



A380 South Devon Link Road (Kingskerswell Bypass)

Public Inquiry

**Devon County Council's Response to
Proofs of Evidence on behalf of the Kingskerswell Alliance**

(Obj45): OBJ/KA(45)/P/1, OBJ/KA(45)/P/2 and OBJ/KA(45)/P/3

Response by David Black

with contributions by:

**Paul Ewings
Ian Harrison
Michael Smith
Rosalyn Guard
Andrew McCarthy
Bethan Tuckett-Jones**

1 INTRODUCTION

- 1.1 This Response to the Proofs of Evidence of the Kingskerswell Alliance (Obj. 45) **(OBJ/KA(45)/P/1, OBJ/KA(45)/P/2 and OBJ/KA(45)/P/3)** has been prepared by David Black (with contributions from Paul Ewings, Ian Harrison, Michael Smith, Rosalyn Guard, Andrew McCarthy and Bethan Tuckett-Jones).
- 1.2 The Kingskerswell Alliance, in their letter dated 29 October 2008, stated the following objections to the scheme:
- adverse impact and loss of access to common land;
 - the exchange land does not represent adequate compensation;
 - the statement of reasons published in support of the orders is flawed;
 - insufficient environmental mitigation;
 - the effect of the adjacent land fill site on ground water;
 - impact on Kingskerswell Conservation Area;
 - Impact on underground karst hydrology of Kerswell Down.
- 1.3 A response to the Kingskerswell Alliance's letter of 29 October 2008 was provided in:
- DCC/P/1 section 11.2.1-11.2.4 and 11.3.1-11.3.5
 - DCC/P/3 section 11.1.72-11.1.78 and 11.1.86-11.1.88
 - DCC/P/4 section 14.1-14.11.9 and 15.9.1-15.9.4
 - DCC/P/6 section 11.8.1-11.8.7, 11.10.1-11.10.3 and 11.11.1-11.11.2
 - DCC/P/7 section 7.2.1-7.2.2 and 7.5.1-7.5.8
 - DCC/P/8 section 7.5.1
 - DCC/P/9 section 8.1.1-8.1.17 and 9.1.6-9.1.8
 - DCC/P/10 section 8.2.1[51] and 8.3.1-8.3.7
- 1.4 A response to the various reports produced by the Alliance (OBJ/KA(45)/A) is provided in DCC/P/4, Appendix 11.
- 1.5 In their Proofs of Evidence the Kingskerswell Alliance have raised several themes as follows:
- Scheme Provenance
 - Description of Congestion on the A380
 - Alternatives to the Scheme
 - Appraisal Of The Kingskerswell Alliance Proposals
 - Public Transport
 - Performance of the Scheme
 - Biodiversity Losses
 - WebTAG Assessment
 - CO2
 - Traffic and Economic Appraisal
- 1.6 The Proof of Evidence is provided in 3 parts, with 3 contributions as follows:
- Karen Frith (OBJ/KA/P/2)
 - Mr K Pegden (OBJ/KA/P/1)
 - Richard Hamlyn (OBJ/KA/P/30)
- 1.7 This rebuttal provides a response to all 3 proofs of evidence and on each of the themes above. Also included are responses to the Kingskerswell Alliance's revised 'Response to The Major Scheme Business Case' which accompanied the letter dated 15 June 2009 and the correspondence to Ms

Yvonne Parker dated 23rd June 2009 from Steer Davis Gleave Ref 22101601 / 01 (OBJ/KA/A.1).

2 SCHEME PROVENANCE (Contributed by Paul Ewings and Ian Harrison)

- 2.1 It is suggested by Karen Frith in paragraph 5.6 of her evidence that the 'Scheme proposed by the Council represents limited and old style thinking' and in paragraphs 3.2 and 3.3 suggests that comparison with non-road alternatives has not taken place; further pointing out in paragraph 4.4.10 that the standard approach stated by MSBC guidance is to 'identify the problems to be addressed... and then generate a wide range of options covering different types of interventions and measures... and then undertake a high level assessment of these options'.
- 2.2 In paragraph 3.4 Karen Frith questions the lack of inclusion of a tunnel option to the west side of the village.
- 2.3 Mr K Pegden (paragraph 3.3.5) further comments that alternative road and traffic management schemes have not been fully explored or evaluated.
- 2.4 Richard Hamlyn also states in paragraph 4.1 of his evidence that the 'construction of additional road space is not a cost efficient or a proportionate answer to traffic congestion on the road'.
- 2.5 The Overview and Scheme Development Proof of Evidence (DCC/P/1) describes the A380 Newton Abbot to Torquay Corridor Study in Section 5.2 and explains the methods used to identify the problems to be addressed and the wide range of options developed for assessment. Within the 'Option Assessment and Final Strategy Report', a sequence of options were considered:
- Independent Measures – measures would come about regardless of any scheme;
 - Traffic Management and Control Measures;
 - Schemes to Encourage Modal Shift;
 - On-Line Highway Schemes;
 - Off-Line Highway Schemes;
 - Complementary Measures.
- 2.6 Traffic management and control measures were rejected as they were likely to push problems onto other parts of the network. On line schemes were also rejected due to the likely impact on the environment (including severance) in Kingskerswell and the necessary land acquisition.
- 2.7 It was only on completion of this study and in recognition of its conclusion that a bypass was necessary, together with a package of sustainable transport measures, that Devon County Council and Torbay Council resolved to adopt the findings of the study in June 2000. This integrated transport strategy approach to the corridor is described in Chapter 6 of DCC/P/1.
- 2.8 The use of a cut and cover tunnel was one of a number of mitigation measures considered for the scheme. Further examination showed a tunnel would only reduce a limited set of environmental impacts and that a more extensive mitigation strategy would be preferred. The consideration of mitigation measures is addressed in the Landscape, Townscape and Visual evidence, DCC/P/6.
- 2.9 Having completed the high level assessment of these options, the submission of Devon County Council's Major Scheme Business Case document required

the assessment of three sub-options for a western bypass (Low Cost, Next Best and Preferred); these have all been appraised in detail.

- 2.10 The appraisal of the Scheme has since been updated for the purposes of this Inquiry; in parallel an appraisal of the Kingskerswell Alliance Scheme has also been completed. In conclusion it can be seen that a full exploration of available options has been undertaken.
- 2.11 DCC/P/2, paragraph 5.1.3 shows that the Scheme is an example of a project that addresses specific problems associated with an inter-urban corridor between the major conurbations of Exeter and Torbay. DCC/P/4, paragraph 2.2.2 also shows that the Scheme is targeted at the pinch point of the strategic road network and is therefore in keeping with the principles of the Eddington Transport Study.
- 2.12 The Scheme accords with the principles in Delivering a Sustainable Transport System (DaSTS). DCC/P/2, paragraph 5.2.3 gives the five goals for transport; the Scheme fits all five of the goals and aligns with emerging transport policy. In particular the Scheme will improve journey time reliability along the corridor, the importance of which is stated in DCC/P/2, paragraph 5.2.5.
- 2.13 The DfT have recently consulted on their draft guidance for LTP3 which will replace the current LTP2 when it expires in 2011. The guidance focuses on the role of transport as a facilitator to deliver sustainable communities, economic growth and address climate change issues. As stated in DCC/P/2, paragraph 5.4.3, 'the proposed Scheme provides a very real example of delivering a transport solution that has wider benefits for Torbay and the South Devon Area'
- 2.14 In terms of cost efficiency, DCC/P/2 Section 5.3 refers to the New Approach to Appraisal Refresh 2009. The Scheme has been placed in the 'Very High' category under value for money, identifying it as one of the very best schemes.

3 DESCRIPTION OF CONGESTION ON THE A380

- 3.1 The evidence of Karen Frith, paragraph 1.3, questions the description of '*intolerable congestion gridlock and long delays*'. Richard Hamlyn's evidence, Paragraph 5.1, then describes Jury's Corner as the '*major bottleneck on the road*'. The results of journey time surveys completed on behalf of the Kingskerswell Alliance are discussed by Mr K Pegden in paragraph 5.3 of his evidence.
- 3.2 DCC/P/4, Section 3 provides details of existing conditions on the A380. It can be seen that there are many constraints on the A380 between Penn Inn and Kerswell Gardens. These are:
- Principally, the standard of the road with its numerous side roads and frontage development; but also
 - Jurys Corner junction;
 - The merge on the Southbound exit at Penn Inn roundabout;
 - The merge on the Northbound exit at Kerswell Gardens.
- 3.3 Due to these constraints the operation of the road is particularly fragile and this leads to increased average journey times and poor journey time reliability. DCC/P/4, Table 4 shows that average journey times regularly double the free flow time of 7:00 minutes. An extra 30 minutes on some journey times were

experienced during ANPR surveys along the route which is considered wholly unacceptable.

