Herefordshire Council

# SOUTH WYE TRANSPORT PACKAGE

## Option Refinement Report

-
FEBRUARY 2019

PUBLIC

Herefordshire Council

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Herefordshire Council

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## Option Refinement Report

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# CONTENTS

# APPENDICES

Appendix A – Key Environmental Designations

Appendix B – SLR Routes

Appendix C – SLR Traffic Flow Diagrams for 2017 and 2032 Weekday Peak Periods

Appendix D – Plan of Cultural Heritage Features

Appendix E – Appraisal Summary Tables of SLR Routes

Appendix F – Schedule of active travel measures and outcome of initial sift

Appendix G – Groups of Possible Active Travel Measures and their Subsequent Refinement

Appendix H – September 2016 public consultation exhibition boards of possible active travel improvements

Appendix I – Feasibility drawings of active travel measures

Appendix J – Comparative Study

Appendix K – Appraisal Summary Tables of Active Travel Measures

# GLOSSARY

| Term | Description |
|---|---|
| **Active travel** | Transport modes which promote physical activity, principally walking and cycling, rather than motorised forms of travel such as the private car. |
| **BBLP** | Balfour Beatty Living Places, the contractor providing highways services to Herefordshire Council, and the client for this project. |
| **Clehonger Link** | A new road link from the A465 to the B4349 Clehonger Road, passing east of the property known as Pykeways. |
| **Departures from Standard** | Any variation or waiving of a requirement contained within a DMRB, except where the standards permit specific relaxations. |
| **DfT** | Department for Transport, the UK ministerial department which inter alia provides policy, guidance and funding to English local authorities for major transport schemes and issues guidance on the conduct of transport studies. |
| **DMRB** | Design Manual for Roads & Bridges, a suite of documents which set out current standards and advice on the design, assessment and operation of trunk roads, including motorways. DMRB may also be applicable to other roads with similar characteristics. |
| **Highways England** | Government company which operates, maintains and improves England's motorways and trunk roads. |
| **HEZ** | Hereford Enterprise Zone, a 72 hectare site designated by central government at Rotherwas in which companies benefit from 100% business rate discounts and simplified planning application arrangements. |
| **NCN** | National Cycle Network, the UK-wide network of signposted routes for cycling, initially created by the charity Sustrans, mostly composed of quieter on-road routes and traffic-free links. |
| **OAR** | Option Assessment Report, which documents the Stage 1 transport appraisal processes (option development). |
| **Openreach** | A subsidiary of telecommunications company BT Group that owns the wires and telephone cables connecting subscribers to the national broadband and telephone network. |
| **PRoW** | Public Rights of Way, the network of footpaths, bridleways, restricted byways and byways open to all traffic on which the public have various rights to travel. |
| **SLR** | Southern Link Road, a proposed new road link connecting the A465 to the A49(T). |
| **SWTP** | South Wye Transport Package |
| **(T)** | Trunk road |
| **TAG** | Transport Analysis Guidance, a suite of documents produced by the Department for Transport giving advice on undertaking transport studies and conducting appraisals which meets department standards. |

# EXECUTIVE SUMMARY

This Option Refinement Report (ORR) has been prepared to document the refinement of the preferred option, as recommended by the Option Assessment Report (OAR). It forms part of the technical work carried out to support the transport business case submission for funding approval, constituting the first element of *Option Development - Stage 2* of the Transport Appraisal Process, as set out in Department for Transport guidance. The use of an ORR to document this process was specifically agreed with the Department for Transport. The preferred option is a package combining a Southern Link Road (SLR) with active travel measures.

Seven route alignments were considered for the SLR, four of which were presented at public consultation in 2014. Three additional routes were generated as suggestions by third parties at the consultation. An assessment was made to understand how a suitable design could be achieved for each route, which concluded that SC2 performed best against key design criteria.

A technical assessment was then carried out to assess the anticipated impacts of each route on the economy, society and environment, based on the assessment areas set out in the Option Assessment Framework. Account was taken of the public consultation outcome and stakeholder views. The technical assessment demonstrated that SC2 was the best performing route. This route passes over the Hereford to Newport railway and under Haywood Lane, passes through the northern part of Grafton Wood but avoids Hayleasow Coppice. It includes a short section of road connecting the A465 to the B4349 (the Clehonger Link).

This route also received the highest level of support as a proportion of the feedback received, of the initial four routes taken to public consultation. This led to route SC2 being identified as the preferred route for the SLR. A range of refinements were subsequently made to the preferred route at the planning application and post-planning permission stage, such as changes to the design of structures along the route.

Possible active travel measures were identified from the analysis of problems in the OAR, a site visit, from those already in policies and plans, and through discussion with authority officers. In line with Step 6 of the Option Development process, an initial sift was undertaken to exclude measures which did not meet the guidance criteria. This meant that *inter alia* only active travel schemes which could be funded by capital expenditure were taken forward. Remaining active travel schemes were grouped for the purposes of assessment, with nine improvement groups taken forward for technical assessment. A further three variants were assessed to ensure that improvements could combine to create a coherent preferred package. In similarity to the SLR routes, this covered all the assessment areas in the Option Assessment Framework. The outcome of the 2016 public consultation on active travel schemes also formed part of the assessment.

Every improvement group obtained a positive score in the technical assessment and more support than opposition in the public consultation. A methodology was devised to enable the improvements to be prioritised, using three assessment criteria – alignment with South Wye area objectives, value for money and an assessment of the issues which may arise in delivering the scheme. A double weighting was accorded to the objectives score in view of the importance of implementing schemes which strongly achieve the objectives.

Applying this methodology identified that the active travel improvement groups which received the joint highest overall scores were groups 3 and 3A (two variants of Belmont Road walking and cycling improvements), groups 6 and 6A (two variants of Better walking and cycling routes to Hereford Enterprise Zone) and groups 8 and 8A (two variants of Holme Lacy Road further walking and cycling improvements). These are the schemes which would have the highest priority.

As the groups listed above contain variants of the same improvements, only three of the six listed groups were taken forward (groups 3A, 6A and 8). They were chosen on the basis of being the better performing variant and the ability to form a coherent package.

The planning application for the Southern Link Road (reference P/151314) was considered by Herefordshire Council's Planning and Regulatory Committee in June 2016. The committee resolved that the application be granted, subject to a series of conditions. One of the conditions stated that: '*Prior to the first operation of the road hereby approved, a weight restriction on Belmont Road shall be implemented and effective unless an alternative timescale is submitted to and approved in writing by the Local Planning Authority'.* On that basis, and although not forming one of the better performing active travel measures defined by the prioritisation process, Group 4: *Belmont Road weight restriction* was also included in the SWTP preferred package.

The preferred package of active travel improvements is summarised below:

- Group 3A (Belmont Road walking and cycling improvements, including Toucan crossing near Walnut Tree Avenue and associated works) would transform the look, feel and use of a substantial section of Belmont Road, which has a key role in enabling more journeys to be made by active travel modes to access the HEZ, the city centre and local facilities. This would provide connections to the key existing quality off-road route (Great Western Way) and extend the availability of quality off-road active travel infrastructure. The improved or new crossings along the length of the road would make it easier to cross and connect communities on either side of the road;
- Group 4 (Belmont Road weight restriction) would divert heavy goods vehicles away from the road except those with legitimate access requirements. This would improve the environment for the walking and cycling;
- Group 6A (Better walking and cycling routes to Hereford Enterprise Zone, without a shared use footway/cycleway under the railway bridge) would create a signed and waymarked 'quietway' cycle route from Newton Farm to the HEZ mainly using side roads. This would provide an alternative route to access employment areas, local facilities and schools; and
- Group 8 (Holme Lacy Road – further walking and cycling improvements, with a shared use footway/cycleway under the railway bridge) would make east-west walking and cycling links easier, quieter and safer, linking homes to the employment areas at the HEZ.

The total cost of the three groups of improvements was estimated to be £7.05m. It should be noted that this figure was a preliminary cost estimate reflective of the relative maturity of the scheme designs at the time of the prioritisation process. The costs for the preferred package of measures will be refined as the detailed design for each scheme comprising the preferred package is developed and subjected to value engineering.

In conclusion, the SWTP preferred package is a combination of route SC2 for the SLR (as subsequently refined through the planning application and post-planning permission stages) and Groups 3A, 4, 6A and 8 of the proposed active travel improvements. The business case will demonstrate that these elements are the package to be progressed.

# 1. INTRODUCTION

## 1.1. BACKGROUND

1.1.1. WSP was commissioned by Balfour Beatty Living Places on behalf of Herefordshire Council to develop an Option Refinement Report (ORR) in support of the South Wye Transport Package (SWTP) major transport scheme business case. The aim of the SWTP is to promote the economic growth agenda of Herefordshire Council and the Marches Local Enterprise Partnership (LEP), by addressing the specific transportation problems within the South Wye area of Hereford (geographic area shown in Figure 1 overleaf).

1.1.2. The ORR details the processes behind the selection of a preferred route for a Southern Link Road (SLR) connecting the A49 to the A465, along with a series of improvements to sustainable transport in the area, mainly for walking and cycling (referred to as active travel). The use of an ORR to document this process was specifically agreed with the Department for Transport. It forms the first element of the *Stage 2 – Further Appraisal* in the Transport Appraisal Process set out in the Department for Transport's Transport Appraisal Guidance (TAG). Figure 2 outlines the steps in this stage from TAG.

1.1.3. The ORR follows on from the Option Assessment Report (OAR), which documents the *Stage 1 – Option Development* element of the Transport Appraisal Process in accordance with TAG. The OAR recommended that a preferred option (a package combining a SLR with active travel measures) be developed further to identify the preferred route for the SLR and the type and location of active travel measures to be taken forward.

## 1.2. OPTION ASSESSMENT REPORT

1.2.1. The ORR was preceded by the Option Assessment Report (OAR), which was also prepared as part of work to seek funding for the SWTP. It covered the following key processes:

- A review of national, regional and local policy and strategy documents, which identified six common policy objectives – (1) enable economic growth; (2) ensure access to services, including those living in rural areas; (3) make journeys safer; (4) promote healthy lifestyles; (5) protect the environment and tackle climate change; and (6) provide a good quality transport network for all users;
- A review of technical studies which had been undertaken to inform policy and strategy, which tended to conclude that a combination of highway links on the periphery of the town should go hand-in-hand with investment in active travel modes of walking, cycling and public transport, with supporting funding of non-infrastructure measures such as behaviour change or demand management;
- Analysis of current and future conditions, and the causes of problems experienced in the study area;
- Objective development based on the insights gained from the above processes;
- Option identification, covering a range of modes, approaches and scales of intervention as potential means to address the issues identified, shaped by inputs from public consultation;
- Option sifting using the Department for Transport Early Assessment and Sifting Tool and then packaging options together;

- Option development and assessment using the Option Assessment Framework in TAG. This assessment process found that two of the four option packages (highway widening and highway junction improvements) did not perform well against the assessment areas. Two options – Southern Link Road and active travel measures – were both considered to contribute to the delivery of the study objectives, with each performing better against different assessment areas. As a consequence, the two better performing options were combined to deliver an option which performed well across a majority of the assessment areas.

## Figure 1 – Study Area

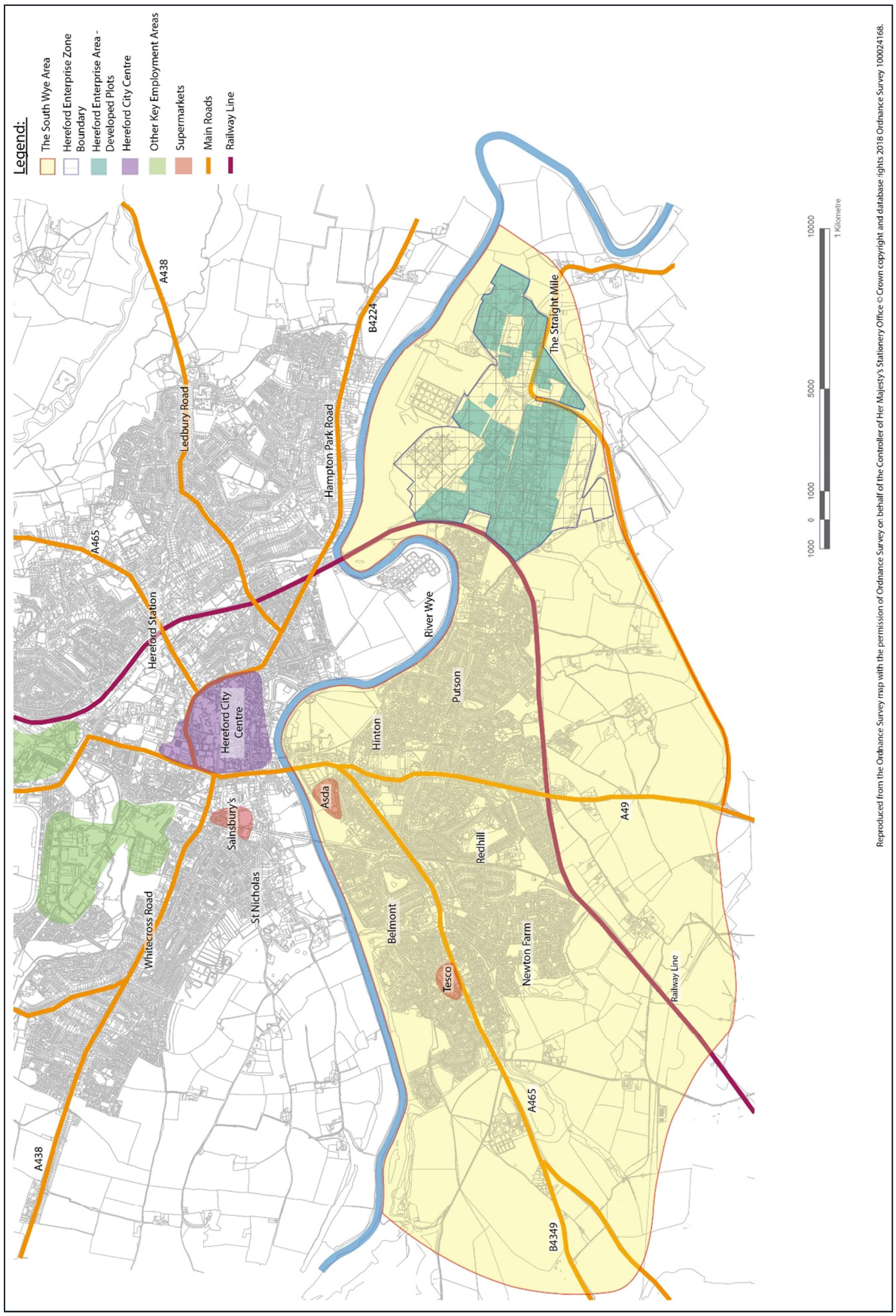
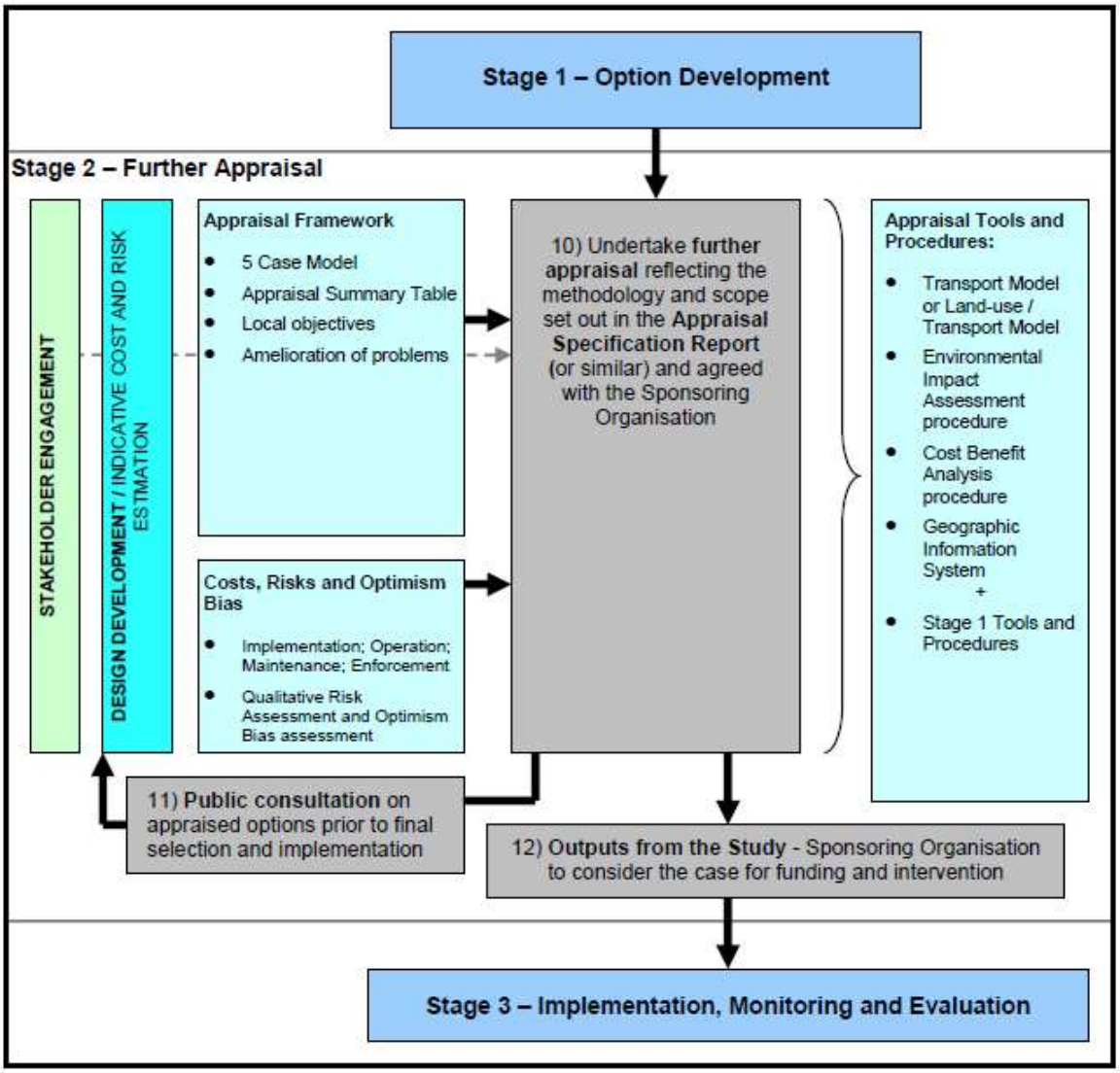


**Figure 2 – Further Appraisal Process**




## 1.3. SWTP OBJECTIVES

1.3.1. Objectives specific to the SWTP were developed from:

- A review of national, regional and local policies and strategies;
- A review of evidence of current and likely future conditions (including those identified by the various technical studies undertaken in respect of Hereford's transport network);
- Opportunities and constraints that impact the performance of the transport network;
- Causes of the problems experienced by transport users and local residents, and
- Engagement with stakeholders.

1.3.2. The objectives were developed at three levels, namely:

- Level 1 – Strategic Objectives (SO) – Defined as objectives to which transport contributes, but not always in a direct manner. These result in outcomes that are reflected over a wider area and/or to non-transport issues such as health;

- Level 2 – South Wye Area Package Objectives (AO) – Defined as the objectives which reflect the direct effects of transport intervention. They also include the outputs and outcomes which are intended to occur in the study area itself; and
- Level 3 – Operational Objectives (OpO) – Defined as desirable outputs which are necessary for the strategic objectives to be achieved.

1.3.3. The three strategic objectives (SO) are to:

- Support economic growth in Hereford;
- Improve health outcomes; and
- Reduce the impacts of transport on air quality and noise.

1.3.4. The five South Wye area specific objectives are to:

- Improve access to the HEZ by all modes;
- Reduce vehicle delay for journeys accessing the HEZ from the west;
- Encourage use of active modes for journeys to, from and within the South Wye area;
- Improve road safety for all modes within the South Wye area; and
- Reduce the air quality and noise impacts from road transport on key receptors in the South Wye area.

## 1.4. PURPOSE OF OPTION REFINEMENT REPORT

1.4.1. This report describes the processes used to:

- Identify and appraise possible routes for an SLR;
- Identify a preferred route and outline the process by which the design has subsequently been refined;
- Identify and appraise possible active travel schemes;
- Arrive at a set of preferred active travel schemes and describe how they were refined; and
- Identify the preferred SWTP package.

# 2. SOUTHERN LINK ROAD – ROUTE DEVELOPMENT

## 2.1. INTRODUCTION

2.1.1. This chapter discusses the design requirements and function of the Southern Link Road, and describes each of the routes considered. Much of the information was taken from the SWTP Preferred Option Report, dated November 2014, which formed a background paper to the November 2014 Herefordshire Council Cabinet meeting[1].

## 2.2. DESIGN REQUIREMENTS AND FUNCTION

2.2.1. The key function requirements for a SLR were for a route to improve access to the HEZ for motor vehicles, including freight, and reduce the air quality and noise impacts from road transport on key receptors in the South Wye area. The intention was to design a route which would contribute to improved road safety for all modes and enable through traffic to reroute onto the new road from existing roads, as well as encourage the use of active travel modes for journeys within the South Wye area.

2.2.2. Its design was developed in accordance with the standards set out for all-purpose trunk roads in the Design Manual for Roads and Bridges (DMRB). The DMRB notes that whilst the standards have been developed principally for motorways and all-purpose trunk roads, they may be applicable in part to other roads with similar characteristics. The SLR and its intended functions were considered to share these characteristics. In addition, the SLR may in future form part of an alternative route west of Hereford for the A49, which is designated as a trunk road through the city.

### DESIGN TRAFFIC FLOWS

2.2.3. Table 1 outlines the forecast traffic flows for the SLR, calculated at the time of the design assessment, for an Opening Year of 2017 and Design Year of 2032.

**Table 1 – Design traffic flow ranges**

| Year | Traffic Flow (AADT) |
|---|---|
| Opening Year (2017) | 6,500 |
| Design Year (2032) | 11,004 |

2.2.4. DMRB document reference TA46/97[2] outlines a range of opening year economic traffic flow ranges for different road standards, reproduced in Table 2 below.

1 Herefordshire Council Cabinet papers 13 November 2014
2 Traffic Flow Ranges for Use In The Assessment of New Rural Trunk Roads

**Table 2 – Opening Year Economic Flow Ranges**

| Carriageway Standard | Opening year AADT | |
|---|---|---|
| | Minimum | Maximum |
| Single carriageway 7.3m (S2) | Up to 13,000 | |
| Wide single carriageway 10m (WS2) | 6,000 | 21,000 |
| Dual carriageway 2 lane all purpose (D2AP) | 11,000 | 39,000 |
| Dual carriageway 3 lane all purpose (D3AP) | 23,000 | 54,000 |

2.2.5. Based on the design flow ranges, all considered routes adopt a S2 7.3m single carriageway cross-section standard (with two 1m hardstrips), in accordance with DMRB document reference TD27/05[3].

2.2.6. Appendix A illustrates the environmental designations and other key features of the area which were taken into account as part of the design assessment.

## 2.3. ROUTES

2.3.1. Having identified the need for a SLR, the Council commissioned Amey to carry out the *Hereford Relief Road South Core - Corridor Assessment* which reported its findings in May 2012. It considered six routes, two of which (SC1 and SC2) originated from the Hereford Relief Road Study Of Options report (Amey, September 2010) and a further four (SC3-6) arose from a review of the Department of Transport route from the 1990s. The Belmont Transport Package Stage 2 Appraisal (Amey, February 2013) included an additional two routes for consideration. Route SC2A followed route SC2 but would pass underneath the Hereford to Newport railway rather than over it and SC7 was a hybrid of routes SC5 and SC6.

2.3.2. On the basis of the technical work in the Stage 2 Appraisal, the four better performing, southern, routes (SC2, SC2A, SC5 and SC7) were taken forward for further consideration. The more northerly routes (SC1, SC3, SC4 and SC6) were discounted, mainly on the basis of their likely environmental impacts and the significant cost required to mitigate these impacts. The main impact identified with these northern routes was the need to traverse Newton Coppice and Hayleasow Wood, categorised as ancient semi-natural woodland.

2.3.3. The four better performing routes for a SLR were presented at the formal Public Consultation Exhibition held in Hereford between 30 June and 3 July 2014. These were the four shortlisted (southern) routes SC2, SC2A, SC5 and SC7 identified within the SLR Route Corridor. These are illustrated in Figures 1 to 4 in Appendix B.

[3] http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol6/section1/td2705.pdf

2.3.4. A number of alternative alignments or amendments to the remaining shortlisted routes were suggested by the public and third parties during the summer 2014 public consultation. Three additional routes were deemed viable and were appraised to the same level of detail as the four initial routes. These were assigned route references SC8, SC8A and SC9. Appendix B also contains plans showing the alignment and longitudinal sections of these three routes.

**ROUTE SC2**

2.3.5. Route SC2 (Appendix B, Figure 1) would involve construction of a new section of road between the A49 Ross Road / Rotherwas Access Road Roundabout and a new roundabout constructed on the A465. The route would pass through the centre of Grafton Wood and continue westwards over Grafton Lane and Withy Brook before crossing above the existing railway line. The route would then immediately straighten up, heading in a north-west direction towards the A465 and to the south-west of Merry Hill/Beech Grove. It would avoid Hayleasow Wood, passing to its south-west.

2.3.6. In addition to the new section of road connecting the A49 and the A465, SC2 would also include a new direct link from the A465 to the B4349 Clehonger Road, passing east of the property known as Pykeways. This proposed road section is subsequently referred to as the Clehonger Link in this report.

2.3.7. With some adjustment to the horizontal and vertical alignments this route would be most the likely to re-use all the material excavated. This is because the vertical alignment, in the main, follows the rolling profile of the countryside, except where it passes over the railway and under Haywood Lane.

**ROUTE SC2A**

2.3.8. The alignment of Route SC2A (Appendix B, Figure 2) is identical to SC2, except that the new road would pass underneath the railway line in a deep excavation, rather than over it. Although the vertical alignment on the east side would follow the rolling profile of the countryside, it would be forced deep in cutting to cross underneath the railway and Haywood Lane. This could give rise to groundwater and road drainage problems as well as generating a large amount of excess spoil, which could not be reused on the scheme.

**ROUTE SC5**

2.3.9. Route SC5 would pass through the northern part of Grafton Wood and, in a generally north-westerly direction, then cross the densely wooded area between Grafton Lane and Withy Brook (shown in Appendix B, Figure 3). It would also cross a site of archaeological importance before turning in a more westerly direction to cross underneath the railway line. The route would continue through Merry Hill and under Haywood Lane. This alignment would require the demolition of the outbuildings to the south of Merryhill Farm. From this location the route would turn in a slightly more northerly direction to overlap with the western alignment of Routes SC2 and SC2A, avoiding Hayleasow Wood.

2.3.10. Route SC5 would involve the construction of a new roundabout on the A465. The Clehonger Link (to connect to the B4349) for Route SC5 would be located further south-west than other routes to avoid the property known as Pykeways. At the time of determining routes the type of junction for the connection between the A465 and B4349 had not been chosen (ghost island turning, signalised junction etc.).

2.3.11. Although the vertical alignment of Route SC5 would follow the rolling profile of the countryside at its eastern end, it would then be forced into deep cutting through Merry Hill and under Haywood Lane. This could give rise to groundwater and road drainage problems, as well as generating a large amount of excess spoil which could not be re-used on the scheme. The route would cross existing overhead power lines a number of times (including a 66kV) and would be located partly within the main corridor of electricity cables running east to west.

**ROUTE SC7**

2.3.12. Route SC7 (Appendix B, Figure 4) would pass through the northern tip of Grafton Wood but avoid the southern extent of the dense wooded area between Grafton Lane and Withy Brook. It would also avoid the site of archaeological importance and runs to the south of Merryhill Lane before cutting through Merry Hill and under Haywood Lane. From this location the route would head in a westerly direction to overlap with the western alignment of Route SC2, SC2A and SC5, avoiding Hayleasow Wood.

2.3.13. Route SC7 would involve the construction of a new roundabout on the A465. As an addition to the new section of road connecting the A49 and the A465, SC7 would also include a new direct link (the Clehonger Link) from the A465 to the B4349 Clehonger Road, passing east of the property known as Pykeways.

2.3.14. Although the vertical alignment on the east side would largely follow the rolling profile of the countryside, it would be forced into deep cutting through Merry Hill and under Haywood Lane. This could give rise to groundwater and road drainage problems, as well as generating a large amount of excess spoil that could not be re-used on the scheme.

2.3.15. The route would cross existing overhead power lines a number of times (including a 66kV) and would be located largely within the main corridor of electricity cables running east to west. The route would cross Grafton Lane on a high embankment where existing services are present. This could be problematic in terms of providing a new (north to south) route for the National Cycle Network (NCN) Route 46.

2.3.16. Although the sinuous alignment at the eastern end of the scheme would help to avoid environmental constraints, in so doing, it would require a speed limit restriction of 50mph instead of the standard national speed limit of 60mph for single carriageway roads.

## ROUTE SC8

2.3.17. Route SC8 would pass through the northern part of Grafton Wood and, in a generally westerly direction, cross to the south of the densely wooded area between Grafton Lane and Withy Brook. The route is shown in Appendix B, Figures 5 and 6. It would cross Grafton Lane at grade and avoid the nearby site of archaeological importance. The route would climb over the railway line on embankment and then dip down in cutting underneath Haywood Lane, passing to the south of Beech Grove/Merry Hill. The alignment would pass to the south of the outbuildings located to the south of Merryhill Farm. From this location, the route would turn in a north-westerly direction avoiding Hayleasow Wood before tying into a new roundabout on the A465. A new link would be provided from this roundabout to the B4349 Clehonger Road avoiding the property known as Pykeways (The Clehonger Link).

2.3.18. The excavation underneath Haywood Lane would be the main source of fill to create the embankment to cross over the railway. With some adjustment to the horizontal and vertical alignments, this route could potentially achieve an earthworks balance. However, this need for a deep excavation could give rise to groundwater and road drainage problems. The route would cross existing overhead power lines located at the eastern and western ends of the scheme (including a 66kV) but would generally avoid them within the middle section.

## ROUTE SC8A

2.3.19. The alignment of Route SC8A would be identical to SC8 above, except that the new road would pass underneath the railway line in a deep excavation (Appendix B, Figures 5 and 7). The road would remain in a deep cutting underneath Haywood Lane, which in itself could give rise to groundwater and road drainage problems. The lack of embankments along the route would give rise to a scheme which requires the disposal of a very large amount of excess spoil.

## ROUTE SC9

2.3.20. Route SC9 (shown in Appendix B, Figures 5 and 8), would largely be based on the horizontal alignment of Route SC8. The difference would lie within the central section, where the route would be aligned to cross the railway line at a near perpendicular angle, to simplify the bridge crossing. In so doing the route would climb over the railway on embankment and then turn westwards towards Haywood Lane to pass over the lane. This is the only route under consideration which would cross over Haywood Lane.

2.3.21. Between the railway and Haywood Lane the route would pass through Beech Grove/Merry Hill, requiring a small excavation over the top of the land feature. The route would pass just to the south of the outbuildings belonging to Merryhill Farm on an embankment. A comparison of the earthworks generated from cuttings and the need for spoil to create embankments indicated this route was likely to generate a large shortage of material, which would require importation from an off-site source. Existing utilities would be affected in the same way as those described above for SC8 above.

# 3. SOUTHERN LINK ROAD PREFERRED ROUTE SELECTION

## 3.1. INTRODUCTION

3.1.1. This section describes the processes used to determine the preferred route for the SLR. Much of the information was taken from the SWTP Preferred Option Report, dated November 2014, which formed a background paper to the November 2014 Herefordshire Council Cabinet meeting.

3.1.2. Baseline data used to inform the route assessment are contained in the following documents:

- The SWTP OAR in respect of economic and social themes;
- A desktop review of the Stage 2 Environment Assessment Report (Amey, October 2013) produced for the Belmont Transport Package to determine the baseline conditions in the study area; and
- A full desk study and survey data completed by the time of the design assessment work (September 2014), which ultimately fed into Environmental Statement (Parsons Brinckerhoff, April 2015) submitted as part of the SLR planning application[4].

3.1.3. The appraisal of the different elements of the SLR routes used the principles of a Stage 1 level of assessment outlined in the Department for Transport WebTAG to identify a preferred route for the SLR. This used a combination of both quantitative and qualitative appraisal and used the following criteria as the basis for route assessment:

- Design assessment, including considering requirements for highway structures, rail structures, earthworks, utilities, physical features along the route and application of highway design standards;
- Impacts on the economy, including traffic modelling to inform future year traffic flows, reliability, congestion and collisions;
- Impact on the environment; including noise and air quality modelling, and
- Impact on the society.

## 3.2. DESIGN ASSESSMENT

### ROUTE SC2

3.2.1. Earthworks - with some adjustment to the horizontal and vertical alignments, this is the route which would be most likely to achieve as near as possible a cut/fill balance. The vertical alignment would in the main follow the rolling profile of the countryside but with an embankment up to 7m high on the approaches to the railway and a 7.5m deep cutting under Haywood Lane. Preliminary bulk earthworks calculations suggested a net shortfall of 36,000m$^3$.

[4] Herefordshire Planning application website - details for application reference P151314/F

3.2.2. Design Standards - 60mph design speed, with no Departures from Standard (i.e. variations or waiving of a requirement contained within DMRB) anticipated to be required at the time of design assessment. Opportunities for overtaking are also unlikely due to the topography (vertical curvature). The route would have a relatively straight crossing of the existing country lanes and railway. The provision of new accesses for land areas being severed by the scheme and the provision of drainage runoff storage were not determined at the design assessment stage.

3.2.3. Physical features - the route would pass through Grafton Wood, which, at the time of the design assessment, was not listed on the Natural England Ancient woodland inventory, but was identified as Candidate Ancient Woodland during the Ancient Woodland and Trees of Herefordshire Project.

3.2.4. Utilities - the route would pass underneath existing overhead power lines a number of times (including a 66kV) but would be located to the south of the main corridor of electricity cables running east to west. The route would cross Grafton Lane almost at grade where existing services run north to south including a water main.

3.2.5. Rail structure - the route would cross over the existing railway line which, for reasons relating to asset ownership and future maintenance liability, would be Network Rail's preferred solution. Initial discussions with Network Rail revealed that key issues that they look for in relation to a new crossing over the railway are (i) ownership and liabilities for the new bridge; (ii) headroom clearances; (iii) lateral clearances; (iv) any effect on the siting of their current infrastructure e.g. signals; (v) the ability to accommodate likely future improvements to the railway e.g. four-tracking and electrification; (vi) vehicular containment of highway vehicles; (vii) impact resistance of parts of the structure from derailed trains; (viii) railway disruption both during construction and ongoing future maintenance of the new structure; and (ix) whether the new road would provide them with opportunities to close any existing level crossings in the area.

3.2.6. Highway structures - a new bridge structure would be required to carry Haywood Lane over the new SLR thereby maintaining the north-south connectivity. The bridge would likely be in the form of a single span structure with prestressed concrete beams and an in-situ reinforced concrete deck. The alignment of Haywood Lane could need local raising to achieve the required vertical clearance. At the location where the SLR meets Grafton Lane (also the route of NCN route 46), the lane would be stopped up for motorised users, provision only being made for an at-grade crossing for non-motorised users. This would require local realignment of Grafton Lane to tie in with the alignment of the SLR.

**ROUTE SC2A**

3.2.7. Earthworks - the vertical alignment on the east side would follow the rolling profile of the countryside but would be forced deep into cutting (on average 7-8m deep) to cross underneath both the railway and Haywood Lane. This could give rise to groundwater and road drainage problems. Preliminary bulk earthworks calculations suggested a net surplus of 50,000m$^3$.

3.2.8. Design Standards - 60mph design speed, with no Departures from Standard anticipated to be required at the time of design assessment. Opportunities for overtaking were considered to be unlikely due to the topography (vertical curvature). The route would have a relatively straight crossing of the existing country lanes and railway. The provision of new accesses for land areas being severed by the scheme and the provision of drainage runoff storage were not determined at the design assessment stage.

3.2.9. Physical features - the route would pass through Grafton Wood, which, at the time of the design assessment, was not listed on the Natural England Ancient woodland inventory, but was identified as Candidate Ancient Woodland during the Ancient Woodland and Trees of Herefordshire Project.

3.2.10. Utilities - the route would pass underneath existing overhead power lines a number of times (including a 66kV) but would be located to the south of the main corridor of electricity cables running east to west. The route would cross Grafton Lane almost at grade where existing services run north to south including a water main.

3.2.11. Rail structure - the route would cross underneath the existing railway line, which would not be Network Rail's preferred solution, as they would be responsible for the future maintenance of the bridge.

3.2.12. Highway structures - a new bridge structure would be required to carry Haywood Lane over the new SLR thereby maintaining the north-south connectivity. The bridge would likely be in the form of a single span structure with prestressed concrete beams and an in-situ reinforced concrete deck. The alignment of Haywood Lane could need local raising to achieve the required vertical clearance. At the location where the SLR meets Grafton Lane (also the route of NCN Route 46), the lane would be stopped up for motorised users, provision only being made for an at-grade crossing for non-motorised users. This would require local realignment of Grafton Lane to tie in with the alignment of the SLR.

**ROUTE SC5**

3.2.13. Earthworks - the vertical alignment on the east side would follow the rolling profile of the countryside but would be forced into cutting after Grafton Lane to cross under the railway. There would be a significant 13m deep cutting through Merry Hill to enable the route to cross under Haywood Lane which could give rise to groundwater and road drainage problems. Preliminary bulk earthworks calculations suggested a net surplus of 150,000$m^3$.

3.2.14. Design Standards - 60mph design speed, with no Departures from Standard anticipated likely to be required at the time of the design assessment. Opportunities for overtaking would be unlikely. The angled crossing of existing country lanes and the railway would increase cost. The provision of new accesses for land areas being severed by the scheme and the provision of drainage runoff storage were not yet determined at the design assessment stage.

3.2.15. Physical features - the route would pass through Grafton Wood, which, at the time of the design assessment, was not listed on the Natural England Ancient woodland inventory, but was identified as Candidate Ancient Woodland during the Ancient Woodland and Trees of Herefordshire Project. It would also pass through a wooded area between Grafton Lane and Withy Brook, a site of archaeological importance known as Grafton Enclosure and a barn yard situated south-west of the Merryhill Lane junction with Haywood Lane.

3.2.16. Utilities - the route would pass underneath existing overhead power lines a number of times (including a 66kV) and would be located partly within the main corridor of electricity cables running east to west. The route would cross Grafton Lane at grade where existing services run north to south, including a water main. The route would also conflict with a concentration of overhead and buried services in/around Haywood Lane including Openreach cables and a water main.

3.2.17. Rail structure - the route would pass underneath the existing railway line, which would not be Network Rail's preferred solution, as they would be responsible for the future maintenance of the bridge.

3.2.18. Highway structures - A new bridge structure would be required to carry Haywood Lane over the new SLR thereby maintaining the north-south connectivity. The bridge would likely be in the form of a single span structure with prestressed concrete beams and an in situ reinforced concrete deck. The alignment of Haywood Lane could need local raising to achieve the required vertical clearance. At the location where the SLR meets Grafton Lane (also the route of NCN Route 46), the lane would be stopped up for motorised users, with provision only being made for an at-grade crossing for non-motorised users. This would require local realignment of Grafton Lane to tie in with the alignment of the SLR.

**ROUTE SC7**

3.2.19. Earthworks - the vertical alignment on the east side would follow the rolling profile of the countryside but would be forced into cutting after Grafton Lane to cross under the railway. There would be a significant 13m deep cutting through Merry Hill to enable the route to cross under Haywood Lane which could give rise to groundwater and road drainage problems. Preliminary bulk earthworks calculations suggested a net surplus of 85,000$m^3$.

3.2.20. Design Standards - 50mph design speed, with no Departures from Standard anticipated to be required at the time of the design assessment. There would be no opportunity for overtaking due to the sinuous alignment. The angled crossing of existing country lanes and the railway would increase cost. The provision of new accesses for land areas being severed by the scheme and the provision of drainage runoff storage were not determined at the time of the design assessment.

3.2.21. Physical features - being of a sinuous nature would result in the route avoiding many physical constraints but it would pass through the northern tip of Grafton Wood. At the time of the design assessment Grafton Wood was not listed on the Natural England Ancient woodland inventory, but was identified as Candidate Ancient Woodland during the Ancient Woodland and Trees of Herefordshire Project.

3.2.22. Utilities - the route would pass underneath existing overhead power lines a number of times (including a 66kV) and would be located largely within the main corridor of electricity cables running east to west. The route would cross Grafton Lane on a 3m high embankment where overhead Openreach cables and buried water services are present. The route would also conflict with a concentration of overhead and buried services in/around Haywood Lane, including Openreach cables and a water main.

3.2.23. Rail structure - the route would cross underneath the existing railway line, which would not be Network Rail's preferred solution as they would be responsible for the future maintenance of the bridge.

3.2.24. Highway structures - a new bridge structure would be required to carry Haywood Lane over the new SLR thereby maintaining the north-south connectivity. The bridge would likely be in the form of a single span structure with prestressed concrete beams and an in situ reinforced concrete deck. The alignment of Haywood Lane could need local raising to achieve the required vertical clearance. At the location where the SLR meets Grafton Lane (also the route of NCN Route 46), the lane would be stopped up for motorised users, provision only being made for an at-grade crossing for non-motorised users. This would require local realignment of Grafton Lane to tie in with the alignment of the SLR in view of the SLR being on a 3m high embankment at this location.

**ROUTE SC8**

3.2.25. Earthworks - Route SC8 would require the construction of an embankment up to 8m high to cross over the railway line and a cutting over 7m deep to pass underneath Haywood Lane. This could give rise to groundwater and road drainage problems. Preliminary bulk earthworks calculations suggested a net surplus of 16,000m$^3$, which could be used in landscaping works. However, with some adjustment to the horizontal and vertical alignments, this route could achieve an earthworks balance. Design Standards - 60mph design speed, with no Departures from Standard anticipated to be required at the time of the design assessment. Opportunities for overtaking would be unlikely due to the topography (vertical curvature). Angled crossing of the existing railway would increase cost but the crossing of Haywood Lane would be relatively straight. The provision of new accesses for land areas being severed by the scheme and the provision of drainage runoff storage were not determined at the time of the design assessment.

3.2.26. Physical features - the route would skirt around the south-west corner of Hayleasow Coppice (designated as Ancient Woodland) and through the northern section of Grafton Wood. At the time of the design assessment Grafton Wood was not listed on the Natural England Ancient woodland inventory, but was identified as Candidate Ancient Woodland during the Ancient Woodland and Trees of Herefordshire Project. The route would also pass to the south of the wooded area between Grafton Lane and Withy Brook as well as to the south of the barn yard belonging to Merryhill Farm. The route would pass to the south of Grafton Enclosure and Beech Grove (see commentary on Route SC9).

3.2.27. Utilities - the route would conflict with existing overhead power lines located at the eastern and western ends of the scheme (including a 66kV) but would generally avoid them within the central area. The route would cross Grafton Lane at grade (or with limited changes to vertical alignment) where Openreach cables and water services are present. The route would conflict with a concentration of overhead and buried services in/around Haywood Lane including Openreach cables, a water main and a sewer.

3.2.28. Rail structure - the route would cross over the existing railway line, which would be Network Rail's preferred solution, for reasons relating to asset ownership and future maintenance liability. Initial discussions with Network Rail revealed that key issues that they look for in relation to a new crossing over the railway are (i) ownership and liabilities for the new bridge; (ii) headroom clearances; (iii) lateral clearances; (iv) any effect on the siting of their current infrastructure e.g. signals; (v) the ability to accommodate likely future improvements to the railway e.g. four-tracking and electrification; (vi) vehicular containment of highway vehicles; (vii) impact resistance of parts of the structure from derailed trains; (viii) railway disruption both during construction and ongoing future maintenance of the new structure; and (ix) whether the new road would provide them with opportunities to close any existing level crossings in the area.

3.2.29. Highway structures - a new bridge structure would be required to carry Haywood Lane over the new SLR thereby maintaining the north-south connectivity. The bridge would likely be in the form of a single span structure with prestressed concrete beams and an in-situ reinforced concrete deck. The alignment of Haywood Lane could need local raising to achieve the vertical clearance required. At the location where the SLR meets Grafton Lane (also the route of NCN Route 46), the lane would be stopped up for motorised users, with provision only being made for an at-grade crossing for non-motorised users. This will require local realignment of Grafton Lane to tie in with the alignment of the SLR.

**ROUTE SC8A**

3.2.30. Earthworks - to cross underneath the railway line and Haywood Lane, Route SC8A requires an extensive cutting up to 11m deep which could give rise to groundwater and road drainage problems. Preliminary bulk earthworks calculations suggested a net surplus of 167,000m$^3$ requiring disposal off-site.

3.2.31. Design Standards - 60mph design speed with no Departures from Standard anticipated to be required at the time of the design assessment. Opportunities for overtaking would be unlikely due to the topography (vertical curvature). Angled crossing of the existing railway would increase cost but the crossing of Haywood Lane is relatively straight. The provision of new accesses for land areas being severed by the scheme and the provision of drainage runoff storage were not determined at the time of the design assessment.

3.2.32. Physical features - the route skirts around the south-west corner of Hayleasow Wood (designated as Ancient Woodland) and through the northern section of Grafton Wood. At the time of the design assessment Grafton Wood was not listed on the Natural England Ancient woodland inventory but was identified as Candidate Ancient Woodland during the Ancient Woodland and Trees of Herefordshire Project. The route also passes to the south of the wooded area between Grafton Lane and Withy Brook as well as to the south of the barn yard belonging to Merryhill Farm. The route passes to the south of Grafton Enclosure and Beech Grove (see commentary on Route SC9). Utilities - the route would conflict with existing overhead power lines located at the eastern and western ends of the scheme (including a 66kV) but would generally avoid them within the central area. The route would cross Grafton Lane at grade (or thereabouts) where Openreach cables and water services are present. The route would conflict with a concentration of overhead and buried services in/around Haywood Lane including Openreach cables, a water main and a sewer.

3.2.33. Rail structure - the route would cross underneath the existing railway line, which would not be Network Rail's preferred solution as they would be responsible for the future maintenance of the bridge.

3.2.34. Highway structures - a new bridge structure would be required to carry Haywood Lane over the new SLR thereby maintaining the north-south connectivity. The bridge would likely be in the form of a single span structure with prestressed concrete beams and an in situ reinforced concrete deck. The alignment of Haywood Lane could need local raising to achieve the vertical clearance required. At the location where the SLR meets Grafton Lane (also the route of NCN Route 46), the lane would be stopped up for motorised users, with provision only being made for an at-grade crossing for non-motorised users. This would require local realignment of Grafton Lane to tie in with the alignment of the SLR.

**ROUTE SC9**

3.2.35. Earthworks - the route is predominantly on an embankment on both sides of Beech Grove/Merry Hill. Route SC9 would require the construction of an embankment up to 8.5m high to cross over the railway line and another embankment up to 8m high to pass over Haywood Lane. The small cutting over Beech Grove would be up to 4m deep. Preliminary bulk earthworks calculations suggested a net shortfall of 110,000$m^3$ which would need to be brought in from an external source.

3.2.36. Design Standards - 60mph design speed with no Departures from Standard likely to be required. Opportunities for overtaking would also be unlikely due to the topography (vertical curvature). A straighter crossing of railway would reduce the cost of the structure. The provision of new accesses for land areas being severed by the scheme and the provision of drainage runoff storage were not determined at the time of the design assessment.

3.2.37. Physical features - being of a sinuous nature means that the route would avoid many physical constraints except the northern section of Grafton Wood. At the time of the design assessment Grafton Wood was not listed on the Natural England Ancient woodland inventory but was identified as Candidate Ancient Woodland during the Ancient Woodland and Trees of Herefordshire Project. It passes close to the wooded area between Grafton Lane and Withy Brook and the barn yard belonging to Merryhill Farm. The route would cross the railway at a near perpendicular angle which would be beneficial in engineering and cost terms.

3.2.38. The unique distinction between this route and the other routes considered is that it would pass through the middle of Beech Grove. At the time of the design assessment it had not been confirmed whether the feature has archaeological relevance/significance or otherwise. Beech Grove does not appear as a specific record on the Herefordshire Historic Environment Record (HER) and is not listed as a Scheduled Ancient Monument. On the other hand Grafton Enclosure (off Grafton Lane) does appear on the HER and is believed to be a lost early medieval castle site. However, it would not be affected by the alignment of Route SC9, the route passing well to the south of it.

3.2.39. Utilities - the route would conflict with existing overhead power lines located at the eastern and western ends of the scheme (including a 66kV) but would generally avoid them within the central area. The route would cross Grafton Lane at grade (or with limited changes to vertical alignment) where Openreach cables and water services are present. The route would conflict with a concentration of overhead and buried services in/around Haywood Lane including Openreach cables, a water main and a sewer.

3.2.40. Rail structure - the route would cross over the existing railway line, which would be Network Rail's preferred solution for reasons relating to asset ownership and future maintenance liability. Initial discussions with Network Rail revealed that key issues which they look for in relation to a new crossing over the railway are (i) ownership and liabilities for the new bridge; (ii) headroom clearances; (iii) lateral clearances; (iv) any effect on the siting of their current infrastructure e.g. signals; (v) the ability to accommodate likely future improvements to the railway e.g. four-tracking and electrification; (vi) vehicular containment of highway vehicles; (vii) impact resistance of parts of the structure from derailed trains; (viii) railway disruption both during construction and ongoing future maintenance of the new structure; and (ix) whether the new road would provide them with opportunities to close any existing level crossings in the area.

3.2.41. Highway structures - a new bridge structure would be required to carry the SLR over Haywood Lane. The bridge would likely be in the form of a single span structure with prestressed concrete beams and an in-situ reinforced concrete deck. The need to cross over Haywood Lane would be likely to cause difficulty in tying the lane back to existing levels either side of it, particularly to the north at its junction with Merryhill Lane. At the location where the SLR meets Grafton Lane (also the route of NCN Route 46), the lane would be stopped up for motorised users, with provision only being made for an at-grade crossing for non-motorised users. This would require local realignment of Grafton Lane to tie in with the alignment of the SLR.

## DEPARTURES AND RELAXATIONS FROM DESIGN STANDARDS

3.2.42. The design assessment assumed that application of relevant standards within DMRB would be adequate to address Highways England requirements. The design process identified that various constraints on the SLR routes meant that it was not possible to design to the full DMRB standards. Any desirable or necessary reductions in standards would be dealt with as design Relaxations or Departures from Standard. All Departures from Standard would require formal approval from the relevant Technical Approval Authority (Herefordshire Council, or Highways England in relation to any works at the A49 roundabout).

3.2.43. Based on the preliminary design work carried out for the seven routes, relaxations one step down from the standards were anticipated in relation to Stopping Sight Distance. These were considered justifiable and therefore the designs would remain in accordance with Design Standards.

## ACTIVE TRAVEL INFRASTRUCTURE

3.2.44. All of the routes identified would bisect Grafton Lane, which forms part of NCN Route 46. In addition, the routes would also bisect a varying number of Public Rights of Way (PRoW), as shown in Table 3 below.

**Table 3 – Number of Public Rights of Way bisected by each route**

| | Route | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC2 | SC2A | SC5 | SC7 | SC8 | SC8A | SC9 |
| Number of PRoW bisected | 2 | 3 | 4 | 2 | 3 | 3 | 3 |

3.2.45. The difference in numbers of PRoW bisected is due to the varying possible alignments for the Clehonger Link, to the north of the A465. For example, SC7 would not include a Clehonger Link and as such would not affect the PRoW in this location, whereas SC5 bisects both PRoWs in this area.

### RAILWAY AND STRUCTURES

3.2.46. All routes considered for the SLR would need to cross the Hereford to Newport railway line. Four of the seven routes (SC2A, SC5, SC7, and SC8A) would pass underneath the railway line whilst routes SC2, SC8 and SC9 would cross over it. In close proximity to routes SC2 and SC2A, there is infrastructure associated with the railway consisting of a mast and a generator building. These would be affected by the proposals unless a local horizontal realignment can be achieved. At the time of the design assessment, no other engineering structures e.g. bridges were considered likely to be affected by the proposals.

### DRAINAGE

3.2.47. At the time of the design assessment, drainage proposals were envisaged to be a combination of carrier drains, filter drains, and grassed surface water channels or similar such as swales. Sustainable Urban Drainage Systems were assumed to be utilised where possible.

3.2.48. The design assessment anticipated that, where appropriate, drainage would be provided at the top and bottom of embankments and, if necessary, also within the cutting slopes. It was considered that attenuation ponds might be required to control the flow of highway drainage water entering a watercourse. Affected minor watercourses would be diverted and/or culverted. Appropriate measures to intercept any pollutants entering the highway drainage system would need to be agreed with the Environment Agency.

### LAY-BYS

3.2.49. The recommended spacing for lay-bys in both directions on a single carriageway road is between 2 and 5km. With the SLR being just over 3km long between the A49(T) and the A465 the design assessment found no requirement in the relevant standards to provide a lay-by along the proposed new road.

### ROAD LIGHTING

3.2.50. The design assessment proposed that road lighting would be provided for the roundabouts only. In view of the proximity of the new A465 roundabout to some properties it was considered that a lower standard of lighting might be appropriate at that location, in conjunction with Herefordshire Council's policy for lighting which also includes phased dimming overnight.

### ROAD RESTRAINT SYSTEMS [E.G. VEHICLE CONTAINMENT BARRIERS]

3.2.51. The design assessment proposed that road restraint systems would be provided in accordance with Standards contained in the DMRB.

### STATUTORY UNDERTAKERS

3.2.52. The design assessment recognised that diversionary works would be required and assumed that these would be determined and agreed with the Statutory Undertakers.

### SCHEME COST OF ROUTES

3.2.53. Table 4 shows the estimated scheme costs (prepared at the time of the design assessment) for each route, based on 2012 prices. A contingency allowance of 44% on construction cost was included. If the contingency were not required, the scheme cost would be the lower of the two values.

**Table 4 – Estimated cost of routes**

| | SC2 | SC2A | SC5 | SC7 | SC8 | SC8A | SC9 |
|---|---|---|---|---|---|---|---|
| Scheme cost (with and without contingency) | £16.5m-£25m | £19.5m-£29m | £24m-£35m | £21m-£31m | £17.9m-£26.5m | £25.4m-£38.6m | £17.2m-£25.3m |

### DESIGN ASSESSMENT CONCLUSION

3.2.54. In conclusion, and based on the information available at the time of the design assessment, route SC2 performed better than the other routes with regards to design considerations. This was based on the following elements of the route:

- Would broadly follow the ground profile (except where it has to go over the railway and under Haywood Lane);
- Most likely to achieve a balance of bulk earthworks;
- Not in very deep cut and would remove the potential for groundwater/drainage issues;
- 60mph design speed throughout;
- No Departures from Standards expected for road geometry;
- Would affect the fewest private properties;
- Would pass over the railway so aligning with Network Rail's expectation;
- Located to south of the main corridor of electricity cables running east-west; and
- Least expensive of the seven routes.

## 3.3. OTHER FACTORS

### TECHNICAL AND OPERATIONAL FEASIBILITY

3.3.1. Technical and operational feasibility considers implementation, buildability and influence on network resilience for each route. Each of the seven routes considered were considered to be technically feasible and if introduced would offer greater network resilience.

3.3.2. However, Routes SC2 and SC8 were considered to offer a less challenging technical solution than the other five routes because they would cross over the railway line (rather than pass underneath), in accordance with Network Rail's preferences. There were considered to be fewer programming challenges in terms of securing any necessary track closures and construction phasing for routes crossing over the railway than the ones that cross underneath. Routes SC2 and SC8 also reduce the potential for groundwater/drainage issues associated with a very deep cut.

### FINANCIAL AFFORDABILITY AND DELIVERABILITY

3.3.3. Financial affordability and deliverability acknowledges the estimated scheme costs, opportunities for phased construction and likelihood of third-party funding.

3.3.4. There were no identified funding issues associated with any particular route. It is worth noting however, that the SC2 construction rates of £4.6m/km was at least 8% less than the other routes.

## 3.4. TECHNICAL ASSESSMENT OF ROUTES

### IMPACTS ON THE ECONOMY

3.4.1. The methodologies used to assess the routes have taken account of the Department for Transport and Highways England technical and guidance documents. The assessments used actual and predicted traffic volumes on the road network in the study area.

#### Scenarios

3.4.2. The 'Do Minimum' scenario in the Hereford Transport Model accounts for traffic and development growth that would occur regardless of whether or not one of the SLR routes is constructed. The 'Do Minimum' scenario also includes committed highway schemes in the city such as the Hereford City Centre Package and the new City Link Road. The 'Do Something' scenario includes all of the above and an SLR.

#### Future Year Traffic Flows

3.4.3. As part of the design assessment, traffic flows were predicted for a 2017 opening year (the year which, at the time of the design assessment, the SLR was anticipated to be completed and opened to traffic). The traffic flows were also predicted for a 2032 design year (15 years after the year of opening, at the time of the design assessment). Forecast traffic flows with the SLR in place ('Do Something' Scenario) are shown in Table 5. There were considered to be no significant differences between routes in terms of forecast traffic volumes.

**Table 5 – Forecast annual average daily traffic flows in Do Something scenario (with SLR in place)**

| Link | Direction | 2017 DM | 2017 DS | % Change | 2032 DM | 2032 DS | % Change |
|---|---|---|---|---|---|---|---|
| A465 west of SLR | NE | 3,606 | 3,221 | -11% | 4,255 | 4,439 | 4% |
| A465 west of SLR | SW | 3,761 | 3,702 | -2% | 4,716 | 4,171 | -12% |
| A465 Belmont Rd west of Tesco Roundabout | NE | 5,318 | 5,406 | 2% | 5,485 | 6,025 | 10% |
| A465 Belmont Rd west of Tesco Roundabout | SW | 6,441 | 6,911 | 7% | 7,682 | 7,932 | 3% |
| A465 Belmont Rd west of Belmont Roundabout | NE | 8,466 | 8,562 | 1% | 10,007 | 9,850 | -2% |
| A465 Belmont Rd west of Belmont Roundabout | SW | 9,885 | 9,563 | -3% | 12,264 | 11,302 | -8% |
| Walnut Tree Avenue | EB | 4,646 | 3,978 | -14% | 4,848 | 4,794 | -1% |
| Walnut Tree Avenue | WB | 4,078 | 3,401 | -17% | 4,603 | 4,145 | -10% |
| A49 north of Walnut Tree Avenue | NB | 14,192 | 13,949 | -2% | 20,766 | 18,839 | -9% |
| A49 north of Walnut Tree Avenue | SB | 12,164 | 12,167 | 0% | 14,864 | 14,172 | -5% |
| Holme Lacy Road east of A49 | EB | 7,767 | 7,566 | -3% | 9,729 | 8,911 | -8% |
| Holme Lacy Road east of A49 | WB | 8,706 | 8,406 | -3% | 10,942 | 10,813 | -1% |
| B3499 Rotherwas Access Road | NB | 2,371 | 2,615 | 10% | 4,887 | 4,383 | -10% |
| B3499 Rotherwas Access Road | SB | 2,201 | 2,279 | 4% | 6,944 | 5,963 | -14% |

Note: DM = Do Minimum scenario. DS = Do Something scenario.

3.4.4. Appendix C contains diagrams of forecast traffic flows on key routes in the South Wye area for the Do Minimum and Do Something scenarios. They illustrate forecast traffic flows for the 2017 and 2032 AM and PM weekday peak periods.

3.4.5. The results show that traffic is forecast to reduce on the A465 except where it routes to reach the SLR, and there would be broadly no change in traffic flows on the A49 north of Walnut Tree Avenue, taking into account two-way flows. Traffic levels on Walnut Tree Avenue are forecast to reduce.

### Reliability

3.4.6. The assessment work did not consider there to be a significant difference between routes in terms of reliability. Reduced congestion along the A465 would provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels.

### Impacts on the Economy – Summary

3.4.7. The assessment work did not consider there to be a significant difference between the SLR routes in terms of economy, with no significant differences in journey times, affordability, or accidents. However, the routes do have different construction costs which would affect the overall cost benefit ratio for each route. Scheme costs are detailed in Table 4.

3.4.8. The scheme is anticipated to result in reduced congestion along the A465 Belmont Road due to diversion of traffic onto the SLR, resulting in journey time savings for existing users. There is likely to be increased traffic along the A49 in some time periods, but the level of delay at the A49/A465 junction is proposed to remain at existing levels.

3.4.9. All routes would provide a direct connection to the Hereford Enterprise Zone (HEZ) from the A465. This would encourage development at the HEZ and improve the infrastructure serving the wider Rotherwas estate having subsequent benefits to the promotion of inward investment relating to both residential and employment development.

## ENVIRONMENTAL IMPACTS

### Air Quality

3.4.10. A high level assessment of the air quality impacts of all routes was undertaken as part of the design assessment. As no detailed design had been undertaken at the time of assessment, impacts were qualitatively assessed.

3.4.11. Assessment criteria included the change in proximity of the road centreline to sensitive receptors, including residential premises and designated habitats. This criterion was assumed to represent the potential changes in exposure of sensitive receptors to vehicle emissions that the particular routes brought.

3.4.12. To distinguish between the potential impacts from each of the routes, the number of sensitive receptors within 200m either side of the scheme was recorded. These were summarised into the total numbers of residential properties within each 50m band, up to 200m from the centreline of the road.

Assumptions

3.4.13. It was assumed that all traffic flows along each of the routes would be identical in terms of the number of vehicles and the fleet mix (% of Heavy Goods Vehicles[5] and non-Heavy Goods Vehicles).

3.4.14. In addition, for the purpose of the technical assessment, it was assumed that the air quality impact upon Hereford city centre would be identical for all of the routes. Therefore, impacts upon the Hereford City Air Quality Management Area were considered to be identical for each route and therefore not assessed at the design assessment stage.

[5] defined as vehicles with a gross weight of more than 3.5 tonnes

Potential Effects

3.4.15. Air quality impacts from the operation of all routes would be a result of the introduction of traffic into areas which were previously free from road traffic or had experienced very low traffic, or reducing volumes on existing roads as traffic re-routes to take advantage of the SLR.

3.4.16. Table 6 shows the number of residential properties within 200m of each route, split into bands. This only includes instances where the scheme introduces a new section of road and does not include existing roads.

**Table 6 - Residential properties within 200m of each route**

| Distance from Road Centreline | Number of Properties | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC2 | SC2A | SC5 | SC7 | SC8 | SC8A | SC9 |
| 0m – 50m | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50m – 100m | 4 | 4 | 7 | 4 | 4 | 4 | 3 |
| 100m – 200m | 5 | 5 | 11 | 14 | 5 | 5 | 4 |
| Total | 9 | 9 | 18 | 18 | 9 | 9 | 7 |

3.4.17. There would also be potential secondary effects upon woodland habitats from air pollutants as a result of traffic flows across each of the routes. All routes would have identical secondary impacts upon Hayleasow Wood, Newton Coppice and Grafton Wood. However, Routes SC2 and SC2A would have some secondary impacts upon Veddoes Coppice, which is to the east of the Hereford to Newport railway line

**Noise**

3.4.18. For each of the routes identified, a qualitative assessment of potential noise and vibration impacts was undertaken. Table 7 contains the number of properties within 600m of each route.

**Table 7 - Residential properties within 600m of each route**

| Distance from Road Centreline | Number of Receptors by Route | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC2 | SC2A | SC5 | SC7 | SC8 | SC8A | SC9 |
| 0m – 50m | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50m – 100m | 4 | 4 | 7 | 4 | 4 | 4 | 3 |
| 100m – 200m | 5 | 5 | 11 | 14 | 5 | 5 | 4 |
| 200m – 300m | 14 | 14 | 26 | 16 | 13 | 13 | 13 |
| 300m – 600m | 82 | 82 | 68 | 71 | 81 | 81 | 78 |
| Total | 105 | 105 | 112 | 105 | 103 | 103 | 98 |

### Greenhouse Gases

3.4.19. The seven routes were assessed for their potential greenhouse gas production ($CO_2$eq) in relation to the scheme length, change in vehicle speeds and changes to journey lengths as a consequence of the road traffic use of the proposed routes.

3.4.20. The Department for Transport Emissions Factor Toolkit (v6.016) was used to estimate the change in $CO_2$ emissions as a consequence of changes in vehicle speeds along the route. The total carbon production (in tonnes per year) was calculated for a baseline year (2013), opening year (2017[7]) and future year (2032), for a range of speeds between 50 to 90kph.

Assumptions

3.4.21. It was assumed that all routes were of a similar length and that traffic speeds would be similar between each route. It was also assumed that traffic using all routes would be required to travel over slightly greater distances than the traffic currently using the local road network. As a guide the percentage of Heavy Goods Vehicles predicted to use the routes was assumed to remain unchanged, at 5% for all assessment years.

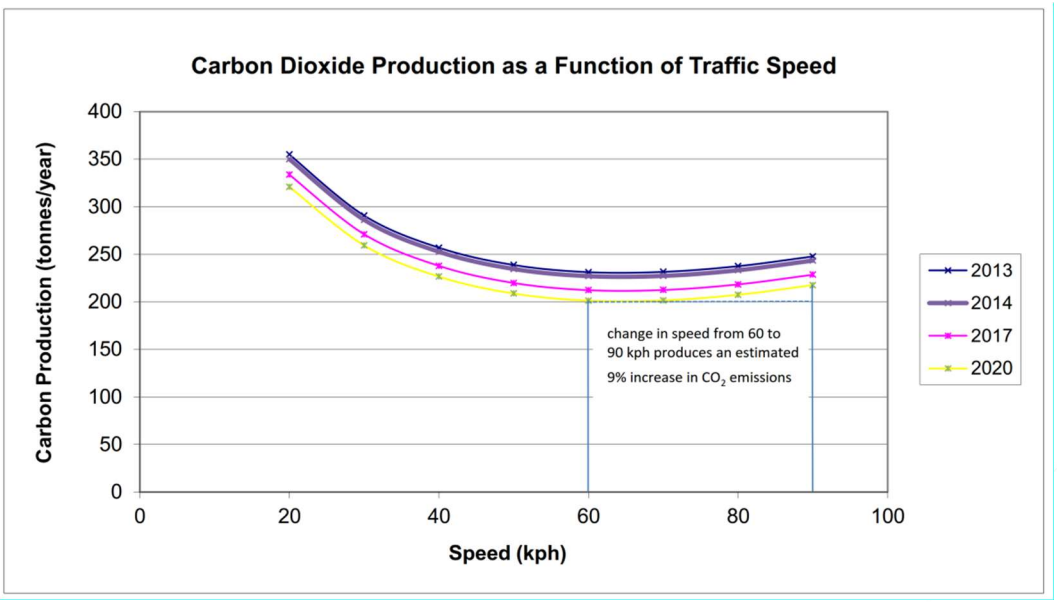
Potential Effects

3.4.22. It was considered highly probable that local traffic speeds will increase as a result of the scheme development. In addition, the distance that vehicles will be required to travel is estimated to increase slightly as a result of the scheme development.

3.4.23. Figure 3 illustrates that increases in vehicle speeds between 60 to 90 kph increases $CO_2$ emissions. Therefore, it is possible that all routes would have a slight adverse impact on greenhouse gases due to vehicles travelling greater distances and at higher speeds.

[6] https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html
[7] Assumed opening year at the time of the technical assessment

**Figure 3 - Carbon Dioxide Production as a Function of Traffic Speed**




Source: Emissions Factor Toolkit v6.01, Defra

### Landscape/Townscape

Routes SC2 and SC2A

3.4.24. Routes SC2 and SC2A would pass through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although the routes would lie within the Herefordshire Lowlands character area, it is more typical of South Herefordshire and Over Severn character areas. In terms of woodland, the routes would cut through the centre of Grafton Wood, which at the time of the design assessment, was not designated for biodiversity importance. The rest of Routes SC2/SC2A would be free of woodland and avoid Newton Brook.

3.4.25. The routes would pass Haywood Lodge Farm and associated properties with a resultant potential for adverse visual effects. One route would pass over the railway (SC2) and one route would pass under (SC2A). As a result, SC2 is likely to have more visual impact due to the increased earthworks and visibility of the highway and associated structures. A new roundabout on A465 and a short section of road connecting to B4349, would introduce further built infrastructure. The landscape in this area was classed as being of medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource is likely to be influenced by the additional sections of road, roundabout, embankments for the bridge over the railway in Route SC2 and the proximity to residential properties.

Route SC5

3.4.26. SC5 would pass through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route would fall within the Herefordshire Lowlands character area, it is more typical of South Herefordshire and Over Severn character areas. In terms of woodland, the route would cut through the centre of Grafton Wood, which at the time of the design assessment, was not designated for biodiversity importance, and a dense copse near Withy Brook. It would run close to residential properties along Grafton Lane and involve the loss of a large commercial premises accessed from Haywood Lane. It would avoid Newton Brook and Hayleasow Wood. A new roundabout on A465 and an upgrade to the existing lane connecting to the B4349, would introduce further built infrastructure and would adversely affect the character of the lane.

3.4.27. The landscape in this area was classed as being of medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource is likely to be influenced by the loss of woodland, the route going through a large Site of Archaeological Importance, the proximity of residential properties, the loss of commercial premises, and a new roundabout with loss of character due to the upgrade of the existing lane. Therefore, the magnitude of effect on the landscape resource is likely to be influenced by the loss of woodland, hedges and key local landscape characteristics.

Route SC7

3.4.28. SC7 would pass through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route would fall within the Herefordshire Lowlands character area, it is more typical of South Herefordshire and Over Severn character areas. In terms of woodland, the route would cut through the centre of Grafton Wood which, at the time of the design assessment, was not designated for biodiversity importance. It would run close to residential properties along Grafton Lane. It would avoid Newton Brook and Hayleasow Wood. A new roundabout would be constructed on the A465 and a new section of road connecting with the B4349 would introduce further built infrastructure.

3.4.29. The landscape in this area was classed as being of medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource is likely to be influenced by the loss of woodland, the proximity of residential properties, and a new roundabout with additional section of road. Therefore, the magnitude of effect is likely to be influenced by the loss of some local landscape features.

Route SC8

3.4.30. SC8 would pass through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route would fall within the Herefordshire Lowlands character area, it is more typical of the South Herefordshire character area. In terms of woodland, it would cut through the centre of Grafton Wood, which, at the time of the design assessment, was not designated for biodiversity importance and has a low density of trees. This route would run in close proximity to Haywood Lodge Farm and associated properties, with potential for visual amenity effects. It would avoid Newton Brook. The alignment of the eastern half of the route would run in a straight line and cuts across the grain of the landscape. The route would therefore fail to take into account the undulating topography and irregular field pattern. SC8 would require extensive works to create embankments to take the route over the railway line resulting in a visible central section (as it passes over the railway line) and would have engineered slopes disruptive to the character of the local topography.

3.4.31. The landscape in this area was classed as being of medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource with the additional sections of road, roundabout and proximity to residential properties, was considered to be moderate (loss of resource, at odds with the local pattern and landform, visually intrusive and would adversely impact on the landscape).

Route SC8A

3.4.32. SC8A would pass through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route would fall within the Herefordshire Lowlands character area, it is more typical of the South Herefordshire character area. In terms of woodland, it cuts through the centre of Grafton Wood, which, at the time of the design assessment, was not designated for biodiversity importance and has a low density of trees. This route runs in close proximity to Haywood Lodge Farm and associated properties, with potential for visual amenity effects. It avoids Newton Brook. The alignment of the eastern half of the route would run in a straight line and cut across the grain of the landscape. The route would therefore fail to take into account the undulating topography and irregular field pattern. SC8A would require extensive works to create a cutting to take the route under the railway and will involve engineered slopes that will be disruptive to the character of the local topography.

3.4.33. The landscape in this area was classed as being of medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource with the additional sections of road, roundabout and proximity to residential properties, was considered to be moderate (loss of resource, at odds with the local pattern and landform, visually intrusive and will adversely impact on the landscape).

Route SC9

3.4.34. SC9 would pass through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route would fall within the Herefordshire Lowlands character area, it is more typical of South Herefordshire character area. In terms of woodland, the route would cut through the centre of Grafton Wood, which, at the time of the design assessment, was not designated for biodiversity importance and has a low density of trees. This route would be visible from Haywood Lodge Farm and associated properties, however it would curve away in a north-westerly direction after crossing the railway line. As it takes a north-westerly direction it would pass directly through a local landscape feature called Beech Grove. Similar to other more southerly routes, it would avoid Newton Brook.

3.4.35. The landscape in this area was classed as being of medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource was considered to be major (is at considerable variance with the landform, scale and pattern of the landscape, is visually intrusive and will adversely impact on the landscape).

**Historic Environment**

Routes SC2 and SC2A

3.4.36. The technical assessment found that this route would have no effect on any Scheduled Monument or its setting resulting in no significant effect.

3.4.37. This route would encroach within 300m of, but be largely screened from, the Listed Building complex at Haywood Lodge, containing one Grade II* and three Grade II structures. It would encroach within 350m of, but be largely screened from, the Grade II Listed Buildings at Merryhill. It would encroach within 220m of, but be largely screened from, the agricultural structures at Clehonger Court, which are Grade II Listed Buildings. It would encroach within 150m of and be visible from the Grade II milestone on the A465.

3.4.38. The Listed Buildings in the study area are of high value. Although passing close to the listed milestone on the A465, the roadside is the appropriate setting for structure and, therefore, this route would have no significant effect. It would have a minor impact on the settings of the listed structures at Haywood Lodge, Merryhill and Clehonger Court, resulting in a slight to moderate effect.

3.4.39. This route would traverse four fields from which significant artefacts have been recovered. As they consist of findspots, the undesignated sites are of uncertain value, though the effect upon them could be major.

Route SC5

3.4.40. This route would have no effect on any Scheduled Monument or its setting resulting in no significant effect.

3.4.41. This route would encroach within 220m of, but be largely screened from, the Grade II Listed Buildings at Merryhill. It would encroach within 400m of, but be largely screened from, the Listed Building complex at Haywood Lodge, containing one Grade II* and three Grade II structures. It would encroach within 220m of, but be largely screened from, the agricultural structures at Clehonger Court, which are Grade II Listed Buildings. It would encroach within 150m of and be visible from the Grade II milestone on the A465.

3.4.42. The Listed Buildings in the study area are of high value. Although passing close to the listed milestone on the A465, the roadside is the appropriate setting for this structure and, therefore, this route would have no significant effect. It would have a minor impact on the settings of the listed structures at Clehonger Court, Merryhill and Haywood Lodge, resulting in a slight to moderate effect.

3.4.43. This route would traverse the medieval site in Field 15 and two cropmark sites in Fields 10 and 34, as well as four fields from which significant artefacts have been recovered (see plan in Appendix D). As well as the findspots, which are of uncertain value, there are two cropmark sites, one of which is of medium value, and this route would have a major impact upon them, resulting in a moderate to large effect.

Route SC7

3.4.44. This route would have no effect on any Scheduled Monument or its setting. The Scheduled Ancient Monuments in the extended study area are of high value, but this route would have no effect upon them or their settings, resulting in no significant effect.

