

DISADVANTAGES

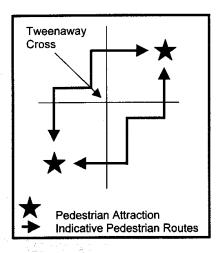
Unconventional road layout

Relatively expensive

Cost of land purchase, properties affected, may make scheme undeliverable



Pedestrian Options



Pedestrian Option 1: Displaced Movements

This option involves removing the pedestrian movements upstream of the junction, where the road will be narrower and pedestrians will have a shorter crossing distance. The additional displaced pedestrian crossings will be linked with the existing signals at the junction.

ADVANTAGES

DISADVANTAGES

Inexpensive

for Increased inconvenience pedestrians

Reduces potential for conflicts with pedestrians and vehicles at junction

Risk that pedestrians may still choose to cross at junction

Increases capacity of junction

NB: This is the suggested option for pedestrian improvements.

Pedestrian Option 2: Footbridge

This option involves the provision of a footbridge from the southwest side of the junction diagonally across the junction to the northeast side.

ADVANTAGES

Increases capacity of junction

Grade separation of pedestrians from vehicular traffic

Reduces potential for conflicts with pedestrians and vehicles at junction

DISADVANTAGES

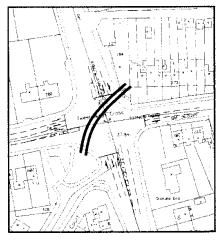
Relatively expensive

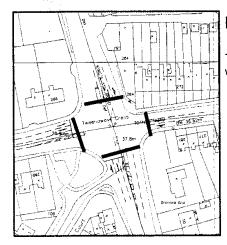
Height of bridge will cause adverse visual intrusion

Risk that pedestrians may still choose to cross at junction

Increased inconvenience for pedestrians

Scheme previously rejected at Inquiry





Pedestrian Option 3: Walk With Traffic Facilities

This option is currently in place and involves pedestrian movements permitted whilst traffic on that arm is on red waiting for a conflicting traffic movement to finish.

ADVANTAGES

Does not impact on the capacity of junction

Low cost

DISADVANTAGES

Pedestrian opportunities governed by traffic movements, which will result in long wait times

Long distance for pedestrians to cross

Involves crossing each arm in 2 stages

Suggested Option

SUGGESTED JUNCTION AND PEDESTRIAN IMPROVEMENTS

It is suggested that that the Council progresses Option 2 Local Plan Inquiry Scheme for the junction improvement and combine this with Option 1 from the Pedestrian Options to displace the pedestrians away from crossing at the junction itself. The pedestrian option is currently being discussed with the students from Paignton Community College to identify their origins and destinations through the junction and potential crossing points.

The suggested improvement option is shown below Indicative Pedestrian Crossing Points

This junction improvement would include landscaping to improve the visual amenity of the junction. The preferred scheme affects approximately 8 properties/land plots in private ownership and 4 properties/land plots owned by Torbay Council, the crosses on the above plan highlight the properties affected.

Environmental Considerations

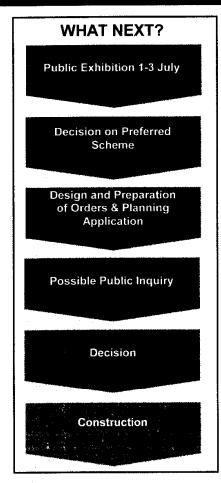
The junction currently experiences congestion and this will be felt more so once the developments are in place. Congestion has a negative impact on the environment and can increase noise, air, vibration and visual pollution; a reduction in congestion at the junction will therefore have a positive environmental effect.

The 'Air Quality – Review and Assessment, April 2003' has been reviewed with regard to air pollution at Tweenaway Cross, where National Air Quality Standards (NAQ's) were used to compare against measurements and calculations of levels of pollution at the junction.

The report shows that although targets will be met, currently at the junction the level of Nitrogen Dioxide and Particulates pose a problem.