- 3.4 It should be emphasised that rather than Jurys Corner being the main bottleneck on the road, it is in fact the A380, with its numerous side road accesses and high friction, which causes most significant problems; this is discussed in DCC/P/4, Section 3.10. This has not been considered in the evidence given by the Kingskerswell Alliance.
- 3.5 The Alliance has undertaken 2 sets of journey time surveys between Penn Inn roundabout and Kerswell Gardens; the first in 2006/7 and the second in 2009. The calculated delay in 2006/7 was over 4 minutes and in 2009 was over 3 minutes. It is accepted by the Alliance that the accuracy of the 2009 surveys is marginally compromised by the small number of observations.
- 3.6 Comparison between the data given in DCC/P/4, Diagram 5 and the Kingskerswell Alliance journey time data has been made. The delay times given by the Kingskerswell Alliance have been converted to journey times by adding the free flow time (300 seconds) to each observation. The results can be seen below in Diagram 1.

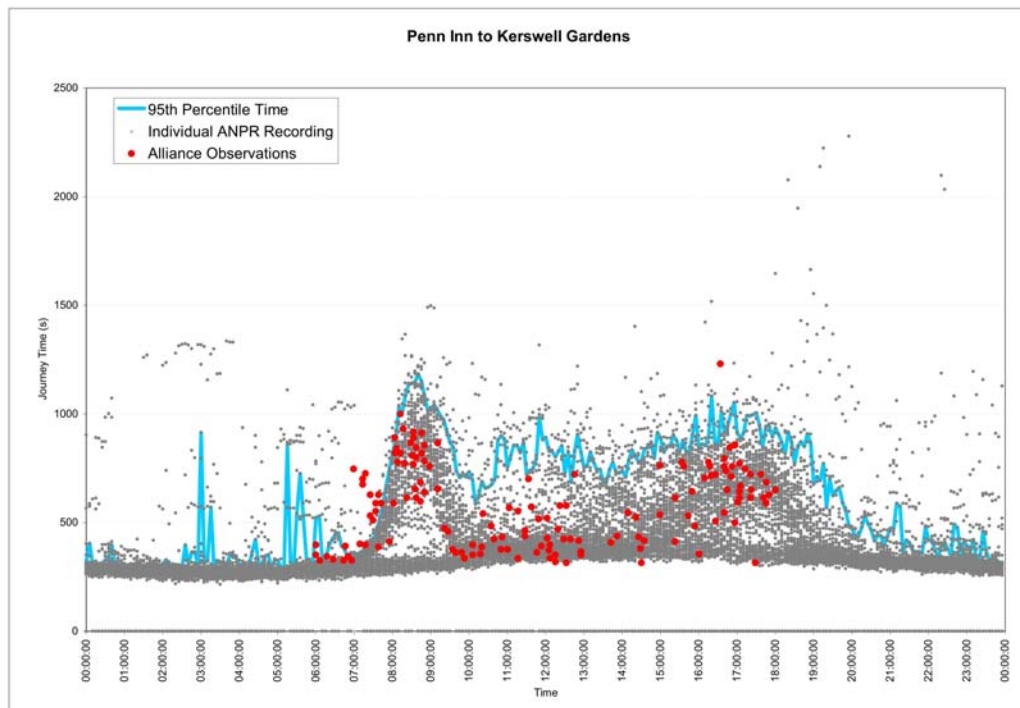


Diagram 1: Comparison of ANPR data and Kingskerswell Alliance Journey Time Data

- 3.7 It can be seen from the diagram that the Kingskerswell Alliance observations fall within the range of journey times observed using ANPR technology and therefore the two sources of data are consistent.
- 3.8 Due to the awareness of the impact the single lane section (and associated junctions) has on the A380 to the north, it is inappropriate to consider journey times between Penn Inn and Kerswell Gardens alone. As discussed, route journey times between Ware Cross and Kerswell Gardens have been given in DCC/P/4, Table 4; these show a more complete picture of the situation on the A380 and illustrate the current conditions on the A380, i.e. poor average journey times and poor journey time reliability.

4 ALTERNATIVES TO THE SCHEME

- 4.1 Within Mr K Pegden's evidence, paragraphs 6.2C and 6.2C and Richard Hamlyn's evidence, paragraphs 3.1, 5.1B, 5.1C, 5.2B and 6C the Alliance Proposals are referred to as proven solutions that will tackle the cause of the problem and promote modal shift.
- 4.2 Karen Frith, in paragraph 3.1, describes the Kingskerswell Alliance Proposals as a 'sustainable, achievable, cost effective and environmentally friendly' solution.
- 4.3 DCC/P/4, Section 14 provides an assessment of the Alliance package of measures. This package of measures includes:
- Demand Management Measures;
 - Improved Public Transport;
 - Traffic Engineering and Congestion Management.
- 4.4 In the Kingskerswell Alliance package, when considering demand management measures, the Kingskerswell Alliance have failed to account for the demand management measures already in place and the considerable work by Devon County Council in this area. Therefore the claimed benefits are optimistic.
- 4.5 Particular mention is made of travel plans to be introduced across Teignbridge and Torbay. Reference is made to workplace travel plans cutting single car occupancy by between 10 and 25%. It is claimed that an estimated 1 in 5 vehicles during rush hour are 'school run' traffic. With reference to DCC/P/4, paragraph 14.2.9 it can be seen that only 4% of AM peak hour trips on the A380 are school related. DCC/P/4, Section 4.2 gives more details of the considerable travel planning that has taken place in Devon.
- 4.6 The Kingskerswell Alliance proposals for improving public transport will yield limited benefits. Reopening the Kingskerswell railway station, as discussed in DCC/P/4, Section 12.5.1, is likely to result in the removal of only 0.3% of car trips from the A380. Increased mode share for buses will not be possible as the Kingskerswell Alliance Proposals will not improve journey time reliability and will not encourage increased bus operator investment, currently two of the largest barriers on the route to increasing patronage.
- 4.7 There are considerable difficulties associated with implementing a tidal flow system on the A380. The Kingskerswell Alliance has proposed a system using only LED lighting in the carriageway and oppose the use of gantries. Such an arrangement has not been implemented before in the UK on this type of route and Devon County Council would have concerns over the safety of such a scheme, this is discussed further in Annex A. Furthermore the scheme would only provide additional capacity for a limited period of the day and encourage commuter traffic away from the Torbay area.
- 4.8 The Kingskerswell Alliance proposals fail on a number of objectives set by the Corridor Study. An analysis of these objectives is given in DCC/P/4, Table 55 – 58. These failures are summarised below:
- Environment – increased severance in Kingskerswell and increased rat-running on unsuitable parallel routes, does not address Air Quality Management issues in Kingskerswell.
 - Safety – Increased accidents due to increased traffic on unsuitable parallel routes. Poorer safety for vulnerable road users under a tidal flow system and on parallel routes.

- Economic – limited additional capacity on the A380. Limited improvements to journey time reliability and no improved access to the Torbay employment and retail areas.
- Accessibility – Does not allow for improvements to bus priority measures so proposed travel plans will be difficult to establish.
- Integration – No integration with other transport services; it will not be possible to provide attractive pedestrian or cycle facilities, it will not be possible to improve to bus facilities due to congestion on A380.

4.9 Furthermore the scheme is not sustainable. It will not be possible to improve journey times or reliability for buses and therefore patronage will not be increased.

4.10 The scheme will also result in significant amounts of congestion; the lower speeds and increased queuing will inevitably lead to poorer air quality through Kingskerswell. Higher traffic flows on the corridor and the addition of an extra lane will increase severance and therefore make crossing the A380 safely very difficult.

4.11 Under the economic appraisal of the Kingskerswell Alliance proposals (see DCC\P4, Table 54) a BCR of less than 4 was calculated. It is concluded that the Kingskerswell Alliance proposals cannot be considered as one of the 'very best' schemes and therefore would be unlikely to be obtain funding through the Regional Funding Allocation. Furthermore, given the issues highlighted above it is not a Scheme that Devon County Council would be prepared to promote.