3.4.45. This route would encroach within 200m of, but be largely screened from, the Grade II Listed Buildings at Merryhill. It would encroach within 520m of, but be largely screened from, the Listed Building complex at Haywood Lodge, containing one Grade II* and three Grade II structures. It would encroach within 220m of, but be largely screened from, the agricultural structures at Clehonger Court, which are Grade II Listed Buildings. It would encroach within 150m of and be visible from the Grade II milestone on the A465.

3.4.46. The Listed Buildings in the study area are of high value. Although passing close to the listed milestone on the A465, the roadside is the appropriate setting for this structure and, therefore, this route would have no significant effect. It would have a minor impact on the settings of the listed structures at Merryhill, Clehonger Court and Haywood Lodge resulting in a slight to moderate effect.

3.4.47. This route would traverse the medieval site in Field 15 and a cropmark site in Field 10, as well as four fields from which significant artefacts have been recovered (see Appendix D). As well as the findspots, which are of uncertain value, there is a cropmark site, also of uncertain value, upon which this route would have a major effect.

Routes SC8 and SC8A

3.4.48. These routes would have no effect on any Scheduled Monument or its setting. The Scheduled Monuments in the extended study area are of high value, but these routes would have no effect upon them or their settings, resulting in no significant effect.

3.4.49. SC8 and SC8A would encroach within 370m of, but be largely screened from, the Listed Building complex at Haywood Lodge, containing one Grade II* and three Grade II structures. It would encroach within 320m of, but be largely screened from, the Grade II Listed Buildings at Merryhill. It would encroach within 220m of, but be largely screened from, the agricultural structures at Clehonger Court, which are Grade II Listed Buildings. It would encroach within 150m of and be visible from the Grade II milestone on the A465.

3.4.50. The Listed Buildings in the study area are of high value. Although passing close to the listed milestone on the A465, the roadside is the appropriate setting for structure and, therefore, these routes would have no significant effect. It would have a minor impact on the settings of the listed structures at Haywood Lodge, Merryhill and Clehonger Court, resulting in a slight to moderate effect.

3.4.51. These routes would traverse four fields from which significant artefacts have been recovered. As they consist of findspots, the undesignated sites are of uncertain value, though the effect upon them could be major.

Route SC9

3.4.52. This route would have no effect on any Scheduled Monument or its setting. The Scheduled Monuments in the extended study area are of high value, but this route would have no effect upon them or their settings, resulting in no significant effect.

3.4.53. This route would encroach within 420m of, but be largely screened from, the Listed Building complex at Haywood Lodge, containing one Grade II* and three Grade II structures. It would encroach within 250m of, but be largely screened from, the Grade II Listed Buildings at Merryhill. It would encroach within 220m of, but be largely screened from, the agricultural structures at Clehonger Court, which are Grade II Listed Buildings. It would encroach within 150m of, and be visible from, the Grade II milestone on the A465.

3.4.54. The Listed Buildings in the study area are of high value. Although passing close to the listed milestone on the A465, the roadside is the appropriate setting for structure and, therefore, this route would have no significant effect. It would have a moderate impact on the settings of the listed structures at Haywood Lodge and Merryhill and a minor impact on Clehonger Court, resulting in a moderate effect.

3.4.55. This route would traverse five fields from which significant artefacts have been recovered. As they consist of findspots, the undesignated sites are of uncertain value, though the effect upon them could be major.

**Biodiversity**

Statutory and non-statutory designated sites

3.4.56. At the time of the design assessment none of the seven routes were considered to directly affect any sites which had statutory or non-statutory designations. Impacts and mitigation measures were considered likely to be similar for all routes and as such were not considered to affect the technical assessment.

Badgers

3.4.57. Minimal evidence of badger activity was recorded during the surveys which had been undertaken at the time of the design assessment. Badgers are protected on the grounds of animal welfare rather than rarity / population decline and as such were not considered to affect the environmental appraisal. At the time of the technical assessment there was no evidence to suggest badger-related road traffic collision risk would differ significantly between any of the routes.

Dormice

3.4.58. The presence or absence of this species had not been determined at the time of the technical assessment which meant that there was insufficient information to fully consider this species.

Otters

3.4.59. Otters were identified using Withy Brook. All routes cross this brook, therefore impacts and mitigation were considered likely to be similar for all routes.

Water voles

3.4.60. No evidence of this species had been recorded at the time of the technical assessment, therefore it was not considered further.

Bats

3.4.61. At the time of the design assessment, it had been determined that the site is, in general, 'bat rich' with at least 10 species recorded to date. This includes two Annex 2 species (barbastelle and lesser horseshoe bat). These records were spread throughout the site, with no 'hotspots' identified for these species.

3.4.62. Foraging and commuting activity levels were considered to be relatively high, with continuous foraging activity recorded at several locations, on several occasions and for several different species. Bat activity was recorded at all locations surveyed, with all routes affecting areas where both higher and lower levels of activity had been recorded. As the seven routes would follow the same broad corridor and affect the same or very similar habitat features (such as woodlands and hedgerows), impacts and mitigation were considered likely to be similar for all routes.

3.4.63. The level of roosting activity recorded at the time of the technical assessment was limited to two minor soprano pipistrelle roosts in two adjacent orchard trees. As these trees would not be directly affected by any of the routes, this data was not considered to affect the technical assessment.

Birds

3.4.64. As the seven routes would follow the same broad corridor and affect the same or very similar habitat features (such as woodlands, arable fields and margins, and hedgerows), impacts and mitigation were considered likely to be similar for all routes. Barn owls were recorded flying and likely foraging and one likely roost was recorded near to Haywood Lane. It was considered unlikely that any routes would directly affect any barn owl roosts, should they be found during remaining surveys, and therefore this data was unlikely to affect the technical assessment.

Reptiles

3.4.65. Common reptile species had been recorded in low numbers within woodland glade and field margin habitats across the site. As the seven routes would follow the same broad corridor and affect the same or very similar habitat features, impacts and mitigation were considered likely to be similar for all routes.

Amphibians

3.4.66. A medium population of great crested newts were recorded at several ponds within 500m of the proposed routes. None of the proposed routes would directly affect any ponds, therefore impacts to great crested newts were considered to be limited to terrestrial habitats.

3.4.67. Routes SC2 and SC2A would be the most proximate to the medium population recorded at Haywood Lodge; however it was considered that the scheme offered the potential for a net gain in the quality and quantity of suitable great crested newt habitats. Therefore the residual effects of the routes were considered likely to be similar. It was therefore considered that this receptor would not affect the technical assessment.

Flora

3.4.68. At the time of the design assessment Hedgerows Regulations data had not yet been analysed and thus there was insufficient information consider this.

**Consideration of the seven routes**

3.4.69. For the reasons detailed above, a majority of the potential ecological receptors were not considered to influence the technical assessment at this stage. The main differences between the routes were in terms of the habitats which would be directly affected, and to some degree the invertebrate assemblages that these habitats support.

Routes SC2 and SC2A

3.4.70. Routes SC2 and SC2A would pass through the centre of Grafton Wood, which at the time of the design assessment was identified as candidate ancient woodland by the updated ancient woodland inventory. This route would lead to habitat loss and fragmentation of the woodland.

3.4.71. Routes SC2/SC2A would bisect species-rich hedgerows along and near to Grafton Lane, leading to habitat loss and fragmentation. Withy Brook would also be bisected. The route would pass close to, though not directly affect, Hayleasow ancient woodland / plantation on ancient woodland, traditional orchard habitat, a further area of candidate ancient woodland, and a veteran oak tree.

3.4.72. There was considered to be a slight preference for Route SC2A relative to SC2, as passing under the existing railway may allow an unmodified habitat corridor to be retained and enhanced along the railway line.

Route SC5

3.4.73. Route SC5 would pass through Grafton Wood, slightly to the north of Routes SC2/SC2A, with habitat loss and fragmentation impacts likely to be similar to those routes. Route SC5 would also lead to habitat loss and fragmentation within an area of candidate ancient woodland adjacent to Grafton Lane.

3.4.74. In similarity to Routes SC2/SC2A, Route SC5 would bisect species rich hedgerows along and near to Grafton Lane, leading to habitat loss and fragmentation. Withy Brook would also be bisected.

3.4.75. The route would pass close to, though not directly affect, traditional orchard habitat and veteran oak trees. Route SC5 would pass south of Hayleasow Wood ancient woodland, including a buffer zone of approximately 50-100 m.

Route SC7

3.4.76. Route SC7 would pass through the northern edge of Grafton Wood; fragmentation impacts may therefore be less than for Routes SC5 and SC2/SC2A, though habitat loss impacts would be similar.

3.4.77. In similarity to the other routes, SC7 would bisect species rich hedgerows along Grafton Lane, leading to habitat loss and fragmentation. This route would however bisect fewer hedgerows overall than the other routes. Withy Brook would be bisected. Route SC7 would also bisect the very upper reaches of Newton Brook.

3.4.78. The route would pass close to, though would not directly affect, Hayleasow ancient woodland, traditional orchard habitat, and veteran oak trees.

Routes SC8 and SC8A

3.4.79. Routes SC8/8A would pass through the centre of Grafton Wood and was considered likely to lead to the greatest extent of habitat loss / disturbance within Grafton Wood relative to other routes under consideration, with comparable impacts to SC2/2A and SC9.

3.4.80. In similarity to Routes SC2/SC2A, Routes SC8/8A would bisect species rich hedgerows along and near to Grafton Lane, leading to habitat loss and fragmentation. Withy Brook would also be bisected.

3.4.81. There was assessed to be a slight preference to bridge over the railway, which would allow the railway corridor to act as an underpass under the road.

Route SC9

3.4.82. SC9 would pass through the centre of Grafton Wood and was considered likely to lead to the greatest extent of habitat loss/disturbance within Grafton Wood relative to other routes under consideration, with comparable impacts to SC2/2A and SC8/8A.

3.4.83. In similarity to Routes SC2/SC2A, Route SC9 would bisect species rich hedgerows along and near to Grafton Lane, leading to habitat loss and fragmentation. Withy Brook would also be bisected

3.4.84. Route SC9 would pass over Haywood Lane via an overbridge, the only route to do so. Haywood Lane could therefore provide an underpass for use by bats (providing this can be unlit), which could provide a more easily effective mitigation solution than having the proposed road passing under Haywood Lane. However, SC9 would directly affect several mature/veteran trees within hedgerows to the east of the railway (some of which have high bat roosting potential), which would not be affected by other routes.

Conclusions

3.4.85. There was considered to be little difference in impacts and mitigation measures between the seven routes for a majority of the ecological receptors, based on the desk study and survey data gathered at the time of the design assessment.

3.4.86. It was identified that the chosen route should seek to minimise the impacts on the remaining pockets of woodland in a largely farmed landscape. On that basis Route SC7 was considered to be the preferred route as fragmentation impacts on Grafton Wood are likely to be reduced, and this route would avoid impacts to other areas of candidate ancient woodland. Route SC7 would also bisect fewer hedgerows than the other routes. Route SC7 could be improved by shifting the eastern end alignment slightly north to avoid Grafton Wood altogether, and by shifting the western end slightly south near Hayleasow Wood to increase the buffer distance here.

3.4.87. The technical assessment considered that any route selected would need to include suitable mitigation measures in relation to ecological impacts, with impacts predicted to arise for all routes.

**Water Environment**

3.4.88. The technical assessment considered that the most significant impacts to the water environment were likely to be associated with water quality and flood risk, specifically:

- Polluted surface water runoff during the construction phase consisting of high sediment load, chemicals, hydrocarbons and oils that may migrate or be discharged to surface water features or groundwater resources;
- Polluted surface water runoff during operation of the road containing silts and hydrocarbons that may migrate or be discharged to surface water features or groundwater resources;
- Increased rates and volumes of surface water runoff during operation of the road from an increase in impermeable area and/or changes to the existing drainage regime leading to a potential increase in flood risk;
- Flood risk as a result of construction within areas identified to be at flood risk and flood risk to people and property elsewhere as a result of the proposals; and
- Impact to the hydromorphological and ecological quality of watercourses associated with works within or in close proximity to Withy Brook and Newton Brook.

3.4.89. The information available at the time of the design assessment suggested that there was no significant difference between the routes.

**Impacts on the Environment – Conclusion**

3.4.90. The appraisal outcome reflects the assessment results from the Stage 2 Environment Assessment Report and the Appraisal Summary Tables (ASTs) produced in April 2014. All of the routes would have adverse effects on the environment. On balance, Route SC7 performed the least worst of the seven routes while Route SC9 performed the worst.

## IMPACTS ON SOCIETY

3.4.91. This section summarises the social appraisal of the seven SLR routes, assessed against the following criteria:

- Physical activity;
- Journey quality;
- Security;
- Access to services;
- Affordability; and
- Severance.

3.4.92. The appraisal was qualitative and proportionate to the characteristics of the scheme.

**Commuting and other users (Journey time and reliability)**

3.4.93. The same scores were adopted as for the assessment of journey times and reliability for business users and transport providers, under the economy theme above. The assessment work did not consider there to be a significant difference between the SLR routes in terms of journey times or reliability.

**Physical Activity**

3.4.94. Physical activity has an important role to play in preventing weight gain and obesity, and in improving mental health. Transport can affect physical activity levels by encouraging or discouraging walking and cycling (active travel).

3.4.95. Physical activity impacts can be important for schemes targeted at walking or cycling interventions. This was not considered to be the case with any of the routes, if assessed in isolation from the supporting sustainable transport improvements. All seven routes were considered to have the potential for adverse impacts on active travel levels in the rural area, discouraging these activities by increasing severance on existing routes and loss of rural amenity through the introduction of traffic noise and proximity to traffic.

3.4.96. A numerical assessment of the number of pedestrians and cyclists who may be affected was not possible based on the data available at the time of assessment, and, given the type of scheme being assessed, not considered necessary. The seven routes were assessed as having a moderate adverse impact on physical activity.

**Journey Quality**

3.4.97. Journey quality is a measure of the real and perceived physical and social environment experienced when travelling. The guidance breaks down the journey quality impacts into three groups:

- Traveller care - cleanliness, level of facilities, information and the general environment;
- Travellers' views - pleasantness of the external surroundings; and
- Traveller stress - frustration, fear of accidents and route uncertainty.

3.4.98. Both travellers' views and traveller stress are of relevance to the appraisal of the SLR routes. It is the intention of all seven routes to divert traffic from existing built-up areas of the A465 and A49, to a new more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents for users.

3.4.99. There were, however, considered to be some counteracting adverse impacts for A465 and A49 users that would not use the SLR. These relate to having to negotiate new SLR connecting junctions, and to the degraded views of earthworks associated with both those junctions and the SLR route itself.

3.4.100. On balance, all seven SLR routes were assessed to have a beneficial impact on journey quality. Differences between the schemes relate to the scale and works associated with:

- The new A465 roundabout arrangement – which would impose additional stress to travellers on the A465 and those connecting between the B4349 and A465, and
- The extent of earthworks and cuttings required to take the SLR route over or under the railway and other structures, restricting views from the A465, A49 and SLR respectively.

3.4.101. SLR routes SC2, SC2A, SC8, SC8A and SC9 were assessed as moderate beneficial in respect of journey quality. Routes SC5 and SC7 were assessed as slight beneficial.

**Personal Injury Collisions (Accidents)**

3.4.102. The assessment work did not consider there to be a significant difference between the routes in terms of personal injury collisions. Route SC7 would have a 50mph design speed, which is lower than the other routes and is likely to reduce the collision rate. However, this is likely to be offset by a relative increase in collisions due to the poor overtaking opportunities and sinuous alignment.

3.4.103. The latest design standards would be applied to all routes and the SLR was anticipated to be safer than the A465 and A49. A reduction in traffic along the A465 would result in a reduced collision rate along this section of road, although the increase in traffic along the A49 in some time periods may cause the collisions rate to increase on this section of road.

**Security**

3.4.104. Security impacts relate to fear of, and vulnerability to, crime. These impacts can be important for public transport users, but there are no formal guidelines for road users. The only impact relevant to the SLR routes was considered to be reduced vulnerability to crime where users are less likely to be required to stop their vehicles or travel at slow speeds. This benefit can be attributed to users of the A465, A49 and SLR itself. The slight beneficial impact was assessed to be the same for all seven routes.

**Access to Services**

3.4.105. Access to services relates to opportunities for people to travel and access the services they require or desire. Accessibility impacts are primarily concerned with households that do not have access to a car, and with interventions that influence opportunities to access services by public transport, walking and cycling. In the case of the SLR, all seven routes would provide a potential new bus route between the A465 and A49, but not one that serves the key local destinations in Hereford city centre. For this reason, such a bus service is considered unlikely to materialise.

3.4.106. Each route was assessed as potentially leading to some improved access to services for car and public transport users as a result of reduced journey times. This would be for journeys both into Hereford City Centre on the A465 and A49, and to key destinations located south of the city including HEZ. According to the guidance, consideration of accessibility is not concerned with car users. The assessment was therefore neutral for the seven SLR routes.

**Affordability**

3.4.107. Monetary costs can be a barrier to mobility for low-income groups, affecting their ability to access key destinations. Changes to the transport network involving changes in user charges can have a strong impact on people in low-income groups.

3.4.108. The SLR, when appraised in isolation of supporting active travel options, is primarily concerned with re-routing to facilitate more efficient journeys. This would have the impact of reducing congestion on the A465 and A49 to the north of the scheme, whilst increasing speeds and reducing distances for journeys between the A465 and A49.

3.4.109. Both would impact positively on the personal affordability of car drivers, saving on fuel costs. The impact was assessed as slight beneficial for all seven routes.

### Severance

3.4.110. Severance is concerned with the physical separation of people from the facilities and services they use, or would use, within their community. Severance is important where infrastructure and / or traffic using it presents a barrier to safe pedestrian movement. According to the guidance the appraisal of severance is concerned only with pedestrians, and not with the movement of cyclists, car users, or other user groups. Severance is classified according to hindrance of movement and the numbers of people affected.

3.4.111. When considering the SLR in isolation, all seven routes would increase severance significantly, but for a very low number of residents located in rural communities. Scheme mitigation associated with Grafton Lane, other minor lanes and a number of PRoWs, however, would have the effect of reducing/ minimising this severance. The severance experienced by a few, as a direct result of the SLR infrastructure, should be more than compensated by the reduction in severance resulting from reduced volumes of traffic on Belmont Road and in the Holme Lacy Road area.

3.4.112. The net assessment of severance for the SLR was slightly beneficial, with no material difference in impact between the seven routes.

### Social Assessment Conclusion

3.4.113. There is little difference between the routes in respect of the social impact appraisal criteria. The marginal differences between the seven routes would be in relation to:

- The number and nature of PRoWs and minor lanes affected;
- The complexity and scale of the junctions connecting the SLR with the A465 and B4349; and
- The extent of earthworks and cuttings associated with the route.

3.4.114. In conclusion, Routes SC2, SC2A, SC8, SC8A and SC9 would be associated with slightly more social benefits than Routes SC5 and SC7. It should be stated, however, that the identified differences between all seven routes were slight.

## SUMMARY OF APPRAISAL

3.4.115. The results of the appraisal are summarised in Table 8 below. ASTs comparing the different SLR routes are contained in Appendix E. Route SC2 was assessed to have the highest overall AST score of 1.5. Route SC5 was assessed to have the lowest score of -1.5.

## Table 8 – Appraisal summary of SLR routes

| Appraisal Criteria | SC2 | SC2A | SC5 | SC7 | SC8 | SC8A | SC9 |
|---|---|---|---|---|---|---|---|
| **Economy** | | | | | | | |
| Business users and transport providers | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Reliability impact on business users | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Regeneration | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Wider Impacts | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Environment** | | | | | | | |
| Noise | -3 | -3 | -3 | -3 | -3 | -3 | -3 |
| Air quality (Local) | -2 | -2 | -2 | -2 | -2 | -2 | -2 |
| Greenhouse gases | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| Landscape/townscape | -2 | -2 | -3 | -2 | -2 | -2 | -3 |
| Historic environment | -1.5 | -1.5 | -1.5 | -1.5 | -1.5 | -1.5 | -2 |
| Biodiversity | -2 | -2 | -2 | -1.5 | -2 | -2 | -2 |
| Water environment | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| **Social** | | | | | | | |
| Commuting and other users | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Reliability impact on commuting and other users | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Physical activity | -2 | -2 | -2 | -2 | -2 | -2 | -2 |
| Journey quality | 2 | 2 | 1 | 1 | 2 | 2 | 2 |
| Personal Injury Collisions (Accidents) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Security | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Access to services | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Affordability | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Severance | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Option and non-use values | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Public Accounts** | | | | | | | |
| Cost to broad transport budget | ~ £16-20M | ~ £21-£25M | ~ £21-£25M | ~ £21-£25M | ~£17.9M-£26.5M | ~£25.4M-£38.6M | ~£17.2M-£25.3M |
| | 2 | 1 | 1 | 1 | 1.5 | 0 | 2 |
| Indirect tax revenues | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Total Score** | **1.5** | **0.5** | **-1.5** | **0** | **1** | **-0.5** | **0** |

*Note: The scores are made up of criteria under the main headings of Economy, Environment, Social and Public Accounts. The scores range from -3 (Large Adverse), to 0 (Neutral), to +3 (Large Beneficial). For some routes the historic environment and biodiversity appraisals identified a *slight to moderate adverse* impact and where this occurred the summary AST tables accord a value of 1.5 as appropriate.

**Route SC2**

3.4.116. This route would provide a range of benefits to the economy, for instance reducing congestion and improving journey times, as well as enhancing accessibility to employment opportunities at the HEZ. However, there would be adverse impacts on the environment, including increasing road traffic noise and reducing air quality, with impacts upon woodlands, and the impact on the landscape and biodiversity. There would be a range of social benefits, however, including improvements to journey quality, making the roads safer and reducing the number of collisions.

**Route SC2A**

3.4.117. As with route SC2, this route would have many social and economic benefits, with a reduction in congestion, improvements to journey enjoyment, and an increase in accessibility to employment and services. However, there would be some negative impacts on the environment, including increasing road traffic noise and reducing air quality, with impacts upon woodlands and to the landscape and biodiversity.

**Route SC5**

3.4.118. This route would have a range of social benefits, as well as benefits to the economy. It would reduce congestion and improve journey times, as well as enhance accessibility to services and employment opportunities. There would be some negative impacts to the environment, including increasing road traffic noise and reducing air quality. This route would also have a significant impact to the landscape, as it would involve the loss of woodland, and cause severe damage to key characteristics.

**Route SC7**

3.4.119. This route would have many benefits, for instance reducing congestion and improving journey reliability, as well as enhancing accessibility to services and employment. Furthermore, Route SC7 was considered the most ecologically preferable, with minimal impact on biodiversity and habitats. There would be some negative impacts to the environment, however, including increasing road traffic noise and reducing air quality. As with the other routes, there would be a range of social benefits, including making roads safer and reducing the number of collisions. Other routes, however, would see greater benefits to journey quality by reducing driver stress.

**Route SC8**

3.4.120. This route was assessed as having a range of social and economic benefits, reducing congestion and improvements to journey reliability. There would be several social benefits, including improvements to journey quality, making the roads safer and reducing the number of collisions. It would also improve access to services. However, it was assessed as having some negative impacts to the environment, including increasing road traffic noise and reducing air quality, with impacts upon woodlands and to the landscape and biodiversity.

**Route SC8A**

3.4.121. This route was assessed as having many social benefits, as well as benefits to the economy. It would improve journey times, enhance accessibility to services and employment opportunities, as well as reducing congestion. There would be some negative impacts to the environment, including increasing road traffic noise and reducing air quality. This route would have the greatest cost to the transport budget.

### Route SC9

3.4.122. This route was assessed as having many social benefits, as well as benefits to the economy. It would reduce congestion, enhance accessibility to services and employment opportunities and improve journey times. There would be some negative impacts to the landscape and historic environment, as well on air quality.

## 3.5. PUBLIC CONSULTATION

### PUBLIC AND STAKEHOLDER ACCEPTABILITY

3.5.1. This section considers the likelihood that a proposal would be accepted by the public and stakeholders and is based on the results of the public consultation. The information is taken from the SWTP Report on Consultation, dated November 2014, which formed a background paper to the November 2014 Herefordshire Council Cabinet meeting[8].

### PUBLIC CONSULTATION

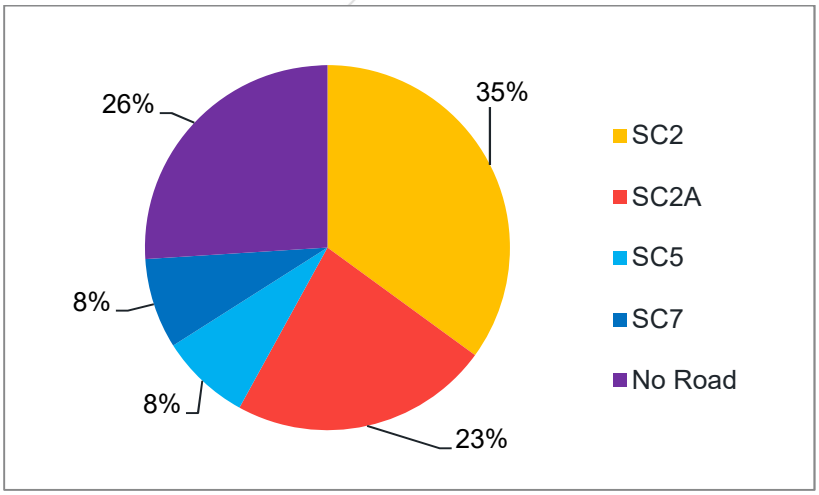
3.5.2. The study included public consultation to obtain public opinion on the routes developed as part of the SWTP. The possible improvements to encourage sustainable travel were included in the consultation, as well as the four initial routes for the SLR (SC2, SC2A, SC5, and SC7).

3.5.3. The consultation period covered a six-week period from the 1 July 2014 to 8 August 2014. A total of 199 people attended a public exhibition at the Three Counties Hotel, Hereford, held between the 30 June and 3 July 2014. Additional exhibitions were held at Belmont Library on the 15 July 2014 and Hereford City Library on the 18 July 2014.

3.5.4. 231 questionnaires were received in response to the consultation, as well as 24 letters and submissions. In general, the responses to questions relating to the solutions for solving the transportation problems in the area demonstrated that the public felt that a SLR would be the best solution, with a combination of more cycling infrastructure and greater public transport provision.

3.5.5. Respondents were asked to select a preferred route and the results from 404 respondents are shown in Figure 4 below.

**Figure 4 – Preferred route by percentage**




[8] http://councillors.herefordshire.gov.uk/ieListDocuments.aspx?CId=251&MId=5062&Ver=4

3.5.6. The responses from the questionnaires identified that the greatest preference shown by the public was for route SC2. This route was also supported by a 73-name petition, and 'scored' highly in the appraisal of the SLR routes.

3.5.7. The alternative 'No Road' response received the second highest number of positive responses.

3.5.8. Route SC2A was also well received. This route would follow the same alignment as SC2, only differing by going under the railway line.

3.5.9. The two SLR routes that would have a more northerly alignment, SC5 and SC7, received the lowest amount of support from the public.

3.5.10. As well as the questionnaire responses, letters and emails provided additional feedback from the public and other stakeholders. Some of these debated which route choice would affect residents the most, with more responses concluding that the alignments for SC2 and SC2A would affect fewer properties.

3.5.11. The responses from local residents also included requests to re-consider the proposed alignments in relation to their land and properties. Opinions were expressed that perhaps additional routes could be designed to achieve a route that would affect fewer residents.

3.5.12. The four routes with northerly alignments (SC1, SC3, SC4 and SC6) were not consulted on as they had previously been discounted, mainly on environmental grounds, along with the significant cost to mitigate this impact. The main identified environmental constraint would be the need to cross the ancient semi-natural woodland located to the north, Newton Coppice and Hayleasow Wood. However, consultation responses put forward various suggestions to amend the shortlisted routes, or include additional alternative routes. This led to three additional routes – SC8, SC8A, and SC9 – being deemed to be viable routes and appraised to the same level of detail as the four initial routes.

**STAKEHOLDER VIEWS**

3.5.13. Hereford City Council provided feedback on the proposals, and commented that improving facilities for cyclists generally is highly desirable. It recognised that there may be some difficulties installing a cycle lane on the length of the Belmont Road, given the narrow width at points. If safe separation can be achieved without increasing congestion on an over-crowded road, then the Council would support such a plan. It was acknowledged that local Councillors regard congestion in Belmont Road as a real concern, pointing out that this was echoed in the community consultation responses.

3.5.14. The Highways Agency (now Highways England) provided its views in writing. It acknowledged the commitment of £34.98 million towards the SWTP from the Marches Local Enterprise Partnership single growth fund settlement. It noted that the SWTP would provide a series of complementary transport measures, which was welcomed in principle. It supported the proposed improvements to walking and cycling on the A465, but wanted to understand the traffic implications to the A49 if a bus priority measure were to be included. The Agency noted that the route alignments appeared to reflect the need to consider local topography. It gave in principle support to the location of the junction with the A49 at the roundabout with the Rotherwas Access Road, provided assessments of capacity are undertaken.

3.5.15. English Heritage (now Historic England) provided its views in writing. They outlined that the organisation was not directly consulted on the earlier consultation of (at that time) four routes. It acknowledged that there are a number of heritage assets, both designated and undesignated, that may be affected by the routes. It outlined that a more detailed assessment of the harm to the significance of the heritage assets, including their settings, would be required.

3.5.16. Jesse Norman MP provided a written response to the consultation in his capacity as Member of Parliament for Hereford and South Herefordshire. He welcomed the objectives of the SWTP, and was broadly in favour of the measures proposed to improve accessibility and reduce congestion in Hereford. He however, had some caveats and concerns, including the need for costings and detailed traffic modelling to appraise the effect of the SLR. He wished to see a detailed cost-benefit analysis before approval. He also recognised the need for sensitivity towards the environment and local residents, and urged that their concerns were understood.

## 3.6. IDENTIFICATION OF PREFERRED ROUTE

3.6.1. The seven routes were assessed in terms of design considerations, economic outcomes, impact on the environment, and the social implications of each route on the basis of the information which was available at the time of the assessment. The performance of these routes within the appraisal was mixed.

3.6.2. The design assessment concluded that routes SC2 and SC8 performed better than the other routes. Some of the reasons for this, as discussed in the previous sections of this report, include that they would follow the ground profile (except where routes would pass over the railway and under Haywood Lane), removed the potential for groundwater/drainage issues, would have a 60mph design speed throughout, and would accord with Network Rail's preference for a design passing over the railway.

3.6.3. In relation to the scheme costs, route SC8A would be the most expensive of the seven routes whilst Route SC2 would be the cheapest.

3.6.4. All seven routes performed well against economic criteria, by providing significant regeneration and wider economic impacts. There was not expected to be a significant difference between the routes with regards to the economic benefits, as all seven were anticipated to reduce congestion along the A465, and provide access to the HEZ.

3.6.5. All seven routes performed negatively against environment criteria. Route SC7 performed the least worst of the routes as it was considered the most preferable in ecological terms, with minimal impacts on biodiversity and habitats. Route SC9 performed the worst due to its significant impact upon the landscape.

3.6.6. All the routes performed well in respect to the social impacts, with marginal differences between the seven routes. Routes SC2, SC2A, SC8, SC8A and SC9 demonstrate slightly more social benefits than Routes SC5 and SC7.

3.6.7. Overall, route SC2 had the highest score for the appraisal although SC8 also scored highly within the appraisal. Both of these performed the best of the seven routes against the design criteria.

3.6.8. The results of the appraisal demonstrated that all of the routes are considered to provide many benefits to the economy, reduce congestion, and improve journey times. All of the routes would cross greenfield land and have a negative impact to the environment, including increasing traffic noise, reducing air quality, and impacts to the landscape.

3.6.9. Based on the level of design and information available at the time, the appraisal work demonstrated that route SC2 was the best performing route within the technical assessment. This route also received the highest level of support as a proportion of feedback received of the initial four routes taken to public consultation. This led to route SC2 being identified as the preferred route for the SLR.

# 4. SOUTHERN LINK ROAD – REFINEMENT OF PREFERRED ROUTE

## 4.1. INTRODUCTION

4.1.1. Following the identification of the preferred route, described in the previous chapter, additional design work was carried out to refine the SLR preferred route (SC2). The work occurred in two key phases, as follows:

- Subsequent to the identification of the preferred route (November 2014) through to grant of planning permission (July 2016), including identification of measures to mitigate environmental impacts; and
- Changes to the design since grant of planning permission (July 2016 to date).

## 4.2. CHANGES AT PLANNING APPLICATION STAGE

4.2.1. The planning application for a *new single carriageway road (Southern Link Road) and associated works*[9] was granted planning permission, subject to conditions, on 18 July 2016. Preparatory work for the planning application led to two major changes to the design - the introduction of an underpass at the point where the SLR crosses Grafton Lane, in place of the previous design for an at-grade crossing, and confirming the layout of the Clehonger Link and associated details. Information on these design changes was set out in documents submitted as part of the planning application, including the Transport Assessment, Environmental Statement, Planning Statement, as well as a suite of drawings. The relevant design changes are discussed in turn below.

### CLEHONGER LINK

4.2.2. The preferred route included a new direct link from the A465 to the B4349 Clehonger Road, passing east of the property known as Pykeways. During the preparation of the planning application documents this section of the scheme became known as the Clehonger Link.

4.2.3. The Clehonger Link was designed to a 70kph/40mph design speed. In similarity to the SLR the alignment curvature, visibility and super-elevation were designed in full compliance with the current standards set out in DMRB document TD/9/93. Hard strips on either side of the carriageway – which are a proposed feature of the SLR – were omitted from the Clehonger Link design.

4.2.4. Application documents confirmed that the Clehonger Link would connect at its eastern end to a four-arm roundabout junction with the A465 and SLR and curve westwards to join the existing B4349 alignment between Clehonger Court and Dunan Lodge. On completion all vehicular traffic to and from the direction of Clehonger on the B4349 would travel via the new roundabout and the section of Clehonger Road east of Clehonger Court would, in terms of vehicular access, become a cul-de-sac. Vehicular access to properties on this section of Clehonger Road would be solely via the existing A465/B4349 junction.

[9] Application reference 151314 https://www.herefordshire.gov.uk/info/200142/planning_services/planning_application_search/details?id=151314&search=southern%20link%20road#tab1

4.2.5. Application documents outlined the intention for Herefordshire Council to make an order prohibiting motor vehicles from using the section of the existing B4349 east of the Clehonger Link. The prohibition of motor vehicles order would relate to a section of highway from a point where new road diverges away from the existing alignment at its western end (near Clehonger Court) to a point just west of the cottages named 1-2 Forest View. Provision for pedestrians, cyclists and equestrians would be maintained on this section of highway to connect into and out of the cul-de-sac section of Clehonger Road. Barriers or gates would be installed at each end to prevent unauthorised vehicular access.

4.2.6. The Clehonger Link would also sever the northern end of the minor public highway connecting from the B4349 at Clehonger Court and terminating at the A465 (unclassified road reference U73200). The Transport Assessment stated that the section of the lane from just north of the property named Pykeways would be stopped up to all traffic where it crosses the route of the Clehonger Link. A diversionary route was designed for these user groups from the southern end of the section of the U73200 proposed to be stopped up to enable a crossing the Clehonger Link further west.

4.2.7. The closure of the existing eastern section of the B4349 to through traffic will require the bus services which use the road to be diverted onto the Clehonger Link and the pair of bus stops to be relocated. Bus services will continue to serve the stops to the east of the A465/B4349 junction.

## STRUCTURES ON THE SLR

4.2.8. The design assessment anticipated the need for two structures along the route – one to carry the SLR over the railway line, and a second to carry Haywood Lane across the proposed road. At that time Grafton Lane was to be stopped up to motor vehicles at the point where it was bisected by the SLR, with an at-grade crossing for non-motorised users.

4.2.9. Preparatory work for the planning application has led to a further six structures being incorporated into the design. Each structure is briefly discussed in the paragraphs below.

### Grafton Lane

4.2.10. Preparatory work for the planning application found that an underpass would be required where the SLR crossed Grafton Lane to maintain routes for the passage of protected bat species which would otherwise be at risk of collision with vehicles using the new road.

4.2.11. Planning application drawings show the underpass design (structure reference SO2) as 5m wide and 5.3m high. These dimensions were chosen to enable through movements by vehicles, by cycles and those on foot to be retained along Grafton Lane, and would avoid the need for at-grade crossings of the SLR by active travellers on Grafton Lane.

### Railway Overbridge

4.2.12. The planning application documents proposed that the railway overbridge would be a steel composite bridge 32.9m in length and 14.3m in width (between parapets) with earthworks on both road approaches. The bridge was designed to provide 5.1m clearance over rail level. The planning application stated that provision would be made for a 1.8m high vehicle containment parapet, with 3.0m minimum width access / maintenance tracks on the northern side of the railway and a 5.0m minimum width access / maintenance track on the southern side to enable agricultural vehicles to pass between the otherwise severed parts of the fields.

**Haywood Lane Bridge**

4.2.13. The planning application documents proposed that the Haywood Lane overbridge would be a single span steel concrete composite bridge of 41.5m in length and 6.0m wide (between parapets). The proposed bridge would give 5.3m clearance above the carriageway level. No localised raising of Haywood Lane was proposed.

**Other structures**

4.2.14. Preparatory work for the planning application led to the following additional structures being incorporated into the design:

- Three culverts to carry the road over watercourses. Two of the culverts, Grafton Wood and Newton Brook Culverts (structure references SO1 and SO7) were designed as 1.2m in diameter and one (Withy Brook Culvert; structure reference SO3) as 1.5m in diameter; and
- Two underpasses 4m wide by 4m high to allow for the passage of bats underneath the new road – Central Underpass (reference SO4) and Newton Brook Underpass (SO8).

4.2.15. The planning application drawings and documents confirmed that water runoff would discharge into existing ditches and/or into Newton Brook and Withy Brook.

## SLR ALIGNMENT

4.2.16. The SLR was designed to a 100kph/62mph design speed, to accord with the 60mph national speed limit for single carriageway roads. The alignment was designed in accordance with the details set out in DMRB document TD/9/93 entitled Highway Link Design to ensure that standards of curvature, visibility and super-elevation are suitable for the anticipated vehicle speeds on the road.

4.2.17. The Transport Assessment which accompanied the planning application identified that there would be very little demand for a cycleway or footway adjacent to, or along the length of, the SLR or the Clehonger Link. As such, neither were included as part of the planning application submission design.

## PUBLIC RIGHTS OF WAY

4.2.18. The routes of three PRoW would be severed by the SLR and one by the Clehonger Link. The TA submitted with the planning application described the proposed diversions and crossings to be put in place to retain connections and explained that a Side Roads Order would be made for these under section 14 of the Highways Act 1980. The proposals are summarised below:

- Public footpath GF3 (A49 to Grafton Lane) – northern section of path diverted along southern boundary of SLR to new termination point on Grafton Lane near the property named The Green. Existing northern section of path would be extinguished. New public path would be created north of the SLR as shorter alternative to walking on the public highway (Grafton Lane) to connect back to existing path start point;
- Public footpath HA7 (Merry Hill Lane to Haywood Lane) – section of path diverted to follow the proposed farm accommodation track where the SLR crosses the railway line via an overbridge;
- Public footpath HA3 (Haywood Lane to A465) – public footpath diverted to avoid the proposed attenuation pond and make use of the Newton Brook Underpass before running westwards to reach public bridleway HA6, which connects the footpath to the A465 adjacent to Golden Post Cottage. The northern section of the existing footpath (north of grid reference SO 479 372) would be extinguished; and
- Public footpath CH9 (B4349 to A465) – an at-grade crossing of the Clehonger Link would be provided at the point where public footpath CH9 meets the new road, at a location where at least 90m visibility of approaching vehicles is available. The northern end of the U73200 would be stopped up to all traffic from a point just to the north of the entrance to Pykeways. In addition, a path for equestrians, pedestrians and cyclists would run along the southern boundary of the Clehonger Link to connect the stub of severed U73200 with the at-grade crossing (where footpath CH9 reaches the new road).

## MAINTENANCE AND AGRICULTURAL ACCESS

4.2.19. The design assessment found no requirement within the design guidance to provide a layby on a road with the length of the SLR. However, the designs for the planning application included three maintenance laybys to enable maintenance activities to take place. These would be located as follows:

- North-west of Grafton Wood and adjacent to the eastbound carriageway, from which an access track would lead to a nearby flood attenuation and water treatment pond;
- A short distance to the west of the railway overbridge adjacent to the eastbound carriageway; and
- Adjacent to the flood attenuation and water treatment pond south of Newton Brook.

4.2.20. Provision for agricultural accesses were agreed and finalised at the planning application stage.

## ROAD LIGHTING

4.2.21. No refinements were proposed to the location of road lighting during the preparation of the planning application documents.

### LANDSCAPE DESIGN

4.2.22. Some of the proposed scheme would be elevated above adjacent ground levels within a generally open, undulating landscape. To merge the proposed road with the surrounding landform and minimise intrusion into views, the planning application documents proposed that the southern embankment faces either side of the railway bridge be eased to a 1 in 4 gradient.

4.2.23. A series of measures were proposed to fulfil nature conservation and biodiversity or landscape integration functions. The key elements of this (in terms of land area) would be located as follows:

- South of the proposed SLR, in the field to the east of Grafton Wood and west of the A49 where an area of new woodland and woodland edge species would be planted and a new pond formed, with associated plants; and
- Due south of the railway bridge, adjacent to the SLR embankment, where woodland edge species would be planted and a new pond formed, with associated plants.

4.2.24. The remainder of the SLR and Clehonger Link would be planted to create a range of landscape elements, including linear belts of tress, scrub and shrubs, some of which would also have visual amenity and visual screening functions.

4.2.25. The extent of proposed tree and shrub planting was intended to more than offset those that would be lost as part of the scheme.

## 4.3. CHANGES AFTER GRANT OF PLANNING PERMISSION

4.3.1. Following the grant of planning permission for the SLR and Clehonger Link, subject to conditions, a number of modifications were identified which changed the design proposals, in particular to the alignment of the SLR and its associated structures. The relevant design changes are highlighted in turn below.

### SLR ALIGNMENT, STRUCTURES AND EARTHWORKS

4.3.2. Following an engineering assessment of the scheme proposals, the following significant changes were made to the design:

- Railway Bridge (SO5) – the SLR mainline carriageway and its approaches to the bridge were raised by approximately 0.5m to given additional clearance between the railway and the structure;
- Haywood Lane overbridge (SO6) – the SLR mainline carriageway was lowered by approximately 0.3m to give additional clearance between Haywood Lane and the structure;
- Newton Brook Underpass (SO8) – structure was widened by 0.5m to 4.5m and made 1m taller to 5m to enable use by agricultural vehicles. The mainline carriageway was raised by approximately 0.5m to accommodate the change to the structure; and
- Grafton Lane Underpass (SO2) – Grafton Lane was lowered at the point where it would be crossed the SLR to give the required clearance for vehicles using the lane. In addition, reinforced earth slopes were introduced on the south-western side of the Grafton Lane underpass and the wingwall lengthened;

4.3.3. In addition, the following additional changes of note were made to the design:

- Verges were widened near Newton Brook Underpass adjacent to the eastbound carriageway and on the Clehonger Link north of the A465 roundabout to improve visibility;
- The embankment slopes were extended between the Withy Brook underpass and Railway Bridge;
- The verges to the mainline carriageway were widened on the approach to the railway bridge from 2.5m to 3.5m, and earthworks revised to incorporate a more robust vehicle restraint system and parapet structure;
- The earthworks on the south-western embankment to the railway bridge were reinforced to accommodate a proposed maintenance track;
- An additional vehicle access track and turning head were included due south of railway bridge; and
- A turning head was included in the vicinity of Pykeways south of the Clehonger Link.

### PUBLIC RIGHTS OF WAY / NON-MOTORISED USERS

4.3.4. Proposals for active travellers along the section of Clehonger Road east of the Clehonger Link have been confirmed since the grant of planning permission. A 3m-wide paved route would be created for use by pedestrians, cyclists and equestrians along the section of Clehonger Road between Clehonger Court and Forest View. The remainder of the former carriageway width would be broken up, with the hedgeline moved north and a strip of former highway transferred to agricultural use.

### MAINTENANCE AND AGRICULTURAL ACCESS

4.3.5. A total of four direct accesses will be provided on the SLR; two for maintenance and two for agricultural access. A further four maintenance access points are to be provided from side roads. Several agricultural accesses from side roads and the existing highway network are to be provided following negotiation with landowners.

### DRAINAGE AND ECOLOGY

4.3.6. Drainage assessments post planning permission enabled the two proposed attenuation ponds to be reduced in size. A third attenuation pond was introduced south of the A465 roundabout to enable drainage runs to be installed at shallower depths and reduce depths of trench excavations during construction. A fourth pond formed part of the subject of the separate planning application for the accommodation works (P182314/CD3), which was submitted 2nd July 2018 and granted on 2nd October 2018. It will be located west of Grafton Lane and to the south of the proposed route, in the vicinity of the property known as "The Green". Introducing this pond will remove some of the in-pipe, buried, flood storage requirements and will simplify future maintenance requirements.

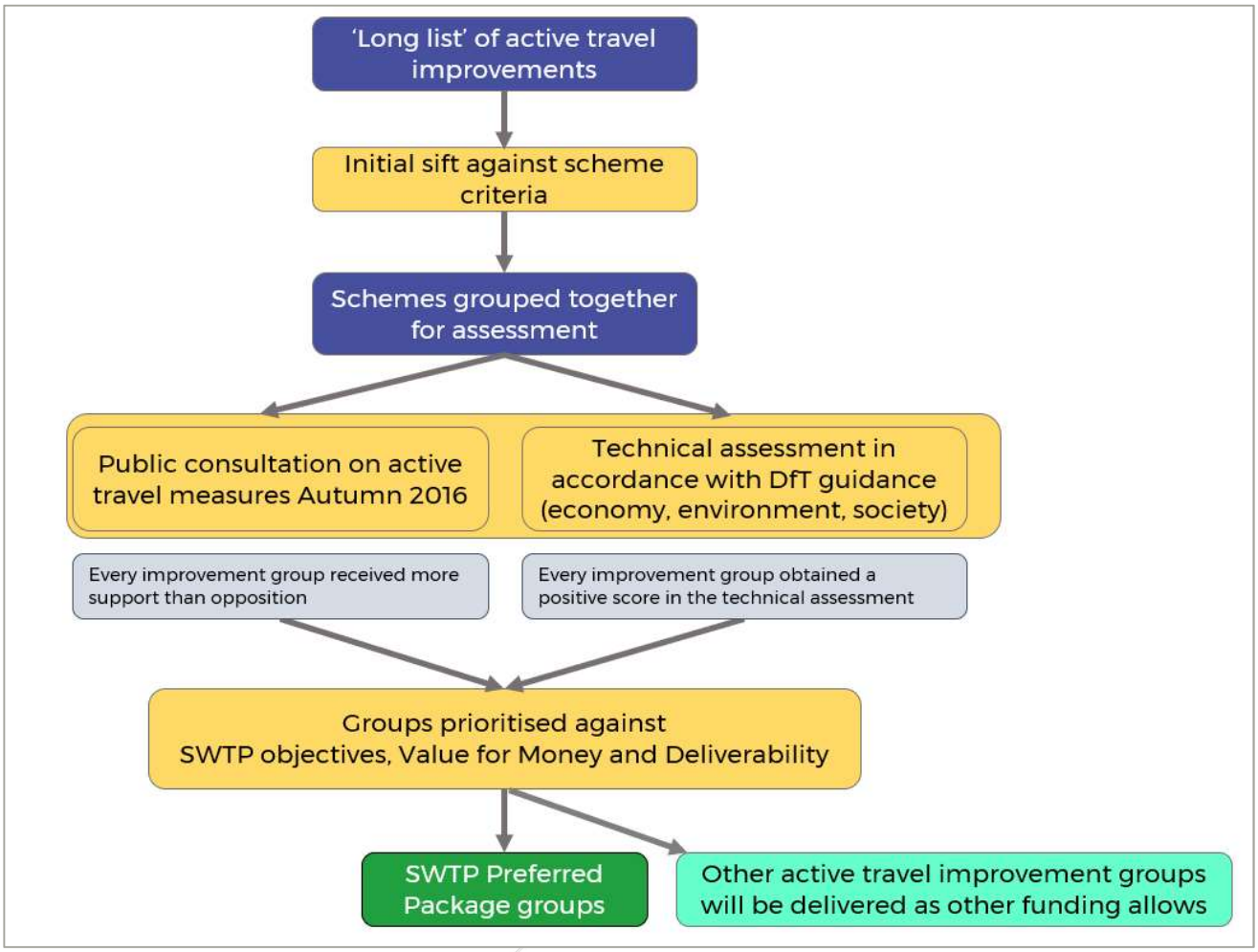
# 5. ACTIVE TRAVEL MEASURES – SCHEME DEVELOPMENT

## 5.1. INTRODUCTION

5.1.1. As documented in the OAR, a range of options were identified which had the potential to address the transport-related problems in the study area. Following an initial sift to discard poorly performing options the remaining options were packaged together into three options. An active travel measures option was created which combined four previous separate options – 20mph zones, bus priority, pedestrian infrastructure and cycling infrastructure. Use of the Option Assessment Framework found that a package combining two of the remaining options – SLR and active travel measures – would contribute to the delivery of the study objectives, with each performing better against different assessment areas. As a consequence these two better performing options were combined to establish an option which performed well across a majority of the assessment areas, and this preferred option was then taken forward for further refinement.

5.1.2. The process outlined in Figure 5 describes the process followed to refine the active travel measures. The methodology accords with Transport Appraisal Process Stage 1 steps 5 (*generate options*), 6 (*undertake initial sift*) and 7 (*develop assess potential options / undertake public consultation*). More information on the methodology and the criteria applied at each step are set in the rest of the chapter.

**Figure 5 - Option refinement process – key steps**




## 5.2. SCHEME GENERATION AND INITIAL SIFTING

### SCHEME GENERATION

5.2.1. The following means were used to identify possible active travel schemes:

- Using the review and analysis of problems;
- Analysis of existing and future short distance car journeys;
- A site visit in July 2015 to better understand existing conditions for walking and cycling in South Wye;
- Policies and plans, including the Local Transport Plan, draft Hereford Cycle Strategy and (at the time) draft Core Strategy; and
- Discussions with Herefordshire Council officers.

5.2.2. The schedule of possible schemes which were identified is set out in Appendix F, along with a short description. As explained in the OAR, whilst revenue expenditure measures can form part of the wider SWTP strategy, the major transport scheme funding (which requires the submission of a Business Case, and which the OAR forms a component part) is for capital expenditure. On that basis only capital expenditure schemes were considered further through the assessment process.

**INITIAL SIFTING**

5.2.3. A process of initial sifting was undertaken to discard those schemes which would not meet the criteria set out in Step 6 of the guidance (*clearly fail to meet key objectives identified for intervention, do not fit with existing programmes and strategies, or are unlikely to be deliverable, technically sound, financially affordable or acceptable to stakeholders and the public*). Examples included:

- *Improve crossing of the B4224 Eign Road at the railway bridge* (outside of study area); and
- *Widening existing footway on Wye Bridge for shared foot / cycleway* (works unlikely to be deliverable on ancient monument).

5.2.4. The outcome of the initial sift and the rationale behind the decision-making is set out in Appendix F.

## 5.3. GROUPING FOR CONSULTATION AND TECHNICAL ASSESSMENT

5.3.1. Following the initial sift, schemes located in the same area or with the same aim (e.g. access to the HEZ) were grouped together. These groups were to form the basis for the technical assessment of the schemes, including estimating costs, and the public consultation. Through the rest of the report these are referred to as groups of possible improvements (or improvement groups), in line with the phrase used in the public consultation.

5.3.2. Further refinement took place to ensure that the groups of possible improvements presented to the public were logical and coherent, and took on board relevant advice from stakeholders, such as the HEZ Executive Board.

5.3.3. The resulting nine groups of possible improvements were as follows:

- (1) 20mph residential areas;
- (2) Belmont Road bus priority measures;
- (3) Belmont Road walking and cycling improvements;
- (4) Belmont Road weight restriction;
- (5) Belmont Road (West) walking and cycling improvements;
- (6) Better walking and cycling routes to HEZ;
- (7) Hoarwithy Road and Hinton Road walking and cycling links;
- (8) Holme Lacy Road - further walking and cycling improvements; and
- (9) Walnut Tree Avenue / Hunderton Road traffic reduction.

5.3.4. A short description of each improvement group is set out in Table 9, and a table explaining the refinements which were made to the groups of possible improvements is contained in Appendix G. The public exhibition boards illustrating the groups of possible improvements are contained in Appendix H.

5.3.5. It was determined that some of the improvement groups might rely in part on the implementation of other groups to create a coherent package. On that basis three variants of the groups were also assessed. These are described in Table 9.

## RELATIONSHIP TO OBJECTIVES

5.3.6. As documented in the OAR, objectives for the SWTP were developed from:

- A review of national, regional and local policies and strategies;
- A review of evidence of current and likely future conditions (including those identified by the various technical studies undertaken in respect of Hereford's transport network);
- Identification of opportunities and constraints that impact the performance of the transport network;
- Consideration of the causes of the problems experienced by transport users and local residents; and
- Engagement with stakeholders.

5.3.7. Table 10 sets out how each group of possible improvements meets the objectives. The assessment assumes the SLR is in place and is based on the assumed long-term impacts these interventions have the potential to achieve, rather than more detailed analysis of immediate scheme impacts based on existing travel behaviours.

## Table 9 - Description of groups of possible improvements

| Group of possible improvements | Description of key features | Benefits |
|---|---|---|
| **1) 20mph residential areas** | ▪ Area-wide 20mph limit on all Herefordshire Council residential roads in South Wye, with 20mph limit signs at entry points and repeater signs<br>▪ Amending junction designs, focused on the widest bellmouth junctions on the Hunderton Estate west of Great Western Way and north of Belmont Road | ▪ More walking and cycling friendly streets<br>▪ Better connected local communities<br>▪ Quieter streets<br>▪ Safer journeys for all road users<br>▪ Healthier and happier journeys to school |
| **2) Belmont Road bus priority measures** | ▪ Inbound bus lane on the A465 (Hunderton Road to Asda Roundabout)<br>▪ New shared use footway/cycleway on A465<br>▪ Belmont Road near Belmont Avenue - Upgrade existing crossing to toucan | ▪ Improved bus journey times to the city centre<br>▪ Encourages inexperienced and returning cyclists<br>▪ Safer journeys to the city centre<br>▪ Healthier and happier journeys<br>▪ Easier to cross Belmont Road |
| **3) Belmont Road walking and cycling improvements** | ▪ Cycle infrastructure along section of Belmont Road from Tesco to Walnut Tree Avenue<br>▪ Improvement of existing pelican crossing of Belmont Road by The Oval<br>▪ Improved north-south crossings for pedestrians and cyclists at Tesco Roundabout and improved approach route from Eastholme Avenue<br>▪ Upgrade Newton Brook path to shared use footway/cycleway, provide toucan crossing on Belmont Road and create new connecting shared use footway/cycleway to Goodrich Grove south of the A465<br>▪ Streetscape improvements including avenue tree planting and narrowing of the Belmont Road carriageway<br>▪ Improved links to Great Western Way | ▪ Improved environment and more quality space for walking and cycling<br>▪ Easier to cross Belmont Road and side road junctions<br>▪ Easier and safer walking and cycling routes at Tesco Roundabout<br>▪ Better connected local communities on either side of Belmont Road<br>▪ Safer journeys to school<br>▪ Healthier and happier journeys to school<br>▪ Improved links to existing walking and cycling routes, such as Great Western Way<br>▪ Improved links to bus stops<br>▪ Encourages inexperienced and returning cyclists |
| **3A) Belmont Road walking and cycling improvements** | As per group 3, but with the addition of:<br>▪ A465 Belmont Road at Walnut Tree Avenue and Hunderton Road junctions – raised table covering both junctions and new toucan crossing of Belmont Road<br>▪ New shared use footway/cycleway on Belmont Road between Hunderton Road and Walnut Tree Avenue | |
| **4) Belmont Road weight restriction** | ▪ Weight restriction Traffic Regulation Order on Belmont Road | ▪ Quieter streets<br>▪ Healthier and happier journeys to work and school |

| Group of possible improvements | Description of key features | Benefits |
|---|---|---|
| **5) Belmont Road (West) walking and cycling improvements** | ▪ New shared use footway/ cycleway on northern side of A465<br>▪ Completion of shared use footway/ cycleway between Ruckhall Lane & Dorchester Way (west of Canterbury Close)<br>▪ Toucan crossing on A465 between Ruckhall Lane and Haywood Lane<br>▪ Extend 30mph limit on A465 west from Tesco to Haywood Lane<br>▪ Pedestrian refuge on A465 east of Clehonger Road turn<br>▪ Advisory cycle lanes over narrow bridge at Belmont Pool<br>▪ Improved links to existing paths near Belmont Pool<br>▪ Raised tables on Haywood Lane and Ruckhall Lane to facilitate easier pedestrian crossing | ▪ New and improved walking and cycling and routes<br>▪ Better connected local communities<br>▪ Safer journeys for all<br>▪ Cleaner air quality<br>▪ Quieter streets<br>▪ Easier to cross Belmont Road<br>▪ Improved links to bus stops<br>▪ Encourages new and returning cyclists |
| **6) Better walking and cycling routes to Hereford Enterprise Zone** | ▪ New off-road shared use footway/cycleway between Hereford Academy and Ross Road adjacent to Marlbrook Road<br>▪ Improve shared use footway/cycleway access to Great Western Way from Ethelstan Crescent and Brampton Road<br>▪ Shared use footway/cycleway under railway bridge with associated one way priority working or shuttle traffic signals<br>▪ Improved crossing of Ross Road (subject to third party agreement with Highways England)<br>▪ Lighting, signing and vegetation clearance on Watery Lane and Lower Bullingham Lane<br>▪ On-road markings<br>▪ Route signage and removal of barriers and posts | ▪ Tackling barriers to walking and cycling<br>▪ Opening up new links and opportunities for walking and cycling<br>▪ Safer journeys to school and work<br>▪ Healthier and happier journeys to school and work<br>▪ Encourages inexperienced and returning cyclists |
| **6A) Better walking and cycling routes to Hereford Enterprise Zone** | As per group 6, but without:<br>▪ Shared use footway/cycleway under railway bridge with associated one way priority working or shuttle traffic signals | |
| **7) Hoarwithy Road and Hinton Road walking and cycling links** | ▪ Improved routes across Bishop's Meadow from swimming pool to Hinton Road<br>▪ Convert Hinton Road zebra crossing to toucan crossing<br>▪ Better footway/cycleway connection from Bishop's Meadow with/onto Hinton Road<br>▪ Improvements to cycle infrastructure on Hoarwithy Road between Saxon Gate & Holme Lacy Road<br>▪ Shared use footway/cycleway between Grafton Depot park and choose site and Bullingham Lane<br>▪ Raised table on Hoarwithy Road near Orchard Avenue to facilitate easier pedestrian crossings | ▪ Connecting communities with the city and HEZ<br>▪ Better local walking and cycling connections<br>▪ Easier to cross Hoarwithy Road and Hinton Road<br>▪ Opening up new links and opportunities for walking and cycling<br>▪ Encourages inexperienced and returning cyclists<br>▪ Safer journeys to school and work<br>▪ Encouraging shift from car to active travel modes |

| Group of possible improvements | Description of key features | Benefits |
|---|---|---|
| **8) Holme Lacy Road – further walking and cycling improvements** | ▪ New shared use footway / cycleway on northern side of Holme Lacy Road between railway bridge and eastern end of existing scheme at Co-op<br>▪ Block paved table tops constructed at junctions to facilitate easier pedestrian and cycle crossings of Holme Lacy Road<br>▪ Shared use footway/ cycleway under railway bridge with associated one way priority working or shuttle traffic signals for motor vehicles<br>▪ Holme Lacy Road westbound approach to A49 traffic signals - carriageway narrowed to one lane to facilitate shared use footway / cycleway (subject to third party agreement and partnership funding by HE & HC)<br>▪ A49 / Holme Lacy Road junction – toucan crossings to facilitate safer crossing of Ross Road (subject to third party agreement and partnership funding by HE & HC) | ▪ Better connected local communities<br>▪ Joining up recent improvements on Holme Lacy Road<br>▪ Safer journeys to school and work<br>▪ Improved connections to the HEZ<br>▪ Encourages inexperienced and returning cyclists<br>▪ Opening up new links and opportunities for walking and cycling |
| **8A) Holme Lacy Road – further walking and cycling improvements** | As per group 8, but without:<br>▪ Shared use footway/ cycleway under railway bridge with associated one way priority working or shuttle traffic signals for motor vehicles | |
| **9) Walnut Tree Avenue / Hunderton Road traffic reduction** | ▪ Filtered permeability on section of Hunderton Road and Walnut Tree Avenue (closure to vehicular traffic, except buses and cycles)<br>▪ Walnut Tree Avenue - raised priority crossings for pedestrians<br>▪ A465 Belmont Road at Walnut Tree Avenue and Hunderton Road junctions – raised table covering both junctions and new toucan crossing of Belmont Road<br>▪ New shared use footway/cycleway on Belmont Road between Hunderton Road and Walnut Tree Avenue | ▪ Through traffic removed from residential streets<br>▪ Better connected local communities<br>▪ Quieter streets<br>▪ Safer journeys to work and school<br>▪ Walking and cycling friendly environment<br>▪ Healthier and happier journeys to work and school |

The shared use footway underneath the railway bridge at the eastern end of Holme Lacy Road forms part of group 6 and 8.

**Table 10 – How the groups of possible improvements meet the SWTP objectives**

| Group of possible improvements | Improve access to the HEZ by all modes | Reduce vehicle delay for journeys accessing the HEZ from the west | Encourage use of active modes for journeys to, from and within the South Wye area | Improve road safety for all modes | Reduce the air quality and noise impacts from road transport at key receptors |
|---|---|---|---|---|---|
| 1) 20mph residential areas | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2) Belmont Road bus priority measures | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3) Belmont Road walking and cycling improvements | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3a) Belmont Road walking and cycling improvements | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4) Belmont Road weight restriction | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5) Belmont Road (West) walking and cycling improvements | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6) Better walking and cycling routes to Hereford Enterprise Zone | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6a) Better walking and cycling routes to Hereford Enterprise Zone | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7) Hoarwithy Road and Hinton Road walking and cycling links | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8) Better walking and cycling routes to Hereford Enterprise Zone | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8a) Better walking and cycling routes to Hereford Enterprise Zone | ✓ | ✓ | ✓ | ✓ | ✓ |
| 9) Walnut Tree Avenue / Hunderton Road traffic reduction | ✓ | × | ✓ | ✓ | ✓ |

## 5.4. TECHNICAL ASSESSMENT OF ACTIVE TRAVEL SCHEMES

### DESIGN ETHOS AND STANDARDS

5.4.1. Feasibility level design drawings were prepared for each of the groups of possible improvements. The objective was to design high-quality infrastructure which took account of best practice and recognised guidance, such as:

- Manual for Streets 2 (2010)[10];
- London Cycling Design Standards (2014)[11];
- Design Guidance Active Travel (Wales) Act 2013 (2014)[12]; and
- Draft chapters from Sustrans Design Manual (2014-2015)[13].

5.4.2. The designs took into account the existing active travel network and, where applicable, sought to improve the infrastructure to meet modern standards for active travel infrastructure.

5.4.3. The feasibility design stage led to a number of design decisions being made regarding the active travel schemes. Examples of the decisions made include:

- The shared use cycleway/footways were designed with raised tables and set-back give way markings at side roads in line with best practice;
- For group 2 (Belmont Road bus priority measures) an off-carriageway shared use footway/cycleway was included because carriageway width constraints would not enable a wider bus lane to be provided (which could be used by cyclists as well as buses); and
- For group 9 (Walnut Tree Avenue / Hunderton Road traffic reduction) the proposed Walnut Tree Avenue road closure (except buses and cycles) was designed to be located immediately west of Hazel Grove junction where there is the potential to provide space for vehicles to make turning manoeuvres.

5.4.4. Appendix I contains the feasibility drawings of the groups of the possible improvements. It should be noted that some refinements to the groupings took place after these drawings were prepared but the schemes themselves were not amended.

### SCHEME APPRAISAL METHODOLOGY

#### INTRODUCTION

5.4.5. The principles set out in Stage 1 Step 7 of TAG[14] were used to distinguish the relative costs, benefits and the impacts of the groups of possible improvements under consideration and identify the better performing ones. The improvement groups were assessed against each of the assessment areas set out in Option Appraisal Framework (Appendix A of TAG) under the three headings of *impact on the economy*, *impact on the environment* and *impact on the society*.

[10] https://www.gov.uk/government/publications/manual-for-streets-2
[11] https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit#on-this-page-2
[12] http://gov.wales/docs/det/publications/141209-active-travel-design-guidance-en.pdf
[13] http://www.sustrans.org.uk/our-services/our-expertise/route-design/sustrans-design-guidance
[14] https://www.gov.uk/government/publications/webtag-transport-appraisal-process

5.4.6. A qualitative approach was adopted for each assessment area, informed by evidence and data where available. For each assessment area a table is provided which sets out the qualitative scores given to each improvement group. This enables the impacts of each improvement group to be compared with each other and to a scenario where no active travel interventions are constructed. Where TAG sets out a qualitative scale to be used for an assessment area this was used, and these are described in Table 11.

**Table 11 – TAG qualitative scales**

| Scale advised in TAG | Scale categories | Assessment areas |
|---|---|---|
| **7-point scale*** | Large Adverse, Moderate Adverse, Slight Adverse, Neutral, Slight Beneficial, Moderate Beneficial, Large Beneficial | Environment – Noise, Air Quality, Landscape and Townscape, Historic Environment, Biodiversity, Water Environment |
| | | Society – Reliability and Connectivity Impacts for Commuting and Non-Business Journeys, Physical Activity, Accidents, Personal Injury Collisions, Access to Public Transport Services, Affordability, Severance |
| **4-point scale** | None, Slight, Moderate, Large Scale | Economy – Regeneration and Wider Economic Impacts |
| **3-point scale** | Adverse, Neutral, Beneficial | Economy – Reliability for Business Users and Transport Providers<br>Society – Journey Quality, Security |
| **No scale given#** | n/a | Economy – Time Savings and Reliability Impacts<br>Environment – Greenhouse Gases |

Notes: * all of these assessment areas can use 3-point scale rather than 7-point scale, if deemed appropriate # TAG does not set out a quantitative assessment methodology for these assessment areas

5.4.7. For most assessment areas TAG sets out that a 7-point or 3-point scale can be used, as appropriate. It adds that the scale chosen should be appropriate to distinguish the relative impacts and that, in some cases, it is sufficient to use a 3 point scale. TAG does not outline a quantitative assessment methodology for two assessment areas (*time savings and reliability impacts* under economy and *greenhouse gases* under environment); however, in line with the level of appraisal being undertaken, and for consistency, the 7-point scale was also adopted for these, highlighted below in Table 12.

5.4.8. For some assessment areas some groups of possible improvements were considered to have negligible impacts. For the purposes of this assessment these were categorised as neutral.

**Table 12 - Overall scoring approach used to distinguish relative impacts of each scheme group**

| Appraisal Score | | | | | | |
|---|---|---|---|---|---|---|
| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| Greatest disbenefits / most adverse | | | Neutral or no change | | | Greatest benefits / most beneficial |

5.4.9. The methodology approach, and the outcome of the assessment, is set out below for each assessment area in turn.

## FORECASTING FUTURE LEVELS OF WALKING AND CYCLING GENERATED BY GROUPS OF POSSIBLE IMPROVEMENTS

5.4.10. Several of the assessment areas required consideration to be given to the amount of additional active travel journeys likely to be generated by the proposed schemes. These are listed in Table 13 below.

**Table 13 - Assessment areas which require evidence of likely scale of change in travel behaviour**

| Assessment areas | | Data required |
|---|---|---|
| Impacts on the economy | Reliability for motor vehicle users (Decongestion) | Likely reduction in numbers of vehicle trips. See Table 15. |
| Impacts on the environment | Traffic noise<br>Air quality<br>Greenhouse gases | |
| Impacts on the society | Reliability and connectivity for non-business users | Improvement in connectivity. See column A in Table 16 |
| | Health and physical activity | Likely increase in numbers of active travel trips (comprised of new trips and trips previously made by motor vehicle). See Table 16 |

5.4.11. As indicated in the OAR, a large number of journeys currently made in Hereford by motor vehicle have both an origin and destination in the city and many of these could be made by active travel modes. In addition a substantial proportion of city residents cannot drive and/or do not have access to a car, or are deterred from making everyday journeys due to concerns about road danger, for example.

**Assumptions**

5.4.12. Recent design guidance[15] identifies that, at present, walking as a mode of travel predominates for journeys of less than 2 miles whilst those by cycle are made for journeys up to five miles in length. A combination of factors influences the success of active travel schemes and the volume of people using them (and, if relevant, whether those people transfer from using motor vehicles for the trips).

5.4.13. For the purposes of making a relative assessment between different groups of possible improvements the following assumptions were adopted:

- An active travel scheme which generates the largest number of additional active travel journeys is one which:
  - Connects key journey origins and destinations, taking account of likely future changes in population, housing and employment;
  - Has a large catchment area (the number of people in the surrounding area which can make use of it); and
  - Is of a type of infrastructure and design standard which is associated with the highest degree of changes in travel behaviour.
- An active travel scheme which leads to the greatest reduction in car journeys is one which meets the above criteria plus:
  - Connects origins and destinations for which a large proportion of journeys are currently made by private car.

5.4.14. The Government has set targets[16] to double cycling journeys over the 12-year period from 2013 to 2025, increase walking activity and increase the proportion of children walking to school. This provides a context in which assessments should be planning for substantial growth in active travel demand.

5.4.15. These decision-making criteria are further described in Table 14.

[15] http://gov.wales/docs/det/publications/141209-active-travel-design-guidance-en.pdf
[16] Local Walking and Cycling Infrastructure Plans Technical Guidance (DfT, April 2017)

**Table 14 - Evidence used to inform assessment on future levels of walking and cycling generated by groups of possible active travel improvements**

| Criteria | | Assessment methodology |
|---|---|---|
| A. Connectivity | Do the improvements connect key existing and future journey origins and destinations? | Identify key destinations (HEZ, city centre, etc.) and give qualitative assessment of how well the improvements will connect them. |
| B. Scheme catchment | How many people in the surrounding area could make use of the improvements (scheme catchment), now and in the future? | Relative quantitative assessment of numbers of surrounding households who could access the improvements. |
| C. Type of infrastructure | Is the chosen type of infrastructure and design standard of the improvements sufficient to encourage widespread change in travel behaviour? | Comparative study into types of active travel infrastructure and the additional walking and cycling trips generated by them – see text below table. |
| D. Reduction in car use | Are there substantial numbers of car trips currently made between the origins and destinations served by the improvements? | Identify key origin-destination pairs which currently have high levels of car trips from analysis of travel demand matrix set out in Hereford Transport Strategy Phasing Study (JMP, 2014)[17]. |

**Comparative Study**

5.4.16. As referred to above, a comparative study was carried out to understand the causal relationship between specific types of active travel infrastructure and the additional active travel demand generated by them. TAG identifies this methodology as being the simplest and least costly approach to estimating future levels of cycling and it is therefore considered appropriate for this scale of appraisal. A range of existing research literature was reviewed in relation to different types of active travel measures. The research findings are set out in full in Appendix J. The comparative study informed assumptions to be made regarding the likely degree of change in travel behaviour arising from the introduction of different types of active travel infrastructure in the study area.

5.4.17. The evidence demonstrated the positive relationship between providing good quality infrastructure for sustainable transport and the increased use of those modes. Schemes taken together as a package were found to give rise to a greater degree of change than any scheme in isolation. However, this does make it challenging to identify the change in travel behaviour attributable to any one type of intervention or any specific element in a package of measures.

[17] https://www.herefordshire.gov.uk/download/downloads/id/2113/hereford_transport_strategy_phasing_study_strategic_phasing.pdf
The seven city sectors identified as having car journeys with the greatest potential for conversion to active travel were: Westfield-City Centre, Tupsley-City Centre, Broadlands-City Centre, Broadlands-Holmer, Belmont-South Wye, Whitecross-Rotherwas and Lower Bullingham-Rotherwas.

5.4.18. The comparative study also indicated the importance of a wide range of supporting factors which strengthen the change to active travel journeys, and cycling in particular. These supporting factors included:

- The directness and overall coherence of routes and avoidance of compromise designs;
- Investing in cycling measures as one part of an integrated approach to decreasing car mode share; and
- Political support and long-term commitment;
- Respectful driving culture; and
- Enhancing the information available to the travelling public and raising levels of cycling skills.

5.4.19. Local evidence[18] has identified the contribution which other interventions have in generating additional active travel demand. These include active travel promotion activities (including Herefordshire Council's *Choose How You Move* campaign and personalised travel planning) and public transport upgrades to provide high quality shelters with level access, real-time information and multi-operator ticketing.

**Relative Assessment of Likely Additional Active Travel Demand and Reduction in Car Trips**

5.4.20. The outcome of the assessment of the groups of possible improvements against the above criteria is set out below in Table 15 (for likely reduction in motor vehicle trips) and Table 16 (for likely additional active travel demand). These tables indicate that:

- Group 8 was considered to have the greatest impact on decongestion as it would strongly meet the four chosen assessment criteria in Table 15 (providing direct connections between key origins and destinations, connecting origins and destinations with existing high levels of car trips, large catchment and type of infrastructure likely to encourage widespread change in travel behaviour); and
- Groups 3 and 8 were considered to lead to the greatest increase in active travel as they would strongly meet the three chosen assessment criteria in Table 16 (providing direct connections between key origins and destinations, large catchment and type of infrastructure likely to encourage widespread change in travel behaviour).