Tweenaway Cross Junction Improvement Scheme 2004

Next Steps



PUBLIC EXHIBITION

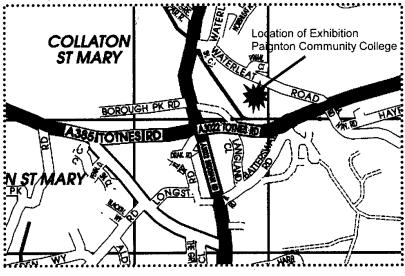
Come and view our exhibition, this will give you a chance to achieve a greater insight into the problems and possible solutions for the junction and to provide us with your valuable input by filling in a questionnaire.

The public exhibition will take place on the 1st to the 3rd of July at Paignton Community College, Waterleat Road Campus. Opening times are as follows:

Thursday 1st July - 4:30pm to 8:00pm

Friday 2nd July - 4:30pm to 8:00pm

Saturday 3rd July - 10:00am to 4:00pm



Address: Paignton Community College, Waterleat Road Campus, Paignton, Devon, TQ3 3WA

CONTACT

Should you wish to discuss any aspect of the Tweenaway Cross Junction Improvement Scheme, please contact either of the people below, otherwise, please complete the enclosed questionnaire.

Mike Fox
Assistant Director Strategic Environment Policy
Torbay Council
Civic Offices
Castle Circus
Torquay
TQ1 3PQ

Tel: (01803) 208888 Fax: (01803) 208882

Email: Mike.Fox@torbay.gov.uk



Katherine Brown
Transportation Planner
Parsons Brinckerhoff Ltd
Calyx House
South Road
Taunton
TA1 3DU

Tel: (01823) 424437 Fax: (01823) 424401

Email: brownka@pbworld.com



To request a copy in another format or language, please telephone (01803) 208888

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Project

Tweenaway Cross

Technical Note - 01: Public Consultation Survey

Date

26/08/04

Note Results

Ref

TUE 43519/15.1/TN1

1 INTRODUCTION

Parsons Brinckerhoff Ltd was commissioned by Torbay Council to investigate a scheme for improvements at the junction Tweenaway Cross, which is a key junction along the ring road in Torbay. Tweenaway Cross insects the A380 Kings Ash Road, the A3022 Totnes Road, the A3022 Brixham Road and the A385 Totnes Road.

As part of the process of investigating a preferred scheme for improvement a public consultation was held to gauge the opinion of the members of the public, organisations representing local business and local people and any other interested parties.

An exhibition was held, which gave members of the public an opportunity to discuss their opinions with representatives from Torbay Council and Parsons Brinckerhoff Ltd. The exhibition was carried out on the 1st to the 3rd of July 2004 at Paignton Community College.

The exhibition was advertised via the local paper and leaflets produced for the consultation were distributed by Torbay Council to local dwellings and were left in 'pick-up' points including the library and local 'Connections' offices. A total of 10,000 leaflets with attached questionnaires were produced for the purposes of the consultation and Torbay Council undertook the distribution.

The exhibition received a mix of opinions, which were noted at the time by the representatives. Some of the attendees requested additional information for example larger scale drawings of the scheme options, distributed by Torbay Council or Parsons Brinckerhoff after the exhibition. Over the three days approximately 155 individuals attended the exhibition.

A questionnaire was inserted into the leaflets and was in the form of freepost A5 postcards. A4 copies of the questionnaire were filled in at the exhibition either by the attendees themselves s or by representatives on behalf of the attendees.

In total Parsons Brinckerhoff have received 329 completed questionnaires. When the postal responses were received the date of receipt along with the information contained in the questionnaire was added to a database. The following pages summarises the results of the questionnaires.

In total Parsons Brinckerhoff have received approximately 9 detailed responses with regard to the suggested schemes of improvement for the junction Tweenaway Cross. Three of the responses included drawings for improvements to the junction. These drawings have been included at the end of this note for completeness.