5 APPRAISAL OF THE KINGSKERSWELL ALLIANCE PROPOSALS

- 5.1 Paragraph 3.5 of the evidence of Richard Hamlyn gives detail of the work completed by Steer Davis Gleave (SDG), this includes an appraisal of the Kingskerswell Alliance proposals; the Kingskerswell Alliance accept that this was not in-depth.
- 5.2 Paragraph 5.2 of Richard Hamlyn's evidence suggests the inclusion of a tunnel at Penn Inn and the inclusion of slips at Kerswell Gardens Junction.
- 5.3 Mr K Pegden, in paragraph 6.2 of his evidence, has suggested that the proposals would cost only 40% of the cost for the Scheme.
- 5.4 A more detailed appraisal of the engineering proposals around Jurys Corner has been completed by Devon County Council; this is attached as Annex C.
- 5.5 Devon County Council have endeavoured to work up an alternative which is realistic as possible given the constraints at the junction. Nevertheless, the scheme still has the following issues:
- Visual Intrusion - the scheme is not in keeping with the village environment;
 - Severance Issue - there will be a large detour for pedestrians / cyclists; which may encourage them to cross at the junction;
 - Safety issue if pedestrians / cyclists do decide to cross;
 - Security of the pedestrian underpass, may be considered dangerous by users;
 - Land take is required for footways and bus bays;
 - Discontinuous guard rails (driveways cannot be blocked) may further encourage crossings at Jurys Corner;
 - A continuous segregated footway / cycleway cannot be provided without additional land take;
 - Gantries may possibly have to be placed in gardens. If a light weight version can be designed then could be placed in the already cramped footway / cycleway.
- 5.6 DCC/P/4, Section 14.9 appraises the proposed tunnel at Penn Inn and the proposed slips at Kerswell Gardens. The tunnel still does not remove the bottleneck at the southbound exit to the junction and therefore would have limited benefits.
- 5.7 An assessment of the Kerswell Gardens junction has been completed and the results of this are given in DCC/P/4, Section 3.13. A critique of the proposed slips is also given in DCC/P/4, paragraphs 14.9.6 to 14.9.9. The assessment shows that the problems at this junction arise from the limited capacity on the northbound exit leading to queuing and blocking of exits at the junction. The provision of these additional slips is therefore considered unnecessary.
- 5.8 Devon County Council has also examined the costs suggested by the Kingskerswell Alliance for their proposals. DCC/P/4, Table 51 gives the construction costs for scheme as calculated by Devon County Council. These are in fact approximately half the cost of the proposed Scheme, furthermore it should be noted that these costs are for works costs only. The cost of the full package of Kingskerswell Alliance proposals could be significantly higher.

6 PUBLIC TRANSPORT

- 6.1 Karen Frith (paragraph 4.4.7) has suggested that there is nothing in the Major Scheme Business Case which would improve interchange between different forms of transport.
- 6.2 The apparent lack of reinstatement of Kingskerswell train station has been also been questioned by Karen Frith (paragraph 5.4) and Richard Hamlyn (paragraph 5.1 Point A).
- 6.3 Paragraph 2.1 of Richard Hamlyn's evidence states that the Kingskerswell Alliance feel that the proposed Scheme would not deliver a sustainable traffic solution and that it would be unnecessarily damaging to the environment.
- 6.4 DCC/P/4, Table 42 gives an assessment of the Scheme against the accessibility objective. This recognises the opportunities available on the existing A380 to provide improved public transport priority through Kingskerswell, leading to improved journey time reliability and support from Stagecoach (DCC/P/4, Paragraph 12.3.2).
- 6.5 DCC/P/4, Table 42 gives further details of the opportunities for improved pedestrian and cycling facilities in Kingskerswell, traffic calming measures on parallel roads which encourage the use of these roads by vulnerable road users.
- 6.6 With reference to DCC/P/4, Paragraph 12.5.1 it can be seen that reinstatement of the railway station at Kingskerswell has been included as part of the longer term transportation strategy in the Devon Structure Plan. While the potential for alleviation of congestion from the A380 is small it would be a step in the right direction and set a policy for the longer term to encourage more travel by rail (see DCC/P/4, paragraph 12.5.4).
- 6.7 It is emphasised the Scheme including the bypass is the only option which will alleviate congestion and provide capacity for public transport improvements. The Kingskerswell Alliance proposals do not offer the same opportunities for achieving these goals.

7 PERFORMANCE OF THE SCHEME

- 7.1 In paragraph 7.4 of Mr K Pegden's evidence it is stated that the 'proposed scheme will encourage more vehicles, increase overall emissions and is likely to cause even greater congestion in Torbay'.
- 7.2 The impact on traffic on the roads at the southern end of the Scheme has been assessed in DCC/P/4, Section 15.3. It can be seen that the growth in traffic can be accommodated within the existing capacity of these roads. DCC/4/2, Section 10.2 shows there is negligible change in vehicle kilometres across the modelled area due to the Scheme and this is offset by an improvement in average speeds.
- 7.3 DCC/P/4, Table 23 and 25 also show that there is only a minor increase in trips due to the Scheme. The impact of the Scheme will be to encourage traffic away from the congested urban road network and onto the bypass. Whilst there may be an increase in traffic along the A380 corridor, the impact on roads either end of the bypass will be small due to traffic dissipating onto side roads. Within urban areas, most of the increase in traffic over current levels will be seen even whether or not the Scheme is built.

8 BIODIVERSITY LOSSES (Contributed By Andrew McCarthy)

- 8.1 Karen Frith in her Proof of Evidence (paragraph 4.4.1) makes reference to the *'the effect on the conservation area and the biodiversity.'*
- 8.2 Mr Ken Pegden states in his Proof of evidence (paragraph 6.1d) that the Scheme will be 'extremely ecologically damaging' and will have an ecological impact on Kerswell Down.
- 8.3 Mr Richard Hamlyn in his Proof of Evidence (paragraph 6.f) states that there would be a significant impact on 'the countryside and protected species'.
- 8.4 Effects upon habitat and fauna are addressed in detail in Chapters 4 and 5 (Habitats and Species, respectively) of Andrew McCarthy's proof of Evidence (DCC/P/8). Although the Scheme has potential for a substantial adverse impact on habitats and wildlife, there are substantial measures in place to conserve populations of important species such as Cirl bunting and Lesser horseshoe bats, as well as extensive woodland and hedgerow planting, hedgerow translocation, and other habitat creation measures including wetland establishment to help offset negative effects. There would be benefits accruing from conservation management of offsite land at Labrador Bay and elsewhere; such measures will deliver substantial conservation gain for nationally rare species such as Cirl bunting, farmland birds and bats. Such measures have reduced impacts to levels acceptable to the statutory agencies Natural England and the Environment Agency.
- 8.5 There will be a residual impact upon the ecology of the Kerswell Down conservation area. However, as stated in Chapter 3 of DCC/P/8, residual effects will be Slight Adverse by Year 15, once woodland planting and hedge translocations have developed. The loss of (recent secondary) woodland at the north eastern end of Kerswell Down is limited in extent as far as possible, to 0.6ha.

9 WEBTAG ASSESSMENT

- 9.1 The WebTAG assessment of the South Devon Link Road (Kingskerswell Bypass) Scheme was completed to support the Major Scheme Business Case. It differs from the more detailed assessment undertaken to inform the ES and follows separate published guidance (CD4.45). The WebTAG appraisal provides a summary of the likely effects of the Scheme, forming the basis for funding decisions to be taken by government ministers.
- 9.2 In Karen Frith's Proof of evidence (Paragraph 3.5), she refers to her review of the original WebTAG (**CD4.45**) assessment in response to the Major Scheme Business case (MSBC) (**CD 5.32 and CD 5.33**). She states (Paragraph 4.4) the following:
- **Biodiversity:** 'Reviewing the impact scores on the Biodiversity Worksheets (as there are a number of red Listed species covered by European Habitat Directive now Conservation (Habitats &c.) Regulations 1994) I considered some scores had been reduced so that the overall impact on these species was underplayed'.
 - **Townscape:** 'The Newton Abbot flyover will be visually intrusive and there will be major adverse effects on the historic part of Old Kingskerswell with many of the listed buildings found so close to the proposed route affecting their setting and 'sense of place'. I am not sure how this can be described as a 'slight beneficial' assessment'.

- **Landscape:** 'Although it was acknowledged that extensive earthworks would disrupt the existing pattern and scale of the landscape, mitigation would not prevent the scheme from scarring the landscape in the longer term as some features of interest will be destroyed or the setting reduced / removed. The cut rock face would be seen from afar and form an ugly feature to this landscape. One of the characteristic features here, Kerswell Down, will suffer a really adverse impact.'
- **Severance:** 'The A380 will be [sic] still be used so the main part of the village will still suffer severance. Additionally, the west side of the village will suffer severance by the addition of a 4 lane dual carriageway, and a flyover will be built in front of existing homes. I am again unsure why this is rated as large positive'
- **Physical Fitness:** 'I have found it difficult to understand how building a road (which will encourage car driving) can be 'slightly beneficial' to physical fitness. The MSBC states there will be an extra 30 seconds of walking on paths!' 'Worksheets on the categories of Access to the Transport System and Transport Interchange were not included in the MSBC, although assessments were derived. (as slight beneficial and moderate beneficial). 'There didn't seem to be anything suggested in the MSBC which would improve interchange between different forms of transport. Road building encourages dependency on the private car.'
- **Yannon Lane Landfill:** 'Last year, a lot of publicity was given to the illegal and unlicensed dumping of waste at Yannon Lane. This tip site is adjacent to the proposed route. I looked at the MSBC to see what safeguards there would be to protect the water supply if, for example, toxic substances leaked into the underground water systems which are a feature of the karst limestone around here. The Environmental Impact Study was undertaken in 2004. I could not find any documents or information to suggest that any further work had been undertaken to realise the nature of risk'

9.3 Karen Frith, in paragraph 5.2 of her Proof of Evidence states that 'the impacts this scheme would have on the Environment have been underestimated'.