[18] DfT Access Fund - Destination Hereford phase 3 (DH3) - Herefordshire Council Decision

**Table 15 – Relative assessment of active travel scheme groups – likely reduction in motor vehicle trips**

*Key to table – anticipated levels of reduction in car trips generated by groups of possible improvements*

| higher reduction in motor vehicle trips | medium reduction in motor vehicle trips | lower reduction in motor vehicle trips |
|---|---|---|

| Improvement Group | Criteria | | | | Outcome – Impact on Reduction in Car Trips |
|---|---|---|---|---|---|
| | A. Connectivity (O&D) | B. Scale of catchment | C. Main types of infrastructure proposed | D. Relevant O&D pairs with existing high levels of car trips | |
| 1) 20mph residential areas | Local connections | Large - covers all residential area in South Wye | 20mph and minor junction redesigns | North-south across the A465; Hinton/Saxon Gate/Lower Bullingham to HEZ; Whitecross to HEZ | Medium reduction in car trips |
| 2) Belmont Road bus priority measures | Direct route to city centre and links to potential new HE scheme towards Asda, Old Bridge | Large – Hunderton, Belmont and Newton Farm, plus communities in South West Hereford and South West Herefordshire served by buses along A465 | Shared footway/cycleway and crossing facilities, plus inbound bus lane | Less well-related to key O-D patterns with high levels of car trips | Medium reduction in car trips |
| 3) Belmont Road walking and cycling improvements | Direct route to key destinations in HEZ, City centre and local facilities either side of Belmont Road | Large – covers much of SW Hereford | New shared use paths and signalised crossings | North-south across the A465 | Larger reduction in car trips |
| 3A) Belmont Road walking and cycling improvements | Direct route to key destinations in HEZ, City centre and local facilities either side of Belmont Road | Large – covers much of SW Hereford | New shared use paths and signalised crossings | North-south across the A465 | Larger reduction in car trips |

| Improvement Group | Criteria | | | | Outcome – Impact on Reduction in Car Trips |
|---|---|---|---|---|---|
| | A. Connectivity (O&D) | B. Scale of catchment | C. Main types of infrastructure proposed | D. Relevant O&D pairs with existing high levels of car trips | |
| 4) Belmont Road weight restriction | Reduction in Heavy Goods Vehicle movements will encourage walking and cycling on Belmont Road corridor | Medium – Hunderton, Belmont and Newton Farm | Weight restriction Traffic Regulation Order on A465 | North-south across the A465 | Lower reduction in car trips |
| 5) Belmont Road (West) walking and cycling improvements | Completes missing links for journeys from rural communities to Hereford destinations | Local – western edge of Hereford and rural hinterland | New shared use paths and signalised crossings | North-south across the A465 | Medium reduction in car trips |
| 6) Better walking and cycling routes to Hereford Enterprise Zone | Route to HEZ and schools for people living in parts of Newton Farm and Redhill | Medium – Red Hill and areas west of Great Western Way | Improved and new shared use paths | Less well-related to key O-D patterns with high levels of car trips | Medium reduction in car trips |
| 6A) Better walking and cycling routes to Hereford Enterprise Zone | Route to HEZ and schools for people living in parts of Newton Farm and Redhill. Omission of shared use footway/cycleway under railway bridge will lead some journeys to the HEZ to divert onto less direct routes | Medium – Red Hill and areas west of Great Western Way | Improved and new shared use paths | Less well-related to key O-D patterns with high levels of car trips | Medium reduction in car trips |
| 7) Hoarwithy Road and Hinton Road walking and cycling links | Direct route from parts of Saxon Gate & Hinton to city centre | Local – parts of Saxon Gate & Hinton | New and improved shared use paths; new signal crossing | Less well-related to key O-D patterns with high levels of car trips | Medium reduction in car trips |
| 8) Holme Lacy Road – further walking and cycling improvements | Direct route to HEZ from SW Hereford | Large – most of South Wye | Off-road cycleway, segregated foot/cycleway and crossings | North-south across the A465; Hinton/Saxon Gate/Lower Bullingham to HEZ; Whitecross to HEZ | Larger reduction in car trips |

| Improvement Group | Criteria | | | | Outcome – Impact on Reduction in Car Trips |
|---|---|---|---|---|---|
| | A. Connectivity (O&D) | B. Scale of catchment | C. Main types of infrastructure proposed | D. Relevant O&D pairs with existing high levels of car trips | |
| 8A) Holme Lacy Road – further walking and cycling improvements | Direct route to HEZ from SW Hereford. Omission of shared use footway/cycleway under railway bridge will lead some journeys to the HEZ to divert onto less direct routes | Large – most of South Wye | Off-road cycleway, segregated foot/cycleway and crossings | North-south across the A465; Hinton/Saxon Gate/Lower Bullingham to HEZ; Whitecross to HEZ | Larger reduction in car trips |
| 9) Walnut Tree Avenue / Hunderton Road traffic reduction | Direct route to HEZ from SW Hereford | Medium - Hunderton, Belmont and Newton Farm | Filtered permeability on streets (reducing through traffic) | North-south across the A465; Hinton/Saxon Gate/Lower Bullingham to HEZ; Whitecross to HEZ | Larger reduction in car trips |

## Table 16 – Relative assessment of active travel scheme groups – likely additional active travel demand generated

*Key to table – anticipated levels of walking and cycling demand generated by groups of possible improvements*

| higher levels of additional active travel demand | medium levels of additional active travel demand | lower levels of additional active travel demand |
|---|---|---|

| Improvement Group | Criteria | | | Outcome – Impact Active Travel Demand |
|---|---|---|---|---|
| | A. Connectivity (O&D) | B. Scale of catchment | C. Main types of infrastructure proposed | |
| 1) 20mph residential areas | Encourages local connections in residential areas | Large - covers all residential area in South Wye | 20mph and minor junction redesigns | Medium levels of additional active travel demand |
| 2) Belmont Road bus priority measures* | Direct route to city centre and links to potential new HE scheme towards Asda, Old Bridge | Medium – Hunderton, Belmont and Newton Farm | Shared footway/cycleway and crossing facilities, plus inbound bus lane | Medium levels of additional active travel demand |
| 3) Belmont Road walking and cycling improvements | Direct route to key destinations in HEZ, City centre and local facilities either side of Belmont Road | Large – covers much of SW Hereford | New shared use paths and signalised crossings | Larger levels of additional active travel demand |
| 3A) Belmont Road walking and cycling improvements | Direct route to key destinations in HEZ, City centre and local facilities either side of Belmont Road | Large – covers much of SW Hereford | New shared use paths and signalised crossings | Larger levels of additional active travel demand |
| 4) Belmont Road weight restriction | Reduction in Heavy Goods Vehicle movements likely to result in relatively low levels of additional walking and cycling on Belmont Road corridor | Medium – Hunderton, Belmont and Newton Farm | Weight restriction Traffic Regulation Order on A465 | Lower levels of additional active travel demand |

| Improvement Group | Criteria | | | Outcome – Impact Active Travel Demand |
|---|---|---|---|---|
| | A. Connectivity (O&D) | B. Scale of catchment | C. Main types of infrastructure proposed | |
| 5) Belmont Road (West) walking and cycling improvements | Completes missing links for journeys from rural communities to Hereford destinations | Local – western edge of Hereford and rural hinterland | New shared use paths and signalised crossings – associated with large-scale active travel uptake | Medium levels of additional active travel demand |
| 6) Better walking and cycling routes to Hereford Enterprise Zone | Route to HEZ and schools for people living in parts of Newton Farm and Redhill | Medium – Red Hill and areas west of Great Western Way | Improved and new shared use paths | Medium levels of additional active travel demand |
| 6A) Better walking and cycling routes to Hereford Enterprise Zone | Route to HEZ and schools for people living in parts of Newton Farm and Redhill. Omission of shared use footway/cycleway under railway bridge will lead some journeys to the HEZ to divert onto less direct routes | Medium – Red Hill and areas west of Great Western Way | Improved and new shared use paths | Medium levels of additional active travel demand |
| 7) Hoarwithy Road and Hinton Road walking and cycling links | Direct route from parts of Saxon Gate & Hinton to city centre | Local – parts of Saxon Gate & Hinton | New and improved shared use paths; new signal crossing | Larger levels of additional active travel demand |
| 8) Holme Lacy Road – further walking and cycling improvements | Direct route to HEZ from SW Hereford | Large – most of South Wye | Off-road cycleway, segregated foot/cycleway and crossings | Larger levels of additional active travel demand |
| 8A) Holme Lacy Road – further walking and cycling improvements | Direct route to HEZ from SW Hereford. Omission of shared use footway/cycleway under railway bridge will lead some journeys to the HEZ to divert onto less direct routes | Large – most of South Wye | Off-road cycleway, segregated foot/cycleway and crossings | Larger levels of additional active travel demand |

| Improvement Group | Criteria | | | Outcome – Impact Active Travel Demand |
|---|---|---|---|---|
| | A. Connectivity (O&D) | B. Scale of catchment | C. Main types of infrastructure proposed | |
| 9) Walnut Tree Avenue / Hunderton Road traffic reduction | Direct route to HEZ from SW Hereford | Medium - Hunderton, Belmont and Newton Farm | Filtered permeability on streets (reducing through traffic) | Larger levels of additional active travel demand |

* Group 2 is anticipated to generate additional bus journeys, which raises the level of impacts against certain assessment areas – see relevant sections overleaf

## IMPACTS ON THE ECONOMY

### Journey Time Savings and Reliability

Introduction

5.4.21. In respect of the active travel schemes, two aspects were considered:

- Firstly, the time savings for journeys by active travel modes due to dedicated quality infrastructure; and
- Secondly, the decongestion impacts experienced by those continuing to travel by motor vehicle, which would result from trips transferring from vehicle journeys to active travel modes.

5.4.22. In many cases the road danger presented by heavily trafficked urban streets with limited or no segregated cycle infrastructure leads to existing cyclists taking indirect routes to reach their destination. Routes that avoid delays at traffic signals, or which avoid the need to continually stop and start en route, also offer significant journey time savings. For pedestrians, concerns about traffic and road danger may limit the routes they choose to take and make heavily trafficked roads difficult or frightening to cross. Poor infrastructure dissuades some people from cycling or walking at all, or limits the destinations they feel comfortable travelling to. Improved infrastructure, particularly segregated from motorised traffic, can in many cases reduce the perception of road danger and enable the use of routes which are shorter in distance (and thus with time savings) than the routes used previously. Investment in active travel infrastructure can also ensure that pedestrians and cyclists have priority at side junctions, have improved opportunities to cross heavily trafficked streets and that cyclists no longer have to share congested road space with motor vehicles, and that pedestrians feel safer walking near busy roads. These can all reduce delays for active travel user groups.

5.4.23. A qualitative assessment was undertaken to identify which schemes would enable more direct, shorter distance journeys to be made by cycling for journeys between residential areas and key employment zones, in comparison to the avoiding heavily trafficked roads at present. The results are summarised in Table 17 below. Some groups of possible improvements also have features which may increase delay (and hence journey times) for motor vehicle users on certain routes.

**Table 17 - Assessment of Impact – Time Savings for Active Travellers**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Neutral | Large beneficial | Large beneficial | Large beneficial | Slight beneficial | Large beneficial | Slight beneficial | Slight Beneficial | Slight beneficial | Large beneficial | Moderate beneficial | Large beneficial |

5.4.24. In summary:

- Groups 2, 3, 3a, 5, 8 and 9 were assessed as having a large beneficial impact due to the likely time savings for active travellers, particularly cyclists, by enabling the use of direct routes which would otherwise be avoided by the majority of existing or potential future cyclists;
- Group 8a was assessed as having a moderate beneficial impact. Whilst it would enable active travellers, especially cyclists, to use direct routes which would otherwise be avoided this variant of group 8 does not include the works to segregate cyclists from motor traffic underneath the railway bridge, necessitating some travellers to use less direct routes into the HEZ;
- Groups 6, 6a and 7 were considered to have a slight beneficial impact as there will be a smaller number of active travellers whose behaviour (and journey routes) will be expected to change;
- Group 4 was considered to have a slight beneficial impact as, in isolation, the measure may not be sufficient to address concerns about road danger for those considering walking and cycling along Belmont Road; and
- Group 1 was assessed as having a neutral impact as it is considered that the improvements are unlikely to lead to travellers changing routes and therefore no time savings would be experienced by active travellers.

**Reliability impacts on business users (decongestion)**

5.4.25. A combination of quantitative and qualitative assessment methods were used to inform the assessment of decongestion impacts. Schemes which would lead to the greatest transfer of journeys from car trips to active travel are assumed to bring about the greatest decongestion benefits, and the results from the assessment against the four criteria in Table 15 were used to inform this. Some improvement groups have features which may increase delay (and hence journey times) for motor vehicle users on certain routes and this was taken into account in a proportionate manner.

5.4.26. The results of this assessment are set out in Table 18.

**Table 18 – Assessment of Impact – Reliability impacts on business users (decongestion)**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Moderate beneficial | Large beneficial | Large beneficial | Large beneficial | Slight beneficial | Moderate beneficial | Moderate beneficial | Moderate Beneficial | Moderate beneficial | Large beneficial | Large beneficial | Moderate beneficial |

5.4.27. In summary:

- Groups 3, 3a, 8 and 8a were assessed as having large beneficial impacts on decongestion as they would strongly meet the majority of the four chosen assessment criteria;
- Group 2 was also considered to have a large beneficial impact as a result of the likely benefits to bus journeys associated with bus priority;
- Group 9 was assessed as having moderate beneficial impacts on decongestion. Whilst the proposed improvement is considered likely to lead to large beneficial impacts, in terms of the relative number of car trips transferring to walking and cycling with the improvements in place, this was assumed to be counterbalanced by a degree of additional congestion as vehicles would need to re-route away from Walnut Tree Avenue and Hunderton Road with the improvements in place;
- Groups 1, 5, 6, 6a and 7 were assessed as having moderate beneficial impacts on decongestion as they perform well across some, but not all, of the four chosen assessment criteria; and
- Group 4 was assessed as having slight beneficial impacts on decongestion as, in isolation, the improvement was considered likely to have a minor impact on vehicle trips and active travel uptake.

**Regeneration and wider impacts**

5.4.28. Some of the possible improvements were considered to be particularly well-related to the delivery of new homes and jobs and would contribute to the widening of the labour market.

5.4.29. The HEZ, at the eastern end of the study area, is a particular focus for employment in Hereford. It is covered by a Local Development Order, a simplified form of planning permission, which permits certain forms of development and avoids the need for occupiers or landowners to submit individual planning applications if their proposals are in line with the Local Development Order[19]. Development is however excluded from the Local Development Order if a cap on traffic generation from the HEZ during the morning and evening peak periods has already been exceeded or if the proposed development would lead to the cap being exceeded. The cap is set in a Memorandum of Understanding between Herefordshire Council and Highways England and is intended to prevent the capacity of the A49 from being exceeded. Increasing levels of active travel to the HEZ would be a way of ensuring the cap of traffic generation is not reached and enabling additional development to come forward through the Local Development Order.

5.4.30. A review was undertaken to understand how the groups of possible improvements relate to growth areas, employment zones and areas of deprivation. The outcome of this review informed a qualitative assessment. A summary of this assessment is set out below in Table 19.

**Table 19 - Assessment of Impact – Regeneration & Wider Economic Impacts**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Slight | Large scale | Large scale | Large scale | Large scale | Slight | Large scale | Moderate | Large scale | Large scale | Moderate | Large scale |

[19] http://www.skylonpark.co.uk/media/9942/Enterprise_Zone_LDO_Nov_2014.pdf

5.4.31. Each group of possible improvements was considered to generate regeneration impacts, as follows:

- Groups 2, 3, 3a, 4, 6, 8 and 9 were assessed as having large-scale impacts on regeneration. In particular, Groups 2, 3 and 3a would improve connections in the parts of South Wye undergoing transformative housing regeneration, including connections across the heavily trafficked Belmont Road. Group 2 would also improve bus accessibility to the city centre from these regenerated areas. Groups 6, 8 and 9 would improve walking and cycling routes to and from the HEZ, which is a key employment area for the city. Group 7 would be on a key route from the Lower Bullingham urban expansion site to the city centre;
- Groups 6a and 8a were assessed as having moderate impacts on regeneration. Whilst they are similar to groups 6 and 8 in improving walking and cycling routes to the HEZ, they do not include works to segregate cyclists from motor traffic underneath the railway bridge, necessitating some travellers to use less direct routes into the HEZ; and
- Groups 1 and 5 were assessed as having slight impacts on regeneration as they would be less well-related to areas of areas of regeneration, employment or housing growth.

## IMPACTS ON THE ENVIRONMENT

### Traffic Noise

5.4.32. All of the active travel schemes are intended to increase the number of journeys made by walking and cycling in the area, with a consequent decrease in the number of motor vehicle trips (and thus the traffic noise associated with those trips). Schemes which lead to the greatest transfer of journeys from car trips to active travel are assumed to bring about the greatest reduction in traffic noise, and the results from Table 15 were used to inform the assessment.

A summary of this assessment is set out in Table 20**.**

**Table 20 – Assessment of Impact – Traffic Noise**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Moderate beneficial | Moderate beneficial | Large beneficial | Large beneficial | Slight beneficial | Moderate beneficial | Moderate beneficial | Moderate Beneficial | Moderate beneficial | Large beneficial | Large beneficial | Large beneficial |

5.4.33. All of the groups of possible improvements were considered to reduce numbers of vehicle trips and hence reduce traffic noise. In particular groups 3, 3a, 8, 8a and 9 were considered to have large beneficial impacts due to trips transferring from vehicles to walking and cycling and vehicles re-routing onto the SLR / Rotherwas Access Road (where traffic noise will affect relatively fewer key receptors).

5.4.34. All of the groups of possible improvements would be likely to lead to a slight adverse impact on noise during the construction phase.

### Air Quality

5.4.35. All of the active travel schemes were intended to increase the number of journeys made by walking and cycling in the area (with a consequent decrease in the number of vehicle trips, which emit air pollutants and particulates). Schemes which lead to the greatest transfer of journeys from car trips to active travel are assumed to bring about the greatest air quality benefits, and the results from Table 15 were used to inform the assessment.

5.4.36. A summary of this assessment is set out below in Table 21.

**Table 21 – Assessment of Impact – Air Quality**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Moderate beneficial | Moderate beneficial | Large beneficial | Large beneficial | Slight beneficial | Moderate beneficial | Moderate beneficial | Moderate Beneficial | Moderate beneficial | Large beneficial | Large beneficial | Large beneficial |

5.4.37. All of the groups of possible improvements were considered to reduce the number of trips made by motor vehicle (and hence improve to air quality). In particular, groups 3, 3a, 8, 8a and 9 were considered to have large beneficial impacts due to trips transferring from vehicles to walking and cycling and vehicles re-routing away onto the SLR / Rotherwas Access Road (where air quality will affect relatively key receptors). The same improvement groups would result in some motor vehicle journeys being longer in distance when the schemes are implemented, due to re-routing. This in part reduces the benefits which would accrue (as longer journey distances would result in additional particulates from vehicles).

5.4.38. All of the groups of possible improvements would be likely to lead to a slight adverse impact on air quality during the construction phase through increased particulates.

### Greenhouse Gases

5.4.39. All of the active travel schemes are intended to increase the number of journeys made by walking and cycling in the area. Schemes which lead to the greatest transfer of journeys from car trips to active travel were assumed to bring about the greatest reduction in greenhouse gases, and the results from Table 15 were used to inform the assessment. A summary of this assessment is set out below in Table 22.

**Table 22 – Assessment of Impact – Greenhouse Gases**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Moderate beneficial | Moderate beneficial | Large beneficial | Large beneficial | Slight beneficial | Moderate beneficial | Moderate beneficial | Moderate Beneficial | Moderate beneficial | Large beneficial | Large beneficial | Large beneficial |

5.4.40. All the groups of possible improvements were considered to reduce the number of trips made by motor vehicle (and hence reduce greenhouse gas emissions). In particular, groups 3, 3a 8, 8a and 9 were considered to have large beneficial impacts due to the likely reduction in vehicle trips associated with these schemes. The same improvement groups would result in some motor vehicle journeys being longer in distance when the schemes are implemented, due to re-routing (e.g. those no longer able to use Walnut Tree Avenue). This in part reduces the benefits which would accrue (as longer journey distances would result in additional greenhouse gas emissions).

5.4.41. All of the schemes were anticipated to lead to a slight adverse impact during the construction phase due firstly to the use of materials and secondly from construction vehicle emissions.

**Landscape / Townscape**

5.4.42. A qualitative assessment was made of the impact of the possible improvements on landscape and townscape. The summary of this assessment is set out below in Table 23.

**Table 23 – Assessment of Impact – Landscape / Townscape**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Neutral | Neutral | Large beneficial | Large beneficial | Neutral | Sight adverse | Neutral | Neutral | Slight adverse | Neutral | Neutral | Neutral |

5.4.43. The majority of improvement groups (1, 2, 4, 6, 6a, 8, 8a and 9) were assessed as having a neutral impact on landscape/townscape. Groups 3 and 3a was considered to have a large beneficial impact due to the substantial tree planting proposed as part of the boulevard and the converting some of existing carriageway space to greenspace. Two groups (5 and 7) were assessed as having slight adverse impacts due to new active travel infrastructure crossing undeveloped land.

**Historic Environment**

5.4.44. An assessment was made of the proximity of the possible improvements to national statutory and local non-statutory heritage designations. A summary of this assessment is set out below in Table 24.

**Table 24 – Assessment of Impact – Historic Environment**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Neutral | Neutral | Neutral | Neutral | Neutral | Slight adverse | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |

5.4.45. Improvement groups 1-4 and 6-9 were all considered to have neutral impacts. Improvement group 5 was considered to have the potential for a slight adverse impact on the historic environment if the schemes impact on setting of Belmont Abbey, Home Farm and the Almshouses to the north.

### Biodiversity

5.4.46. A qualitative assessment was made of the proximity of the possible improvements to national statutory and local non-statutory biodiversity designations and on habitats in general. A summary of this assessment is set out below in Table 25.

**Table 25 – Assessment of Impact – Biodiversity**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Neutral | Neutral | Slight beneficial | Slight beneficial | Neutral | Slight adverse | Slight adverse | Slight adverse | Slight adverse | Neutral | Neutral | Neutral |

5.4.47. In all cases impacts were considered to be neutral or slight. Further details are set out below:

- Groups 5, 6, 6a and 7 were assessed as having a slight adverse impact on biodiversity associated with removal of small areas of grass;
- Groups 3 and 3a were accorded a slight beneficial impact due to the substantial tree planting proposed; and
- Groups 1, 2, 4, 8, 8a and 9 were considered to have neutral impacts on biodiversity.

### Water Environment

5.4.48. A qualitative assessment was undertaken on the potential for the possible improvements to impact on watercourses. A summary of this assessment is set out below in Table 26.

**Table 26 – Assessment of Impact – Water Environment**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Neutral | Neutral | Slight beneficial | Slight beneficial | Neutral | Slight adverse | Slight adverse | Slight adverse | Slight adverse | Neutral | Neutral | Neutral |

5.4.49. Groups 1, 2, 4, 8, 8a and 9 were considered to have a neutral impact on the water environment. Groups 3 and 3a were assessed as having as slight beneficial impact due to the increase in permeable ground area and new planting. Groups 5, 6, 6a and 7 were assessed as having a slight adverse impact due to the additional impermeable surfacing associated with new shared use footway/cycleway.

## IMPACTS ON THE SOCIETY

### Reliability & Connectivity impacts for commuting and non-business journeys

5.4.50. This assessment was largely based on the outcome of column A in Table 16. A summary of this assessment is set out below in Table 27.

**Table 27 - Assessment of Impact – Reliability and Connectivity Impacts on Commuting / non-business journeys**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Slight beneficial | Large beneficial | Large beneficial | Large beneficial | Slight beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial | Large beneficial | Large beneficial | Moderate beneficial | Large beneficial |

5.4.51. All the groups of possible improvements were assessed as having a beneficial impact on reliability and connectivity, as follows:

- Group 2 was considered to have a large beneficial impact as a particular result of the connectivity and reliability benefits to bus journeys associated with bus priority;
- Groups 3, 3a, 7, 8 and 9 were assessed as having large beneficial impacts in terms of active travel connectivity to key destinations;
- Groups 5, 6, 6a and 8a were assessed as having moderate beneficial impacts in terms of improved active travel connectivity to key destinations; and
- Groups 1 and 4 were assessed as having slight beneficial impacts on decongestion as, in isolation, the improvements were considered likely to lead to relatively minor changes in active travel connectivity and reliability.

**Physical Activity (including Health Impacts)**

5.4.52. Each of the proposed schemes aims to enable additional active travel journeys by cycle or on foot by a range of people. An increased level of active travel is associated with improved mental and physical health and reduced social isolation. The proposed schemes are designed to be accessible to, and used by, young and old and those with disabilities. The schemes are also intended to reduce the numbers of trips made by motorised vehicles, and would therefore reduce the negative noise, air quality and greenhouse gas impacts on human health which motorised journeys give rise to.

Reduced Mortality

5.4.53. The World Health Organisation (WHO) has developed a Health Economic Assessment Tool (HEAT)[20] that calculates the economic benefit of preventing early mortality by increasing the number of people regularly exercising through walking and cycling. The tool requires estimates of the number of new cyclists as a result of the scheme; the time per day they will spend active; and mortality rates applicable to the group affected by the scheme. The tool then provides an economic benefit of reduced mortality based on the value of a prevented fatality. Schemes which lead to the greatest number of new and returning cyclists and additional walking journeys will be associated with the greatest health benefits.

[20] Health Economic Assessment Tool (HEAT) for walking and cycling by WHO/Europe

Business Benefits: Absenteeism

5.4.54. Research carried out by the WHO[21] found that absenteeism from work is expected to decrease when more people cycle to work. Moderate physical activity is seen to lead to a reduction in sick days taken from work and hence provides a benefit to the employer. This is in addition to the benefit of better health for the individual. In the UK the average absence of employees is 6.8 days per year, of which 95% is accounted for by short-term sick leave[22]. Research by the WHO suggests an expected reduction in absenteeism from increased cycling or walking of 6% based on 30 minutes of exercise per day (i.e. 15 minutes in each direction). Improvements which enable the greatest number of new commuting trips were considered to be associated with the greatest reduction in absenteeism.

Outcome

5.4.55. The results from Table 16 were used to inform the assessment and the results are set out below in Table 28.

**Table 28 – Assessment of Impact – Health and Physical Activity**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Moderate beneficial | Large beneficial | Large beneficial | Large beneficial | Slight beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial |

5.4.56. All the groups of possible improvements were assessed as having a beneficial impact on health and physical activity, as follows:

- Groups 2, 3, 3a, 7, 8, 8a and 9 were assessed as having large beneficial impacts as they would strongly meet the majority of the three chosen assessment criteria (providing direct connections between key origins and destinations, large catchment and type of infrastructure likely to encourage widespread change in travel behaviour);
- Groups 1, 5, 6 and 6a were considered to have a moderate beneficial impact by strongly meeting two of the three assessment criteria but only weakly meeting the third; and
- Groups 4 was considered to have a slight beneficial impact, generating the lowest level of additional active travel trips.

**Journey Quality**

5.4.57. Journey quality is an important consideration in appraising active travel schemes. As the fear of a collision is influenced by the concerns about road safety, schemes that include segregated cycle tracks and improvements to intimidating junctions were particularly considered to contribute to improved cycle journey quality.

5.4.58. A qualitative assessment, based on the scheme feasibility drawings, was undertaken to assess the likely change in journey quality. A summary of this assessment is set out below in Table 29.

[21] World Health Organisation (WHO) (2003) 'Physical Activity Fact Sheet'
[22] TAG Unit 4.1 para 3.2.18

**Table 29 - Assessment of Impact – Journey Quality**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Slight beneficial | Large beneficial | Large beneficial | Large Beneficial | Slight beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial |

5.4.59. All the groups of possible improvements were assessed as having a beneficial impact on journey quality, as follows:

- Group 2 was assessed as having large beneficial impacts due the provision of segregated cycling facilities where none exist at present, and improvements to bus users' perception of their journey arising from the provision of the bus lane;
- Groups 3 and 3a was assessed as having large beneficial impacts due to the provision of infrastructure segregated from vehicle traffic, additional crossings of Belmont Road plus shorter crossing distances of side roads;
- Groups 5-8a were assessed as having large beneficial impacts due to the provision of infrastructure segregated from vehicle traffic;
- Group 9 was assessed as having large beneficial impacts due to the re-routing of much of the general vehicular traffic away from Walnut Tree Avenue and Hunderton Road. There was considered to be a possible impact on the journey quality for some motor vehicle users who would no longer have these roads available to them for through journeys; however, in some instances the SLR will offer a less stressful alternative route;
- Group 1 was assessed as having slight beneficial impacts due to the reduced vehicle speeds arising from 20mph zones and shorter crossing distances for pedestrians at junctions; and
- Group 4 was assessed as having a slight beneficial impact as a result of a reduction in the number of heavy vehicles which active travellers would share the road with.

**Personal Injury Collisions**

5.4.60. All improvement groups are aimed at providing the conditions to enable safe walking and cycling, or both, and increase the numbers of people travelling by active travel modes, including by public transport. The shift from journeys made by private vehicle to active travel would reduce traffic flows on the roads with consequential reduction in the frequency and severity of collisions. Quality dedicated provision for cycling separated from road traffic was anticipated to reduce collisions. However, there is a risk that the number of cycle collisions may increase post-scheme implementation, because new and returning cyclists would still need to travel along existing infrastructure to reach them.

5.4.61. A qualitative assessment, based on the scheme feasibility drawings, was undertaken to assess the likely change in collisions. Reference was also made to quantitative analysis of collisions in Hereford involving pedestrians and cyclists, which identified that a substantial number of personal injury collisions occurred on main radial highway corridors, with a cluster site on Holme Lacy Road. The A465 (between Tesco Roundabout and Asda Junction) has a higher than average collision rates for pedal cyclists. The assessment also took account of the number of people who may be travelling actively as a result of each improvement and who might be exposed to collisions.

5.4.62. A summary of the outcome of the assessment is set out in Table 30.

**Table 30 - Assessment of Impact – Personal Injury Collisions**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Slight beneficial | Moderate beneficial | Large beneficial | Large beneficial | Slight beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial | Large beneficial | Large beneficial | Large beneficial |

5.4.63. The results of the assessment was as follows:

- Groups 3, 3a, 8 and 8a were assessed as having a large beneficial impact due to the provision of new routes for cycling segregated from motor traffic in locations where the greatest numbers of new active travel journeys would be likely to be generated, and on routes with a history of pedestrian and cyclist casualties;
- Group 9 was assessed as having a large beneficial impact due to the likely reduction of volumes of motorised traffic on key active travel routes;
- Groups 2, 5, 6 and 7 were assessed as having moderate beneficial impact as these would include new active travel routes segregated from traffic but the increase in numbers of active travel journeys was considered to be less substantial than for groups 3, 8 and 9; and
- Groups 1 and 4 were assessed as having a slight beneficial impact on collisions. They would not provide segregated routes for cyclists but were considered, in the case of group 1, to reduce the average speeds of vehicles, while group 4 would result in a reduction in the number of heavy vehicles.

**Security**

5.4.64. A qualitative assessment, based on the scheme feasibility drawings, was undertaken to assess the likely impact on security. All the improvement groups were assessed as having a neutral impact on security.

**Access to services (by public transport)**

5.4.65. TAG Unit 4.2[23] emphasises that this assessment area relates to public transport accessibility to employment, services and social networks, including access to bus stops. A qualitative assessment compared the impact the improvement groups would have on improving access to public transport.

5.4.66. A summary of the assessment is set out in Table 31.

[23] https://www.gov.uk/government/publications/webtag-tag-unit-a4-2-distributional-impact-appraisal-december-2015

**Table 31 – Assessment of Impact – Accessibility**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Slight beneficial | Large beneficial | Large beneficial | Large Beneficial | Slight beneficial | Large beneficial | Slight beneficial | Slight beneficial | Slight beneficial | Large beneficial | Large beneficial | Moderate beneficial |

5.4.67. The results of the assessment ranged from neutral to large beneficial impact, depending on the degree to which the improvement groups would improve accessibility to public transport and the number of travellers the schemes would improve access for, as follows:

- Group 2 was assessed as having large beneficial impact as it would provide a bus lane, to enhance bus accessibility to the city centre from South-West Hereford on a congested road corridor;
- Groups 3, 3a, 5, 8 and 8a were considered to also have a large beneficial impact as the proposals would improve accessibility to bus stops on foot or by cycle;
- Group 9 was assessed as having a moderate beneficial impact as walking and cycling routes to bus stops would be enhanced and the improvements would be likely to improve the bus accessibility; and
- Groups 1, 4, 6, 6a and 7 were assessed as having a slight beneficial impact, with relatively minor improvements to routes to bus stops.

**Personal Affordability**

5.4.68. All the groups of possible improvements are intended to enable more journeys on foot or by cycle, which are relatively low cost forms of transport. Reference was made to the income deprivation domain of the Index of Multiple Deprivation[24] and the Census 2011 data on car or van availability[25] to inform the assessment of impacts on affordability. Table 32 summarises the outcome of the assessment.

**Table 32 – Assessment of Impact - Affordability**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Large beneficial | Large beneficial | Large beneficial | Large Beneficial | Large beneficial | Slight beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial | Large beneficial |

[24] http://dclgapps.communities.gov.uk/imd/idmap.html
[25] https://www.nomisweb.co.uk/census/2011/qs416ew

5.4.69. All the improvement groups were assessed as having beneficial impact on personal affordability, by facilitating active travel journeys. Groups 1-4 and 6-9 were assessed as having large beneficial impacts on personal affordability due to their strong relationship with, and close proximity to areas with some of the highest levels of income deprivation and lowest levels of car availability in Herefordshire. Group 5 was assessed as having a slight beneficial impact on affordability as it is less well related to Herefordshire's most income deprived and low car ownership areas.

**Severance**

5.4.70. A qualitative assessment, based on the scheme feasibility drawings, was undertaken to assess the likely change in severance arising from the schemes. Particular reference was made to whether the schemes would introduce new or improved opportunities to cross streets, the level of motorised traffic on those streets and the number of pedestrians or cyclists who would benefit from improvements. Table 33 summarises the outcome of the assessment.

**Table 33 – Assessment of Impact – Severance**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Slight beneficial | Slight beneficial | Large beneficial | Large Beneficial | Moderate beneficial | Moderate beneficial | Large beneficial | Neutral | Slight beneficial | Large beneficial | Slight beneficial | Large beneficial |

5.4.71. The assessment scores ranged from neutral to large beneficial impact, as follows:

- Large beneficial impact assessments were given for:
  - Group 9, where substantial reduction of traffic volumes were considered likely on key active travel routes; and
  - Groups 3, 3a, 6 and 8, which would include new controlled crossings for pedestrians and cyclists and designs to enable easier crossing of side streets;
- Moderate beneficial impact assessments were given for:
  - Group 4, as it will reduce the proportion of heavy traffic on Belmont Road;
  - Group 5, as it would include a new signal crossing of a heavily trafficked roads, but in an area with a smaller catchment population;
- Slight beneficial impacts assessment were accorded to:
  - Group 1, due to the proposed 20mph zones and redesigns of junctions in residential areas, which would enable pedestrians to cross roads more easily;
  - Groups 2 and 7, as they would include an upgrade to existing crossing facilities; and
  - Group 8a, which includes designs to enable easier crossing of side streets;
- Group 6a was assessed as being neutral as it would not feature substantial changes to crossings of heavily trafficked roads.

**Option and non-use values**

5.4.72. The improvement groups would not directly result in additional public transport services and therefore all of them were assessed as having a neutral impact on this assessment area.

## PUBLIC ACCOUNTS

5.4.73. Cost estimates were calculated, and for the majority of items these costs were based on rates in Spon's Civil Engineering and Highway Works 2015. Where Spon's rates were not applicable, contemporary rates were applied from similar schemes in the locality. Further allowances were made to account for Contractor Overheads and Preliminaries, Traffic Management, works by the Statutory Undertakers and optimism bias. The sums allowed for both Statutory Undertakers and Traffic Management were based on engineering judgement having considered the likely presence of existing utilities, the current highway alignments and the typical daily traffic flows.

5.4.74. Table 34 below summarises the cost estimates. None of the schemes considered were anticipated to generate an income.

**Table 34 – Public Accounts**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| £1.09m | £1.61m | £3.15m | £3.89m | £0.03m | £1.87m | £1.40m | £0.86m | £1.28m | £2.27m | £1.73m | £1.07m |
| Moderate costs | Moderate costs | High costs | High costs | Low costs | Moderate costs | Moderate costs | Low costs | Moderate costs | High costs | Moderate costs | Moderate costs |

5.4.75. The outcome of the assessment was as follows:

- Improvement group 3a was estimated to have the highest estimated cost, totalling £3.89m to upgrade active travel infrastructure along a substantial length of Belmont Road;
- Improvement groups 3 and 8 also had an estimated cost of greater than £2m;
- Improvement groups 1, 2, 5, 6, 7, 8a and 9 were estimated to have moderate costs of between £1m and £2m;
- Improvement group 4 was estimated to be the cheapest scheme with an estimated cost of £0.03m; and
- Improvement group 6a also had an estimated cost of less than £1m.

## VALUE FOR MONEY ASSESSMENT

5.4.76. A value for money (VfM) assessment was undertaken, which compared the environment, economy and society impacts (see Table 35) against the required public expenditure for the improvement group. The results of this assessment were divided into three equal categories as follows:

- Higher value for money – between £1,549 and £30,491 for every assessment score point;
- Moderate value for money – between £30,491 and £59,434 for every assessment score point; and
- Lower value for money – between £59,434 to £88.377 for every assessment score point.

**Table 35 – Assessment of Value for Money**

| Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Moderate VfM | Moderate VfM | Lower VfM | Lower VfM | Higher VfM | Lower VfM | Moderate VfM | Moderate VfM | Moderate VfM | Moderate VfM | Moderate VfM | Higher VfM |

5.4.77. The VfM assessment indicated that:

- Groups 4 and 9 offered higher value for money, with substantial benefits and relatively low scheme costs;
- Groups 2, 6, 6A, 8 and 8A offered moderate value for money, with moderate benefits and moderate costs;
- Groups 1 and 7 offered moderate value for money, with lower benefits but also lower costs;
- Groups 3 and 3A offered lower value for money, with substantial benefits but very high costs; and
- Group 5 offered lower value for money, with lower benefits and high costs.

## OUTCOME OF ASSESSMENT

5.4.78. A set of twelve ASTs, one for each improvement group, including the three variants, were used to compile the results for each assessment area. The full ASTs are set out in Appendix K and a summary sheet is shown in Table 36.

## Table 36 – Active Travel Schemes Appraisal Summary

| Appraisal Criteria | Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Economy | | | | | | | | | | | | |
| Business users and transport providers | 0 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 1 | 3 | 2 | 3 |
| Reliability impact on business users | 2 | 3 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 2 |
| Regeneration and Wider Impacts | 1 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 3 | 3 | 2 | 3 |
| *Economy summary* | *3* | *9* | *9* | *9* | *5* | *6* | *6* | *5* | *6* | *9* | *7* | *8* |
| Environment | | | | | | | | | | | | |
| Noise | 2 | 2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| Air quality | 2 | 2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| Greenhouse gases | 2 | 2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| Landscape/townscape | 0 | 0 | 3 | 3 | 0 | -1 | 0 | 0 | -1 | 0 | 0 | 0 |
| Historic environment | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Biodiversity | 0 | 0 | 1 | 1 | 0 | -1 | -1 | -1 | -1 | 0 | 0 | 0 |
| Water environment | 0 | 0 | 1 | 1 | 0 | -1 | -1 | -1 | -1 | 0 | 0 | 0 |
| *Environment summary* | *6* | *6* | *14* | *14* | *3* | *2* | *4* | *4* | *3* | *9* | *9* | *9* |
| Society | | | | | | | | | | | | |
| Reliability impact on commuting and other users | 1 | 3 | 3 | 3 | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 3 |
| Physical activity | 2 | 3 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| Journey quality | 1 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Accidents | 1 | 2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |

| Appraisal Criteria | Group of Possible Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Security | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Access to services | 1 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 1 | 3 | 3 | 2 |
| Affordability | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 |
| Severance | 1 | 1 | 3 | 3 | 2 | 2 | 3 | 0 | 1 | 3 | 1 | 3 |
| Option and non-use values | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Society summary* | *10* | *17* | *21* | *21* | *10* | *15* | *16* | *13* | *15* | *21* | *18* | *20* |
| *Combined score for economy, environment and society* | *19* | *33* | *44* | *44* | *18* | *23* | *26* | *22* | *24* | *39* | *34* | *37* |
| Public Accounts | | | | | | | | | | | | |
| Estimated Cost | £1.09m | £1.61m | £3.15m | £3.89m | £0.03m | £1.87m | £1.40m | £0.86m | £1.28m | £2.27m | £1.73m | £1.07m |
| VfM | 2 | 2 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 3 |
| Total Score | 21 | 35 | 45 | 45 | 21 | 24 | 28 | 24 | 26 | 41 | 36 | 40 |

5.4.79. The headline outcomes were as follows:

- Each group of possible improvements had highly positive combined scores ranging from 20 to 45;
- Each group of possible improvements were appraised as having:
  - positive overall scores in terms of impacts on the economy (ranging from +3 to +9);
  - positive overall scores in terms of impacts on the environment (ranging from +2 to +14);
  - positive overall scores in terms of impact on the society (ranging from +10 to +21); and
  - impacts on public accounts ranging from £0.03m to £3.89m.

**Ranking the groups of possible improvements**

5.4.80. The improvement groups were ranked in descending order of their combined score. The rankings are outlined below in Table 37.

**Table 37 – Ranking the groups of possible improvements**

| Rank | Score | Improvement group reference | Description |
|---|---|---|---|
| =1 | 45 | 3 | Belmont Road walking and cycling improvements |
| =1 | 45 | 3a | Belmont Road walking and cycling improvements |
| 3 | 41 | 8 | Holme Lacy Road – further walking and cycling improvements |
| 4 | 40 | 9 | Walnut Tree Avenue / Hunderton Road traffic reduction |
| 5 | 36 | 8a | Holme Lacy Road – further walking and cycling improvements |
| 6 | 35 | 2 | Belmont Road bus priority measures |
| 7 | 28 | 6 | Better walking and cycling routes to Hereford Enterprise Zone |
| 8 | 26 | 7 | Hoarwithy Road and Hinton Road walking and cycling links |
| =9 | 24 | 6a | Better walking and cycling routes to Hereford Enterprise Zone |
| =9 | 24 | 5 | Belmont Road (West) walking and cycling improvements |
| =11 | 21 | 1 | 20mph residential areas |
| =11 | 21 | 4 | Belmont Road weight restriction |

**Group 1 – 20mph residential areas**

5.4.81. This group was assessed as having benefits across the economy, environment and society themes but performed poorly relative to the other improvement groups (lowest score). It scored relatively poorly in economic terms, primarily through its limited impact on additional active travel trips. The reduction in vehicle trips arising from the improvements would have a number of environmental benefits. In social terms, this group is generally anticipated to have positive impacts with lower vehicle speeds allowing for the local population to make journeys on foot or by cycle with more ease; however, other groups perform better against the same assessment areas. The group was identified as representing moderate value for money, as it is of relatively low cost but also has a low appraisal score.

**Group 2 – Belmont Road bus priority measures**

5.4.82. This group performed well against many of the assessment areas, partly down to its strong performance across the economic indicators. It was considered to benefit bus users and cyclists, especially for journeys to and from areas currently undergoing transformative regeneration at The Oval. The subsequent expected reduction in vehicle trips was anticipated to have positive impacts on the environment. In social terms the improvements were assessed as having large beneficial impacts on reliability, physical activity, journey quality, access to services and affordability, through the improved connections for bus passengers and cyclists between important origins and destinations. Balancing the benefits against estimated costs, the group was considered to represent moderate value for money.

**Group 3 – Belmont Road walking and cycling improvements**

5.4.83. This was the joint highest performing group, considered to give substantial benefits across the economic, environmental and social elements of the appraisal. The comprehensive improvements for walking and cycling along the Belmont Road corridor were assessed as being highly beneficial in economic terms, likely to result in a major shift from private vehicle usage to active modes, especially in areas that are undergoing large scale regeneration. This large mode shift was considered to result in beneficial impacts on the environment assessment areas of noise, air quality and greenhouse gases, whilst the substantial proposed tree planting also led to a large beneficial landscape / townscape score. The provision of significant segregated infrastructure was considered to bring numerous social benefits, with large beneficial impacts on reliability, physical activity, journey quality, accidents, access to services, affordability and severance. The group of improvements was estimated to have a high estimated construction cost, and this means that it scored less well in terms of value for money.

**Group 3a – Belmont Road walking and cycling improvements (with Toucan crossing at Walnut Tree Avenue junction and associated works)**

5.4.84. This group was the joint highest performing group along with group 3 and received the same assessment scores as group 3. In addition to the improvements forming group 3, group 3a would include raised tables covering the junction of Belmont Road with Walnut Tree Avenue and Hunderton Road, a new toucan crossing of Belmont Road and an additional section of shared use footway/cycleway on Belmont Road.

**Group 4 – Belmont Road weight restriction**

5.4.85. This group was assessed as having benefits across economy, environment and society but performed poorly relative to the other improvement groups, with the joint lowest score. The beneficial impacts on the economy were considered to be limited, though it would have large beneficial impacts on areas undergoing regeneration. As the shift to active travel was considered to only be minor, the improvement group was anticipated to have relatively limited environment and social benefits. However, as the cost of the improvement would be very small, it would represent higher value for money.

**Group 5 – Belmont Road (West) walking and cycling improvements**

5.4.86. Whilst this group was assessed as having benefits across economy, environment and society it performed poorly relative to many other improvement groups. In economic terms it was moderately beneficial, as it would be located further from regeneration, employment or housing growth areas. While there would be environmental benefits through a reduction in vehicle trips, there would be a number of disbenefits associated with building on undeveloped land, removal of grassland, subsequent addition of impermeable surfaces and proximity to heritage assets. In social terms the improvements were assessed as having large benefits in terms of journey quality and access to services. However, the balance of a low overall score and moderate estimated construction cost meant the group of improvements was considered to represent lower value for money.

**Group 6 – Better walking and cycling routes to Hereford Enterprise Zone**

5.4.87. This group was assessed as having benefits across economy, environment and society but had an average score when compared with all of the improvement groups. In economic terms, benefits were limited as there was not expected to be a significant shift to active modes of travel, however the improvements would be targeted at accessibility to the HEZ, considered to be a key regeneration area. Similar to group 5, the environmental benefits arising from a reduction in vehicle trips would to an extent be offset by the adverse impacts on biodiversity and water environment as a result of the removal of grassland and construction of impermeable surfaces. The group performed well in social terms, with active travel infrastructure segregated from heavily trafficked roads giving large beneficial impacts in journey quality, affordability and severance. The scheme would be of low cost, and when balanced against the appraisal score, the group of improvements would represent moderate value for money.

**Group 6a – Better walking and cycling routes to Hereford Enterprise Zone (without shared use footway/cycleway under railway bridge)**

5.4.88. This was a variant of group 6 and excluded the proposals for a shared use footway/cycleway under railway bridge. The exclusion of this element of improvements led to it being accorded lower scores for regeneration and severance than group 6.

**Group 7 – Hoarwithy Road and Hinton Road walking and cycling links**

5.4.89. As with the previous group, the modest economic benefits for this group were strengthened by their location on a strategic route (between the city centre and the Lower Bullingham urban expansion site). Some of the environmental benefits arising from reduced vehicle trips were counteracted by the minor adverse impacts on landscape, townscape, biodiversity and water environment that would arise from building on undeveloped land, removing grassland and constructing impermeable surfaces. In social terms well-located active travel infrastructure segregated from motor vehicles led to strong positive scores, assessed as having large beneficial impacts on reliability and connectivity for commuting and non-business journeys, journey quality and affordability. Balancing the scores against a low estimated cost means that it was considered to represent moderate value for money.

**Group 8 – Holme Lacy Road – further walking and cycling improvements**

5.4.90. This group was assessed as having significant benefits across the economy, environment and society themes and performed well relative to most other improvement groups. The comprehensive range of improvements were considered to have numerous economic benefits, in terms of decongestion impacts, reliability and regeneration impacts, due to its location on a key walking and cycling route to the HEZ. The likely significant reduction in vehicle trips means that there would be large environmental benefits, in terms of noise, air quality and greenhouse gas impacts. The group similarly performed well in social terms, as a result of the proposed segregated cycle infrastructure between key origins and destinations, being assessed as having large beneficial impact on reliability and connectivity for commuting and non-business journeys, physical activity, journey quality, accidents, access to services, affordability and severance. The scheme would be of moderate cost, and once compared against the assessment score, the group was considered to represent moderate value for money.

**Group 8a – Holme Lacy Road – further walking and cycling improvements (without shared use footway/cycleway under railway bridge)**

5.4.91. This was a variant of group 8 and excluded the proposals for a shared use footway/cycleway under railway bridge. The exclusion of this element of improvements led to it being accorded lower scores than group 6 for journey time savings to business users, reliability and connectivity impacts for commuting and non-business users, for regeneration and severance.

**Group 9 – Walnut Tree Avenue / Hunderton Road traffic reduction**

5.4.92. Group 9 was assessed as having significant benefits across the economy, environment and society themes and performed well relative to most other improvement groups. Cyclists and pedestrians would benefit significantly as a result of the closure of the roads to vehicle traffic, so a significant shift to active travel is expected, assessed as giving large beneficial impacts on all economy assessment areas. The transfer of trips away from private car use would have environmental benefits, with large beneficial impacts on noise, air quality and greenhouse gases. The group was assessed as having significant social benefits, primarily as a result of the reduction in motor traffic, and better connecting key origins and destinations. It was assessed as having large beneficial impacts on reliability, physical activity, journey quality, accidents, affordability and severance. The group would be of comparatively low cost, and with significant benefits. It was therefore considered to represent higher value for money.

## 5.5. PUBLIC CONSULTATION

5.5.1. A public consultation dedicated to possible active travel improvements in the study area ran for a period of six weeks from 14 September to 25 October 2016, during which comments were invited. A total of 336 questionnaires were returned in response to the consultation (a combination of online and paper-based), with an additional 22 partially completed online. The consultation strategy, the materials presented and the full analysis of the responses is set out in the separate SWTP Active Travel Consultation Report[26].

[26] https://councillors.herefordshire.gov.uk/documents/s50053138/Appendix%201%20for%20South%20Wye%20Transport%20Package%20-%20Active%20Travel%20Measures.pdf

5.5.2. Question 3 of the survey asked respondents to score their level of support for each of the possible improvements between 1 (strongly oppose) to 5 (strongly support). The results are summarised in Table 38, and ranked according to the combined proportion of 'support' and 'strong support' they received.

**Table 38 – Questionnaire Responses – Levels of Support for Each Possible Improvement**

| | | Level of Support | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Rank** | **Possible Improvement** | **Sum of 1 and 2 (strongly oppose / oppose)** | **1 (Strongly oppose)** | **2 (oppose)** | **3 (neutral)** | **4 Support** | **5 (Strongly support)** | **Sum of 4 and 5 (support / strongly support)** |
| 1 | (1) 20 mph residential areas | 20% | 12% | 8% | 22% | 16% | 42% | 58% |
| =2 | (3) Belmont Road walking and cycling improvements | 23% | 10% | 13% | 21% | 19% | 37% | 56% |
| =2 | (5) Belmont Road (West) walking and cycling improvements | 21% | 8% | 13% | 23% | 19% | 37% | 56% |
| 4 | (6) Better walking and cycling routes to Hereford Enterprise Zone | 21% | 8% | 13% | 25% | 20% | 35% | 55% |
| 5 | (7) Hoarwithy Road and Hinton Road walking and cycling links | 24% | 10% | 14% | 25% | 21% | 30% | 51% |
| =6 | (9) Walnut Tree Avenue / Hunderton Road traffic reduction | 28% | 17% | 11% | 26% | 18% | 29% | 47% |
| =6 | (8) Holme Lacy Road—further walking and cycling improvements | 29% | 14% | 15% | 25% | 16% | 31% | 47% |
| 8 | (4) Belmont Road weight restriction | 19% | 9% | 10% | 36% | 18% | 27% | 45% |
| 9 | (2) Belmont Road bus priority measures | 33% | 21% | 12% | 26% | 15% | 26% | 41% |

Note: Possible improvements ranked by the combined percentage of 'support' and 'strong support' they received. Group 3 was shown at consultation without the improvements between the junctions with Hunderton Road and Walnut Tree Avenue. The three variants (group 3a, 6a and 8a) were not specifically consulted on.

## OUTCOME OF PUBLIC CONSULTATION

5.5.3. The key findings of the consultation were:

- In terms of support:
  - All possible improvements had more support than opposition;
  - Group 1 (20mph residential areas) had the highest levels of support (58%);
  - Group 3 (Belmont Road walking and cycling improvements) had the second highest level of support (56%), and therefore performed well in the technical appraisal and the consultation feedback;
  - Group 5 (Belmont Road (West) walking and cycling improvements) performed well in the consultation feedback (56% respondents supporting) but worst on the technical assessment;
- In term of neutral views (neither supporting nor opposing):
  - Most improvement groups received between 20-30% of responses with neutral views. This rose to 36% of respondents having neutral views on group 4 (Belmont Road weight restriction);
- In terms of opposition:
  - Group 2 (Belmont Road bus priority measures) had the highest levels of opposition (33%) and the lowest levels of support (41%);
  - Group 8 (Holme Lacy Road—further walking and cycling improvements) had the second highest level of opposition (29% of respondents) but performed well in the technical assessment;
  - Group 9 (Walnut Tree Avenue / Hunderton Road traffic reduction) had the third highest level of opposition (28% of respondents) but performed well in the technical assessment; and
  - All possible improvements had more support than opposition.

5.5.4. Changes were made to group 9 to reflect the views expressed in the consultation. In particular the Hunderton Road access restriction element was omitted because:

- Feedback from the members of the public during the consultation process consistently indicated that there was not perceived to be an existing rat running issue associated with traffic diverting through the Hunderton area to avoid congestion on Belmont Road;
- The project team was concerned that the proposed access restriction could significantly impact on local residents by requiring all vehicles accessing the Hunderton Estate to route via Beattie Avenue, thereby adding to congestion on Belmont Road;
- Select link analysis undertaken using the Hereford Transport Model, and prompted by the consultation feedback, indicated that diverting from Belmont Road through the Hunderton area is not likely to be a rational choice (in terms of time, distance or cost advantage) in typical peak time conditions;
- The project team considered that, without evidence of an existing problem, rat running seemed highly unlikely to occur when the SLR is open. This would largely invalidate the proposal; and
- All the benefits of improvement group 9 could still be achieved by retaining the Walnut Tree Avenue element in combination with the improved crossing on Belmont Road.

## 5.6. IDENTIFICATION OF PREFERRED PACKAGE

5.6.1. This section sets out the preferred active travel schemes and outlines the elements which, together with the SLR, would comprise the SWTP.

5.6.2. As highlighted above, every improvement group obtained a positive score in the technical assessment and more support than opposition in the public consultation. A methodology was devised to enable the improvements to be prioritised using three assessment criteria – alignment with South Wye area objectives, value for money and an assessment of the issues which may arise in delivering the scheme. Table 39 describes the assessment categories, the information used and how these align with the five case business model.

**Table 39 - Prioritisation Process – Categories of Information Used**

| Business Case | Assessment category | Information used | Assessment method | Scale used |
|---|---|---|---|---|
| **Strategic** | **Assessment against South Wye area objectives** | AO1 - Improve access to the HEZ by all modes | Qualitative assessment on resultant change in access to the HEZ | 7-point assessment scale* |
| | | AO2 - Reduce vehicle delay for journeys accessing the HEZ from the west | Qualitative assessment of change in vehicle delay (both decongestion to vehicles due to extra active travel journeys taking place and/or additional vehicle delay due to introduction of active travel improvement) | |
| | | AO3 - Encourage use of active modes for journeys to, from and within the South Wye area) | Informed by data from Table 28 (Assessment of Impact - Health and Physical Activity) | |
| | | AO4 - Reduce the air quality and noise impacts from road transport on key receptors in the South Wye area | Informed by data from Table 20 and Table 21 (Assessment of Impact - Traffic Noise / Air Quality) | |
| | | AO5 - Improve road safety for all modes within the South Wye area | Informed by data from Table 30 (Assessment of Impact - Personal Injury Collisions) | |
| **Economic** | **Value for money** | Estimated scheme costs and total score given to objectives | Estimated scheme cost divided by the total score given to objectives AO1-AO5 above | £ per total objective score |
| **Management** | **Assessment of issues which may arise in delivering the scheme** | Practical feasibility | Complexity of construction works and likely potential for resolving issues | 3-point assessment scale** |
| | | Legal issues | Requirements for land purchase or traffic regulation orders | |
| | | Public acceptability | Proportion of responses to public consultation who supported or strongly supported the improvement. | 3-point assessment scale# |

Notes:
* Score of +1 = weakly meets the objective; score of +2 = moderately meets the objective; score of +3 = strongly meets the objective; 0 = neutral; score of -1 = improvement weakly works against meeting the objective; score of -2 = improvement moderately works against the achievement of the objective; score of -3 = improvement strongly works against achievement of the objective
** Score of +1 given where significant issues were identified but there is a realistic prospect of them being resolved, a score of +2 give where some issues were identified but they should not pose problems to deliverability and a score of +3 given where no significant issues were identified outside the normal course of scheme delivery
# positive scores accorded where greater proportion of respondents supported or strongly supported improvement than opposed or strongly opposed it. Support ranged from 41% to 58% of respondents. Score of +1 given to improvements with levels of consultation support in the lower third of the range (41%-45%), +2 to middle third of the range (47-52%) and +3 to higher third of the range (53-58%).

5.6.3. Table 40 outlines the prioritisation scores which result from the above methodology.

**Table 40 - Active travel improvements - results of prioritisation**

| Assessment Category | | Group of active travel Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Assessment against South Wye area objectives | Objective AO1 | 1 | 1 | 3 | 3 | 1 | 1 | 3 | 2 | 1 | 3 | 2 | 2 |
| | Objective AO2 | 0 | 0 | 3 | 3 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | -1 |
| | Objective AO3 | 2 | 2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| | Objective AO4 | 2 | 2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| | Objective AO5 | 1 | 2 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| | *Totals* | *6* | *7* | *15* | *15* | *5* | *8* | *10* | *9* | *7* | *13* | *12* | *10* |
| Value for money | £m per objective score | 0.182 | 0.230 | 0.210 | 0.259 | 0.006 | 0.234 | 0.140 | 0.086 | 0.183 | 0.175 | 0.133 | 0.107 |
| Assessment of issues which may arise in delivering the scheme | Practical feasibility | 3 | 2 | 1 | 1 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 |
| | Legal issues | 2 | 1 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | 1 |
| | Public consultation support | 3 | 1 | 2 | 2 | 1 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| | *Totals* | *8* | *4* | *7* | *7* | *6* | *8* | *7* | *8* | *7* | *6* | *7* | *6* |

5.6.4. The results from Table 40 were then distilled down into a single score per assessment category (+1, +2 or +3), as set out in Table 41. The appropriate score was identified by dividing all of the results from each assessment category into three even ranges; the poorest performing third were accorded a score of +1, the middle third accorded a score of +2 and the highest performing third a score of +3. The objectives score was accorded a double weighting in view of the importance of implementing schemes which strongly achieve the objectives.

**Table 41 - Active travel improvements – summary prioritisation scoring table**

| Assessment Category | Data and Scores | Group of active travel Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| Assessment against South Wye area objectives | Score from Table 40 | 6 | 7 | 15 | 15 | 5 | 8 | 10 | 9 | 7 | 13 | 12 | 10 |
| | Category score (1,2 or3) | 1 | 1 | 3 | 3 | 1 | 1 | 2 | 2 | 1 | 3 | 2 | 2 |
| | **Double weighting** | **2** | **2** | **6** | **6** | **2** | **2** | **4** | **4** | **2** | **6** | **4** | **4** |
| Value for money | Data from Table 40 (£m) | 0.182 | 0.230 | 0.210 | 0.259 | 0.006 | 0.234 | 0.140 | 0.086 | 0.183 | 0.175 | 0.133 | 0.107 |
| | **Category score (1,2 or3)** | **1** | **1** | **1** | **1** | **3** | **1** | **2** | **3** | **1** | **1** | **2** | **2** |
| Assessment of whether the scheme is deliverable | Score from Table 40 | 8 | 4 | 7 | 7 | 6 | 8 | 7 | 8 | 7 | 6 | 7 | 6 |
| | **Category score (1,2 or 3)** | **3** | **1** | **2** | **2** | **2** | **3** | **3** | **3** | **2** | **2** | **3** | **2** |

Note: 3A, 6A and 8A are variants of active travel groups 3, 6 and 8.

5.6.5. The results of the prioritisation are summarised and ranked in Table 42.

**Table 42 - Active travel improvements – results of prioritisation**

| Assessment Category | Group of active travel Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 3A | 4 | 5 | 6 | 6A | 7 | 8 | 8A | 9 |
| **Assessment against South Wye area objectives** | **2** | **2** | **6** | 6 | **2** | **2** | **4** | 4 | **2** | **6** | 6 | **4** |
| **Value for money** | **1** | **1** | **1** | 1 | **3** | **1** | **2** | 3 | **1** | 1 | 2 | **2** |
| **Assessment of whether the scheme is deliverable** | **3** | **1** | **2** | 2 | **2** | **3** | **3** | 3 | **2** | **2** | 3 | **2** |
| **Totals** | ***6*** | ***4*** | ***9*** | ***9*** | ***7*** | ***6*** | ***9*** | ***10*** | ***5*** | ***8*** | ***11*** | ***8*** |
| **Ranking** | **9** | **12** | **=1** | **=1** | **8** | **9** | **=1** | **=1** | **11** | **=1** | **=1** | **7** |

Note: 3A, 6A and 8A are variants of active travel groups 3, 6 and 8.

5.6.6. Groups 3, 3A, 6, 6A, 8 and 8A were the joint highest scoring improvements. As these groups contain variants of the same improvements, only three of the six listed groups were taken forward. They were chosen on the basis of being the better performing variant and the ability to form a coherent package. Group 3A includes a Toucan crossing near Walnut Tree Avenue to assist with east-west journeys, which was considered to give greater benefits. The combination of groups 6A and 8 was taken forward on the basis that it received a higher joint score in Table 36 than groups 6 and 8A.

5.6.7. The planning application for the Southern Link Road (reference P/151314) was considered by Herefordshire Council's Planning and Regulatory Committee in June 2016. The committee resolved that the application be granted, subject to a series of conditions. One of the conditions stated that: "*Prior to the first operation of the road hereby approved, a weight restriction on Belmont Road shall be implemented and effective unless an alternative timescale is submitted to and approved in writing by the Local Planning Authority*". On that basis, and although not forming one of the better performing active travel measures defined by the prioritisation process, Group 4: *Belmont Road weight restriction* was also included in the SWTP preferred package.

5.6.8. Together, groups 3A, 4, 6A and 8 were considered to constitute the preferred active travel package. The total estimated cost of these four groups of improvements was £7.05m, based on the designs prepared for the 2016 SWTP active travel measures public consultation. The estimated cost was comprised of:

- £3.89m for Group 3A - Belmont Road walking and cycling improvements, including for the Toucan crossing on Belmont Road west of Walnut Tree Avenue and associated traffic calming works;
- £0.03m for Group 4 – Belmont Road weight restriction;
- £0.86m for Group 6A - Better walking and cycling routes to Hereford Enterprise Zone (without priority working and a shared footway/cycleway underneath railway bridge); and
- £2.27m for Group 8 - Holme Lacy Road - further walking and cycling improvements (with priority working and a shared footway/cycleway underneath railway bridge).

It should be noted that these figures were preliminary cost estimates reflective of the relative maturity of the scheme designs at the time of the prioritisation process. The costs for the preferred package of measures will be refined as the detailed design for each scheme comprising the preferred package is developed and subjected to value engineering.

5.6.9. Table 43 summarises the key features of the preferred active travel package, along with their estimated costs and their benefits. Figure 6 shows the location of the elements of the preferred package. Note that additional elements which are funded separately are not outlined in this table but are discussed later in the chapter.

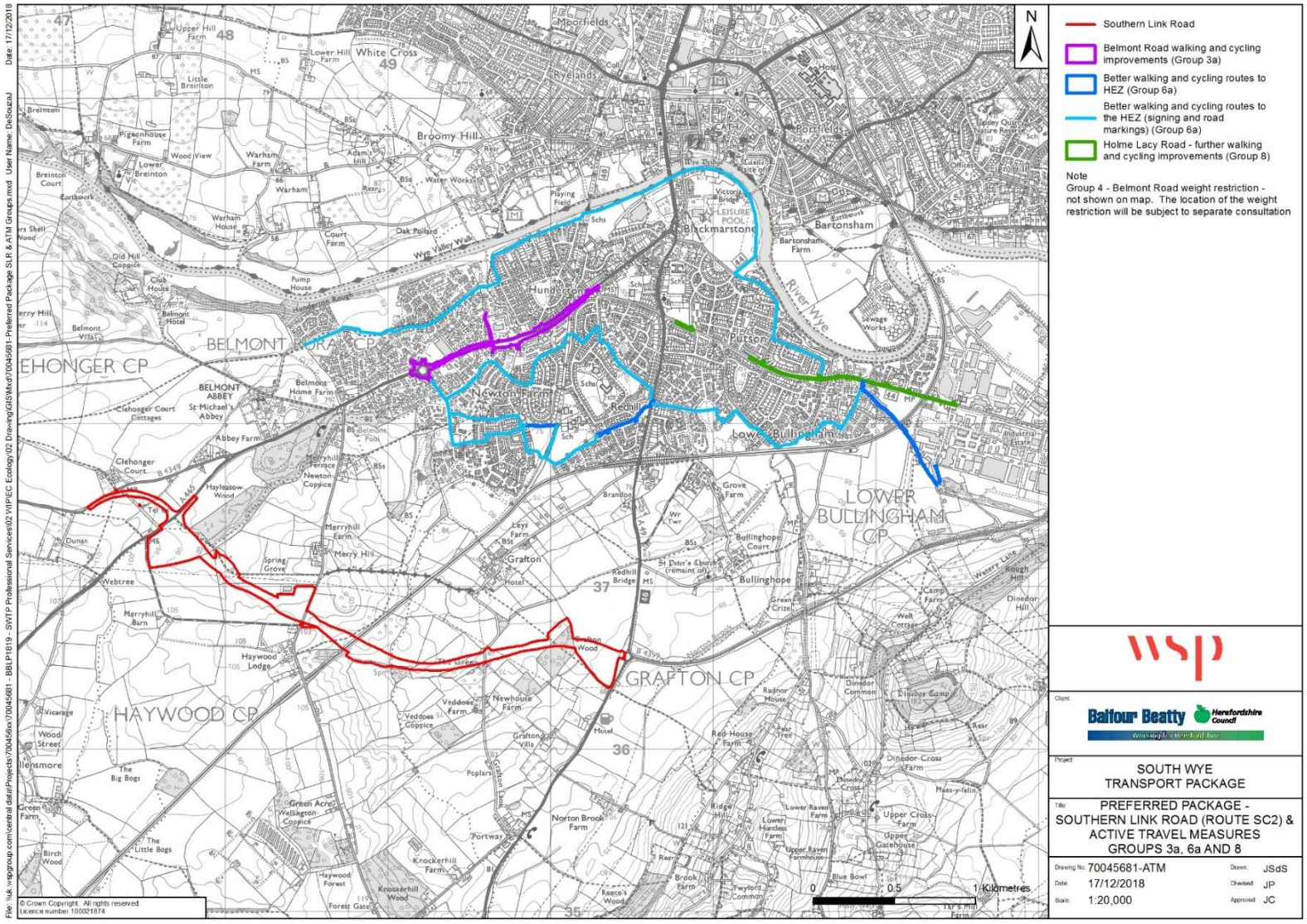
**Table 43 – Preferred Package of Active Travel Improvements – Key Features, Estimated Costs and Benefits**

| Improvement Group | Key features | Estimated Costs (£) | Benefits |
|---|---|---|---|
| **3A) Belmont Road walking and cycling improvements** | Cycle infrastructure along section of Belmont Road from Tesco to Walnut Tree Avenue<br>Improvement of existing pelican crossing of Belmont Road by The Oval<br>Improved north-south crossings for pedestrians and cyclists at Tesco Roundabout and improved approach route from Eastholme Avenue<br>Upgrade Newton Brook path to shared use footway/cycleway, provide toucan crossing on Belmont Road and create new connecting shared use footway/cycleway to Goodrich Grove south of the A465<br>Streetscape improvements including avenue tree planting and narrowing of the Belmont Road carriageway<br>Improved links to Great Western Way<br>Belmont Road at Walnut Tree Avenue and Hunderton Road junctions – raised table covering both junctions and new toucan crossing of Belmont Road<br>New shared use footway/cycleway on Belmont Road between Hunderton Road and Walnut Tree Avenue | £3.89m | Improved environment and more quality space for walking and cycling<br>Easier to cross Belmont Road and side road junctions<br>Easier and safer walking and cycling routes at Tesco Roundabout<br>Better connected local communities on either side of Belmont Road<br>Safer journeys to school<br>Healthier and happier journeys to school<br>Improved links to existing walking and cycling routes, such as Great Western Way<br>Improved links to bus stops<br>Encourages inexperienced and returning cyclists |
| **4) Belmont Road weight restriction** | Weight restriction Traffic Regulation Order on Belmont Road | £0.03m | Quieter streets<br>Healthier and happier journeys to work and school |

| | | | |
|---|---|---|---|
| **6A) Better walking and cycling routes to Hereford Enterprise Zone** | New off-road shared use footway/cycleway between Hereford Academy and Ross Road adjacent to Marlbrook Road<br>Improve shared use footway/cycleway access to Great Western Way from Ethelstan Crescent and Brampton Road<br>Lighting, signing and vegetation clearance on Watery Lane and Lower Bullingham Lane<br>On-road markings<br>Route signage and removal of barriers and posts | £0.86m* | Tackling barriers to walking and cycling<br>Opening up new links and opportunities for walking and cycling<br>Safer journeys to school and work<br>Healthier and happier journeys to school and work<br>Encourages inexperienced and returning cyclists |
| **8) Holme Lacy Road – further walking and cycling improvements** | Improved cycle provision on Holme Lacy Road between railway bridge and eastern end of existing scheme at Co-op<br>Block paved table tops constructed at junctions to facilitate easier pedestrian and cycle crossings of Holme Lacy Road<br>Shared use footway/cycleway under railway bridge with associated one way priority working or shuttle traffic signals<br>Holme Lacy Road westbound approach to A49 traffic signals - carriageway narrowed to one lane to facilitate shared use footway / cycleway (subject to third party agreement and partnership funding by HE & HC) | £2.27m | Better connected local communities<br>Joining up recent improvements on Holme Lacy Road<br>Safer journeys to school and work<br>Improved connections to the HEZ<br>Encourages inexperienced and returning cyclists<br>Opening up new links and opportunities for walking and cycling |
| **Total costs** | | **£7.05m** | |

* Does not include the costs of the design element comprising priority working and a shared footway/cycleway underneath railway bridge at the eastern end of Holme Lacy Road. This is included in the costs of group 8.

**Figure 6 – SWTP Preferred Package – Location of Elements**



5.6.10. The infrastructure and measures to be funded by the SWTP will be complemented by a series of additional elements funded separately which contribute to making a coherent package across South Wye. These comprise:

- The lighting scheme of the Hereford Greenway, funded by a partnership between Herefordshire Council and the HEZ, encouraging greater levels of use during the hours of darkness on the already popular route;
- A scheme for an off-road footway/cycleway adjacent to The Straight Mile, funded by a partnership between Herefordshire Council and the HEZ, from the entrance to Thorn Business Park to the Business Solutions Centre, by Coldnose Road;
- Developer contributions from Keepmoat Housing to fund interim improvements to the existing signal crossing on Belmont Road outside The Oval;
- Highways England's walking and cycling infrastructure schemes for the Ross Road corridor, including widening footways on the eastern side to form shared footway/cycleways (phase 1), simplified signal crossing of the Holme Lacy Road arm (phase 2) of the Broadleys crossroads and higher quality crossing of the Ross Road north arm (phase 3) of the same junction;
- Ongoing road and footway maintenance schemes funded by Herefordshire Council;
- Ongoing programme of travel planning measures led by the HEZ for employers and their employees, including the enhanced bus service 78A/78X, which commenced in October 2016; and
- Citywide programmes funded as part of Destination Hereford under the *Choose How You Move* brand.

5.6.11. Transport measures will also be delivered by planning applicants of new developments in the South Wye area, forming part of the SWTP. In particular Core Strategy policy HD6 identifies that the southern urban expansion (Lower Bullingham) will be expected to provide:

- Vehicular access principally from the B4399;
- Park and choose[27] site (both land and infrastructure) adjacent to the A49 / Rotherwas Access Road roundabout; and
- New direct walking, cycling and bus links from the urban extension to the park and choose site to the west, Hereford Enterprise Zone to the east and existing communities and the city centre to the north.

The supporting text in the Core Strategy indicates that access to and from the north (into the city) and to the employment areas of the HEZ to the east will be restricted to and/or prioritised for buses, walking and cycling, with a new link to the Hereford Greenway. It adds that the expansion of the existing bus network into the site will be key to the transportation strategy, to further encourage sustainable travel choices. The exact nature of these improvements is not yet determined.

[27] Park and choose sites are facilities which seek to reduce town centre congestion and support more sustainable and active travel modes by encouraging motorists to leave their vehicles on the edge of the urban area, and continue their journey by a range of sustainable travel options. This may be by regular bus service, walking, cycling or car-sharing. There are already several park and choose sites across Hereford, shown on the Hereford walking and cycling map.

## SUMMARY OF PACKAGE BENEFITS

5.6.12. The preferred package is considered to maximise the benefits of investment across the area, as follows:

- Group 3A (Belmont Road walking and cycling improvements) would transform the look, feel and use of a substantial section of Belmont Road, which has a key role in enabling more journeys to be made by active travel modes to access the HEZ, the city centre and local facilities. This would provide connections to the key existing quality off-road route (Great Western Way) and extend the availability of quality off-road active travel infrastructure. The improved or new crossings along the length of the road would make it easier to cross and connect communities on either side of the road;
- Group 4 (Belmont Road weight restriction) would divert heavy goods vehicles away from the road except those with legitimate access requirements. This would improve the environment for walking and cycling;
- Group 6A (Better walking and cycling routes to Hereford Enterprise Zone, without priority working a shared footway/cycleway underneath the railway bridge) would create a signed and waymarked quietway cycle route from Newton Farm to the HEZ mainly using side roads. This would provide an alternative route to access employment areas, local facilities and schools; and
- Group 8 (Holme Lacy Road – further walking and cycling improvements, with priority working a shared footway/cycleway underneath the railway bridge) would make east-west walking and cycling links easier, quieter and safer, linking homes to the employment areas at the HEZ.

North-south walking and cycling journeys will be made easier by Highways England's proposals for an off-road shared footway/cycleway on the eastern side of Ross Road.

5.6.13. The preferred package, with emphasis on quality provision, would fit well with the Hereford Cycling Strategy objectives of a high quality and coherent cycle network across Hereford for commuting and local trips that meets the needs of all levels of cyclists. The preferred package would also be well aligned with the list of priority schemes in South Wye in the cycling strategy. The Cycling Strategy notes that investment in active travel infrastructure tends to represent good value for money on reduced mortality alone, and high value for money when other key issues such as congestion reduction, air quality and carbon emissions are taken into account.

5.6.14. The preferred package would also support many of the suggested actions in the Living Streets Groundwork for the Hereford Walking Strategy document. It particularly supports those under the headings for (1) design and maintenance of the public realm, (2) high quality network of routes and (5) reducing road danger. It for example identifies the A49 Ross Road and A465 Belmont Road arterial roads as having potential to be improved as walking routes, highlights managing Heavy Goods Vehicle access in residential areas and implementing 20mph zones where people live and work.

## THE WIDER INVESTMENT PICTURE

5.6.15. The SWTP sits within the Hereford 2020 context of transport infrastructure investment across the city as a whole. This includes the Hereford City Centre Transport Package – construction of which is currently underway – and Hereford Transport Package, including a western bypass over the River Wye and a suite of active travel measures for the urban area north of the Wye. Removing the A49 through traffic would give the opportunity to make walking and cycling the default mode of travel for intra-city trips, with active travel measures and behavioural change campaigns.