2 GENERAL COMMENTS

The table below summarises general comments provided in the questionnaires and the percentage of respondents that provided the comment. The most popular comments have been highlighted in the table below in bold.

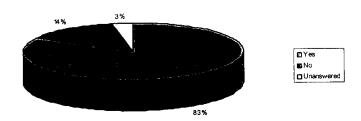
The column entitled '% of total questionnaires' shows the percentage of respondents of the total 329 questionnaires received who gave the opinion shown in that row. The '% of total opinions' shows the percentage of respondents of those who expressed a concern.

Comment	<u>Total</u>	% of total questionnaires	% of total opinions
Crossings Too Far Away/People Will Not Cross At Them	52	16%	40%
Needs to be safer and more beneficial to pedestrians, cyclists and buses	18	5%	14%
Concern Over Devaluation and Loss Of Properties	4	1%	3%
Problems with sequence and length of traffic lights	6	2%	5%
Consider Pedestrian Subway	5	2%	4%
Consider Underpass	7	2%	5%
Re-open Battersway	13	4%	10%
Speed Cameras and Better Signing of Speed Limits	6	2%	5%
Concerned With Increased Noise, Pollution and Vibration	8	2%	6%
Kings Ash Hill Needs To Be Improved First	7	2%	5%
Alterations To Bus Stops	1	0%	1%
Problem with road markings	2	1%	2%
Total	129	39%	100%

From the table above it can be seen that the comments that are the most popular are with regard to sustainable travel modes the junction design needs to be safer or more beneficial to sustainable travel modes and the displaced pedestrian crossings shown on the plan are too far away. With regard to the traffic improvement, the two most common opinions are to reopen Battersway Road and a concern over an increase in air, noise and vibration pollution.

3 QUESTION 1, RESULTS: Is there a need for improvement at the junction?

As it is shown in the pie chart below the majority of responses agreed that there is a need for improvement at the junction.



The pie chart above shows that 83% of the respondents believe there is a need for improvement at the junction. With only 14% expressing that there should be no improvement at the junction.

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4 QUESTION 2, RESULTS: Are there any problems at the junction you feel should be included?

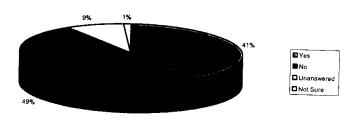
As it is shown below the percentage of the respondents that expressed whether there were additional areas of concern that should be considered at the junction. The areas of concern are grouped in with other expressions of concern and statements in Section 3 'General Comments'.



As it is shown in the pie chart above 50% of the respondents considered there were additional problems that should be included in the analysis of the junction. The responses given have been grouped and shown in the table in Section 2.

QUESTION 3, RESULTS: Do you agree with the recommended traffic scheme for improvement?

The results below show the percentage of the respondents agreed with the suggested option for traffic improvement.



From the pie chart above it is shown that the majority of respondents did not agree with the suggested traffic scheme with 49%, the percentage of respondents who agreed with the scheme suggested scheme was 41%. The table shown in Section 6 however, shows out of the respondents who stated which scheme was the most favourable was the suggested scheme – option 2.

6 QUESTION 3, PREFERRED OPTION: Do you agree with the recommended traffic scheme for improvement?

The table below shows which of the traffic options for improvement the respondents favoured.

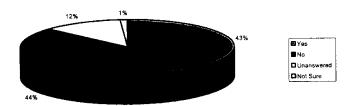
The column entitled '% of total questionnaires' shows the percentage of respondents of the total 329 questionnaires received who gave the opinion shown in that row. The '% of total opinions' shows the percentage of respondents of those who expressed an opinion.