Biodiversity (Contributed by Andrew McCarthy)

9.4 Andrew McCarthy reviewed all the original WebTAG (**CD 4.45**) impact scores in considerable detail following refinement of the mitigation scheme and delivery of off line compensation measures following publication of the Environmental Statement (**CD 2.3**) in 2004. The results of this review can be found in the appendices of the Proof of Evidence of Mr David Black (DCC/A/4 Appendix 11), alongside all other Devon County Council responses to the Kingskerswell Alliance response to the MSBC.

9.5 Specifically in respect to biodiversity, Andrew McCarthy, in his review of the WebTAG (**CD 4.45**) worksheet and Assessment Summary Table, concluded a Large Adverse score. Mr McCarthy qualified his assessment by stating that in his opinion, the score should be at the lowest end of Large Adverse, in view of the substantial mitigation and offline compensation that will be delivered prior to construction, in particular with respect to nationally scarce species such as Cirl bunting and Lesser horseshoe bat. He considers his approach was precautionary and his assessment conservative. He also notes that the measures to be delivered pre-construction are sufficient to satisfy Natural England.

Townscape and Landscape (contributed by Rosalyn Guard)

- 9.6 In DCC/A/4, Appendix 11, Page 89 this Kingskerswell Alliance's issues relating to townscape are addressed. It is explained the traffic (not roads) that disrupts human interaction so the removal of the majority of through traffic would have a significant effect on cross village movements. A table of responses to the Alliance comments on the townscape worksheet is also given in DCC/A/4, Appendix 11, Table 5.
- 9.7 DCC/A/4, Appendix 11, Page 74 and Page 89 address the Kingskerswell Alliance's comments relating to Landscape. Further (considerable) detail is given in response to the Kingskerswell Alliance's comments in DCC, Appendix 11, Table 4. The score for the landscape sub-objective and the worksheet summary encompass the whole Scheme route and take into account earthworks and cut rock face as discussed by Karen Frith, but also the extensive mitigation measures included in the Scheme.

Severance

- 9.8 Reference to DCC/P/4, Table 28 shows flows on the A380 through Kingskerswell will fall by over 90%. This significant reduction provides many opportunities to improve the environment through Kingskerswell and will significantly reduce the severance currently experienced. DCC/P/4, Table 40 highlights the opportunity to provide more space to vulnerable road users with better pedestrian and cycling facilities provided.

Physical Fitness (Contributed by Michael Smith)

- 9.9 Comments from the Kingskerswell Alliance on physical fitness are addressed in DCC/A/4, Appendix 11, Page 90. The physical fitness worksheet is included in DCC/A/4, Appendix 11, Appendix 2. The additional walking has been explained and the score of 'slight beneficial' for this sub-objective confirmed.

Yannon Lane Landfill (Contributed by Michael Smith)

- 9.10 DCC/A/4, Appendix 11, Paragraph 3.8.2 shows that groundwater quality has been assessed in detail around the Yannon Lane Landfill site to identify any potential impacts associated with the migration of leachate. DCC/A/4, Appendix 11, Paragraph 3.8.8 provides the mitigation measures included in the Scheme to remove pollution risk. These measures will ensure that the effects of any contaminants arising from Yannon Lane are Negligible.

10 CO2 (Contributed by Bethan Tucket-Jones)

- 10.1 Karen Frith, in paragraph 5.5 quotes the Government targets for green house gases for reducing emissions by 80% of 1990 levels by 2050 and states that the scheme is, 'clearly incompatible with present Government thinking' as, 'this scheme is envisaged to increase overall CO2 output here by 18%'.
- 10.2 The Air Quality Proof of Evidence (DCC/P/10) provides an assessment of the change in carbon emissions with the Published Scheme. Taken over all trips of relevance to the study area, the Scheme will result in an increase in carbon dioxide emissions of less than 1% of the total emissions on the trips. This is considered a neutral impact.
- 10.3 The Government policy on climate change is summarised within their Climate Change Programme (CD 4.28). Their approach is to secure steady reductions in emissions over time through a framework which recognises the importance of maintaining economic competitiveness and sustainable growth.

- 10.4 In relation to the road transport sector, government policy is to reduce emissions through increased use of biofuels, incentivising the uptake of less polluting vehicles, improving vehicle efficiencies, and to help people make smarter travel choices. As a result of these measures, emissions from transport are projected to be lower than they would have been in the absence of policy, but this does not mean that total transport emissions are expected to fall, nor does it preclude a growth in traffic.
- 10.5 The Climate Change Programme acknowledges that road improvements may generate extra carbon dioxide emissions. However, it is stated that these are considered to have only a small impact – offsetting just 10% of the net carbon savings expected from the Renewable Transport Fuel Obligation. This conclusion is in accordance with this assessment for the Kingskerswell bypass which demonstrates that the impact of the bypass on regional emissions will be negligible. Furthermore, DCC integrated transport measures and encouraging smarter travel choices are described in DCC/P/3.

11 TRAFFIC AND ECONOMIC APPRAISAL

- 11.1 Mr K Pegden (paragraph 5.7A and 5.7B) summarises the conclusions made by SDG. This includes the comments that “there is a strong argument for the modelling carried out to support the development of the scheme’s business case to be audited in detail” and that “a full appraisal of one or more alternative strategies would be desirable”. The Kingskerswell Alliance feel severely disadvantaged at the late arrival of traffic and economic reports.
- 11.2 In paragraph 6.1, point A Mr K Pegden questions the business benefits claimed for the Scheme. Under his conclusion in paragraph 7.5 it is suggested that the Scheme will cost £130 million with a ‘less than convincing’ business case.
- 11.3 As discussed in paragraph 2.5, the Corridor study appraised a range of options. Having completed this high level assessment, the submission of Devon County Council’s Major Scheme Business Case required the assessment of three sub-options for a western bypass. Of these sub-options, the proposed Scheme provides the best return on investment.
- 11.4 For the purposes of this Inquiry, updated traffic and economic assessments have been completed in full compliance with the appropriate current guidance from the DfT.
- 11.5 With reference to DCC/P/4 it can be seen that the Quantified Cost Estimate is £120.859 million. DCC/P/4, Table 37 shows that the scheme has a BCR of 7.46 which represents excellent value for money. A large proportion of business benefits is due to the large proportion of business related traffic on the A380 corridor and the high value of time associated with business related trips.
- 11.6 SDG have been provided with copies of all traffic and economic reports (CD5.29A, CD5.30A, CD5.31A). There has also been extensive liaison with SDG regarding the appraisal of the Alliance Proposals and they have accepted that the assumptions included in our assessment are appropriate. A copy of Devon County Council’s correspondence with SDG is included as Annex B.
- 11.7 It can be seen from this correspondence that SDG’s queries have been responded to and information provided as requested. The changes in methodology in the latest iteration of traffic and economic reports are not significant as they simply reflect the updated guidance issued by the DfT and the latest land use assumptions given in the Regional Spatial Strategy and TEMPRO.

12 REVISED 'RESPONSE TO THE MAJOR SCHEME BID BUSINESS CASE'

General

12.1 A response to the original 'Response to The Major Scheme Bid Business Case' has been provided in DCC/P/4 Appendix 11. The following therefore addresses any significant changes to the original version of the report.

Page 18 Table 2

12.2 The Townscape sub-objective has been updated on Page 18 Table 2 and now reads, "Installation of tidal flow would impact the townscape slightly due to the lights required for traffic control. However this is balanced by a dramatically reduced impact on the townscape as the alternative solution for the Penn Inn roundabout would **not** require an ugly (and controversial) flyover. Update – Instead, our scheme takes the existing A380 under the existing roundabout in a tunnel".

12.3 The score for townscape has also been adjusted from slight beneficial to neutral in line with comments in DCC/A/4, Page 85. It should be noted that the score reflects the Kingskerswell Alliance proposals as formulated by the Alliance and does not include an assessment of gantries which would be required for the Alliance scheme and are likely to have a significant negative effect on townscape.

Page 45, Key Point 8

12.4 On page 45, key point 8, additional text has been added via the Clarification / Correction sheet on page 1, this states "There was another short on site meeting in Kingskerswell on 27th June 2005 for planning committee members which a small group of residents and some officials were invited to. This was not an exhibition. The meeting was for planning related matters. Clarify letters of objection estimated number".

12.5 DCC/A/4 Appendix 11, Paragraph 3.3.22 refers to the site meeting but does not claim that it was an exhibition. It does however state that the Planning Authority consultation (which the site meeting was a part of) "provided further opportunity to comment on the scheme."

Page 48, Key Point 15

12.6 Page 48, key point 15, additional text has been added via the Clarification/ Correction sheet on page 1 which states "*Key Point 15 Journey Time survey updated. Correct spelling mistake*".

12.7 Key Point 15 now reads, "Inappropriate Journey Time Analysis?: In the Report of Surveys and LMVR (4.1.1) we note that the Journey Time Analysis was conducted over an 8.72km route which takes in other junctions which would not be directly bypasses by the new road (which covers roughly a 5km stretch). Extending the Journey Time Analysis in this way, surely must inflate the observed delays by picking up unrelated issues from the extra junctions. The Journey Time Analysis was conducted in just 2 days. Does this provide a representative analysis? Why was the extended route chosen?..."