# 6. CONCLUSION

## 6.1. BACKGROUND

6.1.1. The ORR was a recommendation arising from the OAR as means of documenting the processes used to identify a preferred route for the SLR and preferred active travel schemes which, together, comprise the SWTP. The use of an ORR to document this process was specifically agreed with the Department for Transport. It constitutes the first element of *Stage 2 - Option Development* – in the Transport Appraisal Process, as set out in Department for Transport guidance.

## 6.2. SLR ROUTES

6.2.1. Seven routes for the SLR were identified, four of which were presented at the 2014 public consultation, and the remaining three were generated by stakeholder responses to the consultation. The design assessment concluded that, on the basis of the information available at that time, route SC2 performed better than other routes in terms of design considerations.

6.2.2. A technical assessment, based on the information available at the time, considered impact on the economy, environment, society and public accounts. Each route scored positively in economic terms; however, there was no significant difference between routes. Each route scored negatively in terms of environmental impact, with SC9 being the worst performing, and SC7 performing best. Impacts on society were broadly positive, with slight differentiation between routes, and SC5 and SC7 scoring performing slightly less well than other routes. Impact on public accounts ranged from £16-20m for SC2 to around £25.4m-£38.6m for SC8A. In public consultation route SC2 received the highest level of support for a preferred route, followed by SC2A (which follows the same alignment but would involve a bridge under the railway).

6.2.3. The TAG score, the appraisal discussions and public consultation were all taken into account when identifying a preferred route.

## 6.3. SLR PREFERRED ROUTE AND ALIGNMENT

6.3.1. Route SC2 was identified as the preferred route for the SLR. The evidence available at the time indicated that this route:

- Had a relatively low cost (cheapest route);
- Had a low chance of issues such as drainage issues;
- Could be constructed with a profile which broadly followed ground level;
- Could be constructed with a 60mph design speed;
- Aligned with Network Rail's preferences for bridge over railway;
- Gave economic benefits such as regeneration;
- Had positive social impacts; and
- Had the most support from public consultation.

6.3.2. A number of refinements were then implemented at the planning application and post-planning permission stages. These include:

- Additional structures such as underpasses and culverts;
- Alterations to the design of structures on the route;
- Changes in alignment;
- Provision of additional active travel infrastructure;
- Additional agricultural access; and
- Improved landscape design.

## 6.4. ACTIVE TRAVEL SCHEMES

6.4.1. A range of active travel schemes were identified from the OAR review of problems, a site visit, from policies and plans and from discussions with Herefordshire Council officers. An initial sift discarded schemes which were considered to not meet the criteria in Step 6 of TAG, and the remaining active travel schemes were packaged together into nine improvement groups for technical assessment. A qualitative approach was adopted for each assessment area, informed by evidence and data where available. Key aspects of the technical assessment were the consideration of (i) the amount of additional active travel journeys likely to be generated by the proposed schemes and (ii) the likely reduction in vehicle trips, with a comparative study being carried out to inform these aspects.

6.4.2. Combined appraisal scores were positive across all three assessment areas but there was considerable variation in scores between the nine groups of possible improvements. Impacts on the economy and society were positive, there were a range of positive and negative impacts on the environment and the impact on public accounts ranged from £0.03m to £3.89m. Belmont Road walking and cycling improvements (group 3 and variant, group 3A) were the best performing. The Belmont Road weight restriction (group 4) and 20mph residential areas (group 2) performed least well.

6.4.3. Feedback from public consultation in 2016 found all the possible improvements had more support than opposition. There was strongest support for 20mph residential areas (group 1), Belmont Road walking and cycling improvements (group 3) and Belmont Road (west) walking and cycling improvements (group 5). Belmont Road bus priority measures (group 2) and Belmont Road weight restriction (group 4) had lowest levels of public support. Belmont Road bus priority measures (group 2) and Holme Lacy Road – further walking and cycling improvements (group 8) received the highest levels of opposition.

## 6.5. ACTIVE TRAVEL PACKAGE

6.5.1. Every improvement group obtained a positive score in the technical assessment and more support than opposition in the public consultation. A methodology was devised to enable the improvements to be prioritised, using three assessment criteria – alignment with South Wye area objectives, value for money and an assessment of the issues which may arise in delivering the scheme. A double weighting was accorded to the objectives score in view of the importance of implementing schemes which strongly achieve the objectives.

6.5.2. Applying this methodology identified that the active travel improvement groups which received the joint highest overall scores were groups were 3 and 3A (two variants of Belmont Road walking and cycling improvements), 6 and 6A (two variants of Better walking and cycling routes to Hereford Enterprise Zone) and 8 and 8A (two variants of Holme Lacy Road further walking and cycling improvements). These are the schemes which would have the highest priority.

6.5.3. As the groups listed above contain variants of the same improvements, only three of the six listed groups were taken forward (groups 3A, 6A and 8). They were chosen on the basis of being the better performing variant and the ability to form a coherent package.

6.5.4. The planning application for the Southern Link Road (reference P/151314) was considered by Herefordshire Council's Planning and Regulatory Committee in June 2016. The committee resolved that the application be granted, subject to a series of conditions. One of the conditions stated that: "*Prior to the first operation of the road hereby approved, a weight restriction on Belmont Road shall be implemented and effective unless an alternative timescale is submitted to and approved in writing by the Local Planning Authority*". On that basis, and although not forming one of the better performing active travel measures defined by the prioritisation process, Group 4: *Belmont Road weight restriction* was also included in the SWTP preferred package.

6.5.5. The preferred package of active travel improvements is summarised below:

- Group 3A (Belmont Road walking and cycling improvements, including Toucan crossing near Walnut Tree Avenue) would transform the look, feel and use of a substantial section of Belmont Road, which has a key role in enabling more journeys to be made by active travel modes to access the HEZ, the city centre and local facilities. This would provide connections to the key existing quality off-road route (Great Western Way) and extends the availability of quality off-road active travel infrastructure. The improved or new crossings along the length of the road would make it easier to cross and connect communities on either side of the road;
- Group 4 (Belmont Road weight restriction) would divert heavy goods vehicles away from the road except those with legitimate access requirements. This would improve the environment for walking and cycling;
- Group 6A (Better walking and cycling routes to Hereford Enterprise Zone without the shared use footway/cycleway under the railway bridge) would create a signed and waymarked quietway cycle route from Newton Farm to the HEZ mainly using side roads. This would provide an alternative route to access employment areas, local facilities and schools; and
- Group 8 (Holme Lacy Road – further walking and cycling improvements with the shared use footway/cycleway under the railway bridge) would make east-west walking and cycling links easier, quieter and safer, linking homes to the employment areas at the HEZ.

6.5.6. The total estimated cost of the three groups of improvements was estimated to be £7.05m[28] at the time of the prioritisation exercise. It should be noted that this figure was a preliminary cost estimate reflective of the relative maturity of scheme designs at the time of the prioritisation process being undertaken. The costs for the preferred package of measures will be refined as the detailed design for each scheme comprising the preferred package is developed and subjected to value engineering.

[28] The estimated £7.05m cost is comprised of £3.89m for Group 3A (Belmont Road walking and cycling improvements), plus £0.03 for Group 4 (Belmont Road weight restriction), £0.86m for Group 6A (Better walking and cycling routes to Hereford Enterprise Zone) and £2.27m for Group 8 (Holme Lacy Road - further walking and cycling improvements).

6.5.7. These schemes would be effective in fulfilling the objectives of the SWTP because:

- Together they are considered to maximise the benefits of investments across the area;
- They would constitute value for money;
- The walking and cycling infrastructure would improve access to the HEZ, city centre and other local destinations, which will encourage uptake of these modes;
- The walking and cycling infrastructure and reduced speed limits would contribute to a reduction in the severity and incidence of road collisions and would improve the perception of safety of active travel modes;
- The uptake of walking and cycling would contribute to a reduction in traffic noise and reduce air pollutants associated with vehicle traffic and improve public health; and
- They support many actions in the Living Streets Groundwork for the Hereford Walking Strategy document.

## 6.6. WIDER SWTP PICTURE

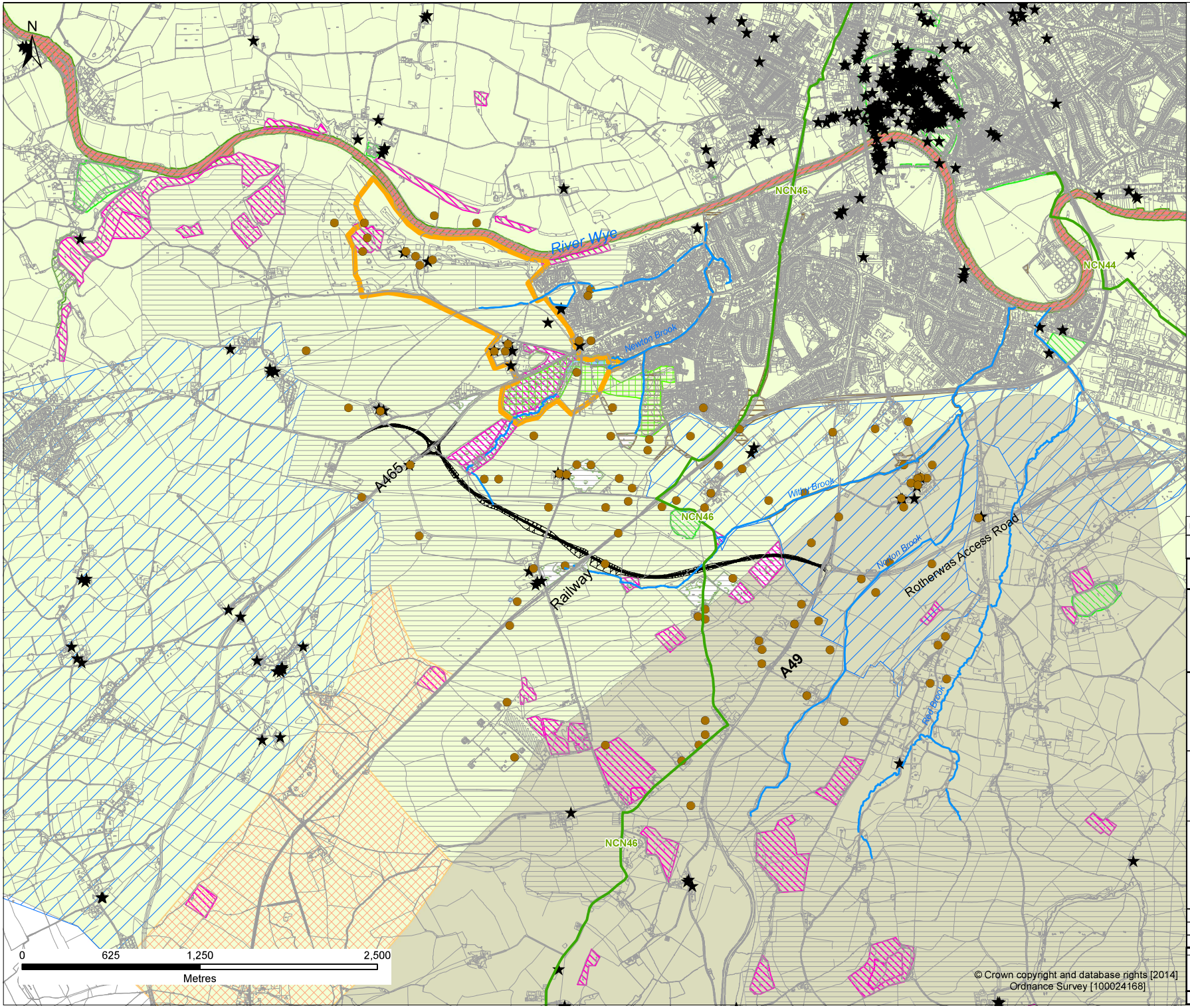
6.6.1. The infrastructure and measures to be funded by the SWTP would be complemented by a series of additional elements funded separately which contribute to making a coherent package across South Wye. This includes private sector funding for infrastructure, Highways England active travel schemes for the A49 corridor and supporting revenue expenditure on behaviour change and promotion.

## 6.7. RECOMMENDATIONS

6.7.1. It is recommended that the preferred package is a combination of SLR route SC2 (as subsequently refined through the planning application and post-planning permission stages) and groups of proposed active travel improvements 3A, 4, 6A and 8. The business case will demonstrate that these elements are the package to be progressed.

# Appendix A

## KEY ENVIRONMENTAL DESIGNATIONS




Southern Link Road

Environmental Constraints

- Woodland
- Belmont Haywood Park (Jubilee Park)
- Site of Importance for Nature Conservation (SNC)
- Revised Ancient Woodland
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Ponds
- River
- Site of Archaeological Importance
- Site of Archaeological Importance
- Unregistered historic parks and gardens
- Listed Buildings
- National Cycle Network Routes (NCN)

Landscape Character Areas

National (NCA)

- NCA 100: Herefordshire Lowlands
- NCA 104: South Herefordshire and Over Severn

Local Landscape Types

- Wooded Estatelands
- Principal Settled Farmlands
- Wet Pasture Meadows

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| A | 24-03-15 | Amendment to Scale and Legend | JSdS | PJ | PJ |

WSP | PARSONS BRINCKERHOFF
Kings Orchard,
1 Queen Street, Bristol
Bs2 0HQ
Tel: 44-(0)117-9306200

Client: Herefordshire Council

Site/Project:
HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:
MAIN ENVIRONMENTAL CONSTRAINTS

| | | | |
|---|---|---|---|
| Drawn: JSdS | | Checked: PJ | |
| Designed: LW | | Approved: KR | |
| Date: 12/12/2017 | Scale: 1:25,000 | A3 | Sheet: |

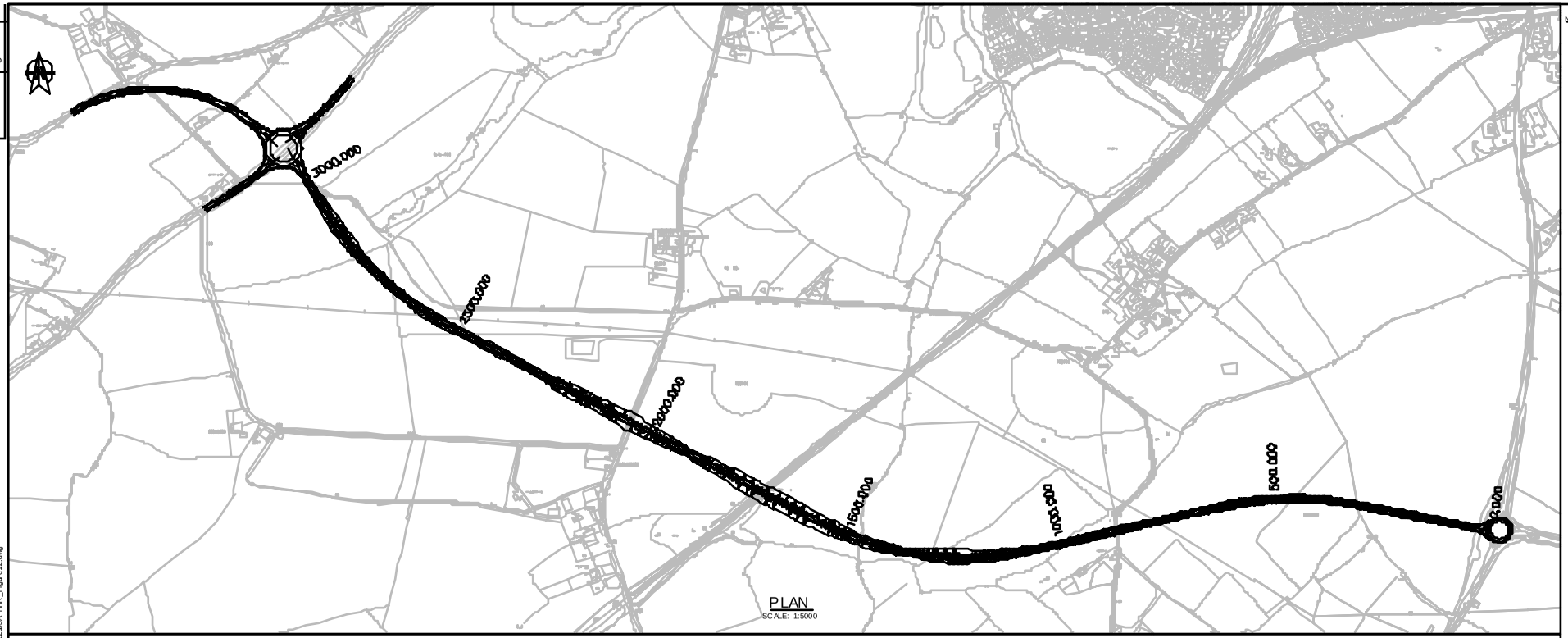
| Project Number: | Drawing Number: | Revision: |
|---|---|---|
| 3512983L-HHB | FIGURE 7.1 | A |



File Name:: \\eabsfil01\ENVIRON\35129\3512983L-HHB Hereford SWTP Planning Submission\Z Dwgs\GIS\Mxd\Landscape\3512983L-HHB-F07.1revA.mxd
Login: Ashley.Durston
Plot Date: 12/12/2017

# Appendix B

SLR ROUTES




PLAN
SCALE: 1:5000

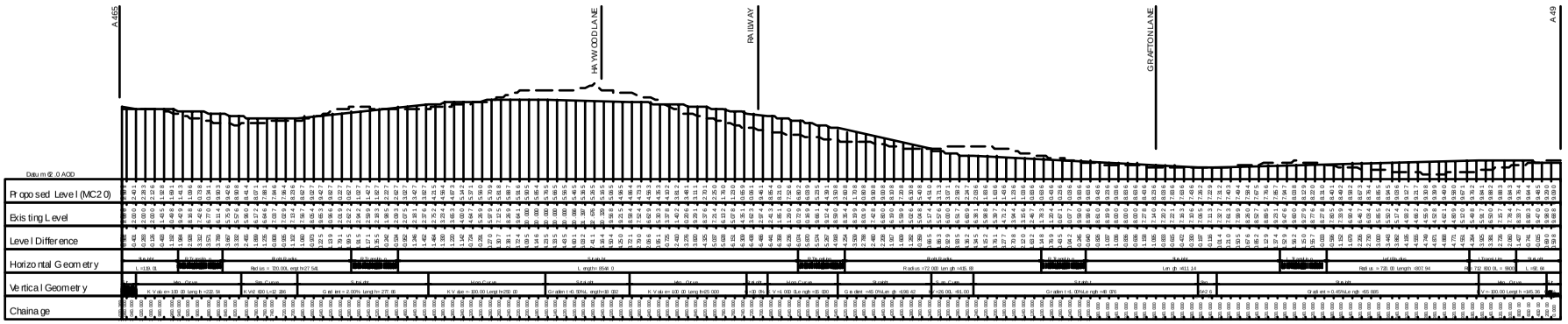
NOTES:

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY

PROPOSED PROFILE

EXISTING PROFILE




LONGITUDINAL SECTION
SCALE: 1:5000 H, 1:1000V

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

PRELIMINARY

PARSONS BRINCKERHOFF

29 Cathedral Road
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CF11 9HA
Tel: 44 (0)29 - 208 2 7000
Fax: 44 (0)2 9 20 82 7001

Client:

Herefordshire Council

Staff Project:

HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:

PLAN AND
LONGITUDINAL SECTION
OPTION SC2

| | | | |
|---|---|---|---|
| Drawn: | IM | Checked: | JC |
| Designed: | LEP | Approved: | JC |
| Date: | 09/09/2014 | Scale: | AS SHOWN @ A1 |
| Project Number: | | Drawing Number: | Revision: |
| 351 2983A-HHR | | Figure 12 | - |





Plot Date: 31/10/2014 09:01:12
Login: Millward, Ianto
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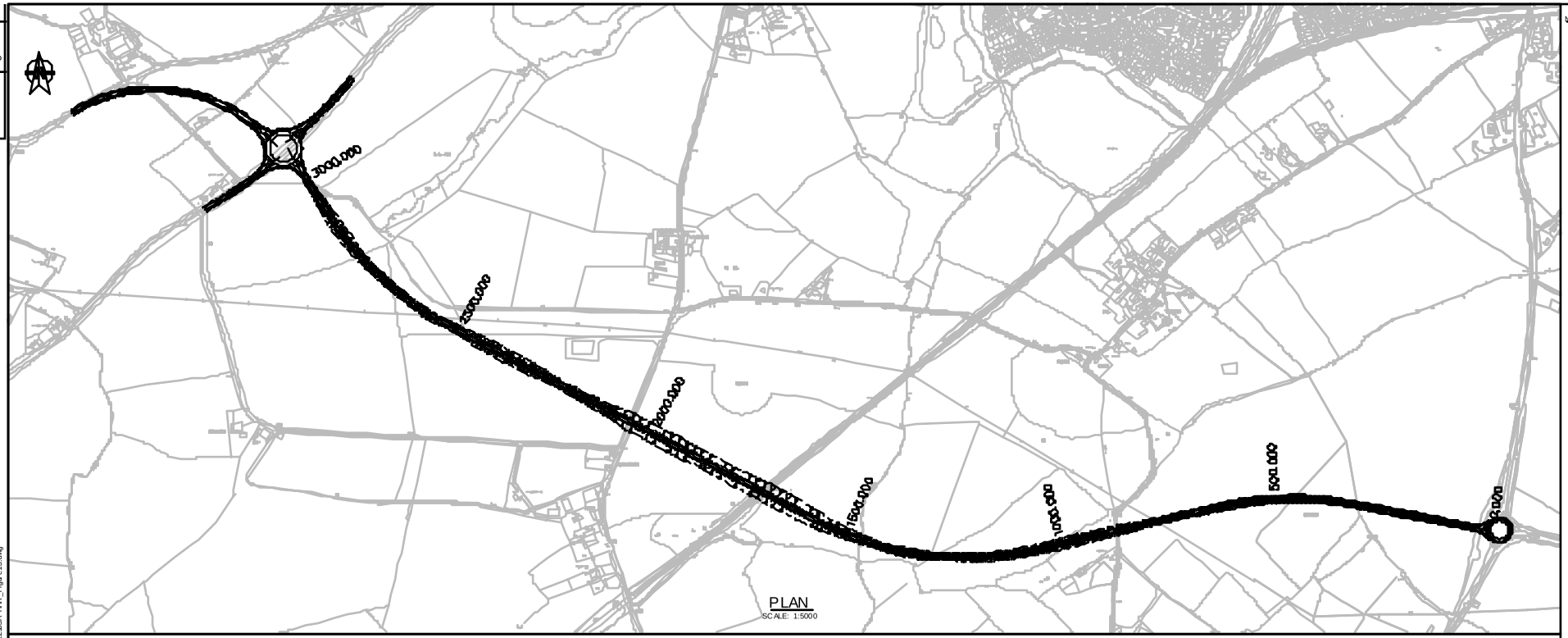


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SCALE: 1:5000

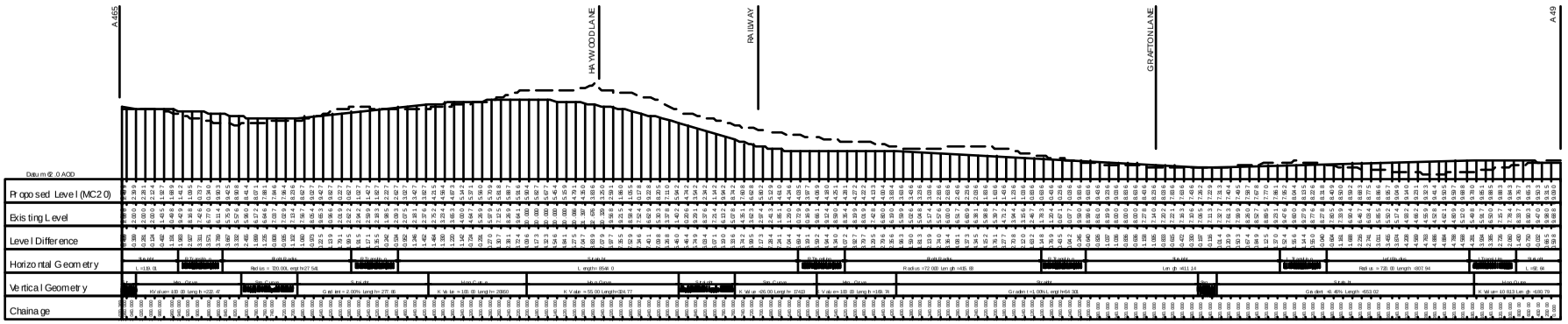
NOTES:

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY

PROPOSED PROFILE

EXISTING PROFILE




LONGITUDINAL SECTION
SCALE: 1:5000 H, 1:1000V

| Rev | Date | Description | By | Chk | Apr |
|---|---|---|---|---|---|

PRELIMINARY

PARSONS BRINCKERHOFF

20 Cathedral Road
Cardiff
CF11 9HA
Tel: 44 (0)29 - 208 3700
Fax: 44 (0)29 2083 7001

Client:

Herefordshire Council

Staff Project:

HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:

PLAN AND
LONGITUDINAL SECTION
OPTION SC2A

| | | | |
|---|---|---|---|
| Drawn: | IM | Checked: | JC |
| Designed: | LEP | Approved: | JC |
| Date: | 09/09/2014 | Scale: | AS SHOWN @ A1 |
| Project Number: | | Drawing Number: | Revision: |
| 351 2983A-HHR | | Figure 13 | - |





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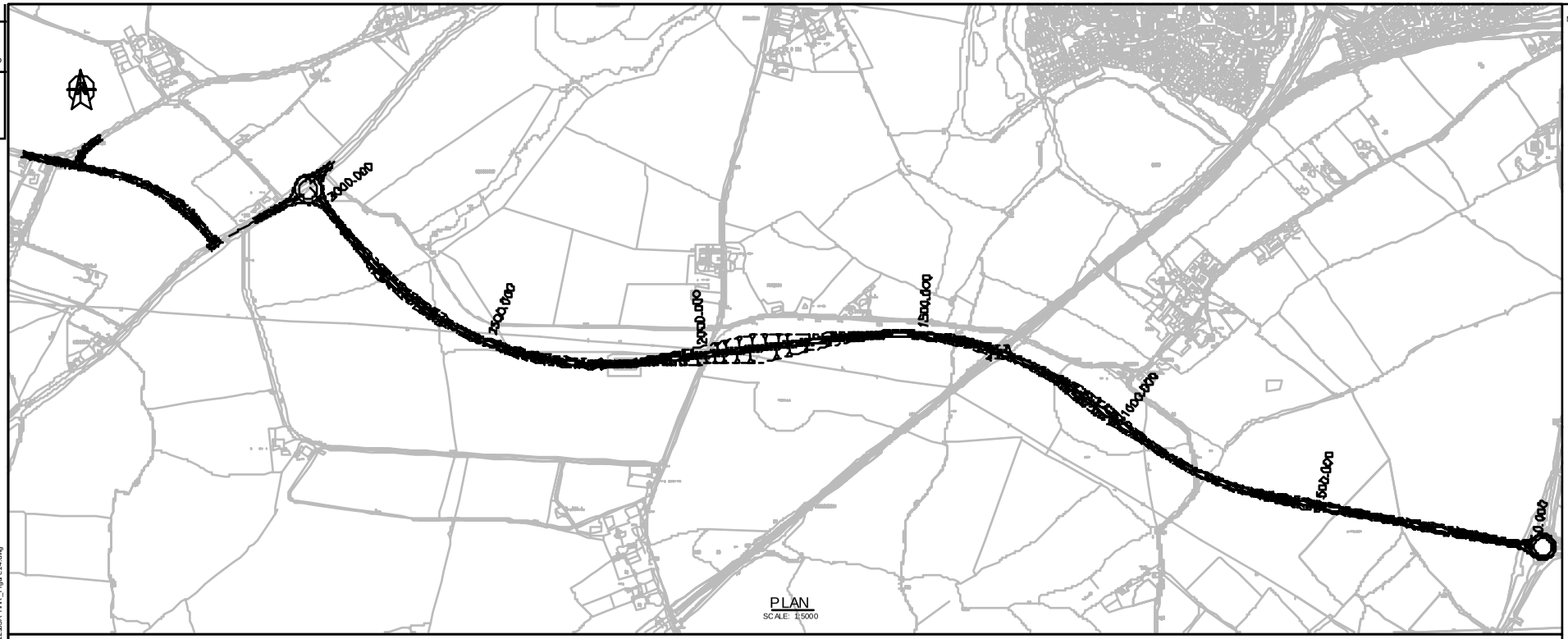



PLAN
SCALE: 1:5000

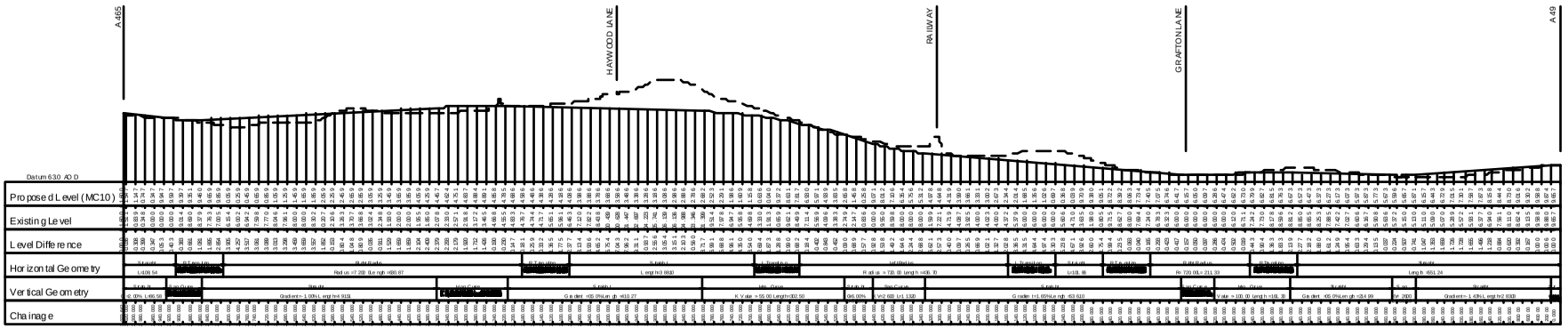
NOTES:

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY

PROPOSED PROFILE

EXISTING PROFILE




LONGITUDINAL SECTION
SCALE: 1:5000 H, 1:1000V

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

PRELIMINARY

PARSONS BRINCKERHOFF

20 Cathedral Road
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CF11 9HA
Tel: 44 (0)29 - 208 3700
Fax: 44 (0)29 2037 0031

Client:

Herefordshire Council

Str/Project:

HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:

PLAN AND
LONGITUDINAL SECTION
OPTION SC5

| | | | |
|---|---|---|---|
| Drawn: | IM | Checked: | JC |
| Designed: | LEP | Approved: | JC |
| Date: | 09/09/2014 | Scale: | AS SHOWN AT A1 |
| Project Number: | | Drawing Number: | Revision: |
| 351 2983A-HHR | | Figure 14 | - |





File Name: H:\HHR\JOBS\351298\3A-HHR\Hereford\Task - South West Transport Package SWTP Reports\Preferred Option Report\Figures\0_DWGs\351298\3A-HHR_Figure14.dwg
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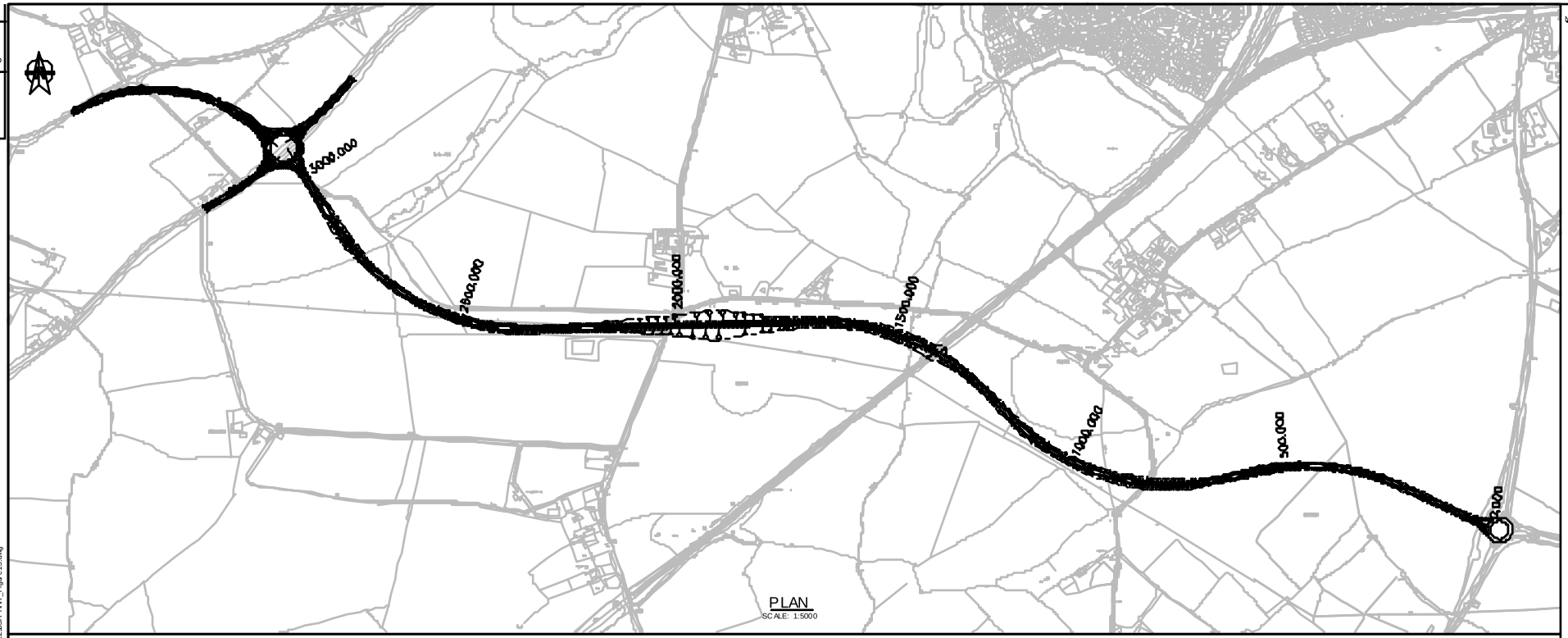



PLAN
SCALE: 1:5000

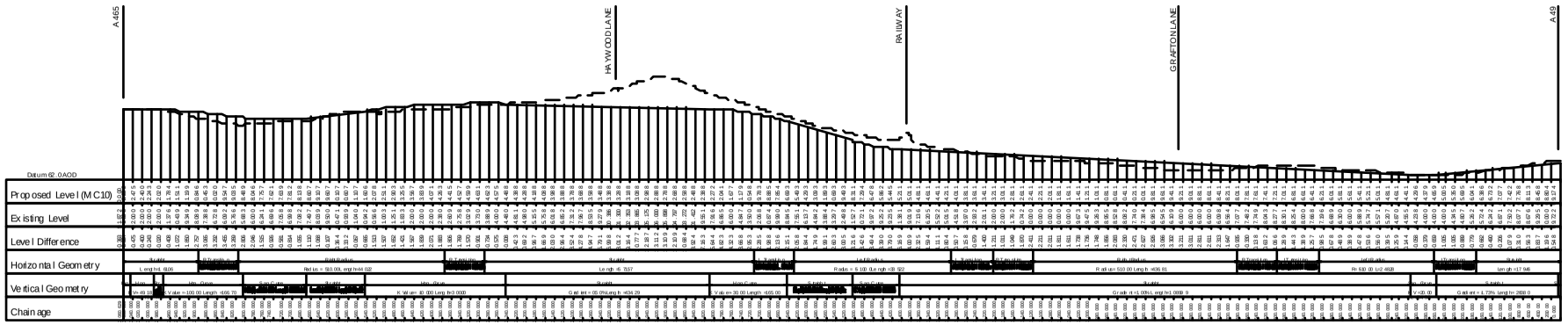
NOTES:

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY

PROPOSED PROFILE

EXISTING PROFILE




LONGITUDINAL SECTION
SCALE: 1:5000 H, 1:1000V

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

PRELIMINARY

PARSONS BRINCKERHOFF

20 Cathedral Road
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CF11 9HA
Tel: 44 (0)29 - 208 3700
Fax: 44 (0)2 9 20 83 7001

Client:

Herefordshire Council

Staff Project:

HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:

PLAN AND
LONGITUDINAL SECTION
OPTION SC7

| | | | |
|---|---|---|---|
| Drawn: | IM | Checked: | JC |
| Designed: | LEP | Approved: | JC |
| Date: | 09/09/2014 | Scale: | AS SHOWN AT A1 |
| Project Number: | | Drawing Number: | Revision: |
| 351 2983A-HHR | | Figure 15 | - |





File Name: H:\HEREFORDSHIRE\351298 3A-HHR\Hereford\Task - South West Transport Package SWTP\Reports\Preferred Option Report\Figures\D_DWGs\351298 3A-HHR_Figure15.dwg
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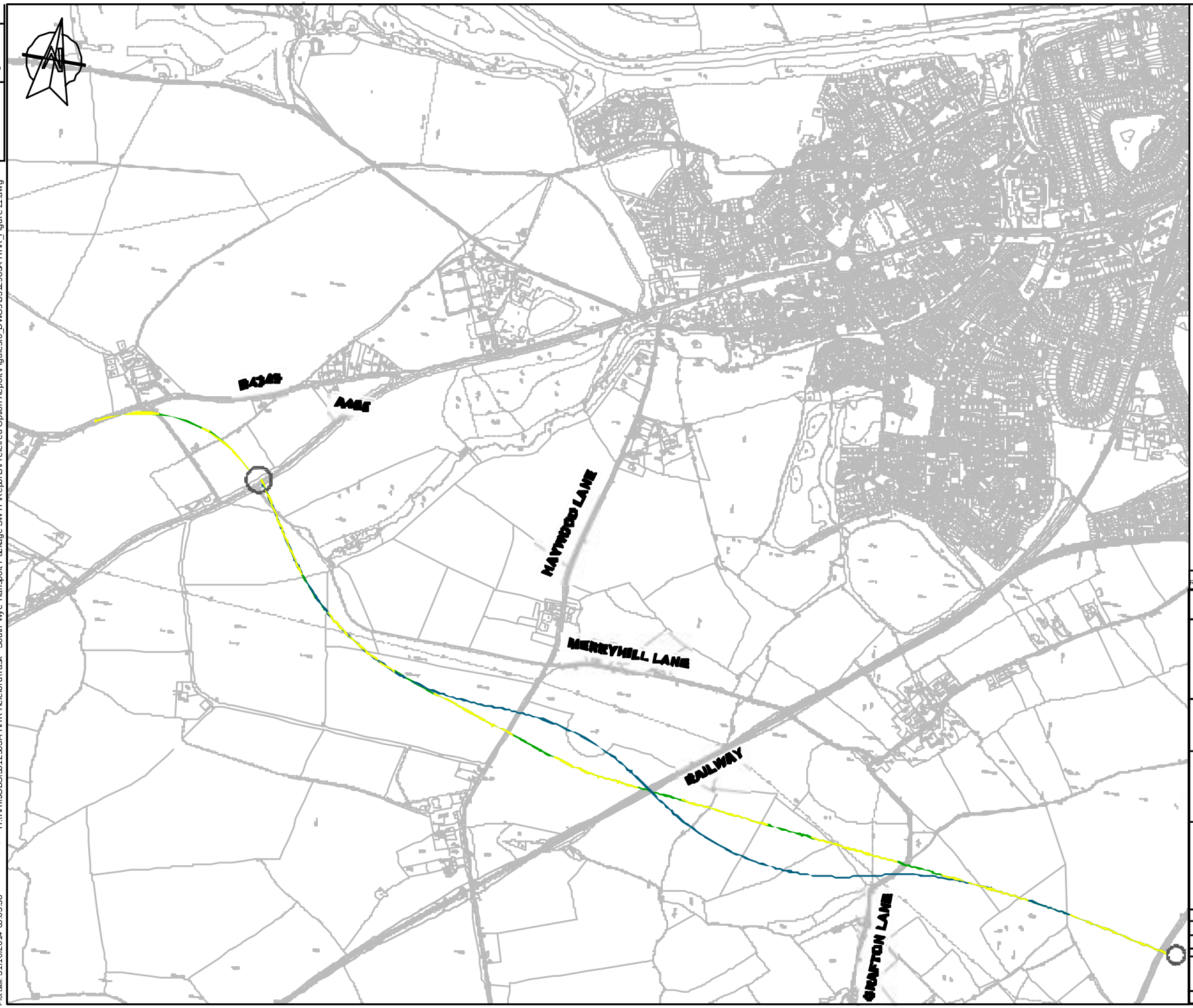


KEY:

- SC8
- SC8A
- SC9

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

PARSONS BRINCKERHOFF

29 Cathedral Road
Cardiff
CF11 9HA

Tel 44-(0) 29-2082-7000
Fax: 44-(0)29-2082-7001

Client: Herefordshire Council

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ADDITIONAL ROUTE OPTIONS

| | | | |
|---|---|---|---|
| Drawn: IM | | Checked JC | |
| Designed: IM | | Approved: JC | |
| Date: 16/10/2014 | Scale: 1:10,000 | A3 | Sheet: |
| Project Number: 3512983A-HHR | | Drawing Number: Figure 21 | Revision |



Figure 21
3512983A-HHR
File Name: H:\HHI\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Reports\Preferred Option Report\Figures\0_DWGs\3512983A-HHR_Figure 21.dwg
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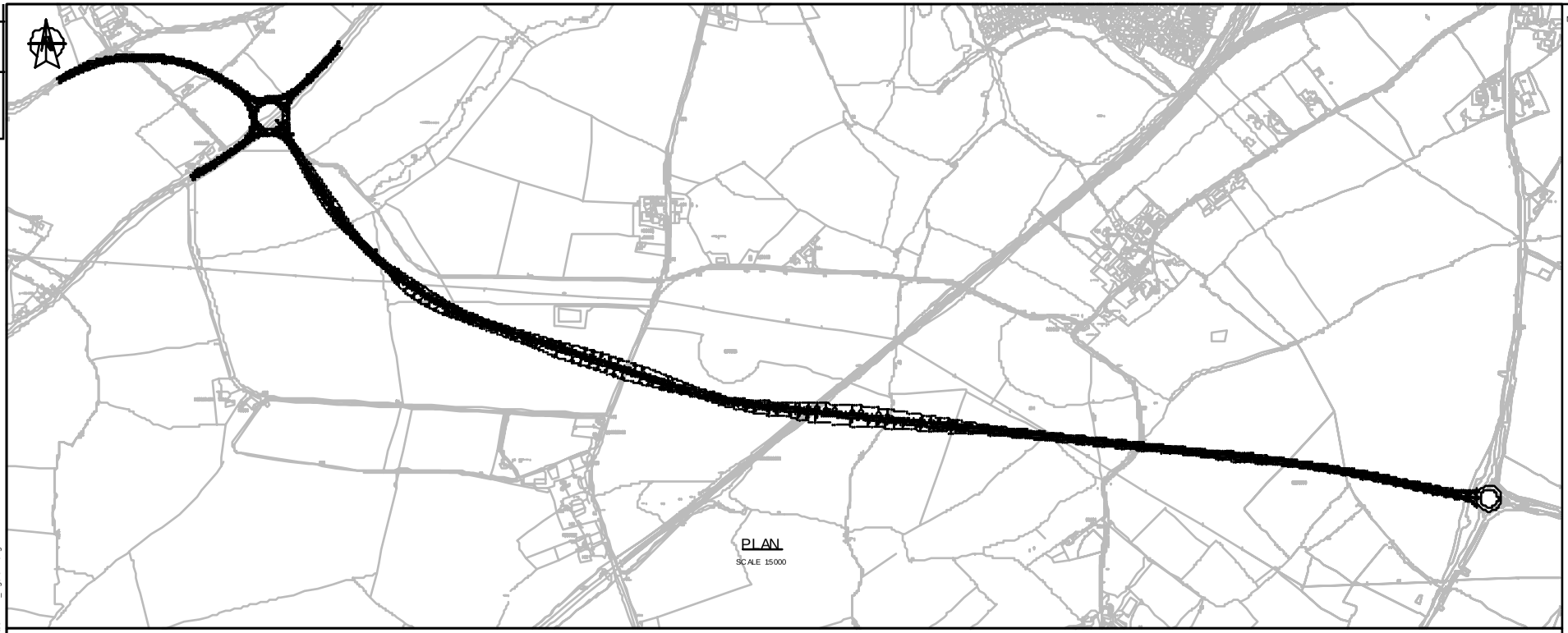


PLAN

SCALE 1:5000

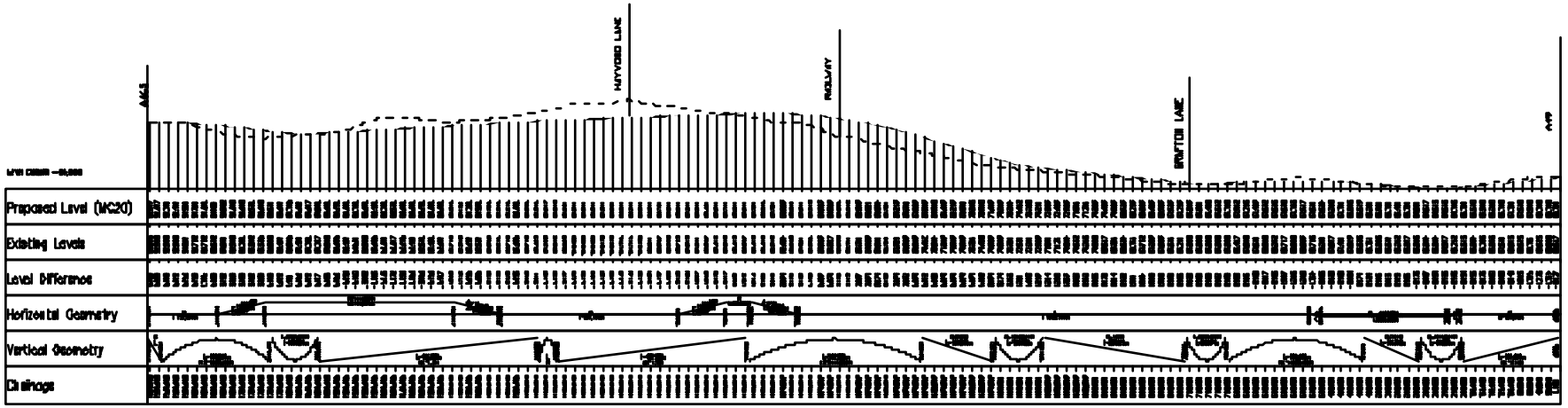
NOTES :

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY

PROPOSED PROFILE

EXISTING PROFILE




LONGITUDINAL SECTION

SCALE 1:5000 H, SCALE 1:1000 V

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| A | 09.01.14 | Vertical alignment amended | AM | GJ | CJ |

PRELIMINARY

PARSONS BRINCKERHOFF

29 Cathedral Road
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Tel: 44 (0)29 - 2087 8700
Fax: 44 (0)1 9 2087 7001

Client:

Herefordshire Council

Staff Project:

HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:

PLAN AND
LONGITUDINAL SECTION
OPTION SC8

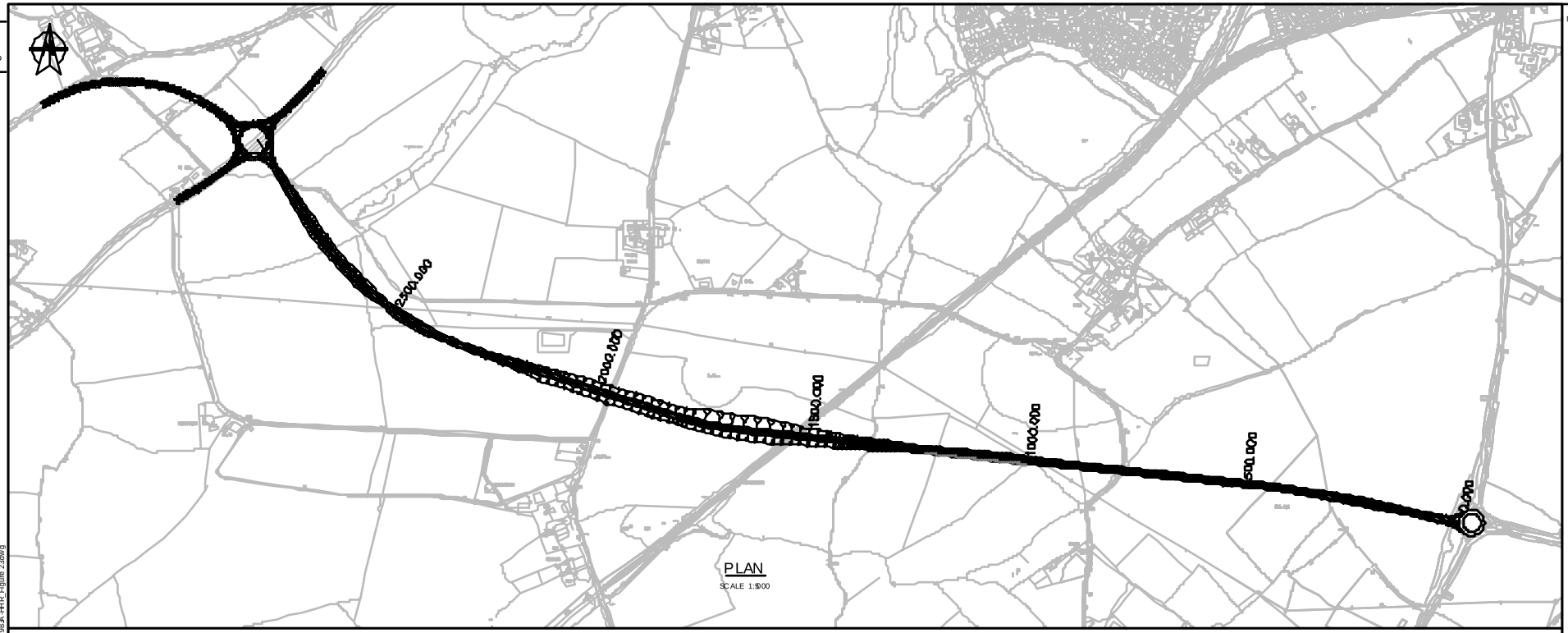
| | | | |
|---|---|---|---|
| Drawn: | G.S. | Checked: | I.F.P. |
| Designed: | A.E. | Approved: | G.J. |
| Date: | 16/10/2014 | Scale: | AS SHOWN A1 |
| Project Number: | | Drawing Number: | Revision: |

351 2983A-HHR | Figure 22

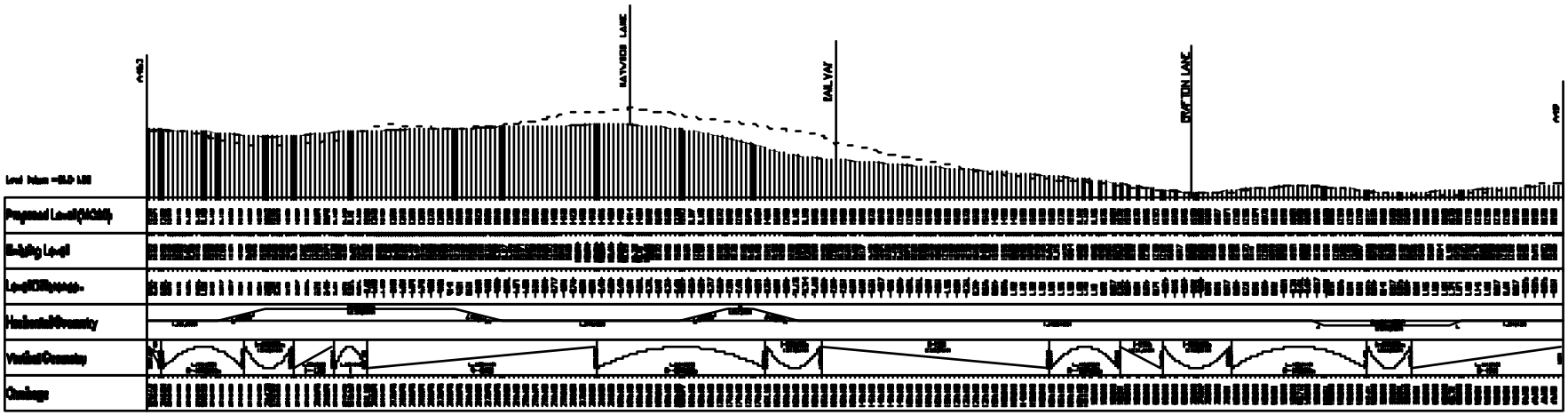


File Name: H:\HJOBS\351\2983A-HHR Hereford\Task - South West Transport Package SWTP Reports\Preferred Option Report\Figures\0_DWGs\351 2983A-HHR_Figure22.dwg
Plot Date: 31/10/2014 09:07:34
Login: Millward, Ianto

3512983A-HHR Figure 23




PLAN
SCALE 1:5000




LONGITUDINAL SECTION
SCALE 1:5000 H, SCALE 1:1000 V

NOTES:

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY

PROPOSED PROFILE

EXISTING PROFILE

| Rev | Date | Description | By | Chk | Appr |
|---|---|---|---|---|---|

PRELIMINARY

PARSONS BRINCKERHOFF

29 Glebe at Road
Cardiff
CF11 9HA

Tel: 44 (0)2 9 0 8 3 7 0 0
Fax: 44 (0) 29 2 0 8 2 7 0 0

Client:

Herefordshire Council

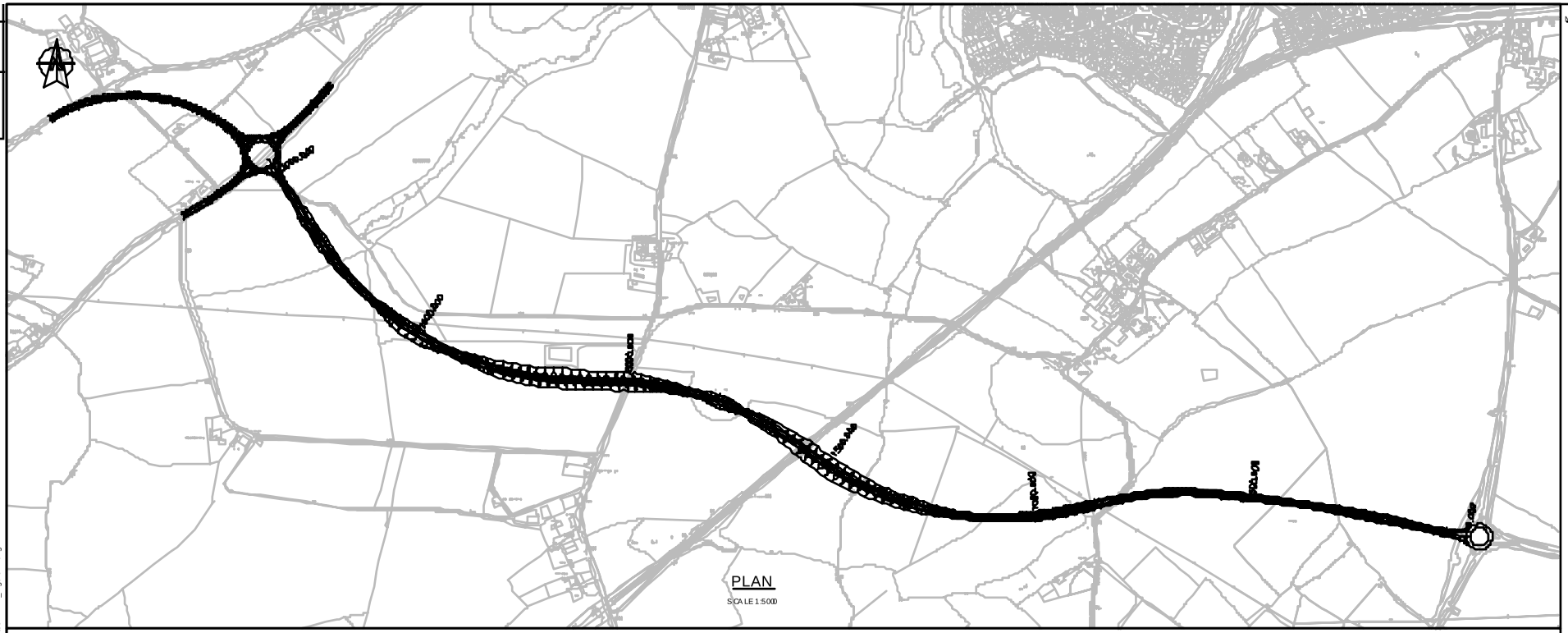
Site Project:

HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:

PLAN AND
LONGITUDINAL SECTION
OPTION SC8A

| | | | |
|---|---|---|---|
| Drawn: GS | | Checked: LEP | |
| Designed: AF | | Approved: GJ | |
| Date: 16/10/2014 | Scale: AS SHOWN @ A1 | Sheet: 1 OF 1 | |
| Project Number: 3512983A-HHR | | Drawing Number: Figure 23 | Revision: |




PLAN

SCALE 1:5000

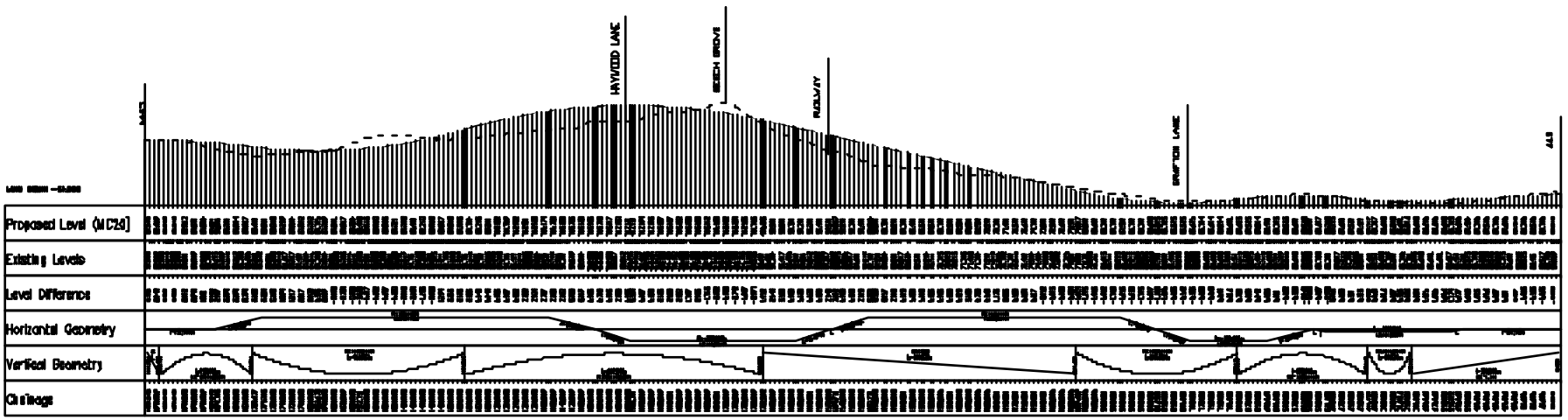
NOTES :

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY

PROPOSED PROFILE

EXISTING PROFILE




LONGITUDINAL SECTION

SCALE 1:5000 H,SCALE 1:1000 V

| Rev | Date | Description | By | Chk | Appr |
|---|---|---|---|---|---|
| A | 29/10/14 | Cliehorgdnk earthworks added | AM | GJ | CJ |

PRELIMINARY

PARSONS BRINCKERHOFF

20 Cathedral Road
Cardiff
CF11 9HA
Tel: 44 (0)29 - 208 3700
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Client:

Herefordshire Council

Str/Project:

HEREFORDSHIRE
SWTP
SOUTHERN LINK ROAD

Title:

PLAN AND
LONGITUDINAL SECTION
OPTION SC9

| | | | |
|---|---|---|---|
| Drawn: | G.S. | Checked: | I.F.P. |
| Designed: | A.E. | Approved: | G.J. |
| Date: | 16/10/2014 | Scale: | A3 SHOWN AT |
| Project Number: | | Drawing Number: | Revision: |

351 2983A-HHR | Figure 24



Login: Millward, Ianto
Plot Date: 31/10/2014 09:09:57
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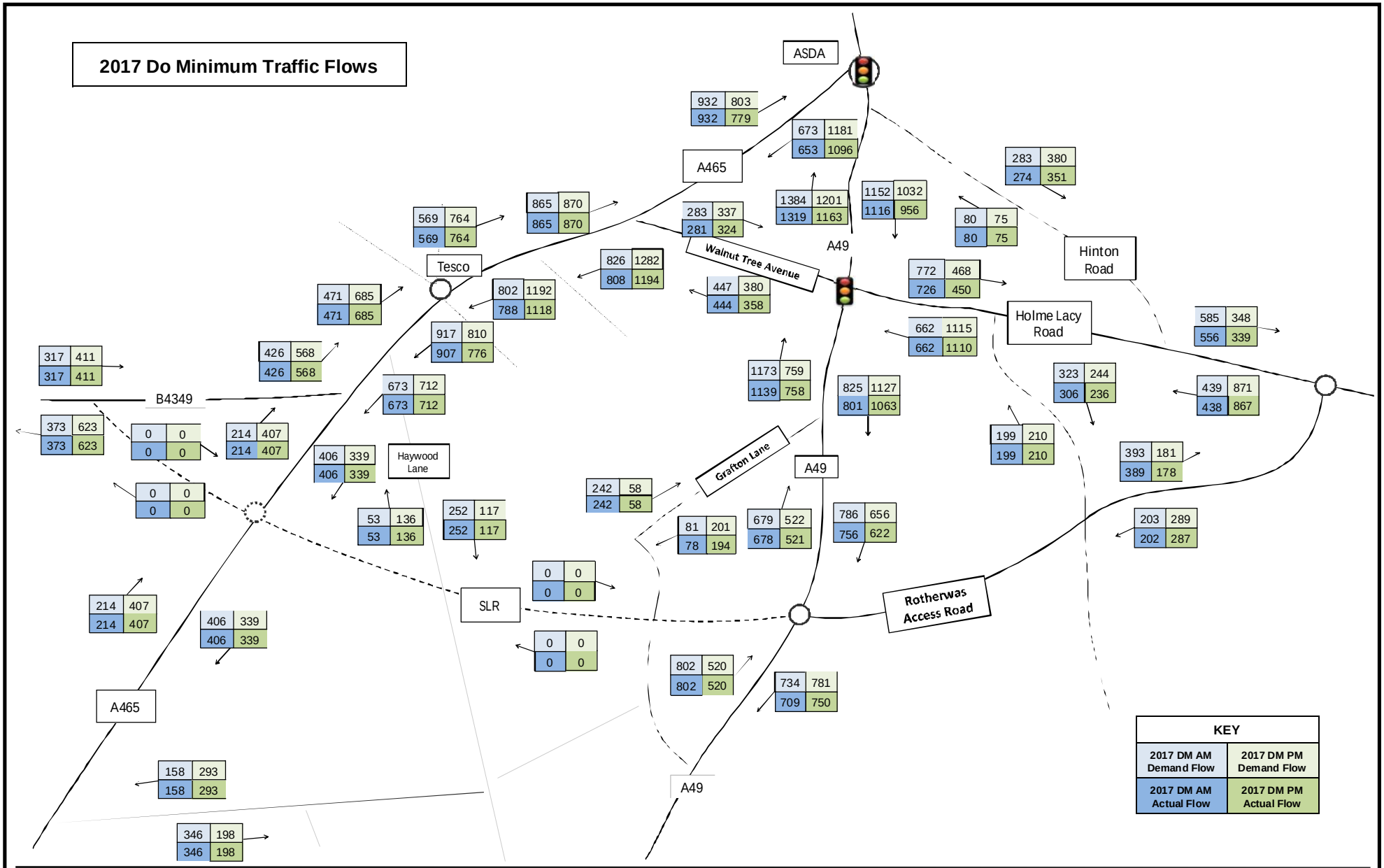
# Appendix C

## SLR TRAFFIC FLOW DIAGRAMS FOR 2017 AND 2032 WEEKDAY PEAK PERIODS

# 2017 Do Minimum Traffic Flows




| KEY | |
|---|---|
| 2017 DM AM Demand Flow | 2017 DM PM Demand Flow |
| 2017 DM AM Actual Flow | 2017 DM PM Actual Flow |


PARSONS BRINCKERHOFF

29 Cathedral Road,
Cardiff, CF11 9HA
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Fax: +44 (0)29 2082 7001


DATE 03/09/2014

*CLIENT/PROJECT*
**Herefordshire Council**

*PROJECT*
**South Wye Transport Package**

*DRAWING TITLE*
**2017 Do Minimum Traffic Flows**

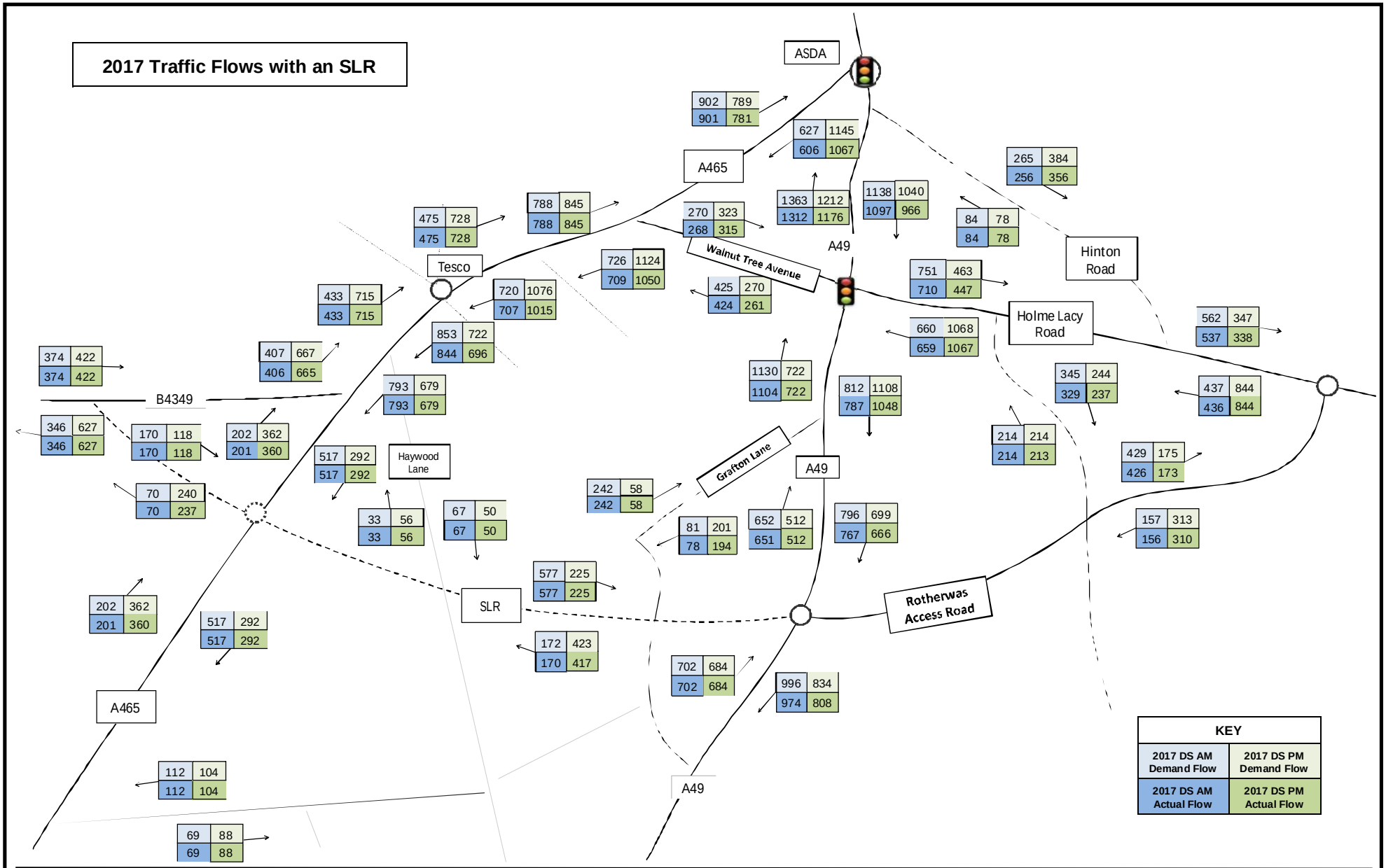
**Figure 16**

*PRODUCED*
**AS**

*CHECKED*
**JC**

*APPROVED*
**JC**

# 2017 Traffic Flows with an SLR




| KEY | |
|---|---|
| 2017 DS AM Demand Flow | 2017 DS PM Demand Flow |
| 2017 DS AM Actual Flow | 2017 DS PM Actual Flow |


PARSONS BRINCKERHOFF

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Fax: +44 (0)29 2082 7001


DATE 03/09/2014

*CLIENT/PROJECT*
**Herefordshire Council**

*PROJECT*
**South Wye Transport Package**

*DRAWING TITLE*
**2017 Traffic Flows with an SLR**

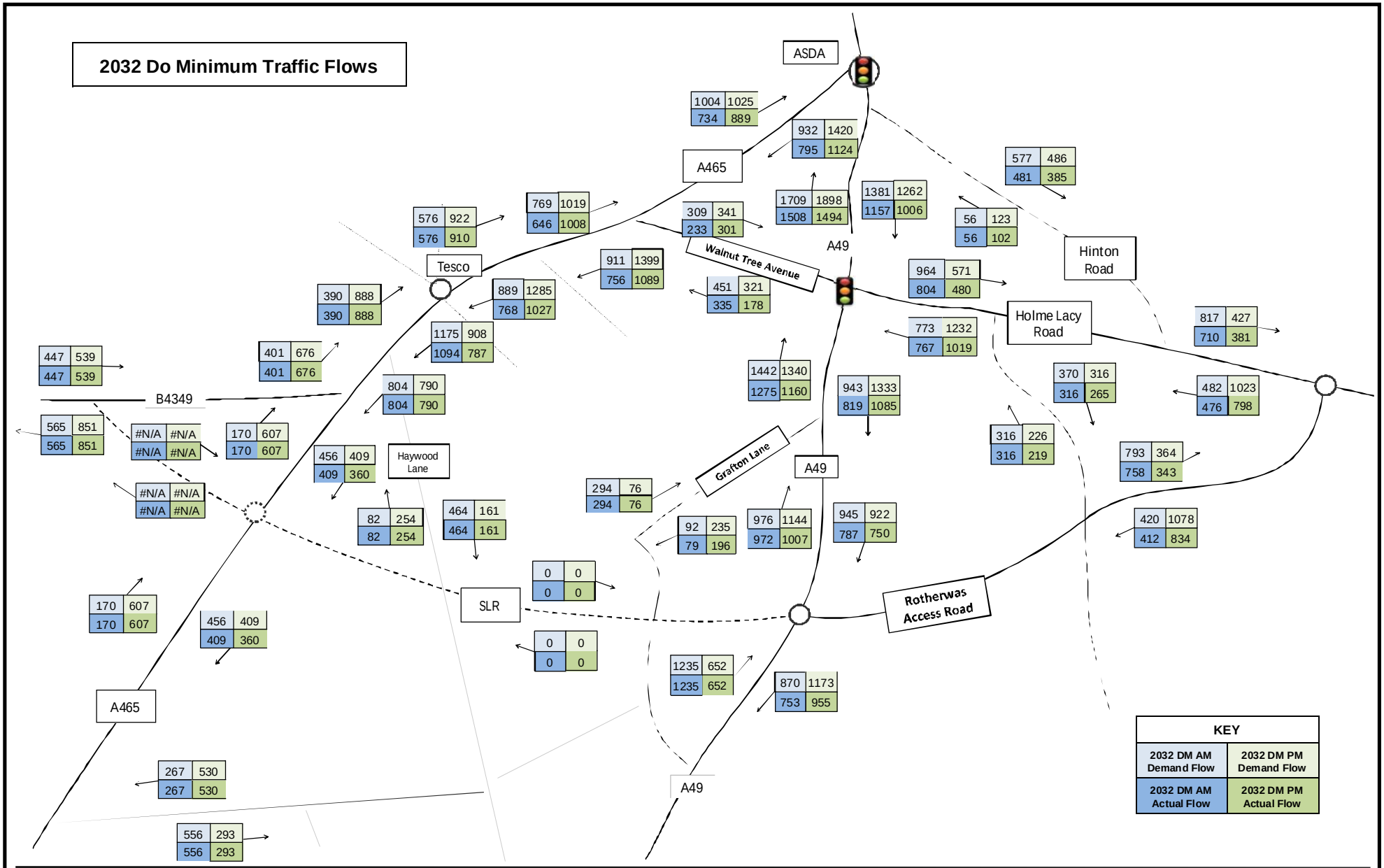
**Figure 17**

*PRODUCED*
**AS**

*CHECKED*
**JC**

*APPROVED*
**JC**

# 2032 Do Minimum Traffic Flows




| KEY | |
|---|---|
| 2032 DM AM Demand Flow | 2032 DM PM Demand Flow |
| 2032 DM AM Actual Flow | 2032 DM PM Actual Flow |