Response	Total	% of total questionnaires	% of opinions given
Option 1, Do Nothing	3	1%	1%
Option 2, Local Plan Inquiry Scheme	127	39%	58%
Option 3, Large Signalised Junction	15	5%	7%
Option 4, Signalised Roundabout	27	. 8%	12%
Option 5, Diversion Via Side Roads	8	2%	4%
Option 6, Flyover	29	9%	13%
Option 7, Displaced Right Turn	6	2%	3%
Unsure	4	1%	2%
Total (All Questionnaires)	219	67%	100%

The table above shows that 67% of the respondents expressed which scheme they favoured. The scheme favoured with the highest percentage of respondents, was the suggested scheme for improvement for traffic, option 2. The second favourite scheme was the flyover option and the third was the signalised roundabout.

7 QUESTION 4, RESULTS: Do you agree with the recommended pedestrian scheme for improvement?

The pie chart below shows the percentage of respondents who favoured the suggested scheme of improvements for pedestrians.



The pie chart below shows that the majority (by 1%) did not agree with the suggested scheme for improvement at the junction with 44%. The percentage of respondents that did agree with the scheme was 43%. The table in Section 8 shows that when the suggested scheme was favoured by the majority of the respondents.

8 QUESTION 4, PREFERRED OPTION: Do you agree with the recommended pedestrian scheme for improvement?

The table below shows which of the pedestrian options for improvement the respondents favoured.

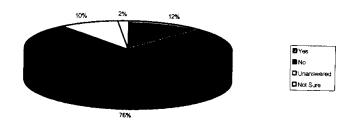
The column entitled '% of total questionnaires' shows the percentage of respondents of the total 329 questionnaires received who gave the opinion shown in that row. The '% of total opinions' shows the percentage of respondents of those who expressed an opinion.

Response	Total	% of total questionnaires	% of opinions given
Option 1, Displaced Movements	131	40%	78%
Option 2, Footbridge	20	6%	12%

Option 3, Walk With Facilities	14	4%	8%
Unsure	4	1%	2%
Total (All Questionnaires)		51%	100%

9 QUESTION 5, RESULTS: Is your property likely to be affected by the preferred scheme?

Below is a summary of the response to the question of whether the property of the respondent was affected by the suggested scheme.





As the pie chart above shows, 12% of the respondents stated that the suggested scheme of improvement would affect their property. An analysis of this 12% was undertaken to establish the identified respondents. The results of the analysis are shown in Section 10.

10 QUESTION 5, ANALYSIS: Is your property likely to be affected by the preferred scheme?



An analysis was completed for the respondents who answered 'Yes' to the question 'Is your property likely to be affected by the preferred scheme?'

The column entitled '% of total questionnaires' shows the percentage of respondents of the total 329 questionnaires received who gave the opinion shown in that row. The '% of total opinions' shows the percentage of respondents of those who expressed an opinion.

_	Percentage of 'Yes' response to question		
Question	Yes %	No %	
Q1. Is there a need for improvements at the junction?	73%	28%	
Q2. Are there any problems at the junction that you feel should be included?	58%	18%	
Q3. Do you agree with the recommended traffic scheme for improvement?	25%	63%	
Q4. Do you agree with the recommended pedestrian scheme for improvement?	35%	53%	

Of the respondents whose property is affected by the scheme it is shown that the majority agree there is a need for improvement at the junction, and included their issues of concern. The majority however did not agree with the suggested schemes for improvement.

11 QUESTION 6, RESULTS: If you belong to any group, association or club that would like to be contacted to provide their input, please provide contact details:

The table below is a list of contact details entered onto the completed surveys.