12.8 DCC/A/4, Appendix 11 Paragraph 3.3.35 states, "Further journey time data has been collected since the issue of the MSBC, allowing further analysis of the improvement in travel times resulting from the construction of the proposed scheme. Due to the method of collection and the long period over which data was collected, approximately 60 route observations were achieved in both directions; as a result the data is of very good quality. The journey

time analysis has shown that scheme produces significant journey time savings along the route, with subsequent improvements in journey times and reliability.”

- 12.9 The proposed route begins to the north of Penn Inn and terminates to the West of Kerswell Gardens. Recognising that the approach roads to the north and south are heavily impacted by the congestion on the A380 and hence by the scheme it was considered appropriate to extend the surveys beyond Penn Inn and Kerswell Gardens. It is entirely appropriate to model and the full effect the Scheme and for the benefits to be included in the economic analysis.

Page 55, Paragraph 3

- 12.10 The original report had the sentence “We cannot reconcile the figures in this table with the figures shown on the MSBC assessment table (see Key point 13 p47)”
- 12.11 The new report has been updated and now reads, “CO2 discrepancy question explained, unclear if applied to PM10 etc”
- 12.12 DCC/A/4, Volume 3, page 73 states, “The reason for the absolute emissions and the change in emissions differing between the ES and MSBC is, as for the local air quality, related to the updating of traffic data, a revision to the study area for air quality to take into account roads indirectly affected by the Scheme and, in the case of Carbon Dioxide emissions, a change in the reporting requirement from carbon dioxide to carbon.”
- 12.13 For clarity it is reiterated that the “discrepancy” in PM10 is also due to the above.

Page 65, Fourth Bullet Point

- 12.14 The original report stated, “there is concern about the environmental impact of the scheme e.g. the Greenhouse Gas emissions which seem substantially lower in the MSBC than the Environmental Statement and the impact of the recently discovered toxic landfill site adjacent to the route which has yet to be evaluated.”
- 12.15 The new report now reads - “there is concern about the environmental impact of the scheme e.g. the increase Greenhouse Gas emissions and the potential impact of the material dumped at the landfill site adjacent to the route which has yet to be evaluated.”
- 12.16 The comments about Greenhouse Gas emissions have been covered above.
- 12.17 DCC/A/4, Appendix 11, Page 80 and page 111 address the potential impact of the landfill site.

13 CORRESPONDENCE FROM STEER DAVIS GLEEVE TO MS YVONNE PARKER, DATED 23RD JUNE 2009 (OBJ/KA(45)/A.1)

General

13.1 SDG have provided an overview of the work they have completed on behalf of the Kingskerswell Alliance. The following section provides a response to the issues raised in their correspondence. A full response to the critique has been provided in DCC/A/4, Appendix 11.

Data Collection and Modelling

13.2 Page 2 of SDG's correspondence states, "The 'Report of surveys and local model validation report (final draft)' concerned us as there seemed to be a lack of journey time surveys and a little evidence of journey time validation."

13.3 Page 3 also states, "The 'Forecasting Report (final draft)' showed two area of concern: the possibility that growth had been overstated and the use of an absolute model. The first of these would be easier to resolve than the second, but the second was arguably more important: the case for the scheme hinges on the forecasts which are produced by the model. It is therefore of paramount importance that the model's outputs are considered reliable."

13.4 The above comments refer to the Traffic and Economic work used to support the Major Scheme Business Case, submitted in December 2007. The updated Traffic and Economics work, used to support this Inquiry, has addressed these comments. Details are now included in reports, CD5.29A, 5.30A and 5.31A.

13.5 For example, journey time validation for the A380 is given in section 10.9 of the Report of Surveys and Local Model Validation Report (CD 5.29A). The results show that the models are calibrated in accordance with DMRB criteria.

13.6 The Forecasting process has been completed in accordance with the very latest guidance provided by the DfT in WebTAG. There has been close liaison with the DfT regarding the levels of growth that should be included in our model; growth has been constrained to TEMPRO growth levels on a district level. More detail is given in Section 3 of the Forecasting Report (CD 5.30A). A full variable demand assessment using Diadem (a DfT approved software package) has also been used in the forecasting process; an absolute model has not been used in the forecasting process. Full detail is given in Section 6 of the Forecasting Report (CD 5.30A).

Value for Money

13.7 SDG have raised a number of points relating to value for money, in particular travel time, vehicle operating costs and indirect taxation, optimism bias and the monetised environmental impact. These issues have all been addressed in DCC/A/4, Appendix 11, Section 4.4

Wider Economic Benefits

13.8 Under Wider Economic Benefits for the Scheme, SDG have questioned the following:

- The method used to calculate the total increase in employment attributable to the project
- The wider economic benefits including the values attributed to increased labour force participation, agglomeration benefits and the improved

productivity benefits set out in 'The Social Benefits and Impact on Gross Domestic Product, October 2006'

- The estimation of regeneration impacts.

13.9 Again the points raised by SDG are covered in DCC/A/4, Appendix 11, Section 4.5 where it is noted that: "The economic assessment undertaken comply with the relevant guidance and reflect the economic conditions of the time. The assessments recognise that road improvements alone will not deliver the potential economic improvements; however, there is substantial evidence of public policy strategic objective and funding priorities which will be complemented by road improvements.

Kingskerswell Bypass – Alternatives to the bypass at less than half the cost

13.10 SDG have provided a summary of a range of interventions intended to achieve the goals defined for the bypass scheme without imposing the same costs. SDG conclude that these measures have considerable promise and deserved full consideration.

13.11 A full response to these interventions has been provided in DCC/A/4, Section 4 and DCC/P/4, Section 14. It has been concluded that the proposals fail on a number of objectives set for the Scheme. The proposals do not represent sufficiently high value for money to secure funding through the Regional Funding Allocation Process and do not represent a Scheme that Devon County Council would be prepared to promote.

Annex A: Technical Note - Overhead Gantries

1 Introduction

- 1.1 This document aims to assess the possibility of operating a tidal flow system through Kingskerswell without the use of overhead gantries. In particular it aims to look at the practicality and associated safety risks of running such a scheme using other more aesthetic measures.

2 Background

- 2.1 There are a number of tidal flow road systems now in operation, both nationally and internationally, using a variety of methods of lane control and traffic management. These range from overhead gantries, movable barriers and LED road studs. The use of overhead signage is by far the most common means of providing information to road users in a tidal flow system; with all known current systems using overhead gantries. However, other, possibly less visually intrusive, systems which could serve the same purpose have been explored.

Table A1: Examples of Tidal Flow Schemes

Location	Description	Control Measures
Aston Expressway, Birmingham, England	7 lane motorway, providing 4 lanes in peak direction.	Overhead Gantries, Traffic separated by an empty lane.
A470 North Road, Cardiff, Wales	3 lane highway, providing 2 lanes in tidal direction.	Overhead Gantries. No method of traffic separation.
Auckland Harbour Bridge, Auckland, New Zealand	8 lane highway, providing up to 6 lanes in tidal direction.	Overhead Gantries, Traffic separated by movable barriers
Saltash Tunnel and Tamar Bridge, Saltash, England	3 lane suspension bridge running into 3 lane tunnel. 2 lanes in tidal direction.	Overhead Gantries, Lanes marked using illuminated road studs.
Warringah Freeway, Sydney Australia	Collection of carriageways, 4x3x3x3, with a whole 3 lane section being reversed for tidal operation.	Overhead Gantries, Traffic separated by movable barriers.

3 Options

- 3.1 Despite the extensive use of gantries there are still a limited number of alternatives which could be used to facilitate the operation of a safe tidal flow system. These include:
- Movable Barriers,
 - Interactive roadside signage,
 - Interactive embedded LED road markings and,
 - LED road stud lane markings.
- 3.2 Consideration of these options is given below.

4 Barriers

- 4.1 The use of a movable barrier to divide opposing streams of traffic could restrict vehicles from entering the incorrect lane and therefore would initially appear to address some safety concerns. This form of tidal lane management is predominantly used on bridges, such as the Auckland Harbour Bridge, and sections of trunk road in the UK. Barriers are moved using a Zipper Machine, at a rate of 4mph, with traffic able to pass during this process.
- 4.2 Although this would be a safe way to segregate opposing traffic, these types of barriers are not used in locations with significant frontage access. Within Kingskerswell the use of a barrier would seriously prohibit the movement of traffic between the village and the A380. The provision of right turns would have to be removed in a number of, if not all, places and access into properties fronting the road would be seriously restricted. The restriction of movements on the A380 would require traffic orders to implement and there would be considerable risk of opposition from the public.
- 4.3 At Jurys corner, a novel layout would be required to allow for right turns. Such a system could pose a number of operational and safety problems and, as a result, would not be a desirable means of traffic control.