PARSONS BRINCKERHOFF

29 Cathedral Road,
Cardiff, CF11 9HA
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Fax: +44 (0)29 2082 7001


DATE 03/09/2014

*CLIENT/PROJECT*
**Herefordshire Council**

*PROJECT*
**South Wye Transport Package**

*DRAWING TITLE*
**2032 Do Minimum Traffic Flows**

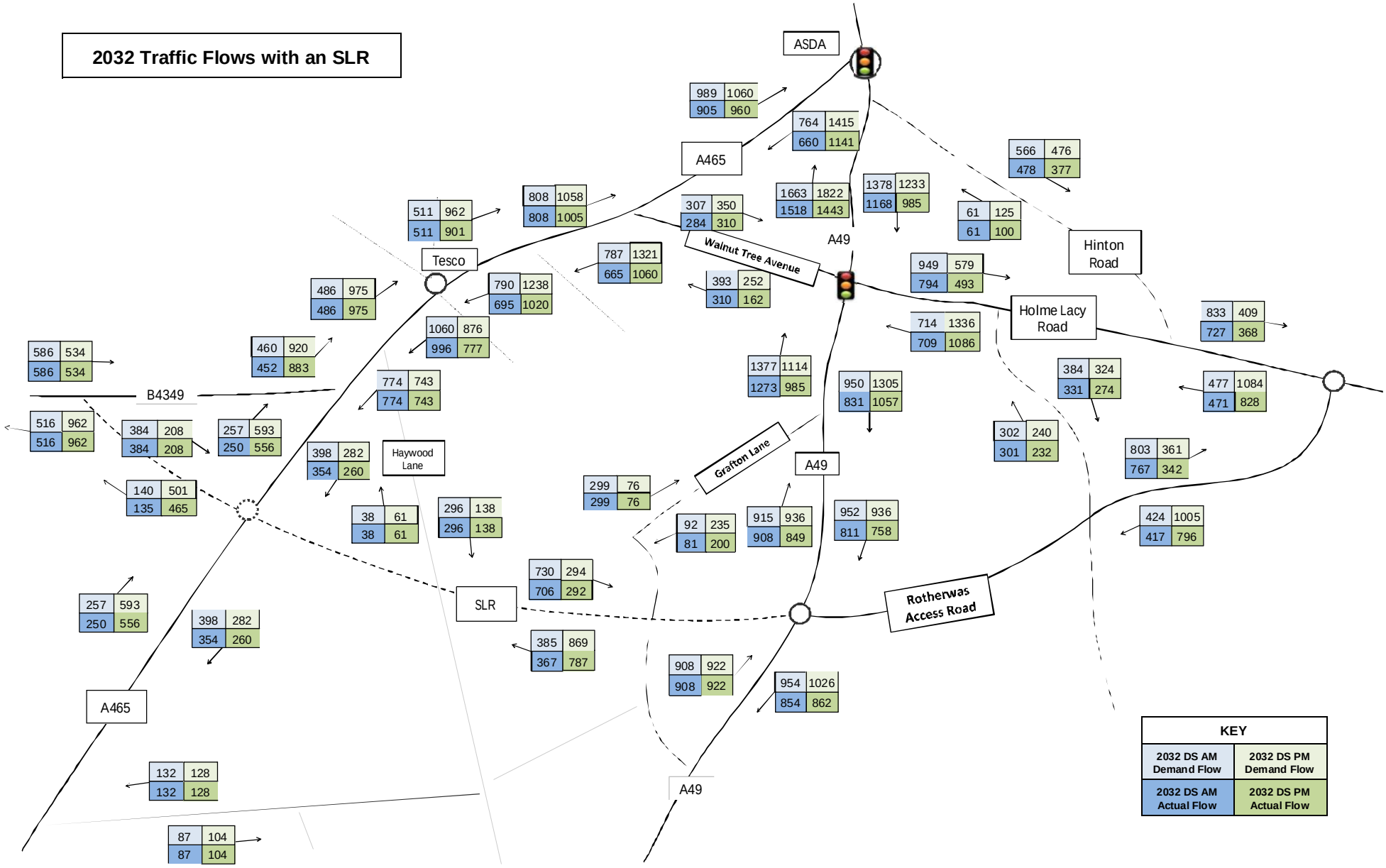
**Figure 18**

*PRODUCED*
**AS**

*CHECKED*
**JC**

*APPROVED*
**JC**

# 2032 Traffic Flows with an SLR




| KEY | |
|---|---|
| 2032 DS AM Demand Flow | 2032 DS PM Demand Flow |
| 2032 DS AM Actual Flow | 2032 DS PM Actual Flow |


PARSONS BRINCKERHOFF

29 Cathedral Road,
Cardiff, CF11 9HA
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Fax: +44 (0)29 2082 7001


DATE 03/09/2014

*CLIENT/PROJECT*
**Herefordshire Council**

*PROJECT*
**South Wye Transport Package**

*DRAWING TITLE*
**2032 Traffic Flows with an SLR**

**Figure 19**

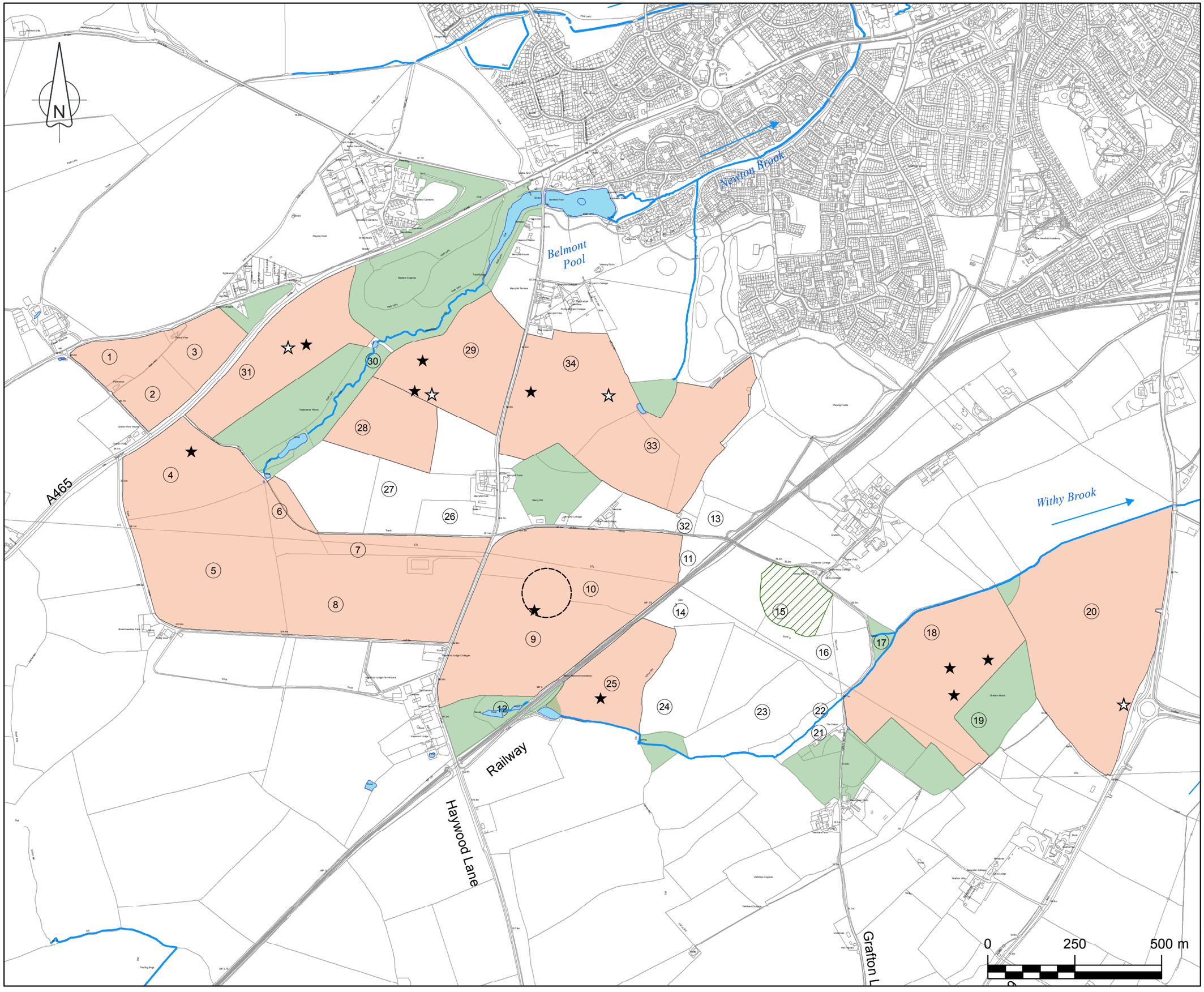
*PRODUCED*
**AS**

*CHECKED*
**JC**

*APPROVED*
**JC**

# Appendix D

## PLAN OF CULTURAL HERITAGE FEATURES




**Legend**

- 22 Field Number
- Rivers (With Flow Direction)
- ★ Flint Finds
- ☆ Other Lithics
- Feature
- Medieval Complex
- Woodland
- Ploughed Field

| Rev | Revision Details | Chkd | Appd | Date |
|---|---|---|---|---|

| | | | |
|---|---|---|---|
| Drawn : ACT | | Preliminary | ✓ |
| Design : DH | | For Comment | |
| Chkd : DH | | For tender | |
| Appd : OF | | For construction | |
| Date : May 2013 | | As constructed | |
| | | Other | |

amey
www.amey.co.uk

Client :

Brockington, 35 Hafod Road, Hereford, HR1 1SH Tel: (01432) 260000 Fax: (01432) 260286

Project Name :

# Belmont Transport Package

Drawing Title :

## Environmental Field Survey

| | |
|---|---|
| Original Drawing Size : | A3 |
| Scale : 1 : 10,000 | Dimensions : |

| Drawing No | Rev |
|---|---|
| TEXT | R0 |

# Appendix E

## APPRAISAL SUMMARY TABLES OF SLR ROUTES

**Appraisal Summary Table** Date Produced: 17/04/2014

| | |
|---|---|
| **Name of scheme:** | South Wye Transport Package - **Option SC2** |
| **Description of scheme:** | Option SC2 passes through the centre of Grafton Wood and continues westwards over Grafton Lane and Withy Brook. Thereafter, it straightens up immediately heading in a north-west direction to the A465. SC2 involves the construction of a new roundabout on the A465/B4349 Clehonger Road Junction. |

| Impacts | | Summary of Key Impacts | Qualitative Assessment |
|---|---|---|---|
| Economy | Business users & transport providers | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those business users who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Business users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Regeneration | Southern Link Road provides direct connection to the Hereford Enterprise Zone (HEZ) from the A465. Improves the supply of employment land by allowing the planning conditions that presently limit development at the HEZ to be extinguished, therefore removing substantial barriers to inward investment relating to both residential and employment development. Regeneration benefits within Belmont enhanced due to greater accessibility to employment opportunities within the HEZ. | Major Beneficial +++ |
| | Wider Impacts | Potential for greater agglomeration benefits across Hereford and as a result of greater connections to the HEZ. Scheme will support the adopted economic growth of the Marches Sub-region. | Moderate Beneficial ++ |
| Environmental | Noise | Significant increase in road traffic noise likely at properties close to new road. Possible decreases in noise at properties adjacent to A465 and A49 (DEFRA Noise Action Planning Important Area on A465 between Tesco and Asda Roundabouts). | Major Adverse - - - |
| | Air Quality | Air quality along both Belmont Road and Ross Road is relatively poor but, at property facades, is currently just below the air quality objective. Traffic is expected to decrease on Belmont Road and increase on Ross Road. This will result in an improvement of air quality on Belmont Road and a deterioration on Ross Road. The deterioration in air quality could potentially lead to exceedance of the air quality objective. The option is not expected to affect the Hereford AQMA itself, since traffic flows across the river are not expected to be affected although some changes at the A465/A49 junction may result in highly localised air quality impacts.<br><br>Regional air quality is likely to show a slight adverse impact for all options, due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. Any impacts on congestion relief on roads into Hereford cannot be assessed at present. | Moderate Adverse (local) Slight Adverse (regional) - - |
| | Greenhouse gases | The option will have a slight adverse impact on greenhouse gas emissions due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. | Slight Adverse - |
| | Landscape | Route passes through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route is within the Herefordshire Lowlands character area, more typical of South Herefordshire. In terms of woodland, it cuts through the centre of Grafton Wood (not designated and low density of trees) but then is free of woodland for its entire length. This route brings the road closest to Haywood Lodge Farm and associated properties with a resulting increase in adverse visual effects. It avoids Newton Brook. A new roundabout on A465 and a short section of road connecting to B4349, introduces further built infrastructure. The landscape in this area would be classed as being of Medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource is the least of all the routes, however with the additional sections of road, roundabout and proximity to residential properties, the magnitude is Moderate (loss of resource, but not affecting the integrity/ key characteristics of the rural scene. | Moderate Adverse - Has the least effect on woodland when compared to the other routes - - |
| | Townscape | N/A | |
| | Historic Environment | Direct impact (minor) on the significance of the setting of a Grade II* and three Grade II listed buildings at Haywood Lodge; direct impact (minor) on the significance of the setting of the Grade II Clehonger Court buildings; direct impact (minor) on the significance of the setting of a Grade II listed milestone; direct physical impact (slight to moderate) on potential buried archaeological remains in four fields. | Slight to Moderate Adverse - |

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| | Biodiversity | Route Option SC2 passes through the centre of Grafton Wood, which supports a mature tree canopy with some indicators of ancient woodland present. This Option is therefore likely to lead to the greatest extent of habitat loss/disturbance within Grafton Wood relative to other Route Corridor Options under consideration.<br><br>All of the Route Corridor Options pass through extents of improved grassland and arable farmland, with fields separated by a network of hedgerows in varying condition. In terms of these habitats there is little to separate the different route corridor options or the species they are likely to support. The impacts of each Route Corridor Option on significant off-site receptors (for example receptors such as The River Wye SAC and bat roosts) are also likely to be broadly similar.<br><br>East and west of the railway line, Route Corridor SC2 passes in close proximity (within 250 m) of a series of ponds. Initial surveys have confirmed the presence of great crested newts (a species receiving full protection under the conservation of Habitats and species Regulations 2010, as amended) in several of these ponds. Route corridor SC2 could destroy terrestrial habitat and fragment habitats either side of the proposed road used by great crested newts. With suitable scheme design and targeted mitigation it is likely these impacts could be mitigated, and the project may be able to deliver enhancements via the creation of new/enhanced aquatic and terrestrial habitat.<br><br>Route corridor option SC2 passes south of Newton Coppice/Hayleasow Wood which includes semi-natural ancient woodland and plantation on ancient woodland. Surveys conducted by Amey (Environmental Assessment Report, 2013) and Parsons Brinckerhoff (unpublished) have confirmed the ancient character of these woodland habitats. Route Corridor Option SC2 also passes upstream of currently open sections of Newton Brook, and hence has reduced potential for impacts on this watercourse upstream of Newton Coppice/Hayleasow Wood. Consultation responses from Natural England (letter dated November 2012) have identified that they consider a route option that passes through the ancient woodland areas as non-preferred. The National Planning Policy Framework identifies ancient woodland as an irreplaceable habitat, and it is unlikely to be possible to fully mitigate a Route Corridor Option that passes through the ancient woodland. | Moderate Adverse<br>- - |
| | Water Environment | Assuming surface water management design and construction measures are implemented, the proposed alignment is likely to have low significance impacts on transport and dilution of waste products and biodiversity in Withy Brook and Newton Brook. | Slight Adverse - |
| **Social** | Commuting and Other users | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial<br>+ |
| | Reliability impact on Commuting and Other users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial<br>+ |
| | Physical activity | Walking and cycling trips discouraged by severance of PROWs GF3 and HA7. Loss in rural amenity for recreational pedestrians using existing PROWs due to introduction of increased traffic noise and proximity to traffic. | Moderate Adverse --<br> |
| | Journey quality | Road users benefiting from improved views and reduced traveller stress resulting from more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents (compared to existing urban routes through Hereford town centre).<br>New road with associated earthworks will degrade views slightly from A49 and Haywood Lane.<br><br>New A465 roundabout will add stress to travellers on this road. Connecting of B4349 to SC2 at A465 will reduce driver stress compared to existing junction arrangement. | Moderate Beneficial ++ |
| | Accidents | Southern Link Road designed to latest design standards. Reduction in traffic along A465 will reduction accident rate along this section of road although the resultant increase in traffic along the A49 may cause the accident rate to increase on this section of road. | Neutral |
| | Security | Road users slightly less vulnerable to crime as this option reduces need to stop vehicles or reduce speeds compared to existing routes. No impact on security of PT passengers. | Slight Beneficial<br>+ |
| | Access to services | Scheme provides a new potential bus route (between the A465 and A49) but not one that better serves key local destinations in Hereford Town Centre. | Neutral |
| | Affordability | Rerouting will impact on journey speeds and congestion on both A465 and A49 (north of the scheme), impacting positively on personal affordability of car users. | Slight Beneficial<br>+ |
| | Severance | Scheme option increases severance significantly for very low number hamlets but reduces severance slightly (by reducing traffic flows) through Belmont and Redhill residential areas in vicinity of A49 and A465. | Slight Beneficial<br>+ |
| | Option and non-use values | No impacts identified. | Neutral |

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| **Public Accounts** | Cost to Broad Transport Budget | Indicative cost of SC2 proposal is circa £16-£20M | Moderate Beneficial ++ |
| | Indirect Tax Revenues | N/A | N/A |
| **Other Issues** | Technical and operational feasibility | Earthworks – with some adjustment to the horizontal and vertical alignments this is the most likely option to achieve as near as possible a cut/fill balance. Vertical alignment in the main follows the rolling profile of the countryside.<br><br>Design Standards – 60mph design speed and Departures from Standard unlikely. Opportunity for overtaking unlikely due to topography (vertical curvature). Straighter crossing of existing country lanes and railway. Side access issues yet to be looked at as well as any drainage runoff storage provision.<br>Physical features – route goes through Grafton Wood (not designated).<br><br>Utilities – route crosses existing overhead power lines a number of times (including a 66kV) but is located to the south of the main corridor of electricity cables running east to west. Route crosses Grafton Lane almost at grade where there is a concentration of services running north to south including HP gas, a trunk water main and a sewer.<br><br>Rail structure – route crosses over the existing railway line so reduced risk for Network Rail's operations. | |

**Appraisal Summary Table** Date Produced: 17/04/2014

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| **Name of scheme:** | South Wye Transport Package - **Option SC2A** |
| **Description of scheme:** | The SC2A option is identical to SC2, except that the new road section will pass under the railway line as opposed to passing over the top of it. |

| Impacts | | Summary of Key Impacts | Qualitative Assessment |
|---|---|---|---|
| Economy | Business users & transport providers | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those business users who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Business users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Regeneration | Southern Link Road provides direct connection to the Hereford Enterprise Zone (HEZ) from the A465. Improves the supply of employment land by allowing the planning conditions that presently limit development at the HEZ to be extinguished, therefore removing substantial barriers to inward investment relating to both residential and employment development. Regeneration benefits within Belmont enhanced due to greater accessibility to employment opportunities within the HEZ. | Major Beneficial +++ |
| | Wider Impacts | Potential for greater agglomeration benefits across Hereford and as a result of greater connections to the HEZ. Scheme will support the adopted economic growth of the Marches Sub-region. | Moderate Beneficial ++ |
| Environmental | Noise | Significant increase in road traffic noise likely at properties close to new road. Possible decreases in noise at properties adjacent to A465 and A49 (DEFRA Noise Action Planning Important Area on A465 between Tesco and Asda Roundabouts). | Major Adverse |
| | Air Quality | Air quality along both Belmont Road and Ross Road is relatively poor but, at property facades, is currently just below the air quality objective. Traffic is expected to decrease on Belmont Road and increase on Ross Road. This will result in an improvement of air quality on Belmont Road and a deterioration on Ross Road. The deterioration in air quality could potentially lead to exceedance of the air quality objective. The option is not expected to affect the Hereford AQMA itself, since traffic flows across the river are not expected to be affected although some changes at the A465/A49 junction may result in highly localised air quality impacts.<br><br>Regional air quality is likely to show a slight adverse impact for all options, due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. Any impacts on congestion relief on roads into Hereford cannot be assessed at present. | Moderate Adverse (local) Slight Adverse (regional) |
| | Greenhouse gases | The option will have a slight adverse impact on greenhouse gas emissions due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. | Slight Adverse |
| | Landscape | Route passes through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route is within the Herefordshire Lowlands character area, more typical of South Herefordshire. In terms of woodland, it cuts through the centre of Grafton Wood (not designated and low density of trees) but then is free of woodland for its entire length. This route brings the road closest to Haywood Lodge Farm and associated properties with a resulting increase in adverse visual effects. It avoids Newton Brook. A new roundabout on A465 and a short section of road connecting to B4349, introduces further built infrastructure. The landscape in this area would be classed as being of Medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource is the least of all the routes, however with the additional sections of road, roundabout and proximity to residential properties, the magnitude is Moderate (loss of resource, but not affecting the integrity/ key characteristics of the rural scene. | Moderate Adverse - Has the least effect on woodland when compared to the other routes |
| | Townscape | N/A | |
| | Historic Environment | Direct impact (minor) on the significance of the setting of a Grade II* and three Grade II listed buildings at Haywood Lodge; direct impact (minor) on the significance of the setting of the Grade II Clehonger Court buildings; direct impact (minor) on the significance of the setting of a Grade II listed milestone; direct physical impact (slight to moderate) on potential buried archaeological remains in four fields. | Slight to Moderate Adverse |

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| | Biodiversity | Route Option SC2A passes through the centre of Grafton Wood, which supports a mature tree canopy with some indicators of ancient woodland present. This Option is therefore likely to lead to the greatest extent of habitat loss/disturbance within Grafton Wood relative to other Route Corridor Options under consideration.<br><br>All of the Route Corridor Options pass through extents of improved grassland and arable farmland, with fields separated by a network of hedgerows in varying condition. In terms of these habitats there is little to separate the different route corridor options or the species they are likely to support. The impacts of each Route Corridor Option on significant off-site receptors (for example receptors such as The River Wye SAC and bat roosts) are also likely to be broadly similar.<br><br>East and west of the railway line, Route Corridor SC2A passes in close proximity (within 250 m) of a series of ponds. Initial surveys have confirmed the presence of great crested newts (a species receiving full protection under the conservation of Habitats and species Regulations 2010, as amended) in several of these ponds. Route corridor SC2A could destroy terrestrial habitat and fragment habitats either side of the proposed road used by great crested newts. With suitable scheme design and targeted mitigation it is likely these impacts could be mitigated, and the project may be able to deliver enhancements via the creation of new/enhanced aquatic and terrestrial habitat.<br><br>Route corridor option SC2A passes south of Newton Coppice/Hayleasow Wood which includes semi-natural ancient woodland and plantation on ancient woodland. Surveys conducted by Amey (Environmental Assessment Report, 2013) and Parsons Brinckerhoff (unpublished) have confirmed the ancient character of these woodland habitats. Route Corridor Option SC2A also passes upstream of currently open sections of Newton Brook, and hence has reduced potential for impacts on this watercourse upstream of Newton Coppice/Hayleasow Wood. Consultation responses from Natural England (letter dated November 2012) have identified that they consider a route option that passes through the ancient woodland areas as non-preferred. The National Planning Policy Framework identifies ancient woodland as an irreplaceable habitat, and it is unlikely to be possible to fully mitigate a Route Corridor Option that passes through the ancient woodland.<br><br>There would be a slight preference for Route Corridor Option SC2A relative to SC2, as passing under the existing railway should allow an unmodified and unlit habitat corridor to be retained along the railway line. | Moderate Adverse - - |
| | Water Environment | Assuming surface water management design and construction measures are implemented, the proposed alignment is likely to have low significance impacts on transport and dilution of waste products and biodiversity in Withy Brook and Newton Brook. | Slight Adverse - |
| **Social** | Commuting and Other users | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Commuting and Other users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Physical activity | Walking and cycling trips discouraged by severance of PROWs GF3 and HA7. Loss in rural amenity for recreational pedestrians using existing PROWs due to introduction of increased traffic noise and proximity to traffic. | Moderate Adverse -- |
| | Journey quality | Road users benefiting from improved views and reduced traveller stress resulting from more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents (compared to existing urban routes through Hereford town centre).<br>New road with associated earthworks will degrade views slightly from A49 and Haywood Lane.<br><br>New A465 roundabout will add stress to travellers on this road.<br><br>Connecting of B4349 to SC2A at A465 will reduce driver stress compared to existing junction arrangement. | Moderate Beneficial ++ |
| | Accidents | Southern Link Road designed to latest design standards. Reduction in traffic along A465 will reduction accident rate along this section of road although the resultant increase in traffic along the A49 may cause the accident rate to increase on this section of road. | Neutral |
| | Security | Road users slightly less vulnerable to crime as this option reduces need to stop vehicles or reduce speeds compared to existing routes. No impact on security of PT passengers. | Slight Beneficial + |
| | Access to services | Scheme provides a new potential bus route (between the A465 and A49) but not one that better serves key local destinations in Hereford Town Centre. | Neutral |
| | Affordability | Rerouting will impact on journey speeds and congestion on both A465 and A49 (north of the scheme), impacting positively on personal affordability of car users. | Slight Beneficial + |

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| | Severance | Scheme option increases severance significantly for very low number hamlets but reduces severance slightly (by reducing traffic flows) through Belmont and Redhill residential areas in vicinity of A49 and A465. | Slight Beneficial + |
| | Option and non-use values | No impacts identified. | Neutral |
| Public Accounts | Cost to Broad Transport Budget | Indicative cost of SC2A proposal is circa £21-£25M | Slight Beneficial + |
| | Indirect Tax Revenues | N/A | N/A |
| Other Issues | Technical and operational feasibility | Earthworks – Vertical alignment on the east side follows the rolling profile of the countryside but is forced deep in cutting to cross under the railway and Haywood Lane. This could give rise to groundwater and road drainage problems. Large amount of excess spoil generated.<br><br>Design Standards – 60mph design speed and Departures from Standard unlikely. Opportunity for overtaking unlikely due to topography (vertical curvature). Straighter crossing of existing country lanes and railway. Side access issues yet to be looked at as well as any drainage runoff storage provision.<br>Physical features – route goes through Grafton Wood (not designated).<br><br>Utilities – route crosses existing overhead power lines a number of times (including a 66kV) but is located to the south of the main corridor of electricity cables running east to west. Route crosses Grafton Lane almost at grade where there is a concentration of services running north to south including HP gas, a trunk water main and a sewer.<br><br>Rail structure - route crosses underneath the existing railway line so increased risk for Network Rail's operations. | |

**Appraisal Summary Table** Date Produced: 17/04/2014

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| **Name of scheme:** | South Wye Transport Package - **Option SC5** |
| **Description of scheme:** | Route Option SC5 passes through the northern part of Grafton Wood and in a north-westerly direction, crosses the densely wooded area between Grafton Lane and Withy Brook and a site of archaeological importance before turning west to cross underneath the railway line. The route continues through Merry Hill and under Haywood Lane towards the A465. |

| Impacts | | Summary of Key Impacts | Qualitative Assessment |
|---|---|---|---|
| Economy | Business users & transport providers | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those business users who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Business users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Regeneration | Southern Link Road provides direct connection to the Hereford Enterprise Zone (HEZ) from the A465. Improves the supply of employment land by allowing the planning conditions that presently limit development at the HEZ to be extinguished, therefore removing substantial barriers to inward investment relating to both residential and employment development. Regeneration benefits within Belmont enhanced due to greater accessibility to employment opportunities within the HEZ. | Major Beneficial +++ |
| | Wider Impacts | Potential for greater agglomeration benefits across Hereford and as a result of greater connections to the HEZ. Scheme will support the adopted economic growth of the Marches Sub-region. | Moderate Beneficial ++ |
| Environmental | Noise | Significant increase in road traffic noise likely at properties close to new road. Possible decreases in noise at properties adjacent to A465 and A49 (DEFRA Noise Action Planning Important Area on A465 between Tesco and Asda Roundabouts). | Major Adverse - - - |
| | Air Quality | Air quality along both Belmont Road and Ross Road is relatively poor but, at property facades, is currently just below the air quality objective. Traffic is expected to decrease on Belmont Road and increase on Ross Road. This will result in an improvement of air quality on Belmont Road and a deterioration on Ross Road. The deterioration in air quality could potentially lead to exceedance of the air quality objective. The option is not expected to affect the Hereford AQMA itself, since traffic flows across the river are not expected to be affected although some changes at the A465/A49 junction may result in highly localised air quality impacts.<br><br>Regional air quality is likely to show a slight adverse impact for all options, due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. Any impacts on congestion relief on roads into Hereford cannot be assessed at present. | Moderate Adverse (local) Slight Adverse (regional) - - |
| | Greenhouse gases | The option will have a slight adverse impact on greenhouse gas emissions due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. | Slight Adverse - |
| | Landscape | Route passes through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route is within the Herefordshire Lowlands character area, more typical of South Herefordshire. In terms of woodland, it cuts through the centre of Grafton Wood (not designated and low density of trees) and a dense copse near Withy Brook. It runs close to residential properties along Grafton Lane and involves the loss of a large commercial premises accessed from Haywood Lane. It avoids Newton Brook and Hayleasow Wood. A new roundabout on A465 and a separate short section of road connecting to B4349, introduces further built infrastructure. The landscape in this area would be classed as being of Medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource is influenced by the loss of woodland, the route going through a large Site of Archaeological Importance, the proximity of residential properties, the loss of commercial premises, a new roundabout and additional sections of road. Therefore the magnitude of effect on the landscape resource would be Major (loss of resource and severe damage to key characteristics. | Major Adverse - - - |
| | Townscape | N/A | |

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| | Historic Environment | Direct impact (minor) on the significance of the setting of Grade II listed Merryhill Stables; direct impact (minor) on the significance of the setting of Grade II listed Harwood Lodge; direct physical impact (moderate) on site of medieval fortifications (10467); direct physical impact (minor) on two cropmarks in fields 10 and 34; direct physical impact (slight to moderate) on potential buried archaeological remains in four fields. | Slight to Moderate Adverse - |
| | Biodiversity | Route Corridor Option SC5 passes through Grafton Wood, slightly to the north of the most central alignments. It is therefore likely to lead to similar levels of Habitat Loss as Options SC1/2/3/4, but more than options SC6/7. Grafton Wood supports a mature tree canopy, with some indicator species for ancient woodland present.<br><br>All of the Route Corridor Options pass through extents of improved grassland and arable farmland, with fields separated by a network of hedgerows in varying condition. In terms of these habitats and the species they are likely to support there is little to separate the different Route Corridor Options. The impacts of each Route Corridor Option on significant off-site receptors (for example The River Wye SAC, bat roosts etc) are also likely to be broadly similar.<br><br>This Route Corridor Option is further away from ponds known to support great crested newts than options SC1/2. Impacts on great crested newts, a European Protected Species, are therefore likely to be reduced relative to the more southern options SC1/2.<br><br>Route Corridor Option SC5 passes south of Newton Coppice/Hayleasow Wood including a buffer zone of approximately 50 - 100 m. Newton coppice/Hayleasow wood supports semi-natural ancient woodland and plantation on ancient woodland. Surveys conducted by Amey (Environmental Assessment Report, 2013) and Parsons Brinckerhoff (unpublished) have confirmed the ancient character of these woodland habitats. Route Corridor Option SC5 also passes upstream of currently open sections of Newton Brook, and hence has reduced potential for impacts on this watercourse relative to Routes passing through/adjacent to the woodland. Consultation responses from Natural England (letter dated November 2012) have identified that they consider a Route Corridor Option that passes through the ancient woodland areas as non-preferred. The National Planning Policy Framework identifies ancient woodland as an irreplaceable habitat, and it is unlikely to be possible to fully mitigate a Route Corridor Option that passes through the ancient woodland. | Moderate Adverse - - |
| | Water Environment | Assuming surface water management design and construction measures are implemented, the proposed alignment is likely to have low significance impacts on transport and dilution of waste products and biodiversity in Withy Brook and Newton Brook. | Slight Adverse - |
| **Social** | Commuting and Other users | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Commuting and Other users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Physical activity | Walking trips discouraged by severance of PROWs GF3, HA7, CH9 and CH10. Loss in rural amenity for recreational pedestrians on PROWs due to introduction of increased traffic noise and proximity to traffic. | Moderate Adverse - - |
| | Journey quality | Road users benefiting from improved views and reduced traveller stress resulting from more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents (compared to existing urban routes through Hereford town centre).<br>New roundabout will degrade views slightly from A465.<br><br>New A465 roundabout will add stress to travellers on this road.<br><br>New link between B4349 and A465, in addition to the new A465 roundabout will increase stress for drivers connecting between the B4349 and SC5. | Slight Beneficial + |
| | Accidents | Southern Link Road designed to latest design standards. Reduction in traffic along A465 will reduction accident rate along this section of road although the resultant increase in traffic along the A49 may cause the accident rate to increase on this section of road. | Neutral |
| | Security | road users slightly less vulnerable to crime as this option reduces need to stop vehicles or reduce speeds compared to existing routes. No impact on security of PT passengers. | Slight Beneficial + |
| | Access to services | Scheme provides a new potential bus route (between the A465 and A49) but not one that better serves key local destinations in Hereford Town Centre. | Neutral |
| | Affordability | Rerouting will impact on journey speeds and congestion on both A465 and A49 (north of the scheme), impacting positively on personal affordability of car users. | Slight Beneficial + |

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| | Severance | Scheme option increases severance significantly for very low number hamlets but reduces severance slightly (by reducing traffic flows) through Belmont and Redhill residential areas in vicinity of A49 and A465. | Slight Beneficial + |
| | Option and non-use values | No impacts identified | Neutral |
| Public Accounts | Cost to Broad Transport Budget | Indicative cost of proposal is circa £21-£25M | Slight Beneficial + |
| | Indirect Tax Revenues | N/A | N/A |
| Other Issues | Technical and operational feasibility | Earthworks – Vertical alignment on the east side follows the rolling profile of the countryside but is forced into cutting after Grafton Lane in order to cross under the railway. 13m deep cutting through Merry Hill in order to cross under Haywood Lane which could give rise to groundwater and road drainage problems. Significant excess spoil generated.<br><br>Design Standards – 60mph design speed and Departures from Standard unlikely. Opportunity for overtaking unlikely. Angled crossing of existing country lanes and railway will increase cost. Side access issues yet to be looked at as well as any drainage runoff storage provision.<br><br>Physical features – route goes through Grafton Wood (not designated), a wooded area between Grafton Lane and Withy Brook, a site of archaeological importance and a barn yard situated south-west of the Merryhill Lane junction with Haywood Lane.<br><br>Utilities – route crosses existing overhead power lines a number of times (including a 66kV) and is located partly within the main corridor of electricity cables running east to west. Route crosses Grafton Lane at grade where there is a concentration of services running north to south including HP gas, a trunk water main and a sewer. Conflict with a concentration of overhead and buried services in/around Haywood Lane including BT, a water main and a sewer.<br><br>Rail structure - route crosses underneath the existing railway line so increased risk for Network Rail's operations. | |

**Appraisal Summary Table** Date Produced: 17/04/2014

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| **Name of scheme:** | South Wye Transport Package - **Option SC7** |
| **Description of scheme:** | Route Option SC7 passes through the northern tip of Grafton Wood but avoids the southern extent of the dense wooded area between Grafton Lane and Withy Brook. It then runs to the south of Merryhill Lane before cutting through Merry Hill and under Haywood Lane. From this location the road heads in a westerly direction to the A465. |

| | Impacts | Summary of Key Impacts | Qualitative Assessment |
|---|---|---|---|
| Economy | Business users & transport providers | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those business users who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Business users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Regeneration | Southern Link Road provides direct connection to the Hereford Enterprise Zone (HEZ) from the A465. Improves the supply of employment land by allowing the planning conditions that presently limit development at the HEZ to be extinguished, therefore removing substantial barriers to inward investment relating to both residential and employment development. Regeneration benefits within Belmont enhanced due to greater accessibility to employment opportunities within the HEZ. | Major Beneficial +++ |
| | Wider Impacts | Potential for greater agglomeration benefits across Hereford and as a result of greater connections to the HEZ. Scheme will support the adopted economic growth of the Marches Sub-region. | Moderate Beneficial ++ |
| Environmental | Noise | Significant increase in road traffic noise likely at properties close to new road. Possible decreases in noise at properties adjacent to A465 and A49 (DEFRA Noise Action Planning Important Area on A465 between Tesco and Asda Roundabouts). | Major Adverse - - - |
| | Air Quality | Air quality along both Belmont Road and Ross Road is relatively poor but, at property facades, is currently just below the air quality objective. Traffic is expected to decrease on Belmont Road and increase on Ross Road. This will result in an improvement of air quality on Belmont Road and a deterioration on Ross Road. The deterioration in air quality could potentially lead to exceedance of the air quality objective. The option is not expected to affect the Hereford AQMA itself, since traffic flows across the river are not expected to be affected although some changes at the A465/A49 junction may result in highly localised air quality impacts.<br><br>Regional air quality is likely to show a slight adverse impact for all options, due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. Any impacts on congestion relief on roads into Hereford cannot be assessed at present. | Moderate Adverse (local) Slight Adverse (regional) - - |
| | Greenhouse gases | The option will have a slight adverse impact on greenhouse gas emissions due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. | Slight Adverse - |
| | Landscape | Route passes through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route is within the Herefordshire Lowlands character area, more typical of South Herefordshire. In terms of woodland, it cuts through the centre of Grafton Wood (not designated and low density of trees). It runs close to residential properties along Grafton Lane. It avoids Newton Brook and Hayleasow Wood. A new roundabout on A465 and a short section of road connecting to B4349, introduces further built infrastructure. The landscape in this area would be classed as being of Medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource is influenced by the loss of woodland, the proximity of residential properties, a new roundabout with additional section of road. Therefore, the magnitude is Moderate (loss of resource, but not affecting the integrity/ key characteristics of the rural scene. | Moderate Adverse - - |
| | Townscape | N/A | |
| | Historic Environment | Direct impact (minor) on the significance of the setting of Grade II listed Merryhill Stables; direct impact (minor) on the significance of the setting of Grade II listed Harwood Lodge; direct physical impact (minor) on cropmark in field 10; direct physical impact (slight to moderate) on potential buried archaeological remains in five fields | Slight to Moderate Adverse - |

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| | Biodiversity | Route Corridor Option SC7 passes through the northern edge of Grafton Wood. Grafton Wood supports a mature tree canopy, with some indicator species for ancient woodland present. Route Corridor Option SC7 has a marginally increased impact on Grafton Wood relative to SC6, but less than SC1 - SC5.<br><br>All of the Route Corridor Options pass through extents of improved grassland and arable farmland, with fields separated by a network of hedgerows in varying condition. In terms of these habitats and the species they are likely to support there is little to separate the different Route Corridor Options. The impacts of each Corridor on significant off-site receptors (for example The River Wye SAC, bat roosts etc) are also likely to be broadly similar.<br><br>This Route Corridor Option is further away from ponds known to support great crested newts than options SC1/2. Impacts on great crested newts, a European Protected species, are therefore likely to be reduced relative to the more southern options SC1/2.<br><br>Route corridor option SC7 passes south of Newton Coppice/Hayleasow Wood which includes semi-natural ancient woodland and plantation on ancient woodland, although it will be located close to the southern edge of the ancient woodland areas. Surveys conducted by Amey (Environmental Assessment Report, 2013) and Parsons Brinckerhoff (unpublished) have confirmed the ancient character of these woodland habitats. Route Corridor Option SC7 also passes upstream of currently open sections of Newton Brook, and hence has reduced potential for impacts on this watercourse relative to options passing through Newton Coppice/Hayleasow Wood. Consultation responses from Natural England (letter dated November 2012) have identified that they consider a Route Corridor Option that passes through the ancient woodland areas as non-preferred. The National Planning Policy Framework identifies ancient woodland as an irreplaceable habitat, and it is unlikely to be possible to fully mitigate a Route Corridor Option that passes through the ancient woodland.<br><br>Route Corridor Option SC7 passes under the railway, and would therefore allow greater retention/enhancement of the habitat corridor along the railway line than the options involving overbridges.<br><br>Route Corridor SC7 is considered the most ecologically preferable Option at this time, due to the minimal direct impacts on Grafton Wood and Hayleasow Wood/Newton Coppice, the location relative to emerging locations of great crested newt populations, and the inclusion of an underpass beneath the railway line. This Route Corridor Option could be improved further by moving the eastern end end of the alignment north of Grafton Wood (as per SC6), and moving the western end south to provide a buffer to Hayleasow wood/Newton Coppice (as per SC5). | Moderate / Slight Adverse<br>- - / - |
| | Water Environment | Assuming surface water management design and construction measures are implemented, the proposed alignment is likely to have low significance impacts on transport and dilution of waste products and biodiversity in Withy Brook and Newton Brook. | Slight Adverse<br>- |
| **Social** | Commuting and Other users | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49?A465 junction proposed to remain at existing levels. | Slight Beneficial<br>+ |
| | Reliability impact on Commuting and Other users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial<br>+ |
| | Physical activity | Walking trips discouraged by severance of PROWs GF3, HA14, HAF, CH9 and CH10.<br>Loss in rural amenity for recreational pedestrians on PROWs due to introduction of increased traffic noise and proximity to traffic. | Moderate Adverse - - |
| | Journey quality | Road users benefiting from improved views and reduced traveller stress resulting from more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents (compared to existing urban routes through Hereford town centre).<br>New road with associated earthworks will degrade views from A465, particularly where it is raised to bridge over Hayleasow Wood.<br><br>New A465 roundabout will add stress to travellers on this road.<br><br>New link between B4349 and A465, in addition to the new A465 roundabout will increase stress for drivers connecting between the B4349 and SC6. | Slight Beneficial<br>+ |
| | Accidents | Southern Link Road designed to latest design standards. Reduction in traffic along A465 will reduction accident rate along this section of road although the resultant increase in traffic along the A49 may cause the accident rate to increase on this section of road. | Neutral |
| | Security | road users slightly less vulnerable to crime as this option reduces need to stop vehicles or reduce speeds compared to existing routes. No impact on security of PT passengers | Slight Beneficial<br>+ |
| | Access to services | Scheme provides a new potential bus route (between the A465 and A49) but not one that better serves key local destinations in Hereford Town Centre | Neutral |

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| | Affordability | Rerouting will impact on journey speeds and congestion on both A465 and A49 (north of the scheme), impacting positively on personal affordability of car users. | Slight Beneficial + |
| | Severance | Scheme option increases severance significantly for very low number hamlets but reduces severance slightly (by reducing traffic flows) through Belmont and Redhill residential areas in vicinity of A49 and A465 | Slight Beneficial + |
| | Option and non-use values | No impacts identified | Neutral |
| Public Accounts | Cost to Broad Transport Budget | Indicative cost of proposal is circa £21-£25M | Slight Beneficial + |
| | Indirect Tax Revenues | N/A | N/A |
| Other Issues | Technical and operational feasibility | Earthworks – Vertical alignment on the east side follows the rolling profile of the countryside but is forced into cutting after Grafton Lane in order to cross under the railway. 13m deep cutting through Merry Hill in order to cross under Haywood Lane which could give rise to groundwater and road drainage problems. Large amount of excess spoil generated.<br><br>Design Standards – 50mph design speed and Departures from Standard unlikely. No opportunity for overtaking due to the twisty alignment. Angled crossing of existing country lanes and railway will increase cost. Side access issues yet to be looked at as well as any drainage runoff storage provision.<br>Physical features – being of a twisted nature the route manages to avoid many physical constraints but does go through the northern tip of Grafton Wood (not designated).<br><br>Utilities – route crosses existing overhead power lines a number of times (including a 66kV) and is located largely within the main corridor of electricity cables running east to west. Route crosses Grafton Lane on a 3m high embankment where there is a concentration of services running north to south including HP gas, a trunk water main and a sewer. Conflict with a concentration of overhead and buried services in/around Haywood Lane including BT, a water main and a sewer.<br><br>Rail structure - route crosses underneath the existing railway line so increased risk for Network Rail's operations. | |

**Appraisal Summary Table** Date Produced: 17/10/2014

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| **Name of scheme:** | South Wye Transport Package - Option SC8 |
| **Description of scheme:** | Option SC8 lies between the northern and southern options. The alignment is relatively straight over its entire length curving gradually north-west, west of the railway. It passes over the railway, underneath Haywood Lane and is at grade over Grafton Lane. |

| Impacts | | Summary of key impacts | Assessment<br>Qualitative |
|---|---|---|---|
| Economy | Business users & transport providers | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those business users who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Business users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Regeneration | Southern Link Road provides direct connection to the Hereford Enterprise Zone (HEZ) from the A465. Improves the supply of employment land by allowing the planning conditions that presently limit development at the HEZ to be extinguished, therefore removing substantial barriers to inward investment relating to both residential and employment development. Regeneration benefits within Belmont enhanced due to greater accessibility to employment opportunities within the HEZ. | Significant Beneficial +++ |
| | Wider Impacts | Potential for greater agglomeration benefits across Hereford and as a result of greater connections to the HEZ. Scheme will support the adopted economic growth of the Marches Sub-region. | Moderate Beneficial ++ |
| Environmental | Noise | Signficant increase in road traffic noise likely at properties close to new road. Possible decreases in noise at properties adjacent to A465 and A49 (DEFRA Noise Action Planning Important Area on A465 between Tesco and Asda Roundabouts) | Major Adverse |
| | Air Quality | Air quality along both Belmont Road and Ross Road is relatively poor but, at property facades, is currently below the air quality objective. Traffic is expected to decrease on Belmont Road and increase on Ross Road. This will result in an improvement of air quality on Belmont Road and a deterioration on Ross Road. The deterioration in air quality could potentially lead to exceedence of the air quality objective. The option is not expected to affect the Hereford AQMA itself, since traffic flows across the river are not expected to be affected although some changes at the A465/A49 junction may result in highly localised air quality impacts. Regional air quality is likely to show a slight adverse impact for all options, due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. Any impacts on congestion relief on roads into Hereford cannot be assessed at present | Moderate Adverse (local), Slight Adverse (regional) |
| | Greenhouse gases | The option will have a slight adverse impact on greenhouse gas emissions due to the greater distance travelled by vehicles diverting onto the Southern Link Road and the greater speed of travel | Slight Adverse |
| | Landscape/Townscape | Route passes through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route is within the Herefordshire Lowlands character area, more typical of South Herefordshire. In terms of woodland, it cuts through the centre of Grafton Wood, which is not designated and has a low density of trees. This route runs in close proximity to Haywood Lodge Farm and associated properties, with potential for visual amenity effects. It avoids Newton Brook. The alignment of the eastern half of the route runs in a straight line and cuts across the grain of the landscape. The route therefore fails to take into account the undulating topography and irregular field pattern. SC8 will require extensive works to create embankments to take the route over the railway line resulting in a visible central section (as it passes over the railway line) and will have engineered slopes that will be disruptive to the character of the local topography. The landscape in this area would be classed as being of Medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource with the additional sections of road, roundabout and proximity to residential properties, is Moderate (loss of resource, at odds with the local pattern and landform, visually intrusive and will adversely impact on the landscape). | Moderate Adverse |
| | Historic Environment | Direct impact (minor) on the the setting of a Grade II* and three Grade II listed buildings at Haywood Lodge. Direct impact (minor) on the significance of the setting of the Grade II Clehonger Court buildings; direct impact (minor) on the significance of the setting of a Grade II listed milestone. Direct physical impact (slight to moderate) on potential buried archaeological remains in four fields. | Slight to Moderate Adverse |

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| | Biodiversity | SC8 passes through the centre of Grafton Wood, which supports a mature tree canopy with some indicators of ancient woodland present. SC8 will likely to lead to the greatest extent of habitat loss / disturbance within Grafton Wood relative to other route options under consideration, with comparable impacts to SC2/2A and SC9. SC8 passes south of Newton Coppice / Hayleasow Wood which includes semi-natural ancient woodland and plantation on ancient woodland, although it will be located close to the southern edge of the ancient woodland areas. Recent surveys have confirmed the ancient character of these woodland habitats. SC8 also passes upstream of open sections of Newton Brook, and has reduced potential for impacts on this watercourse relative to route options passing through Newton Coppice / Hayleasow Wood. Consultation with Natural England has indicated that they would not prefer a route option that passes through ancient woodland areas. The National Planning Policy Framework identifies ancient woodland as an irreplaceable habitat, and it is unlikely to be possible to fully mitigate a Route Corridor Option that passes through the ancient woodland. SC8 is further away from ponds known to support great crested newts (GCN) than options SC2/2A. Impacts on GCNs, a European Pr+D25otected species, are therefore likely to be reduced relative to the more southern options SC2/2A. All of the route options pass through extents of improved grassland and arable farmland, with fields seperated by a network of hedgerows in varying condition. In terms of these habitats there is little to separate the different route corridor options or the species they are likely to support (other than GCN, see above). The impact of each route option on significant off-site receptors (e.g. River Wye SAC and bat roosts) are also likely to be broadly similar. SC8 would pass over the railway line, based on the current understanding of scheme-wide bat activity and design parameters (assuming the railway underpass would be unlit), SC8 would allow a wide underpass to be maintained under the new road alignment, subject to only infrequent train movements. Any overbridge would need to have wide vegetated margins in order to be as effective as an underpass. | Moderate adverse |
| | Water Environment | Assuming surface water management design and construction measures are implemented, the proposed alignment is likely to have low significance impacts on transport and dilution of waste products and biodiversity in Withy Brook and Newton Brook. | Slight Adverse |
| **Social** | Commuting and Other users | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Commuting and Other users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Physical activity | Walking and cycling trips discouraged by severance of PROWs GF3 and HA7. Loss in rural amenity for recreational pedestrians using existing PROWs due to introduction of increased traffic noise and proximity to traffic. | Moderate Adverse - - |
| | Journey quality | Road users benefiting from improved views and reduced traveller stress resulting from more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents (compared to existing urban routes through Hereford town centre).<br>New road with associated earthworks will degrade views slightly from A49 and Haywood Lane. New A465 roundabout will add stress to travellers on this roadConnecting of B4349 to SC8 at A465 will reduce driver stress compared to existing junction arrangement. | Moderate Beneficial ++ |
| | Accidents | Southern Link Road designed to latest design standards. Reduction in traffic along A465 will reduction accident rate along this section of road although the resultant increase in traffic along the A49 may cause the accident rate to increase on this section of road. | Neutral |
| | Security | Road users slightly less vulnerable to crime as this option reduces need to stop vehicles or reduce speeds compared to existing routes. No impact on security of PT passengers | Slight Beneficial + |
| | Access to services | Scheme provides a new potential bus route (between the A465 and A49) but not one that better serves key local destinations in Hereford Town Centre | Neutral |
| | Affordability | Rerouting will impact on journey speeds and congestion on both A465 and A49 (north of the scheme), impacting positively on personal affordability of car users. | Slight Beneficial + |
| | Severance | Scheme option increases severance significantly for very low number hamlets but reduces severance slightly (by reducing traffic flows) through Belmont and Redhill residential areas in vicinity of A49 and A465 | Slight Beneficial + |
| | Option and non-use values | No impacts identified | Neutral |
| **Public Accounts** | Cost to Broad Transport Budget | Indicative cost of SC8 proposal is circa £17.9M - £26.5M | Slight to Moderate Beneficial |
| | Indirect Tax Revenues | N/A | |

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| Other Issues | Technical and operational feasibility | Earthworks – Vertical alignment of the option is similar at both the western and eastern ends of the route. The difference lies within the middle section either side of the railway line reflecting whether the route goes over or under it. To cross over the railway route Option SC8 requires the construction of an embankment up to 8m high. This could give rise to groundwater and road drainage problems. it may be possible to achieve a balanced earthworks scheme using alignment Option SC8.<br>Design Standards – 60mph design speed and Departures from Standard unlikely. Although a much straighter route on plan, an opportunity for overtaking is unlikely due to topography (vertical curvature). Angled crossing of existing railway will increase cost but the crossing of Haywood Lane is relatively straight. Side access issues yet to be looked at as well as any drainage runoff storage provision.<br>Physical features – the route skirts around the south-west corner of Newton Coppice (designated as Ancient Woodland), through the northern section of Grafton Wood (not designated), to the south of the wooded area between Grafton Lane and Withy Brook and to the south of the barn yard situated south-west of the Merryhill Lane junction with Haywood Lane. The route also passes to the south of Grafton Enclosure and Beech Grove (refer to commentary on Option SC9).<br>Utilities – the route clashes with existing overhead power lines located at the eastern and western ends of the scheme (including a 66kV) but generally avoid them within the central area. Both routes cross Grafton Lane at grade (or thereabouts) where BT and water services are present. There is conflict with a concentration of overhead and buried services in/around Haywood Lane including BT, a water main and a sewer.<br>Rail structure – route option SC8 (which crosses over the existing railway line) offers reduced risk for Network Rail's operations. |

**Appraisal Summary Table** Date Produced: 17/10/2014

| Name of scheme: | South Wye Transport Package - Option SC8A |
|---|---|
| Description of scheme: | The SC8A option alignment is identical to SC8 except that it crosses underneath the railway line. |

| | Impacts | Summary of key impacts | Assessment<br>Qualitative |
|---|---|---|---|
| Economy | Business users & transport providers | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those business users who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Business users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Regeneration | Southern Link Road provides direct connection to the Hereford Enterprise Zone (HEZ) from the A465. Improves the supply of employment land by allowing the planning conditions that presently limit development at the HEZ to be extinguished, therefore removing substantial barriers to inward investment relating to both residential and employment development. Regeneration benefits within Belmont enhanced due to greater accessibility to employment opportunities within the HEZ. | Significant Beneficial +++ |
| | Wider Impacts | Potential for greater agglomeration benefits across Hereford and as a result of greater connections to the HEZ. Scheme will support the adopted economic growth of the Marches Sub-region. | Moderate Beneficial ++ |
| Environmental | Noise | Signficant increase in road traffic noise likely at properties close to new road. Possible decreases in noise at properties adjacent to A465 and A49 (DEFRA Noise Action Planning Important Area on A465 between Tesco and Asda Roundabouts) | Major Adverse |
| | Air Quality | Air quality along both Belmont Road and Ross Road is relatively poor but, at property facades, is currently below the air quality objective. Traffic is expected to decrease on Belmont Road and increase on Ross Road. This will result in an improvement of air quality on Belmont Road and a deterioration on Ross Road. The deterioration in air quality could potentially lead to exceedence of the air quality objective. The option is not expected to affect the Hereford AQMA itself, since traffic flows across the river are not expected to be affected although some changes at the A465/A49 junction may result in highly localised air quality impacts. Regional air quality is likely to show a slight adverse impact for all options, due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. Any impacts on congestion relief on roads into Hereford cannot be assessed at present | Moderate Adverse - (local), Slight Adverse (regional) |
| | Greenhouse gases | The option will have a slight adverse impact on greenhouse gas emissions due to the greater distance travelled by vehicles diverting onto the Southern Link Road and the greater speed of travel | Slight Adverse |
| | Landscape/Townscape | Route passes through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route is within the Herefordshire Lowlands character area, more typical of South Herefordshire. In terms of woodland, it cuts through the centre of Grafton Wood, which is not designated and has a low density of trees. This route runs in close proximity to Haywood Lodge Farm and associated properties, with potential for visual amenity effects. It avoids Newton Brook. The alignment of the eastern half of the route runs in a straight line and cuts across the grain of the landscape. The route therefore fails to take into account the undulating topography and irregular field pattern. SC8A will require extensive works to create a cutting to take the route under the railwayand will involve engineered slopes that will be disruptive to the character of the local topography. The landscape in this area would be classed as being of Medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource with the additional sections of road, roundabout and proximity to residential properties, is Moderate (loss of resource, at odds with the local pattern and landform, visually intrusive and will adversely impact on the landscape). | Moderate Adverse |
| | Historic Environment | Direct impact (minor) on the significance of the setting of a Grade II* and three Grade II listed buildings at Haywood Lodge, Grade II Clehonger Court buildings and a Grade II listed milestone. Direct physical impact (slight to moderate) on potential buried archaeological remains in four fields. | Slight to Moderate Adverse |

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| | Biodiversity | SC8A passes through the centre of Grafton Wood, which supports a mature tree canopy with some indicators of ancient woodland present. SC8A will likely to lead to the greatest extent of habitat loss / disturbance within Grafton Wood relative to other route options under consideration, with comparable impacts to SC2/2A and SC9. SC8A passes south of Newton Coppice / Hayleasow Wood which includes semi-natural ancient woodland and plantation on ancient woodland, although it will be located close to the southern edge of the ancient woodland areas. Recent surveys have confirmed the ancient character of these woodland habitats. SC8A also passes upstream of open sections of Newton Brook, and has reduced potential for impacts on this watercourse relative to route options passing through Newton Coppice / Hayleasow Wood. Consultation with Natural England has indicated that they woould not prefer a route option that passes through ancient woodland areas. The National Planning Policy Framework identifies ancient woodland as an irreplaceable habitat, and it is unlikely to be possible to fully mitigate a Route Corridor Option that passes through the ancient woodland. SC8A is further away from ponds known to support great crested newts (GCN) than options SC2/2A. Impacts on GCNs, a European Protected species, are therefore likely to be reduced relative to the more southern options SC2/2A. All of the route options pass through extents of improved grassland and arable farmland, with fields seperated by a network of hedgerows in varying condition. In terms of these habitats there is little to separate the different route corridor options or the species they are likely to support (other than GCN, see above). The impact of each route option on significant off-site receptors (e.g. River Wye SAC and bat roosts) are also likely to be broadly similar. SC8A would pass under the railway line, based on the current understanding of scheme-wide bat activity and design parameters, SC8A would retain the rail corridor as a bridge, but with a 'drop-off' either side down to the road which is likely to lead to increased bat mortality / habitat fragmentation compared with SC8. | Moderate adverse |
| | Water Environment | Assuming surface water management design and construction measures are implemented, the proposed alignment is likely to have low significance impacts on transport and dilution of waste products and biodiversity in Withy Brook and Newton Brook. | Slight Adverse |
| **Social** | Commuting and Other users | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Commuting and Other users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Physical activity | Walking and cycling trips discouraged by severance of PROWs GF3 and HA7. Loss in rural amenity for recreational pedestrians using existing PROWs due to introduction of increased traffic noise and proximity to traffic. | Moderate Adverse -- |
| | Journey quality | Road users benefiting from improved views and reduced traveller stress resulting from more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents (compared to existing urban routes through Hereford town centre).<br>New road with associated earthworks will degrade views slightly from A49 and Haywood Lane.<br>New A465 roundabout will add stress to travellers on this roadConnecting of B4349 to SC8A at A465 will reduce driver stress compared to existing junction arrangement. | Moderate Beneficial ++ |
| | Accidents | Southern Link Road designed to latest design standards. Reduction in traffic along A465 will reduction accident rate along this section of road although the resultant increase in traffic along the A49 may cause the accident rate to increase on this section of road. | Neutral |
| | Security | road users slightly less vulnerable to crime as this option reduces need to stop vehicles or reduce speeds compared to existing routes. No impact on security of PT passengers | Slight Beneficial + |
| | Access to services | Scheme provides a new potential bus route (between the A465 and A49) but not one that better serves key local destinations in Hereford Town Centre | Neutral |
| | Affordability | Rerouting will impact on journey speeds and congestion on both A465 and A49 (north of the scheme), impacting positively on personal affordability of car users. | Slight Beneficial + |
| | Severance | Scheme option increases severance significantly for very low number hamlets but reduces severance slightly (by reducing traffic flows) through Belmont and Redhill residential areas in vicinity of A49 and A465 | Slight Beneficial + |
| | Option and non-use values | No impacts identified | Neutral |
| **Public Account** | Cost to Broad Transport Budget | Indicative cost of SC8A proposal is circa £25.4M - £38.6M | Neutral |
| | Indirect Tax Revenues | N/A | |

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|---|---|---|
| Other Issues | Technical and operational feasibility | Earthworks – Vertical alignment of the option is similar at both the western and eastern ends of the route. The difference lies within the middle section either side of the railway line reflecting whether the route goes over or under it. To cross over the railway route Option SC8A requires the construction of a cutting up to 11m deep. This could give rise to groundwater and road drainage problems. The extensive cutting on Option SC8A is likely to generate a significant amount of surplus spoil.<br>Design Standards – 60mph design speed and Departures from Standard unlikely. Although a much straighter route on plan, an opportunity for overtaking is unlikely due to topography (vertical curvature). Angled crossing of existing railway will increase cost but the crossing of Haywood Lane is relatively straight. Side access issues yet to be looked at as well as any drainage runoff storage provision.<br>Physical features – the route skirts around the south-west corner of Newton Coppice (designated as Ancient Woodland), through the northern section of Grafton Wood (not designated), to the south of the wooded area between Grafton Lane and Withy Brook and to the south of the barn yard situated south-west of the Merryhill Lane junction with Haywood Lane. The route also passes to the south of Grafton Enclosure and Beech Grove (refer to commentary on Option SC9).<br>Utilities – the route clashes with existing overhead power lines located at the eastern and western ends of the scheme (including a 66kV) but generally avoid them within the central area. The route cross Grafton Lane at grade (or thereabouts) where BT and water services are present. There is conflict with a concentration of overhead and buried services in/around Haywood Lane including BT, a water main and a sewer.<br>Rail structure – route option SC8A offers increased risk for Network Rail's operations. |

**Appraisal Summary Table** Date Produced: 17/10/2014

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| **Name of scheme:** | South Wye Transport Package - Option SC9 |
| **Description of scheme:** | This route is based on the alignment of Options SC8/SC8A except that it has a shorter, more direct crossing over the railway. It is the only option under consideration that crosses over Haywood Lane and through Beech Grove. Consequently the alignment is more twisted than Options SC8 and SC8A. |

| Impacts | | Summary of key impacts | Assessment<br>Qualitative |
|---|---|---|---|
| Economy | Business users & transport providers | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those business users who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Business users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Regeneration | Southern Link Road provides direct connection to the Hereford Enterprise Zone (HEZ) from the A465. Improves the supply of employment land by allowing the planning conditions that presently limit development at the HEZ to be extinguished, therefore removing substantial barriers to inward investment relating to both residential and employment development. Regeneration benefits within Belmont enhanced due to greater accessibility to employment opportunities within the HEZ. | Significant Beneficial +++ |
| | Wider Impacts | Potential for greater agglomeration benefits across Hereford and as a result of greater connections to the HEZ. Scheme will support the adopted economic growth of the Marches Sub-region. | Moderate Beneficial ++ |
| Environmental | Noise | Signficant increase in road traffic noise likely at properties close to new road. Possible decreases in noise at properties adjacent to A465 and A49 (DEFRA Noise Action Planning Important Area on A465 between Tesco and Asda Roundabouts) | Major Adverse |
| | Air Quality | Air quality along both Belmont Road and Ross Road is relatively poor but, at property facades, is currently below the air quality objective. Traffic is expected to decrease on Belmont Road and increase on Ross Road. This will result in an improvement of air quality on Belmont Road and a deterioration on Ross Road. The deterioration in air quality could potentially lead to exceedence of the air quality objective. The option is not expected to affect the Hereford AQMA itself, since traffic flows across the river are not expected to be affected although some changes at the A465/A49 junction may result in highly localised air quality impacts.<br>Regional air quality is likely to show a slight adverse impact for all options, due to the greater distance travelled by vehicles diverting onto the bypass and the greater speed of travel. Any impacts on congestion relief on roads into Hereford cannot be assessed at present | Moderate Adverse - (local), Slight Adverse (regional) |
| | Greenhouse gases | The option will have a slight adverse impact on greenhouse gas emissions due to the greater distance travelled by vehicles diverting onto the Southern Link Road and the greater speed of travel | Slight Adverse |
| | Landscape/Townscape | Route passes through fertile, undulating farmland with extensive arable fields, with low hedges and occasional woodland. Although most of the route is within the Herefordshire Lowlands character area, more typical of South Herefordshire. In terms of woodland, it cuts through the centre of Grafton Wood, which is not designated and has a low density of trees. This route will be visible from Haywood Lodge Farm and associated properties, however it curves away in a NW direction after crossing the railway line. As it takes a NW direction it passes directly through a local landscape feature called Beech Grove. Similar to other more southerly routes, it avoids Newton Brook. The landscape in this area would be classed as being of Medium sensitivity (good quality example of Herefordshire rural landscape). The magnitude of effect on the landscape resource would be Major (is at considerable variance with the landform, scale and pattern of the landscape, is visually intrusive and will adversely impact on the landscape). | Major Adverse |
| | Historic Environment | Direct impact (moderate) on the significance of the setting of Grade II listed Merryhill Stables, Grade II* and three Grade II listed buildings at Haywood Lodge. Direct impact (minor) on the significance of the setting of the Grade II Clehonger Court buildings and a Grade II listed milestone. Direct physical impact (ranging from slight to substantial) on potential buried archaeological remains in five fields including the almost complete destruction of a feature of unknown date and function. | Moderate Adverse |

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| | Biodiversity | SC9 passes through the centre of Grafton Wood, which supports a mature tree canopy with some indicators of ancient woodland present. SC9 is therefore likely to lead to the greatest extent of habitat loss / disturbance within Grafton Wood relative to other route options, with a level of immpactt comparable to SC2/2A and SC8/8A. SC9 passes south of Newton Coppice / Hayleasow Wood which includes semi-natural ancient woodland and plantation on ancient woodland, although it will be located close to the southern edge of the ancient woodland areas. Recent surveys have confirmed the ancient character of these woodland habitats. SC9 also passes upstream of currently open sections of Newton Brook, and hence has reduced potential for impacts on this watercourse relative to route options passing through Newton Coppice / Hayleasow Wood. Consultation with Natural England has detemrined that they do not prefer route options that passes through the ancient woodland areas. The National Planning Policy Framework identifies ancient woodland as an irreplaceable habitat, and it is unlikely to be possible to fully mitigate a route option that passes through the ancient woodland. SC9 is further away from ponds known to support great crested newts (GCNs) than SC2/2A. Impacts on GCNs, a European Protected species, are therefore likely to be reduced relative to the more southern options such as SC2/2A. All route options pass through areas of improved grassland and arable farmland, with fields seperated by a network of hedgerows in varying condition. There is little to separate the impacts of the different route options on these habitats or the species they are likely to support (other than GCN, see above). The impacts of each route option on significant off-site receptors (e.g. River Wye SAC and bat roosts) is also likely to be broadly similar. SC9 would pass over Haywood Lane via an overbridge, the only route option which does so. Haywood Lane could therefore provide an underpass for use by bats (providing this can be unlit), which may provide a more easily effective mitigation solution than having the proposed road passing under Haywood Lane. However, SC9 would directly affect several mature / veteran trees within hedgerows to the east of the railway (some of which have high bat roosting potential), which would not be affected by other route options. | Moderate Adverse |
| | Water Environment | Assuming surface water management design and construction measures are implemented, the proposed alignment is likely to have low significance impacts on transport and dilution of waste products and biodiversity in Withy Brook and Newton Brook. | Slight Adverse |
| **Social** | Commuting and Other users | Reduced congestion along the A465 Belmont Road due to diversion of traffic onto the Southern Link therefore journey time savings for existing users of the A465. Longer journeys for those who divert to the Southern Link. Increased traffic along the A49 but level of delay at the A49/A465 junction proposed to remain at existing levels. | Slight Beneficial + |
| | Reliability impact on Commuting and Other users | Reduced congestion along the A465 provide greater journey time reliability for users of the A465. Journey times along the A49 are expected to remain at existing levels. | Slight Beneficial + |
| | Physical activity | Walking and cycling trips discouraged by severance of PROWs GF3 and HA7. Loss in rural amenity for recreational pedestrians using existing PROWs due to introduction of increased traffic noise and proximity to traffic. | Moderate Adverse -- |
| | Journey quality | Road users benefiting from improved views and reduced traveller stress resulting from more open route with rural landscape vistas, greater route certainty, and reduced fear of accidents (compared to existing urban routes through Hereford town centre).<br>New road with associated earthworks will degrade views slightly from A49 and Haywood Lane.<br>New A465 roundabout will add stress to travellers on this roadConnecting of B4349 to SC9 at A465 will reduce driver stress compared to existing junction arrangement. | Moderate Beneficial ++ |
| | Accidents | Southern Link Road designed to latest design standards. Reduction in traffic along A465 will reduction accident rate along this section of road although the resultant increase in traffic along the A49 may cause the accident rate to increase on this section of road. | Neutral |
| | Security | road users slightly less vulnerable to crime as this option reduces need to stop vehicles or reduce speeds compared to existing routes. No impact on security of PT passengers | Slight Beneficial + |
| | Access to services | Scheme provides a new potential bus route (between the A465 and A49) but not one that better serves key local destinations in Hereford Town Centre | Neutral |
| | Affordability | Rerouting will impact on journey speeds and congestion on both A465 and A49 (north of the scheme), impacting positively on personal affordability of car users. | Slight Beneficial + |
| | Severance | Scheme option increases severance significantly for very low number hamlets but reduces severance slightly (by reducing traffic flows) through Belmont and Redhill residential areas in vicinity of A49 and A465 | Slight Beneficial + |
| | Option and non-use values | No impacts identified | Neutral |
| **Public Account** | Cost to Broad Transport Budget | Indicative cost of SC9 proposal is circa £17.2M - £25.3M | Moderate Beneficial ++ |
| | Indirect Tax Revenues | N/A | |

| | | |
|---|---|---|
| **Other Issues** | Technical and operational feasibility | Earthworks – Vertical alignment on the east side follows the rolling profile of the countryside but west of Grafton Lane it starts climbing on an 8.5m high embankment in order to pass over the railway line. The route cuts through Beech Grove in a cutting up to 4m deep before passing over Haywood Lane. It then continues on an 8m high embankment before eventually dipping down to the existing topography at the western end of the scheme. With very little cut the scheme would require significant importation of fill in order to create the two large embankments either side of Beech Grove. Furthermore, the need to cross over Haywood Lane is likely to cause difficulty in tying the lane back to existing levels either side of it, particularly to the north at its junction with Merryhill Lane.<br>Design Standards – 60mph design speed and Departures from Standard unlikely. Opportunity for overtaking unlikely. Straighter crossing of railway will reduce the cost of the structure. Side access issues yet to be looked at as well as any drainage runoff storage provision.<br>Physical features – being of a twisted nature the route manages to avoid many physical constraints except the northern section of Grafton Wood (not designated). It passes close to the wooded area between Grafton Lane and Withy Brook and the barn yard situated south-west of the Merryhill Lane junction with Haywood Lane. The route crosses the railway at a near perpendicular angle which should be beneficial in engineering and cost terms. The unique distinction between this route and others under consideration is that it goes through the middle of Beech Grove. To date it has not been confirmed whether the feature has archaeological relevance/significance or otherwise. Beech Grove does not appear as a specific record on the Herefordshire Historic Environment Record (HER) and is not listed as a Scheduled Ancient Monument. Grafton Enclosure (off Grafton Lane) on the other hand does appear on the HER and is believed to be a lost early medieval castle site. However, it is not affected by the alignment of Option SC9, the route passing well to the south of it.<br>Utilities – the route clashes with existing overhead power lines located at the eastern and western ends of the scheme (including a 66kV) but generally avoids them within the central area. The route crosses Grafton Lane at grade (or thereabouts) where BT and water services are present. There is conflict with a concentration of overhead and buried services in/around Haywood Lane including BT, a water main and a sewer.<br>Rail structure - route crosses over the existing railway line so reduced risk for Network Rail's operations. |