Ref No.	Institution/Contact details
26	Mr and Mrs A.J Langham, St Borough Park Road, Paignton, TQ3 3TZ
29	Paignton College
43	Paignton Chamber of Trade and Conference
53	South Devon Driving Instructors Association, Duncan Marwood, 07767 471651
57	Mr R Tarling, 62 St Marys Park, Collaton St Mary, Paignton, TQ4 7DB
88	R C Anderson, Heather Cottage, Smokey Cross, Haytor, Newton Abbot, TQ13 9XU
92	The Peoples Front for the Liberation of Hedgehogs' www.hoghedgedot.com
110	Mr P. A Field 844502
118	Chrissie Atkey, Paignton Community & Sports College, Borough Road Centre, Borough Road, Paignton, TQ4 7DH
191	Martin Stoolman, Transport 2000 (Devon Group) 24 The Mint, Exeter, Devon, EX4 3BL (01392) 477857
207	J M Watts, Flat 2, No 8 The Gerstones, Paignton, Devon, TQ3 3AD
279	South Devon College
281	M. Stewart, 20 Singer Close, Paignton
295	chrism@blueyonder.co.uk
302	Intuition School of Motoring, 21 Barton Avenue, Paignton, TQ3 3JQ

12 DETAILED RESPONSE

The following are a summary of detailed responses received regarding the suggested improvements at the junction:

- An improvement at the junction should be either twinned with two lanes going north-south, or to make no improvement at the junction with two lanes going north-south.
- The improvement should be made over a larger area, so the adjoining roads can take the additional traffic volume as well as the junction. The study should have been widened to take into account other known traffic hot spots.
- Improvements made at Tweenaway Cross should be matched by improvements at Windy Corner.
- Further consideration should be given to option 4, the large signalised roundabout.
- · Allow full egress of each arm.
- Re-open Battersway Road, this would reduce the congestion.
- Allow the traffic light software to detect the longest queues.
- The suggested option is not ambitious enough.

13 CONCLUSION

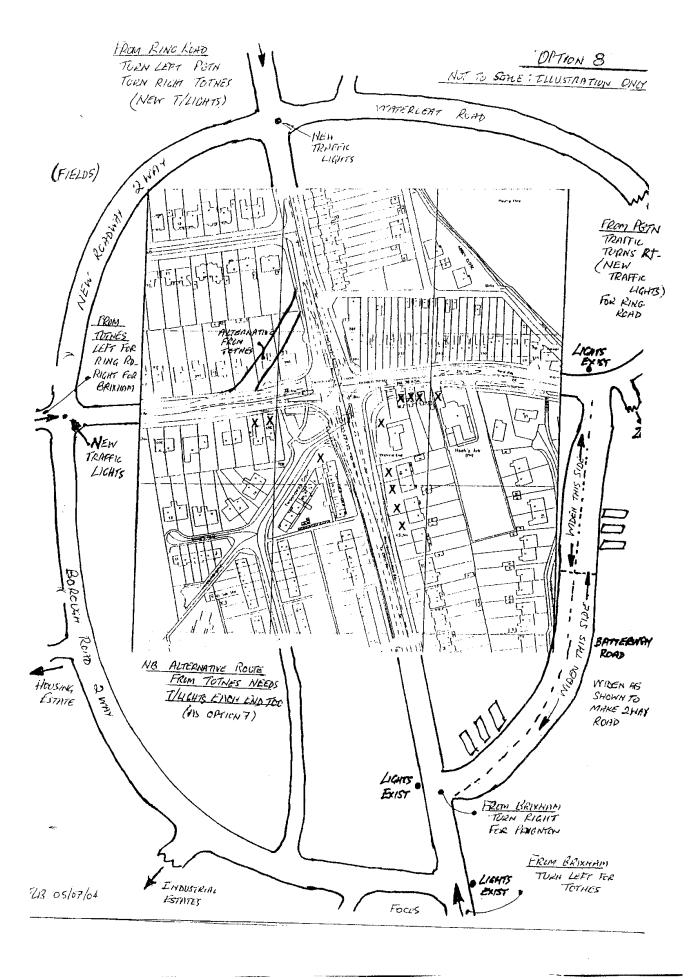
Parsons Brinckerhoff has received a total of 329 questionnaires and 9 detailed responses. The results of the questionnaires have been summarised in this technical note. The analysis of the questionnaire results has produced the following findings:

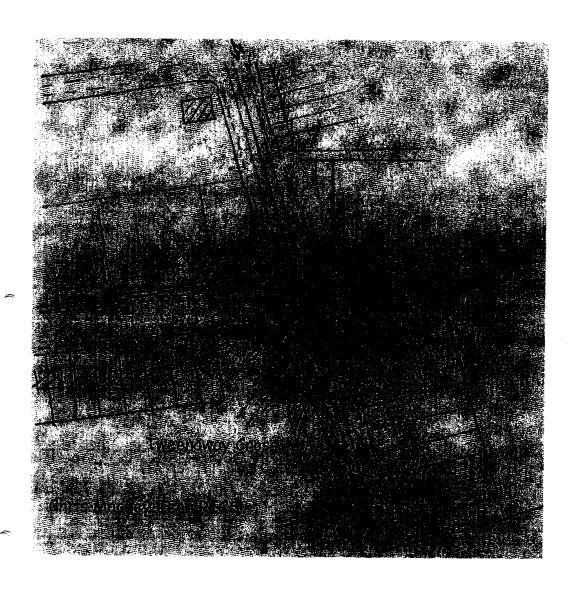
- The displaced crossings for pedestrians shown on the plans are too far away from the junction.
- Re-open Battersway Road to reduce the congestion at the junction.
- There should be an improvement and benefit to pedestrians, cyclists and buses.
- 83% of the respondents agreed that there should be an improvement at the junction.
- Only 41% of the respondents agreed with the suggested option for traffic improvements, however of the options provided the recommended option was favoured.
- Only 43% of the respondents agreed with the suggested option for pedestrian improvements, however of the options provided the recommended option was favoured.
- Of the individuals whose property would be affected by the suggested schemes, the majority did not agree with the proposed schemes but did agree that there is a need for improvement at the junction.
- The detailed responses recommended the improvements were larger, and the recommended scheme is not ambitious enough.

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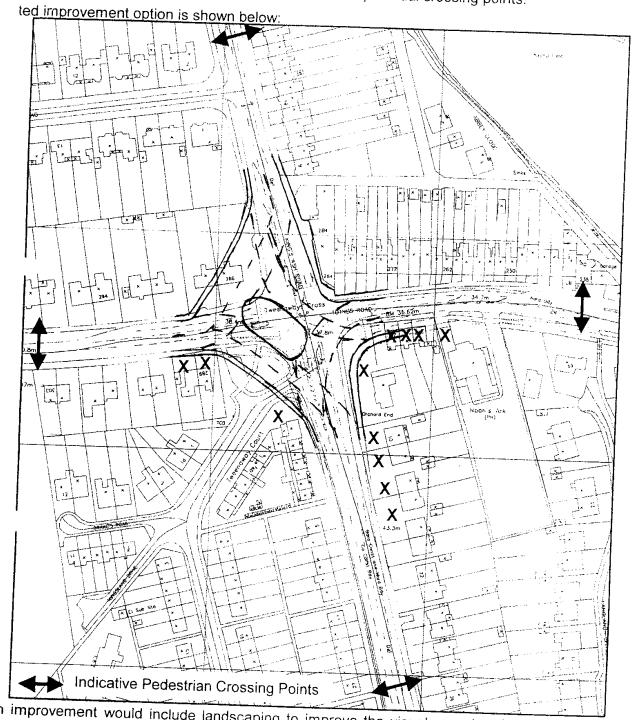
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Option 1 from the Pedestrian Options to displace the pedestrians away from cross in Figure 1. The pedestrian option is currently being discussed with the students from Paignton Communeir origins and destinations through the junction and potential crossing points.



n improvement would include landscaping to improve the visual amenity of the junction. The ects approximately 8 properties/land plots in private ownership and 4 properties/land plots incil, the crosses on the above plan highlight the properties affected.

nental Considerations

currently experiences congestion and this will be felt more so once the developments ar