5 Interactive Roadside Signage

- 5.1 One possible alternative to providing lane assignment and information to road users through overhead gantries would be to use interactive roadside road signs instead. These would have less visual intrusion than gantries and could be used to show the current lane layout as well as additional driver information.
- 5.2 Although interactive signs would be clear to the majority of traffic in the nearside lane, visibility from the tidal lane would be a more of a concern, especially during the busy periods, or when the nearside lane is occupied by larger vehicles. It will not be possible to address these visibility issues without significantly impacting on the visual intrusion of such a scheme through provision of larger, more frequent or higher mounted signs.

6 Interactive embedded LED road markings

- 6.1 A potential alternative to overhead or roadside signage could be the use of embedded LED road markings. These would involve a patch of sunken lights in the road surface which would change colour, in the tidal middle lane, to indicate which lanes are open.



- 6.2 There are a number of concerns with sign visibility under this proposal. For example, although the sign itself would be clear to see when unobstructed, the traffic through Kingskerswell is likely to be too heavy for the embedded road markings to be visible at all times. This would be especially true in the non tidal single lane direction and could result in dangerous overtaking manoeuvres.
- 6.3 There are also issues with perspective for drivers travelling in different directions. Markings could be confusing to drivers and again add to the risk of vehicles entering the tidal lane at the wrong time of day.

- 6.4 A safety risk for motorcyclists may also be introduced due to braking and reduced grip over the studs

7 LED road studs

- 7.1 The use of LED road studs is becoming increasingly popular within the UK and Europe. LED lights are primarily used to improve safety, in particular when visibility is limited. Their implementation on the A41 Aston Clinton Bypass was primarily to reduce the need for street lighting and gantries, with the aim of minimal visual intrusion in an Area of Outstanding Natural Beauty (AONB). In Holland they have been used to indicate and illuminate hard shoulder running during peak periods, with successful results.
- 7.2 Neither of the above schemes are tidal flow schemes and therefore neither need to address the issue of vehicles being able to cross into a lane of opposing traffic. Within the UK the use of road studs has also been limited to night times in accident black spots.
- 7.3 For a tidal scheme, colour coded LED studs would be required to mark lane boundaries. The colour of these studs would depend on the road layout for that time period, but generally green and red lights would be used to indicate which lanes are open and which are closed. This would be very similar to their use within the Saltash tunnel. At night time, when traffic flows are significantly lower, LED lights could be used instead of street lights to reduce visual impact.
- 7.4 The use of LED lane markings to indicate the tidal layout is feasible for an open stretch of road with no frontage development. On the A380, however, there are a number of accesses from side roads and properties which could pose problems. Through Kingskerswell the road itself has some 23 side road accesses as well as a considerable number of properties fronting onto the road. One particular concern would be the confusion caused to visitors to properties fronting onto the road. The potential exists for the road to be subject to a different layout upon exiting, with no signage indicating the change. This would be a serious safety concern as a lack of concentration and awareness could easily result in a head on collision. As a result LED road studs would not be considered in isolation on the A380 and would only be used in conjunction with gantries.

8 Conclusion

- 8.1 In conclusion it is unlikely that a tidal operation would be implemented without some kind of overhead signage. The proposed tidal layout would be more complicated for motorists and a lack of clear and simple driver information would, on safety grounds, be a cause for concern. Although the alternatives listed above could provide a solution in certain areas, they would not be suitable through Kingskerswell. The high number of accesses onto this link would require frequent signage, and is unlikely to be achieved to an acceptable level using just LED markings or any of the other measures outlined.

Annex B – Correspondence with SDG

1 Introduction

1.1 The following annex provides details of correspondence between Devon County Council (DCC) / Parsons Brinckerhoff (PB) and Steer Davis Gleave (SDG). The correspondence has been highlighted as follows:

- Blue (Bold) text – correspondence from SDG
- Black (Plain) text – original response from DCC/ PB
- Red (Italics) text – revised response sent from DCC / PB

2 Overview

2.1 The comments made below relate to the various emails sent from Parsons Brinckerhoff on 3 April 2009, 30 April 2009 and 4 June 2009. We have addressed areas of concern or areas where questions/clarifications have been sought (shown in italics).

2.2 The areas of clarification sought by Parsons Brinckerhoff and Devon County Council have mainly been of a traffic engineering/highway engineering nature and focussed directly on the engineering alternatives to the bypass. A large part of the brochure 'Alternatives to the bypass at less than half the cost' was focussed on other measures to:

- Manage travel demand
- Promote sustainable travel and modal choice
- Minimise the impact of travel on the environment

2.3 Potential measures included:

- Smarter Choices – school/business/personal travel planning and better information provision for walking/cycling/public transport etc
- Public Transport – improved bus services and associated infrastructure as well as reopening of the Kingskerswell Railway Station and improved rail services
- Promoting and Using Other Transport Modes – Walking/Cycling

2.4 Although these measures are often applied to a wider area, all of these measures are an important part of the scheme and will help to reduce travel demand and make it sustainable across the Teignbridge and Torbay areas. We would be grateful if you could please clarify how Devon County Council is improving the situation along the A380 (which has been designated as a sustainable transport corridor) using these measures, and the likely reduction in travel demand these will have as part of the scheme.

2.5 *The above measures are all identified in David Black's evidence for the Public Inquiry DCC/P/4. The council have a strong emphasis on developing travel plans for new developments and working with existing employers to assist them in developing travel plans. Personalised Travel Planning is taking place in Exeter and will be rolled in Newton Abbot.*

2.6 *The bus route along the A380 corridor is currently very frequent, every 10 minutes, but as you will be aware the bus is consistently held up in the congestion. Route 66 is a relatively recent addition to the A380 corridor. The opening of the rail station at Kingskerswell is planned to be delivered in the future and although part of an overall package will only have a small impact on the private transport demand. Further information on the existing and proposed public transport facilities is included in Modelling reports and David Black's evidence DCC/P/4.*

- 2.7 *NCN 28 is currently being developed and will run from Dartmoor to Torbay through Kingskerswell. Some sections are built, others are being designed and the rest is being developed. It is envisaged that the route would run through Kingskerswell if the bypass were built, again see DCC/P/4 section 12.6.*
- 2.8 *As you quite rightly suggest it is the Scheme that will provide a catalyst for improved bus facilities and provide space to improve walk and cycle facilities*
- 2.9 *Research on the likely reduction in travel due to these measures is shown in and DCC/P/4 Appendix 7. This shows a reduction of approximately 12%.*

3 Email dated 3 April 2009

Tidal Flow System

- 3.1 This would link from the A380 dual carriageway to the north of Penn Inn through to Kerswell Gardens. This has been assumed to be in operation for the AM and PM peak periods (07:00 - 10:00 and 16:00 - 19:00). We have assumed the tidal lane would be in operation in a northbound direction in the AM peak period (i.e. there would be 2 lanes in a northbound direction and 1 lane in a southbound direction) and in a southbound direction in the PM peak period (i.e. 2 lanes southbound and 1 lane northbound). Please can you clarify that these times of operation are acceptable. During the times of operation of the tidal lane above, we have continued to allow all right turn movements onto and from the A380. During the interpeak period (10:00 - 16:00) there would be 1 lane in operation in each direction, with the tidal lane being used as storage for right turn movements which are all allowed as in the existing situation.
- 3.2 We have assumed that all current pedestrian crossings (pelican and zebra) across the A380 between Penn Inn and Kerswell Gardens would remain in place.
- 3.3 We have assumed that bus stops would be located in bus lay-bys off the carriageway to prevent buses blocking traffic whilst picking up and dropping off passengers (there would be no scope to pass a stopped bus in the direction with only 1 lane). This may require additional CPOs to acquire land required to construct the bus lay-bys.
- 3.4 **In considering the tidal flow system, we had initially assumed that the system would operate during the times and directions as you have outlined above. However, I cannot confirm that these times, directions and handling of right turn traffic are acceptable until we have viewed the initial modelling output and reviewed potential issues for further consideration and hence, further modelling. However, I will confirm that your assumptions are a reasonable point to start for the first iterations of your modelling.**
- 3.5 *The modelling reports (CD5.29A, CD5.30A, CD5.31A) have been supplied to the Alliance and are also available on the web. David Black's evidence DCC/P/4 explains this fully. The reports provide all the up to date information on current and forecast traffic flows. The evidence includes forecast flow for the layout as identified above.*
- 3.6 **The assumptions of retention the existing pedestrian crossings are reasonable for the first iterations of your modelling. However, further considerations may arise from the modelling which may need to be considered with further modelling undertaken. It would be useful to know if you have actually determined the most appropriate areas for pedestrian crossings via pedestrian demand surveys/key areas within the village.**
- 3.7 *Pedestrian facilities have been developed over a number of years and are reviewed regularly. Pedestrian survey data is included in the Report of Surveys and Local Model Validation Report (CD 5.29A) Table 15.*

3.8 Your assumptions regarding bus stops are reasonable. However, it may be worthwhile to review the locations of the current bus stops to determine the most appropriate locations for passengers as well as any additional land required.