# Appendix F

## SCHEDULE OF ACTIVE TRAVEL MEASURES AND OUTCOME OF INITIAL SIFT

## Appendix F: Schedule of potential active travel schemes and outcome of initial sift

**Key to table**

| Outcome of Sifting Process | Description of category |
|---|---|
| *retained for further consideration* | Taken forward through SWTP. A selection of these will form the preferred package to be funded by SWTP. |
| *retained for further consideration, subject to third party agreement* | Schemes which are likely to contribute to a coherent active travel network in South Wye, but which are reliant on agreement, funding and implementation by third parties. In many cases the proposed schemes are along the A49 corridor, which is a trunk road operated and maintained by Highways England. In other cases schemes will be brought forward by planning applicants in association with, and at the time of new developments being constructed, such as the Lower Bullingham urban expansion, identified in the Local Plan Core Strategy. |
| *Ongoing work being funded separately* | Interventions which complement the SWTP and which are funded separately via existing Herefordshire Council (HC) funds, such as maintenance or LTP budgets |
| *Not to be taken forward in SWTP* | Where the schemes are:<br>· Considered likely to be constructed beyond the timescales of SWTP;<br>· Outside the study area for SWTP;<br>· Not considered to have realistic prospect of being achieved (either through affordability or feasibility of construction);<br>· No longer required as suitable alternatives exist;<br>· Not aligned with the objectives of SWTP; or<br>· Not in conformity with national or HC policy. |

| Category of possible improvement | Location | Details | Shown as possible option in 2014 public consultation | Outcome of initial sift | Rationale for decision |
|---|---|---|---|---|---|
| **Enhancements to pedestrian and cycle crossings of major roads to reduce their severance effect** | A465 Abergavenny Road between Ruckhall Lane and Haywood Lane | Provision for pedestrians to cross A465 to access the country park from Haywood Lane. | ü | *Retained for further consideration* | A crossing would help to better connect the cycle route to the north of the A465 (on Ruckhall Lane) and the country park to the south (immediately to the east of Haywood Lane) and from there towards Hereford city. Would also need infrastructure alongside the A465 and on sections of Ruckhall and Haywood Lanes to make a coherent scheme. |
| | A465 Abergavenny Road at Tesco roundabout | Improved north-south connections between Northholme Road / Dorchester Way (on the northern side) and Southolme Road (on the southern side) | ü | *Retained for further consideration* | Dedicated provision for pedestrians and cyclists is very limited at the roundabout and better infrastructure at this location would overcome the need for cyclists to negotiate the carriageway of the roundabout. No preferred infrastructure is identified at this stage but could for example involve a signalised crossing of Belmont Road in a revised location.<br>Removing the barriers by Belmont Health Centre and replacing them with bollards would enhance the nearby off-road route. Cyclists from the south currently approach the pelican crossing directly in front of community centre, causing conflict with pedestrians. Signposting cyclists to use the path slightly further west of the community centre would overcome this conflict. This may be funded by the Local Transport Plan signage package but the option should be retained for consideration in SWTP as this may lead to faster implementation. |
| | A465 Belmont Road at Goodrich Grove junction | Improved crossing facilities for pedestrians and cyclists | ü | *Retained for further consideration* | Would formalise existing active travel desire lines and address severance on A465. |
| | A465 Belmont Road / Walnut Tree Avenue junction | Installation of new signal crossing for pedestrians and cyclists | ü | *Retained for further consideration* | Improved crossing facilities at this location would assist east-west journeys. Nature of the scheme may be dependent on outcome of the Walnut Tree Avenue options. Intervention will also be influenced affected by outcome of Hunderton Road option. |
| | A465 Belmont Road pelican crossing west of Belmont Avenue | Improve existing crossing facility | ü | *retained for further consideration* | Whilst an upgrade here could help to form a local link to connect the residential areas bounded by Belmont Road / Ross Road / Walnut Tree Avenue to Asda / primary school, it is reliant upon cycleways on either side to link it to residential streets. A49 proposals by Highways England would upgrade the nearby crossings on the Belmont Road arm of the Asda junction, provide a shared use path along the west side of Ross Road and a toucan crossing by Hinton Garage to a further shared use path on the east side which would help provide alternative connections for this residential area. |
| | A49(T) Ross Road pelican crossing south of Hinton Road | Improve existing crossing facility | ü | *Retained for further consideration subject to third party agreement* | Complementary measure requiring agreement, funding and implementation by third party (Highways England). Retained for further consideration until decision provided by Highways England. A plan prepared by Highway England's asset support contractor proposes to remove the crossing at its current location and construct a new toucan crossing further south by Hinton Garage. This proposal is still in the development stage. |

| Category of possible improvement | Location | Details | Shown as possible option in 2014 public consultation | Outcome of initial sift | Rationale for decision |
|---|---|---|---|---|---|
| | A49(T) Ross Road /Holme Lacy Road/Walnut Tree Avenue signal junction | Improved pedestrian crossing facilities as identified in the school travel plan | ü | *Retained for further consideration subject to third party agreement* | Complementary measure requiring agreement, funding and implementation by third party (Highways England). Retained for further consideration until decision provided by Highways England. Delivery, and benefits, are influenced by whether the Walnut Tree Avenue closure option is taken forward. An improvement to crossing facilities is shown indicatively on a plan prepared by Highways England's asset support contractor; however, no change to the crossings on the A49 arms is proposed. The proposal is still at the development stage. |
| | A49(T)/Bullingham Lane traffic signal junction | Improved cycle crossing facilities across A49(T) | û | *Retained for further consideration subject to third party agreement* | Complementary measure requiring agreement, funding and implementation by third party (Highways England). Retained for further consideration until decision provided by Highways England. Pedestrians and cyclists are obliged to cross the A49(T) in two stages and there is constrained space for them to wait in the central refuge. An improved crossing would contribute to the wider network, in particular helping schoolchildren en route to Hereford Academy. An improvement to crossing facilities is shown indicatively on a plan prepared by Highways England's asset support contractor. The proposal is still at the development stage. |
| | Holme Lacy Road pelican crossing west of Hoarwithy Road junction | Convert to toucan crossing | ü | *Not to be taken forward in SWTP* | Upgrade is already part of the committed Holme Lacy Road scheme |
| | Holme Lacy Road at junction with Winston & Hinton Roads | Improved crossing facilities for pedestrians and cyclists | ü | *Retained for further consideration* | Would improve north-south routes across Holme Lacy Road to better connect residential communities |
| | Holme Lacy Road near Lower Bullingham Road | Improved crossing facilities for pedestrians and cyclists | ü | *Retained for further consideration* | Would improve north-south routes across Holme Lacy Road to better connect residential communities. Lower Bullingham Lane / Watery Lane forms an access route for pedestrians and cyclists to reach parts of the Hereford Enterprise Zone to the south of The Straight Mile. |
| | B4224 Eign Road at railway skew bridge | Improved crossing of B4224 to enhance access to Connect 2 scheme | û | *Not to be taken forward in SWTP* | Proposal is north of the river, and thus outside of study area. |
| | Hinton Road zebra crossing | Convert to toucan crossing | û | *Retained for further consideration* | A signal crossing may be a means of enabling cyclists to access and egress from the shared-use path across Bishop's Meadow. It is not illegal to cycle across a zebra crossing if there is shared-use route on either side, but it is contrary to Rule 64 of the Highway Code which states that cyclists should dismount and walk across zebra crossings |
| | A465 at The Oval pelican crossing | Improvement of existing pelican crossing | ü | *Retained for further consideration* | At present the crossing is only possible in two stages but this should be revisited in light of Southern Link Road being in place. Connections possible on both sides of the crossing onto residential streets. |
| **New or improved cycle tracks across the area, with emphasis on greater segregation from general traffic and better connections of origins and destinations** | A465 Belmont Road | Two-way cycle track between Haywood Lane and Walnut Tree Avenue. | ü | *Retained for further consideration* | Improved infrastructure for cyclists on this section of Belmont Road would help to create a better east-west cycle route. This section would then connect to the Great Western Way for journeys to the city centre, Hunderton Road to access the route adjacent to Riverside School and Walnut Tree Avenue for connections towards Hereford Enterprise Zone (other options for interventions on Walnut Tree Avenue are referred to elsewhere in this table) |
| | A49(T) from Asda roundabout to Redhill railway bridge | Segregated cycle provision adjacent to the carriageway | ü | *Retained for further consideration subject to third party agreement* | Complementary measure requiring agreement, funding and implementation by third party (Highways England). Retained for further consideration until decision provided by Highways England. A draft proposal has been prepared by Highways England's asset support contractor.<br>Further work is required to establish if a suitable design can be designed within the available highway land. The proposal is still at the development stage. |
| | Holme Lacy Road from railway bridge | Cycle and pedestrian improvements – changes to crossings, cycle lanes and footways between rail bridge and A49(T) | ü | *Retained for further consideration* | A scheme for the section of road between the Coop and Oak Crescent has been funded separately to the SWTP by Herefordshire Council. A proposal for the remainder of the road could enable better walking and cycling provision to access the Hereford Enterprise Zone, including a wider shared use footway/cycleway under the railway bridge. Traffic impacts can be modelled in the Hereford transport model (SATURN program). |
| | Holme Lacy Road westbound approach to A49 traffic signals | Reduction of carriageway to one lane approach | û | *Retained for further consideration subject to third party agreement and partnership funding by HC and HE* | Reduction in carriageway would enable a continuous cycleway to be provided up to the traffic signals, as part of the east-west route to the Enterprise Zone. Requires agreement of Highways England as would require works to the crossroads itself. Would be affected by traffic re-routing if another option was implemented (right turn from Hinton Road to Ross Road was banned). |
| | Wye Bridge | Improved provision for cyclists on bridge through slight widening of eastern footway and conversion into a shared-use path, including for two-way cycling | û | *Not to be taken forward in SWTP* | The Bridge is a Grade I listed structure and Scheduled Ancient Monument. Any works to the bridge, including changing kerb lines or additional signs, is likely to trigger need for listed building consent and scheduled monument consent. There is limited available carriageway and footway width to share between users which may lead to greater conflict between cyclists and the high volume of pedestrians. |

| Category of possible improvement | Location | Details | Shown as possible option in 2014 public consultation | Outcome of initial sift | Rationale for decision |
|---|---|---|---|---|---|
| | Hereford Greenway (west of railway bridge) to Holme Lacy Road (opposite Lower Bullingham Lane) | Upgrade existing route, part of which is public footpath, alongside Red Brook and River Wye, to help form coherent off-road active travel network | û | *Not to be taken forward in SWTP* | Likely to be significant difficulties involved in securing the necessary land for this proposal and in shoring up bank of the Wye. Intervention would in part duplicate the existing Greenway extension which runs parallel and to the west of the railway. |
| | Hoarwithy Road | Improved cycle provision | û | *Retained for further consideration* | This road forms part of the active travel network linking the city centre to the residential areas of south Hereford. This option could connect into the existing sections of shared use path within the Saxon Gate housing estate parallel to Hoarwithy Road. |
| | Great Western Way | Painting of white lines to demarcate separate space for pedestrians and cyclists | û | *Not to be taken forward in SWTP* | Not consistent with national (Department for Transport) or local policy (Herefordshire Council) |
| | Great Western Way | Lighting and maintenance improvements (Part revenue) | û | *Retained for further consideration* | Option would encourage active travel during the hours of darkness. Intervention likely to have a safety benefit. |
| | Great Western Way – Ethelstan Crescent & Brampton Road access points | Widen shared use path approaches and install access barriers which are more 'cycle friendly' | û | *Retained for further consideration* | Access is currently restricted with narrow paths and un-cycle-friendly barriers. Widening the shared use path and installing more cycle-friendly barriers will increase legibility of the existing route and enable increased use. |
| | Marlbrook Road between A49(T) and Hereford Academy entrance | Segregated cycle route alongside road to improving access to local schools | û | *Retained for further consideration* | Creating a cycle route segregated from traffic will provide an additional link in the cycle network from the A49 to the Academy and enable safer travel for those cycling to the Academy. |
| | Walnut Tree Avenue | Improved cycle provision | û | *Retained for further consideration* | This is a key east-west route in the city cycle network providing access to the Enterprise Zone but has no formal cycle infrastructure. What is appropriate will be shaped by the width of the road and the volumes of traffic using it. |
| | Cycle route across King George V Playing Field between swimming pool and Hinton Road | Improvement to existing cycle route | û | *Retained for further consideration* | Could involve repositioning the existing zebra crossing further west / enough room have a cycle lane / bypass past the zebra crossing. Design needs to take account of ultimate origins / destinations of cyclists and pedestrians. Bishop's Meadow is owned by Herefordshire Council (open spaces team) |
| | Hinton Road (section between Hinton Crescent to A49(T) Ross Road) | Improvement to existing cycle route | ü | *Not to be taken forward in SWTP* | Space (in which to provide cycle lanes) is very constrained on Hinton Road. Hinton Road could have some merit as part of an east-west route towards the Enterprise Zone but would be dependent on bringing forward suitable crossings of A49 and A465 and cycle routes on the approaches. Intrinsically linked to HE proposals for A49 corridor. Some duplication with Walnut Tree Avenue / Holme Lacy Road east-west cycle route |
| | Springfield Avenue | New contraflow cycle route on one-way street | ü | *Not to be taken forward in SWTP* | Request arose from police in a PACTS meeting. This has subsequently been addressed by the cycle route adjacent to Riverside Primary School slightly to the north which provides a suitable alternative route. |
| | Grafton Depot park and choose to Bullingham Lane shared footway/cycleway | New shared use footway/cycleway | ü | *Retained for further consideration* | This would provide an off-road connection avoiding the A49 running from the park and choose site (80 spaces) at Grafton Depot to existing cycle routes north of the rail line. Route runs across third party land which is understood to be owned by The Church Commissioners. |
| | Sydwall Road to Goodrich Grove cycle route | Upgrade of Newton Brook Path north of A465 and off-road cycleway to Goodrich Grove south of A465 | ü | *Retained for further consideration* | Would formalise existing active travel desire lines. Would connects onto Sydwall Road at one end and Goodrich Grove at the other. Would benefit from a new signal crossing of A465 where the Newton Brook path reaches A465. |
| | Cycle route west of Canterbury Close | Completion of cycle route between Ruckhall Lane and Dorchester Road | ü | *Retained for further consideration* | Completes the active travel network route north of the A465 from Ruckhall Lane to city centre. While route could broadly follow the line of the existing public footpath it would cross third party land. |
| | Hoarwithy Road to southern urban expansion area (Lower Bullingham) | Walking and cycling routes into urban expansion area | û | *Retained for further consideration subject to third party agreement* | This would provide a good link onwards to the Enterprise Zone and would help make a coherent active travel network.This is directly related to the development of the urban expansion and is likely to be funded by the planning applicant of that site. Indication is that this would occur beyond the timescale for SWTP implementation. Exact nature of requirements unclear at this stage. |
| **Improvements to streetscape as means of improving walking and cycling environment** | Middle section of A465 between Newton Brook Bridge and Walnut Tree Avenue | Streetscape improvements with boulevard-style tree planting | ü | *Retained for further consideration* | Aim would be to create a more pleasant street environment with different paving materials and planting which encourages slower traffic speeds, reduces severance caused by traffic and enables pedestrians and cyclists to cross the road more easily. Width of carriageway (and thus the distances pedestrians have to cross) are key to this. A boulevard is likely to facilitate easier crossing of A465 by pedestrians and cyclists. It was highlighted that this option could be associated with ongoing higher maintenance costs. |
| | Hoarwithy Road | Streetscape improvements to enable safer walking and cycling | û | *Not to be taken forward in SWTP* | Aim would be to create a more pleasant street environment with different paving materials and planting which encourages slower traffic speeds, reduces severance caused by traffic and enables pedestrians and cyclists to cross the road more easily. Traffic volumes on Hoarwithy Road are not considered to justify this scale of intervention and there are more suitable alternatives. The committed scheme on Holme Lacy Road will offer an improved east-west connection. |

| Category of possible improvement | Location | Details | Shown as possible option in 2014 public consultation | Outcome of initial sift | Rationale for decision |
|---|---|---|---|---|---|
| **Bus lanes to reduce passenger journey times on radial corridors** | A465 Belmont Road (Tesco to Hunderton Road) | Inbound bus lane | ü | *Not to be taken forward in SWTP* | This section of Belmont Road has a lower frequency of bus services than the section further east. It was concluded that a bus lane could only be supported where the bus frequency was highest. |
| | A465 Belmont Road (Hunderton Road to Asda) | Inbound bus lane | ü | *Retained for further consideration* | This section of Belmont Road has the highest frequency of bus services. A bus lane could enhance accessibility for Belmont residents (and thus address social exclusion and deprivation), and, depending on its width, potentially benefit cyclists (enabling them to use space segregated from general traffic). Workshop concluded there was a need to undertake traffic modelling and understand feasibility, benefits and impacts of proposal. Likely to be supported by Herefordshire Council passenger transport officer. |
| | Holme Lacy Road | Inbound bus lane from Hoarwithy Road to A49(T) signals | ü | *Retained for further consideration subject to third party agreement* | The case for a bus lane is likely to be strengthened when development takes place at Lower Bullingham Urban Expansion (site allocated for development in the Local Plan Core Strategy). This is likely to be beyond the timescale of SWTP. |
| **Closure / restrictions on selected roads to reduce traffic levels** | Walnut Tree Avenue | Closed to through traffic except and cycles | û | *Retained for further consideration* | Workshop discussion determined that a road closure here could contribute to achieving SWTP objectives by enhancing the permeability of the area by active travel rather than motor vehicles.<br>Need to consider impact on school and residential access and any implications of re-routing of traffic onto alternative routes for vehicle traffic. Account also needs to be taken of service 79 bus route which runs hourly eastwards from Home Lane to Ross Road at Broadleys Crossroads. |
| | Hunderton Road | Closed to through traffic except buses and cycles | û | *Retained for further consideration* | Workshop discussion determined that a road closure here could contribute to achieving SWTP objectives by enhancing the permeability of the area by active travel rather than motor vehicles. Closing the road may help to simplify turning movements onto Belmont Road, and is thus also linked to the option to instal a signal crossing near the Belmont Road / Walnut Tree Avenue junction.<br>The outcomes of the closure should be modelled, both in terms of impact of re-routing traffic and also in terms of benefits to active travel modes. |
| | Hinton Road / Ross Road Junction | Banning right-turn onto Ross Road | û | *Retained for further consideration subject to third party agreement* | Suggested at workshop for inclusion. This route is used by traffic as an alternative route to queuing along Holme Lacy Road to the A49 traffic signals. Reducing the traffic on Hinton Road would help make it more attractive for active travel modes. Traffic Regulation Order, and any supporting infrastructure, would need to be progressed by Hhighway England. Impact arising from additional traffic routing through the Broadleys crossroads would need to be analysed in the traffic modell. |
| **Changes to junction design to assist pedestrian and cycle journeys, such as kerb build-outs** | Selected sites across South Wye area | Area-wide | û | *Retained for further consideration* | Amending junction layouts, with tighter radii kerblines, will slow the speeds of turning vehicles and reduce the road width pedestrians are required to cross. This will encourage active travel journeys and improve road safety. |
| | A465/B4349 Clehonger Road junction | Pedestrian central refuge | û | *Retained for further consideration* | Will help bus passengers cross the road en route to and from bus stops on A465 |
| **Introduction of lower speed limits in selected parts of urban area** | A465 Abergavenny Road from Tesco roundabout to Haywood Lane | Extend 30mph limit from current termination point | û | *Retained for further consideration* | Change in speed limit would support the improved pedestrian and cycle infrastructure along this section of A465. BBLP indicated that the opening of the Southern Link Road would be an appropriate time to reconsider the speed limits in this area. |
| | All Herefordshire Council residential roads in South Wye | Area-wide 20mph limit | û | *Retained for further consideration* | Evidence suggests that the benefits of a blanket 20mph speed limit would support the majority of the SWTP objectives. Liaison with BBLP required to understand relationship of proposal with Herefordshire Council's speed limit policy |
| **Reduction in numbers of HGVs on A465 Belmont Road** | Weight restriction Traffic Regulation Order (TRO) | | û | *Retained for further consideration* | This scheme will lead to transfer of Heavy Goods Vehicles from Belmont Road to Southern Link Road and the A49. Removal of Heavy Goods Vehicles would help improve the active travel environment, improving perceptions of safety. Consultation with the police has previously revealed indicative support for this weight restriction |
| **Other small-scale schemes** | Warwick Road to Watery Lane | Removal of barriers and insertion of bollards on access from Watery Lane | û | *Not to be taken forward in SWTP* | Unfeasible due to steepness of path and insufficient width available to make improvements in this location. |
| **Upgrades to pedestrian and cycle direction signage** | Area-wide | Area-wide | û | *Ongoing work funded separately* | Complementary measure with ongoing funding by Herefordshire Council from other sources (Local Transport Plan). No additional funding sought through business case. Series of routes already being funded for signage improvements. Routes for upgrade need to be determined. Duplication with the Hereford Cycle Signage Project needs to be avoided. Should be coordinated with decluttering signage |
| **Additional cycle parking** | Area-wide | Area-wide | û | *Ongoing work funded separately* | Providing cycle parking has benefit to the economy in terms of enabling more trips to local businesses. Specific sites for improvements need to be identified and data needs to be obtained on location of statutory undertaker apparatus or whether third party land involved. This is a complementary measure with ongoing funding by Herefordshire Council from other sources (Local Transport Plan). No additional funding sought through business case. |
| **Upgrade bus stops to provide high quality shelters and level access** | Area-wide | Area-wide | û | *Ongoing work funded separately* | Complementary measure with ongoing funding by Herefordshire Council from other sources led by passenger transport and with developer contributions. No additional funding sought through business case. |

| Category of possible improvement | Location | Details | Shown as possible option in 2014 public consultation | Outcome of initial sift | Rationale for decision |
|---|---|---|---|---|---|
| **Providing charging points for electric vehicles on HC owned premises** | Area-wide | Area-wide | û | *Ongoing work funded separately* | Complementary measure with ongoing funding by Herefordshire Council from other sources (Local Transport Plan). No additional funding sought through business case. The Local Transport Plan includes policies seeking to provide the public with facilities to support electric and low carbon vehicles will reduce the environmental impacts of traffic, especially carbon dioxide, air quality and noise. This are directly related to the SWTP objectives. |
| **Change the traffic signal timings at the to minimise delay and congestion** | A49(T)/A465 Asda Roundabout | - | û | *Ongoing work funded separately* | Reviewing signal timings is a routine activity undertaken by Highways England in partnership with Herefordshire Council; does not need to be a separate scheme. |
| **Active travel promotion** | Examples include<br>- Personalised Travel Planning for the South Wye Area<br>- Continuation of Choose How You Move campaign<br>- Cycle Ambassador and Cycle Forum Support<br>- School travel plan support (updating them where necessary and funding schemes identified by staff and pupils)<br>- Continued workplace travel plan support (working with employers to reduce solo car use, promote employee sustainable travel behaviours and reduce the need to travel for work) | | û | *Ongoing work funded separately* | Complementary measure with ongoing funding by Herefordshire Council from other sources (Local Transport Plan). No additional funding sought through business case. |
| **Maintenance schemes** | Examples of potential maintenance scheme locations include surfacing works on Waterfield Road and Escley Drive, highlighted as requiring attention in Hereford Cycle Audit – Strategic overview; Rotherwas Industrial Estate to Belmont Ward, Strategic Overview Summary Report. | | û | *Ongoing work funded separately* | Complementary measure with ongoing funding by Herefordshire Council from other sources (maintenance budget). No additional funding sought through business case. Improved maintenance and repair of roads will improve the quality of journey for cyclists on road, reduce potential damage to cycles and improve safety. |
| **Park and choose** | A49/B4399 roundabout | Park and choose site | û | *Ongoing work funded separately* | An additional park and choose site here is envisaged in the Local Plan Core Strategy (Policy HD6). This is a strategic location at which to provide rural commuters with more flexible options to change travel modes to car sharing, cycling and access to bus services, as well as reduce vehicle emissions within the city. The site is likely to be delivered by third parties (developers) in association with the Lower Bullingham urban expansion and the indication is that this would occur beyond the timescale for SWTP implementation. Should be considered in combination with foot/cycleway proposals to connect it to urban expansion / rest of Hereford |

# Appendix G

## GROUPS OF POSSIBLE ACTIVE TRAVEL MEASURES AND THEIR SUBSEQUENT REFINEMENT

**Active travel groups and subsequent refinement**

| Original group name and reference letter | | Constituent elements | New group name and reference number | | Refinement of groups | Constituent elements |
|---|---|---|---|---|---|---|
| A | *Western section of A465 corridor – interventions to overcome severance and improve active travel connectivity* | · New shared use footway/ cycleway on northern side of A465<br>· Completion of shared use footway/ cycleway between Ruckhall Lane & Dorchester Way (west of Canterbury Close)<br>· Improved pedestrian/ cycle crossing on A465 between Ruckhall Lane and Haywood Lane<br>· Extend 30mph limit on A465 west from Tesco to Haywood Lane<br>· Pedestrian refuge on A465 east of Clehonger Road turn | 5 | **Belmont Road (West) walking and cycling improvements** | Cycle infrastructure (advisory cycle lanes) added to connect proposed signal crossing on A465 to the country park east of Haywood Lane, and raised tables added to facilitate easier crossing of Ruckhall Lane and Haywood Lane | · New shared use footway/ cycleway on northern side of A465<br>· Completion of shared use footway/ cycleway between Ruckhall Lane & Dorchester Way (west of Canterbury Close)<br>· Toucan signal crossing on A465 between Ruckhall Lane and Haywood Lane<br>· Extend 30mph limit on A465 west from Tesco to Haywood Lane<br>· Pedestrian refuge on A465 east of Clehonger Road turn<br>· Advisory cycle lanes over narrow bridge at Belmont Pool<br>· Improved links to existing paths near Belmont Pool<br>· Raised tables on Haywood Lane and Ruckhall Lane to facilitate easier pedestrian crossing |
| B | *Middle section of A465 corridor –Option 1 – package of interventions to overcome severance and improve active travel connectivity* | · Cycle infrastructure along section of Belmont Road from Tesco to Walnut Tree Avenue<br>· Improvement of existing pelican crossing of Belmont Road by The Oval<br>· Improved north-south crossings for pedestrians and cyclists at Tesco Roundabout<br>· Improved crossing facilities for pedestrians and cyclists on Belmont Road by Goodrich Grove junction<br>· Upgrade Newton Brook path to shared use footway/cycleway, create new connecting shared use footway/cycleway to Goodrich Grove south of A465 | 3 | **Belmont Road walking and cycling improvements** | Groups B and C combined to create comprehensive active travel scheme for the corridor<br><br>Improved links to Great Western Way added to the group to create better connections onto existing off-road walking and cycling route<br><br>Imrpoved link from Eastholme Avenue added | · Cycle infrastructure along section of Belmont Road from Tesco to Walnut Tree Avenue<br>· Improvement of existing pelican crossing of Belmont Road by The Oval<br>· Improved north-south crossings for pedestrians and cyclists at Tesco Roundabout and improved approach route from Eastholme Avenue<br>· Upgrade Newton Brook path to shared use footway/cycleway, provide toucan crossing on Belmont Road and create new connecting shared use footway/cycleway to Goodrich Grove south of A465<br>· Streetscape improvements including avenue tree planting and narrowing of the Belmont Road carriageway<br>· Improved links to Great Western Way |
| C | *Middle section of A465 corridor – Option 2 – as per Option 1, plus additional placemaking interventions to overcome severance* | · As per B plus streetscape improvements including avenue tree planting and narrowing of the Belmont Road carriageway | | | | |
| D | *Improve connections to, and use of, Great Western Way* | · Improved lighting and maintenance on Great Western Way<br>· New off-road shared use footway/cycleway between Hereford Academy and Ross Road adjacent to Marlbrook Road<br>· Widen shared use footway/cycleway access to Great Western Way from Ethelstan Crescent and Brampton Road<br>· Improved crossing of Ross Road (subject to third party agreement) | 6 | **Better walking and cycling routes to Hereford Enterprise Zone** | Discussions with stakeholders confirmed that no significant changes to lighting on Great Western Way were considered neccessary, and minor changes fell within the remit of other budgets (LTP) – this element was not taken forward. Liaison with the HEZ indicated that the remaining elements could be combined to create a quietway to the HEZ which avoided busier roads further north, with additional elements including signing, on-road markings at improvements to the Lower Bullingham Lane / Watery Lane route to the HEZ. | · New off-road shared use footway/cycleway between Hereford Academy and Ross Road adjacent to Marlbrook Road<br>· Improve shared use footway/cycleway access to Great Western Way from Ethelstan Crescent and Brampton Road<br>· Improved crossing of Ross Road (subject to third party agreement)<br>· Lighting, signing and vegetation clearance on Watery Lane and Lower Bullingham Lane<br>· On-road markings<br>· Route signage and removal of barriers and posts |

| Original group name and reference letter | | Constituent elements | New group name and reference number | | Refinement of groups | Constituent elements |
|---|---|---|---|---|---|---|
| E | *Improving active travel infrastructure – north-south journeys to city centre* | · Improved routes across Bishop's Meadow from swimming pool to Hinton Road<br>· Convert Hinton Road zebra crossing to toucan crossing<br>· Better footway/cycleway connection from Bishop's Meadow with/onto Hinton Road<br>· Improvements to cycle infrastructure on Hoarwithy Road between Saxon Gate & Holme Lacy Road<br>· Shared use footway/cycleway between Grafton Depot park and choose site and Bullingham Lane | 7 | **Hoarwithy Road and Hinton Road walking and cycling links** | No changes | · Improved routes across Bishop's Meadow from swimming pool to Hinton Road<br>· Convert Hinton Road zebra crossing to toucan crossing<br>· Better footway/cycleway connection from Bishop's Meadow with/onto Hinton Road<br>· Improvements to cycle infrastructure on Hoarwithy Road between Saxon Gate & Holme Lacy Road<br>· Shared use footway/cycleway between Grafton Depot park and choose site and Bullingham Lane<br>· Raised table on Hoarwithy Road near Orchard Avenue to facilitate easier pedestrian crossings |
| F | *Improving active travel infrastructure – east-west journeys to the HEZ* | · Improved cycle provision on Holme Lacy Road between railway bridge and eastern end of existing scheme at Coop), including changes to crossings, cycle lanes and footways<br>· Improved crossing facilities of Holme Lacy Road near Lower Bullingham Road<br>· Improved crossing facilities of Holme Lacy Road near Winston & Hinton Road junctions<br>· Holme Lacy Road westbound approach to A49 traffic signals – carriageway narrowed to one lane to facilitate shared use footway / cycleway (subject to third party agreement and partnership funding by HE & HC)<br>· Shared use footway/cycleway under railway bridge with associated one way priority working or shuttle traffic signals for motor vehicles<br>· A49 / Holme Lacy Road junction – toucan crossings to facilitate safer crossing of Ross Road<br>· Improved cycle provision on Walnut Tree Avenue<br>· A465 Belmont Road by Walnut Tree Avenue junction - new toucan crossing | 8 | **Holme Lacy Road – further walking and cycling improvements** | Initial design work indicated that it would be difficult to provide appropriate cycle infrastructure on Walnut Tree Avenue for a road with substantial traffic volumes which accorded with design standards within the available highway space. As the traffic reduction option (part of Group J) appeared to be an alternative means of improving the route for active travel the Walnut Tree Avenue cycle provision element was not taken forward.<br><br>The A465 Belmont Road / Walnut Tree Avenue new toucan crossing element was packaged with the Hunderton Road and Walnut Tree Avenue filtered permeability to form a geographically coherent group of improvements. | · New shared use footway / cycleway on northern side of Holme Lacy Road between railway bridge and eastern end of existing scheme at Co-op<br>· Block paved table tops constructed at junctions to facilitate easier pedestrian and cycle crossings of Holme Lacy Road<br>· Holme Lacy Road westbound approach to A49 traffic signals -carriageway narrowed to one lane to facilitate shared use footway / cycleway (subject to third party agreement and partnership funding by HE & HC)<br>· Shared use footway/cycleway under railway bridge with associated one way priority working or shuttle traffic signals for motor vehicles<br>· A49 / Holme Lacy Road junction – toucan crossings to facilitate safer crossing of Ross Road |
| G | *Improving active travel infrastructure – journeys from city centre to the HEZ* | · Lighting the Connect 2 Greenway | **n/a** | | Liaison with the HEZ indicated that the implementation of this proposal could be accelerated and funded separately | n/a |
| H | *Calming traffic in residential areas* | · Area-wide 20mph limit on all Herefordshire Council residential roads in South Wye<br>· Amending junction designs, focused on the widest bellmouth junctions on the Hunderton Estate west of Great Western Way and north of Belmont Road | 1 | **20mph residential areas** | | · Area-wide 20mph limit on all Herefordshire Council residential roads in South Wye, with 20mph limit signs at entry points and repeater signs<br>· Amending junction designs, focused on the widest bellmouth junctions on the Hunderton Estate west of Great Western Way and north of Belmont Road |
| I | *Infrastructure to support bus services* | · Inbound bus lane on the A465 (Hunderton Road to Asda Roundabout)<br>· New shared use footway/cycleway on A465<br>· Belmont Road near Belmont Avenue - Upgrade existing crossing to toucan | 2 | **Belmont Road bus priority measures** | No changes | · Inbound bus lane on the A465 (Hunderton Road to Asda Roundabout)<br>· New shared use footway/cycleway on A465<br>· Belmont Road near Belmont Avenue - Upgrade existing crossing to toucan |

| Original group name and reference letter | | Constituent elements | New group name and reference number | | Refinement of groups | Constituent elements |
|---|---|---|---|---|---|---|
| J | *Reducing traffic flows to assist active travel* | · Filtered permeability (closure to vehicular traffic, except buses and cycles) on sections of Hunderton Road and Walnut Tree Avenue<br>· Weight restriction Traffic Regulation Order on Belmont Road | 9 | **Walnut Tree Avenue / Hunderton Road traffic reduction** | The A465 Belmont Road / Walnut Tree Avenue new toucan crossing element was packaged with the Hunderton Road and Walnut Tree Avenue filtered permeability to form a geographically coherent group of improvements. | · Filtered permeability (closure to vehicular traffic, except buses and cycles) on sections of Hunderton Road and Walnut Tree Avenue<br>· Walnut Tree Avenue - raised priority crossings for pedestrians<br>· A465 Belmont Road at Walnut Tree Avenue and Hunderton Road junctions - raised table covering both junctions and new toucan crossing of Belmont Road<br>· New shared use footway/cycleway on Belmont Road between Hunderton Road and Walnut Tree Avenue |
| | | | 4 | **Belmont Road weight restriction** | Weight restriction formed into standalone group as the possible impacts would extend over a different geographical area to the Walnut Tree Avenue and Hunderton Road elements | · Weight restriction Traffic Regulation Order on Belmont Road |

# Appendix H

## SEPTEMBER 2016 PUBLIC CONSULTATION EXHIBITION BOARDS OF POSSIBLE ACTIVE TRAVEL IMPROVEMENTS

## What is the South Wye Transport Package?

The South Wye Transport Package (SWTP) aims to promote economic growth within Hereford while tackling specific problems in the South Wye area. The aim is to promote economic development by unlocking the barriers to economic growth, including land at the Hereford Enterprise Zone (HEZ).

## SWTP Objectives

Reduce congestion and delay

Enable access to developments such as the HEZ

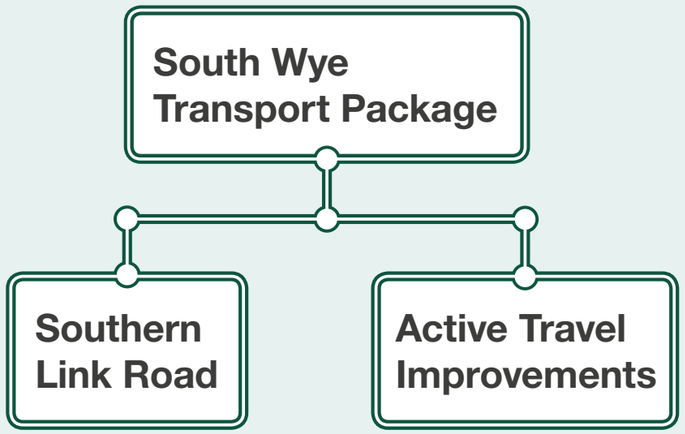
Reduce the growth in emissions

Reduce traffic noise

Reduce accidents

Encourage physical activity

The South Wye Transport Package (SWTP) comprises:



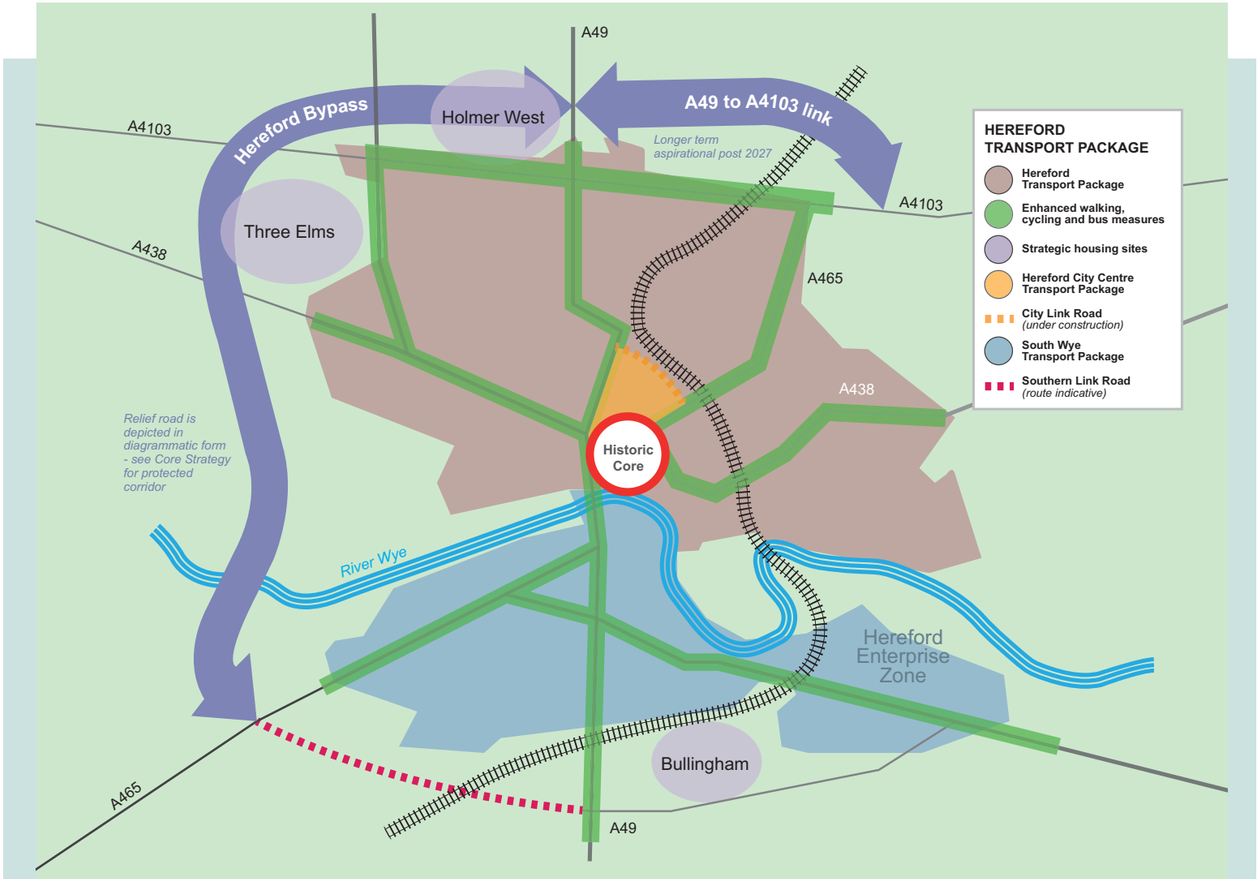

The Southern Link Road (SLR) has recently been granted planning permission and the delivery of the scheme continues.

## Why are active travel measures proposed?

Herefordshire Council is looking at ways to improve active travel (including walking and cycling) in South Wye, Hereford. This consultation is specifically seeking your views on a range of possible active travel improvements.

## What is active travel?

Active travel is about physical activity in the form of walking and cycling, rather than motorised forms of travel, such as the private car.




## Infrastructure timeline

- Local Plan Core Strategy adopted — OCTOBER 2015
- Local Transport Plan adopted — MAY 2016
- City Link Road Main Contractor appointed — MAY 2016
- Southern Link Road considered by Planning Committee — JUNE 2016
- Compulsory Purchase Order process begins- Southern Link Road — AUTUMN 2016
- Hereford Transport Package appraisal process commences — JUNE 2016
- SWTP, Active Travel Measures consultation — AUTUMN 2016
- Hereford City Centre Transport Package Public Realm consultation commences — EARLY 2017
- Southern Link Road construction commences — SPRING 2018
- Hereford Transport Package public consultation — AUTUMN 2017
- City Link Road opens — AUTUMN 2017
- Blueschool Street, Commercial Road refurbishment begins — SPRING 2018
- SLR opens to traffic and weight limit introduced on Belmont Road — AUTUMN 2019
- Hereford Bypass over the River Wye opens — 2022
- Further active travel improvements in South Wye — LATE 2019
- Hereford Bypass completed to A49 North — 2027

# What have we already delivered?



## Hereford Connect2 Bridge & Greenway



## Goodrich Grove — The Oval cycle lane


## Holme Lacy Road



## Rotherwas Link to Greenway




## Walnut Tree Avenue —20 Zone



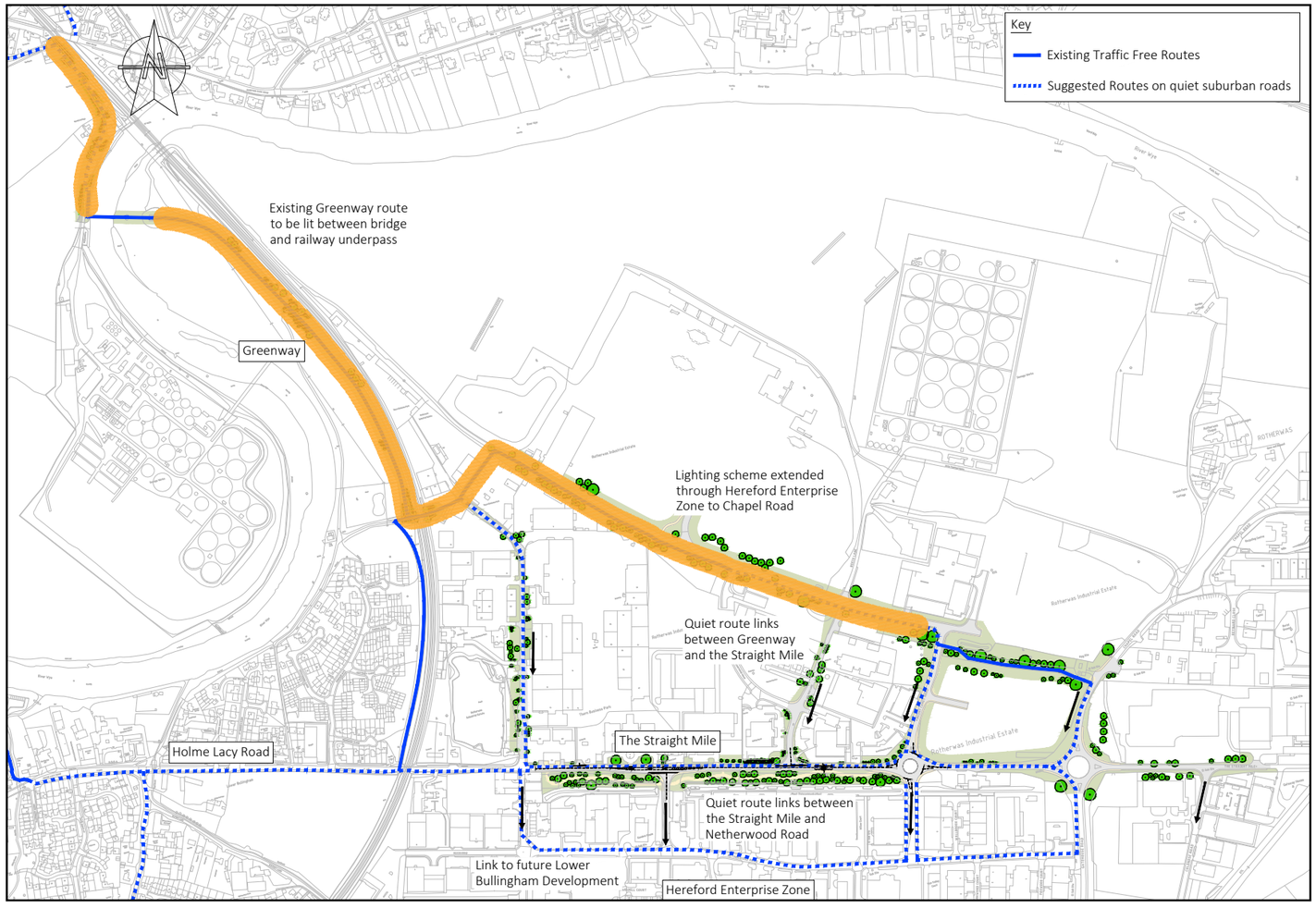
## A49—Bullingham Lane


## Belmont cycleway

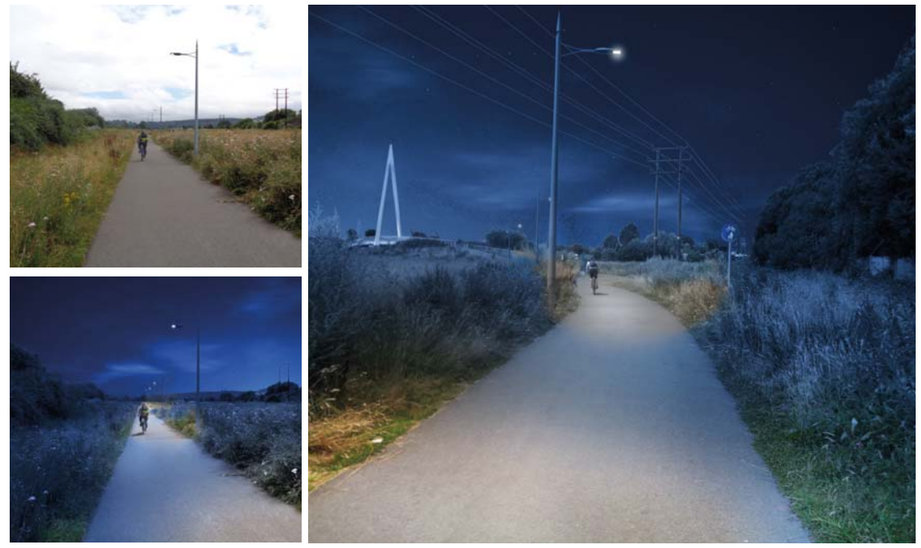



## Hereford Greenway lighting and The Straight Mile cycle route

We are providing new lighting on the Hereford Greenway and a new cycle route along The Straight Mile.

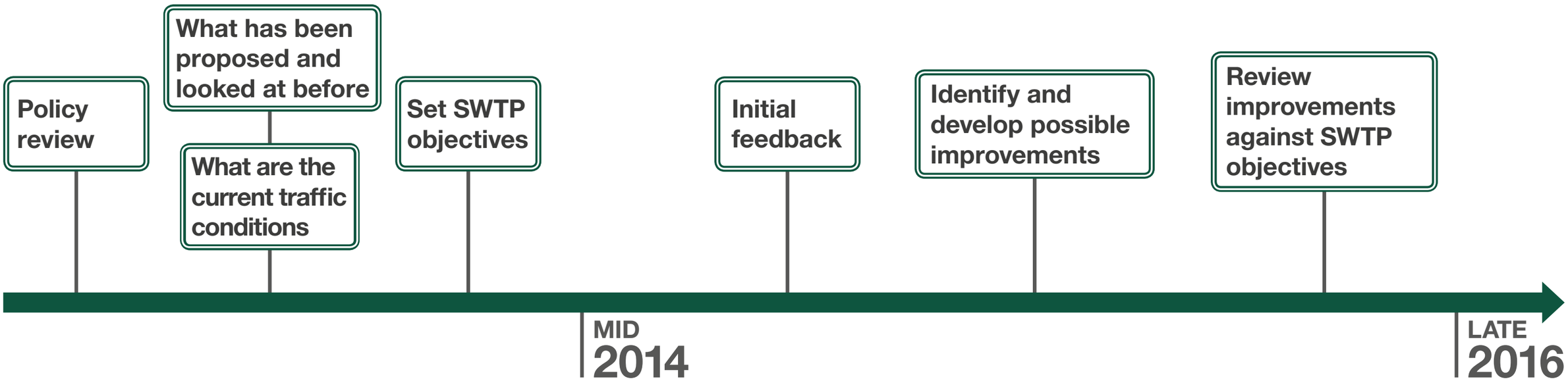



*Visualisation of lighting scheme along Hereford Greenway*



*Visualisation looking east. Entrance to Edison's coffee shop is on the left*

# Our commitment to consultation




## INITIAL PUBLIC CONSULTATION IN 2014

### At the 2014 consultation you said:

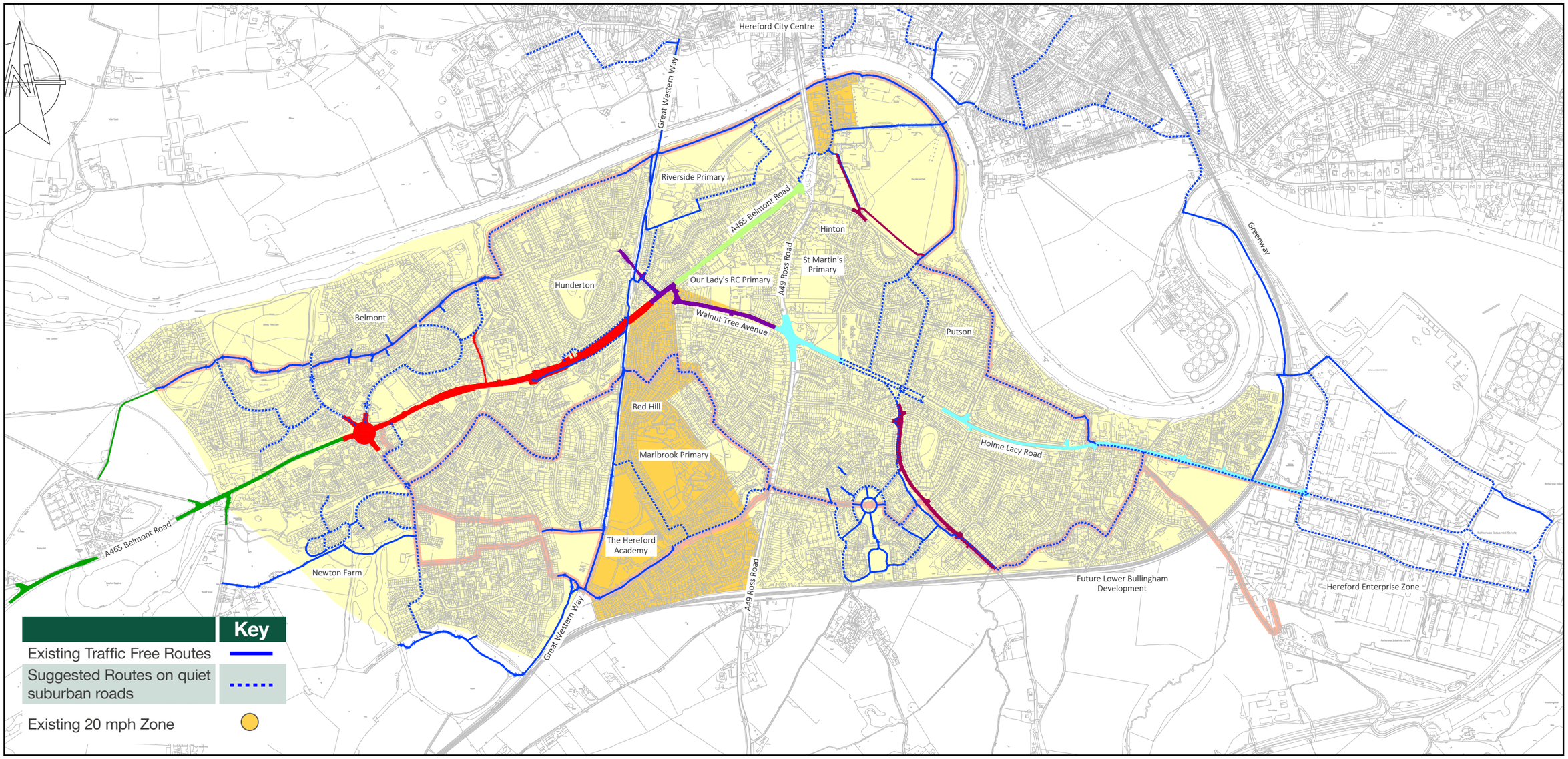
- Poor walking and cycling is one of the top five transport issues in South Wye
- You support more and improved walking and cycling infrastructure in South Wye

## SECOND PUBLIC CONSULTATION IN 2016

### At this consultation we want to hear:

- Your level of support for each of the possible improvements, what you like about them, and what could be improved?

# Possible improvements: What do you think?




| Possible Improvements | Key |
|---|---|
| 20 mph residential areas | |
| Belmont Road bus priority measures | |
| Belmont Road walking and cycling improvements | |

| Possible Improvements | Key |
|---|---|
| Belmont Road weight restriction | |
| Belmont Road (West) walking and cycling improvements | |
| Better walking and cycling routes to Hereford Enterprise Zone | |

| Possible Improvements | Key |
|---|---|
| Hoarwithy Road and Hinton Road walking and cycling links | |
| Holme Lacy Road—further walking and cycling improvements | |
| Walnut Tree Avenue / Hunderton Road traffic reduction | |

| Possible improvements and SWTP objectives | Reduce congestion and delay | Enable access to developments such as the HEZ | Reduce the growth in emissions | Reduce traffic noise | Reduce accidents | Encourage physical activity |
|---|---|---|---|---|---|---|
| 20 mph residential areas | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Belmont Road bus priority measures | ✓ | ✓ | ✓ | | ✓ | ✓ |
| Belmont Road walking and cycling improvements | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Belmont Road weight restriction | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Belmont Road (West) walking and cycling improvements | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Better walking and cycling routes to Hereford Enterprise Zone | ✓ | ✓ | | | ✓ | ✓ |
| Hoarwithy Road and Hinton Road walking and cycling links | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Holme Lacy Road—further walking and cycling improvements | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Walnut Tree Avenue / Hunderton Road traffic reduction | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

## 20 mph residential areas

A 20 mph area covering all residential streets in South Wye excluding primary routes (A Roads)

## Benefits

More walking and cycling friendly streets

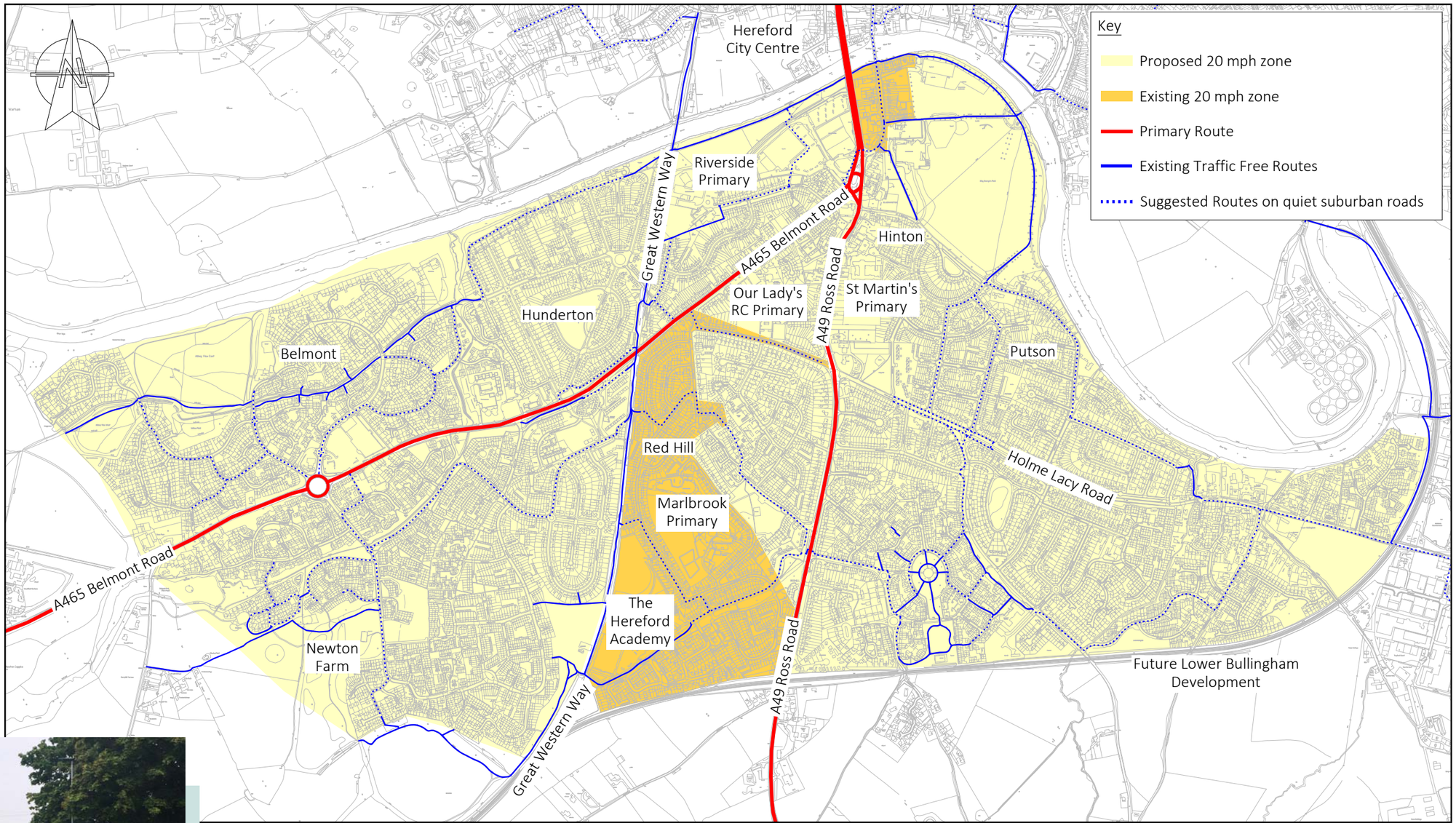
Better connected local communities

Cleaner air quality

Quieter streets

Safer journeys for all road users

Healthier and happier journeys




*Artist's impression of 20mph gateway on Belmont Avenue*

## Belmont Road bus priority measures

An inbound bus lane on Belmont Road (A465) complemented by new and improved cycleway/ footways and an improved crossing at Belmont Avenue

## Benefits

An inbound bus lane and new cycleway from Hunderton Road to Asda Roundabout

Easier to cross Belmont Road

Safer journeys to the city centre

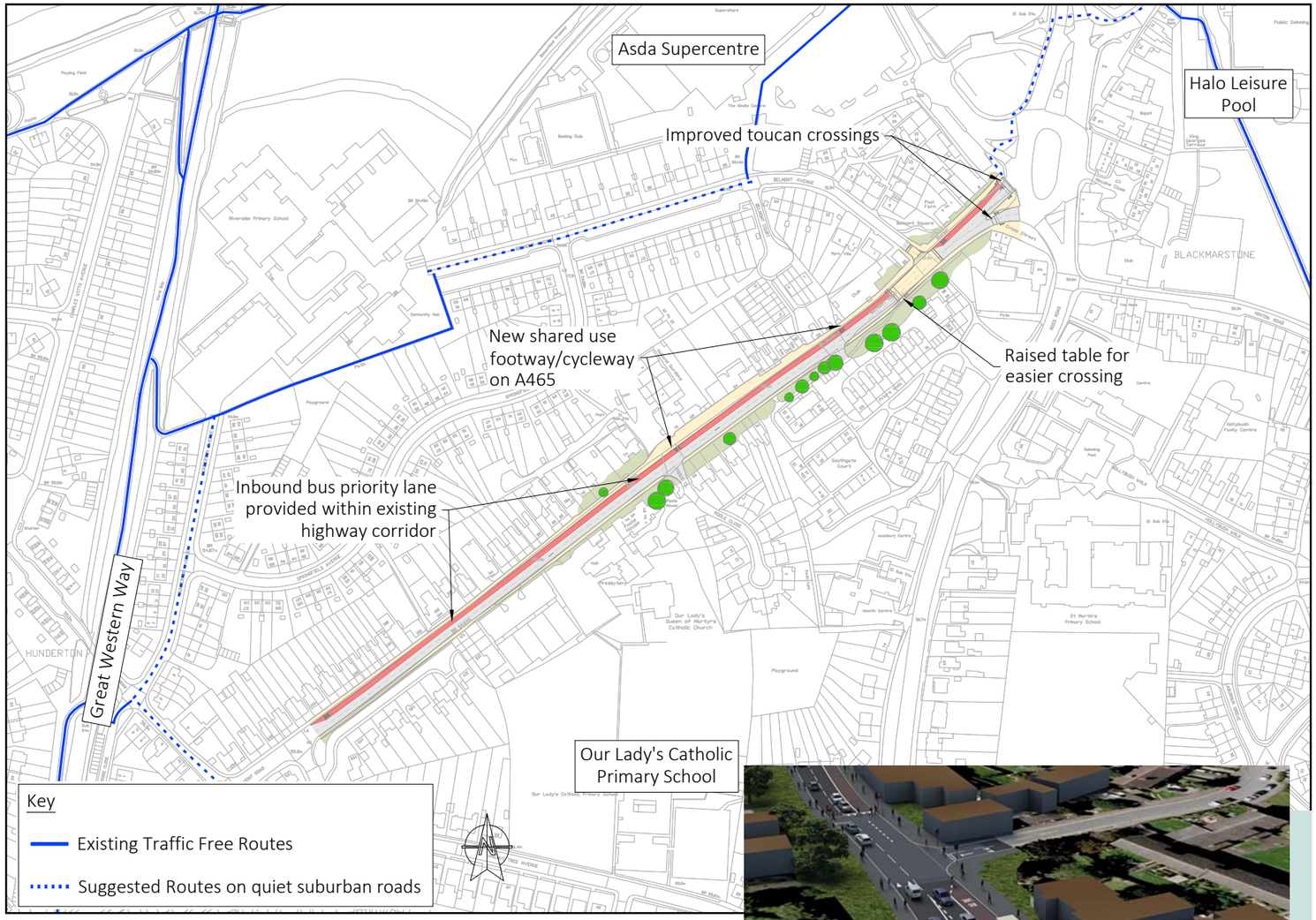
Improved bus journey times to the city centre

Cleaner air quality

Healthier and happier journeys

Encourages inexperienced and returning cyclists

*Visualisation looking north-east from Walnut Tree Avenue junction to show possible bus priority measures along the A465*




*Visualisation of possible bus priority measures and improved crossings along the A465 approaching the Asda Roundabout*

# Belmont Road walking and cycling improvements and weight restriction

South Wye Transport Package

## Belmont Road walking and cycling improvements

Improving the environment for walking and cycling and connecting communities either side of Belmont Road

### Benefits

A new cycleway on Belmont Road from Tesco Roundabout to Walnut Tree Avenue

Easier to cross Belmont Road

Better connected local communities

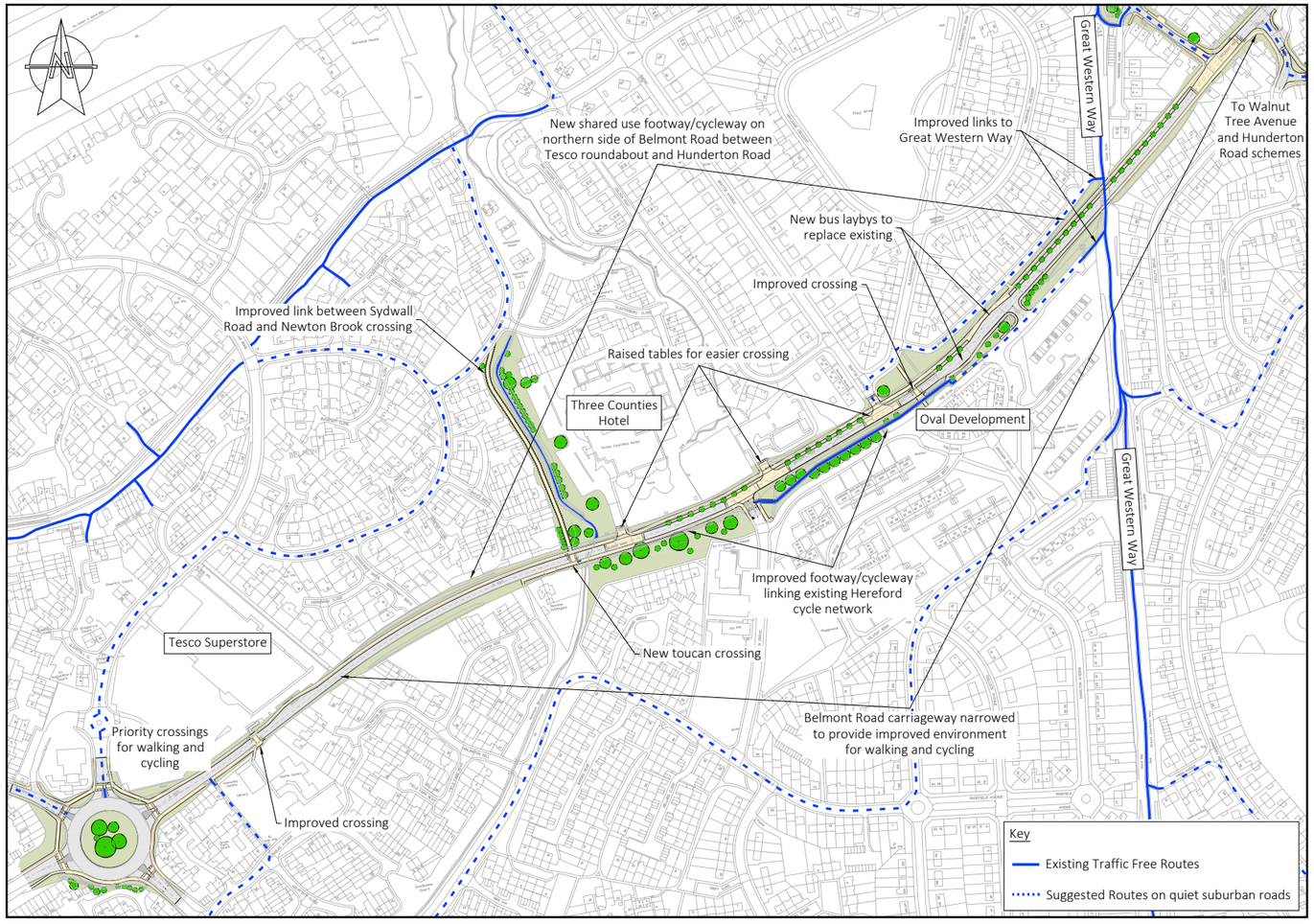
Safer journeys to school

Healthier and happier journeys to school

Improved links to existing walking and cycling routes, such as Great Western Way

Improved tree-lined street environment

Encourages inexperienced and returning cyclists




## Belmont Road weight restriction

Diverting heavy goods vehicles away from communities, improving the environment for walking and cycling. The location of the weight restriction is subject to separate consultation.

### Benefits

Improved traffic flow & fewer HGVs on Belmont Road

Cleaner air quality

Quieter streets

Safer journeys for all

Healthier and happier journeys

*Visualisation of possible walking and cycling improvements at Tesco Roundabout*

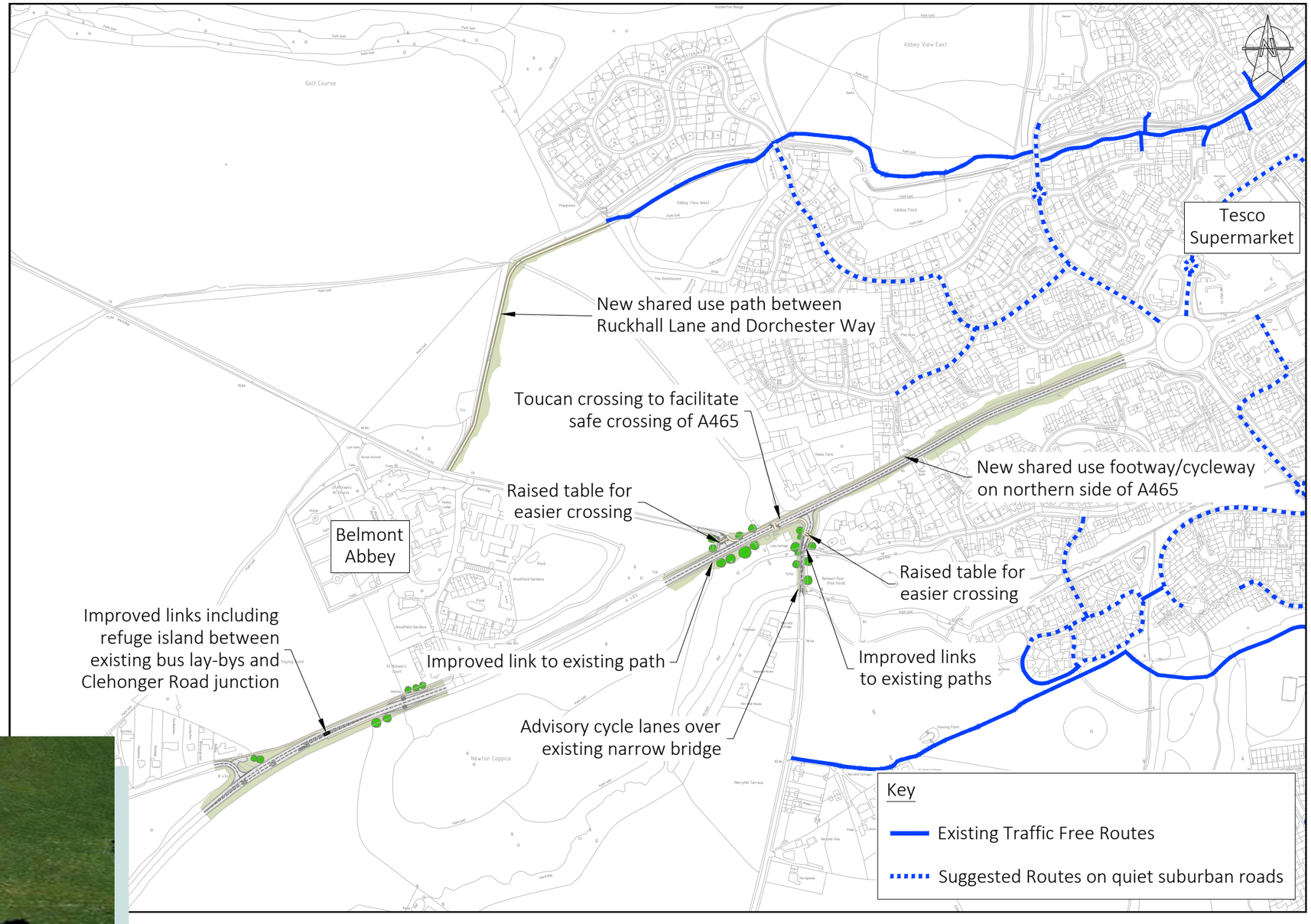
*Visualisation of possible new toucan crossing on Belmont Road near Newton Brook, with connecting shared use path and improved link to Sydwall Road*

## Belmont Road (West) walking and cycling improvements

Improving the environment for walking and cycling and connecting communities along Belmont Road west of Tesco Roundabout

## Benefits

- A new cycleway on Belmont Road from Ruckhall Lane to Tesco Roundabout
- Better connected local communities via new cyclepath from Ruckhall Lane
- Cleaner air quality
- Quieter streets
- Easier to cross Belmont Road
- Safer journeys for all
- Healthier and happier journeys
- Encourages inexperienced and returning cyclists




*Visualisation looking northwest of possible walking and cycling improvements at western end of Belmont Road. Shows possible Toucan crossing of Belmont Road and improvements at junction with Ruckhall Lane*

## Better walking and cycling routes to Hereford Enterprise Zone

Improving quieter alternatives to the main roads for walking and cycling, extending from Belmont to Hereford Enterprise Zone

## Benefits

Tackling barriers to walking and cycling

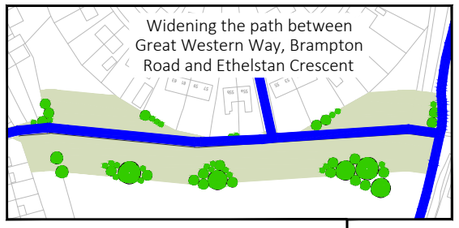
Opening up new links and opportunities for walking and cycling

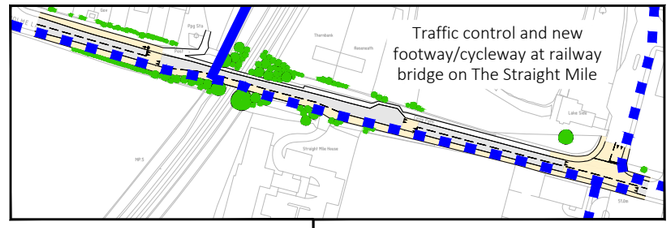
Encourages inexperienced and returning cyclists

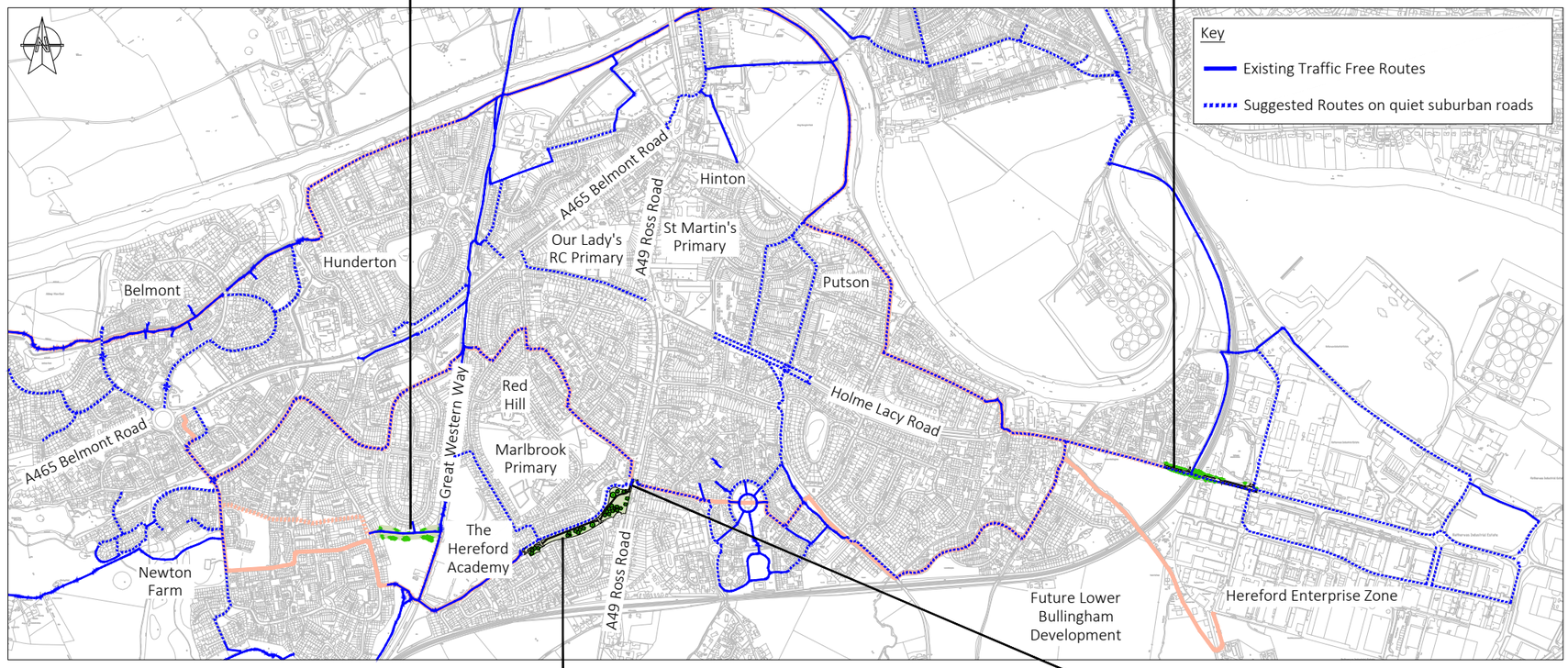
Safer journeys to school and work

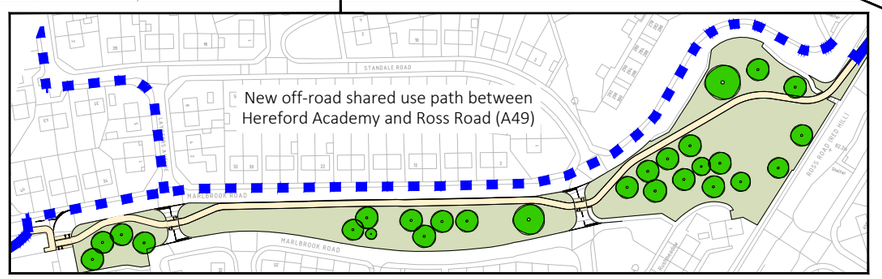
Healthier and happier journeys to school and work

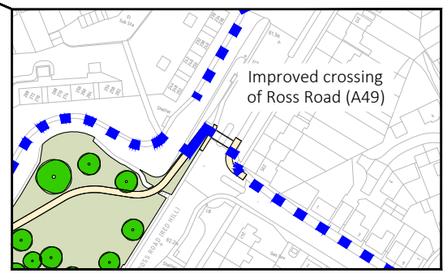
*Visualisation looking east along Marlbrook Road showing possible off-road shared use path from Hereford Academy to Ross Road (A49)*



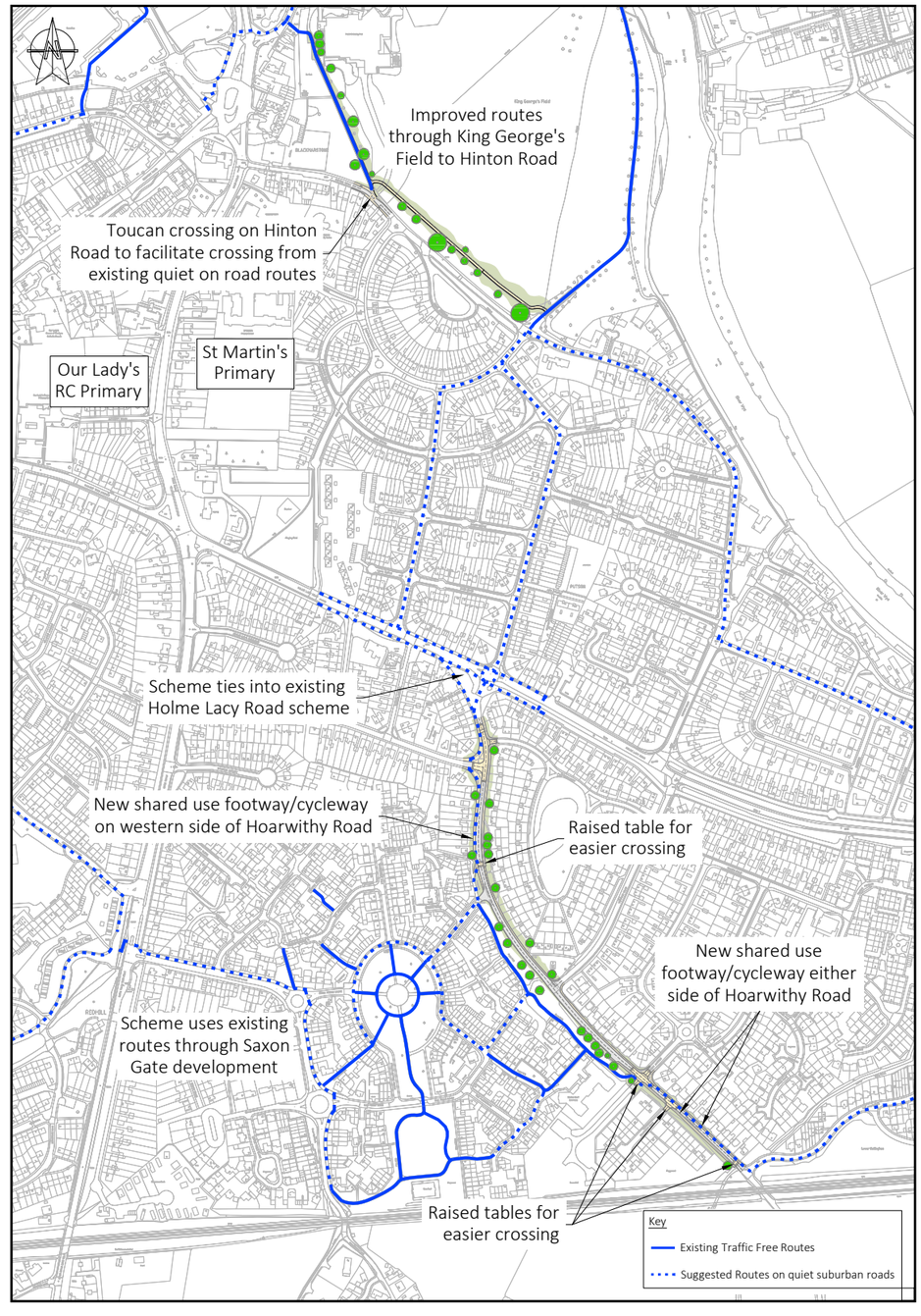
## Hoarwithy Road and Hinton Road walking and cycling links