3.9 Noted that assumptions seem reasonable and are sufficient for this stage.

Penn Inn Roundabout

3.10 We have included a 3 lane tunnel under Penn Inn, linking from the A380 Dual Carriageway to the north of Penn Inn to the existing road south of Penn Inn. The tidal flow system would start on the northern side of the tunnel. In terms of the traffic modelling, the tunnel has been modelled in the same way as the flyover in our proposed scheme.

3.11 We have noted your assumptions above, which are an ideal start to determining the most appropriate layout for the tidal flow system and the Penn Inn Roundabout. However, there may be other options to consider such as:

- **To the north of Kingskerswell, it would also be advantageous to see the effect of providing a four lane underpass under Penn Inn Roundabout. i.e. continuing the A380 as four lanes from the north, potentially to the Barn Owl where it would then become a three lane tidal flow system.**
- **To the south of Kingskerswell, it would also be worthwhile to see if the three lane tidal flow system could be ended near to the Hare and Hounds when the A380 could then be widened to four lanes before continuing onto the Kerswell Garden Roundabout.**

3.12 A four lane flyover (similar in concept to an underpass) has been appraised previously and would be considered over provision as traffic flows do not warrant it, as can be seen from Report of Surveys and Local Model Validation Report (CD 5.29A) Figure 13.

3.13 Extending the Alliance scheme as you have identified above would result in compressing the area of congestion into a smaller area and is likely to have many of the same problems as the current Alliance Scheme, see DCC/P/4 Section 14.

Kerswell Gardens

3.14 We have included dedicated slip lanes from the A380 to Riviera Way (southbound through the roundabout), from A380 Hamelin Way to A380 (from Paignton to Kingskerswell) and from Riviera Way to A380 Hamelin Way (left turn from Torquay to Paignton). These provide dedicated lanes for each of the left turn movements at the roundabout.

3.15 We note the design assumptions you have made (as discussed at our meeting on 3 April 2009) to undertake your modelling and to determine the most appropriate layout at the Kerswell Garden roundabout.

A380 Hamelin Way

3.16 We have included dualling of the A380 Hamelin Way from Kerswell Gardens roundabout to the existing dual carriageway (see attached plan).

3.17 We note your intentions here and have no comment at this time.

Jury's Corner

3.18 As we discussed at the meeting, we have looked at two options for Jury's Corner - keeping the signalised junction, and removing the signalised junction and making the side roads priority junctions. The current volume of traffic turning right or travelling straight ahead from

Coffinswell Lane and Barnhill Road junction are in the order of 100 vph in both peak periods. This represents approx. 2 vehicles per minute wishing to go straight ahead or right from the side roads; this traffic would find it very difficult to make this manoeuvre without being signalised, and in reality the mainline traffic would stop to let this traffic out. This is likely to cause disruption to the A380 flow. Alternatively the right turn and straight ahead movements could be banned - this is not considered to be suitable as there are no obvious alternative routes for these movements and they may need to travel to either Penn Inn or Kerswell Gardens to make a u-turn. It has therefore been concluded that the junction should remain signalised.

- 3.19 We have included a central right-turn lane at the junction. This lane would change location depending on the direction of the tidal flow system, but would allow right-turn storage and prevent blocking of ahead traffic. A plan of the junction layout and signal stages is attached below (please note the signal stages are the same as the existing). This layout would be a fairly innovative junction design, and would require gantries to sign the central right-turn lane.
- 3.20 The pedestrian stage at the junction has been removed (this will be via a subway) and hence the junction capacity has increased accordingly.
- 3.21 We note the design options you have considered here. Having not sighted the modelling nor engineering designs, we tentatively agree with your proposed option. We note your comment on the junction being a potentially innovative design. It would be ideal to consider the design of the junction further and not use gantries which is particularly innovative and is discussed further within this response.**

3.22 The modelling and conceptual layouts are provided in David Black's evidence DCC/P/4. The use of gantries is dealt with below.

Queue Relocation

- 3.23 At present we have not included any queue relocation measures. I am assuming this would involve introducing signals southbound on the A380 dual carriageway at the start of the tunnel, and on the A381 coming out of Newton Abbot to restrict traffic flowing into the A380 corridor when there is only 1 southbound lane (AM peak period). Similarly, signals could be introduced in a northbound direction on Hamelin Way and Riviera Way south of Kerswell Gardens. However, at present traffic flows into the corridor are restricted by the merges at the south of Penn Inn roundabout (southbound where the 2 lanes from Penn Inn roundabout merge into a single lane) and north of Kerswell Gardens (where the two lanes from Kerswell Gardens merge into a single lane). These merges provide a capacity restraint and effectively restrict the flow of traffic into the corridor. These would remain in place when the tidal flow system is not in operation in that direction. Please can you advise if you wish for additional measures to be included in the model?
- 3.24 Unfortunately, we cannot comment on this issue without undertaking a review of your modelling to date and extensive further research/modelling of the most appropriate measures for queue relocation/demand management measures. However, we do view these measures as potentially having extensive benefits in controlling the A380 through Kingskerswell.**
- 3.25 The modelling as provided in David Black's evidence DCC/P/4 which takes account of capacity restrictions and modifies the demand accordingly. The reduction in capacity has the effect of controlling the traffic through the A380 corridor. However, there are other significant disbenefits as identified in Section 14.*

Kingskerswell Railway Station

- 3.26 We are carrying out an analysis of the predicted number of trips that would be likely to use Kingskerswell Rail Station as opposed to travelling by car. This analysis is based on the

previous studies and the new data and modelling work. We would be happy to provide further information on this in due course.

3.27 We note your comments and would be grateful to receive further details on your assessment (including your method of assessment) in due course.

3.28 This is provided in David Black's evidence DCC/P/4 paragraph 12.5.

4 Email dated 30 April 2009

Lane Widths

- 4.1 The existing A380 through Kingskerswell generally consists of a 7.3m wide carriageway with 1m cycle lanes either side (total width 9.3m), although it is wider in places where there are right turn bays. Your leaflet on your alternative scheme states that 'there is sufficient space available to accommodate these three lanes as well as dedicated cycling and pedestrian space'. Assuming the cyclists and pedestrians are moved off the carriageway to a cycleway / footway (as in the artist's impression picture), this would leave the 9.3m carriageway for 3 lanes (i.e. 3.1m per lane). We are assuming that these lanes would be too narrow and would not have sufficient capacity; we are therefore suggesting that the lanes be of the order of 3.4m wide (total width 10.2m). This would require some widening of the existing carriageway in places.
- 4.2 Using the capacity formula in the COBA Manual (Part 5 Section 2) and a carriageway width of 3.4m, this gives a capacity of approximately 1200 vehicles per hour per lane for a 6% HGV proportion. This is the capacity per lane that we are using in the model.
- 4.3 Please can you confirm whether the above assumptions are acceptable?
- 4.4 Without detailed topographical survey information being made available to us along the length of the A380 from Penn Inn Roundabout to Kerswell Garden Roundabout, we cannot properly assess the actual existing highway space available. However, some random measurements were taken on site as well as from aerial mapping to determine if areas could accommodate three lanes plus cycling/walking facilities.**
- 4.5 We agree with the assumptions you have made and that some highway or carriageway widening may be required. However, in reducing the lane widths to 3.4m, there may be some merit, particularly in relation to road safety, in reducing the speed limit from the current 40mph to 30mph, particularly if one of the lanes may be used as a HOV lane.**
- 4.6 Could you please confirm that the percentage of HGV's used to calculate the capacity per hour per lane HGV correlates with the current proportion of the HGV's using the A380.**
- 4.7 The appropriate speed limit for the innovative tidal flow layout would be 30mph. The proportion of HGV's used in the capacity calculations is in accordance with the current proportion, approximately 7.5%.*

St. Marychurch Road

- 4.8 The document 'An Enlightened Approach to Congestion' issued in December 2007 suggests making improvements to St. Marychurch Road to provide a possible additional alternative route to Torquay as well as the A380 through Kingskerswell. However, your leaflet 'Alternatives to the Bypass at Less Than Half the Cost' does not mention this as part of the proposed alternative scheme. Could you please clarify whether improvements to St. Marychurch Road are included as part of your proposed scheme, and if they are, what standard you would expect to be provided along this route.