Improving links to Holme Lacy Road from the north and south, connecting communities with the city centre and HEZ

## Benefits

- New cycleway on Hoarwithy Road from The Pastures to Holme Lacy Road
- Improved link between Hinton Road and the Leisure Pool and city centre
- Improved connections between the city centre and the HEZ
- Better connected local communities
- Easier to cross Hoarwithy Road and Hinton Road
- Safer journeys to work
- Opening up new links and opportunities for walking and cycling
- Encourages inexperienced and returning cyclists

*Visualisation of possible shared use footway/cycleway either side of Hoarwithy Road at the Aconbury Avenue / Saxon Hall entrance crossroads, looking north towards existing cycleway at Poppy Walk*

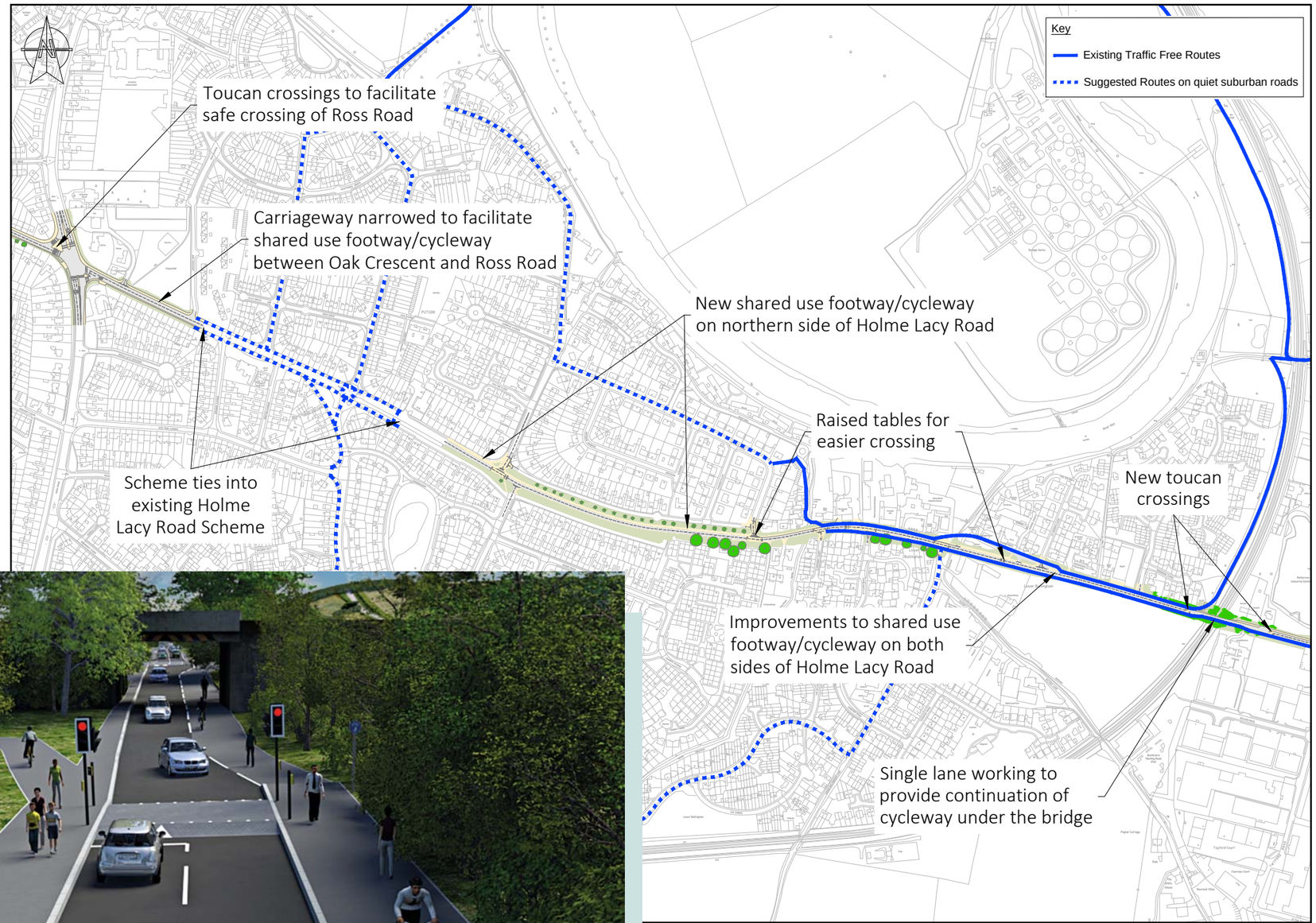


## Holme Lacy Road —further walking and cycling improvements

Improving the environment for walking and cycling and connecting communities along Holme Lacy Road to the HEZ

### Benefits

- New cycleway between Walnut Tree Avenue and the HEZ
- Priority working under rail bridge
- Improved walking and cycling route under rail bridge
- Joining up recent improvements on Holme Lacy Road
- Improved connections to the HEZ
- Better connected local communities
- Easier to cross Holme Lacy Road
- Safer journeys to work
- Healthier and happier journeys to work
- Encourages inexperienced and returning cyclists
- Opening up new links and opportunities for walking and cycling




*Visualisation of possible shared use footway/cycleway under the rail bridge on The Straight Mile, looking towards Hereford Enterprise Zone. Shows toucan crossing and the priority working for motor vehicles under rail bridge*

## Walnut Tree Avenue / Hunderton Road traffic reduction

Removing through traffic and connecting communities either side of the A465 to enable a walking and cycling friendly environment

## Benefits

Through traffic removed from Walnut Tree Avenue and Hunderton Road

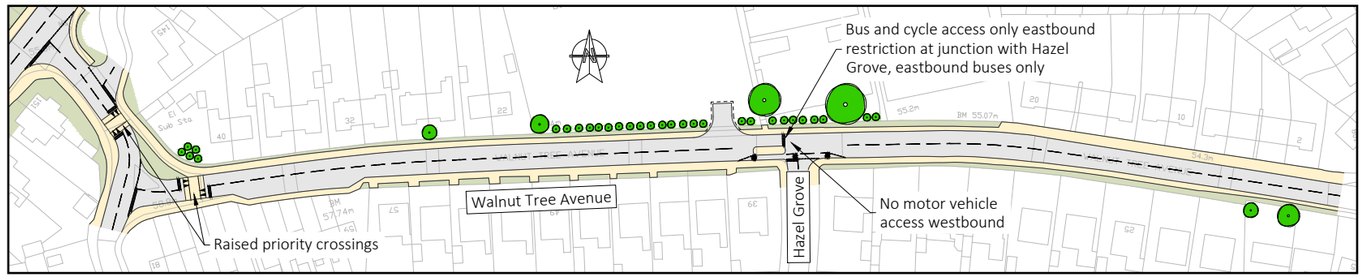
Better connected local communities

Easier to cross Belmont Road

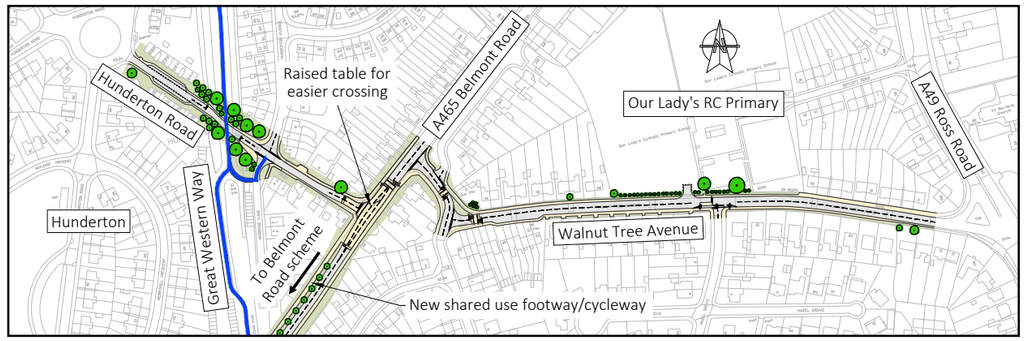
Safer journeys to school

Healthier and happier journeys to school

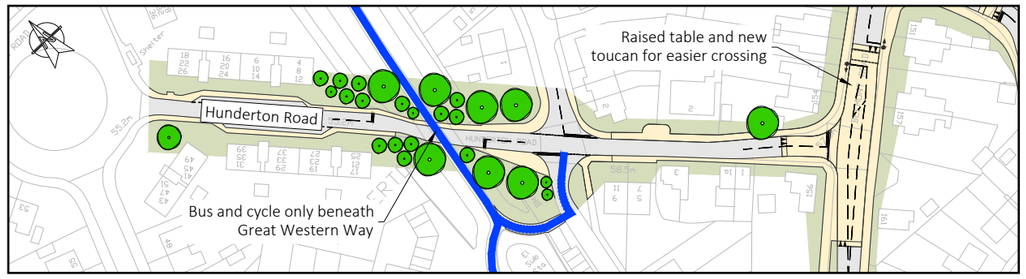
*Inset plan – Walnut Tree Avenue*




*Overview plan*




*Inset Plan – Hunderton Road*

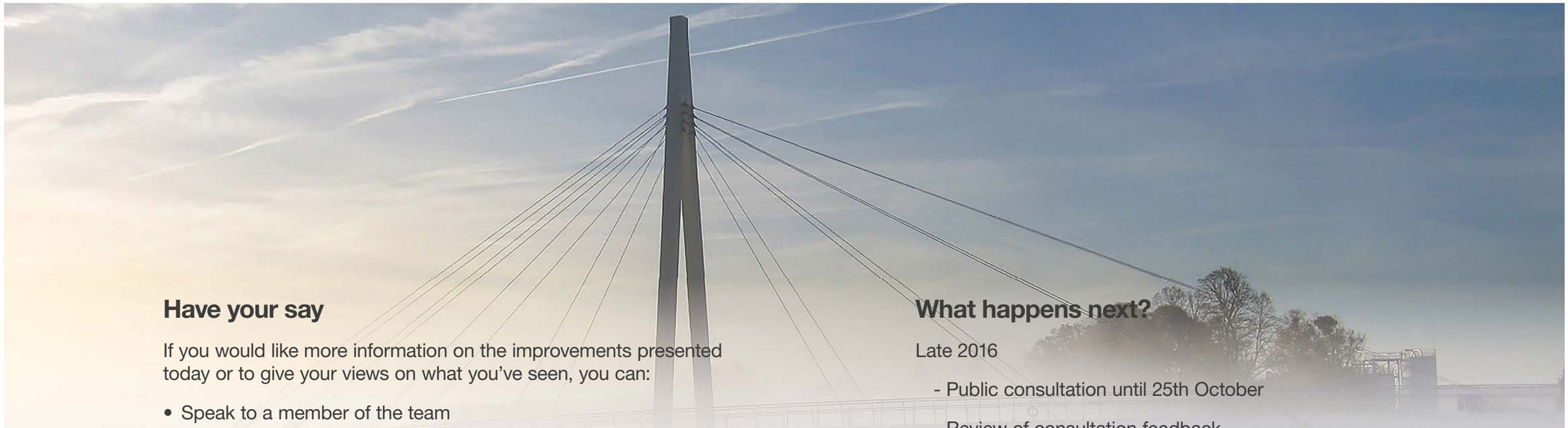



Key

Existing Traffic Free Routes

*Visualisation looking south showing possible walking and cycling improvements at the Belmont Road / Walnut Tree Avenue / Home Lane junctions*


*Visualisation of Walnut Tree Avenue looking towards Belmont Road showing possible bus and cycle only access at Hazel Grove junction*



## Have your say

If you would like more information on the improvements presented today or to give your views on what you've seen, you can:

- Speak to a member of the team
- Visit our website at:
  **www.herefordshire.gov.uk/south-wye-transport-package**
- Fill in the questionnaire today or return it in the Freepost envelope provided
- Email us: **southwyeTP@balfourbeatty.com**
- Write to us at:
  FREEPOST: RTHL-BBZH-JATH
  (SWTP Active Travel)
  Balfour Beatty Living Places
  Unit 3, Thorn Business Park
  Rotherwas
  HEREFORD
  HR2 6JT

The closing date for feedback is:
**Tuesday 25th October 2016**

## What happens next?

Late 2016

- Public consultation until 25th October
- Review of consultation feedback
- Council decides improvements to take further

2017 and onwards

- Preliminary design
- Further community consultation
- Detailed design and implementation

**www.facebook.com/hereford2020**

**www.twitter.com/hereford_2020**

# Appendix I

## FEASIBILITY DRAWINGS OF ACTIVE TRAVEL MEASURES

| Project Number | Drawing Number | Revision |
|---|---|---|
| 3512983BP-HHR | ATM026 | - |

**NOTE:**
WHERE NEW KERBLINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ASLLOW FOR PLANNING OUT (40mm) AND RESURFACE FOR HALF LANE WIDTH

**NOTE:**
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

**NOTE:**
NARROWED JUNCTIONS AND REDUCED ROAD, THROUGHOUT HUNDERTON ESTATE TO FACILITATE SAFER AND MORE CONVENIENT PEDESTRIAN AND CYCLE MOVEMENTS

**NOTE:**
ALLOW FOR NEW KERBING, FOOTWAY CONSTRUCTION, TACTILE PAVING, FLUTED CHANNELS ON OLD RADII AND NEW MARKINGS. 2 NO. GULLIES TO BE REPOSITIONED AT THE JUNCTION

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| | | | | | |

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
1 Capital Quarter,
Tyndall Street,
Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200

Client: Balfour Beatty | Herefordshire Council — Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES GROUP 1 SHEET 1
HUNDERTON ESTATE
BELLMOUTH JUNCTIONS

| Drawn: | JG | Checked: | AJS | | |
|---|---|---|---|---|---|
| Designed: | AJS | Approved: | GW | | |
| Date: | 13/11/2015 | Scale: | 1:500 | A1 | Sheet: 1 of 2 |



Login: Green, James
Plot Date: 02/12/2015 15:29:39
File Name: H:\HH\JOBS\3512983A-HHR HerefordTask - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM026 27 H2.dwg

| Project Number | Drawing Number | Revision |
|---|---|---|
| 3512983BP-HHR | ATM027 | - |

**NOTE:**
WHERE NEW KERBLINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ASLLOW FOR PLANNING OUT (40mm) AND RESURFACE FOR HALF LANE WIDTH

**NOTE:**
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

**NOTE:**
NARROWED JUNCTIONS AND REDUCED ROAD, THROUGHOUT HUNDERTON ESTATE TO FACILITATE SAFER AND MORE CONVENIENT PEDESTRIAN AND CYCLE MOVEMENTS

**NOTE:**
ALLOW FOR NEW KERBING, FOOTWAY CONSTRUCTION, TACTILE PAVING, FLUTTED CHANNELS ON OLD RADII AND NEW MARKINGS. 2 NO. GULLIES TO BE REPOSITIONED AT THE JUNCTION

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| - | 02/12/2015 | FOR DISCUSSION | AJS | GW | |

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Tel: 44-(0)2920 769200

Client: Balfour Beatty | Herefordshire Council — Working for Herefordshire

Site/Project: SOUTH WYE TRANSPORT PACKAGE

Title: ACTIVE TRAVEL MEASURES GROUP 1 SHEET 2 HUNDERTON ESTATE BELLMOUTH JUNCTIONS

| Drawn: | JG | Checked: | AJS |
|---|---|---|---|
| Designed: | AJS | Approved: | GW |
| Date: | 13/11/2015 | Scale: 1:500 | A1 Sheet: 2 of 2 |



Login: Green, James
Plot Date: 02/12/2015 15:27:38
File Name: H:\HHIJOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM026 27 H2.dwg

Project Number: 3512983BP-HHR
Drawing Number: ATM028
Revision: -

EXISTING FOOTWAY TO BE WIDENED TO MINIMUM 3.0m SHARED USE CYCLE/FOOTWAY ON WESTERN SIDE OF BELMONT ROAD

POTENTIAL CONFLICTS WITH ACCESS POINTS ALONG WHOLE ROUTE

PROPERTY ON EASTERN SIDE OF BELMONT ROAD A CONSTRAINT. CORRIDOR HAS TO NARROW AT THIS POINT; 2.75m LANES, 2.0m CYCLE/FOOTWAY AND 1.2m FOOTWAY

EXISTING ON STREET PARKING REMOVED AS PART OF SCHEME

EXISTING FOOTWAY IS ELEVATED AT THIS POINT. EXTENDED CYCLE/FOOTWAY TO EITHER REMAIN AT HIGH LEVEL OR BE SPLIT LEVEL WITH PEDESTRIANS AND CYCLISTS ON SEPARATE LEVELS. WORKS TO RETAINING WALL REQUIRED FOR EITHER OPTION

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
8 No. HIGHWAY GULLIES TO BE REPOSITIONED AND SPURS AMENDED ACCORDINGLY WITHIN WORKS AREA

SCHEME TIES INTO WIDER SCHEME FOR BELMONT ROAD AT SOUTHERN END. SCHEMES SHOULD BE REVIEWED TOGETHER BUT CAN BE ALTERED TO BECOME STAND-ALONE SCHEMES

SCHEME LIMIT

1 No. 3.0m WIDE BUS LANE AND 2 No. 3.0M WIDE VEHICULAR LANES PROVIDED FOR MAJORITY OF ROUTE

EXISTING BUS SHELTER TO BE REPOSITIONED

CARRIAGEWAY WIDENED SLIGHTLY OVER THIS LENGTH, 2.0m FOOTWAY PROVIDED UTILISING EXISTING VERGE

FOOTWAY CONTINUITY MUST BE PROVIDED AS ADDITIONAL CROSSINGS WOULD BE COUNTER PRODUCTIVE

UNCONTROLLED PEDESTRIAN CROSSINGS TO BE PROVIDED AT EXISTING ACCESS POINTS

CARRIAGEWAY WIDENED AT THIS POINT TO PROVIDE MINIMUM LANE WIDTHS, EASTERN FOOTWAY TO BE MAXIMUM WIDTH POSSIBLE WITHIN HIGHWAY BOUNDARY

WORKS MUST BE WITHIN HIGHWAY BOUNDARY AT THIS POINT DUE TO BOUNDARY WALLS ON PROPERTIES

CUT LINE - A

EXISTING SIGNALISED PEDESTRIAN CROSSING RETAINED BUT BLOCK PAVED RAISED TABLE TO COVER CROSSING AND JUNCTION WITH BELMONT AVENUE

EXISTING PEDESTRIAN ACCESS TO BE MAINTAINED

LARGE HIGHWAY SIGN WITHIN EXISTING FOOTWAY WILL NEED TO BE MOVED

POTENTIAL CONFLICT WITH VEHICLES UTILISING WIDE EXISTING FOOTWAY AS PARKING FOR PROPERTIES

RETAINING WALL MAY BE ABLE TO BE REMOVED OVER LAST SECTION WITH INCREASED WIDTH OF CYCLE/FOOTWAY

EXISTING GIVE WAY LINE MOVED AWAY FROM JUNCTION TO FACILITATE PRIORITY CROSSING FOR PEDESTRIANS AND CYCLISTS

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
8 No. HIGHWAY GULLIES TO BE REPOSITIONED AND SPURS AMENDED ACCORDINGLY WITHIN WORKS AREA

SCHEME LIMIT

EXISTING TRAFFIC ISLAND TO BE REMOVED AND RECONSTRUCTED TO FACILITATE SUFFICIENT WIDTH FOR BUS LANE. EXISTING SIGNALISED CROSSINGS TO BE UPGRADED TO TOUCAN CROSSINGS

CUT LINE - A

FOOTWAY WIDENED AT THIS POINT, WORKS REQUIRED TO EXISTING LOW LEVEL RETAINING WALL/EMBANKMENT FOR FOOTPATH

UTILITY CABINETS CLOSE TO REALIGNED FOOTWAY

OPPORTUNITY TO REMOVE STEPS AND CREATE LINK TO ROSS ROAD (A49)

PINCH-POINT OUTSIDE PROPERTIES WITH STEPS AND EXTERNAL FACADE OF BUILDING. WORKS WILL BE REQUIRED TO STEPS TO AVOID CONFLICT WITH FOOTWAY/CYCLEWAY

FOOTWAY WIDENED INTO VERGE DUE TO WIDENED CARRIAGEWAY, RETAINING WALL REQUIRED TO ALLOW EXISTING FOOTPATH TO REMAIN AT HIGHER LEVEL

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| - | 13/11/2015 | FOR DISCUSSION | JG | AJS | GW |

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 2
WALNUT TREE AVENUE
TO ASDA ROUNDABOUT

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 13/11/2015 | Scale: 1:500 | A1 | Sheet: |





Login: Green, James
Plot Date: 02/12/2015 15:35:17
File Name: H:\HH\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TPA\cad\ATM Oct 2015\ATM Drawings\ATM028 l1.dwg

| Project Number | Originator | Revision |
|---|---|---|
| 35129833BP-HHR | ATM007 | - |

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NEW 3.0m WIDE SHARED USE CYCLE/FOOTWAY TO BE POSITIONED TO AVOID UTILITIES

NOTE:
NEW BLOCK PAVED RAISED TABLE WITH UNCONTROLLED PEDESTRIAN AND CYCLIST CROSSING TO BE CONSTRUCTED ON EACH ARM, WITH TACTILE PAVING AND SIGNAGE AS NECESSARY

CARRIAGEWAY WIDENED SLIGHTLY AT THIS POINT TO FACILITATE PROVISION FOR CYCLISTS

EXISTING FOOTWAYS MAINTAINED

NEW 3.0m WIDE SHARED USE FOOTWAY / CYCLEWAY EXISTING PATH TO BE WIDENED WHERE APPROPRIATE. PATH NARROWS TO APPROX 2.5m ADJACENT TO RETAINING WALL IN TESCOS CAR PARK.

EXISTING ACCESS MAINTAINED

EXISTING SPLITTER ISLAND REMOVED AND NEW ISLAND CONSTRUCTED IN BITUMINOUS MATERIALS WITH APPROPRIATE SIGNAGE / BOLLARDS

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY, APPROPRIATE SIGNAGE TO BE INSTALLED

SCHEME LIMIT

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY, APPROPRIATE SIGNAGE TO BE INSTALLED

EXISTING SPLITTER ISLAND REMOVED AND NEW ISLAND CONSTRUCTED IN BITUMINOUS MATERIALS WITH APPROPRIATE SIGNAGE / BOLLARDS

SCHEME LIMIT

EXISTING FOOTWAY MAINTAINED

NEW 3.0m WIDE SHARED USE FOOTWAY / CYVCLEWAY TO BE POSITIONED TO AVOID UTILITIES

SCHEME TIES IN WITH PROPOSALS FOR CYCLE ROUTE ON BELMONT ROAD TO THE EAST. SCHEMES SHOULD BE REVIEWED AS ONE BUT COULD BE ALTERED FOR STANDALONE SCHEMES.

CARRIAGEWAY WIDENED SLIGHTLY AT THIS POINT TO FACILITATE PROVISION FOR CYCLISTS

EXISTING FOOTWAY TO BE BROKEN OUT AND REMOVED

LINK TO NEW SHARED USE PATH, STAGGERED REMOVABLE BOLLARDS TO BE INSTALLED

NOTE:
ALLOW FOR 6 NO. GULLIES TO BE REPOSITIONED AND SPURS AMENDED ACCORDINGLY

EXISTING FOOTWAY TO BE BROKEN OUT AND REMOVED

NEW 3m WIDE SURFACED USE FOOTWAY / CYCLEWAY, EXISTING PATH TO BE WIDENED WHERE APPROPIATE, NEW LINK TO BE POSITIONED TO AVOID SERVICES, SOME EARTHWORKS AND SITE CLEARANCE REQUIRED

EXISTING SPLITTER ISLAND REMOVED AND NEW ISLAND CONSTRUCTED IN BITUMINOUS MATERIALS WITH APPROPRIATE SIGNAGE/BOLLARDS

NOTE:
ALLOW FOR 10 No. STREET LIGHTING COLUMNS TO BE REPOSITIONED AND CABLING AMENDED ACCORDINGLY

SCHEME TIES IN WITH A3 SCHEME, SCHEMES SHOULD BE REVIEWED AS ONE BUT COULD BE ALTERED FOR STAND ALONE SCHEMES

NEW 3.0m WIDE SHARED USE CYCLE/FOOTWAY ADJACENT TO RETAINED KERBLINE

2.0m FOOTWAY EXTENDED TO EXISTING INFORMAL LINK BEHIND PROPERTIES

SCHEME LIMIT

EXISTING SPLITTER ISLAND REMOVED AND NEW ISLAND CONSTRUCTED IN BITUMINOUS MATERIALS WITH APPROPRIATE SIGNAGE/BOLLARDS

EXISTING FOOTWAY MAINTAINED SOUTH OF CROSSING POINT

EXISTING FILTER DRAIN TO BE DIVERTED

SCHEME LIMIT

EXISTING SPLITTER ISLAND REMOVED AND NEW ISLAND CONSTRUCTED IN BITUMINOUS MATERIALS WITH APPROPRIATE SIGNAGE/BOLLARDS

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

EARTHWORKS REQUIRED AT PINCH POINT POINTS, POSSIBLE NEED FOR LOW LEVEL RETAINING WALLS

EXISTING FOOTWAY MAINTAINED SOUTH OF CROSSING POINT

PROVISION FOR CYCLELISTS TO REJOIN CARRIAGEWAY / CYCLEWAY, APPROPRIATE SIGNAGE TO BE INSTALLED

NOTE:
WHERE NEW KERBLINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

EXISTING FOOTWAY WIDEND TO 3.0M TO PROVIDE SHARED USE FOOT3WAY / CYCLEWAY

NOTE:
WHERE NEW KERBLINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ASLLOW FOR PLANNING OUT (40mm) AND RESURFACE FOR HALF LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| | | | | | |

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 3 SHEET 1
TESCO ROUNDABOUT
DO MINIMUM

| Drawn: | JG | Checked: | AJS |
|---|---|---|---|
| Designed: | AJS | Approved: | GW |
| Date: | 11/11/2015 | Scale: 1:500 | A1 Sheet: |
| Project Number: | | Drawing Number: | Revision: |
| 35129833BP-HHR | | ATM007 | - |





Login: Green, James
Plot Date: 02/12/2015 16:22:24
File Name: H:\HHIUOBS\35129833A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\

Project Number: 3512983BP-HHR | Drawing Number: ATM013 | Revision: -

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS ALONG A465 NORTH EDGE KERB LINE.

EXISTING LENGTHS OF VISIRAIL PEDESTRIAN GUARD RAILING EITHER SIDE OF CROSSING TO BE REPOSITIONED DURING REALIGNMENT OF A465 NORTH EDGE KERB LINE

APPROXIMATELY 50.0m OF HFS TO BE RELAYED ON APPROACH TO TOUCAN CROSSING FOLLOWING KERB AND CENTRE LINE REALIGNMENT

WORKS TO TIE INTO PROPOSALS AT TESCO ROUNDABOUT. SCHEMES SHOULD BE REVIEWED AS ONE BUT CAN BE ALTERED TO BECOME STAND-ALONE SCHEMES

3.0m CYCLE/FOOTWAY MAY NEED TO BE NARROWED OUTSIDE TESCO DUE TO RETAINING WALL AT BOUNDARY OF CAR PARK

EXISTING FOOTWAY ALONG NORTH EDGE OF A465 TO BE INCREASED TO MINIMUM 3.0m WIDTH TO PROVIDE SHARED CYCLE/FOOT WAY, UTILISING EXISTING FOOTWAY AND GRASS VERGE

NOTE:
2 No. HIGHWAY GULLIES TO BE REPOSITIONED WITHIN WORKS AREA

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERB LINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

SCHEME LIMIT

CUT LINE - A

3 No HIGHWAY LIGHTING COLUMNS IN THIS SECTION TO BE REPOSITIONED DURING CONSTRUCTION OF CYCLE/FOOT WAY

A465 NORTHERN KERB LINE TO BE REALIGNED FROM THIS POINT WEST TO ROUNDABOUT TO PROVIDE MINIMUM 3.0m FOOT/CYCLE WAY WHEREVER POSSIBLE

EXISTING CARRIAGEWAY CENTRE LINE TO BE REMOVED AND RELAYED FOLLOWING KERB LINE REALIGNMENT WORKS

EXISTING PELICAN CROSSING TO BE AMENDED TO PROVIDE NEW TOUCAN CROSSING ON BLOCK PAVED RAISED TABLE. EXISTING SIGNS AND CARRIAGEWAY MARKINGS TO BE AMENDED TO SUIT NEW CROSSING LAYOUT

EXISTING SECTION OF FOOTWAY TO BE INCREASED TO MINIMUM 3.0m WIDTH TO PROVIDE SHARED FOOT/CYCLE WAY. EXISTING SIGNAL CONTROL CABINET ADJACENT TO CROSSING AND LIGHTING COLUMN MAY REQUIRE REPOSITIONING

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS ALONG A465 NORTH EDGE KERB LINE.

NOTE:
3 No. HIGHWAY LIGHTING COLUMNS TO BE REPLACED WITH NEW AND 7 No. HIGHWAY GULLIES TO BE REPOSITIONED WITHIN WORKS AREA

MCDONALDS RESTAURANT ACCESS JUNCTION TO BECOME BLOCK PAVED RAISED TABLE WITH UNCONTROLLED PEDESTRIAN CROSSING ACROSS ACCESS. TO TIE IN TO GOODRICH ROAD JUNCTION WORKS UNDER SEPARATE SCHEME. CARRIAGEWAY MARKINGS AND RAMP WARNING SIGNS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

A465 JUNCTION WITH BEATTIE AVENUE TO BECOME BLOCK PAVED RAISED TABLE WITH UNCONTROLLED PEDESTRIAN CROSSING. CARRIAGEWAY MARKINGS AND RAMP WARNING SIGNS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

EXISTING PEDESTRIAN GUARD RAILING TO BE REMOVED

NOTE:
SEE DRAWING ATM014 FOR CONTINUATION

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

SHARED CYCLE/FOOT WAY TO BE PROVIDED ALONG NORTH EDGE OF A465 UTILISING EXISTING GRASS VERGE, WIDTH TO BE MINIMUM 3.0m. NEW 2.5m VERGE WITH TREE PLANTING TO FILL REMAINING SPACE BETWEEN CYCLE/FOOT WAY AND REALIGNED KERB LINE

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED TO TIE INTO MAIN CARRIAGEWAY WORKS. JUNCTION RADII TO BE 6.0m

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

REFER TO DRAWING ATM010 FOR SCHEME TO COVER THIS SECTION OF WORKS. SCHEMES SHOULD BE REVIEWED AS ONE BUT CAN BE ALTERED TO BECOME STAND-ALONE SCHEMES

CUT LINE - B

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED TO TIE INTO MAIN CARRIAGEWAY WORKS. JUNCTION RADII TO BE 6.0m

EXISTING TREES TO REMAIN

EXISTING 30.0m CENTRAL TRAFFIC ISLAND WITH LIT BOLLARDS TO BE REMOVED. ELECTRICAL CONNECTION TO BOLLARDS TO BE MADE SAFE

EXISTING PEDESTRIAN GUARD RAILING BETWEEN THESE POINTS TO BE REMOVED

A465 CARRIAGEWAY WIDTH REDUCED TO 6.5m WITH RIGHT TURN LANE REMOVED. NEW CENTRE LINE LAID. KERB LINES ON NORTH AND SOUTH CHANNELS TO BE REALIGNED TO SUIT AMENDMENTS TO FOOTWAYS AND JUNCTIONS

EXISTING VERGE ADJACENT TO SOUTH EDGE OF A465 TO BE REPLACED WITH SHARED PEDESTRIAN/CYCLE ROUTE. CONSTRUCTION TO BE BITUMINOUS MATERIAL WITH MINIMUM 3.0m WIDTH. VERGE WITH NEW TREE PLANTING TO BE REINSTATED AT BACK OF FOOTWAY

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| - | 02/12/15 | FOR DISCUSSION | JG | AJS | GW |

FOR DISCUSSION


WSP | PARSONS BRINCKERHOFF
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Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 3 SHEET 2
TESCO TO WALNUT TREE
AVENUE CYCLE PATHS WIDER SCHEME

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 12/11/2015 | Scale: 1:500 | A1 | Sheet: 1 of 2 |

Project Number: 3512983BP-HHR | Drawing Number: ATM013 | Revision: -





Login: Green, James
Plot Date: 02/12/2015 13:43:11
File Name: H:\HHI\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM013 B4 Wide.dwg

Project Number: 3512983BP-HHR
Drawing Number: ATM006
Revision: -

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
EXTENT OF EXISTING CARRIAGEWAY REMAINING WITHIN SCHEME LIMIT TO BE PLANED OUT (40mm) AND RESURFACED

NOTE:
WHERE NEW KERBLINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW VERGE / PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH TOPSOIL

NEW LINK FOR CYCLISTS TO JOIN ON ROAD NETWORK IN HUNDERTON ESTATE POSITION TO BE DETERMINED BY EXTENTS OF MATURE TREES

EXISTING FOOTWAY LINK TO BE REMOVED

NOTE:
8 NO. GULLIES TO BE REPOSITIONED AND SPURS AMENDED ACCORDINGLY

NOTE:
4 NO. STREET LIGHTING COLUMNS TO BE REMOVED AND CABLING AMENDED ACCORDINGLY TO NEW COLUMNS

NEW TOUCAN CROSSING ON BLOCK PAVED RAISED TABLE TO BE INSTALLED WITH ALL NECESSARY CORRESPONDING SIGNS AND CARRIAGEWAY MARKINGS

2.5m VERGE, TOPSOILED AND SEEDED

SCHEME LIMIT

SCHEME LIMIT

PROPOSED SCHEME TO TIE INTO WIDER BELMONT ROAD PROPOSALS

2.5m FOOTWAY PROVIDED ADJUSTMENT TO REALIGN KERBLINE

NEW LINK FOR CYCLISTS TO JOIN ON ROAD NETWORK SOUTH OF THE OVAL

CARRIAGEWAY WIDTH NARROWED TO 6.5m, NEW HB2 KERBS TO BE INSTALLED. EXISTING CENTRAL ISLAND TO BE REMOVED, EXISTING SERVICES TO BE REMOVED AND/OR PROTECTED WHERE NECESSARY

PROPOSED SCHEME TIES INTO WIDER BELMONT ROAD PROPOSALS

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Tel: 44-(0)2920 769200

Client: Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 3 SHEET 3
THE OVAL CROSSING
WIDER SCHEME

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 12/11/2015 | Scale: 1:200 | A1 | Sheet: |



Logn: Green, James
Plot Date: 02/12/2015 10:53:41
File Name: H:\HHIJOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM006 B1 Wide.dwg

| Project Number | Drawing Number | Revision |
|---|---|---|
| 3512983BP-HHR | ATM014 | - |

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS ALONG A465 NORTH EDGE KERB LINE.

NOTE:
2 No. HIGHWAY LIGHTING COLUMNS TO BE REPLACED WITH NEW AND 21 No. HIGHWAY GULLIES TO BE REPOSITIONED WITHIN WORKS AREA

WORKS TO TIE INTO SEPARATE PROPOSALS FOR NEW CROSSING AT WALNUT TREE AVENUE. SCHEMES SHOULD BE REVIEWED TOGETHER BUT CAN BE ALTERED TO BECOME STAND ALONE SCHEMES

SCHEME LIMIT

SHARED CYCLE/FOOT WAY TO BE PROVIDED ALONG NORTH EDGE OF A465 UTILISING EXISTING GRASS VERGE AND FOOTWAY, WIDTH TO BE MINIMUM 3.0m. NEW 2.5m VERGE WITH TREE PLANTING TO FILL REMAINING SPACE BETWEEN CYCLE/FOOT WAY AND REALIGNED KERB LINE

EXISTING TREE LINED VERGE AT BACK OF FOOTWAY BETWEEN THESE POINTS TO BE REMOVED TO ACCOMMODATE WORKS

EXISTING PEDESTRIAN GUARD RAILING TO BE REMOVED

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

A465 CARRIAGEWAY WIDTH REDUCED TO 6.5m WITH RIGHT TURN LANE REMOVED AND NEW CENTRE LINE LAID. KERB LINES ON NORTH AND SOUTH EDGES TO BE REALIGNED TO SUIT AMENDMENTS TO FOOTWAYS AND JUNCTIONS

EXISTING CENTRAL TRAFFIC ISLANDS WITH LIT BOLLARDS TO BE REMOVED. ELECTRICAL CONNECTIONS TO BOLLARDS TO BE MADE SAFE

EXISTING HEDGEROW AT BACK OF FOOTWAY BETWEEN THESE POINTS TO BE REMOVED TO ACCOMMODATE WORKS

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED TO TIE INTO MAIN CARRIAGEWAY WORKS. JUNCTION RADII TO BE 6.0m

AREA BEHIND NEW FOOTWAY SECTION TO BE GRASS VERGE

EXISTING BUS STOP LAY-BYS TO REMAIN, TO BE AMENDED AS NECESSARY TO TIE INTO MAIN CARRIAGEWAY KERB REALIGNMENT, SURFACE MARKINGS TO BE RELAYED

REFER TO DRAWING ATM013 FOR CONTINUATION

CUT LINE - B

SCHEME LIMIT

EXISTING PEDESTRIAN GUARD RAILING ASSOCIATED WITH PEDESTRIAN CROSSING TO BE REMOVED

REFER TO DRAWING ATM006 FOR TOUCAN CROSSING WORKS IN THIS AREA

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERB LINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

FOR DISCUSSION

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Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 3 SHEET 4
TESCO TO WALNUT TREE AVENUE CYCLE PATHS WIDER SCHEME

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 12/11/2015 | Scale: 1:500 A1 | Sheet: | 2 of 2 |



File Name: H:\HH\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM014 B4 Wide.dwg
Login: Green, James
Plot Date: 02/12/2015 13:42:11

DROPPED KERBS TO BE INSTALLED TO ALLOW CYCLISTS TO REJOIN CARRIAGEWAY AT END OF ROUTE, TO INCLUDE REGULATORY SIGNS, SURFACE MARKINGS AND CORDUROY PAVING

NEW SHARED FOOT/CYCLE PATH BETWEEN THE A465 AND SYDWALL ROAD TO FOLLOW EXISTING FOOT PATH ADJACENT TO NEWTON BROOK. CONSTRUCTION TO BE BITUMINOUS MATERIAL, WITH MINIMUM 3.0m WIDTH with 0.5m VERGES EITHER SIDE. REGULATORY SIGNS REQUIRED AT EITHER END, REPEATER SIGNS REQUIRED AT APPROXIMATELY HALF DISTANCE

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS ALONG A465 NORTH EDGE KERB LINE.

NOTE:
3 No. HIGHWAY LIGHTING COLUMNS AND 11 No. HIGHWAY GULLIES TO BE REPOSITIONED WITHIN WORKS LIMITS

SHARED CYCLE/FOOT WAY TO BE PROVIDED ALONG NORTH CHANNEL OF A465 UTILISING EXISTING GRASS VERGE, WIDTH TO BE MINIMUM 3.0m. FROM HOTEL ACCESS ONWARDS NEW 2.5m VERGE WITH TREE PLANTING TO FILL REMAINING SPACE BETWEEN CYCLE/FOOT WAY AND REALIGNED KERB LINE

A465 CARRIAGEWAY WIDTH REDUCED TO 6.5m WITH RIGHT TURN LANE REMOVED. NEW CENTRE LINE LAID. KERB LINES ON NORTH AND SOUTH EDGES TO BE REALIGNED TO SUIT AMENDMENTS TO FOOTWAYS AND JUNCTIONS

GIVE WAY AND CARRIAGEWAY CENTRE LINE MARKINGS TO BE RELAYED TO SUIT NEW JUNCTION ARRANGEMENT

EXISTING FOOTWAY ALONG NORTH CHANNEL OF A465 TO HOTEL ACCESS TO BE INCREASED TO MINIMUM 3.0m WIDTH TO PROVIDE SHARED CYCLE/FOOT WAY, UTILISING EXISTING GRASS VERGE AND FOOTWAY

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED TO TIE INTO MAIN CARRIAGEWAY WORKS. JUNCTION RADII TO BE 6.0m

SCHEME LIMIT

WORKS TO TIE INTO WIDER BELMONT ROAD PROPOSALS. SCHEMES SHOULD BE REVIEWED AS ONE BUT COULD BE ALTERED TO BECOME STAND-ALONE SCHEMES

EXISTING VERGE AND FOOTWAY ADJACENT TO SOUTH EDGE OF A465 TO BE REPLACED WITH SHARED PEDESTRIAN/CYCLE ROUTE. CONSTRUCTION TO BE BITUMINOUS MATERIAL WITH MINIMUM 3.0m WIDTH

NEW BLOCK PAVED RAISED TABLE WITH TOUCAN CROSSING TO BE INSTALLED WITH ALL NECESSARY CORRESPONDING SIGNS AND CARRIAGEWAY MARKINGS

HOTEL ACCESS JUNCTION TO BECOME BLOCK PAVED RAISED TABLE WITH UNCONTROLLED PEDESTRIAN CROSSING ACROSS ACCESS. CARRIAGEWAY MARKINGS AND RAMP WARNING SIGNS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

EXISTING TREES TO REMAIN SOUTH OF BELMONT ROAD

EXISTING CENTRAL TRAFFIC ISLAND WITH LIT BOLLARDS AND LIGHTING COLUMN TO BE REMOVED. ELECTRICAL CONNECTIONS TO BE MADE SAFE

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERB LINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

A465 JUNCTION WITH GOODRICH AVENUE TO BECOME BLOCK PAVED RAISED TABLE WITH UNCONTROLLED PEDESTRIAN CROSSING. RAMP WARNING SIGNS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

WORKS TO TIE INTO WIDER BELMONT ROAD PROPOSALS. SCHEMES SHOULD BE REVIEWED AS ONE BUT COULD BE ALTERED TO BECOME STAND-ALONE SCHEMES

SCHEME LIMIT

EXISTING JUNCTION KERBING AND PEDESTRIAN GUARD RAILINGS TO BE REMOVED. RECONSTRUCTED KERB LINE TO TIE INTO MAIN CARRIAGEWAY WORKS. JUNCTION RADII TO BE 6.0m

EXISTING CENTRAL TRAFFIC ISLAND WITH LIT BOLLARDS TO BE REMOVED. ELECTRICAL CONNECTIONS TO BE MADE SAFE

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY. APPROPRIATE SIGNS AND CARRIAGEWAY MARKINGS TO BE INSTALLED

GIVE WAY AND CARRIAGEWAY CENTRE LINE MARKINGS TO BE RELAYED TO SUIT NEW JUNCTION ARRANGEMENT

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

| Rev | Date | Description | By | Chk | App |
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FOR DISCUSSION


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Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES GROUP 3 SHEET 5 NEWTON BROOK CROSSING WIDER SCHEME

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| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 12/11/2015 | Scale: 1:500 | A1 | Sheet: |

| Project Number: | Drawing Number: | Revision: |
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| 3512983BP-HHR | ATM010 | - |






Login: Green, James
Plot Date: 02/12/2015 11:41:29
File Name: H:\HHIJOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM010 B3 Wide.dwg

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
ANY EXISTING FOOTWAY OUTSIDE OF PROPOSED NEW EXTENTS TO BE BROKEN UP AND REMOVED

NOTE:
EXTENTS OF CARRIAGEWAY WITHIN SCHEME LIMITS TO BE PLANED OUT (40mm) AND RESURFACED.

NOTE:
14 No. HIGHWAY GULLIES AND SPURS TO BE RELOCATED IN TOTAL

5 No. WATER MAIN STOP VALVE/FIRE HYDRANT COVERS AT THIS LOCATION TO BE ADJUSTED TO SUIT NEW CARRIAGEWAY/FOOTWAY ALIGNMENT

EXISTING SURFACE MARKINGS INCLUDING RIGHT TURN LANE WITH ASSOCIATED CAT'S EYES TO BE REMOVED. NEW CARRIAGEWAY CENTRE LINE AND CAT'S EYES TO BE APPLIED

GIVE WAY AND CENTRE LINE MARKINGS TO BE RELAYED TO SUIT NEW JUNCTION GEOMETRY

EXISTING TRAFFIC ISLAND TO BE REMOVED, REDUNDANT ELECTRICAL CONNECTIONS TO LIT TRAFFIC BOLLARDS TO BE MADE SAFE

NEW ROAD HUMP WITH TOUCAN CROSSING ON BLOCK PAVED RAISED TABLE TO BE INSTALLED WITH ALL NECESSARY CORRESPONDING SIGNAGE AND CARRIAGEWAY MARKINGS

EXISTING GRASS VERGE TO BE EXTENDED TO NEW KERB LINE AND OLD CARRIAGEWAY BROKEN UP AND REMOVED.

FOOTWAY ON NORTH SIDE OF A465 TO BE WIDENED TO 3.0m TO BECOME SHARED CYCLE/FOOTWAY TO TESCO ROUNDABOUT

EXISTING CARRIAGEWAY TO BE BROKEN OUT AND REMOVED

SCHEME LIMIT

SCHEME TO TIE IN WITH A3 SCHEME, SCHEMES SHOULD BE REVIEWED AS ONE BUT COULD BE ALTERED FOR STAND ALONE SCHEMES

CORNER RADIUS REDUCED TO 12.0m WITH NEW HB2 KERB LINE. EXISTING HIGHWAY GULLY AND SPUR TO BE RELOCATED ACCORDINGLY. DOUBLE CHAMBER COVER IN CARRIAGEWAY TO BE ADJUSTED

A465 JUNCTION WITH HAYWOOD LANE TO BE RECONSTRUCTED WITH 10.0m RADII FORMED FROM NEW HB2 KERB LINES. HIGHWAY GULLIES AND SPURS TO BE RELOCATED

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY. APPROPRIATE SIGNAGE TO BE INSTALLED

SCHEME LIMIT

EXISTING FOOTWAY TO BE BROKEN UP AND REMOVED

3.0
6.5
2.0

EXISTING TRAFFIC ISLAND TO BE REMOVED, REDUNDANT ELECTRICAL CONNECTIONS TO LIT TRAFFIC BOLLARDS TO BE MADE SAFE. NEW BLOCK PAVED ROAD HUMP WITH UNCONTROLLED PEDESTRIAN/CYCLE CROSSING TO BE CONSTRUCTED, INCLUDING TACTILE PAVING

EXISTING RED HFS WITH 40MPH ROUNDEL TO BE REFRESHED AND AMENDED TO SUIT NEW JUNCTION GEOMETRY

2 No. EXISTING ROAD GULLIES AND SPURS TO BE RELOCATED TO BASE OF TABLE RAMPS

FOOTWAY ON SOUTH SIDE OF A465 TO BE WIDENED TO 3.0m FROM NEW CONTROLLED CROSSING INTO HAYWOOD LANE

NEW BLOCK PAVED ROAD HUMP WITH UNCONTROLLED PEDESTRIAN/CYCLE CROSSING TO BE CONSTRUCTED, INCLUDING TACTILE PAVING

CORNER RADIUS REDUCED TO 13.0m WITH NEW HB2 KERB LINE. EXISTING HIGHWAY GULLY AND SPUR TO BE RELOCATED ACCORDINGLY.

FOOTWAY ON SOUTH SIDE OF A465 TO BE 2.0m CONSTRUCTED ADJACENT TO RELOCATED KERBLINE FROM NEW CONTROLLED CROSSING TO JUNCTION WITH RUCKHALL LANE.

NEW SECTION OF FOOTWAY TO CONNECT PEDESTRIAN CROSSING TO FOOTPATH. MINOR VEGETATION CLEARANCE REQUIRED AND ALSO RELOCATION OF EXISTING "ROAD NARROWS" SIGN POST & FACE

EXISTING SURFACE MARKINGS INCLUDING RIGHT TURN LANE WITH ASSOCIATED CAT'S EYES TO BE REMOVED. NEW CARRIAGEWAY CENTRE LINE AND CAT'S EYES TO BE APPLIED

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY. APPROPRIATE SIGNAGE TO BE INSTALLED

NEW REALIGNED KERB LINES TO TIE INTO EXISTING AT SCHEME LIMITS

SCHEME LIMIT

NEW CYCLE LANE MARKINGS TO BE APPLIED ALONG EITHER SIDE OF NARROW SECTION OF CARRIAGEWAY. CYCLISTS/MOTORISTS TO USE SECTION IN TURN, ASSOCIATED SIGNAGE WITH INSTRUCTIONAL SUPPLEMENTARY PLATES TO BE INSTALLED

GIVE WAY AND CENTRE LINE MARKINGS TO BE RELAYED TO SUIT NEW JUNCTION GEOMETRY

FOOTWAY TO TERMINATE AT THIS POINT. EXISTING FOOTWAY BEYOND TO BE BROKEN OUT AND REINSTATED WITH NEW GRASSED VERGE

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY. APPROPRIATE SIGNAGE TO BE INSTALLED

CARRIAGEWAY WIDTH TO BE REDUCED TO 6.5m. EXISTING KERB LINES TO BE BROKEN OUT AND REMOVED, NEW HB2 KERBING TO BE INSTALLED. EXISTING PROPERTY ACCESSES ALONG LENGTH OF WORKS TO BE MAINTAINED. ROAD GULLIES TO BE REPOSITIONED AS NECESSARY. PRESENCE OF BT UNDERGROUND CABLE AND GAS MAIN TO BE TAKEN INTO ACCOUNT DURING WORKS

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
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Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES GROUP 5 SHEET 1 RUCKHALL LANE TO HAYWOOD LANE

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|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 11/11/2015 | Scale: 1:500 | A1 | Sheet: |
| Project Number: | Drawing Number: | | Revision: |
| 3512983BP-HHR | ATM001 | | - |



Project Number: 35129838P-HHR
Drawing Number: ATM001
Revision: -

Login: Green, James
Plot Date: 02/12/2015 10:11:54
File Name: H:\HHIJOBS\35129838-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM001 A1.dwg

Rev: -
Scale Number: ATM002
Job Number: 3512983BP-HHR

Golf Course

NOTE:
PURCHASE OF LAND SHOULD BE INCLUDED IN COST ESTIMATES

NOTE:
ALLOW FOR FENCING ALONG WHOLE ROUTE AND GATES AT FARM TRACK CROSSING

NOTE:
TOPSOIL STRIP AND REMOVAL FOR WHOLE LENGTH OF NEW PATH AND EXTENDED AREA ADJACENT TO EXISTING PATH.

CONSIDERATION TO BE GIVEN TO IMPROVING/WIDENENING EXISTING PUBLIC FOOTPATH IN ORDER TO MAKE SUITABLE FOR BOTH PEDESTRIAN AND CYCLE TRAFFIC, ALLOW FOR 1m EXTENSION IN WIDTH, 0.5m VERGES AND BITUMINOUS SURFACING

NEW SHARED CYLE PATH TO TIE INTO EXISTING CYCLE/FOOTPATH SECTION AT SCHEME LIMIT

SECTION OF CYCLE/FOOTPATH TO BE CONSTRUCTED TO HEAVY DUTY VEHICLE CROSS-OVER SPECIFICATION WHERE FARM TRACK CROSSES ROUTE EXISTING WATERCOURSE AT THIS LOCATION, ALLOW FOR CROSSING TO BE EXTENDED.

NEW CYCLE PATH TO BE OFFSET FROM ROUTE OF EXISTING PUBLIC RIGHT OF WAY FOOTPATH, IN ORDER TO AVOID LEGAL ISSUES. CONSTRUCTION TO BE BITUMINOUS MATERIAL, WIDTH TO BE MINIMUM OF 3.0m WITH 0.5m VERGE EITHER SIDE APPROPRIATE SIGNAGE TO BE INSTALLED ALONG LENGTH

3.0

EXISTING STILE ACCESS TO BE REMOVED, PUBLIC FOOTPATH SIGN POST TO REMAIN BUT BE REPOSITIONED, FIRE HYDRANT MARKER POST TO BE REPOSITIONED

ACCESS TO BE WIDENED TO INCLUDE CYCLE ROUTE. NEW CYCLE PATH SIGNPOST TO BE INSTALLED. 2 STAGGERED ROWS OF REMOVABLE HIGHWAY BOLLARDS TO BE INSTALLED TO PREVENT UNAUTHORISED VEHICULAR ACCESS. PRESENCE OF 11KV UNDERGROUND ELECTRICAL CABLE TO BE TAKEN INTO ACCOUNT DURING WORKS

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
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Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 5 SHEET 2
RUCKHALL LANE TO
DORCHESTER WAY

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 11/11/2015 | Scale: 1:1000 | A1 | Sheet: |
| Project Number: 3512983BP-HHR | | Drawing Number: ATM002 | Revision: - |



Login: Green, James
Plot Date: 02/12/2015 10:12:58
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| Project Number | Drawing Number | Revision |
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| 3512983BP-HHR | ATM003 | - |

SCHEME TO TIE IN WITH TESCO ROUNDABOUT PROPOSALS. (B2 SCHEME) SCHEME COULD BE ALTERED TO DELIVER TO STAND ALONG SCHEME

SCHEME LIMIT

SIGN POSTS INDICATING SHARED CYCLE/FOOTWAY TO BE INSTALLED AT THE START OF THE ROUTE AND THEN REPEATED AT INTERVALS OF APPROXIMATELY 200m ALONG ROUTE

EXISTING HEDGEROW TO BE REMOVED OVER FINAL SECTION OF SCHEME, SOME REGRADING REQUIRED INTO BANK

EXISTING SURFACE MARKINGS WITH ASSOCIATED CAT'S EYES TO BE REMOVED. NEW CARRIAGEWAY CENTRE LINE AND CAT'S EYES TO BE APPLIED FOLLOWING CARRIAGEWAY REALIGNMENT

NOTE:
EXISTING PRIVATE ACCESS POINTS TO GIVE WAY TO SHARED USE PATH WHEREVER POSSIBLE. HOWEVER VISIBILITY ISSUES MAY ARISE IN PROVIDING THIS

FOOTWAY ON NORTH SIDE OF A465 TO BE WIDENED TO 3.0m TO BECOME SHARED CYCLE/FOOTWAY TO TESCO ROUNDABOUT

NOTE:
APPROXIMATELY 11 No. ROAD GULLIES AND SPURS TO BE RELOCATED IN TOTAL

CARRIAGEWAY WIDTH TO BE REDUCED TO 6.5m. EXISTING KERB LINES TO BE BROKEN OUT AND REMOVED, NEW HB2 KERBING TO BE INSTALLED. EXISTING PROPERTY ACCESSES ALONG LENGTH OF WORKS TO BE MAINTAINED. ROAD GULLIES TO BE REPOSITIONED AS NECESSARY. PRESENCE OF BT UNDERGROUND CABLE AND GAS MAIN TO BE TAKEN INTO ACCOUNT DURING WORKS

EXISTING KERB LINE ON SOUTH SIDE OF A465 TO BE BROKEN OUT AND REMOVED AS NECESSARY. CARRIAGEWAY EDGE TO BE REALIGNED AND NEW SPLAY KERBS TO BE INSTALLED IN WHAT IS CURRENTLY GRASSED VERGE

HIGHWAY SENSORS AND CONTROL BOX AT THIS LOCATION MAY REQUIRE REPOSITIONING FOLLOWING WORKS. GUIDANCE TO BE SOUGHT FROM LOCAL AUTHORITY HIGHWAYS DEPARTMENT

EXISTING KERB LINE ON SOUTH SIDE OF A465 TO BE BROKEN OUT AND REMOVED AS NECESSARY. CARRIAGEWAY EDGE TO BE REALIGNED AND NEW SPLAY KERBS TO BE INSTALLED IN WHAT IS CURRENTLY GRASSED VERGE

NOTE:
LOW AND MEDIUM PRESSURE GAS MAINS PRESENT ALONG SOUTH SIDE OF A465. WHOLE CARRIAGEWAY EXTENDS INTO VALVE. PROVISION OF DIVERSION WORK AMY BE REQUIRED. ALTERNATIVELY SHARED USE PATH TO BE NARROWED OVER SECTIONS TO AVOID WORKS WITHIN VERGE

NOTE:
WHERE NEW KERLINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FILL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY.

NOTE:
WHERE NEW KERBLINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ASLLOW FOR PLANNING OUT (40mm) AND RESURFACE FOR HALF LANE WIDTH

SCHEME LIMIT

SCHEME TO TIE INTO A1 SCHEME PROPOSALS. SCHEME COULD BE ALTERED TO BE DELIVERED AS STAND ALONE SCHEME.

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| - | 02/12/15 | FOR DISCUSSION | JG | AJS | GW |

WSP | PARSONS BRINCKERHOFF
1 Capital Quarter,
Tyndall Street,
Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200

Client: Balfour Beatty | Herefordshire Council — Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 5 SHEET 3
TESCO ROUNDABOUT
TO RUCKHALL LANE

| | | | | | |
|---|---|---|---|---|---|
| Drawn: | JG | Checked: | AJS | | |
| Designed: | AJS | Approved: | GW | | |
| Date: | 11/11/2015 | Scale: | 1:500 | A1 | Sheet: |

| Project Number | Drawing Number | Revision |
|---|---|---|
| 3512983BP-HHR | ATM003 | - |



Logn: Green, James
Plot Date: 02/12/2015 10:11:04
File Name: H:\HH\JOBS\3512983A-HHR HerefordTask - South Wye Transport Package SWTP\Belmont TPAcad\ATM Oct 2015\ATM Drawings\ATM003 A3.dwg

Project Number: 3512983BP-HHR
Scale: 1:500
Revision: -

Playing Field

Playing Field

St Michael's Court

Lay-by

Lay-by

Ps

Wood

The Beeches

Lyncheston

Brettargh Holt

Rodley

B 4349

B 4349

Newto

EXISTING FOOTWAY TO BE WIDENED TO MINIMUM 2m WIDE FROM BUS STOP TO B4349

NEW PEDESTRIAN REFUGE (TRAFFIC ISLAND) TO BE CONSTRUCTED WITHIN EXISTING HATCHED AREA. REFUGE TO CONSIST OF TRIEF KERBING, ILLUMINATED TRAFFIC BOLLARDS, WITH TACTILE PAVING IN CENTRAL WALK WAY

DROPPED KERBS AND TACTILE PAVING TO BE INSTALLED ON EITHER SIDE OF CARRIAGEWAY, CENTRED ON NEW PEDESTRIAN REFUGE

EXISTING FOOTWAY TO BE EXTENDED WITH NEW SECTION IN EXISTING GRASSED VERGE. NEW SECTION TO LINK BUS STOP WITH NEW PEDESTRIAN CROSSING POINT

NEW PEDESTRIAN REFUGE TO BE LOCATED IMMEDIATELY PRIOR TO JUNCTION WARNING SIGN IN GRASS VERGE

CARRIAGEWAY TO BE PLANED OUT (40mm) AND RESURFACED. MARKINGS TO BE REAPPLIED

SCHEME LIMIT

SCHEME LIMIT

BUS STOP

BUS STOP

NOTE:
ALL KERBS AND CARRIAGEWAY EXTENTS TO REMAIN AS EXISTING UNLESS NOTED OTHERWISE

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
1 Capital Quarter,
Tyndall Street,
Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200

Client: Balfour Beatty | Herefordshire Council — Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 5 SHEET 4
CLEHONGER ROAD
JUNCTION

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 11/11/2015 | Scale: 1:500 | A1 | Sheet: |
| Project Number: 3512983BP-HHR | Drawing Number: ATM004 | | Revision: - |



Login: Green, James
Plot Date: 02/12/2015 10:17:09
File Name: H:\HHIJOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM DrawingsATM004 A4.dwg

Project Number: 3512983BP-HHR
Drawing Number: ATM017
Revision: -

NEWTON FARM

ETHELSTAN CRESCENT

Community Centre

El Sub Sta

Wyebridge Spo

Tennis Courts

Path

Eardisley Close

Ward Bay

Great Western Way

BRAMPTON

EXISTING BARRIERS AND GATES AT ETHELSTAN CRESCENT AND BRAMPTON ROAD ACCESSES TO BE REMOVED. 2 ROWS OF REMOVABLE HIGHWAY BOLLARDS TO BE INSTALLED

SCHEME LIMIT

SCHEME LIMIT

SCHEME LIMIT

EXISTING CYCLE/FOOT PATH CONNECTING ETHELSTAN CRESCENT, BRAMPTON ROAD AND GREAT WESTERN WAY; WIDTH TO BE INCREASED TO MINIMUM OF 3.0m. CONSTRUCTION TO BE BITUMINOUS MATERIAL. REGULATORY SIGNS REQUIRED AT EACH ACCESS, REPEATER SIGNS REQUIRED AT APPROXIMATELY HALF DISTANCE. STREET LIGHTING REQUIRED ALONG ROUTE; 6.0m COLUMNS AT 20.0m SPACINGS

POSSIBLE EARTHWORKS REQUIRED TO FACILITATE RAMP UP TO GREAT WESTERN WAY

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

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Client: Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 6 SHEET 1
ETHELSTAN CRESCENT
TO BRAMPTON ROAD

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 12/11/2015 | Scale: 1:500 | A1 | Sheet: |

| Project Number: | Drawing Number: | Revision: |
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| 3512983BP-HHR | ATM017 | - |



Login: Green, James
Plot Date: 02/12/2015 15:48:01
File Name: H:\HHIJOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM017 D2.dwg

Project Number: 3512983BP-HHR
Drawing Number: ATM018
Revision: -

NOTE:
PRESENCE OF UNDERGROUND SEWER AND BT CABLE IN VERGE TO BE TAKEN INTO ACCOUNT

NOTE:
TOPSOIL STRIP AND REMOVAL FOR WHOLE LENGTH OF NEW PATH AND EXTENDED AREA ADJACENT TO EXISTING PATH.

NOTE:
5 No. HIGHWAY LIGHTING COLUMNS AND 3 No. HIGHWAY GULLIES TO BE REPOSITIONED IN AREA OF WORKS

EXISTING PELICAN CROSSING ARRANGEMENT TO BE AMENDED TO BECOME TOUCAN CROSSING. WORKS SUBJECT TO HIGHWAYS ENGLAND AGREEMENT

EXISTING PEDESTRIAN ACCESS TO CROSSING TO REMAIN. SOME WORKS REQUIRED TO EXISTING RAMP TO FACILITATE INCREASED WIDTH

EDGE OF CARRIAGEWAY KERB LINE TO BE RECONSTRUCTED WITH 6.0m RADIUS TO ACCOMMODATE SHARED CYCLE/FOOT PATH ROUTE. 1 No. HIGHWAY GULLY TO BE REPOSITIONED

EXISTING FOOT PATH TO BE WIDENED TO FORM PART OF NEW SHARED SECTION OF CYCLE/FOOT PATH

CYCLE WAY TO BECOME SHARED CYCLE/FOOT WAY FROM THIS POINT NORTH TO TOUCAN CROSSING. REGULATORY SIGNS AND SURFACE MARKINGS TO BE INSTALLED

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

NEW CYCLEWAY TO BE CONSTRUCTED IN EXISTING GRASS VERGE ALONG MARLBROOK ROAD. WIDTH TO BE 3.0m, CONSTRUCTION TO BE BITUMINOUS MATERIAL. ROUTE TO BE DETERMINED BY EXTENT OF MATURE TREES

EXISTING BUS STOP TO REMAIN
CYCLE WAY TO ROUTE AROUND

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

BLOCK PAVED RAISED TABLE WITH CYCLE CROSSING POINT TO BE CONSTRUCTED. ALL NECESSARY CARRIAGEWAY MARKINGS, SIGNS AND TACTILE PAVING TO BE INSTALLED

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII

EXISTING CARRIAGEWAY MARKINGS TO BE REMOVED, JUNCTION ARRANGEMENT CHANGED TO BECOME 'T' JUNCTION, GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS LAID

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH NEW 6.0m RADIUS

BLOCK PAVED RAISED TABLE WITH CYCLE CROSSING POINT TO BE CONSTRUCTED ON BEAUFORT AVENUE. ALL NECESSARY CARRIAGEWAY MARKINGS, SIGNS AND TACTILE PAVING TO BE INSTALLED

BLOCK PAVED RAISED TABLE WITH CYCLE CROSSING POINT TO BE CONSTRUCTED ON MERESTONE ROAD. ALL NECESSARY CARRIAGEWAY MARKINGS, SIGNS AND TACTILE PAVING TO BE INSTALLED

EXISTING CARRIAGEWAY MARKINGS TO BE REMOVED, JUNCTION PRIORITY CHANGED TO BECOME 'T' JUNCTION OFF MARLBROOK ROAD. GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS LAID

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERB LINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

SCHEME LIMIT

Green Croft Centre (Social Centre)

GREEN CROFT

STANDALE ROAD

MARLBROOK ROAD

ROSS ROAD (RED HILL)

REDHILL

WITHYPOOL

QUICKSETS

MERESTONE ROAD

BEAUFORT AVENUE

LAYSTERS ACRE

62.2m

67.4m

| Rev | Date | Description | By | Chk | App |
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FOR DISCUSSION


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Tel: 44-(0)2920 769200


Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES GROUP 6 SHEET 2 HEREFORD ACADEMY TO A49 CYCLE ROUTE

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 13/11/2015 | Scale: 1:500 | A1 | Sheet: |





Logn: Green, James
Plot Date: 02/12/2015 15:49:10
File Name: H:\HHI\JOBS\3512983A-HHR HerefordTask - South Wye Transport Package SWTP\Belmont TPAcad\ATM Oct 2015\ATM Drawings\ATM018 D3.dwg

| Project Number | Drawing Number | Revision |
|---|---|---|
| 3512983BP-HHR | ATM019 | - |

2 STAGGERED ROWS OF REMOVABLE HIGHWAY BOLLARDS TO BE INSTALLED AT SHARED CYCLE/FOOT PATH ACCESS. CORRESPONDING SIGNS, SURFACE MARKINGS AND CORDUROY PAVING TO BE INSTALLED

SCHEME LIMIT

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, AND ELECTRICAL CABLE ON ROUTE OF EXISTING CYCLE/FOOT PATH TO BE TAKEN INTO ACCOUNT DURING WORKS

EXISTING SEGREGATED CYCLE/FOOT PATH TO BE WIDENED TO MINIMUM 3.0m WIDTH, TO BE DESEGREGATED (CENTRAL SOLID WHITE LINE REMOVED) WITH CORRESPONDING REGULATORY SIGNS INSTALLED

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, AND BT CABLE TO BE TAKEN INTO ACCOUNT DURING WORKS TO PEDESTRIAN CROSSING

NOTE:
TOPSOIL STRIP AND REMOVAL FOR WHOLE LENGTH OF NEW PATH AND EXTENDED AREA ADJACENT TO EXISTING PATH.

NEW OFF ROAD CYCLE WAY TO BE CONSTRUCTED THROUGH KING GEORGE'S FIELD. WIDTH TO BE 3.0m, CONSTRUCTION TO BE BITUMINOUS MATERIAL

2 STAGGERED ROWS OF REMOVABLE HIGHWAY BOLLARDS TO BE INSTALLED AT CYCLE/FOOT PATH ACCESS. CYCLE ROUTE SIGNS AND SURFACE MARKINGS TO BE INSTALLED. EXISTING CORDUROY PAVING ARRANGEMENT TO BE EXTENDED TO COVER ENTIRE WIDTH OF ACCESS

2 STAGGERED ROWS OF REMOVABLE HIGHWAY BOLLARDS TO BE INSTALLED AT CYCLE PATH ACCESS. CYCLE ROUT SIGNS, SURFACE MARKINGS AND CORDUROY PAVING TO BE INSTALLED

SCHEME LIMIT

SCHEME LIMIT

SCHEME LIMIT

CARRIAGEWAY WIDTH AT NEW TOUCAN CROSSING TO BE REDUCED TO 4.0m. KERB LINES ON BOTH SIDES OF HINTON ROAD TO BE REMOVED AND REALIGNED TO FORM NARROWING FOR ONE WAY SHUTTLE WORKING

1 No. HIGHWAY GULLY AND CHAMBER COVER TO BE REPOSITIONED AND RAISE DURING KERB REALIGNMENT WORKS

EXISTING ZEBRA CROSSING OVER PAVED ROAD HUMP TO BE AMENDED TO SIGNAL CONTROLLED TOUCAN CROSSING. ASSOCIATED SURFACE MARKINGS AND SIGNALING EQUIPMENT TO BE INSTALLED. EXISTING ZIG-ZAG SURFACE MARKINGS AND BELISHA BEACONS TO BE REMOVED

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERB LINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

| Rev | Date | Description | By | Chk | App |
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FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 7 SHEET 1
BISHOP'S MEADOW AND
HINTON ROAD CYCLE ROUTE

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|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 13/11/2015 | Scale: 1:500 | A1 | Sheet: |

| Project Number: | Drawing Number: | Revision: |
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| 3512983BP-HHR | ATM019 | - |





Login: Green, James
Plot Date: 02/12/2015 14:14:06
File Name: H:\HH\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM019 E1 E2.dwg

Project Number: 3512983BP-HHR
Drawing Number: ATM020
Revision: -

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

HOARWITHY ROAD JUNCTIONS WITH LONGMEADOW AND WEB TREE AVENUE TO BECOME BLOCK PAVED RAISED TABLE. RAMP WARNING SIGNS AND CARRIAGEWAY MARKINGS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII, TO TIE INTO MAIN HOARWITHY ROAD WORKS. CYCLE/FOOT WAYS TO BE EXTENDED TO NEW KERBLINE

UNCONTROLLED CYCLE/PEDESTRIAN CROSSING TO BE PROVIDED ACROSS LONGMEADOW JUNCTION BELLMOUTH

EXISTING FOOTWAY ON EAST SIDE OF HOARWITHY ROAD TO BE WIDENED TO PROVIDE SHARED CYCLE/FOOT WAY, WITH MINIMUM 3.0m WIDTH. KERB TO BE REALIGNED WITH CARRIAGEWAY WIDTH REDUCED WHERE NECESSARY

REALIGNED KERB LINE TO TIE BACK INTO EXISTING AT THIS POINT. EXISTING GRASS VERGE BEHIND FOOTWAY TO BE UTILISED FOR FOOTWAY WIDENING UP TO NEW TOUCAN CROSSING. LESS CONFLICT WIT PROPERTIES ON THIS SIDE OF HOARWITHY ROAD

SCHEME LIMIT

SCHEME TO TIE INTO EXISTING PROPOSALS FOR IMPROVEMENTS ON HOLME LACY ROAD

UNCONTROLLED PEDESTRIAN CROSSING TO BE PROVIDED ACROSS NEW RAISED TABLE ON HOARWITHY ROAD

EAST AND WEST SIDE KERB LINES TO BE RECONSTRUCTED AND REALIGNED TO NARROW CARRIAGEWAY TO 5.5m OVER LENGTH OF RAISED TABLE

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII, TO TIE INTO MAIN HOARWITHY ROAD WORKS. CYCLE/FOOT WAYS TO BE EXTENDED TO NEW KERBLINE

REALIGNED KERB LINE TO TIE BACK INTO EXISTING AT THIS POINT

ACCESS FROM HOARWITHY ROAD TO POPPY WALK TO BE WIDENED TO MINIMUM 3.0m WIDTH. EXISTING STAGGERED PEDESTRIAN GUARD RAIL CONTROL MEASURE TO BE REMOVED

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED ACROSS NEW TABLE TOP ON HOARWITHY ROAD

EAST SIDE SHARED CYCLE/FOOT WAY TO TERMINATE AT THIS POINT. CORDUROY PAVING AND REGULATORY SIGNS TO BE INSTALLED TO DIRECT CYCLISTS ACROSS CROSSING

NEW SHARED CYCLE/FOOT WAY TO JOIN WITH EXISTING SHARED ROUTE "POPPY WALK" AND CONTINUE SOUTH

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
6 No. HIGHWAY GULLIES TO BE REPOSITIONED WITHIN WORKS AREA

CUT LINE

HOMESTEAD

HOARWITHY ROAD

Poppy Walk

WEB TREE AVENUE

LAYCOCK DRIVE

THE PASTURES

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERB LINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

HOARWITHY ROAD JUNCTION WITH ACONBURY AVENUE AND SAXON HALL ACCESS TO BECOME BLOCK PAVED RAISED TABLE. RAMP WARNING SIGNS AND CARRIAGEWAY MARKINGS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII, TO TIE INTO MAIN HOARWITHY ROAD WORKS. CYCLE/FOOT WAYS TO BE EXTENDED TO NEW KERBLINE

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII ALL AROUND, TO TIE INTO MAIN HOARWITHY ROAD WORKS. CYCLE/FOOT WAYS TO BE EXTENDED TO NEW KERBLINE

WEST SIDE KERB LINE TO BE REALIGNED. CARRIAGEWAY TO BE NARROWED TO 5.5m BETWEEN NEW TABLE TOP AND THE PASTURES

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

2 No. BT CABINETS AND 2 No. BT CHAMBERS TO BE REPOSITIONED

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS ALONG A465 NORTH EDGE KERB LINE.

NOTE:
8 No. HIGHWAY GULLIES AND 5 No. HIGHWAY LIGHTING COLUMNS TO BE REPOSITIONED WITHIN WORKS AREA

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED ACROSS NEW BLOCK PAVED RAISED TABLE ON HOARWITHY ROAD

NEW SHARED CYCLE/FOOT WAY ON HOARWITHY ROAD TO TERMINATE AT THIS POINT. REGULATORY SIGNS TO BE INSTALLED, CYCLISTS TRAVELING NORTH TO BE DIRECTED ON TO EXISTING SHARED ROUTE "POPPY WALK"

UNCONTROLLED CYCLE/PEDESTRIAN CROSSINGS TO BE PROVIDED ACROSS JUNCTION BELLMOUTHS

NEW 3.0m SHARED CYCLE/FOOT PATH TO BE CONSTRUCTED IN EXISTING VERGE AND BEHIND REALIGNED KERB LINE

NEW SHARED CYCLE/FOOT WAY ON HOARWITHY ROAD TO TERMINATE AT THIS POINT. REGULATORY SIGNS TO BE INSTALLED, CYCLISTS TRAVELING SOUTH TO BE DIRECTED TO USE NEW CROSSING

EXISTING SHAERD ROUTE "POPPY WALK" TO REJOIN HOARWITHY ROAD AT THIS POINT. CYCLISTS TO BE DIRECTED ACROSS NEW CROSSING POINT TO CONTINUE ON NEW SHARED CYCLE/FOOT WAY

5.5
3.0

BM 52.91m
BM 52.94m

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
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Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES GROUP 7 SHEET 2 HOARWITHY ROAD SHARED USE OFF-ROAD PATH

| Drawn: | JG | Checked: | AJS |
|---|---|---|---|
| Designed: | AJS | Approved: | GW |
| Date: | 13/11/2015 | Scale: 1:500 | A1 Sheet: |



Login: Green, James
Plot Date: 02/12/2015 15:51:37
File Name: H:\HH\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM020 E3.dwg

Project Number: 3512983BP-HHR
Drawing Number: ATM021
Revision: -

Glenmore Park
Pond
Tank
Depot
Ambulance Service HQ
Slade Gate Cottages
MP 15
BULLINGHAM LANE
THURESBY DRIVE

NOTE:
TOPSOIL STRIP AND REMOVAL FOR WHOLE LENGTH OF NEW PATH

NOTE:
PURCHASE OF LAND SHOULD BE INCLUDED IN COST ESTIMATE

NOTE:
ALLOW FOR FENCING ALONG WHOLE ROUTE

NOTE:
ALLOW FOR STREET LIGHTING ALONG ROUTE, 4m COLUMNS @ 20m SPACINGS

3.0m WIDE CYCLE PATH TO BE CONSTRUCTED WITH 0.5m VERGE EITHER SIDE. APPROPRIATE SIGNS TO BE INSTALLED ALONG ROUTE

SCHEME TO TIE INTO EXISTING ACCESS ROAD THROUGH GRAFTON DEPOT AREA. SOME UPGRADES MAY BE REQUIRED TO EXISTING INFRASTRUCTURE

SCHEME LIMIT

ACCESS TO INCLUDE 2 STAGGERED ROWS OF REMOVABLE HIGHWAY BOLLARDS AND ASSOCIATED CYCLE PATH SIGNS

POTENTIAL ISSUES WITH LEVELS AND VEGETATION ALONG LAST SECTION OF ROUTE. APPROXIMATELY 4.0m LEVEL DIFFERENCE AND CLOSE PROXIMITY TO RAILWAY EMBANKMENT WHICH IS HEAVILY VEGETATED

FURTHER WORK REQUIRED TO LINK NEW PATH TO SAXON GATE HOUSING DEVELOPMENT. POTENTIAL CONFLICTS WHERE CARRIAGEWAY NARROWS UNDER RAILWAY BRIDGE

OPTION TO BRING PATH ONTO ACCESS FOR EXISTING PROPERTIES, EASIER POINT OF ACCESS BUT WOULD BE RELIANT ON ACCESS BEING UNDER HEREFORDSHIRE COUNCIL CONTROL OR FUTHER THIRD PARTY AGREEMENTS

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
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Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200

Client: Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 7 SHEET 3
GRAFTON DEPOT TO BULLINGHAM LANE

| | | | |
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| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 13/11/2015 | Scale: 1:500 | A1 | Sheet: |

| Project Number: | Drawing Number: | Revision: |
|---|---|---|
| 3512983BP-HHR | ATM021 | - |



Login: Green, James
Plot Date: 02/12/2015 15:50:38
File Name: H:\HH\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM021 E4.dwg

| Project Number | 3512983BP-HHR |
|---|---|
| Drawing Number | ATM031 |
| Revision | - |

SCHEME TIES IN WITH J3 SCHEME (WALNUT TREE AVENUE CLOSURE TO THROUGH TRAFFIC), SCHEMES SHOULD BE REVIEWED AS ONE BUT COULD BE ALTERED FOR STAND ALONE SCHEMES

SCHEME LIMIT

CARRIAGEWAY WIDTH REDUCED TO ACCOMMODATE WIDER CENTRAL TRAFFIC ISLAND. RIGHT TURN ONLY LANE REMOVED, NEW RIGHT HAND LANE TO BE DESIGNATED RIGHT TURN/STRAIGHT ON

EXISTING CENTRAL TRAFFIC ISLAND WIDTH TO BE INCREASED TO 4.0m AT JUNCTION END, THEN REDUCING DOWN TO ORIGINAL WIDTH

NOTE:
FURTHER ADJUSTMENTS TO CENTRAL ISLAND AND TOUCAN CROSSING ARE LIKELY BEFORE DESIGN IS FINALISED

EXISTING PEDESTRIAN CROSSING TO BE AMENDED TO BECOME TOUCAN CROSSING. ALL NECESSARY SIGNS, CARRIAGEWAY MARKINGS AND TACTILE PAVING TO BE PROVIDED

EXISTING FOOTWAY WIDENED TO MINIMUM 3.0m TO FORM SHARED USE CYCLE/FOOTWAY

OAK AVENUE JUNCTION RADII TO BE 6.0m

EXISTING FOOTWAY WIDENED TO MINIMUM 3.0m TO FORM SHARED USE FOOTWAY/CYCLEWAY BETWEEN

CARRIAGEWAY WIDTH REDUCED TO ACCOMMODATE NEW SHARED CYLE/FOOTWAY ON NORTHERN SIDE OF HOLME LACY ROAD. STRAIGHT ON/LEFT TURN LANE REDUCED IN LENGTH FOR NORTH BOUND TRAFFIC

OAK AVENUE JUNCTION RADII TO BE 6.0m

SCHEME TO TIE INTO BALFOUR BEATTY DESIGNED SCHEME AT THIS POINT

NOTE:
FURTHER ADJUSTMENTS TO INTERFACE BETWEEN BALFOUR BEATTY DESIGN AND WSP PARSONS BRINKERHOFF DESIGN MAY BE NECESSARY IN ORDER TO MAINTAIN CONTINUITY

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANNING OUT (40mm) AND RESURFACE FOR HALF LANE WIDTH

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
1 Capital Quarter,
Tyndall Street,
Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 8 SHEET 1
HOLME LACY ROAD SHARED USE CYCLE/ FOOTWAY

| Drawn: | JG | Checked: | AJS |
|---|---|---|---|
| Designed: | AJS | Approved: | GW |
| Date: | 11/12/2015 | Scale: 1:500 | A1 Sheet: |



Login: Green, James
Plot Date: 04/01/2016 09:39:08
File Name: H:\HHI\JOBS\351\2983A-HHR Hereford\dT\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM031 F1.dwg

SCHEME TO TIE INTO BALFOUR BEATTY DESIGNED WORKS AT THIS POINT

SCHEME LIMIT

SCHEME LIMIT

CYCLISTS TRAVELLING NORTH TO REJOIN CARRIAGEWAY AT TABLE TOP TO JOIN UP WITH EXISTING ROUTE

JUNCTION GIVEWAY MARKINGS AND CARRIAGEWAY CENTRE LINE TO BE RELAYED TO SUIT NEW JUNCTION GEOMETRY

EXISTING GRASSED VERGE AREA TO BE EXTENDED TO THE WEST WITH NEW KERB LINES AND 4.5m JUNCTION RADII CONSTRUCTED. NEW SECTION OF SHARED CYCLE/FOOTWAY TO BE CONSTRUCTED

EXISTING JUNCTION RADIUS TO BE REDUCED TO 6.0m WITH THE CONSTRUCTION OF NEW KERB LINES AND AREAS OF CYCLE/FOOTWAY CONSTRUCTION

NEW BLOCK PAVED TABLE TOP TO COVER HINTON ROAD JUNCTION WITH AND HOLME LACY ROAD

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED ACROSS JUNCTION BELLMOUTH

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED ACROSS NEW TABLE TOP

EXISTING FOOTPATH TO BE WIDENED TO 3.0m AND REDIRECTED TO LINK WITH NEW UNCONTROLLED CROSSING

EXISTING FOOTWAY ON NORTH SIDE OF HOLME LACY ROAD TO BE WIDENED TO 3.0m, TO BECOME SHARED CYCLE/FOOTWAY. EXISTING VERGE TO BE UTILISED FOR WIDENING

CUT LINE B

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
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FOR DISCUSSION


WSP | PARSONS BRINCKERHOFF
1 Capital Quarter,
Tyndall Street,
Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200


Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 8 SHEET 2
HOLME LACY ROAD
SHARED USE CYCLE/ FOOTWAY

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 16/12/2015 | Scale: 1:500 | A1 | Sheet: |

| Project Number: | Drawing Number: | Revision: |
|---|---|---|
| 3512983BP-HHR | ATM034 | - |






Login: Green, James
Plot Date: 04/01/2016 18:08:15
File Name: H:\HHIJOBS\3512983A-HHR HerefordTask - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM032 Holme Lacy Road.dwg

| Project Number | Scale/Folder | Revision |
|---|---|---|
| 3512983BP-HHR | ATM033 | - |

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED SET BACK FROM JUNCTION BELLMOUTH IN ORDER TO MAINTAIN VISIBILITY

EXISTING FOOTWAY ON NORTH SIDE OF HOLME LACY ROAD TO BE WIDENED TO 3.0m, TO BECOME SHARED CYCLE/FOOTWAY. EXISTING VERGE TO BE UTILISED FOR WIDENING

NEW BLOCK PAVED TABLE TOP TO COVER PUTSON AVENUE JUNCTION WITH AND HOLME LACY ROAD

CYCLE/FOOTWAY ON SOUTH SIDE OF HOLME LACY ROAD TO TERMINATE AT CLAREMONT COURT. SIGNS AND CARRIAGEWAY MARKINGS TO DIRECT PEDESTRIANS AND CYCLISTS TO NEW CROSSING TO THE EAST

NEW BLOCK PAVED TABLE TOP TO COVER CLAREMONT COURT JUNCTION WITH AND HOLME LACY ROAD

EXISTING FOOTWAY ON NORTH SIDE OF HOLME LACY ROAD TO BE WIDENED TO 3.0m, TO BECOME SHARED CYCLE/FOOTWAY. KERB LINE TO BE REALIGNED WITH CARRIAGEWAY NARROWING TO A MINIMUM 6.0m

FOOTWAY ON SOUTH SIDE OF HOLME LACY ROAD TO BE BROKEN OUT AND SURFACE RECONSTRUCTED AS CARRIAGEWAY

JUNCTION GIVEWAY MARKINGS AND CARRIAGEWAY CENTRE LINE TO BE RELAYED TO SUIT NEW JUNCTION GEOMETRY

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII, TO TIE INTO REALIGNED KERB LINES EITHER SIDE

KERBLINE TO BE CONSTRUCTED IN FRONT OF PUBLIC HOUSE TO FORM NEW WIDENED CYCLE/FOOTWAY. NEW DROPPED KERB ACCESS POINTS FOR PUBLIC HOUSE AND BROOK HOUSE PROPERTY TO BE PROVIDED

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED ACROSS NEW TABLE TOP

NEW BLOCK PAVED TABLE TOP TO COVER ST CLARES COURT JUNCTION WITH AND HOLME LACY ROAD

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED ACROSS JUNCTION BELLMOUTH

EXISTING UNCONTROLLED PEDESTRIAN CROSSING TO BE RETAINED WITH NEW TABLE TOP

EXISTING CYCLE ROUTE TO BE WIDENED TO 3.0m BETWEEN CLAREMONT COURT AND LOWER BULLINGHAM LANE

JUNCTION GIVEWAY MARKINGS AND CARRIAGEWAY CENTRE LINE TO BE RELAYED TO SUIT NEW JUNCTION GEOMETRY

SCHEME LIMIT

SCHEME LIMIT

SCHEME LIMIT

SCHEME LIMIT

CUT LINE B

CUT LINE A

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
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FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 8 SHEET 3
HOLME LACY ROAD
SHARED USE CYCLE/ FOOTWAY

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 16/12/2015 | Scale: 1:500 | A1 | Sheet: |

| Project Number: | Drawing Number: | Revision: |
|---|---|---|
| 3512983BP-HHR | ATM033 | - |



Login: Green, James
Plot Date: 04/01/2016 18:07:23
File Name: H:\HHI\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM032 Holme Lacy Road.dwg

| Project Number | Drawing Number | Revision |
|---|---|---|
| 3512983BP-HHR | ATM032 | - |

JUNCTION TO BE RECONSTRUCTED AS BLOCK PAVED TABLE TOP

EXISTING JUNCTION KERBING TO BE REMOVED AND RECONSTRUCTED WITH 6.0m RADII

JUNCTION GIVEWAY MARKINGS AND CARRIAGEWAY CENTRE LINE TO BE RELAYED TO SUIT NEW JUNCTION GEOMETRY

WEST KERB LINE ON ST VINCENT'S CLOSE TO BE EXTENDED TO FORM NEW SECTION OF FOOTWAY TO HOLME LACY ROAD. JUNCTION RADIUS TO BE 6.0m

EXISTING CARRIAGEWAY ROUTE JOINING ST VINCENT'S ROAD TO BE STOPPED UP AND NEW SECTION OF FOOTWAY CONSTRUCTED. CARRIAGEWAY TO REMAIN AS PARKING AREA FOR PROPERTIES. TRAFFIC TO USE JUNCTION DIRECTLY ON TO HOLME LACY ROAD

EXISTING UNCONTROLLED PEDESTRIAN CROSSING TO REMAIN IN PLACE

RADIUS ON EAST SIDE OF JUNCTION TO BE RELAYED IN PAINT AS EXISTING. NEW DASHED LINE JUNCTION DEMARCATION TO HAVE 6.0m RADIUS

SCHEME TO TIE INTO EXISTING PROPOSALS FOR IMPROVEMENTS ON HOLME LACY ROAD

EXISTING CYCLE/FOOTWAY SURFACING TO BE BROKEN OUT AND REINSTATED AS VERGE

FOOTWAY WIDENING AND KERB REALIGNMENT ON HOLME LACY ROAD TO COMMENCE AT JUNCTION WITH LOWER BULLINGHAM LANE

EXISTING CYCLE ROUTE TO BE WIDENED TO 3.0m AND REDIRECTED TO NEW UNCONTROLLED CROSSING AT JUNCTION WITH LOWER BULLINGHAM LANE

UNCONTROLLED PEDESTRIAN AND CYCLE CROSSING TO BE PROVIDED ACROSS NEW TABLE TOP

NOTE:
CARRIAGEWAY CENTRE LINE TO BE RELAYED TO SUIT NEW LANE WIDTHS AND REALIGNED KERBS ALONG ENTIRE LENGTH OF WORKS ON HOLME LACY ROAD

EXISTING FOOTWAY ON SOUTH SIDE OF HOLME LACY ROAD TO BE WIDENED TO PROVIDE SHARED CYCLE/FOOT WAY, WITH MINIMUM 3.0m WIDTH. KERB TO BE REALIGNED WITH CARRIAGEWAY WIDTH REDUCED WHERE NECESSARY

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE PROVIDED OVER EXISTING SURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ALLOW FOR PLANING OUT (40mm) AND RESURFACING FOR HALF LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
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FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 8 SHEET 4
HOLME LACY ROAD
SHARED USE CYCLE/ FOOTWAY

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 16/12/2015 | Scale: 1:500 | A1 | Sheet: |



Login: Green, James
Plot Date: 04/01/2016 18:05:55
File Name: H:\HHI\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM032 Holme Lacy Road.dwg

SCHEME TIES INTO EXISTING SHARED USE CYCLE/FOOTWAYS ON HOLME LACY ROAD

SCHEME LIMIT

LINK TO NEW CYCLE ROUTE PROVIDED PARALLEL TO RAILWAY LINE

NEW TOUCAN CROSSINGS TO BE INSTALLED OVER BLOCK PAVED RAISED TABLES WITH ALL CORRESPONDING SIGNS AND CARRIAGEWAY MARKINGS. CROSSINGS TO FORM PART OF SHUTTLE SIGNAL SYSTEM

EXISITNG KERB LINE TO BE REALIGNED, CARRIAGEWAY TO BE NARROWED TO FACILITATE A MINIMUM 3.0m SHARED USE CYCLE/FOOTWAY FROM NEW CROSSING TO TAPER FOR TIE IN POINT WITH EXISTING

CYCLE ROUTE TO CONTINUE ON CARRIAGEWAY UNDER SHUTTLE SIGNAL ONE WAY SYSTEM

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
6 No. HIGHWAY GULLIES TO BE REPOSITIONED WITHIN WORKS AREA

EXISTING PARKING BAYS FOR PROPERTY AND ELEVATED FOOTWAY ARE CONSTRAINTS TO PROVIDING CYCLE ROUTE ON NORTHERN SIDE OF CARRIAGEWAY

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING TO BE BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS, ALLOW FOR PLANING OUT (40mm DEPTH) AND RESURFACING FOR WHOLE LANE WIDTH

KERB LINE TO BE REALIGNED ON EASTERN SIDE OF BRIDGE TO NARROW CARRIAGEWAY TO 5.5m, MINIMUM 2.5m WIDE SHARED CYCLE/FOOTWAY TO BE PROVIDED

UNCONTROLLED CYCLE/PEDESTRIAN CROSSING TO BE PROVIDED ACROSS LONGMEADOW JUNCTION BELLMOUTH

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY, APPROPRIATE SIGNS TO BE INSTALLED

JUNCTION GIVE WAY AND CENTRE LINE CARRIAGEWAY MARKINGS TO BE RELAYED

EXISTING SIGNALISED PEDESTRIAN CROSSING TO BE REMOVED

SCHEME LIMIT

JUNCTION TO BECOME BLOCK PAVED RAISED TABLE. RAMP WARNING SIGNS AND CARRIAGEWAY MARKINGS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

SCHEME TIES INTO EXISTING CYCLEWAYS ON NORTHERN EDGE OF THE STRAIGHT MILE AND THROUGH ESTATES ROUTES NORTH AND SOUTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT

| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| - | 02/12/15 | FOR DISCUSSION | JG | AJS | GW |


WSP | PARSONS BRINCKERHOFF
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Tel: 44-(0)2920 769200


Client: Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 8 SHEET 5
HOLME LACY ROAD
RAILWAY BRIDGE

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 13/11/2015 | Scale: 1:500 | A1 | Sheet: |
| Project Number: 3512983BP-HHR | Drawing Number: ATM022 | | Revision: - |






Login: Green, James
Plot Date: 02/12/2015 15:52:30
File Name: H:\HH\JOBS\3512983A-HHR HerefordTask - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM022 F2.dwg

| Project Number | Drawing Number | Revision |
|---|---|---|
| 3512983BP-HHR | ATM029 | - |

APPROACH TO "BUS ONLY" RESTRICTION TO BE APPROPRIATELY SIGNED IN ADVANCE OF ROUNDABOUT

SCHEME LIMIT

NEW MARKINGS TO BE PROVIDED ON NORTHERN SIDE OF BRIDGE

ALL CARRIAGEWAY AND FOOTWAY EXTENTS TO REMAIN AS EXISTING

"BUS ONLY" RESTRICTION TO BE INSTALLED IN THE VICINITY OF GREAT WESTERN WAY BRIDGE. OPTIONS COULD INCLUDE AUTOMATIC BOLLARD OR BARRIER OR CCTV CAMERAS. RESTRICTION TO ALLOW USE BY PEDESTRIANS AND CYCLISTS

NEW MARKINGS TO BE PROVIDED ON SOUTHERN SIDE OF BRIDGE

APPROACH TO "BUS ONLY" RESTRICTION TO BE APPROPRIATELY SIGNED IN ADVANCE OF JUNCTION WITH PEMBRIDGE CLOSE

SCHEME LIMIT

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Tyndall Street,
Cardiff, CF10 4BZ
Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 9 SHEET 1
HUNDERTON ROAD
BUS ROUTE

| | | | | | |
|---|---|---|---|---|---|
| Drawn: | JG | | Checked: | AJS | |
| Designed: | AJS | | Approved: | GW | |
| Date: | 13/11/2015 | Scale: 1:500 | A1 | Sheet: | |



Login: Green, James
Plot Date: 02/12/2015 15:41:40
File Name: H:\HH\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TPA\cad\ATM Oct 2015\ATM Drawings\ATM029 J2.dwg

NOTE:
PRESENCE OF UNDERGROUND GAS MAIN, WATER MAIN, BT CABLE AND ELECTRICAL CABLING TO BE TAKEN INTO ACCOUNT DURING WORKS

NOTE:
8 No. HIGHWAY GULLIES TO BE REPOSITIONED AND SPURS AMENDED ACCORDINGLY WITHIN WORKS AREA

EXISTING CENTRAL TRAFFIC ISLAND WITH LIT BOLLARDS TO BE REMOVED. ELECTRICAL CONNECTION TO BOLLARDS TO BE MADE SAFE

A465 BELMONT ROAD JUNCTIONS WITH HUNDERTON ROAD AND WALNUT TREE AVENUE TO BECOME BLOCK PAVED RAISED TABLE. RAMP WARNING SIGNS AND CARRIAGEWAY MARKINGS TO BE INSTALLED ON APPROACH FROM EACH DIRECTION

SCHEME LIMIT

SCHEME TIES INTO PROPOSALS FOR BUS LANE TO ASDA. SCHEMES SHOULD BE REVIEWED TOGETHER BUT COULD BE ALTERED TO BE STAND-ALONE SCHEMES

PROVISION FOR CYCLISTS TO REJOIN CARRIAGEWAY/CYCLEWAY. APPROPRIATE SIGNS AND SURFACE MARKINGS TO BE INSTALLED

UNCONTROLLED CYCLE/PEDESTRIAN CROSSING TO BE CONSTRUCTED INCLUDING ALL NECESSARY SIGNS, SURFACE MARKINGS AND TACTILE PAVING. REQUIRED VISIBILITY FROM ADJUSTED GIVE WAY LINE MAY BE AN ISSUE, OPTION TO REDUCE SPEED LIMIT TO 20mph AS PART OF STREETSCAPE, THIS VISIBILITY COULD THEN BE ACHIEVED

SCHEME TIES INTO PROPOSALS FOR CYCLE ROUTE ON WALNUT TREE AVENUE. SCHEMES SHOULD BE REVIEWED TOGETHER BUT COULD BE ALTERED TO BE STAND-ALONE SCHEMES

KERB LINE TO BE REALIGNED, CARRIAGEWAY TO BE NARROWED TO FACILITATE A 3.0m SHARED USED CYCLE/FOOTWAY ON NORTHERN EDGE OF BELMONT ROAD

NORTH AND SOUTH KERB LINES TO BE REALIGNED, CARRIAGEWAY TO BE NARROWED TO FACILITATE 3.0m SHARED USE CYCLE/FOOTWAY EITHER SIDE OF NEW TOUCAN CROSSING

NEW TOUCAN CROSSING TO INCLUDE ALL NECESSARY SIGNS, SURFACE MARKINGS AND TACTILE PAVING

WORKS TO TIE INTO WIDER BELMONT ROAD PROPOSALS

SCHEME LIMIT

EXISTING CENTRAL TRAFFIC ISLAND WITH LIT BOLLARDS TO BE REMOVED. ELECTRICAL CONNECTION TO BOLLARDS TO BE MADE SAFE

CARRIAGEWAY NARROWED TO 6.5m WIDTH AT WESTERN END TO FACILITATE THE PROVISION OF 3.0m WIDE SHARED USE CYCLE/FOOTWAY AND 2.5m VERGE ON NORTHERN SIDE, WITH 2.5m FOOTWAY ON SOUTH SIDE AS PART OF BELMONT ROAD STREETSCAPE

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING TO BE BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW VERGE/PLANTING AREAS ARE TO BE PROVIDED OVER EXISTING SEURFACING, ASSUME 200mm SURFACE BROKEN OUT AND REPLACED WITH TOP SOIL

NOTE:
WHERE NEW KERB LINE IS OUTSIDE OF EXISTING CARRIAGEWAY, ALLOW FOR FULL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW KERB LINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS, ALLOW FOR PLANING OUT (40mm DEPTH) AND RESURFACING FOR WHOLE LANE WIDTH

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|

FOR DISCUSSION

WSP | PARSONS BRINCKERHOFF
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Tel: 44-(0)2920 769200

Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 9 SHEET 2
WIDER SCHEME BELMONT ROAD NEW CONTROLLED CROSSING

| | | | | | |
|---|---|---|---|---|---|
| Drawn: | JG | | Checked: | AJS | |
| Designed: | AJS | | Approved: | GW | |
| Date: | 13/11/2015 | Scale: 1:500 | A1 | Sheet: | |
| Project Number: | | Drawing Number: | | Revision: | |
| 3512983BP-HHR | | ATM025 | | - | |



Project Number: 3512983BP-HHR
Drawing Number: ATM025
Revision: -

Login: Green, James
Plot Date: 02/12/2015 15:32:12
File Name: H:\HH\JOBS\3512983A-HHR Hereford\Task - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM025 F4 Wide.dwg

SCHEME TIES IN WITH H1 SCHEME (IMPROVED CYCLE CROSSING ON BELMONT ROAD), SCHEMES SHOULD BE REVIEWED AS ONE BUT COULD BE ALTERED FOR STAND ALONE SCHEMES

NEW BLOCK PAVED RAISED TABLE WITH UNCONTROLLED PEDESTRIAN AND CYCLIST CROSSING TO BE CONSTRUCTED INCLUDING TACTILE PAVING

ALL CARRIAGEWAY AND FOOTWAY EXTENTS TO REMAIN AS EXISTING

EXISTING CARRIAGEWAY TO BE BROKEN OUT TO FORM VERGE

EXISTING FOOTWAY WIDENED TO MINIMUM 3.0m TO FORM SHARED USE FOOTWAY/CYCLEWAY BETWEEN CROSSINGS

EXISTING FOOTWAY WIDENED TO MINIMUM 3.0m TO FORM SHARED USE FOOTWAY / CYCLEWAY LINK TO BELMONT ROAD

SPEED HUMP TO BE REMOVED AND AREA RESURFACED

SPEED HUMP TO BE REMOVED AND AREA RESURFACED

ADVISORY CYCLE MARKINGS ALONG WALNUT TREE AVENUE TO PROVIDE WIDTH OF 1.5m IN EACH DIRECTION

TURNING HEAD PROVIDED ON WESTERN SECTION OF WALNUT TREE AVENUE. THIRD PARTY LAND REQUIRED TO

RAISED TABLE TO BE REMOVED AND RESURFACED

EXISTING FOOTWAY WIDENED TO FOLLOW REALIGNED KERBLINE

EXTENTS OF CARRIAGEWAY AND FOOTWAY ON WALNUT TREE AVENUE, EAST OF JUNCTION WITH HOLME LANE, TO REAMIN AS EXISTING UNLESS NOTED OTHERWISE

NEW ISLANDS TO BE CONSTRUCTED TO FACILITATE CLOSURE TO THROUGH TRAFFIC (EXCEPT BUSES). PROVISION TO BE MORE FOR ENFORCING CLOSURE SUCH AS AUTOMATIC BOLLARD OR CCTV CAMERAS

RADII OF JUNCTION TIGHTENED

EXISTING SPLITTER ISLAND REMOVED, STREET LIGHTING COLUMN TO BE REPOSITIONED, BT SERVICES MAY REQUIRE PROTECTION / DIVERSION - MAY BE EASIER TO ALTER JUNCTION ARRANGEMENT

JUNCTION WITH A49 (ROSS ROAD) TO BE DETERMINED IN CONJUNCTION WITH HIGHWAYS ENGLAND

NOTE:
WHERE FOOTWAY IS CONSTRUCTED OVER EXISTING CARRIAGEWAY, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH GRANULAR FILL

NOTE:
WHERE NEW KERBLINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FULL DEPTH RECONSSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY

NOTE:
WHERE NEW KERBLINE IS OUTSIDE OF EXISTING CARRIAGEWAY ALLOW FOR FILL DEPTH RECONSTRUCTION INCLUDING 600mm WIDTH INTO EXISTING CARRIAGEWAY.

NOTE:
WHERE NEW VERGE / PLANTING AREAS ARE PROIVDED OVER EXISTING SURFACING, ASSUME 200mm SURFACING BROKEN OUT AND REPLACED WITH TOPSOIL

NOTE:
WHERE NEW KERBLINE IS WITHIN EXISTING CARRIAGEWAY EXTENTS ASLLOW FOR PLANNING OUT (40mm) AND RESURFACE FOR HALF LANE WIDTH

SPEED HUMP TO BE REMOVED AND AREA RESURFACED

THIS DRAWING IS AT CONCEPTUAL STAGE FOR TRANSPORT MODELLING PURPOSES. FURTHER WALK OVER AND TOPOGRAPHICAL SURVEYS WILL BE REQUIRED IN ORDER TO CONFIRM THE FEASIBILITY OF THE PROPOSALS AND PROVIDE A STANDARD HIGHWAYS ALIGNMENT



| Rev | Date | Description | By | Chk | App |
|---|---|---|---|---|---|
| - | | | | | |

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Client:
Balfour Beatty | Herefordshire Council
Working for Herefordshire

Site/Project:
SOUTH WYE TRANSPORT PACKAGE

Title:
ACTIVE TRAVEL MEASURES
GROUP 9 SHEET 3
WALNUT TREE AVENUE
CLOSURE TO
THROUGH TRAFFIC

| | | | |
|---|---|---|---|
| Drawn: JG | | Checked: AJS | |
| Designed: AJS | | Approved: GW | |
| Date: 13/11/2015 | Scale: 1:500 | A1 | Sheet: |
| Project Number: 3512983BP-HHR | Drawing Number: ATM030 | | Revision: - |



Project Number: 3512983BP-HHR
Drawing Number: ATM030
Revision: -
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Plot Date: 02/12/2015 15:43:44
File Name: H:\HH\JOBS\3512983A-HHR Hereford\dTask - South Wye Transport Package SWTP\Belmont TP\Acad\ATM Oct 2015\ATM Drawings\ATM030 J3.dwg

# Appendix J

COMPARATIVE STUDY

# TECHNICAL NOTE

| | | | |
|---|---|---|---|
| **DATE** | **12 January 2018** | **CONFIDENTIALITY** | **Internal** |
| **SUBJECT** | **Comparative study into the relationship between category of active travel infrastructure and additional active travel trips** | | |

| **PROJECT** | **AUTHOR** | **CHECKED** | **APPROVED** |
|---|---|---|---|
| **Project no. 70020236** | **JR** | **JP** | **JC** |

## 1. INTRODUCTION

### 1.1. Methodology

A literature review has been undertaken to understand the relationship between specific interventions to cater for sustainable travel, and any associated transfer of trips to these travel modes. A range of existing research literature was reviewed in relation to infrastructure for active travel (walking and cycling), bus lanes and 20mph limits. The full list of sources reviewed is set out in section 6. Literature has been reviewed thematically, rather than by literature source.

## 2. ACTIVE TRAVEL INFRASTRUCTURE

### 2.1. Improved on-highway active travel infrastructure – specific UK examples

Published data on the change in numbers of journeys, mode share or transfer from other modes has proved difficult to identify. Examples where before and after data has been reported is set out in Table 1 below.

**Table 1 – Change in travel behaviour associated with improvements to on-highway active travel infrastructure**

| Scheme location | Results | Source |
|---|---|---|
| Brighton – Lewes Road | 14% increase from 2,085 to 2,383 daily cyclists, as measured by manual count surveys between 7am and 7pm | Brighton & Hove City Council 2013 |
| Hull – reallocation of roadspace | Of the six sites monitored, one experienced an increase in cycling of 138%, three of between 20% and 30%, and two were had unchanged levels | DfT 2005 |
| London - Cycle Superhighways | 54% increase in cycle journeys on Victoria Embankment (East-West Cycle Superhighway)<br>55% increase in cycle journeys on Blackfriars Bridge (North-South Cycle Superhighway)<br>70% increase in cycle journeys on Vauxhall Bridge (Cycle Superhighway CS5) | TfL 2016 |
| | 105% increase in peak period cycle trips on Cycle Superhighways CS3 and CS7 two years after opening<br>40% increase in peak period cycle trips on Cycle Superhighways CS2 and CS8 one year after opening | TfL 2012 |

## 2.2. Off-highway traffic-free active travel infrastructure – specific UK examples

TfL monitored use of 6 of its newly-constructed Greenways, high-quality off-road routes for cycling and walking. The surveyed sites experienced an 18% increase in the number of users during the programme. 55% of those surveyed said they are walking more than a year ago and 59% said they intend to walk more in the next year. In similarity 21% said they are cycling more than a year ago and 31% intend to cycle more in the coming year (TfL 2014).

A study of 469 Cambridge commuters over time identified that people living closer to the guided busway (which has wide, continuous cycleway adjacent to it) were more likely to likely to increase the time they spent cycling on the commute than those living further away from the busway/cycleway. Furthermore, the greatest effect on physical activity was reported in those commuters who were least active before the opening of the busway (Centre for Diet & Activity Research 2015).

## 2.3. Improving footways

Published data on the change in numbers of pedestrian journeys, mode share or transfer from other modes resulting from improved infrastructure has proved difficult to identify. The Mixed-Use Priority Routes project on Newland Avenue in Hull included footway widening from 1.1m to 1.6m at a pinch point under a railway bridge. Pedestrian flows increased by 59% to 1,700 per day (Young & Jones 2010). Elsewhere, pedestrian numbers 'rose slightly' after the implementation of the wider footways and improved crossings on Lyndhurst High Street (DfT 2005).

## 2.4. Infrastructure in general

There is much research to demonstrate the general link between improved infrastructure and increased active travel journeys.

Melia 2015 asserts that the main solution to overcome people's fear or dislike of mixing with motorised traffic that would persuade them to give it a try would be continuous separate cycle routes protecting them from traffic. Over half of the respondents surveyed from the Cycling Demonstration Towns agreed that they would cycle more if improvements were made to their local network (Sustrans et al 2009). The International Cycling Infrastructure Best Practice Study for Transport for London (Phil Jones Associates & Urban Movement 2014) found that 'The cities with the highest cycling levels, and those that have successfully grown cycling levels over relatively short periods, generally afford cycling good physical protection or effective spatial separation from motor traffic, unless traffic speeds and volumes are low.'

When non-cyclists and occasional-cyclists were asked what would help reduce the fear of traffic, the top answer was to separate traffic-free cycle routes. To attract new cyclists, routes must feel safe and comfortable to ride on (Melia 2015). This includes making crossings of route intersections feel safe for all that use them, which even Copenhagen has a goal to achieve (City of Copenhagen 2013). The World Health Organisation (WHO) assumes 50% of new users of infrastructure are cycling directly as a result of the infrastructure (Sustrans et al 2009a).

Providing routes separated from motorised traffic is estimated to lead to a rise of 3-5% in the modal share of bicycles (City of Copenhagen 2011). There are clear indications that modal shift to cycling has resulted from good infrastructure. Bike counts in Philadelphia in 2014 confirmed that higher quality infrastructure improves both the number of cyclists and their behaviour. Bicycle Coalition of Greater Philadelphia (BCGP) found that all cyclists are attracted to high-quality infrastructure. BCGP counts show streets with bike lanes with a protective buffer from traffic carry 78% more cyclists than streets with standard lanes (132 vs. 74 bikes per hour), and 131% more cyclists (132 vs. 57) than streets with no bike lane (BCGP 2014). This gives a good indication that providing good quality cycle infrastructure results in an increase in cycling.

## 2.5. Combination of soft and hard measures (Cycling Demonstration Towns)

The aim of the Cycling Demonstration Town project in 2005 was to invest in measures to stimulate increased levels of cycling through a combination of physical infrastructure, promotion and other smart measures. The outcome of the project was reported on in 2009 (Sustrans et al 2009). The towns receiving funding included Aylesbury, Brighton and

Hove, Darlington, Derby, Exeter, and Lancaster with Morecambe. Only three of these places (Aylesbury, Darlington and Exeter), were comparable in size and characteristics to Hereford (limited river crossings and major roads dissecting the urban area), shown in Appendix A.

The reported average increase in cycling of 27% in the Cycling Demonstration Towns (with data from automatic cycle counters) was in line with growth achieved in London over the same period since 2005, and equated to an average annual growth rate of 6.2%. This was similar to the top of the range average for European cities (Sloman et al, 2009).

All of the Cycling Demonstration Towns showed an increase in adult and children cycling as a mode of travel, with the proportion of pupils travelling to school by bike increasing by 174%. Around half of the increase in cycling appears to have been the result of a reduction in car and bus mode share, with the rest of the increase being the result of modal shift from walking.

This increase in cycling levels was attributed to a range of factors; changes to infrastructure such as new facilities at schools, signage, cycle parking, and improvement in leisure routes, but also PTP, school travel plans, workplace engagement programmes, cycle events and cycle training.

One of the key results highlighted by the Cycle Demonstration Towns is the importance of high quality cycle provision, such as:

- A well-defined and well-promoted dense network of routes can stimulate notable growth in cycling activity in the area it serves;
- High quality, well connected routes carry considerable volumes of cycle traffic; extending the connectivity of a route can stimulate growth in cycling across the day, even on a heavily used route;
- Infrastructure linking a wider network through overcoming a barrier to cycling can be a focal point for cycling activity in a town; and
- Well monitored connecting infrastructure can provide a very useful basis for estimating total cycling activity (Sustrans et al 2009).

The DfT suggest the greatest take-up of cycling and walking results from a combination of 'hard' (infrastructure) measures, complemented by promotional and campaign (soft) measures (DfT 2009a) . Similarly the City of Copenhagen (2011) states that there is no single method leading to increased cycle modal share; a broad array of initiatives must be put into place: both physical and non-physical, both expensive and inexpensive.

### 2.6. Other factors influencing cycle use

TfL found that surveys identified seven major factors which discourage people from cycling: (i) danger, (ii) effort, (iii) poor cycling environment, (iv) weather, (v) cycle theft, (vi) lack of information and skills and (vii) culture/attitude/credibility. Of these, the first three were most frequently mentioned (Gallagher & Parkin 2014).

Similarly Urban Movement & Phil Jones Associates 2014 'found a range of conditions to be common in most cities with mature cycling cultures, recent significant growth in cycling, or a commitment to growing cycling. Together, these conditions comprise what could be considered an ideal basis for growing cycling.' These conditions included political and technical pro-cycling support, long-term commitment, investing in cycling being part of an integrated approach to decreasing car mode share, clarity about the intended cycling network, respectful driving culture, avoiding compromise designs and clear and widely-used design guidance (Urban Movement & Phil Jones Associates 2014).

Some of these selected other factors are considered further below.

*Politics*

Politics is considered critical to achieving increased cycling. Melia 2015 quotes TfL's director of Strategy and Planning who stated 'There is a helpful mix of politics, provision and attitude… the first mayor of London had a very explicit agenda to encourage and enable people to use their car less… the second mayor has sought to differentiate himself in being more balanced between modes, but has not engaged in a major programme of road building. There has been a clear political commitment to supporting sustainable travel, in Boris's case, particularly, the bike. Secondly, the

physical and transport choice environment makes it easier for people who could afford a car not to do so…' (Melia 2015 : 178)

Evidence from the Cycling Demonstration Towns suggests a political determination to increase cycling levels, coupled with carefully considered strategy and modest investment may be expected to cause an increase cycling levels between 10% and 50%.

In a similar vein, government support was identified in research by the Dutch Ministry of Traffic & Water Management as a major reason why Dutch cycling levels recovered in the 1970s after years of decline (Gallagher & Parkin 2014).

*Levels of Investment*

Spending greater amounts per head per year on cycle infrastructure is associated per se with increased cycling levels and is used as a rough gauge to indicate what expenditure is required to substantially increase cycling. The Dutch invest £24 per head per year, considerably more than England's average spend of £2 per head and Scotland's £4 spend per head (All Party Parliamentary Cycling Group, 2013). London's ambition is to spend £12.50 per head, and even this is still half the per capita Dutch expenditure.

A sustained and well-designed programme of investment in cycling at about the level of £10 per head of the population per year, as seen in the Cycle Demonstration Towns, was sufficient to achieve and increase in cycling (DfT 2009). This is the recommended minimum level promoted by the All Party Parliamentary Cycling Group (2013). Per capita investment varied between the individual project towns, with Darlington spending the most at £14 per head (Sloman et al, 2010 : 19).

*Journey speed*

Over half (56%) of Copenhagen cyclists say that the main reason they choose the bicycle is because it is the fastest way to get around. A 10% reduction in travel times for bicycles gives 1-2% more bicycle trips (City of Copenhagen, 2011).

*Soft measures (promotion and information)*

There are many examples where soft measures have led to an increase in active travel. One example is Sutton in Greater London developed a £5 million behaviour change campaign entitled 'Smarter Travel Sutton'. Methods included information dissemination, PTP, business and school travel planning, and pocket maps of walking, cycling and public transport routes. By the end of year two, there was encouraging evidence of its impacts, including cycling levels up by 50% above the outer London trend since the first year, and a rise in bus use by 13%. This highlights that it is not just infrastructure that allows a modal shift (DfT 2009a).

*Traffic Restraint Methods*

Three European towns, Lyon, Freiburg and Groningen in France, Germany and the Netherlands, were studied as examples of good transport practice and research has indicated that each of them had placed restrictions on motor traffic in some way (Melia 2015). This ranged from pedestrianisation of main areas, residents' parking schemes, removal of on-street parking, and restricting speeds of traffic. However, such interventions were coupled with sustainable travel schemes such as giving cyclists right of way, increasing cycle parking at the stations, city-wide bike hire schemes, and some infrastructure improvements.

## 3. BUS LANES

DfT 2001 reported that, in Edinburgh, bus priority corridors known as Greenways have contributed to an increase of 3% in bus use over a two year period. It also stated that modelling indicates that implementing extensive bus lanes could reduce travel by car by up to 6%. Reduction in car travel was however estimated using stated preference modelling of current car users, rather than direct measurement.

The Greater Bristol Bus Network aimed to improve the bus passenger experience and reduce emissions with a combination of new buses, new shelters, new real-time information displays, priority signals and bus priority lanes

(West of England Authorities 2014). The measures resulted in increased patronage on all corridors where it was introduced. First Bus (the dominant operator in the city) reported an increase in patronage of 17.6% between 2008/09 and 2013/14 on its services on the GBBN routes. However, as all measures were introduced concurrently, it is not possible to predict how much was attributable to bus lanes alone.

The reallocation of one of two lanes of the Lewes Road dual carriageway in Brighton as a bus lane was associated with a 7% increase in passengers using buses on the corridor from 2012 to 20131. A similar percentage increase in passengers boarding buses was recorded at stops in the wider Lewes Road area. This compares to a 4% increase citywide. Meanwhile, general traffic on Lewes Road reduced by 13% (Brighton & Hove City Council 2013).

The government best practice document entitled Bus Priority: The Way Ahead (DfT, 2004) highlighted a number of case studies for UK cities. The document cites Oxford as an example of a city were bus priority measures have led to modal shift from car to bus and an 80% increase in bus patronage between 1985 and 1998. However, a mixture of interventions may have contributed to modal shift in this case, not just implementation of bus lanes, as bus priority measures coincided with the introduction of park & ride and pedestrianisation in Oxford city centre during this period.

Enoch 2003 concluded that properly implemented bus lanes have succeeded in persuading car users to switch modes to bus where the journey time resulting from the intervention is consistently, and significantly, less than that of the car. A series of bus priority measures were introduced. However, these coincided with the introduction of other measures (newer vehicles, more frequent services), so it is difficult to be entirely certain as to the impact bus lanes on their own would have had. Patronage has increased on all of the routes were bus priority measures were put in place. After three years patronage on inbound peak-time (07:00-09:15) bus services had increased from 138,500 in 1999 to 191,500 (38% increase) by 2002. Cordon counts suggest that the modal share of bus increased from 36.8% to 40.5% overall, while it increased by 232% on one route. Count data show that 60-65% of new bus users switched from travelling by car.

## 4. 20MPH LIMITS

Two research studies into the impact of 20mph zones were found which investigated the associated change in walking and cycling trips – one for Bristol City Council (2012) and one for Edinburgh City Council (2013).

In relation to walking a proportion of those surveyed in Bristol stated they walk more since the new speed limits were introduced (8% in inner south zone and 18% in inner east zone). In the inner south area, pedestrian activity increased by 1% on a weekday and 12% on the weekend. In the inner east area, pedestrian activity increased by between 10% (rain affected survey days) and 15% on a weekday and between 21% (rain affected) and 36% on the weekend. In relation to crossing the road, there was very little change in the proportion of respondents who thought it was unsafe to cross the road in Bristol inner south and inner east pilot zones. Respondents in Edinburgh indicated a small rise in the number of schoolchildren reported to be walking to school from 63% to 65%. Whilst the Bristol study found indications that overall levels of walking and cycling activity across the pilot areas have increased both at weekends and on weekdays, it was not possible to confidently state that these changes were due solely to the introduction of the new lower speed limit.

In relation to cycling, a rise in schoolchildren cycling to school was reported in Edinburgh, from 4% to 12% of respondents. The Bristol inner south area saw a total increase in weekday cycling levels of 4% and weekend cycling by 12%. The inner east area saw a total increase in weekday cycling levels of between 8% (rain affected) and 23% and weekend cycling by between 22% (rain affected) and 37%.

## 5. CONCLUSION OF LITERATURE REVIEW

Evidence is available to demonstrate the positive relationship between providing good quality active travel infrastructure and 20mph zones and increased levels of walking and cycling. Similarly evidence demonstrates the relationship between implementing bus lanes and rising bus patronage. The association is presented is usually shown

[1] Figures for 2013 are based on usage up to November 2013 and projected to the end of the year

in data as % increase in numbers of journeys by the mode in question and more occasionally as a change in mode share.

Schemes taken together as a package are likely to give rise to a greater degree of change than any scheme in isolation and this makes it difficult to identify the change in travel behaviour attributable to any one type of intervention or any specific element in a package of measures. In similarity identifying a universally applicable average change in travel is challenging as no two places or schemes are the same and the change in behaviour is therefore likely to vary.

Consideration must also be given to reporting bias, whereby the case studies reported are those which demonstrate the most desirable results or the highest degree of change and other examples, with less impact, are no fully reported. Likewise some reports do not make it clear the degree to which changes to bus patronage or walking and cycling levels were common to the area as a whole, or restricted to the area in which the scheme was implemented.

Evidence also indicates the importance of a wide range of supporting factors which strengthen the change to active travel journeys, and cycling in particular. They include political support, long-term commitment, avoiding compromise designs, coherence of overall routes, speed of journey, investing in cycling measures being part of an integrated approach to decreasing car mode share, information and skills and a respectful driving culture.

## 6. TRANSLATING RESEARCH INTO ASSUMPTIONS

Table 2 overleaf uses the conclusions of the research data above and sets out a proposed approach for forecasting the change in travel behaviour anticipated to arise with the introduction of new active travel infrastructure in South Hereford.

**Table 2 – Assumptions on level of additional active travel trips likely to be generated by active travel infrastructure**

| Category of active travel infrastructure | Improvement groups with category of active travel infrastructure | Min & Max mode shift / vehicle trip reduction (based on literature review) | Level of additional active trips likely to be generated | Justification for approach |
|---|---|---|---|---|
| High-quality on-highway cycling infrastructure (segregated from motor vehicles) – e.g. cycle superhighways | 2, 3, 5, 6, 7, 8 | 3-5% change in modal share | Higher levels of additional active travel demand | Middle position assumed to exclude schemes with the very highest or lowest impact. 3-5% is based on Copenhagen; whilst baseline active travels are high this is likely to dampen levels of increase there |
| | | 0%, 14%, 25%, 30%, 54%, 55%, 70% 138% increase in cycle journeys as measured on specific routes<br>40% and 105% increase in cycle journeys in peak periods<br>27% change in town-wide cycle use over duration of project (where combined with soft measures) | | Assume a middle position to exclude schemes with the very highest or lowest impact |
| High quality off-highway active travel infrastructure – e.g. greenways | 3, 5, 6, 7 | 18% increase in users on specific routes<br>27% change in town-wide cycle use (where combined with soft measures) | Higher levels of additional active travel demand | Use data form Greenways as proxy |
| Streetscape improvements | 3 | No specific evidence found in literature review | Medium levels of additional active travel demand | Streetscape improvements considered likely to lead to benefit walking trips comparatively more than cycling trips. Level of change will depend on the level of transformative change and length of route improved |
| Other major active infrastructure changes | New/upgraded A road crossings | 2, 3, 4, 5, 6, 7, 8, 9 | No specific evidence found in literature review | Higher levels of additional active travel demand | Overcoming severance or substantially reducing perceived danger or volumes of traffic considered likely to have significant impact on trips, with greater impact on cycling than on walking trips |
| | Priority working to make room for active travel | 8 | | | |
| | Traffic reduction measures via TRO | 9 | | | |
| Minor active travel infrastructure changes | Removal of barriers | 5 | No evidence found in literature review | Lower levels of additional active travel demand | Minor infrastructure considered to only have minor impact of numbers of active travel trips |
| | Upgrading footways etc. | 1, 3, 5, 7, 8, 9 | | | |
| | Kerb build-outs | 1, 3, 5, 6, 7, 8, 9 | | | |
| 20mph limits | | 1 | 1-15% increase in pedestrian activity<br>2 percentage points increase in walking to school<br>8 percentage points increase in cycling to school<br>4-23% increase in cycling activity | Lower levels of additional active travel demand | Assume middle position to exclude schemes with the very highest or lowest impact |
| 30mph limits | | | No evidence found in literature review | Lower levels of additional active travel demand | Assume minimal / no change in trips unless complementary provision of infrastructure along affected section of road |
| Weight restriction | | 4 | No evidence found in literature review | Lower levels of additional active travel demand | Assume minimal / no change in trips unless complementary provision of infrastructure along affected section of road |
| Bus Lanes | | 2 | 3 – 38% increase in bus use in specific case studies | Medium levels of additional active travel demand | Many of the case studies relate to bus lanes introduced over very long corridors or combined with other interventions |

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- Young, A. & Jones, P. 2010 (eds) Manual for Streets 2 – Wider Application of the Principles https://www.gov.uk/government/publications/manual-for-streets-2
- West of England Authorities 2014 *The Greater Bristol Bus Network: Showcase Routes: Summary (June 2014)* http://travelwest.info/wp-content/uploads/2015/03/gbbn-summary-of-monitoring-report.pdf

# Appendix K

## APPRAISAL SUMMARY TABLES OF ACTIVE TRAVEL MEASURES

**Appraisal Summary Table** | **Improvement Group 1**

| Date completed: | 31/01/2018 |
|---|---|

| Contact: | |
|---|---|
| Name | JP |
| Organisation | WSP |
| Role | Promoter/Official |

| Name of scheme: | 20mph residential areas |
|---|---|
| Description of scheme: | **Elements**<br>- Area-wide 20mph limit on all Herefordshire Council residential roads in South Wye, with 20mph limit signs at entry points and repeater signs<br>- Amending junction designs, focused on the widest bellmouth junctions on the Hunderton Estate west of Great Western Way and north of Belmont Road |

| Impacts | | Summary of key impacts | | Assessment<br>Significance |
|---|---|---|---|---|
| Economy | Journey time savings for business users and transport providers | **Neutral** | 0 | **3** |
| | Reliability Impacts on Business users (decongestion) | **Moderate beneficial impact** - performs well across some but not all of the four chosen assessment criteria. | 2 | |
| | Regeneration and Wider Economic Impacts | **Slight impact** - less well-related to areas of areas of regeneration, employment or housing growth. | 1 | |
| Environment | *Traffic Noise | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | **6** |
| | *Air Quality | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | *Greenhouse gases | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | Landscape | **Neutral** | 0 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Neutral** | 0 | |
| | Water Environment | **Neutral** | 0 | |
| Society | Reliability and connectivity impacts for non-business users | **Moderate beneficial impact** - performs well across some but not all of the four chosen assessment criteria. | 2 | **12** |
| | *Physical activity | **Moderate beneficial impact** - strongly meets two of the assessment criteria but only weakly meets the third. | 2 | |
| | Journey quality | **Slight beneficial impact** - reduced vehicle speeds and shorter crossing distances for pedestrians at junctions. | 1 | |
| | *Accidents | **Slight beneficial impact** - average speeds of motor vehicles would reduce. | 1 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Slight beneficial impact** - minor improvements to routes to bus stops. | 1 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Moderate beneficial impact** - pedestrians will be able to cross roads more easily with junction redesigns and 20mph zones. | 2 | |
| | Option and non-use values | **Neutral** | 0 | |
| Public Accounts | Cost to Broad Transport Budget | **Moderate value for money** - £1.09m | 2 | **2** |
| | Indirect Tax Revenues | **N/A** | 0 | |

**Appraisal Summary Table** | **Improvement Group 2**

| Date completed: | 31/01/2018 |
|---|---|

| Contact: | |
|---|---|
| Name | JP |
| Organisation | WSP |
| Role | Promoter/Official |

| Name of scheme: | Belmont Road bus priority measures |
|---|---|
| Description of scheme: | **Elements**<br>- Inbound bus lane on the A465 (Hunderton Road to Asda Roundabout)<br>- New shared use footway/cycleway on A465<br>- Belmont Road near Belmont Avenue - Upgrade existing crossing to toucan |

| Impacts | | Summary of key impacts | | Assessment<br>Significance |
|---|---|---|---|---|
| Economy | Journey time savings for business users and transport providers | **Large beneficial impact** - especially cyclists, who are enabled the use of direct routes which would otherwise be avoided by the majority of existing or potential cyclists. | 3 | **9** |
| | Reliability Impacts on Business users (decongestion) | **Large beneficial impact** - performs well across the majority of the four chosen assessment criteria, as well as there being benefits associated with bus priority. | 3 | |
| | Regeneration and Wider Economic Impacts | **Large scale impact** - improvement of connections in parts of South Wye that are undergoing transformative housing regeneration, including connections across the heavily trafficked Belmont Road. Bus accessilbilty into the city centre from these regenerated areas will also improve. | 3 | |
| Environment | *Traffic Noise | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | **6** |
| | *Air Quality | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | *Greenhouse gases | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | Landscape | **Neutral** | 0 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Neutral** | 0 | |
| | Water Environment | **Neutral** | 0 | |
| Society | Reliability and connectivity impacts for non-business users | **Large beneficial impact** - provides direct connections between key origins and destinations. | 3 | **17** |
| | *Physical activity | **Moderate beneficial impact** - strongly meets two of the assessment criteria but only weakly meets the third. | 2 | |
| | Journey quality | **Large beneficial impact** - provision of segregated cycling facilities where none exist at present and improvement to bus users' perception of their journey arising from the provision of the bus lane. | 3 | |
| | *Accidents | **Moderate beneficial impact** - new active travel routes segregated from traffic but beneficial impact not large as lower increase in active travellers. | 2 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Large beneficial impact** - bus lane provision enhances accessibility to the city centre from | 3 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Slight beneficial impact** - upgrading of crossing facilities. | 1 | |
| | Option and non-use values | **Neutral** | 0 | |
| Public Accounts | Cost to Broad Transport Budget | **Moderate value for money** - £1.60m | 2 | **2** |
| | Indirect Tax Revenues | **N/A** | 0 | |

**Appraisal Summary Table** | **Improvement Group 3**

| Date completed: | 31/01/2018 |
|---|---|

| Contact: | |
|---|---|
| Name | JP |
| Organisation | WSP |
| Role | Promoter/Official |

| | |
|---|---|
| **Name of scheme:** | Belmont Road walking and cycling improvements |
| **Description of scheme:** | **Elements**<br>- Cycle infrastructure along section of Belmont Road from Tesco to Walnut Tree Avenue<br>- Improvement of existing pelican crossing of Belmont Road by The Oval<br>- Improved north-south crossings for pedestrians and cyclists at Tesco Roundabout and improved approach route from Eastholme Avenue<br>- Upgrade Newton Brook path to shared use footway/cycleway, provide toucan crossing on Belmont Road and create new connecting shared use footway/cycleway to Goodrich Grove south of A465<br>- Streetscape improvements including avenue tree planting and narrowing of the Belmont Road carriageway<br>- Improved links to Great Western Way |

| Impacts | | Summary of key impacts | | Assessment<br>Significance |
|---|---|---|---|---|
| Economy | Journey time savings for business users and transport providers | **Large beneficial impact** - especially cyclists, who are enabled the use of direct routes which would otherwise be avoided by the majority of existing or potential cyclists. | 3 | **9** |
| | Reliability Impacts on Business users (decongestion) | **Large beneficial impact** - performs well across the majority of the four chosen assessment criteria. | 3 | |
| | Regeneration and Wider Economic Impacts | **Large scale impact** - improvement of connections in parts of South Wye that are undergoing transformative housing regeneration, including connections across the heavily trafficked Belmont Road. | 3 | |
| Environment | *Traffic Noise | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | **14** |
| | *Air Quality | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | |
| | *Greenhouse gases | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | |
| | Landscape | **Large beneficial impact** - substantial tree planting proposed as part of the boulevard and conversion of existing carriageway space into green space. | 3 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Slight beneficial impact** - substantial tree planting proposed. | 1 | |
| | Water Environment | **Slight beneficial impact** - increase in permeable ground area and new planting. | 1 | |
| Society | Reliability and connectivity impacts for non-business users | **Large beneficial impact** - provides direct connections between key origins and destinations. | 3 | **21** |
| | *Physical activity | **Large beneficial impact** - performs well across the majority of the three assessment criteria. | 3 | |
| | Journey quality | **Large beneficial impact** - provision of infrastructure segregated from vehicle traffic, additional crossings of Belmont Road plus shorter crossing distances of side roads. | 3 | |
| | *Accidents | **Large beneficial impact** - new cycling routes segregated from motor traffic in locations where the greatest number of new active travel journeys are likely to be generated, and also on routes with a history of pedestrian and cyclist casualties. | 3 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Large beneficial impact** - proposals improve accessibility to bus stops on foot or by cycling. | 3 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Large beneficial impact** - proposal includes a new controlled crossing for pedestrians and cyclists, and designs to enable easier crossing of side streets. | 3 | |
| | Option and non-use values | **Neutral** | 0 | |
| Public Accounts | Cost to Broad Transport Budget | **Lower value for money** - £3.15m | 1 | **1** |
| | Indirect Tax Revenues | **N/A** | 0 | |

| Appraisal Summary Table | Improvement Group 4 | Date completed: | 31/01/2018 |
|---|---|---|---|

| Contact: | |
|---|---|
| Name | JP |
| Organisation | WSP |
| Role | Promoter/Official |

| Name of scheme: | Belmont Road weight restriction |
|---|---|
| Description of scheme: | **Elements**<br>- Weight restriction Traffic Regulation Order on Belmont Road |

| Impacts | | Summary of key impacts | | Assessment<br>Significance |
|---|---|---|---|---|
| Economy | Journey time savings for business users and transport providers | **Slight beneficial impact** - in isolation, this measure is not enough to address concerns about road danger for those considering walking and cycling along Belmont Road. | 1 | **5** |
| | Reliability Impacts on Business users (decongestion) | **Slight beneficial impact** - in isolation the improvement is considered likely to have only a minor impact on vehicle trips and active travel uptake. | 1 | |
| | Regeneration and Wider Economic Impacts | **Large scale impact** - improvement of connections in parts of South Wye that are undergoing transformative housing regeneration, including connections across the heavily trafficked Belmont Road. | 3 | |
| Environment | *Traffic Noise | **Slight beneficial impact** - reduction in vehicle trips. | 1 | **3** |
| | *Air Quality | **Slight beneficial impact** - reduction in vehicle trips. | 1 | |
| | *Greenhouse gases | **Slight beneficial impact** - reduction in vehicle trips. | 1 | |
| | Landscape | **Neutral** | 0 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Neutral** | 0 | |
| | Water Environment | **Neutral** | 0 | |
| Society | Reliability and connectivity impacts for non-business users | **Slight beneficial impact** - minor improvements to connectivity, especially over the local area, and between origins and destinations of lower strategic importance. | 1 | **10** |
| | *Physical activity | **Slight beneficial impact** - generates a low number of additional active travel trips. | 1 | |
| | Journey quality | **Slight beneficial impact** - a reduction in the number of heavy vehicle which active travellers would share the road with. | 1 | |
| | *Accidents | **Slight beneficial impact** - no segregated routes are to be provided for cyclists but would reduce the number of heavy vehicles. | 1 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Slight beneficial impact** - minor improvements to routes to bus stops. | 1 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Moderate beneficial impact** - the proportion of heavy traffic will reduce. | 2 | |
| | Option and non-use values | **Neutral** | 0 | |
| Public Accounts | Cost to Broad Transport Budget | **Higher value for money** - £0.03m | 3 | **3** |
| | Indirect Tax Revenues | **N/A** | 0 | |

**Appraisal Summary Table** | **Improvement Group 5** | **Date completed:** 31/01/2018

| **Name of scheme:** | Belmont Road (West) walking and cycling improvements |
|---|---|
| **Description of scheme:** | **Elements**<br>- New shared use footway/ cycleway on northern side of A465<br>- Completion of shared use footway/ cycleway between Ruckhall Lane & Dorchester Way (west of Canterbury Close)<br>- Toucan crossing on A465 between Ruckhall Lane and Haywood Lane<br>- Extend 30mph limit on A465 west from Tesco to Haywood Lane<br>- Pedestrian refuge on A465 east of Clehonger Road turn<br>- Advisory cycle lanes over narrow bridge at Belmont Pool<br>- Improved links to existing paths near Belmont Pool<br>- Raised tables on Haywood Lane and Ruckhall Lane to facilitate easier pedestrian crossing |

| **Contact:** | |
|---|---|
| **Name** | JP |
| **Organisation** | WSP |
| **Role** | Promoter/Official |

| **Impacts** | | **Summary of key impacts** | | **Assessment** **Significance** |
|---|---|---|---|---|
| **Economy** | Journey time savings for business users and transport providers | **Large beneficial impact** - especially cyclists, who are enabled the use of direct routes which would otherwise be avoided by the majority of existing or potential cyclists. | 3 | **6** |
| | Reliability Impacts on Business users (decongestion) | **Moderate beneficial impact** - performs well across some but not all of the four chosen assessment criteria. | 2 | |
| | Regeneration and Wider Economic Impacts | **Slight impact** - less well-related to areas of areas of regeneration, employment or housing growth. | 1 | |
| **Environment** | *Traffic Noise | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | **2** |
| | *Air Quality | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | *Greenhouse gases | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | Landscape | **Slight adverse impact** - new active travel infrastructure will cross undeveloped land. | -1 | |
| | Townscape | | | |
| | Historic Environment | **Slight adverse impact** - the schemes could impact on Belmont Abbey, Home Farm and the Almshouses. | -1 | |
| | Biodiversity | **Slight adverse impact** - removal of small areas of grass. | -1 | |
| | Water Environment | **Slight adverse impact** - new impermeable surfacing associated with new shared use footway/cycleway. | -1 | |
| **Society** | Reliability and connectivity impacts for non-business users | **Moderate beneficial impacts** - more direct routes provided for a smaller cohort of residents. | 2 | **15** |
| | *Physical activity | **Moderate beneficial impact** - strongly meets two of the assessment criteria but only weakly meets the third. | 2 | |
| | Journey quality | **Large beneficial impact** - provision of infrastructure segregated from vehicle traffic. | 3 | |
| | *Accidents | **Moderate beneficial impact** - new active travel routes segregated from traffic but beneficial impact not large as lower increase in active travellers. | 2 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Large beneficial impact** - proposals improve accessibility to bus stops on foot or by cycling. | 3 | |
| | Personal Affordability | **Slight beneficial impact** - less well related to Herefordshire's most income deprived and low car ownership areas. | 1 | |
| | Severance | **Moderate beneficial impact** - proposals include new signal crossings on heavily trafficked roads. | 2 | |
| | Option and non-use values | **Neutral** | 0 | |
| **Public Accounts** | Cost to Broad Transport Budget | **Lower value for money** - £1.87m | 1 | **1** |
| | Indirect Tax Revenues | **N/A** | 0 | |

**Appraisal Summary Table** | **Improvement Group 6** | **Date completed:** 31/01/2018

| **Name of scheme:** | Better walking and cycling routes to Hereford Enterprise Zone |
|---|---|
| **Description of scheme:** | **Elements**<br>- New off-road shared use footway/cycleway between Hereford Academy and Ross Road adjacent to Marlbrook Road<br>- Improve shared use footway/cycleway access to Great Western Way from Ethelstan Crescent and Brampton Road<br>- Shared use footway/cycleway under railway bridge with associated one way priority working or shuttle traffic signals<br>- Improved crossing of Ross Road (subject to third party agreement with Highways England)<br>- Lighting, signing and vegetation clearance on Watery Lane and Lower Bullingham Lane<br>- On-road markings<br>- Route signage and removal of barriers and posts |

| **Contact:** | |
|---|---|
| **Name** | JP |
| **Organisation** | WSP |
| **Role** | Promoter/Official |

| **Impacts** | | **Summary of key impacts** | | **Assessment** **Significance** |
|---|---|---|---|---|
| **Economy** | Journey time savings for business users and transport providers | **Slight beneficial impact** - a smaller number of active travellers whose behaviour (and journey routes) will be expected to change. | 1 | **6** |
| | Reliability Impacts on Business users (decongestion) | **Moderate beneficial impact** - performs well across some but not all of the four chosen assessment criteria. | 2 | |
| | Regeneration and Wider Economic Impacts | **Large scale impact** - improvements to walking and cycling routes to and from the HEZ, which is a key employment area for the city. | 3 | |
| **Environment** | *Traffic Noise | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | **4** |
| | *Air Quality | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | *Greenhouse gases | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | Landscape | **Neutral** | 0 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Slight adverse impact** - removal of small areas of grass. | -1 | |
| | Water Environment | **Slight adverse impact** - new impermeable surfacing associated with new shared use footway/cycleway. | -1 | |
| **Society** | Reliability and connectivity impacts for non-business users | **Moderate beneficial impacts** - more direct routes provided for a smaller cohort of residents. | 2 | **15** |
| | *Physical activity | **Moderate beneficial impact** - strongly meets two of the assessment criteria but only weakly meets the third. | 2 | |
| | Journey quality | **Large beneficial impact** - provision of infrastructure segregated from vehicle traffic. | 3 | |
| | *Accidents | **Moderate beneficial impact** - new active travel routes segregated from traffic but beneficial impact not large as lower increase in active travellers. | 2 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Slight beneficial impact** - minor improvements to routes to bus stops. | 1 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Moderate beneficial impact** - proposals include new signal crossings on heavily trafficked roads. | 2 | |
| | Option and non-use values | **Neutral** | 0 | |
| **Public Accounts** | Cost to Broad Transport Budget | **Moderate value for money** - £1.31m | 2 | **2** |
| | Indirect Tax Revenues | **N/A** | 0 | |

| Appraisal Summary Table | Improvement Group 7 | Date completed: | 31/01/2018 | Contact: | |
|---|---|---|---|---|---|
| Name of scheme: | Hoarwithy Road and Hinton Road walking and cycling links | | | Name | JP |
| Description of scheme: | **Elements**<br>Improved routes across Bishop's Meadow from swimming pool to Hinton Road<br>- Convert Hinton Road zebra crossing to toucan crossing<br>- Better footway/cycleway connection from Bishop's Meadow with/onto Hinton Road<br>- Improvements to cycle infrastructure on Hoarwithy Road between Saxon Gate & Holme Lacy Road<br>- Shared use footway/cycleway between Grafton Depot park and choose site and Bullingham Lane<br>- Raised table on Hoarwithy Road near Orchard Avenue to facilitate easier pedestrian crossings | | | Organisation | WSP |
| | | | | Role | Promoter/Official |

| Impacts | | Summary of key impacts | | Assessment<br>Significance |
|---|---|---|---|---|
| Economy | Journey time savings for business users and transport providers | **Slight beneficial impact** - a smaller number of active travellers whose behaviour (and journey routes) will be expected to change. | 1 | **6** |
| | Reliability Impacts on Business users (decongestion) | **Moderate beneficial impact** - performs well across some but not all of the four chosen assessment criteria. | 2 | |
| | Regeneration and Wider Economic Impacts | **Large scale impact** - proposals relate to a key route from the Lower Bullingham urban expansion site to the city centre. | 3 | |
| Environment | *Traffic Noise | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | **3** |
| | *Air Quality | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | *Greenhouse gases | **Moderate beneficial impact** - reduction in vehicle trips. | 2 | |
| | Landscape | **Slight adverse impact** - new active travel infrastructure will cross undeveloped land. | -1 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Slight adverse impact** - removal of small areas of grass. | -1 | |
| | Water Environment | **Slight adverse impact** - new impermeable surfacing associated with new shared use footway/cycleway. | -1 | |
| Society | Reliability and connectivity impacts for non-business users | **Moderate beneficial impact** - performs well across some but not all of the four chosen assessment criteria. | 2 | **13** |
| | *Physical activity | **Moderate beneficial impact** - strongly meets two of the assessment criteria but only weakly meets the third. | 2 | |
| | Journey quality | **Large beneficial impact** - provision of infrastructure segregated from vehicle traffic. | 3 | |
| | *Accidents | **Moderate beneficial impact** - new active travel routes segregated from traffic but beneficial impact not large as lower increase in active travellers. | 2 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Slight beneficial impact** - minor improvements to routes to bus stops. | 1 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Neutral** | 0 | |
| | Option and non-use values | **Neutral** | 0 | |
| Public Accounts | Cost to Broad Transport Budget | **Moderate value for money** - £1.28m | 2 | **2** |
| | Indirect Tax Revenues | **N/A** | 0 | |

**Appraisal Summary Table** | **Improvement Group 8** | **Date completed:** 31/01/2018

| **Contact:** | |
|---|---|
| **Name** | JP |
| **Organisation** | WSP |
| **Role** | Promoter/Official |

| | |
|---|---|
| **Name of scheme:** | Holme Lacy Road – further walking and cycling improvements |
| **Description of scheme:** | **Elements**<br>- New shared use footway / cycleway on northern side of Holme Lacy Road between railway bridge and eastern end of existing scheme at Co-op<br>- Block paved table tops constructed at junctions to facilitate easier pedestrian and cycle crossings of Holme Lacy Road<br>- Shared use footway/ cycleway under railway bridge with associated one way priority working or shuttle traffic signals for motor vehicles<br>- Holme Lacy Road westbound approach to A49 traffic signals - carriageway narrowed to one lane to facilitate shared use footway / cycleway (subject to third party agreement and partnership funding by HE & HC)<br>- A49 / Holme Lacy Road junction – toucan crossings to facilitate safer crossing of Ross Road |

| **Impacts** | | **Summary of key impacts** | | **Assessment** **Significance** |
|---|---|---|---|---|
| **Economy** | Journey time savings for business users and transport providers | **Large beneficial impact** - especially cyclists, who are enabled the use of direct routes which would otherwise be avoided by the majority of existing or potential cyclists. | 3 | **9** |
| | Reliability Impacts on Business users (decongestion) | **Large beneficial impact** - performs well across the majority of the four chosen assessment criteria. | 3 | |
| | Regeneration and Wider Economic Impacts | **Large scale impact** - proposals relate to a key route from the Lower Bullingham urban expansion site to the city centre. | 3 | |
| **Environment** | *Traffic Noise | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | **9** |
| | *Air Quality | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | |
| | *Greenhouse gases | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | |
| | Landscape | **Neutral** | 0 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Neutral** | 0 | |
| | Water Environment | **Neutral** | 0 | |
| **Society** | Reliability and connectivity impacts for non-business users | **Large beneficial impact** - provides direct connections between key origins and destinations. | 3 | **21** |
| | *Physical activity | **Large beneficial impact** - performs well across the majority of the three assessment criteria. | 3 | |
| | Journey quality | **Large beneficial impact** - provision of infrastructure segregated from vehicle traffic. | 3 | |
| | *Accidents | **Large beneficial impact** - new cycling routes segregated from motor traffic in locations where the greatest number of new active travel journeys are likely to be generated, and also on routes with a history of pedestrian and cyclist casualties. | 3 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Large beneficial impact** - proposals improve accessibility to bus stops on foot or by cycling. | 3 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Large beneficial impact** - proposal includes a new controlled crossing for pedestrians and cyclists, and designs to enable easier crossing of side streets. | 3 | |
| | Option and non-use values | **Neutral** | 0 | |
| **Public Accounts** | Cost to Broad Transport Budget | **Moderate value for money** - £2.27m | 2 | **2** |
| | Indirect Tax Revenues | **N/A** | 0 | |

| Appraisal Summary Table | Improvement Group 9 | Date completed: | 31/01/2018 | Contact: | |
|---|---|---|---|---|---|
| Name of scheme: | Walnut Tree Avenue / Hunderton Road traffic reduction | | | Name | JP |
| Description of scheme: | **Elements**<br>- Filtered permeability on section of Hunderton Road and Walnut Tree Avenue (closure to vehicular traffic, except buses and cycles)<br>- Walnut Tree Avenue - raised priority crossings for pedestrians<br>- A465 Belmont Road at Walnut Tree Avenue and Hunderton Road junctions – raised table covering both junctions and new toucan crossing of Belmont Road<br>- New shared use footway/cycleway on Belmont Road between Hunderton Road and Walnut Tree Avenue | | | Organisation | WSP |
| | | | | Role | Promoter/Official |

| Impacts | | Summary of key impacts | | Assessment<br>Significance |
|---|---|---|---|---|
| Economy | Journey time savings for business users and transport providers | **Large beneficial impact** - especially cyclists, who are enabled the use of direct routes which would otherwise be avoided by the majority of existing or potential cyclists. | 3 | **8** |
| | Reliability Impacts on Business users (decongestion) | **Moderate beneficial impact** - performs well across the majority of the four chosen assessment criteria. The large beneficial impacts (in terms of the relative number of car trips transferring to walking and cycling with the improvements in place), are however likely to be counterbalanced by a degree of additional congestion as vehicles are required to re-route away from Walnut Tree Avenue and Hunderton Road when the improvements are in place. | 2 | |
| | Regeneration and Wider Economic Impacts | **Large scale impact** - proposals relate to a key route from the Lower Bullingham urban expansion site to the city centre. | 3 | |
| Environment | *Traffic Noise | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | **9** |
| | *Air Quality | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | |
| | *Greenhouse gases | **Large beneficial impact** - reduction in vehicle trips, especially as vehicles re-route onto the SLR / Rotherwas Access Road. | 3 | |
| | Landscape | **Neutral** | 0 | |
| | Townscape | | | |
| | Historic Environment | **Neutral** | 0 | |
| | Biodiversity | **Neutral** | 0 | |
| | Water Environment | **Neutral** | 0 | |
| Society | Reliability and connectivity impacts for non-business users | **Large beneficial impact** - provides direct connections between key origins and destinations. | 3 | **20** |
| | *Physical activity | **Large beneficial impact** - performs well across the majority of the three assessment criteria. | 3 | |
| | Journey quality | **Large beneficial impact** - general vehicular traffic would be re-rerouted away from Walnut Tree Avenue and Hunderton Road. For motor vehicle users who can no longer use these roads, the SLR could now be used as a less stressful alternative route. | 3 | |
| | *Accidents | **Large beneficial impact** - reduction in volume of motorised traffic on key active travel routes. | 3 | |
| | Security | **Neutral** | 0 | |
| | Accessibility to services | **Moderate beneficial impact** - walking and cycling routes to bus stops are enhanced and the improvements are likely to improve bus accessibility. | 2 | |
| | Personal Affordability | **Large beneficial impact** - strong relationship and close proximity to areas with the highest levels of income deprivation and lowest levels of car availabilty in Herefordshire. | 3 | |
| | Severance | **Large beneficial impact** - substantial reduction in traffic volumes are predicted on key active travel routes. | 3 | |
| | Option and non-use values | **Neutral** | 0 | |
| Public Accounts | Cost to Broad Transport Budget | **Higher value for money** - £1.07m | 3 | **3** |
| | Indirect Tax Revenues | **N/A** | 0 | |

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