- 4.9 As part of the brochure 'Alternatives to the Bypass at Less than Half the Cost', we did not mention any improvements to St Marychurch Road. Having considered it further after the 'An Enlightened Approach to Congestion', it was felt this route would require substantial widening and improvement to increase traffic capacity and could only operate as it presently does in diverting some local traffic.
- 4.10 Additionally, the provision of a direct connection from St. Marychurch Road to the Kerswell Garden Roundabout may require significant planning and engineering works.
- 4.11 *Could you provide an indicative plan of this suggestion in order to allow a better understanding of the location of the connection?*
- 4.12 However, some isolated improvements mentioned below (although not exhaustive) along St Marychurch Road could be undertaken to improve safety;
- improve the current condition of the carriageway and maintain the road to a higher level;
 - provide adequate drainage where required;
 - increase the carriageway width via road widening in narrow areas and where vehicles find it difficult to pass each other.
- 4.13 *David Black's evidence DCC/P/4 Figure 14 shows a plan of St Marychurch Road. It can be seen that a significant proportion of the route is less than 5.5 metres wide. It would be helpful if you could mark on the plan where it is considered widening should occur and to what standard.*

5 Email dated 4 June 2009

- 5.1 (3) In our appraisal of the scheme, we have tried to present the most operationally effective and optimally designed scheme in terms of the objectives that we believe you are trying to achieve with your scheme. One point that must be noted however, is that Devon County Council would not be prepared to construct your proposed scheme without gantries (these would indicate which lanes are open in which direction at any time). It is considered that the scheme would not be safe without these. We are unaware of any other "tidal lane" scheme that does not use gantries - if you are aware of a layout similar to yours perhaps you could identify it. In the meantime we are assuming that gantries would be in place along the length of the scheme.
- 5.2 We would like to understand the basis upon which the non-use of gantries has been considered by Devon County Council. We understand that the schemes currently in place within the UK that use tidal-flow use gantries to indicate which lanes are open at which times.
- 5.3 *The key issue is road safety. Consideration has been given to the non-use of gantries but there are significant problems with numerous access, junctions, heavy traffic flows, pedestrian crossing facilities and clarity of road markings in the various weather conditions. As you have identified all the tidal schemes currently in operation use gantries.*
- 5.4 We consider that the use of gantries in Kingskerswell will be unsightly, not in keeping with the local environment and will most likely meet with opposition from local residents and businesses, especially those fronting the A380. The alternative of dynamic road markings would be an ideal solution to prevent the use of gantries. We accept that the use of dynamic road markings is still developing, however trials are being undertaken by the Highways Agency as well as other highway authorities in Europe. Their use in Kingskerswell would be ideal in developing innovative transport technologies.

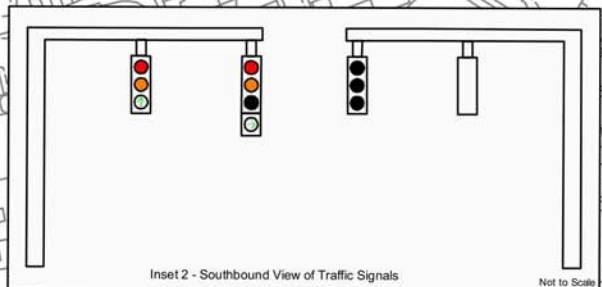
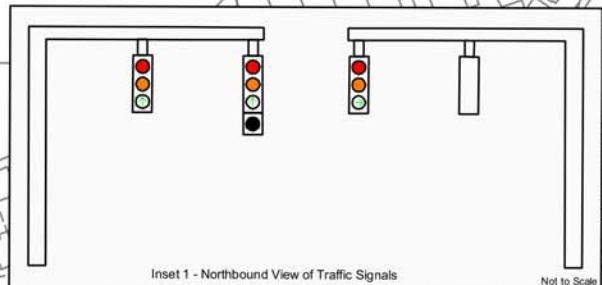
5.5 There is an appreciation of the benefits of dynamic road markings for complex junctions and hard shoulder running. In these instances traffic is travelling in the same direction and there is additional signing. I would welcome sight of any further information on the trials.

5.6 (4) Regarding the proposed subway at Jurys Corner, we have looked into possible designs for this element of the scheme. As we are required to construct ramps at both sides in order to provide access for wheelchairs, pushchairs etc. and for safety purposes, it is not possible to construct a subway underneath the existing A380 at Jurys Corner. Our best and most deliverable design involves constructing the subway further south, where there is an existing structure which would allow ramps to be constructed. However, this does mean that the subway would not be on the main desire line at Jurys Corner and pedestrians would need to divert their route to use the facility. The diversion would involve an additional distance of approximately 180 metres. We would also need to provide guard rails at the junction to prevent pedestrians crossing at Jurys Corner. We are considering a range of designs to ensure it fulfils other criteria related to safety and environment.

5.7 We note your comments and would be grateful to view your designs to suggest any improvements that could be made to meet the needs of the residents of Kingskerswell.

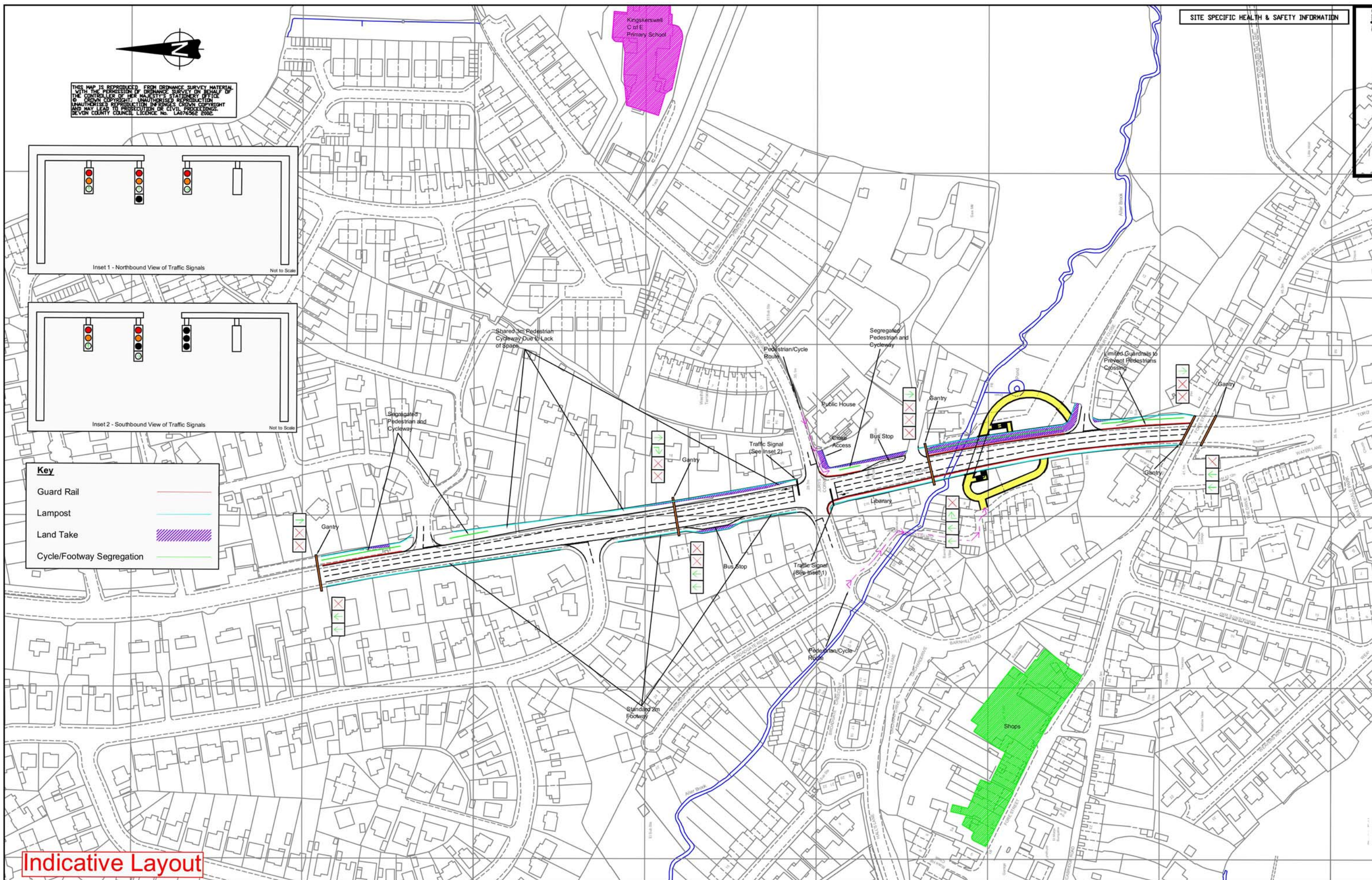


THIS MAP IS REPRODUCED FROM DRAINAGE SURVEY MATERIAL WITH THE PERMISSION OF DRAINAGE SURVEY ON BEHALF OF THE COMMISSIONER OF HER MAJESTY'S STATIONERY OFFICE © CROWN COPYRIGHT. UNAUTHORISED REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED BY LAW. DEVON COUNTY COUNCIL LICENCE No. LA074362 2002



Key

Guard Rail	
Lampost	
Land Take	
Cycle/Footway Segregation	



Indicative Layout



Edward Chorlton
Director of Environment, Economy and Culture



Parsons Brinckerhoff Ltd
The Forum, Bamfield Road, Exeter, Devon, EX1 1QR
Tel: 44 (0)1392 229700 Fax: 44 (0)1392 229701

project

KINGSKERSWELL BYPASS SCHEME

drawing title

ALLIANCE SCHEME – JURY'S CORNER

no.	date	revision	by	chief	appl	date
						23/06/09
						scale: 1:2,000MS
						designed: NW
						produced: JGP
						checked: NW
						approved: NW
						ACM ref: Jury_Corner.dwg
						drawing no.

Annex C